6 VISION FOR TRANSPORTATION SERVICES IN BUTTE COUNTY

INTRODUCTION

The Butte County MTP/SCS for 2012-2035 (adopted December 13, 2012) sets out goals for the transportation system, based on a vision of an efficient and environmentally sound multimodal system to meet the established targets. Key objectives of the 2012 MTP/SCS are to improve accessibility and reduce environmental impacts by promoting bicycling, walking, and expanding transit service where possible to meet ridership demand and increase ridership at a rate faster than the county's population growth. The outcome of this planning process is to provide Butte County with a Long-Range Transit and Non-Motorized Plan focusing on bicycles, pedestrians, and transit for integration into the region's 2016-2040 MTP/SCS.

In order to define goals, objectives and performance standards for transit that can be integrated into the region's new 2016-2040 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS), any service changes should be based on a framework of formally adopted or recommended policies, practices and procedures consistent with both best practices in the transit industry and local conditions. Goals and objectives are presented to establish policy direction to address B-Line's challenges. This chapter highlights recommendations for new practices and policies for B-Line. These are described briefly. Performance standards support the goals and objectives, allowing B-Line to better monitor its services and make decisions based on service performance.

This chapter also contains an overview of the goals and standards which will guide future bike and pedestrian planning and investments.

KEY CONSIDERATIONS

Several key considerations establish the basis for the goals and objectives presented in this chapter.

Transit Observations and Opportunities

Service Reliability

There is no question that B-Line is dedicated to providing quality transit service for the community and enjoys a high level of support from riders and non-riders alike. The challenge is to secure ongoing funding and effectively deploy resources to provide effective service that is reliable. B-Line's on-time performance varies by route, but Chico's workhorse Routes 15S and 15N, as well as the Oroville area routes have significant on-time performance problems, with some routes experiencing delays exceeding five minutes on the majority of runs. On a fixed-route

system, service reliability is critical because some routes are infrequent and transfers are limited. Delays suggest the need for adjustments to schedule times, elimination of some stops, more direct routes (which may be a challenge since B-Line has generally a fairly straightforward portfolio of routes), or shifting available resources among services. Based on existing boarding and alighting patterns, the data suggests some routes could potentially be shortened or segments eliminated, while some routes should be reconfigured altogether. It is also appropriate to consider other service delivery options for Oroville, Gridley, and Biggs.

Bus Stop Spacing

B-Line has been very accommodating of requests for new stops and along some routes, stops are available every block or two. Numerous studies have found that optimal stop spacing is close to one-quarter mile (1,320 feet), and a number of transit agencies have updated their stop-spacing policies to both require and allow greater distances between stops. When stops are farther apart, access is reduced, and in some cases improvements to travel times aboard vehicles may be offset by increased travel times to and from stops. Ease of access for seniors and other people with mobility issues must also be taken into account.

Frequency

Frequency was identified as one of the concerns among B-Line users. Frequency determines whether a local service is likely to be useful when you want to go, or whether you must plan your trip around the bus schedule. Nationally, routes that operate on 30-minute headways perform much better than hourly services, or routes that operate less often than hourly. In many communities, experience shows that a transit-dependent rider is willing to walk a few extra blocks for more frequent service. The issue of frequency relates closely to total operating budget, vehicle allocation, route spacing, and most importantly, service policy.

Service Area

Although downtown Chico and CSU are important employment hubs, new employment centers and residential developments are in the outlying areas, suggesting that a long-term transit strategy will require some expansion beyond the existing B-Line route footprint, especially around Chico and Paradise.

Based on the analysis of demographics and key service areas, B-Line does a good job of providing service in areas with the highest densities of transit-dependent populations and access to most key work sites, medical facilities, schools, shopping areas, and recreational sites in Butte County. Some stakeholders noted that B-Line serves CSU students going to school quite well, but that the service is not useful for students seeking to travel to locations elsewhere in Chico, suggesting that there may be some misinformation about the system or a lack of understanding of how to use the system. Butte College's location limits the utility of B-Line for students going to classes there, but allows students to make a transfer to the College-operated buses serving Oroville, Paradise and Chico.

B-Line Paratransit

B-Line Paratransit provides a very good service, but has gone beyond the ADA mandate for many years. It has been able to do so with relatively reasonable operating costs per passenger (about $22.00), carrying nearly three passengers per hour, and has achieved a farebox recovery ratio

exceeding 10% for the last three years. About 35% of B-Line's operating resources are spent on Paratransit, which is relatively consistent with agencies operating in similar service area.

B-Line provides premium service outside the mandated ADA paratransit service area in Chico, Oroville, and Paradise on a space-available basis and charges premium fares for these additional services (up to $10.25 per ride from the outermost zone). B-Line is planning to implement some policy changes to Paratransit, while allowing the operation to continue to serve non-ADA riders, by increasing the age eligibility requirement to 70 from 65 and reducing some access to non-ADA riders who are not seniors. This may allow B-Line to reallocate some resources to fixed routes, and will likely improve overall operating performance of Paratransit. Efforts might also be made to encourage current Paratransit users to ride fixed routes whenever possible through changes to the eligibility program and travel training.

Public Information and Marketing

User-friendly marketing and useful public information are key elements of successful transit systems, and B-Line has very good information and a mix of different tools and resources to communicate services and the availability of services to the public. B-Line's new website is attractive, easy to navigate and comprehensive, its stops are appropriately signed, the schedule brochure is comprehensive, and the B-Line Tracker provides on-demand schedule information at B-Line bus stops. The on-board survey found that many riders, especially younger riders, make use of B-Line's website for information about transit and service schedules, while older riders rely more on the printed schedule. Even with these tools in place, some stakeholders talked about the complexity of the system that makes it especially difficult for people to understand how it operates.

Land Uses to Support Transit, Pedestrian Activity, and Bicycle Use

In developing the MTP/SCS, transit offers an opportunity to help shape development in some areas. Many of Butte County's newer developments — just like many suburban and rural communities in California and across the US — have not really been built with transit in mind. A general threshold for transit-supportive residential uses is 15 units per acre for high-frequency bus service. Commercial, institutional and corporate space with high employment densities (e.g., offices, medical centers, colleges) support more transit use than do those with lower employment densities (e.g., industrial parks or warehousing). Extensive areas of retail can become auto-dominated if not scaled appropriately and mixed with other uses.

Based on current land use patterns, B-Line has been most effective in building ridership in higher density areas and areas where parking is more limited (or costly), such as around CSU. Long term strategies for growth in Butte County will include the need to work with local communities and developers to orient new growth and locate new facilities so they can be affordably and effectively served by transit. Some tools may include design guidelines to ensure land uses are mixed both horizontally and vertically, activity centers are diversified to maximize transportation choice, land use intensities encourage use of transit and support pedestrian and bicycle activity, and parking requirements (and parking provision) are compatible with compact, pedestrian and transit-supportive design and development. Opportunities may exist for some transit-intensive corridors in some portions of Chico and in downtown Chico.

Transit amenities (benches, shelters, etc.) and infrastructure that makes it possible to access transit (sidewalks, bike lanes, etc.) is an often overlooked aspect of providing transit service. While these amenities exist to some degree in Butte County, some existing bus stops are lacking in amenities, and access to many stops is difficult, especially for people with limited mobility. To better meet future transit needs in Butte County, BCAG and the various jurisdictions in the county should continue to improve and maintain transit facilities and ensure that pedestrians and bicyclists have good access to transit.

Bicycle Issues

Nearly 40% of the general public survey respondents indicated they spent at least 10 minutes per day bicycling, illustrating the high level of participation in the survey from bicyclists and the large number of people who bike for recreation. Countywide, according to the US Census, fewer than 3% of Butte County residents bike to work. Increasing this mode share is a key element of developing a sustainable transportation plan for Butte County.

Local versus Regional Approach

One thrust of this planning effort is to piece together the various local bicycle planning activities to identify a countywide network of services that will provide for mobility within and between Butte County's various jurisdictions. Several officials from local jurisdictions and bicycle advocates talked about the piecemeal approach to bicycle planning in Butte County as an impediment to a regional network. Funding limitations have impacted the development of the bicycle infrastructure, meaning that plans are in place for a more comprehensive set of bike facilities but the money to construct or develop those facilities has not always been available, or that these facilities have been a lower priority in some jurisdictions than other competing investments. An effective MTP/SCS will necessitate greater coordination of regional and local bicycle facilities.

Bicycle Safety

As ubiquitous as bicycling is in Chico and elsewhere in Butte County, many survey respondents and stakeholders identified areas where bicycling is perceived as unsafe. Survey respondents indicated high traffic volumes and automobile speeds contribute to perceptions of safety, and recent accidents that have led to the deaths of at least two student cyclists have raised concerns about whether bicycling is safe in Butte County. Several people indicated concerns about inattentive drivers and intersection designs that are not deemed bike friendly, with the Esplanade and Mangrove Avenue identified as especially bad for Chico cyclists.

THE LONG-TERM PLANNING CONTEXT

As a plan with short-term, mid-term and long-term elements, one key element of this effort is to establish a preliminary set of goals for B-Line service over the next 25 years, as well as identify goals for non-motorized modes.

Goals and Objectives for B-Line

The value of establishing goals is that they provide strategic direction for BCAG and B-Line. They also help BCAG be proactive in how it shapes its service rather than being reactive to public sentiment. The following six goals in support of B-Line were developed based on current

operating characteristics, stated priorities of stakeholders, and the markets for transit services. The objectives to support each goal are, in most cases, actions that can be taken by B-Line to help move the agency toward reaching these goals.

Goal 1: Maximize service efficiency and reliability. This is a critical goal for B-Line, to improve and maintain the quality of services it provides. Some objectives include:

- Ensure availability of sufficient safe and reliable in-service vehicles to meet the daily pullout requirements for B-Line.
- Operate on schedule within adopted on-time performance standards.
- Operate consistent headways whenever possible.
- Consistently monitor and evaluate services in accordance with adopted service standards.
- Build services around a network of intercity and local feeder services, as well as local routes/service in urban areas.
- Minimize non-revenue hours operated on all services
- Assign vehicles by service type.
- Maintain a minimum/maximum fleet size that ensures an optimal spare to in-service fleet ratio.

Goal 2: Maximize the effectiveness of service for B-Line's ridership markets. A more effective transit service focuses on simplification and ease of use, with minimal one-way loops and convenient transfers. Objectives include:

- Minimize service overlap/duplications.
- Provide access to major centers of demand from all parts of the B-Line service area.
- Ensure routes are easy to understand.
- Bi-directional service should be provided by most route segments (except unidirectional commuter services), so that transit provides an equivalent alternative to for travel in both directions.
- Transfers should be convenient and fast between routes.
- Operate most routes directionally, minimizing the amount of off-directional travel.
- Implement strategies to speed transit service, particularly along congested corridors.
- Ensure adequate vehicle capacity to maintain passenger loads within the adopted maximum load standards established for fixed-route services.

Goal 3: Improve the usability of B-Line. Some basic objectives to increase usability and visibility include:

- Provide effective communications and marketing tools to promote transit use and to advance the vision, mission and goals of BCAG.
- Improve the passengers' experience through enhanced bus stops and passenger amenities.
- Provide easy-to-understand signage and passenger information that promotes the ease of use of B-Line's services.
- Ensure transparency and openness to the public throughout all of the agency activities.
- Partner with local organizations, CSUC, Butte College, businesses, municipalities and other agencies to enhance B-Line's community outreach and information efforts.

Goal 4: Expand B-Line's services into areas where transit has a likelihood of success. Not all parts of Butte County are appropriate for fixed-route transit service, but demographic data suggests some form of transit service or alternative mode (carpool, vanpool, flexible route service, etc.) may be appropriate in many portions of the county. Some objectives include:

- Provide outreach to non-participating cities and other potential public or private partners such as casinos and new residential developments.
- Negotiate potential pilot programs and partnerships to introduce transit services into communities where service is not currently available.
- Ensure that each new service is financially feasible, meets performance standards and does not negatively impact existing services.

Goal 5: Tie the provision of transit to land use and the resulting demand levels. Because land use patterns are the single largest determinant of transit patronage, transit services will be designed to complement land use patterns. Proposed developments must be evaluated in a consistent manner. This will allow the development community, citizens, and elected officials to anticipate the extent that future transit services will provide service to new developments. Some objectives that provide direction to B-Line to address this goal are as follows:

- Existing services that fail to achieve established performance standards should be considered for remedial action.
- Existing services that significantly exceed standards should be augmented.
- Primary transit services (both intercity and urban trunk services) focus on corridors where compact development patterns that feature a mix of residential, retail, and employment activities exist. Secondary transit service – community circulators – will operate in a mix of medium density, and in some cases, lower density neighborhoods.
- Transit services may not be appropriate for some communities that do not meet service implementation thresholds.

Goal 6: Advocate sustainable development practices that support transit. Objectives, which are in-line with previous MTP/SCS goals, include the following, for which BCAG has an advocacy and advisory role to Butte County's jurisdictions:

- Advocate for transit-friendly building practices, working with planning staff and developers to ensure planned and future development meets transit service access criteria.
- Work with Butte County and local jurisdictions to enact zoning regulations that facilitate dense transit-oriented development to be focused near in specific transit emphasis corridors.
- Support the establishment of building orientation and pedestrian accessibility recommendations for new development, so that the development that occurs is convenient to the transit rider.
- Encourage higher density development and relaxed parking requirements in neighborhoods within easy access to transit emphasis corridors.
- Encourage the establishment of local policies requiring new transit-dependent land uses, such as social service offices and community colleges, should be located on transit routes.
- Support infrastructure projects, especially along transit corridors, that complement and/or enhance the system's operational needs (pedestrian access to bus stops, adequate

location for passengers to wait for the bus, sufficient curb space for buses, passenger amenities and transit priority treatments).

Goals & Objectives for Bicycle and Pedestrian Planning

In addition to goals for transit, three primary goals were established for non-motorized transportation.

Goal 1: Provide options so people will choose and be able to walk and bicycle as a way to travel, to be healthy and for recreation. Objectives include the following:

- Recognize the value of walking and bicycling in Butte County's cities and between communities.
- Advocate for healthy, sustainable, and efficient communities
- Develop services and invest in improvements that overcome the obstacles – physical, social and institutional – allowing them to walk and bike.

Goal 2: Focus on urban infrastructure improvements that contribute to interconnectivity and safety for people who choose to walk or bike. Objectives should ensure local planning and development policies pursue strategies that will support safe and effective travel by bike or walking:

- Improve bicycle facilities on primary commuter routes to major employment locations in Butte County.
- Encourage installation of sidewalks along the street at all major commercial developments and in higher density residential neighborhoods.
- Link noncontiguous sidewalk segments/close gaps.
- Provide the option for bike and pedestrian access to surrounding neighborhood destinations for all new developments.

Goal 3: Facilitate regional links allowing for origin-to-destination access to bicycle and pedestrian facilities. Some basic objectives include the following:

- Assist local jurisdictions to seek funding to connect local bike and pedestrian projects to regional trails and bikeways.
- Develop projects, programs, and policies to encourage use people to make multimodal trips, linking walking, bicycling and transit.
- Develop facilities (e.g., bike lockers, freeway crossings, intermodal centers) that make it easy for people to choose non-motorized modes for longer distance travel.

B-LINE TRANSIT PRACTICES AND POLICIES

In order to advance B-Line's service to address these goals and objectives, some proposed changes to B-Line's current practices are proposed, including policies for stop spacing, pull-out stops, and bicycle accommodation. This planning process also advances B-Line toward the identification of Transit Emphasis Corridors, as well as defining other community design standards to support transit growth in Butte County. These are discussed in the following sections.

Stop Spacing

B-Line's policy does not reflect the state of the research into "optimal" stop spacing, or stop spacing that balances access and on-board travel time to maximize ridership. Numerous studies have found that ideal stop spacing is close to one-quarter mile (1,320 feet), and transit agencies including VTA and Muni in the Bay Area have recently updated their stop-spacing policies to both require and allow greater distances between stops.

When stops are farther apart, access is reduced, and in some cases improvements to travel times aboard vehicles may be offset by increased travel times to and from stops. Ease of access for seniors and other people with mobility issues must also be taken into account.

Stop spacing is always a "balancing act": if access were the only concern, stops would be as closely spaced as possible, while if speed and reliability were the only concern, there would be as few stops as possible. This is why B-Line has some opportunities to provide "all-stop" or "local-stop" service as well as limited-stop or express service in some corridors, possibly at different times of day. However, it is not always possible to do so given limited resources. In these cases, choices must be made regarding the balance between access, speed and reliability.

Stop-spacing policies should take into account a variety of factors related to the specific local condition, including: proximity of senior centers, community centers, schools, libraries, social service providers and other community institutions; composition of the area population, in particular numbers of CSUC students, seniors, youths and persons with disabilities; topography/grades; pedestrian connectivity, including both completeness of the street network (a challenge in some parts of Chico, Oroville, and Paradise), as well as the quality of facilities including sidewalks, crosswalks and wheelchair ramps; connectivity to other routes; locations relative to intersections ("far-side" locations are generally preferable); community and official support; and other factors in stop placement. Stop-spacing policies should be flexible, allowing for deviation from the standards where it is found to be necessary on a site-specific basis.

The defined minimum and maximum standards, meanwhile, should be adequate to strike a reasonable balance between access, speed and reliability. With this in mind, an increase in B-Line's minimum distance between stops should be closer to one-quarter mile or 1,320 feet (but could be 1/6 mile in dense communities). A maximum could also be set for stops in Chico and part of Oroville – perhaps one-third of a mile or 1,760 feet.

While B-Line's stop-spacing policy would not need to be strictly applied – existing stops that do not conform to the standard do not necessarily have to be relocated – it could be used to offer guidance on whether stops should be consolidated to reduce delay. While most agencies consider stop consolidation as part of route restructuring processes, Seattle's King County Metro reviews stop locations on a regular, rotating basis, at a rate of two to three corridors per year. Portland's Tri-County Metropolitan Transit District or TriMet, meanwhile, has developed the following methodology for assessment of stop locations[1]:

1. *Divide line into segments.*
2. *Identify "anchor" stops including:*

[1] [1]Ahmed M. El-Geneidy, Thomas J. Kimpel and James G. Strathman, "Empirical Analysis of the Effects of Bus Stop Consolidation on Passenger Activity and Transit Operations." Center for Urban Studies, College of Urban and Public Affairs, Portland State University (May 2005).

   a. *Transfer points*
   b. *Stops adjacent to major trip generators*
   c. *Stops at major intersections*
3. *Remove or relocate remaining stops according to factors including:*
   a. *Preference for locations on far sides of intersections*
   b. *Pedestrian connectivity*
   c. *Safe pedestrian access*
   d. *History of wheelchair boardings*
   e. *Traffic impacts*
   f. *Compatibility with adjacent land uses*
   g. *Proximity to "paired" stop in opposite direction*
   h. *Level grades and clear visibility*
   i. *Community input*

Pull-out Stops

"Pull-out" bus stops consisting of a "bay" cut out of the curb are often funded and built for use by B-Line by developers as part of development agreements. While pull-out stops serve to increase safety by removing buses from traffic where no space exists between the travel lanes and curb, they increase transit delay by requiring buses to merge back into traffic after the stop. For this reason, pull-outs should be avoided on arterial streets with multiple lanes in each direction where typical speeds are no greater than 35 or 40 miles per hour, and B-Line policies and practices should be adjusted to reflect this.

Pedestrian & Bicycle Access

Used in tandem with transit trips, bicycles can be especially useful in bridging "first/last mile" gaps between trip origins and destinations and transit stops, and integration of bikes with transit can increase ridership and help advance agency and community sustainability, safety and other goals. B-Line currently seeks to accommodate cyclists by providing front-mounted racks on buses able to accommodate up to three bikes and by allowing folding bikes aboard buses and by providing bike racks. Advocates, however, have identified a number of additional steps the agency might take:

- Expansion of bikes-on-buses options.
- Addition of rear-mounted racks to intercity buses.
- Addition of bike parking at stops undergoing improvement.
- Seeking out funding for a program of subsidized fold-up bikes.
- Participation in a community bikeshare program.
- Enhancements to driver training related to bicyclist safety.
- Support for safe-routes-to-transit projects.

Some options might not be desirable for reasons of competing objectives (e.g., accommodation for elderly passengers and passengers with disabilities) or operational issues. Nonetheless, B-Line staff should further explore ways in which to more seamlessly integrate transit and bicycle travel.

Transit-Emphasis Corridors

A "transit-priority" or "transit-emphasis" corridor is a street segment in which high-quality transit service is provided and physical improvements for transit are prioritized. In general, high-frequency service, a bus every 15 minutes or more often in each direction (on one route, or all routes combined), is necessary to warrant designation as a transit-emphasis corridor[2]. Along with high-quality transit amenities, such frequency can create a virtuous cycle in which more transit service creates more demand for transit service.

In Butte County, there are opportunities where the following characteristics suggest the potential designation of transit-emphasis corridors. These are street segments where:

- Residential densities are in the range of 15 or more units per acre, or there is a significant mix of employment and service destinations.
- There is an existing concentration of transit services along the corridor or intersecting the corridor.
- Capital investments could improve travel times, schedule reliability and connectivity for thousands of riders on one or more primary routes.
- The built environment includes high-quality pedestrian amenities, public spaces, appropriate canopies, and street access to destinations along the corridor.
- Existing and planned land uses are consistent with a transit-emphasis corridor, and where all-day frequencies are either every 15 minutes, or relatively close to it. These segments may include The Esplanade, Park Avenue, Forest Avenue and 20th Street. Others will be discussed with BCAG staff.

These segments would ideally be formally designated in the near-term as transit-emphasis corridors by both the BCAG Board and, if possible, the City of Chico. Additionally, B-Line should develop service and infrastructural standards for transit-emphasis corridors, and in partnership with other agencies, it should develop capital improvement strategies for each corridor.

A headway standard for transit-emphasis corridors of 15 minutes or less between 7:00 a.m. and 7:00 p.m. on weekdays is recommended. Furthermore, 15 minutes should be the maximum scheduled interval between *all* arrivals, on any route (e.g., buses on different routes should not be scheduled to arrive 10, then 20 minutes apart). Transit planners differ on the definition of "walk-up" service, or service that operates so frequently that most riders cease to consult schedules before determining when to leave for the stop: some say it is 15 minutes, while some say 12 or even 10. For this reason, a minimum standard of 15 minutes is recommended, but greater frequencies could be developed in the longer-term recommendations.

A number of capital improvements might be made on transit-emphasis corridors:

[2] California Senate Bill 375 (SB 375) applies a similar standard to "high quality transit corridors," defined as corridors with 15-minute or better service during peak periods. As defined here, "transit-emphasis corridors" include frequent service as well as transit-supportive land uses and high-quality pedestrian access.

- ***Improvements to the right-of-way***. In some parts of Chico, rights-of-way are constrained: streets cannot be widened, at least not without property takings. Providing buses with their own travel lanes free from traffic, then, generally requires removal of either on-street parking or mixed general-purpose travel lanes. In some cases, this may have little or no effect on traffic or parking availability. In some cases, it is possible to mitigate impacts through other means, for example by providing additional left-turn lanes, off-street parking or parking on connecting streets. In other cases, complete transit-only lanes may not be feasible, but it might be possible to provide transit vehicles with lanes that are shared with some other vehicles (such as taxis, emergency vehicles, delivery trucks, high-occupancy carpools, or autos turning right), that are in effect only part of the time (for example, during peak periods), or that exist only in segments. An example of the latter is the "queue jump" lane, a transit-only lane that exists for only a short distance on approach to an intersection, allowing transit vehicles to bypass lines of cars waiting at red lights, and go ahead of them using a special "advance phase" for transit a few seconds prior to the regular green signal for all traffic. Transit queue jump lanes could be useful on The Esplanade, shared with cars and trucks turning right, as a way to speed travel along that roadway.

Queue Jump (Milwaukie, Oregon)

- ***Improvements at intersections***. Queue jumps with advance phases are one way to improve transit travel times and schedule reliability. Other ways to reduce transit delays at signalized intersections include "transit-signal priority" (TSP) systems and simple retiming of signals. In a TSP system, signals are equipped to detect approaching buses, and signal phases may be changed in one of two ways: using signal preemption, in which red lights are turned green a few seconds early, or by signal extension, in which green lights are made to stay green a few seconds longer. In either case, the change can be reversed in the following signal cycle, restoring green time for cross traffic removed from the previous cycle and limiting impacts on traffic flow and capacity. A less-effective but simpler way to reduce transit delay at signals is to simply retime the signals so that cycles and/or red phases are shorter, reducing the maximum amount of time that buses may be stopped and/or reducing the likelihood that they will be stopped in the first place. In many cases, signal phases are longer than they need to be to allow pedestrians and queued vehicles to cross the street. (Another option is to re-time signal progressions; however, because buses must make stops, their average speeds are much slower than for other vehicles.)

- ***Improvements to stops.*** Two basic types of improvements can be made to transit stops: improvements designed to reduce transit delay, and improvements to the safety, comfort and capacity of the stop itself. In a Bus Rapid Transit or BRT system, stops are sometimes raised so that they are level or nearly level with vehicle floors, eliminating steps and any need for wheelchair lifts. Ticket machines are also sometimes provided at the stop so that passengers can enter vehicles through any door and don't have to line up to pay on-board. In BRT systems and even in many non-BRT systems, stops are sometimes located on traffic islands or on sidewalks extended into the street so that buses can stop in the travel lane and don't have to wait to merge back into traffic after the stop. Stops are also sometimes moved from the near side to the far side of an intersection, which can reduce delay in a variety of ways. Other improvements consist of amenities ranging from shelters to additional seating, enhanced signage (potentially including real-time arrival information), concrete pads for wheelchairs and pedestrian access improvements to nearby sidewalks and crosswalks. BRT-style amenities may be appropriate in the transit emphasis corridors in the mid-and long-term phases of the Transit and Non-Motorized Plan's implementation.

Bulb-Out Stop (Seattle, Washington)

High Visibility Stop (Kansas City, Missouri)

- ***Improvements to pedestrian connections.*** Finally, transit service can be improved by improving access to transit. In an environment such as Butte County, most transit passengers walk to and from stops, but outside of the downtown areas, pedestrian infrastructure is often inadequate. Sidewalks may be too narrow, in poor condition, or there may be gaps. Opportunities to cross streets may be limited, and where crosswalks exist, there may not be signals requiring drivers to stop, or there may be signals, but not enough time in the walk cycle for all to safely cross. As a result, buses in Oroville travel a long distance past a WalMart to turn around due to the lack of easy pedestrian access at the WalMart.

  The street network itself prevents direct pathways. Wheelchair ramps may also be missing or substandard. These issues are generally beyond the purview of BCAG, but the agency can work with cities and Butte County to identify needs, develop projects, and seek grant funding.

Many of these improvements may be made on an incremental basis, as funding becomes available, or on an opportunistic basis, as part of street repaving or other projects. Similarly,

service could be expanded to achieve the 15-minute standard over time. Finally, additional transit-emphasis corridors could be designated over time.

Optimize Regional Transit Approach

Overall, B-Line's regional routes operate relatively well, particularly the trunk Route 20 and the local/regional Routes 40 and 41. Routes 30, 31, and 32 are primarily coverage routes, and handle fewer consistent riders per day. Recognizing that B-Line is a regional provider, it is important that BCAG optimizes its regional approach, ensuring that each route market is served by the right kind of service. For example, although it is new to BCAG, a vanpool approach may be more appropriate than fixed route service between Paradise and Oroville (Route 31) in the short- or mid-term and Biggs, Gridley, and Chico (Route 32) in the long-term. Additionally, to complement both fixed route and future vanpool services, BCAG may also consider building more park & rides at key locations throughout the region. These park & rides can help to consolidate demand and increase the efficacy of well-performing intercity arterial lines such as Routes 20, 40, and 41 as well as coverage routes such as Routes 30 and 32.

Vanpools

Vanpool programs are cost effective means for providing commute transportation to employment sites. While vanpools are particularly effective in serving downtowns or large employment sites where significant numbers of people are commuting to/from the same general area, they can also be implemented in a more limited, targeted way. In the mid-term timeframe, vanpools could provide service in Butte County between Paradise and Oroville (replacing Route 31) and potentially also between Biggs, Gridley, Durham, and Chico (replacing Route 32).

In practice, vanpools offer a higher degree of flexibility than fixed route services in both management and operation. For example, BCAG may choose to simply oversee a vanpool program, contracting out the actual services to a private contractor (such as Enterprise or VRide). Alternatively, BCAG may choose to operate and manage the vanpool program in-house. Operations are similarly flexible, as a vanpool's precise route and schedule are developed by participants themselves, with the service able to pick up vanpool participants at their residences and drop them off directly at workplaces. Vanpools may also be organized in such a way as to originate at Park & ride lots. Overall, for BCAG converting a fixed route to vanpool helps conserve valuable resources while continuing to offer regional mobility along a key corridor(s).

In short, a vanpool program is an attractive mobility option for a number of reasons:

- Vanpools are highly cost effective
- Vanpools are faster than bus transit
- Vanpools travel directly to the work site
- Vanpools are attractive for shift workers

Park & Rides

Currently, B-Line serves two Caltrans park & rides in Butte County – Fir Street Park & Ride in Chico, and Oroville Park & Ride, located at Highway 70 and Grand Avenue. Park & rides are a convenient and very visible access point to transit service for commuters who have access to an automobile but do not wish to commute via car. In this way, park & rides can help transit agencies

by consolidating transit demand in more suburban and rural areas, reducing the need for fixed route buses to serve very few riders in outlying areas.

Park & rides can also serve as hubs for different types of service; in addition to being served by fixed routes, they can also function as vanpool start points. In fact, in the mid- to long-term timeframes, there are several opportunities for additional park & rides throughout Butte County, particularly at the Home Depot lot in Oroville, the fairgrounds in Gridley, and a potential new joint transfer center/park & ride in Paradise. Caltrans guidelines should be referenced in development of park & ride lots to ensure integration of bicycle facilities to the support the bicycle recommendations in this plan.

Community Design Standards in Support of Service Design Standards

Recommended policies address issues of land use, circulation, and urban design. While B-Line cannot always directly influence development patterns in Butte County, these standards can be an element of B-Line's advocacy role. B-Line can advise local jurisdictions and Butte County on policies that will allow local transit service to meet demands, as well as provide for an environment that can support ongoing investment in an effective — and more efficient — transit system.

The coordination of these three aspects of form and function are essential in order to support increased transit ridership and preserve the livability of Butte County. In the mid- to long-term timeframes, these types of standards would be expected to support transit service and livability along the future Route 1 (Routes 15N/15S) transit corridor, around North Valley Plaza, and in the vicinity of the Chico Mall.

Land Use

The land use criteria are intended to measure the ability of land use policies to support the goals of this plan.

- **Land uses should be mixed both horizontally and vertically**. Vertical mixed use, with ground floor retail in developed areas and activity centers as identified through land use plans, can increase the vitality of the street and provide people with the choice of walking to desired services. Only Chico really has the potential for this type of vertical integration in the short term. More important for the rest of Butte County, mixing uses horizontally can prevent desolate, single-use areas, and encourages increased pedestrian activity; scale of use and distance between uses are important to successful horizontal mixed-use development.
- **Support and enhance major activity centers**. Activity centers have a strong impact on transportation patterns as the major destinations in the city. They are generally characterized by their regionally important commercial, employment, and service uses. To make these places more transit-supportive they should be enhanced by land use decisions that locate new housing and complementary neighborhood-scale retail and employment uses to diversify the mix, creating an environment that maximizes transportation choice.
- **Land use intensities should be at levels that will encourage use of transit and support pedestrian and bicycle activity**. A general threshold for transit-supportive residential uses is 10 to 15 units per net acre for high-frequency bus transit. This density

can be lower, however, if the urban environment supports pedestrian access to transit. Commercial and employment/education uses with high employment densities (e.g., CSUC) support more transit use than do those with lower employment densities (e.g., industrial or warehousing). Extensive areas of retail tend to be auto-dominated if not scaled appropriately and mixed with other uses, such as Chico Mall or North Valley Plaza. Non-residential uses with a Floor Area Ratio (FAR) of 0.5 provide a baseline that can support transit ridership. While there is little empirical research available to link employment density with transit ridership, the general "rule of thumb" is to maximize the intensity of development given market conditions and to make certain that the transit network provides high-quality service to areas with concentrations of employment uses and retail services.

- **Parking requirements (and parking provision) should be compatible with compact, pedestrian and transit-supportive design and development**. Requirements should account for mixed uses, transit access, and the linking of trips that reduce reliance on automobiles and total parking demand.

Circulation and Connectivity

Transit and transportation systems need to provide a balance of hierarchy and integration between and amongst modes. The circulation system facilitates access and safety for all travel modes, with particular attention to pedestrian and bicycle access, as these modes support transit ridership.

- **The transportation and circulation framework should define compact districts and corridors** that are characterized by high connectivity of streets to not overly concentrate traffic on major streets and to provide more direct routes for pedestrians, good access to transit, and streets that are designed for pedestrians and bicycles, as well as vehicles. None of Butte County's cities has successfully developed around a connective, integrated street network (Chico and Oroville have some elements of a good street network in the urban core areas, but have very limited street networks elsewhere).
- **New residential developments should include streets that provide connectivity**. Cul de sacs and walls around communities, which have been the norm in newer developments in Paradise, Gridley and the edges of Chico are especially challenging for providing effective public transit.

Urban Design

High quality urban design, including street and building design, can support increased transit use and pedestrian and bicycle activity. An important evaluation criterion is the extent to which the plans provide guidelines or standards to achieve the desired urban design character in a particular community.

- **Streets should be designed to support use by multiple modes**, including transit, bicycles, and pedestrians, through proper scaling and provision of lighting, landscaping, and amenities. Amenities must be designed to provide comfortable walking environments.
- **Buildings should be human scaled**, with a positive relationship to the street (including entries and windows facing onto public streets, and appropriate articulation, signage, etc.).

- **The impact of parking on the public realm should be minimized** by siting parking lots behind buildings or screening elements (walls or landscaping). Buildings should be close to the road so parking can be located on the side or in the rear.

PERFORMANCE STANDARDS

To address the goals and objectives and support the recommended practices and policies, B-Line and its partners will need to work together to create closer-knit communities with more walkable streets and an enhanced transit network. If successful, Butte County will benefit from reduced traffic congestion, a reduction in vehicle emissions, more transportation choices and healthier neighborhoods.

To achieve the goals, it is important to define service measures and standards. These measures and standards provide a valuable tool for allocating scarce resources. By providing a consistent set of design and performance standards, B-Line staff and the BCAG Board will have consistent direction on how to allocate, prioritize and deploy services. Their use in the service planning and allocation process will avoid potentially inequitable, and possibly inefficient, allocations of service. Without such standards, there is little rationale for telling constituents "yes" or "no" when necessary.

Service design standards also assist in creating consistency and predictability of responses to emerging community needs. As decision-makers reach conclusions about various aspects of growth in their communities, they will have some frame of reference to know how transit will respond to those changes. When asked whether a particular development on the outskirts of Oroville will be served, transit planners will have a policy basis for their response. Standards can also provide insights on where to focus transit service reductions, or reallocations when those subjects inevitably arise over the life of the long range plan.

The remainder of this chapter focuses on proposed service standards, offering a set of performance measures and standards for use on B-Line fixed routes along with a suggested methodology for the routine evaluation of fixed route services. This section also considers standards for the design of fixed-route services. Transportation planners routinely face requests to deviate an existing route, or extend it to serve a new development. Service design standards provide a policy basis for their decisions, providing consistency in the way services are provided throughout the entire service area.

While it makes use of research that has been conducted at transit agencies across the country[3], the following sections adapt best practices to Butte County's unique operating conditions.

Definitions

Two terms are used: measures, which identify what factor is being evaluated, and standards, which set the bar for performance against that measure.

- A ***measure*** is a basis for comparison; a reference point against which other factors can be evaluated. For this project, an example measure would be the population or employment density along a bus route.

3From the peer review and both "Transit Capacity and Quality of Service Manual, "Transit Cooperative Research Program (TCRP) Report 100, 2nd Edition. Washington, D.C., 2003 and "A Guidebook for Developing a Transit Performance-Measurement System, "Transit Cooperative Research Program (TCRP) Report 88, Washington, D.C., 2003.

- A ***standard*** is defined as a recommendation that leads or directs a course of action to achieve a certain goal. Transit operators' approaches to the design and application of standards vary depending upon local conditions and expectations.

FIXED ROUTE PERFORMANCE REPORTING

Route Classification System

Transit services are most effective when they are tailored to the design and needs of the communities they serve. B-Line's current system of classifying general public transit services places routes into urban and rural classifications. We propose a reclassification of routes:

1. **Intercity Express Bus Services:** B-Line does not currently operate any routes that could be classified as Intercity Express Bus services that provide fast service during peak commute hours, focusing on linking cities or neighborhoods with high concentrations of workers traveling to a specific employment area or a major transit hub.

2. **Intercity Arterial Routes:** B-Line's intercity services are arterial routes. Characteristics of intercity arterial routes are as follows:

   - **All day service** – Regional arterial routes operate at least every 60 minutes during midday periods and may operate every 30 minutes during peak periods. The goal is to facilitate convenient transfers to/from feeder routes.

   - **Major transit center connections** – Regional arterial routes should have a terminus at a major transit center (e.g., downtown Chico, CSUC) or a major regional activity center. Routes should be designed to make timed transfers to and from major connecting services.

   - **Longer stop spacing** – Stops are limited to major residential developments, retail centers and park & ride facilities to speed travel times for longer distance riders.

   The goal is for intercity arterial routes to operate quickly and be relatively competitive with automobile travel times.

3. **Urban Area Trunk Routes:** Trunk routes are typically relatively straight and operate along main roads, constituting a primary form of local fixed route bus service. Route 15 is the closest B-Line has to an Urban Area Trunk Route. Typically, trunk routes should operate every 15 to 30 minutes on weekdays, with a relatively long service span.

4. **Community Circulators:** Other local fixed-route bus services, typically operating at 30- or 60-minute headways (but with the potential for greater frequencies), are termed community circulator routes. Most of B-Line's existing routes would be classified as community circulators. Except around CSUC, these are designed to provide policy level coverage service to neighborhoods that do not necessarily have the population density or employment — or design characteristics — to support trunk routes. Services are designed to adapt to the unique characteristics of the neighborhoods or cities they serve. Whenever possible, clockface operations ("memory headways" or the same time(s) after the hour on each trip) and timed transfers at transit centers should be accommodated in route designs. This suggests very careful attention to the length of the route to ensure there is a reasonable match between the schedule cycle time and the route length.

Three types of community circulators are identified for Butte County.

A. **Neighborhood Circulators:** These are traditional fixed route services. Because they do not compete effectively with private autos, neighborhood circulators should be established when higher levels of service cannot be effectively supported. They normally operate every 30 to 60 minutes and should operate on a clockface headway whenever possible.

B. **Feeders:** Feeder buses are designed to "feed" trunk routes and intercity express bus services. Schedules are drawn to provide clockface headways. Feeder routes operate in Chico and Oroville and every effort should also be made to provide timed transfers with other routes at the transit centers served by feeders.

C. **University Circulators:** These may look like traditional fixed routes, but have a specific market – student ridership – and serve a location with significant student housing and parking constraints or costs. These routes normally operate at relatively good frequencies – every 15 to 30 minutes (sometimes as often as 5 or 10 minutes in some communities) – and clockface headways are often not as critical.

Proposed Service Standards

Transit agencies typically monitor key systemwide performance statistics, using pre-established targets in order to measure organizational success. These allow policymakers to evaluate whether their expectations are being met. System service standards can cover a wide range of subjects including ridership, safety, reliability, and customer satisfaction. While there is value in continuity – allowing policymakers to review performance trends over time – many systems also find benefit from adding special measures that consider areas of special emphasis or concern.

Proposed service standards for fixed-route operations look assume a short-term horizon (within five years) of the MTP/SCS in order to establish operating characteristics that B-Line can work toward within in the immediate term.

Figure 6-1 Service Quality and Reliability Benchmarks for B-Line

Quality/ Reliability Measures	Service Type	Proposed Fixed Route System Service Standards
Boarding Passengers per Revenue Hour	Regional Express Services	20 psgrs/hour
	Regional Arterial Routes	15 psgrs /hour
	Urban Area Trunk Routes	25 psgrs /hour
	Community Circulators	
	Neighborhood/Feeder	10 psgrs /hour
	University	25 psgrs /hour
Passengers per Mile	Regional Express Bus Services	1.0 psgrs /mile
	Regional Arterial Routes	1.0 psgrs /mile
	Urban Area Trunk Routes	2.2 psgrs /mile
	Community Circulators	
	Neighborhood/Feeder	0.7 psgrs /mile
	University	2.2 psgrs /mile

Farebox Recovery	Regional Express Services	25%
	Regional Arterial Routes	15%
	Urban Area Trunk Routes	20%
	Community Circulators Neighborhood/Feeder University	 15% 35%
On Time Performance	No bus shall depart a formal time point before the time published in the schedule.	
	90% on-time performance for all services	
Passenger Complaints/ Boardings	The number of complaints shall not exceed 0.01% of the total boardings. The benchmark is 7.5 complaints/100,000 boardings.	
Accidents /Bus Miles Operated	Fewer than 2 accidents/100,000 revenue miles	
	Fewer than 1 preventable accident/100,000 revenue miles.	
	Fewer than 1.5 major accidents per million bus miles	
Maintenance	The number of road calls should not exceed 0.06% of total revenue miles operated. The benchmark is one road call/7,000 revenue miles.	
	At least 85% of all regular fleet vehicles should be available for operations at all times	
	The ratio of spare vehicles to regular fleet vehicles should be less than at 20%	
	95% of vehicle inspections shall be completed on time	
Trips Cancelled	No bus or trips shall be cancelled. The benchmark is zero tolerance.	

Route-Level Performance Measures and Standards

One of the most important decisions that B-Line must make is identification of the characteristics that define success for individual routes. While route ridership and productivity are the most common measures of success, they do not always provide a complete picture of system operations. For example, a route that carries commuters from Thermalito to jobs in Oroville will have lower ridership and productivity than a route that carries CSUC students to nearby apartment complexes. Differentiated performance measures need to account for this.

Four measures are proposed to measure the success characteristics of individual routes:

- **Passengers per Revenue Hour.** Because it is so commonly employed and often provides a snapshot of overall performance, this measure is suggested for the evaluation of service types and individual routes.
- **Service to Total Hours Ratio.** With a goal to reduce vehicle-deadheading to/from a bus route or layover, it is important to understand service hours (or revenue hours) as a proportion of total service hours. Currently, B-Line deadheads its intercity routes. Ratios for routes that are higher than those of other routes may point to operating issues such as schedules that cannot be cost-effectively broken into vehicle assignments or routes with distant or inefficient terminus points.

- **Passenger Miles per Revenue Hour.** Although every passenger boarding is important, passengers who travel longer distances generally entail greater cost but in many ways also produce greater public benefit when they use public transportation for their trip. By monitoring how many passenger miles are recorded during an hour of revenue service this considers whether both the number of people riding and the distances they are traveling is increasing.
- **On Time Performance.** The reliability of route operations is also critical. Measuring an individual route's schedule adherence provides information regarding whether a customer can count on a bus being there as scheduled.

Figure 1-2 summarizes the proposed fixed route operating standards, beginning in the short-term: five years (2019). In accordance with B-Line's proposed line service standards, poor performance suggests that a route should be modified or eliminated. Exceptional performance suggests the route could be expanded, larger vehicles could be used, or headways can be improved.

Figure 6-2 Proposed Route-Level Operating Standards

	Intercity Express Bus Services	Intercity Arterial Routes	Urban Area Trunk Routes	Community Circulators
Passengers per Hour	15	15	15	Neighborhood/Feeder: 8
				University: 15
Service to Total Hours Ratio	1.3	1.3	1.15	1.15
Passenger miles per Revenue Hour	300	150	40	Neighborhood/Feeder: 25
				University: 40
On-Time Performance	90%	90%	90%	90%

While some of the data needed to support the monitoring of these efforts is already available to B-Line based on existing data collection procedures, better employee training on the software would allow for improved data analysis and performance monitoring.

SERVICE DESIGN STANDARDS

Service design standards are critical planning tools that are used to guide the expansion of service to new areas and potential markets. They will help justify B-Line's decisions to regional partners and outside interest groups.

Typically, transit agencies need to consider a full range of interrelated social, political and economic factors when they make major service decisions. While ridership is critically important, issues of equity and broader community impacts cannot be ignored. Because, at their core, service design standards identify strategies for maximizing ridership, they may not fully address policymakers' concerns but experience suggests that the **most successful transit systems**

place high value on designing services that will increase ridership. Several general design principles should guide the planning and operation of B-Line's fixed route transit services:

1. **Directness**. Routes should be as straight as the street pattern allows. These direct paths make for the most direct, likely the fastest, possible trip, and therefore tend to be useful to the more people than circuitous routes. Even if a trip requires changing buses, it is likely to be more direct and faster than a trip using circuitous service.

2. **Frequency**. The elapsed time between consecutive buses on a route is one of the most important determinants of ridership. More frequent service attracts more passengers assuming a market is present. A very infrequent route requires customers to plan trips around the bus schedule. A very frequent route allows riders to travel whenever they want, without a schedule, allowing transit to approach the convenience that a road offers to a motorist: it is there exactly when customers want and need it.

   Provision of service that operates every 15 minutes is an important psychological breakpoint. At frequencies of 15 minutes or better, many riders will not need to use the schedule, because they know that they can just wait for the bus and it will be along "soon." While frequency is expensive, it is also crucial to high ridership.

3. **Consistency**. A consistent pattern to the schedule is strongly recommended. While frequency may vary during the day according to demand, it should not vary with apparent randomness from one trip to the next. Whenever possible, routes should also have frequencies that divide evenly into an hour, such as every 10, 15, 30, or 60 minutes. These frequencies have two advantages:

   - Customers can remember the schedule easily, because the same pattern of times is repeated each hour. If a route runs every 30 minutes, the customer can remember that the bus comes at: 10 and: 40 past each hour. By contrast, if the bus runs every 35 minutes, few customers can remember the schedule, and are, therefore, forced to consult a timetable – or seek assistance from customer service – in order to catch any trip that they don't use routinely. Irregularity will often convince customers that they have missed a bus, or that the bus is "always late."
   - Using frequencies such as 15, 30, or 60 minutes offer greater ease in scheduling timed connections between routes that occur consistently in each hour. This is especially important for less frequent feeder routes because they rely on connections for much of their ridership. Timed connections permit passengers on these feeders to complete their trips much more quickly.

4. **Simplicity**. Straight routes are also easily associated with one or two major arterials. The naming, presentation, and planning of such routes should encourage the idea that the route is an integral part of the street. Simplification is a key value in creating networks that people can navigate easily to make many kinds of trips.

5. **Walk Distances.** Although opinions differ about how far one should be asked to walk to a transit stop, the industry experience overwhelmingly indicates that the vast majority of riders will walk up to ¼ mile. Each transit route should be seen, then, as serving a band ½ mile wide (up to ¼ mile to each side of the route), except where the road network prevents reasonably direct pedestrian access.

6. **Minimum Bus Stop Design.** All bus stops should be clearly marked with proper signage including the designated route number(s). Benches should be considered for individual stops where the average daily boardings exceed 30 passengers. Priority should

be given to bus stops serving senior apartments, activity centers, and group residences designed for persons with disabilities.

7. **Recovery Time.** All route schedules should include a minimum of 10% recovery time to ensure on-time performance. When headway-based scheduling is being applied, good practice is to ensure recovery time of one headway at each end of the route to ensure the ability to operate buses at the design frequency. It should be noted this design parameter is intended to ensure schedule reliability, not necessarily to provide rest periods for operators. Best practices in transit scheduling recognize that transit operators can be afforded rest periods without adding to the number of buses necessary to maintain schedule reliability: buses continue to move and operators rest.

Design Standards for Fixed Route Services

This section identifies the specific service design standards that have been identified for each service category. Figure 1-3 details the specific design and operating standards applicable to each fixed route classification.

Figure 6-3 Fixed Route Design Standards

	Intercity Express Bus Services	Intercity Arterial Routes	Urban Area Trunk Routes	Community Circulators
Location Characteristics				
Dwelling Units per Acre	Along major corridors	>4	>10	Neighborhood/Feeder >5
Employees per Acre		>1	>7.5	University >10
				Neighborhood/Feeder >3
				University >10
Frequency of Service				
Weekday Commute Periods	30 min	30 min	10-20 min	As appropriate - typically no more than every 60 min. (University circulators may operate more frequently)
Midday & Weekend Periods	60 min	60 min	10-60 min	
Night Services	60 min	60 min	30-60 min	
Travel Time Ratio to Autos*	1.3	1.3	1.75	3.0
Stop Spacing				
Urban Areas	½ mile	½ mile	¼ mile	⅛ -¼ mile
Suburban Areas	+5 miles	½ - 2 miles	¼- ⅓ mile	¼ mile
Rural Areas	+5 miles	2 -5 miles		As needed
Scheduling Practices	Meet Demand Clockface Timed Transfer	Meet Demand Clockface Timed Transfer	Meet Demand Clockface Timed Transfer	Meet Demand Clockface (or frequent for university circulators) Timed Transfer
Target Route Speed – Average speed that the route should achieve	>25 mph	>20 mph	>14 mph	>12 mph

	Intercity Express Bus Services	Intercity Arterial Routes	Urban Area Trunk Routes	Community Circulators
Guideline for Amenities Along Route	Shelters at stops with at least 20 boardings per day	Shelters where needed	Shelters where needed	Shelters at major transfer points and high boarding locations only

*The travel time ratio to autos is compares the travel time for a bus to travel from one end of the route to the other end with the time the same trip can be accomplished during afternoon commute periods when traveling by auto.

By inclusion in the approved set of measures and standards, each metric is considered an important gauge of system performance and should be monitored on a regular basis. A concise and comprehensive monthly report should be available for informal review by B-Line staff and the BCAG Board. Reports may contain trend data in addition to formal performance monitoring measures. Based on this information, key performance indicators could be derived, such as cost per trip, cost per hour, and cost per mile. It would also be possible to compare the budgeted expenditures to actual costs year-to-date.

In addition to shorter-term reactive actions aimed at problem resolution using monthly examinations of performance data, B-Line should formalize a process to focus on longer-term proactive performance improvement measures.

BICYCLE & PEDESTRIAN PRACTICES & POLICIES

In 2014, the California Active Transportation Program (ATP) consolidated and replaced the Bicycle Transportation Account. Jurisdictions in Butte County do not currently need an active transportation plan to be eligible for ATP grants. However, jurisdictions in Butte County will eventually need to adopt an active transportation plan to remain eligible for ATP grants. Figure 6-4 summarizes ATP requirements for active transportation plans.

Figure 6-4 Active Transportation Plan Requirements

Description
The estimated number of existing bicycle trips and pedestrian trips in the plan area, both in absolute numbers and as a percentage of all trips, and the estimated increase in the number of bicycle trips and pedestrian trips resulting from implementation of the plan.
The number and location of collisions, serious injuries, and fatalities suffered by bicyclists and pedestrians in the plan area, both in absolute numbers and as a percentage of all collisions and injuries, and a goal for collision, serious injury, and fatality reduction after implementation of the plan.
A map and description of existing and proposed land use and settlement patterns which must include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, major employment centers, and other destinations.
A map and description of existing and proposed bicycle transportation facilities
A map and description of existing and proposed end-of-trip bicycle parking facilities.
A description of existing and proposed policies related to bicycle parking in public locations, private parking garages and parking lots and in new commercial and residential developments.
A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These must include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for

transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.
A map and description of existing and proposed pedestrian facilities at major transit hubs. These must include, but are not limited to, rail and transit terminals, and ferry docks and landings.
A description of proposed signage providing wayfinding along bicycle and pedestrian networks to designated destinations.
A description of the policies and procedures for maintaining existing and proposed bicycle and pedestrian facilities, including, but not limited to, the maintenance of smooth pavement, freedom from encroaching vegetation, maintenance of traffic control devices including striping and other pavement markings, and lighting.
A description of bicycle and pedestrian safety, education, and encouragement programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the law impacting bicycle and pedestrian safety, and the resulting effect on accidents involving bicyclists and pedestrians.
A description of the extent of community involvement in development of the plan, including disadvantaged and underserved communities.
A description of how the active transportation plan has been coordinated with neighboring jurisdictions and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, general plans and a Sustainable Community Strategy in a Regional Transportation Plan.
A description of the projects and programs proposed in the plan and a listing of their priorities for implementation, including the methodology for project prioritization and a proposed timeline for implementation.
A description of past expenditures for bicycle and pedestrian facilities and programs, and future financial needs for projects and programs that improve safety and convenience for bicyclists and pedestrians in the plan area. Include anticipated revenue sources and potential grant funding for bicycle and pedestrian uses.
A description of steps necessary to implement the plan and the reporting process that will be used to keep the adopting agency and community informed of the progress being made in implementing the plan.
A resolution showing adoption of the plan by the city, county or district. If the active transportation plan was prepared by a county transportation commission, regional transportation planning agency, MPO, school district or transit district, the plan should indicate the support via resolution of the city(s) or county(s) in which the proposed facilities would be located.

STEPS TO ATP COMPLIANCE FOR JURISDICTIONS

Elements of the BCAG Transit and Non-Motorized Plan can be used to fulfill some Active Transportation Plan requirements. In general, jurisdictions in Butte County can complete the following steps to develop their own Active Transportation Plan.

- Reference BCAG Transit and Non-Motorized Plan for estimates of existing bicycle and pedestrian trips.
- Reference BCAG Transit and Non-Motorized Plan for summary of bicycle and pedestrian collisions.
- To create a map of existing and proposed land use and settlement patterns, use General Plan land use map and add schools, shopping centers, public buildings, and major employment centers.

- Reference the BCAG Transit and Non-Motorized Plan's maps of existing and proposed bicycle facilities. Inventory new bicycle facilities using aerial imagery, revise the proposed bicycle facilities as necessary, and create a GIS map. The GIS data files used in the BCAG Transit and Non-Motorized Plan's are available to jurisdictions upon request.
- To create a map of existing and proposed end-of-trip bicycle parking facilities, conduct a bicycle or windshield survey of bicycle parking at major bicycle trip generators and attractors (transit centers, schools, shopping centers, public buildings, major employment centers, etc.). Identify the locations of proposed end-of-trip bicycle parking facilities and create a GIS map.
- Identify the jurisdictions plan for ensuring that bicycle parking is included as a feature of new development. Reference BCAG Transit and Non-Motorized Plan for a recommended policy.
- Perform a walking audit of major pedestrian activity areas, such as downtowns, major transit hubs, or schools. Note existing pedestrian infrastructure and needs for proposed pedestrian infrastructure.
- Describe maintenance policies and procedures for existing and proposed bicycle and pedestrian facilities.
- Describe bicycle and pedestrian safety, education and encouragement programs.
- Conduct outreach for development of the active transportation plan, in particular describing outreach to disadvantaged and underserved communities
- Prioritize proposed bicycle and pedestrian facilities according to criteria that reflect local values. Refer to the Bicycling and Walking Suitability maps in the BCAG Transit and Non-Motorized Plan for areas of high bicycling and walking suitability. Describe plan implementation steps and reporting process.
- Describe past expenditures for bicycle and pedestrian facilities and forecast financial needs for proposed projects and programs. Include a description of anticipated revenue sources and potential grant funding.
- Describe wayfinding signage practices in the jurisdiction's active transportation plan and consider a policy for wayfinding signage. Decide on most frequented destinations by bicyclists and pedestrians. Review proposed projects and determine most appropriate areas for wayfinding signage.
- Submit plan to city, county or district for formal adoption.

The above steps describe a general framework for completing an Active Transportation; however, refer to Figure 5-1 for a complete list of Active Transportation Plan requirements.

Policies to Guide Bicycle & Pedestrian Access Planning

BCAG can support jurisdictions to promote non-motorized modes by adopting the following policies:

- Encourage jurisdictions to revise local bikeway plans to become compliant with the Active Transportation Program (ATP) by requiring ATP compliance as a condition for regional funding.

- Rank project funding requests higher for projects that are identified in a jurisdiction's active transportation plan or equivalent plan (bicycle and pedestrian plan, etc.).
- Encourage jurisdictions to modify bicycle parking codes according to the *2010 California Green Building Standards Code.*

CONCLUSION

B-Line's, goals, objectives and performance standards provide a basis for establishing transit system design and operations policies, offer a methodology for evaluating services, and provide a rationale for service expansions, reductions and eliminations.

While both performance and design standards need to reflect the best thinking of agency staff, it is critically important that they be understood and adopted by the BCAG Board. Once adopted, these policies give decision-makers a rationale for supporting or rebuking proposed service changes; they also offer transparency for Butte County residents, allowing them to understand the basis for transit service decision-making. By having adopted standards, they can be written into approved service and operating policies, and offer B-Line and its service jurisdictions a good justification for implementing route changes or discontinuing service on some routes. The adoption process can sometimes be eased when members of the BCAG Board understand that standards inform, but do not dictate, decisions.

Standards will need to be periodically revisited and updated as operating conditions and B-Line's priorities evolve and financial conditions change. While there are benefits from maintaining a consistent set of standards, it is a good idea to consider whether they continue to reflect the community's priorities about every three years.