TRANSIT PASSENGER FACILITIES DEVELOPMENT PLAN FOR LAKE COUNTY, CALIFORNIA

FINAL REPORT

Prepared for the

Lake County/City Area Planning Council

Prepared by

LSC Transportation Consultants, Inc.
and Pat Piras Consulting

September 22, 2006

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Lake County/City Area Planning Council
as a Product of Work Element 610 of the 2005/06
Lake County/City Area Planning Council
Work Program

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Introduction

Properly designed bus stops enhance the quality, safety, and utility of the transit service. Public transit service plays an important role in Lake County, providing access to jobs, education, social services, and tourist attractions. The provision of public transit has improved the quality of life in the area by increasing mobility for tourists and locals alike, and by helping to alleviate traffic congestion. The Lake Transit Authority has seen many improvements in recent years, including a new operations center, expanded routes and services, and improvements to the transit vehicle fleet. A logical "next step" in the development of the transit system is improvements to the transit passenger facilities. This study was conducted by LSC Transportation Consultants, Inc., under contract to the Lake County/City Area Planning Council.

Passenger facilities are important in both urban and rural areas for a number of reasons:

- They are a key element in the overall experience provided to the transit passengers, as they are used by all fixed-route passengers as part of every trip. Properly designed bus stops can provide a comfortable, safe, and pleasant place to wait for the bus, while improperly designed stops can result in a perception of insecurity, unnecessary exposure to the elements, and an overall unpleasant experience that can dissuade potential passengers from using a transit service.

- They are a vital part of a transit program's public image. As something that is always part of the surrounding neighborhood, attractive and well-maintained bus stops and other passenger facilities can provide a positive image that can help generate public support of the overall transit program.

- They are integral parts of the surrounding communities. Properly designed bus stops can provide an attractive element to the streetscape, while minimizing the impacts of transit passengers on adjacent properties and avoiding undue impact on traffic operations.

Passenger facilities are particularly important in a transit service's ability to attract "discretionary" riders, who have the option of the comfort and convenience of a private automobile. Good accessible design also encourages use of the transit system by passengers with disabilities, seniors, or others traveling with luggage, baby strollers, or bicycles.

The purpose of this report is two-fold. First, the study report provides transit improvement standards appropriate to the specific conditions of the LTA service area. These standards are intended to guide government agencies, commercial and residential developers, employers, and others in their efforts to provide attractive and

safe transit facilities for the County's transit patrons. The report is not intended to supersede the authority of the local jurisdictions, but rather to offer criteria, complementary to existing standards, for the design facilities that can support the overall transit program. It is important for individual jurisdictions and business leaders throughout Lake County to consider how best to incorporate land uses and road networks that support public transportation, while providing transportation infrastructure that supports overall community goals.

Secondly, this document presents a recommended program of transit passenger facilities improvements. This program was based upon an extensive inventory of existing stops throughout Lake County, a review of existing traffic conditions, the pertinent elements of the Americans with Disabilities Act (ADA), and the Consulting Team's findings regarding the most effective overall strategy for improving the quality of service provided to LTA's passengers.

Chapter 2
Transit Passenger Facility Design Standards

This chapter presents recommended design standards for transit passenger facilities in Lake County. First, general criteria for all types of facilities are provided, including the requirements associated with the Americans with Disabilities Act (ADA). This is followed by recommended standards for specific types of facilities.

GENERAL DESIGN GUIDELINES

In order for a bus stop to be appropriately usable, the design must incorporate various elements that relate to safety and accessibility. The recommended design provides an unimpeded pathway from the building or sidewalk being served by the transit stop and the transit vehicle. This entails positioning street furniture, landscaping, and other obstacles from protruding into the path of travel. Grade-level changes in sidewalks and platforms should also be avoided. Flat, stable surfaces and seating adjacent to pathway routes are also important. The path of travel from the designated waiting area to the vehicle must have a simple and consistent layout. The design should include unbroken travel paths from the sidewalk to the bus boarding platform as well as adequate illumination where necessary.

In rural areas like Lake County, it is not uncommon for bus stops to be located along paved roads with open ditches along the sides to channel storm water. Pedestrians walking to and from bus stops are often required to travel on the shoulder of the road. In these areas, transit riders also must board and deboard buses without the benefit of a curb to lift them closer to the first step of the bus, and transit passengers have to get on and off a bus on a gravel or dirt surface. This boarding and unloading situation can be difficult for individuals such as the elderly or those who use wheelchairs, and should be addressed by municipalities in those areas where the replacement of ditches will be a long-term project.

Americans with Disabilities Act (ADA)

A key consideration of design for any public facility is the Americans with Disabilities Act (ADA) of 1990.

The Americans with Disabilities Act (ADA) of 1990 is a major civil rights law prohibiting discrimination on the basis of disability and covers topics such as employment, transportation, and services provided by public entities. Under the ADA, responsibility for developing design requirements for the construction or alteration of facilities is assigned to the Architectural and Transportation Barriers Compliance Board, more commonly known as the Access Board, which is an independent Federal agency. These cover both facilities in the private sector (places of public accommodation and commercial facilities) and the public sector (state and local government facilities). In 1991, ADA Accessibility Guidelines (ADAAG) were published to serve as the basis for

standards used to enforce the law and were periodically updated after adoption by the Department of Justice (DOJ) and the Department of Transportation (DOT), which are responsible for actual enforcement. In 2004, the Access Board issued updated accessibility guidelines for new or altered facilities. These new guidelines overhaul the original ADAAG, although more in format than substance when applied to transportation facilities (which include bus stops), but have not yet been adopted by either DOJ or the DOT, and are therefore not enforceable as of this writing. (NOTE: The DOJ rules are not expected to be issued in final form for a year or two, although the DOT implementing regulations may be published at almost any time from now. It is expected that the DOT rules will go into effect 30 days after publication in the *Federal Register*.)

The guidelines also have implications under the *Architectural Barriers Act (ABA)* of 1968. The ABA requires access to facilities designed, built, altered, or leased with Federal funds. The U.S. Access Board has updated its guidelines for ABA facilities jointly with the new ADA guidelines so that a consistent level of access is specified under both laws. In addition, the Access Board is currently reviewing new guidelines for Public Rights of Way (PROW), which are expected to eventually affect bus stop requirements and access.

Existing Facilities

The ADA and ABA guidelines cover new construction and planned alterations and generally do not apply to existing facilities except where altered. Facilities built or altered according to earlier versions of the ADA or ABA standards will not necessarily have to meet the updated version except where they are subsequently altered or renovated. It is expected that the DOJ, which regulates requirements for existing facilities under the ADA, intends to address coverage of facilities built or altered according to the original ADA standards in its forthcoming rulemaking to update the standards, although it is not yet known when a formal Notice of Proposed Rulemaking (NPRM) will be issued. Another unknown is the extent to which the NPRM and final regulations will require retrofitting of existing facilities, such as the requirement for barrier removal in places of public accommodation. With respect to ABA facilities, the Board has clarified in the guidelines that facilities built to earlier ABA standards are subject to the new requirements only in relation to planned alterations.

Properly located, adequately designed, and effectively enforced bus stops can improve public transportation service and expedite general traffic flow. Decisions regarding bus stop areas and locations require careful analysis of passenger requirements and the interaction of stopped buses with general traffic flow. It is imperative that the following guidelines serve as general design principles to be interpreted and adapted to site specific situations in each jurisdiction. The recommendations presented in the subsequent section incorporate concepts to improve passenger safety, comfort, and accessibility as well as baseline ADA requirements.

TRANSIT FACILITY DESIGN

The following policy section reflects the LTA system goal of providing mobility for all citizens, as stated in the *Lake County Transit Development Plan*. The transit improvement design guidelines presented in this section are organized by the following topics:

- Bus stop area, bus landing pads, and accessible paths
- Bus stop spacing
- Bus stop placement
- Bus pullouts
- Signs
- Passenger amenities (shelters, benches, trash receptacles, lighting, bicycle parking)
- Park-and-ride/multimodal facilities
- Turning radii

Bus Stop Area, Bus Landing Pads, and Accessible Paths

Figure 1 illustrates the recommended bus stop design for either a rural or urban area. As shown, the recommended design encompasses the baseline requirements of the Americans with Disabilities Act and allows patrons to have direct access to the transit vehicle. In Lake County, however, sidewalks are not common, and it may not be feasible to have a concrete landing pad at each stop.

The recommended bus stop, as illustrated, provides an accessible and comfortable waiting area for all transit users. Wheelchair users in particular require a stable, level, and unobstructed landing pad for the wheelchair lift or ramp to be deployed when boarding and alighting the bus. With respect to the waiting area, wheelchair users also require adequate spacing at the stop to wait, as well as adequate space to maneuver from the waiting area to the landing pad.

Anecdotal experience throughout the country shows that a curb of some sort is usually necessary in order for a wheelchair user to be able to easily get on or off a bus with a ramp, even if the ramp is allegedly "ADA compliant." The lack of curbs in Lake County, however, limits the choices of buses that can be employed, and may limit the efficiency of serving the disabled.

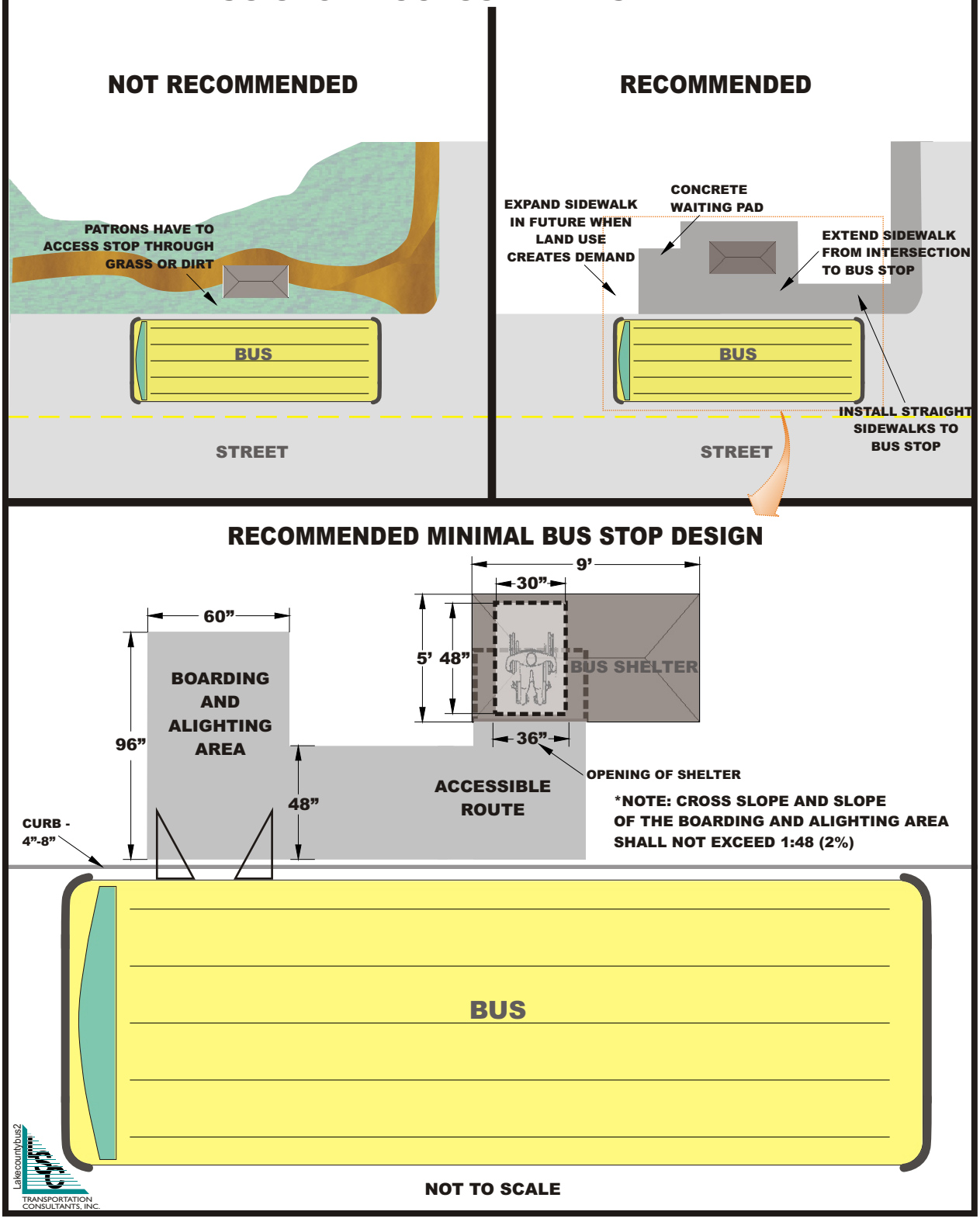
As virtually all transit passengers are also pedestrians on one or both ends of their trip, well-planned access ways that provide direct, safe, and attractive access to bus stops can significantly encourage transit use.

Accessible path design should include the following:

- Access to and from bus stops should be as direct as possible.
- The site design process for new developments should strive to reduce the length and inconvenience of pedestrian accessways between destinations and transit stops.

FIGURE 1

EXAMPLES OF RECOMMENDED AND NOT RECOMMENDED BUS STOP ACCESS IN A RURAL AREA



- A sidewalk should be provided from the nearest intersection to the bus stop to provide a minimum level of access, if possible. Of course, this is not feasible for many of the rural stops in Lake County.

Minimum ADA design implications for bus stop areas, bus landing pads, and accessible pedestrian accessways include the following[1]:

- A minimum clear passage width of 48 inches is recommended by the Access Board's guidelines for the public right-of-way. This is especially important next to a curb drop-off.

- An accessible route from the public transportation stops to the route that is accessible for both people with disabilities as well as for the general public.

- The *running slope* of the accessible pathway shall not be steeper than 1:20 while the *cross slope* shall not be steeper than 1:48 (2 percent).

- Parallel to the roadway, the slope of boarding and alighting area shall be the same as the roadway (to the maximum extent practicable). The maximum slope perpendicular to the roadway shall not exceed 1:48 (2 percent).

- The bus landing pad, when installed alone on a shoulder in a rural area, must be elevated 6 inches above road grade for safety and accessibility purposes.

- Stable, firm, and slip-resistant ground and floor surfaces.

- Grating spaces, or drainage grates, which are necessary for water drainage, should be no greater than 9½ inches long in one direction. Spaces longer than this would impede the use of a wheelchair.

Obstacles

All paths from the bus stop to major destinations should be examined for obstacles that may interfere with access to or from the stop. Obstacles that protrude into the access path might restrict wheelchair movements. Obstacles that are higher than 27 inches may cause problems for a person with a vision impairment, who may not be able to detect an obstacle with a cane. Despite their training, it may be possible that a guide dog or other service animal may lead a person with vision impairment off of the path in order to get around the obstacle. Even though it may not be generally considered the responsibility of the transit agency to address accessibility problems along the entire access path, the agency staff should keep in mind that an obstacle may make a path inaccessible for potential patrons who have disabilities.

[1] ADA Accessibility Guidelines for Buildings and Facilities (ADAAG).

Bus Stop Spacing

Bus stop spacing should depend on ridership. Ridership, in turn, is typically affected by development type, such as residential, commercial, or Central Business District. It is recommended that the range of spacing between each stop of Lake County be between 660 to 880 feet on all routes in developed areas[2]. This measurement is a guideline only, and other factors should be considered when planning the actual location of bus stops, including the availability of pedestrian access and the location of major trip generators. Bus stops shall be placed close to subdivision access points and within one block of activity centers such as shopping centers, schools, health care facilities, social service offices, apartment complexes, and mobile home parks.

Studies have shown that transit use begins to drop off when potential users have to walk more than 1,000 feet. A survey from the *Lake County Transit Development Plan (2004)* found that a majority (55 percent) of users who walked to the bus walked 0-2 blocks while 76 percent walked 0-4 blocks. It has also been found that too many stops can impede performance of the transit system by making it unnecessarily slow.

Bus Stop Placement *(Far-Side, Near-Side, and Mid-Block Stops)*

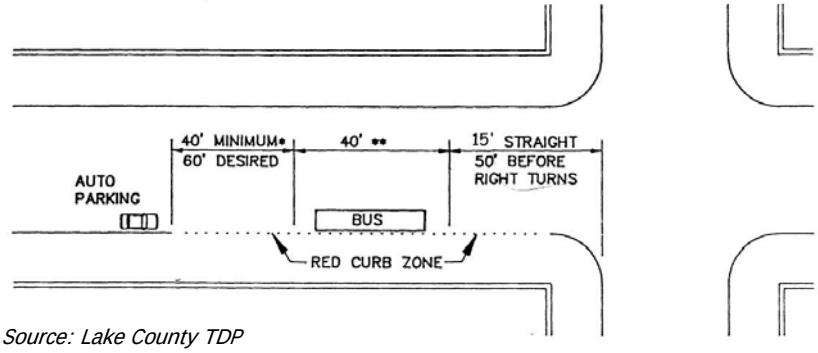
For the purpose of this report, the bus stop placement design guidelines have been based upon the design standards presented in the *Lake County Transit Development Plan* from June, 2004. Most of the recommended bus stop improvements are within either the jurisdictions of Clearlake or Lakeport, however, any new or improved bus stop facility that is to take place along a County maintained road would be obligated to review the County design standards as well.

Bus stops can be located far-side, near-side, or mid-block, as shown in the diagrams below.

Far-Side Bus Stops are recommended at intersections where sight distance or signal capacity problems exist, where parking conditions are critical, where right or left turns by general traffic are heavy, and where buses make left turns. In general, transit agencies and traffic engineers prefer to standardize on far-side stops unless conditions indicate that near-side or mid-block is required because standardization benefits the visually impaired. The recommended far-side bus stop is illustrated in Figure 2 below.

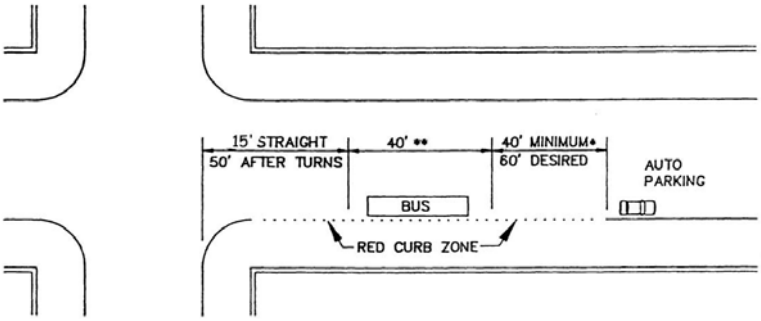
Near-Side Bus Stops shall be the preferred alternative where buses make right turns, and shall also be an alternative at intersections where transit flows are heavy, but traffic and parking conditions are not critical. The recommended near-side bus stop is illustrated in Figure 3 below.

[2] *Lake County Transit Development Plan*, June 2004.



Source: Lake County TDP

Figure 2:
Far Side Stop

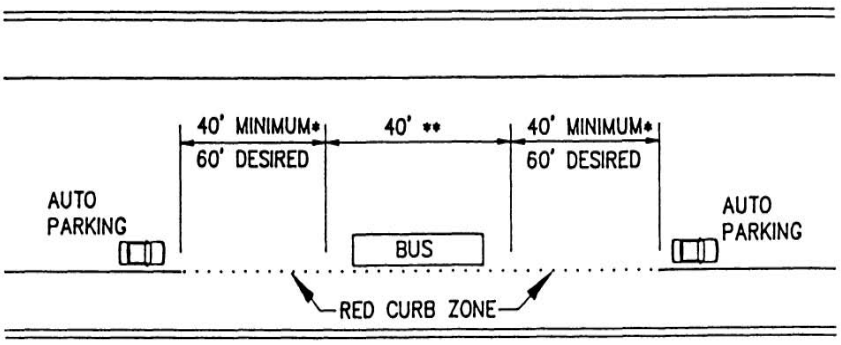


Source: Lake County TDP

Figure 3:
Near Side Stop

Mid-Block Bus Stops shall be an alternative in strip commercial areas where the block faces are longer, with multiple destinations served within the block, in downtown areas where multiple routes require long loading areas that might extend an entire block, or where traffic, physical, or environmental conditions prohibit near or far-side stops.[3] The recommended mid-block bus stop is illustrated in Figure 4 below.

[3] *Lake County Transit Development Plan*, June 2004.



Source: Lake County TDP

Figure 4
Mid-Block Stop

When choosing among near-side, far-side, and mid-block locations, the following factors should also be considered:

- Intersection geometry and impact on intersection operations.
- Potential need for future passenger amenities.
- Adjacent land use and activities.
- Bus signal priority (e.g., an extended green suggests far-side placement).
- Bus routing (e.g., does the bus turn at the intersection? Are there intersecting routes?).
- Parking restrictions and requirements.
- Pedestrian access, including accessibility for persons with disabilities.
- Physical roadside constraints (e.g., trees, poles, driveways).
- Ridership potential.
- Presence of bus bypass lane.
- Traffic control devices.

Bus Pullouts

Bus stops may be designed with a pullout, which is a specially constructed area off the normal roadway section provided for bus loading and unloading which allows the transit vehicle to board and alight passengers in an area outside the traveled way.

Pullouts are appropriate where traffic conditions prohibit conventional on-facility placement of bus stops. Pullouts are also recommended in locations where it is likely to be hazardous for a bus to stop in the travel lane and are provided primarily on high-volume and/or high-speed arterials. The decision to construct a bus turnout should include an evaluation of the impact on public transportation as well as private vehicle operations. On the other hand, too many or poorly designed bus pullouts can actually impede the performance of the transit system (and other vehicles) as buses may have greater difficulty pulling out into traffic. As with most improvements, pullouts should be coordinated between transit staff and the local jurisdiction.

Typically, a bus pullout is necessary at locations where it may be hazardous to stop the bus in the travel lane and no shoulder or parking lane is available. This report defines these areas in terms of Average Daily Traffic (ADT). Based on design guidelines in various rural areas throughout the country, roadways adjacent to bus stops with a speed limit of 35 milers per hour (MPH) or higher and a peak-hour volume of 250 or higher in the lane of travel warrant a bus turnout[4]. Assuming a typical traffic pattern in which 10 percent of daily traffic occurs in the peak hour and daily volumes are balanced between the two directions, this corresponds to an ADT of 5,000 for a two-lane roadway and 10,000 for a four-lane roadway.

Pullouts are also appropriate in the following circumstances:

- When the potential for conflicts between transit and passenger vehicles warrants separation of the two. For example, a bus stop located in a travel lane of a signalized intersection often requires a turnout to prevent the stopped bus from causing traffic to queue through the intersection.

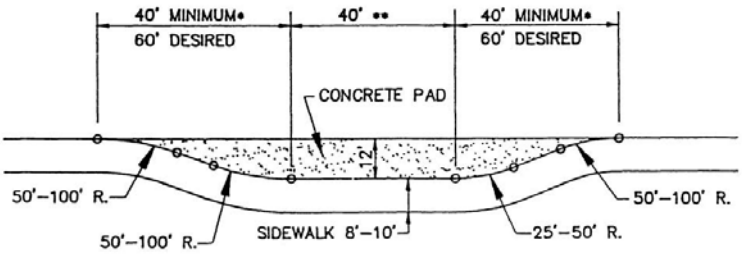
- Under conditions with high or increasing bus or passenger volumes or on high speed roads.

For stops located at low-speed, low-volume roadways without unusually high passenger activity, it is appropriate for transit buses to stop in the travel lane. This condition applies to many of the LTA stops located off of the state highways or urban arterial roadways. The recommended bus pullout is illustrated in Figure 5 below.

Signs

It is recommended that signs be posted at all bus stops. Signed stops are a key element in informing passengers where service is available. In addition, bus stop signs provide a permanent “presence” on the street that substantially increases public awareness of the transit program, among riders and non-riders alike.

[4]The Oregon Department of Transportation, *Design Guidelines for Public Transportation*, Chapter 12, 12-6.



Source: Lake County TDP

Figure 5:
Bus Pullout

The most common type of sign is a flag sign displaying route and passenger information. The design of bus stop signs should be standardized throughout the system so they are instantly recognizable. It is useful for signs to be double-sided (so they can be read from both directions) and reflectorized (for easy night reading). It is recommended that bright colors are used for easy bus stop identification. Characters and background of signs should have a non-glare finish, however, with characters and symbols contrasting from their background. Currently, all existing LTA signs are purple and white, which fade easily. Pictograms, such as the LTA design, should have a field height of 6 inches minimum, should contrast with their background, and should be separate from the other characters on the sign.

The design elements on the sign should include the LTA logo, the route numbers that serve the stop, a phone number for transit information, and, optionally, the major destination of the routes available at the stop.

The bus stop sign should, wherever possible, be placed even with where the operator is trained to stop the front door of the bus, to let patrons know where to stand. Signs closer to the curb should be positioned to face toward the sidewalk to prevent bus mirrors from hitting the signs. Placement within an existing sidewalk of four feet or less width should be avoided wherever possible. Signs can be located on existing poles, such as streetlights or other traffic information signs. Unprotected sign posts should be of the break-away type to minimize injuries and damage resulting from motor vehicle accidents.

Metal poles at bus stops should be easily recognized, especially for persons with visual disabilities. There are a few methods that can be used in order to distinguish a bus stop pole from other street poles commonly used by a public works department:

- Erect metal poles with a distinctive pattern and shape, such as a square or hollow-holed pole.

- Enhance existing poles with a band of distinctive adhesive at a minimum height of four feet. This marking should be brightly colored (ideally, the band would be the same color as the transit system), waterproof, and should possess a distinctive texture.

In light of budget constraints, it is recommended that LTA utilize the latter of the two options described above. It is also recommended that a community meeting(s) be conducted in order to determine which method is most effective for visually impaired local patrons. Braille markings may help some passengers, but many persons with visual disabilities do not use Braille.

Minimum ADA design implications apply to the installation of new or replacement signs and include the following and are illustrated in Figure 6 below:

- The bottom of the sign should be at least 7 feet from the ground, and the sign should not be closer to the curb than 3 feet. In the areas where there are sidewalks, allow at least 36 inches of clear path on the sidewalk.

- Letters and numbers to be a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.

- Characters and numbers sized according to the viewing distance from which they are to be read.

- Minimum height is measured using an upper case X. Lower case characters are permitted.

- Accompany pictograms with the equivalent verbal description placed directly below, with a border dimension of 6 inches (152 millimeters) minimum in height.

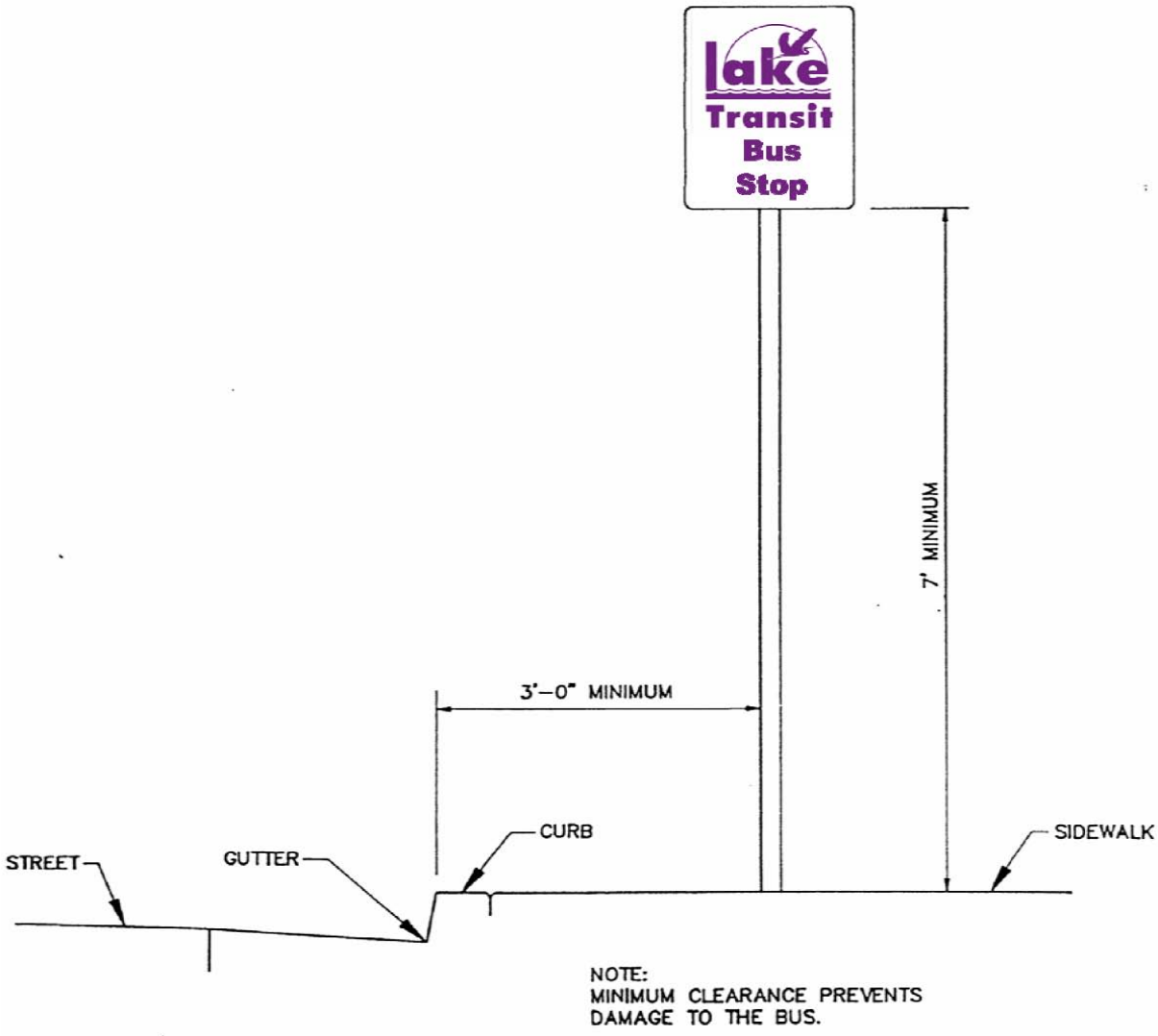
- Follow protruding objects requirements (described in the Accessible Path section).

Passenger Amenities

Passenger amenities are significant elements in attracting public transportation users. Shelters provide protection from the elements and benches add comfort; trash receptacles, lighting, bicycle parking facilities, and other amenities add convenience and safety. Table 1 presents the recommended standards with respect to the need for furniture at a bus stop.

Note that these standards consider only boarding activity, as passengers alighting from a bus usually do not use the street furniture. Other considerations may include the potential of a bench or shelter to attract additional riders based on surrounding activities.

Figure 6:
Bus Stop Sign Dimensions



Source: Lake County TDP

TABLE 1: Transit Facility Furniture Needs for Rural Areas	
Condition	Furniture
Less than 5 Passenger Boardings per Day	None Recommended
Between 5 and 9 Passenger Boardings per Day	Bench
10 or More Passenger Boardings per Day	Shelter

Shelters

A bus shelter provides protection from the elements as well as seating. Typically, a shelter is constructed of clear side panels for visibility and safety. Standardized shelters are available that accommodate various site demands and passenger volumes. Existing Lake LTA shelters are typically 9 feet by 5 feet and installed at stops with 10 or more passenger boardings per day (based on prevailing standards). In a few locations, such as transfer points, larger shelters or multiple shelters may be warranted.

Minimum ADA design implications apply to the installation of new or replacement bus shelters and include the following:

- A minimum clear floor area of 30 inches by 48 inches, entirely within the perimeter of the shelter.
- Maintain shelter openings to be a minimum of 36 inches to allow a wheelchair to pass through.
- Bus stop shelters should be connected by an accessible route to the bus stop landing pad.
- Bus stop shelters should not be placed on the wheelchair landing pad.
- General ADA mobility clearance guidelines should be followed around the shelter and between the shelter and other street furniture.

In addition to the number of boardings per day, other factors that LTA may wish to consider when evaluating the installation of a shelter include:

- Climate (wind, rain, heat, etc.), which may lead to recommendations regarding whether or not to have side panels or the need for air circulation, heating, or cooling systems.
- Vandalism (broken or scribed glazings).
- The number of transfers at a stop.
- The availability of space to construct a shelter and waiting area.

- The number of elderly individuals or people with disabilities in the area.
- The proximity to major activity centers.
- The frequency of service.
- Adjacent land uses.

Benches

Current Lake Transit benches are either 6 feet or 8 feet, and should be installed at stops with five or more boardings per day. Minimum ADA design considerations apply to the installation of new or replacement benches and include the following:

- Clear floor or ground space for wheelchairs.
- 20 inches minimum to 24 inches maximum in "overall" depth for benches with backrests.
- Seat height: 17 inches minimum to 19 inches maximum above the floor or ground.
- Back support: Extends from a point 2 inches maximum above the seat to a point 18 inches minimum above the seat.
- Structure supporting vertical or horizontal forces of 250 pounds applied at any point on the seat, fastener, mounting device, or supporting structure.
- Exposed benches should be slip-resistant and designed to shed water.

Trash Receptacles

Litter at a bus stop is a negative image for the transit agency as well as the community. The installation of trash receptacles at bus stops can alleviate this problem. Not all bus stops require trash receptacles; the decision to include a receptacle at a stop is typically based on boarding counts. If litter is a problem at a particular stop (due, perhaps, to the presence of a fast-food outlet or a convenience store near the stop), a trash receptacle should be installed regardless of boarding counts. Trash receptacles should only be placed at those stops that the transit agency can reliably schedule for trash pickup.

In some instances, communities require maintenance of transit receptacles as a condition of nearby development. There is a mutually beneficial relationship between businesses and transit, and the need to work together with the community, particularly fast-food restaurants, to service trash receptacles.

Lighting

The lighting at a bus stop affects the safety of patrons and the use of the stop by patrons and non-patrons in the hours after sunset. A well-lit bus stop enhances the waiting passengers' comfort and security, while a dimly lit or unlit stop encourages non-patrons to loiter at the stop. It is recommended that from 2- to 5-foot-candles of illumination be provided at all bus stops that will be in use after daylight hours. Lighting fixtures should be vandal-proof and easily maintained; the use of exposed bulbs and other elements that can be easily tampered with or destroyed should be avoided. When possible, bus stops should be located near existing streetlights as this is a cost-effective method of providing adequate lighting. Another option is the use of solar power to illuminate bus shelters. Typically, the power system mounts to a pole which makes it compatible with any shelter and maximizes the solar energy harvest.

Bicycle Parking

It is appropriate to provide bicycle parking at some bus stops. The provision of bike parking facilities discourages bicycle riders from locking their bikes to the bus stop structures or to structures on adjacent properties, and reduces visual clutter by locating bikes together in one area. Bicycle parking facilities should be located away from other activities, to reduce congestion and improve safety. At lighted stops, the bike parking should be located near the lighting to offer protection from theft. The bike parking should not restrict views into the bus stop area. It is recommended that racks for bike parks be provided at bus stops where there is the potential for a high level of patrons access by bike, such as near educational facilities.

Park and Ride/Multimodal Facilities

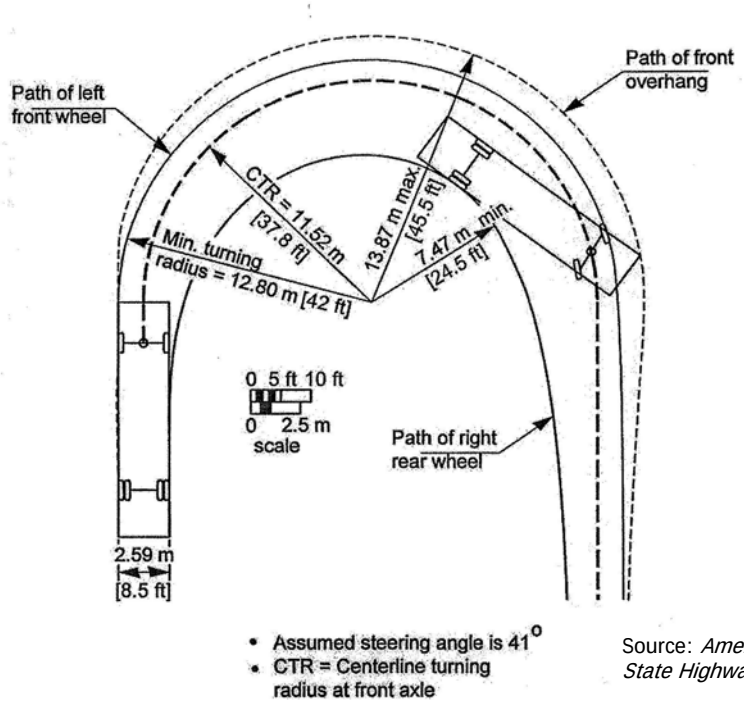
Multimodal, or intermodal, centers are facilities designed to encourage the transfer between travel modes. Multimodal centers for the purposes of this study are those that facilitate the transfer to buses of users of other modes of transportation. Typically, park-and-ride lots and transit transfer facilities meet this criterion. Amenities that should be provided at these facilities include one or more shelters and benches, adequate lighting, an auto drop-off area, bicycle parking, motorcycle parking, toilet kiosks, and appropriate landscaping.

Transit Vehicle Turning Radii

It is important that intersection turning radii allow turning movements by the largest expected vehicle to be made in a safe manner, without damaging either the vehicle or the curb. Inadequate curb radii can require vehicle travel paths to swing into additional travel lanes, creating potential safety problems, while excessive requirements can increase pedestrian exposure to traffic, thereby increasing potential pedestrian safety problems.

For LTA buses, a turning radius of 45.5 feet, measured from the outer front overhang, is recommended for a 35-foot bus as illustrated in Figure 7 below. The measurement is based on the *American Association of State Highway and Transportation Officials* design guidelines for 40-foot buses. The same radii has been determined for 35-foot buses, accounting for a small measure of error.

Figure 7: Minimum 40' Bus Turning Radii



Source: *American Association of State Highway and Transportation Officials.*

LAND USE DEVELOPMENT PLANS

Land use decisions play an important role in determining the viability of public transportation and the feasibility of serving portions of the community. In recognition of this important relationship, local actions may be further addressed to encourage transit use in the community, which include coordination with the *Lake County General Plan* and the *Highway 20 Traffic Calming and Beautification Plan*.

A key issue in Lake County is that many of the existing retail, commercial, and office facilities have not allocated space for bus stops. As a part of the Lake County transit passenger facility policy, it is proposed that existing and future retail, commercial, residential, and office facilities include bus stops as either part of their design or as a retrofit design where applicable. This policy should apply to those future and existing facilities that generate the most frequent transit use and have the greatest interest in accommodating bus stop facilities. Two existing facilities are the Safeway in Lakeport on 11th Street as well as the Kmart on South Main Street.

Transit Oriented Development (TOD)

Transit Oriented Development (TOD) is the general planning concept of locating dense mixed-use development around a transit station in an effort to create a pedestrian-friendly environment which encourages transit ridership. TODs may consist of a combination of retail uses, employment opportunities, and residential land uses within a quarter- or half-mile of a rail/bus station with progressively lower density uses

spreading outwards from the transit station. Elements of a Lake County TOD may include the following:

- Encourage in-fill and redevelopment by designating underdeveloped or declining neighborhoods for public investment.

- Promote mixed land-use in redevelopment areas.

- Specify in city or county ordinances a maximum setback for buildings fronting transit corridors.

- Require in city or county ordinances that the front of the buildings be oriented to the street to encourage walking and the use of public transportation.

- Provide incentives such as density bonuses or reduced parking requirements for developers who design pedestrian-friendly projects.

- Incorporate pedestrian-friendly design guidelines in street design manuals for all new developments.

Table 2 presents a summary of the *LTA Bus Stop Facility Policy* described in this chapter.

TABLE 2: LTA Bus Stop Facility Policy Summary

Facility Component	Policy Description
Bus Stop Area, Bus Landing Pads, and Accessible Paths	• A minimum clear passage width of 48 inches. • The maximum slope perpendicular to the roadway shall not exceed 1:48 (2 percent). • Stable, firm, and slip-resistant ground and floor surfaces. • Grating spaces that are no greater than 9½ inches wide in one direction. • The bus landing pad, when installed alone on a shoulder in a rural area, must be elevated 6 inches above road grade for safety and accessibility purposes.
Bus Stop Spacing	• Spacing between each stop should be between 660 to 880 feet in developed areas.
Far-Side Bus Stops	• Recommended at intersections where sight distance or signal capacity problems exist, where parking conditions are critical, where right or left turns by general traffic are heavy, and where buses make left turns. Shall be standard practices in Lake County.
Near-Side Bus Stops	• Recommended where buses make right turns, at intersections where transit flows are heavy but traffic and parking conditions are not critical. To be considered where far-side stops are not practical.
Mid-Block Bus Stops	• Recommended in strip commercial areas where the block faces are longer, with multiple destinations served within the block, in downtown areas where multiple routes require long loading areas that might extend an entire block, or where traffic, physical or environmental conditions prohibit near or far-side stops.
Bus Pullouts	• Roadways adjacent to bus stops with a speed limit of 35 milers per hour (MPH) or higher. • A peak-hour volume of 250 or higher in the lane of travel. • An ADT of 5,000 for a two-lane roadway and 10,000 for a four-lane roadway. • ADA requires a minimum of 60 inches between the vehicle and the passenger for a passenger loading zone. • Other locations where stopping a transit vehicle in the travel lane is likely to create a safety concern.
Passenger Amenities	
Signs	• Signs should be double-sided so they can be read from both directions. • Signs should be reflectorized for easy night reading. • Signs should have bright colors, a non-glare finish, and the characters and symbols that contrast from their background. • The bottom of the sign should be at least seven feet from the ground and no closer to the curb than three feet but meet ADA clearance standards.
Shelters	• Installed at stops with 10 or more passenger boardings per day. • Typically 9 feet by 5 feet. • A minimum clear floor area of 30 inches by 48 inches. • Maintain shelter openings to be a minimum of 36 inches for wheelchair access. • Connected by an accessible route to the bus stop landing pad.
Benches	• Bench sizes are typically 6 feet or 8 feet. • Clear floor or ground space for wheelchairs. • Exposed benches should be slip-resistant and designed to shed water.
Trash Receptacles	• Based on boarding counts • LTA should work with businesses to service trash receptacles.
Lighting	• Recommended that from two to five foot-candles of illumination be provided. • Vandal-proof and easily maintained. • Possibility of solar power to illuminate bus shelters.
Bicycle Parking	• Located near lighting and away from other activities. • Racks should be provided where needed.
Park and Ride/Multimodal	• Designed to encourage the transfer between travel modes. • Examples are park-and-ride lots and transit transfer facilities.
Transit Vehicle Turning Radii	• A 35-foot bus should have a 45.5-foot turning radius measured from the outer front overhang.
Land Use Development	• Existing and future retail, commercial, residential, and office facilities should include bus stops as either part of their design or as a retrofit design.

Source: LSC Transportation Consultants, Inc.

Chapter 3
Transit Passenger Facilities Development Plan

The transit passenger facility plan for Lake County was developed based upon the following:

- The design guidelines presented in the previous chapter.
- A comprehensive data collection effort (as described below).
- A review of current legal issues regarding transit facilities (as also described below).

This plan was developed for a total of 235 individual transit passenger facilities in Lake County[3]. Note that LTA also serves stops in Napa County and Mendocino County, which were not considered for this report because these stops are outside of Lake County jurisdiction.

DATA COLLECTION

In April 2006, LSC Transportation Consultants, Inc. performed a comprehensive field evaluation of the 235 bus stops along all LTA routes throughout Lake County. For each bus stop, the following information was collected:

- Determination of Global Positioning System (GPS) coordinates (latitude and longitude).
- The characteristics of stop, including the presence of a bus stop sign and the condition of the sign, existing "street furniture" (bench and/or bus shelter).
- ADA compliance.
- Driver sight distance, for both transit drivers as well as for oncoming drivers.
- The presence of an adequate bus pullout area.
- Pedestrian access and crossing protection.
- Adjacent properties and neighboring land uses.

LTA staff also assisted in this field data collection, particularly with regards to the identification of existing unsigned stops. Other data was collected for each stop through the following agencies:

- Traffic count data on roadways with transit stops (collected from Caltrans, Lake County, the City of Lakeport).

[3] As many stops are served by more than one route, summing the number of stops on each route yields a total of 313 stops by route.

- The most recent available transit passenger boarding and alighting data by route and stop on LTA services (collected from LTA contractor staff).

It is important to note that the traffic volume data, as well as the boarding and alighting data, was collected by various agencies previous to the initiation of this project. This data is the most current data available to date. The collected data was entered into the ArcGIS Geographical Information System (GIS) program. A complete database of bus stop facilities by route can be found in Appendix A. It is worth noting that the bus stops have been assigned new bus stop identification numbers as part of this study.

In addition, meetings were held between the Consultant Team, LTA staff, LC/CAPC staff, Lake County, the City of Clearlake, and the City of Lakeport. As part of these meetings, specific issues with regards to transit stops were discussed in each jurisdiction, along with the potential to coordinate transit stop improvements with other roadway or development projects.

DESIGN IMMUNITY CONSIDERATIONS

The LTA Board should review new and modified bus stop locations and establish policies for "design immunity" as laid out in CA Government Code section 830.6. In order to establish design immunity, it is recommended that LTA formally adopt and follow the following guidelines:

- The LTA Board should review and adopt the design/location standards for bus facilities prior to establishing or modifying a bus stop. (Reasonable design standards presented in this report are largely based on the 2004 ADA Accessibility Guidelines (ADAAG) as well as the Transit Cooperative Research Program Report #19, *Guidelines for the Location and Design of Bus Stops*.)

- LTA staff should monitor bus stop incidents and maintain a record of all such incidents. Annually review incidents to determine whether a facility's design or location has become potentially hazardous.

- When changes in land use near transit stops change pedestrian access patterns, stop location should be reviewed within a reasonable amount of time to determine if a potentially hazardous condition has been created, and document the findings.

- Gain legal counsel input on appropriate documentation for stop location and design decisions.

- Coordinate transit standards and locations with other jurisdictions. Ideally, local jurisdiction's plans would mirror the stop locations identified in LTA plans.

Please note that there is no legal means of ensuring that LTA liability regarding bus stops is eliminated completely. With the steps identified above the risks to the transit organization associated with liability for incidents at or near transit stops should be minimized.

RECOMMENDED TRANSIT PASSENGER FACILITIES PLAN

The following transit passenger facility plan was categorized by community area for unincorporated Lake County and "municipality" for Clearlake and Lakeport. A priority implementation list for each specific area was determined based on various factors including the presence and condition of a bus stop sign, safety, traffic volumes on the adjacent roadway which determines the need for a safe bus pull-off area, and boarding and alighting counts at each stop. These factors were used to prioritize bus stop facility improvements. Figure 8 illustrates all of the existing LTA bus stop facilities in Lake County. Figure 9 illustrates the LTA System Map, which shows each route and the area served.

It is important to keep in mind that the following improvements are not intended to be at exact locations and can be relocated in order to fit other improvements. Each area in Lake County has been analyzed in terms of the following facility improvement categories:

- Signage

  It is recommended that all LTA stops be designated with consistent signs and existing deficient signs be replaced. It is recommended that all the bus stop signs are double-sided, brightly colored, and standardized throughout the system so they are instantly recognizable. This improvement is recommended both for operational reasons (to provide more consistent service that does not vary by driver), as well as marketing reasons (to provide a better image of the transit system to both passengers and the general public). Overall, there are 82 bus stops in Lake County that require signage.

- Improve Accessibility

  At this time, transit vehicles cannot safely load wheelchairs at 87 facilities (approximately 37 percent of all existing stops). Note that wheelchair accessibility does not necessarily mean that the bus stop facility is currently "ADA compliant" according to the ADA Accessibility Guidelines (ADAAG). While all bus stop facilities should accommodate wheelchairs, those stops which pose the greatest safety and/or accessibility concerns should be considered first. One method used to accomplish this goal is to install bus landing pads, as described below.

Figure 8
Existing LTA Bus Stop Facilities

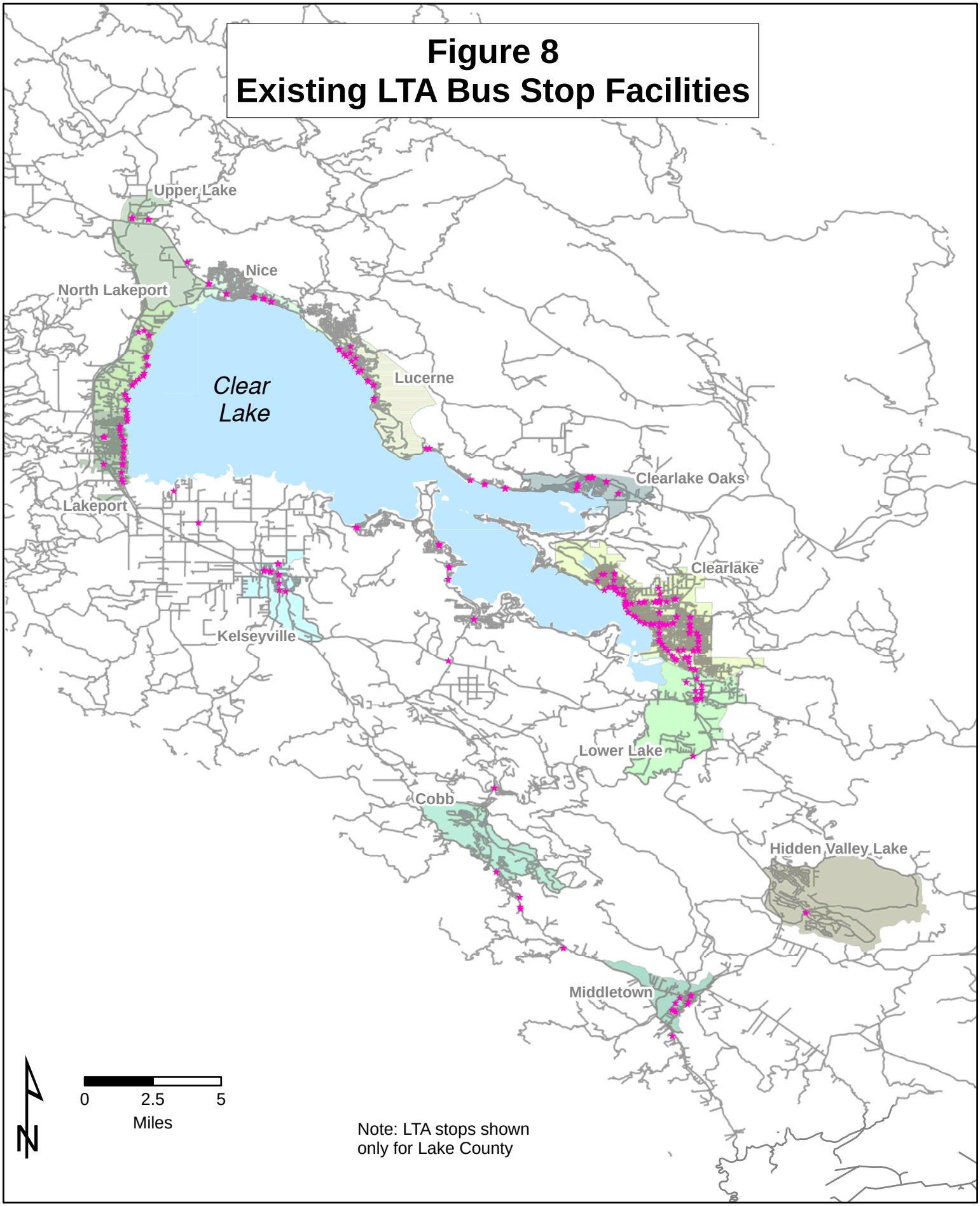


FIGURE 9

LTA SYSTEM MAP

- Bus Landing Pads

  As mentioned, in a rural area like Lake County, it is not uncommon to have paved roads with open ditches along the sides, and most roads do not have sidewalks. In order to accommodate rural transit users with disabilities, a bus landing pad is often installed on the shoulder to create an accessible bus stop. A total of 94 locations warrant bus landing pads, for accessibility as well as to accommodate the installation of street furniture. The pad must follow regulations set forth in the policy section of this report.

- Provide Bus Pullouts

  At this time, 140 (approximately 60 percent) of the existing bus stop facilities in Lake County provide the opportunity for transit vehicles to pull out of the travel lane onto a safe pullout area. Bus pullouts for 28 additional bus stops have been recommended based on the factors described in the design guideline section of this report. These locations have been identified as those sites where (1) transit vehicles must stop at least partially in the travel lane to serve the stop, (2) travel speeds are 35 mph or greater, (3) traffic volumes in the blocked lane equal 2,500 per day or greater, and (4) passenger activity is high.

- Provide Street Furniture

  Benches

  Based on current needs and conditions, it is recommended that a bench (without a shelter) is installed at an additional 28 facilities. This list is based on the design guideline section of this report, which states that bus stop facilities with 5 to 9 boardings per day warrant a bench. As ridership increases, more benches will be recommended.

  Shelters

  It is also recommended that shelters be installed at an additional 15 locations. The current shelter needs (6 shelters) are based on the design guideline section of this report, which states that bus stop facilities with 10 or more boardings per day warrant a shelter, while the other 9 improvements are based on expected needs as suggested in the *Highway 20 Traffic Calming and Beautification Plan*.

- Crosswalks

  Due to the fact that the standards for installing a crosswalk differ from one jurisdiction to the next, this report does not include a discussion of whether a crosswalk is warranted at a particular location or not. It is recommended that the jurisdictions consider the level of passenger activity (high activity, low activity, etc.) at each facility while developing their respective pedestrian facilities plans. Annual reports should be provided to each jurisdiction summarizing the level of passenger activity at each stop as well as pedestrian/vehicle accidents, if possible.

The following discussion provides a detailed account of recommended bus stop improvements by area. A complete inventory of existing LTA bus stops and recommended facility improvements, by area, is included in Appendix A.

CLEARLAKE

The City of Clearlake encompasses Route 5 and most of Route 6 as well as portions of Routes 1 and 4. Like much of Lake County, Clearlake faces the challenge of integrating transit passenger facilities with the surrounding environment. The lack of right-of-way and sidewalks, especially in the residential portion of Clearlake, makes this task even more difficult.

As mentioned in the policy section in Chapter 2, one of the key objectives of this report is to ensure that all of the existing retail, commercial, and office facilities that generate the most frequent transit ridership have space allocated for bus stops.

Typical residential streets in Clearlake.

The LTA transit system might utilize such "unimproved" stops in residential areas by installing bus stop pads in order to create an accessible bus stop. The challenges for installing improvements include the acquisition of right-of-way as well as private property.

The following is a description of the priority transit passenger facility improvements for the City of Clearlake, as listed in Table 3.

Ray's Food Place, Bus Stop ID# 11.01, Route 1W, Clearlake

Ray's Food Place serves as a positive example of a commercial facility that has designated a portion of its property for a bus stop facility. A shelter and designated bus bay area are located at the north of the building and serves the entire commercial center, including McDonald's and Wal-Mart. The use of this space benefits the businesses at this location as well as the patrons of these businesses who depend on public transportation. There is a need, however, for more seating and/or shelter, and

TABLE 3: LTA Priority Facility Improvements - Clearlake

Priority Improvements

Stop ID #	Route #	Area	Street	Cross Street	Landmark	Recommended Improvements	Identical Stops[1]
11.01	1W	Clearlake	Dam Road Ext.	N/A	Ray's Food Place, Wal-Mart, McDonalds	Install sign, improve passenger waiting area	30.01, 40.05, 41.17, 50.01, 50.51, 60.01
60.39	6	Clearlake	18th	Eureka	Highlands Medical Center	Move stop to parking lot adjacent to medical office, inform patrons of eastbound hospital access only, install sign	--
60.18	6	Clearlake	Olympic	N/A	Burns Valley Mall	Install bus stop, pullout, shelter, and landing pad	10.44
60.14	6	Clearlake	Olympic	Burns Valley	Safeway - East Side	Install bench, sign, and landing pad adjacent to Safeway	--
60.17	6	Clearlake	Olympic	Burns Valley	Safeway - West Side	Install bus stop, sign, shelter, and landing pad adjacent to Safeway	--

Other Improvements

Facility Improvement	Quantity
Signage	38
Improve Accessibility	42
Provide Bus Pullout	15
Install Bus Landing Pad	45
Provide Street Furniture	
Bench	18
Shelter	3

Note 1: Multiple routes stop at identical locations.

Note: Appendix A lists the complete LTA bus stop facility locations by area and route, as well as recommended improvements and general inventory.

Source: LSC Transportation Consultants, Inc.

for landscape improvements to mitigate the damage that waiting passengers are doing to the area. This could include more paving, raised planter boxes, trees, shopping cart corral, etc. The project should be done cooperatively with Ray's. Since they are providing the space, LTA should provide improvement funding based on an agreement for continuing use as a bus stop.

Ray's Food Place, Clearlake
Routes 1, 3, 4, 5 & 6

Highlands Medical Center (18th St), Bus Stop ID# 60.39, Route 6, Clearlake

The bus stop at the crest of 18th Street in Clearlake currently serves the Highlands Medical Center offices. Due to the location, both the transit vehicle driver and oncoming drivers have poor sight distance. It is recommended that the stop be relocated to the parking lot area adjacent to the medical office to ensure a safe boarding and alighting zone.

Additionally, Route 6 westbound does not serve the Redbud Hospital due to grade, curve, and congestion in the parking lot. It is recommended that LTA provide a note in the schedule indicating that convenient service to the hospital is only provided by Route 5, not Route 6. This is due to the fact that some passengers currently use this stop to access the Redbud Hospital, which is not recommended.

Highlands Medical Center
Route 6 Westbound

As mentioned, a key issue in Lake County is that many existing retail, commercial, and office facilities have not allocated space for bus stops. A critical existing concern at this time is the lack of pullout space for "designated" stop ID# 60.18, which is located on Olympic Drive and serves Burns Valley Mall in the westbound direction. While there is no pullout space due to limited public right-of-way, it would be necessary to work with the property manager at Burns Valley Mall in order to ensure adequate space for the installation of a pullout as well as a bus stop landing pad and shelter. Fortunately, at this time, vehicles have the ability to avoid the bus by using the center turning lane on Olympic Drive.

Burns Valley Mall
Route 6 Westbound

There is also a lack of "designated" stops in close proximity to Safeway on Burns Valley Road, adjacent to the Burns Valley Mall. As a result, it is recommended that bus stop ID#'s 60.14 and 60.17, which have been ad hoc stops up to this point serving the Safeway in both the north and southbound directions, become officially designated bus stops. At this time, passengers waiting for the bus on either side of Burns Valley Road do not have a designated waiting area, nor is there an existing sign to indicate an LTA bus stop location. It is also not possible to load a wheelchair on the west side, and it is difficult for the bus to pull completely out of the lane of travel.

Safeway/Burns Valley Mall
Route 6 Northbound

Safeway/Burns Valley Mall
Route 6 Southbound

It is recommended that an ADA compliant bus stop and shelter should be constructed adjacent to Burns Valley Road and the Safeway parking lot that would serve Route 6 in the southbound direction (Bus Stop ID# 60.17). While a portion of the shelter would utilize public ROW, additional private property acquisition could be necessary.

Additionally, a bench is recommended on the east side of Burns Valley Road at the corner of Burns Valley Road and Olympic Drive in order to serve patrons traveling north (Bus Stop ID# 60.14). Figure 10 illustrates these two proposed site improvements.

Signage

As described in Tables 3 and 4, 38 LTA bus stop facilities in the city of Clearlake require signage (approximately 47 percent of the system total). In a few instances the sign or pole may need to be repaired. Figure 11 illustrates bus stop facilities in Clearlake with and without existing signage.

Improve Accessibility

As shown in Tables 3 and 5, 42 bus stops in Clearlake require improved ADA accessibility. These locations are illustrated in Figure 12.

Provide Bus Pullouts

As shown in Tables 3 and 6, 15 bus stops in Clearlake require a bus pullout. These locations are illustrated in Figure 13. These locations are not intended to be exact and can be relocated to fit other intersection improvements. It is important to note that all recommended bus pullouts are located on either Old Hwy 53 or Olympic Drive.

Provide Street Furniture

Tables 3 and 7 show the 18 bus stop facilities that warrant a bench (without a shelter) and the 3 facilities in Clearlake that warrant a shelter. Facilities with proposed shelters and benches are illustrated in Figure 14.

Bus Landing Pads

It is also recommended that an elevated bus landing pad is installed at 45 stops throughout the Clearlake area, as shown in Tables 3 and 8. These pads will provide access at stops that lack an accessible path, which is common along residential roads in Clearlake.

FIGURE 10

PROPOSED SHELTER AND BENCH – SAFEWAY / BURNS VALLEY MALL

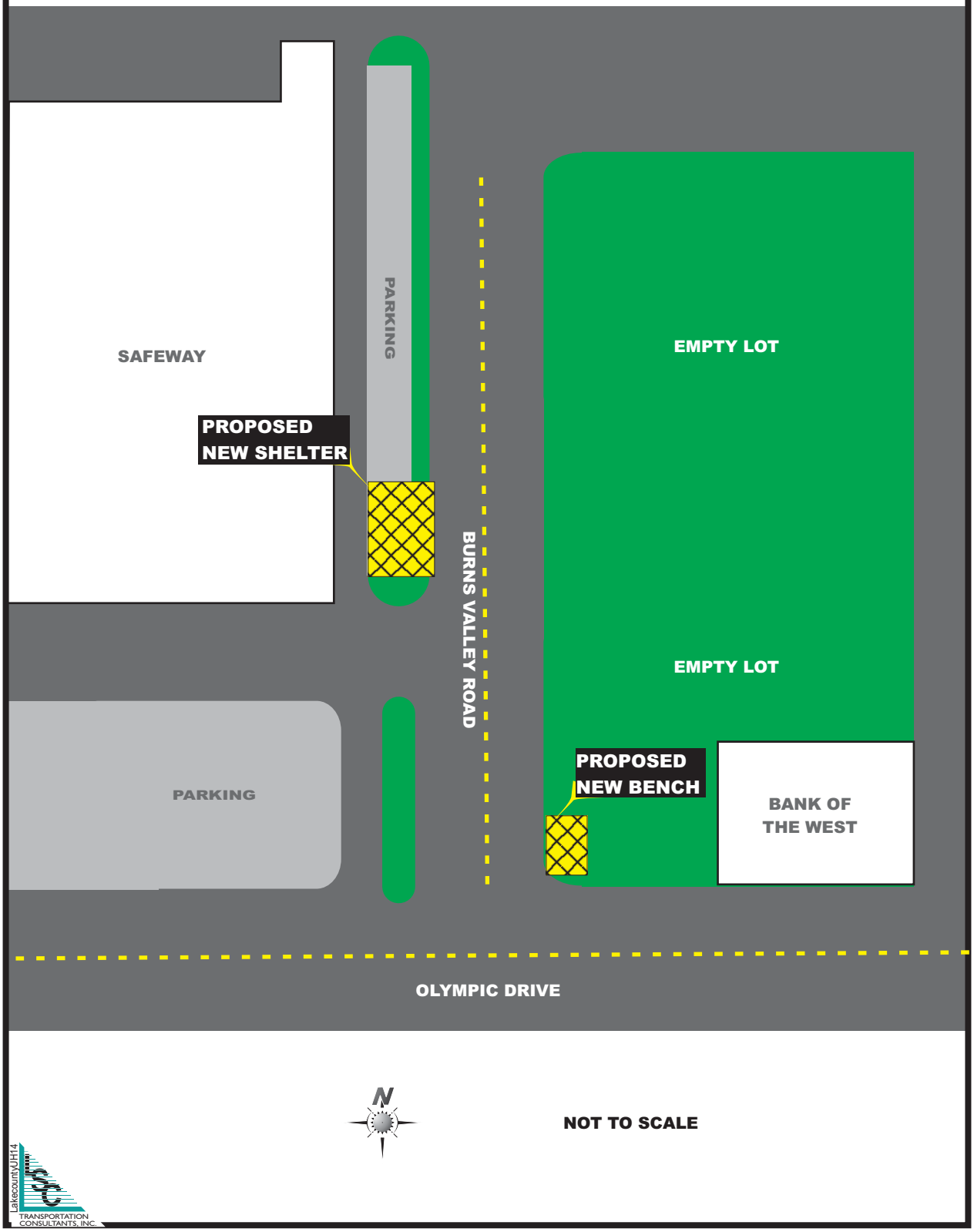


TABLE 4: LTA Bus Stop Facilities Requiring Signage - Clearlake

Stop ID #	Street	Cross Street	Landmark
11.01	Dam Road Ext.	N/A	Ray's Food Place, Wal-Mart, McDonalds
11.14	Olympic	Old Hwy 53	Bank/B&O Tire
40.02	Dam Road Ext.	Old Hwy 53	South Yuba College Access
40.04	Dam Road Ext.	Yuba	Salmina's Floor and More, Yuba College
50.03	18th	Irvine	Residential
50.07	Phillips	33rd	Residential
50.10	Phillips	45th	Residential
50.11	Moss	Davis	Residential
50.22	Lakeshore	Pomo	Capri Cottages
50.29	Bush	8th	Residential
50.32	Country Club	San Joaquin	Residential
50.33	Lakeshore	N/A	PO, fire station, market
50.37	Lakeshore	Olympic	Police Station, Rock House Cocktails
50.44	Old Hwy 53	North of Wayland	Ace Hardware
50.45	Old Hwy 53	N/A	Kingfisher Resort
60.05	Old Hwy 53	N/A	Across from Clearlake Apartments
60.06	Old Hwy 53	Airport Road	Valley Glass, School
60.07	Old Hwy 53	N/A	Senior Housing, J&L market
60.08	Old Hwy 53	Crawford	Cedar Village
60.09	Old Hwy 53	Cypress	Resort Row
60.10	Old Hwy 53	N/A	Mendo Mill
60.11	Old Hwy 53	West 40th	Red Cross
60.12	Old Hwy 53	Hill Rd.	Caprinni Apts.
60.14	Olympic	Burns Valley	Safeway - East Side
60.17	Olympic	Burns Valley	Safeway - West Side
60.20	Olympic	Locust	Old electronics building
60.28	Lakeshore	N/A	Med Center/Market
60.29	Lakeshore	Panorama	Valero/Shoreline Realty, Eye Doctor
60.30	Moss ST	Davis	Residential
60.31	Phillips	45th	Residential
60.32	Phillips	39th	Kool and Kash
60.33	32nd	Philips	Residential
60.34	32nd	Irvine	Residential
60.35	Boyles	29th	Residential
60.36	Boyles	26th	Residential
60.39	18th	Eureka	Highlands Medical Center
60.48	Lake	Dam	Cache Creek Apt.
60.49	Dam Rd.	N/A	Marshall's House

Source: LSC Transportation Consultants, Inc.


Figure 11
LTA Bus Stop Facilities
Clearlake Signage
Clearlake
Legend
Bus Stops with No Signage
Bus Stops with Signage
0
0.25
0.5
1
Miles
N
East Lake
Eastlake
Hillside
Country Club
Oak
Sulphur Bank
Bush
San Joaquin
Lakeshore
Carter
Arrowhead
Golf Club
Sonoma
Fair Oak
Santa Clara
Marin
Yolo
Idaho
Kern
Park
Toyon
Peony
Oleander
Mint
Acacia
Oregon
Felters
Moran
Manakee
Scenic
Pomo
Taawina
Halika
Vista
Kalmia
Kelsey
Owa
Ukiah
Woodland
Moose
Sonoma
Reid
Youngs
Ghiorzi
Sharpe
Smith
Garner
Pamela
Robin
Runsey
Medeiros
Denman
Rose
Brunetto
Myrtle
Old Hwy 53
State Highway 53
Old State Hwy 53
Ogulun Canyon
Bartram
Burns Valley
Bowers
Denton
Grey
Turner
Amber
Lilac
Hayes
Garfield
Polk
Lincoln
Fillmore
Duncan
Argonne
Konocti
Hale
Tuli
Kabal
Memory
Redbud
Rosewood
Villa
Olympic
Madrone
Clarkson
Emerson
Jackson
Harrison
Green
Brown
Risher
Jefferson
Madison
Dexter
Hill
El Camino Real
Saroni
Highlands
Laguna Vista
Davis
Valley
Walnut
Uhl
Pine
Elm
Olive
Locust
Maple
Cypress
Sycamore
Redwood
Austin
Division
Baylis
Evans
Alvita
Howard
Mullen
Laddel
Schulz
Manchester
Ridge
Robinson
Oakland
Buckeye
Berkeley
40th
Pearl
Palmer
Emory
Hillcrest
Lesley
Frye
Lansing
Hill
Wilder
Crandall
Sunset
Snook
Spruce
Lane
Birch
Ball Park
Golf
Beach
Kett
Laguna
Lelabelle
Wayland
Clement
Mason
Yarrington
Lakeside
Stanyon
Pacific
Konocti View
Hudson
Lakeview
Cass
Tana
Utah
Huron
Jones
Crawford
Pomona
Highlands
Sharpe
Armijo
Vallejo
Marizanita
Victor
Hale
James
Front
Park
Old State Hwy 53
Ridgeview
Bay
Prieview
Woodside
Lakeview
Stonybrook
Riverview
Highlands Harbor
Harbor
Marina
Lakeshore
Center
Dam
Frontage
Cache Creek
Private
Tish A Tang
Arrowpoint
Mistletoe
Andreson Ranch
Bryant
Lake
Winchester
Lee
Point Lakeview
Anderson
Lake
Cliff
Park
North
Black Oak
Sunrise
Point Lakeview
Pine
Cedar
Oak
Fir
Hemlock
Eureka
Villa
Lenore
Burle
Aurora
Excelsior
Parker
Boyles
Crawford
Moss
Eureka
Phillips
Hwng
Wilkerson
Wilkinson
Mateo
Dam
Konocti
Davis
45th
44th
43rd
42nd
41st
39th
38th
37th
36th
35th
34th
33rd
32nd
31st
30th
29th
28th
27th
26th
25th
24th
23rd
22nd
21st
20th
19th
18th
17th
16th
15th
14th
13th
12th
11th
10th
9th
8th
7th
5th
4th
3rd
2nd

TABLE 5: LTA Bus Stop Facilities Requiring Improved Wheelchair Access - Clearlake

Stop ID #	Street	Cross Street	Landmark	Recommended Improvements
10.42	Olympic	Amber	Residential	Install pullout, install landing pad
10.48	Lakeshore	Austin Park	Main Street Café/Austin Park	Move stop to parking lot area of Austin Park for better ADA access
10.49	Lakeshore	Baylis	Firehouse	Deploy ramp 50' east of stop at driveway
10.52	Lakeshore	Golf	Motts Mini-Mart, Boys/Girls Club	Install bench, deploy ramp in Boys/Girls Club lot
10.53	Lakeshore	Old Hwy 53	El Dorado Best Western	Install bench, deploy ramp 100' east in drive
11.02	Lakeshore	Manzanita	Law offices, Raleys, gas station, lakefront homes	Eliminate stop, potentially hazardous pull of before curve
11.11	Olympic	Pine	School / Ball Field	Install bench, install landing pad
11.13	Olympic	N/A	Across from Burns Valley Mall	Install shelter, pullout, install landing pad
11.14	Olympic	Old Hwy 53	Bank/B&O Tire	Install pullout, sign, landing pad
11.15	Olympic	Jackson	Residential	Install pullout, landing pad
40.04	Dam Road Ext.	Yuba	Salmina's Floor and More, Yuba College	Install sign, deploy ramp 100' north of existing stop in Salmina's lot
50.03	18th	Irvine	Residential	Install sign, install landing pad
50.05	Boyles	25th	Boyles north of 25th	Install landing pad
50.07	Phillips	33rd	Residential	Install sign, landing pad
50.09	Phillips	40th	Kool-n-Cash	Install bench, landing pad, move stop across 40th adjacent to Kool-n-Cash
50.10	Phillips	45th	Residential	Install sign, install landing pad
50.11	Moss	Davis	Residential	Install sign, install landing pad
50.23	Arrowhead	Box Wood	Pomo Elementary	Fill, install landing pad
50.24	Arrowhead	Toyon	Residential	Move stop 100' to the east at base of hill, install landing pad
50.27	Bush	2nd	Residential	Install landing pad
50.30	Bush	11th	Residential	Install landing pad
50.31	13th	Country Club	Residential	Install landing pad
50.32	Country Club	San Joaquin	Residential	Install sign, landing pad
50.34	Lakeshore	Park	Residential	Deploy ramp 200' east on crest of hill, install landing pad
50.42	Old Hwy 53	Highlands Way	Residential	Install pullout, landing pad
50.43	Old Hwy 53	Ballpark	Lodging	Install pullout, landing pad
50.46	Old Hwy 53	Crawford	Cedar Village Apartments	Install pullout, landing pad
50.48	Old Hwy 53	N/A	Clearlake Apartments	Install bench, remove obstacles (rocks in pathway)
60.05	Old Hwy 53	N/A	Across from Clearlake Apartments	Install sign, landing pad
60.06	Old Hwy 53	Airport Road	Valley Glass, School	Install sign, landing pad
60.07	Old Hwy 53	N/A	Senior Housing, J&L market	Install sign, landing pad
60.08	Old Hwy 53	Crawford	Cedar Village	Install sign, landing pad
60.09	Old Hwy 53	Cypress	Resort Row	Install pullout, sign, landing pad, work with home owner
60.10	Old Hwy 53	N/A	Mendo Mill	Install sign at 'Unlimited Marine' property, deploy ramp in driveway/lot
60.11	Old Hwy 53	West 40th	Red Cross	Install sign, pave shoulder, landing pad
60.12	Old Hwy 53	Hill Rd.	Caprinni Apts.	Install sign, bench, needs fill, landing pad
60.14	Olympic	Burns Valley	Safeway - East Side	Install bench, sign, landing pad
60.18	Olympic	N/A	Burns Valley Mall	Install bus stop, pullout, shelter, and landing pad
60.19	Olympic	Maple	Clearlake PO	Move stop between PO driveways, install pullout, landing pad
60.20	Olympic	Locust	Old electronics building	Install sign, pullout, landing pad, move site 100' in front of "Lisa's"
60.30	Moss ST	Davis	Residential	Install sign, install landing pad
60.34	32nd	Irvine	Residential	Install sign, landing pad, fill needed, deploy ramp 50' west in driveway

Source: LSC Transportation Consultants, Inc.

Figure 12
LTA Bus Stop Facilities
Clearlake - Wheelchair Accessibility

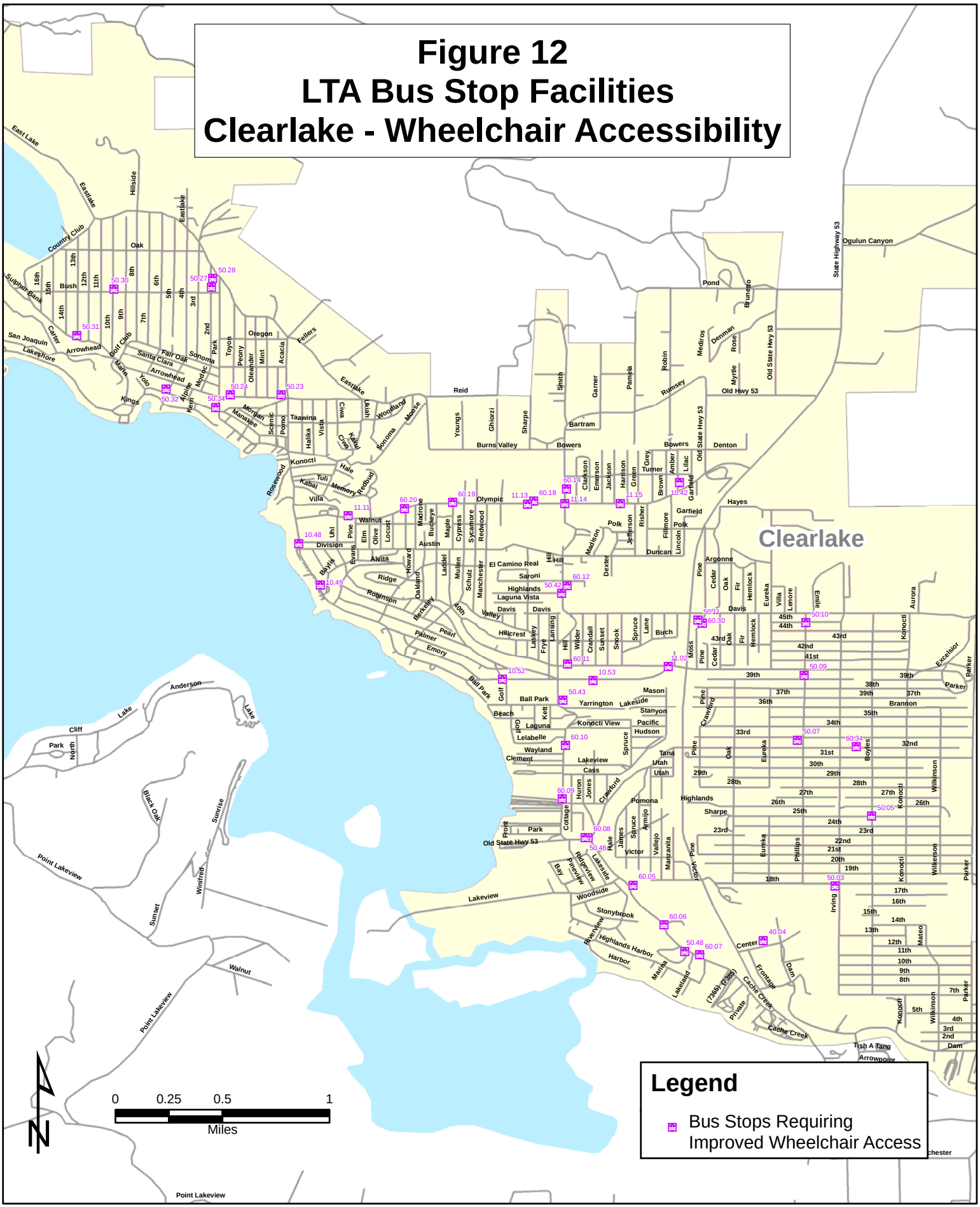


TABLE 6: LTA Bus Stop Facilities Requiring a Pullout - Clearlake

Stop ID #	Street	Cross Street	Landmark
10.42	Olympic	Amber	Residential
11.12	Olympic	Buckeye	PO, Optometrist, hair salon
11.13	Olympic	N/A	Across from Burns Valley Mall
11.14	Olympic	Old Hwy 53	Bank/B&O Tire
11.15	Olympic	Jackson	Residential
11.16	Olympic	Garfield	Church
50.42	Old Hwy 53	Highlands Way	Residential
50.43	Old Hwy 53	Ballpark	Lodging
50.46	Old Hwy 53	Crawford	Cedar Village Apartments
50.47	Old Hwy 53	Highlands Village	Highlands Village
60.09	Old Hwy 53	Cypress	Resort Row
60.10	Old Hwy 53	N/A	Mendo Mill
60.18	Olympic	N/A	Burns Valley Mall
60.19	Olympic	Maple	Clearlake PO
60.20	Olympic	Locust	Old electronics building

Source: LSC Transportation Consultants, Inc.

Figure 13
LTA Bus Stop Facilities
Clearlake - Proposed Pullouts

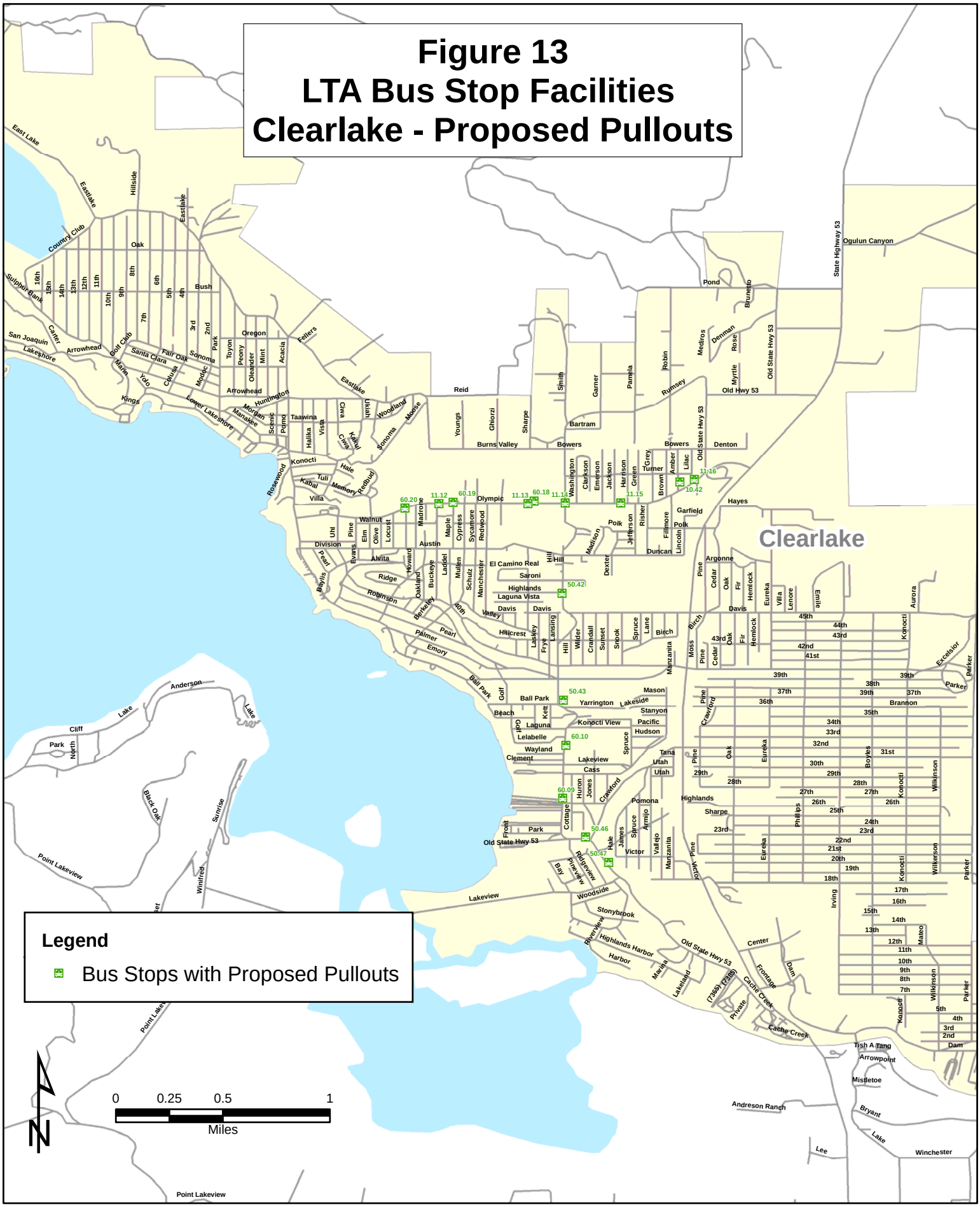


TABLE 7: LTA Bus Stop Facilities Requiring Street Furniture - Clearlake

Stop ID #	Street	Cross Street	Landmark
Benches			
10.50	Lakeshore	Howard	Community Patrol
10.52	Lakeshore	Golf	Motts Mini-Mart, Boys/Girls Club
10.53	Lakeshore	Old Hwy 53	El Dorado Best Western
11.07	Lakeshore	S. Mullin	Sunflower Chinese, Shelley's Café
11.11	Olympic	Pine	School / Ball Field
11.12	Olympic	Buckeye	PO, Optometrist, hair salon
50.04	18th	Boyles	Residential
50.09	Phillips	40th	Kool-n-Cash
50.21	Lakeshore	Villa Way	City of Clearlake Offices/Temple
50.22	Lakeshore	Pomo	Capri Cottages
50.29	Bush	8th	Residential
50.33	Lakeshore	N/A	PO, fire station, market
50.45	Old Hwy 53	N/A	Kingfisher Resort
50.48	Old Hwy 53	N/A	Clearlake Apartments
60.12	Old Hwy 53	Hill Rd.	Caprinni Apts.
60.14	Olympic	Burns Valley	Safeway - East Side
60.19	Olympic	Maple	Clearlake PO
60.33	32nd	Philips	Residential
Shelters			
Stop ID #	Street	Cross Street	Landmark
11.13	Olympic	N/A	Across from Burns Valley Mall
60.17	Olympic	Burns Valley	Safeway - West Side
60.18	Olympic	N/A	Burns Valley Mall

Source: LSC Transportation Consultants, Inc.

Figure 14
LTA Bus Stop Facilities
Clearlake - Proposed Street Furniture

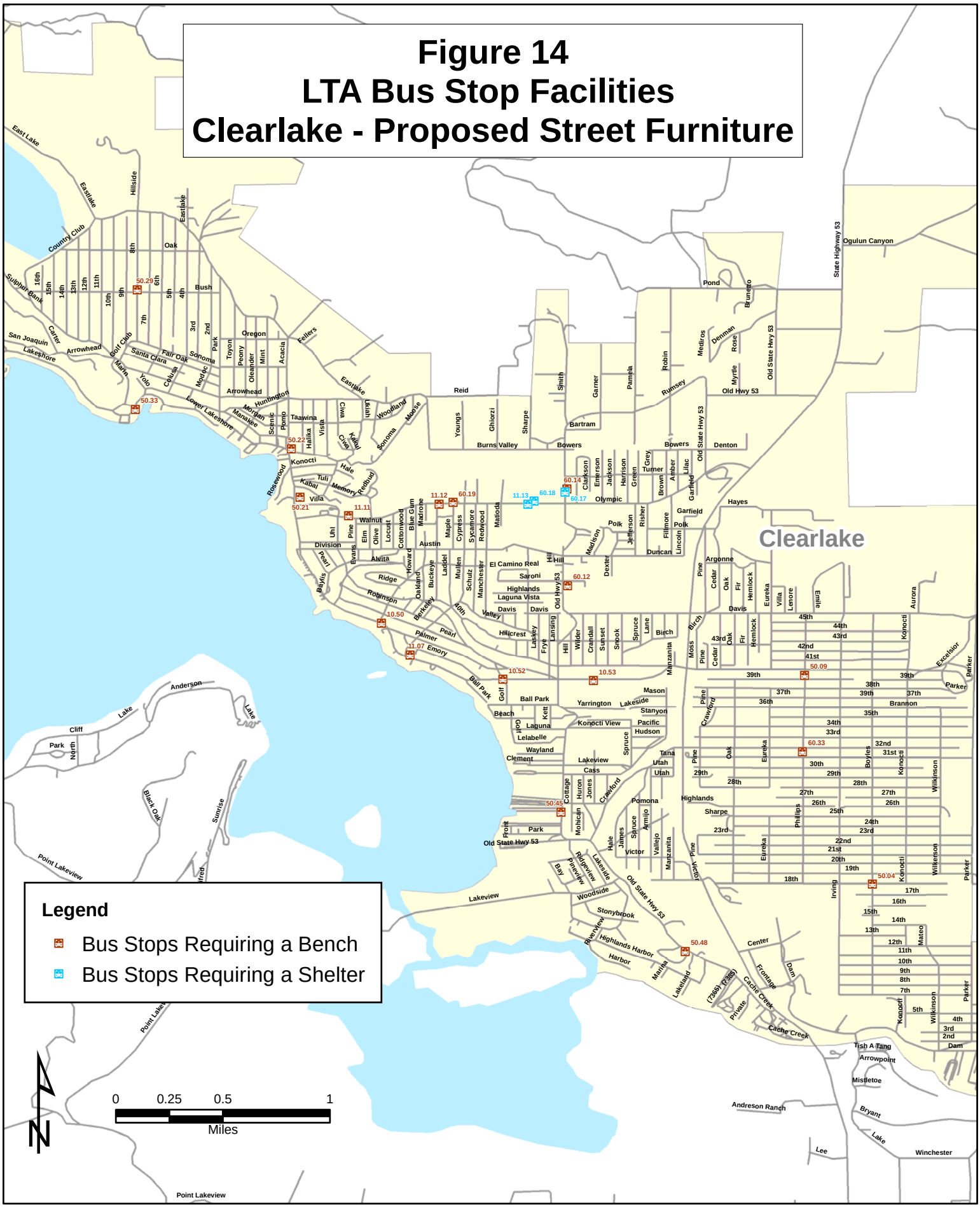


TABLE 8: LTA Bus Stop Facilities Requiring Bus Landing Pads - Clearlake

Stop ID #	Street	Cross Street	Landmark
10.42	Olympic	Amber	Residential
10.49	Lakeshore	Baylis	Firehouse
10.52	Lakeshore	Golf	Motts Mini-Mart, Boys/Girls Club
11.07	Lakeshore	S. Mullin	Sunflower Chinese, Shelley's Café
11.11	Olympic	Pine	School / Ball Field
11.12	Olympic	Buckeye	PO, Optometrist, hair salon
11.13	Olympic	N/A	Across from Burns Valley Mall
11.14	Olympic	Old Hwy 53	Bank/B&O Tire
11.15	Olympic	Jackson	Residential
50.03	18th	Irvine	Residential
50.04	18th	Boyles	Residential
50.05	Boyles	25th	Boyles north of 25th
50.07	Phillips	33rd	Residential
50.09	Phillips	40th	Kool-n-Cash
50.10	Phillips	45th	Residential
50.11	Moss	Davis	Residential
50.21	Lakeshore	Villa Way	City of Clearlake Offices/Temple
50.22	Lakeshore	Pomo	Capri Cottages
50.23	Arrowhead	Box Wood	Pomo Elementary
50.24	Arrowhead	Toyon	Residential
50.27	Bush	2nd	Residential
50.30	Bush	11th	Residential
50.31	13th	Country Club	Residential
50.32	Country Club	San Joaquin	Residential
50.33	Lakeshore	N/A	PO, fire station, market
50.34	Lakeshore	Park	Residential
50.42	Old Hwy 53	Highlands Way	Residential
50.43	Old Hwy 53	Ballpark	Lodging
50.45	Old Hwy 53	N/A	Kingfisher Resort
50.46	Old Hwy 53	Crawford	Cedar Village Apartments
60.05	Old Hwy 53	N/A	Across from Clearlake Apartments
60.06	Old Hwy 53	Airport Road	Valley Glass, School
60.07	Old Hwy 53	N/A	Senior Housing, J&L market
60.08	Old Hwy 53	Crawford	Cedar Village
60.09	Old Hwy 53	Cypress	Resort Row
60.11	Old Hwy 53	West 40th	Red Cross
60.12	Old Hwy 53	Hill Rd.	Caprinni Apts.
60.14	Olympic	Burns Valley	Safeway - East Side
60.17	Olympic	Burns Valley	Safeway - West Side
60.18	Olympic	N/A	Burns Valley Mall
60.19	Olympic	Maple	Clearlake PO
60.20	Olympic	Locust	Old electronics building
60.30	Moss ST	Davis	Residential
60.33	32nd	Philips	Residential
60.34	32nd	Irvine	Residential

Source: LSC Transportation Consultants, Inc.

Additional Key Stop Modifications

Note: Several stop numbers for multiple routes may exist at each location.

*It is recommended that the following Clearlake stops are **eliminated**:*

- 11.02 and 50.12 (at Lakeshore and Manzanita) – Remove stop due to potentially hazardous pulloff before curve in roadway.
- 40.02, 41.18, 50.49, and 60.02 (South Yuba College Access) – Remove stop, adjacent to Yuba College stop.
- 50.28 (Bush & 5th) – Remove stop due to poor sight distance.

*It is recommended that the following Clearlake stops are **relocated**:*

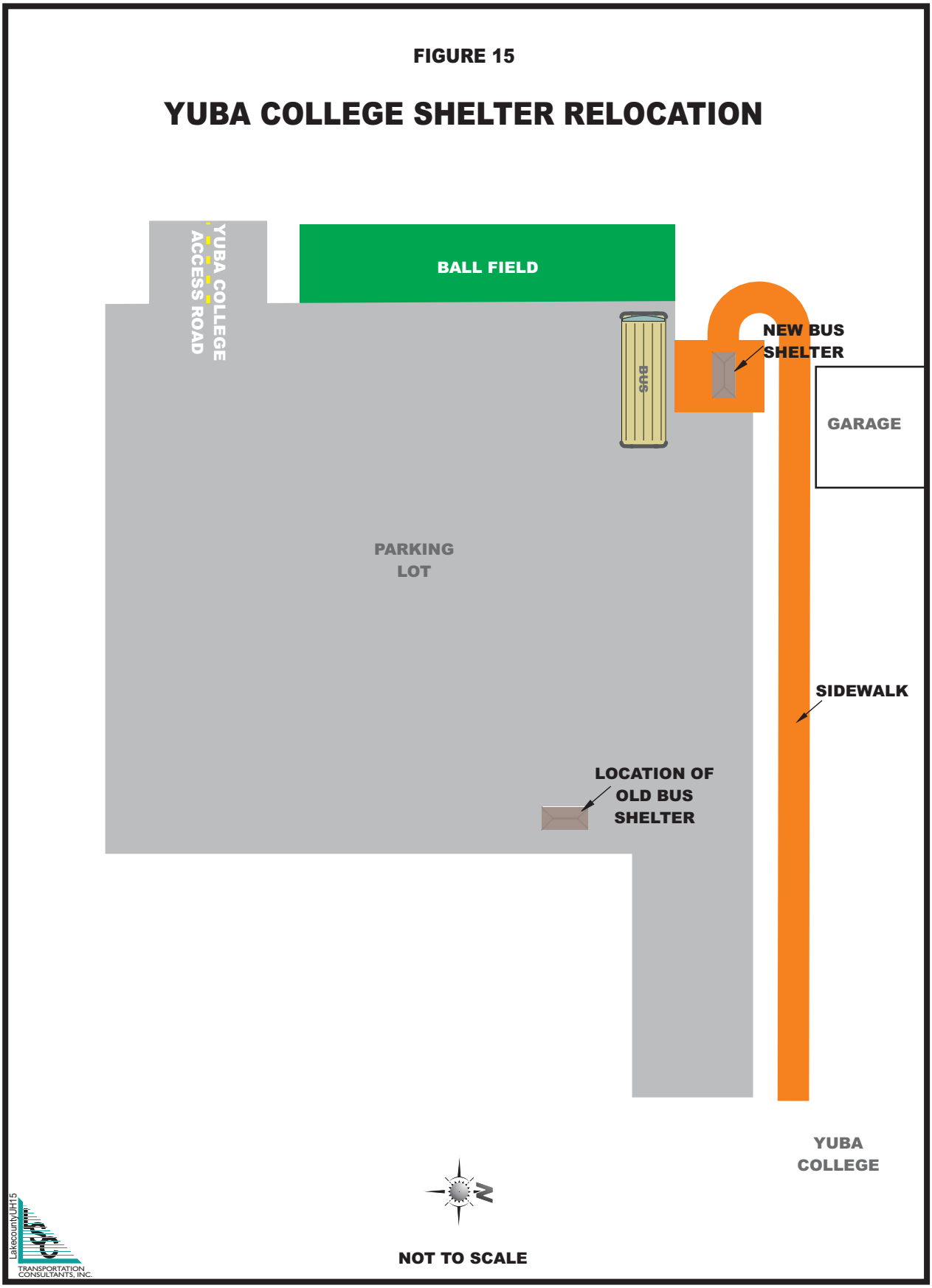
- 10.48 & 60.22 (Lakeshore and Baylis) – Move stop to parking lot area of Austin Park for safer wheelchair deployment.
- 50.09 (Phillips and 40th) – Install bench, move stop across 40th adjacent to Kool-n-Cash.
- 50.24 (Arrowhead and Toyon) – Relocate stop 100 feet to the east at base of hill for wheelchair deployment.
- 50.29 (Bush and 8th) – Relocate stop to empty lot 100 feet east of existing stop.
- 60.10 (Old Hwy 53 at Mendo Mill) – Relocate to abandoned “Unlimited Marine” property.
- 60.19 & 10.45 (Olympic and Maple – Clearlake Post Office) - Move stop between post office driveways, work with Clearlake post office to improve pull off area.
- 60.20 & 10.46 (Olympic and Locust) – Relocate site 100 feet to the front of "Lisa's."

Yuba College Parking Lot, Bus Stop ID#s 40.03, 41.19, 50.50, 60.03*, Routes 4, 5, and 6 Clearlake*

The current location of the bus stop facility at Yuba College, which serves the college and the neighboring middle school, is not at an optimal location in terms of passenger boarding and alighting. Specifically, the bus blocks a travel lane, blocks several parking spaces, and drops passengers in the middle of a parking aisle. It is proposed that the shelter be relocated to the west of its present location to the northwest corner of the lot, adjacent to the maintenance garage facility. It is also recommended that an accessible path from the new shelter location to the various administrative and classroom buildings should be constructed. This new location is more appropriate for the loading and unloading of passengers because, unlike the present location, it will allow the transit vehicle to board and alight passengers on the correct side of the vehicle. The new site would also be located in a safer location on the side of the parking lot rather than in the center where there is more traffic congestion. Figure 15 illustrates this improvement at Yuba College.

FIGURE 15

YUBA COLLEGE SHELTER RELOCATION



Yuba College Parking Lot and Existing Shelter
Routes 4, 5, and 6

Yuba College Parking Lot
Routes 4, 5, and 6

LAKEPORT

The City of Lakeport encompasses portions of Routes 1, 4, 4a, and 7. Like Clearlake, Lakeport faces the challenge of integrating transit passenger facilities with the surrounding "built" environment. As mentioned, one of the goals of this project is to ensure that existing and future retail, commercial, residential, and office facilities that generate the most frequent transit ridership have allocated space for bus stops. With this in mind, existing facilities are encouraged to work with LTA in order to retrofit new bus stop facilities adjacent to or on existing property.

The following is a description of the priority transit passenger facility improvements for the city of Lakeport, as listed in Table 9.

Willow Tree Plaza/Safeway, Bus Stop ID#s 11.60 and 41.24, Routes 4, 4a, and 1W, Lakeport

Both bus stops adjacent to the Willow Tree Plaza and the Safeway market on 11th Street in Lakeport create a potential traffic safety hazard. Stop 11.60 serves the shopping center in the westbound direction and 41.24 serves the area in the eastbound direction. There is no safe pull-out location in the westbound lane along 11th Street. The eastbound bus currently stops in the turn lane at the entrance of the Safeway, where it blocks or conflicts with turning movements. In order to resolve this safety issue, it is recommended that a new on-site stop should be constructed to serve buses traveling in both directions.

Willow Tree Plaza/Safeway
Route 1 Westbound

Willow Tree Plaza/Safeway
Routes 4/4a Eastbound

TABLE 9: LTA Priority Facility Improvements - Lakeport

Priority Improvements

Stop ID #	Route #	Area	Street	Cross Street	Landmark	Recommended Improvements	Identical Stops[(1)]
10.01	1E	Lakeport	Main	Third	Court House	Increase designated passenger waiting area and extend "Red Curb Zone"	41.26
10.02	1E	Lakeport	Third	Main	Sutton Assoc./Bike Rack	Relocate to Main & Third, same stop as 10.01	11.63, 70.01
11.60	1W	Lakeport	11th	N/A	Willow Tree Plaza / Safeway	Install bus stop, pullout, shelter, landing pad for both EB/WB Routes 1 and 4, move existing from existing stop location	--
41.24	4/4a	Lakeport	11th	N/A	Willow Tree Plaza / Safeway	Install bus stop, pullout, shelter, landing pad for both EB/WB Routes 1 and 4, move existing from existing stop location	--
41.02	4/4a	Lakeport	S. Main	N/A	Kmart, Social Security, Kragen Auto	Install bench, pullout, landing pad, move to site adjacent to Kragen Auto	--

Other Improvements

Facility Improvement	Quantity
Signage	3
Improve Accessibility	13
Provide Bus Pullout	3
Install Bus Landing Pad	9
Provide Street Furniture	
Bench	1
Shelter	1

Note 1: Multiple routes stop at identical locations.

Note: Appendix A lists the complete LTA bus stop facility locations by area and route, as well as recommended improvements and general inventory.

Source: LSC Transportation Consultants, Inc.

LSC has developed two options that could potentially resolve the issue. The first option is for the bus to enter the parking lot via the drive that runs along the front of the Safeway, turn right into the first lot, load and unload passengers at a proposed new shelter adjacent to the Safeway lot, and exit the lot on the west side. This option is recommended by LSC because the majority of the passenger activity occurs at this end of the plaza. Figure 16 illustrates this option. Passengers can access the shelter through the parking lot, in which case a crosswalk will be necessary from the Safeway to the bus stop. Ideally, the existing lot would be converted into a one-way throughway, potentially requiring four or five existing parking spaces adjacent to the roadway to be removed as a result of construction of the new facility.

The second option would be to utilize the parking lot on the east end of the strip. Under this scenario, the bus would enter the parking lot on the west side of the plaza in order to utilize the through lane adjacent to the Redwood Coast Regional Center. This would allow passengers to load and unload in an uncongested area of Willow Tree Plaza. It is recommended that LTA work with the property owner to determine the placement of the new facility. This option, however, would require passengers to walk a little over one-quarter of a mile to access the bus from the Safeway market. Figure 17 illustrates this option.

While this design contradicts the prevailing standard that transit vehicles should avoid parking lots, the proposed new stop serves as a safe and accessible solution at this time. A third option, however, would be to consider on-street alternatives. This option is limited along 11th Street because of the lack of pubic right-of-way. LTA would need to work with individual land owners to ensure adequate space along 11th Street for a safe and accessible bus stop.

Third and Main Street, Bus Stop ID# 10.02, 11.63, 70.01, Routes 1 & 7, Lakeport

The existing bus stop location at Third Street and Main Street in Lakeport currently unloads passengers on a steep grade. As a result, passengers using a wheelchair do not have access to a flat and stable surface when boarding and alighting at this location. It is recommended that the stop location should be relocated to the facility that exists in front of the courthouse on the corner of Main Street and Third Street.

Third and Main, Lakeport

FIGURE 16

WILLOW TREE PLAZA BUS STOP OPTION 1 – SAFEWAY

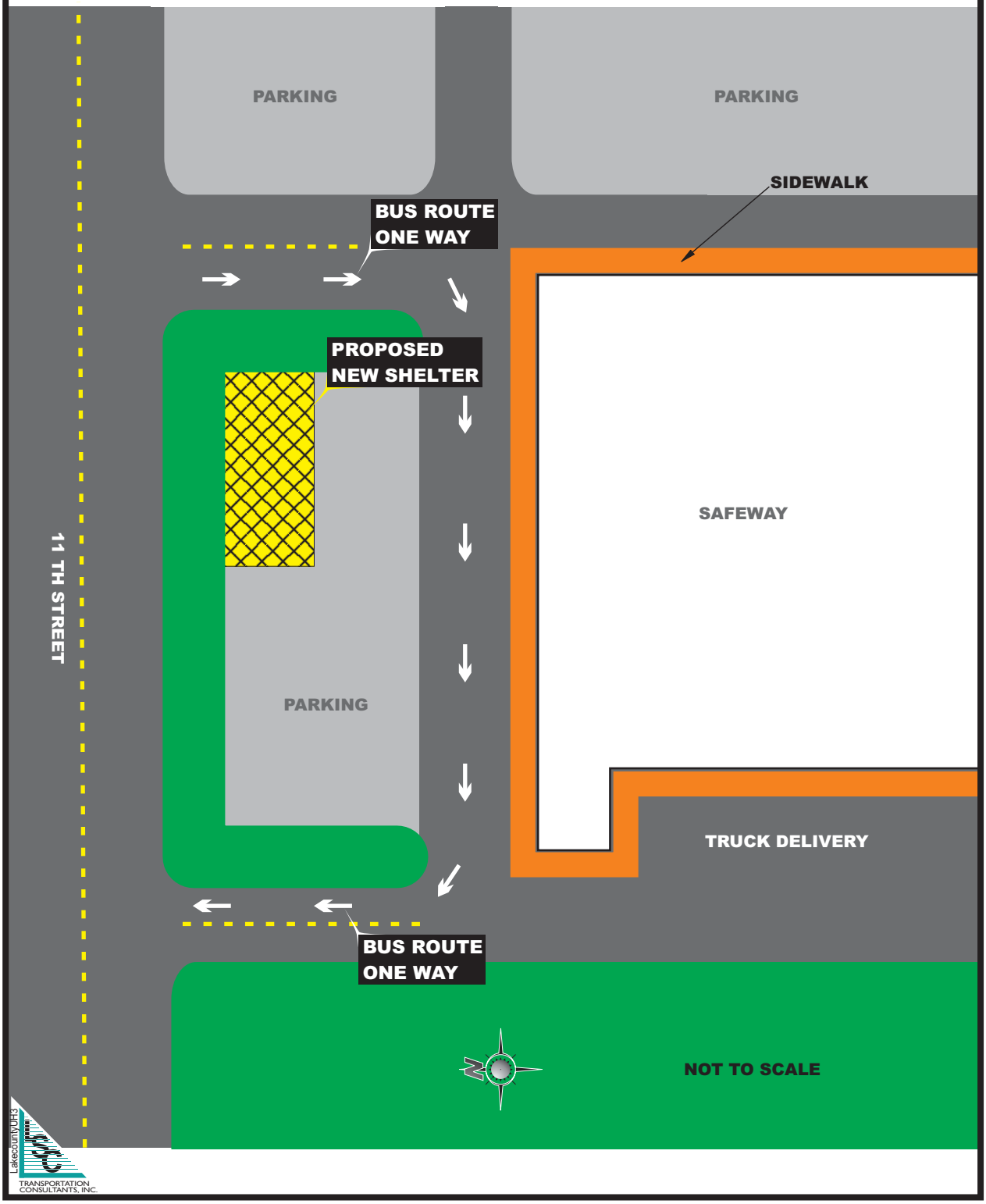
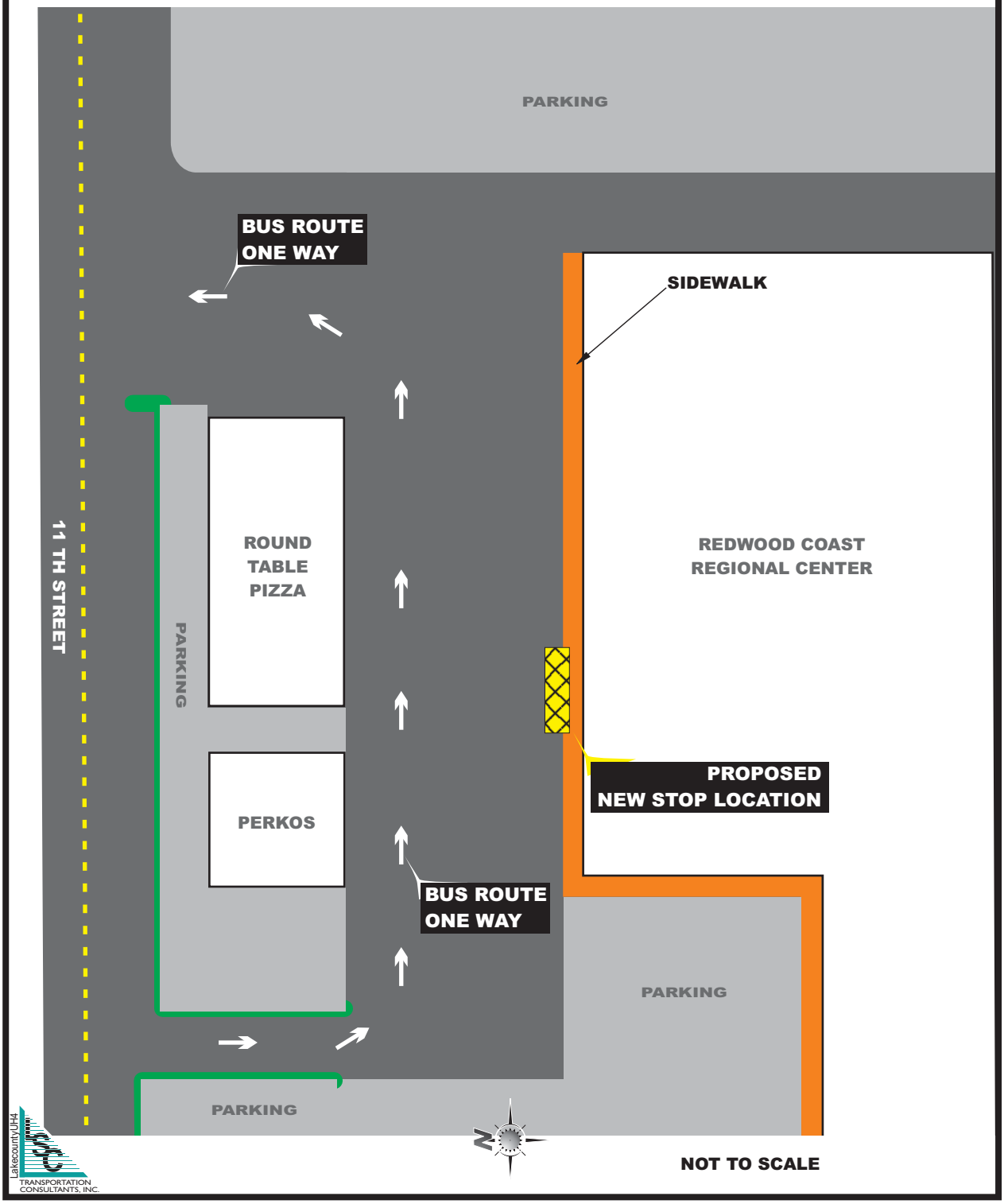


FIGURE 17

WILLOW TREE PLAZA BUS STOP OPTION 2 – REDWOOD COAST REGIONAL CENTER



Main Street and Third, Bus Stop ID# 10.01 and 41.26, Routes 1 and 7, Lakeport

It is recommended that the existing bus stop location at Third and Main Street should be relocated to the facility that exists in front of the Court House on the corner of Main Street and Third Street. As a result, the existing bus stop facility in front of the Courthouse will need to accommodate more demand. It is recommended that a larger designated passenger waiting area is implemented. It is also recommended that the red curb zone is extended to the south by a approximately 100 feet in order to allow the bus to safely merge into traffic.

Main and Third, Lakeport

Kmart - South Main Street, Bus Stop ID# 41.02, Routes 4/4a, Lakeport

The existing bus stop location for the Kmart on South Main Street in Lakeport requires the bus to pull out in the taper for a right-turn lane. The property includes Kmart, Social Security, and Kragen Auto. A major issue is the lack of adequate northbound bus stops to access this site. There is no right-of-way, it is a busy street, and there are no controlled crossings.

An on-site bus stop facility has been requested by Social Security, and a likely location is the sidewalk in front of Kragen Auto. It is recommended that a pullout be constructed and a bench be installed at this stop location. In recent years, coordination with this property has not been successful. Further effort between property management and LTA staff is recommended to secure the space necessary for a proper transit facility. This effort could be facilitated by the implementation of the proposed land use policy described earlier in this report.

Kmart, South Main Street
Lakeport Routes 4/4a

Table 10 summarizes the transit facility improvements for the City of Lakeport.

Signage

As shown in Tables 9 and 10, only 3 LTA bus stop facilities in the City of Lakeport require signage. Figure 18 illustrates bus stop facilities in Lakeport with and without existing signage.

Improve Accessibility

As shown in Tables 9 and 10, 13 bus stops in Lakeport require improved ADA accessibility. These locations are illustrated in Figure 19.

Provide Bus Pullouts

As shown in Tables 9 and 10, 3 bus stops in Lakeport require a bus pullout. These locations are illustrated in Figure 20.

Provide Street Furniture

Tables 9 and 10 also show that only 1 bus stop facility warrants a bench and 1 bus stop facility warrants a shelter. Existing and proposed facilities that require a shelter and a bench are also illustrated in Figure 20.

Bus Landing Pads

It is also recommended that an elevated bus landing pad is installed at 9 stops throughout the City of Lakeport, as shown in Tables 9 and 10, providing access at stops that lack an accessible path.

Additional Stop Modifications

Note: Several stop numbers for multiple routes may exist at each location.

*It is recommended that the following Lakeport stops are **eliminated**:*

- 11.56 (Lakeshore and Sayre) – Remove stop due to minimal ridership - bus cannot pull out of lane.
- 11.58 (Lakeshore and 15th) – Remove stop, too close to previous stop.

*It is recommended that the following Lakeport stops are **relocated**:*

- 11.57 (Lakeshore and Via del Lago) – Temporarily relocate stop to abandoned gas station property for safety reasons. Currently, the site is undergoing monitoring due to a leaking underground storage tank. If a permanent site is desired here, coordination with the property owners would be necessary.

TABLE 10: LTA Bus Stop Facility Improvements - Lakeport

Stop ID #	Street	Cross Street	Landmark	Recommended Improvements
10.02	Third	Main	Sutton Assoc./Bike Rack	Relocate to Main & Third, same stop as 10.01
10.03	Main	Seventh	Church / School	Deploy ramp 100' to the west of existing stop
10.04	High	Via Del Lago	High Street/Village	Install landing pad, work with private homeowners
10.05	Lakeshore	Lange	School	Deploy ramp 25' to the east of existing stop on flat surface
11.56	Lakeshore	Sayre	Residential	Remove, minimal ridership, cannot pull out of lane
11.57	Lakeshore	Via del Lago	Gas Station	Temporarily move to abandoned gas station property
11.58	Lakeshore	15th	Gas Station	Remove, too close to previous stop
11.60	11th	N/A	Safeway	Install bus stop sign, pullout, shelter, landing pad for both EB/WB Routes 1 and 4
11.61	Parellel Drive	Lakeport Blvd.	Mendocino College	Install sign
11.62	Main	Konocti	In front of Chevron	Install landing pad
40.21	S. Main	Peckham Ct.	Cardinal Realty, Newspaper, State Farm	Install pullout, install landing pad
41.02	S. Main	N/A	Kmart,Kragen Auto	Install bench, pullout, landing pad
41.03	S. Main	N/A	S&R Automotive	Install landing pad
41.24	11th	N/A	Willow Tree Plaza	Same as Stop #11.60
41.25	Main	9th	Norcal Bicycles/Church	Install landing pad adjacent to stop

Source: LSC Transportation Consultants, Inc.

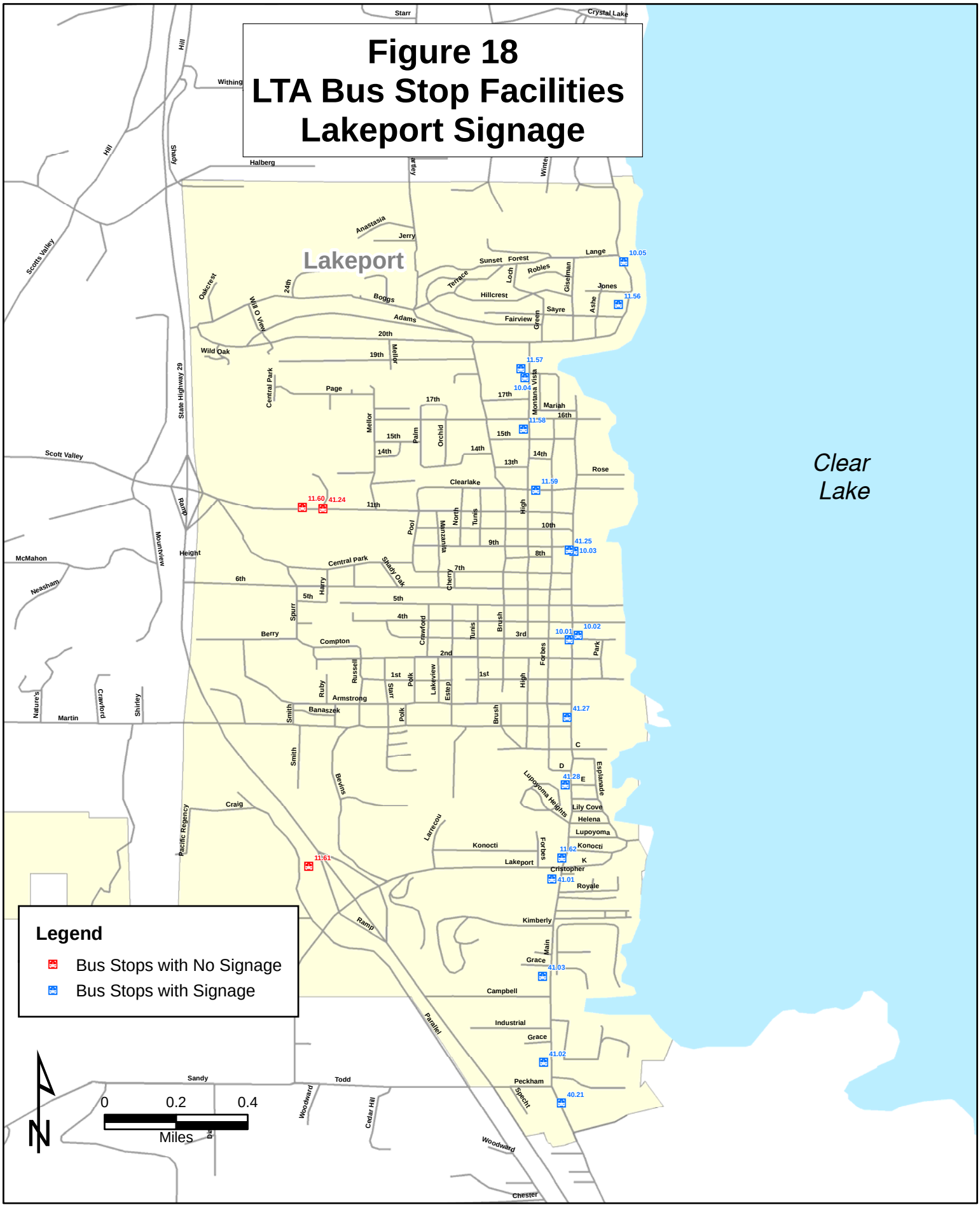


Figure 18
LTA Bus Stop Facilities
Lakeport Signage
Lakeport
Clear Lake
Legend
Bus Stops with No Signage
Bus Stops with Signage
0
0.2
0.4
Miles
N
Starr
Crystal Lake
Withing
Halberg
Hill
Shady
Scotts Valley
Anastasia
Jerry
Sunset
Forest
Lange
Robles
Loch
Gisleman
Jones
Ashe
Terrace
Hillcrest
Sayre
Fairview
Green
Oakcrest
24th
Will O View
Boggs
Adams
20th
19th
Wild Oak
Mellor
Central Park
Page
State Highway 29
Scott Valley
Mountview
Height
McMahon
Neasham
Martin
Nature's
Crawford
Shirley
Craig
Pacific Regency
Ramp
Sandy
Todd
Woodward
Cedar Hill
Chester
Parallel
Specht
Peckham
Industrial
Campbell
Kimberly
Royale
Cristopher
Lakeport
Konocti
Lupoyoma
Helena
Lily Cove
Lupoyoma Heights
Esplanade
Bevins
Larcecou
Smith
Armstrong
Banaszek
Berry
Compton
Russell
Ruby
Polk
Lakeview
Estep
Surr
Crawfold
Tunis
Brush
Forbes
Park
Spurr
Harry
Shady Oak
Cherry
Pool
Manzanita
North
Palm
Orchid
Clearlake
Rose
Mariah
Montana Vista
Grace
Main
C
D
E
K
1st
2nd
3rd
4th
5th
6th
7th
8th
9th
10th
11th
13th
14th
15th
16th
17th
10.05
11.56
11.57
10.04
11.58
11.59
11.60
41.24
41.25
10.03
10.01
10.02
41.27
41.28
11.62
41.01
41.03
41.02
40.21
11.61

Figure 19
LTA Bus Stop Facilities
Lakeport - Wheelchair Accessibility

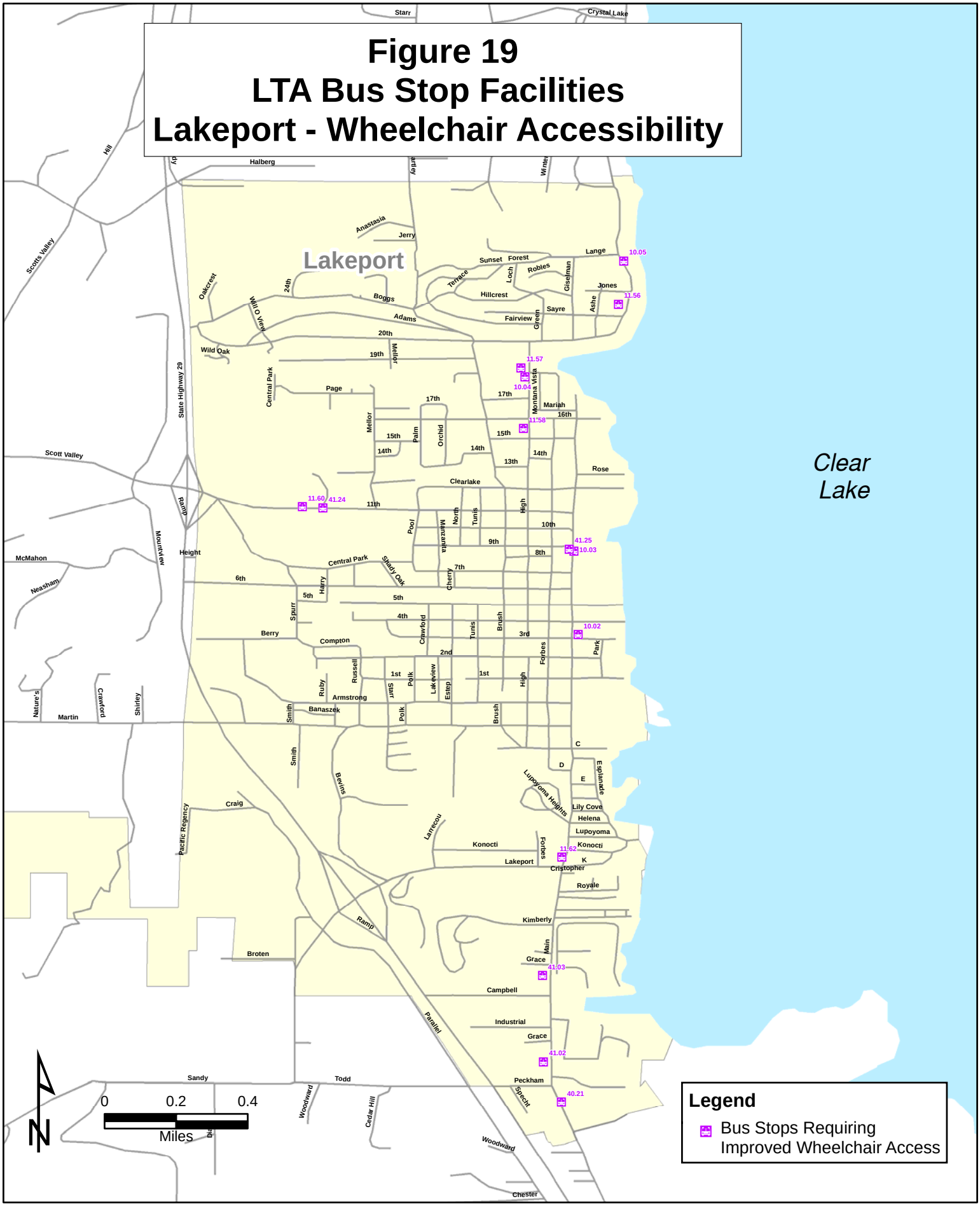
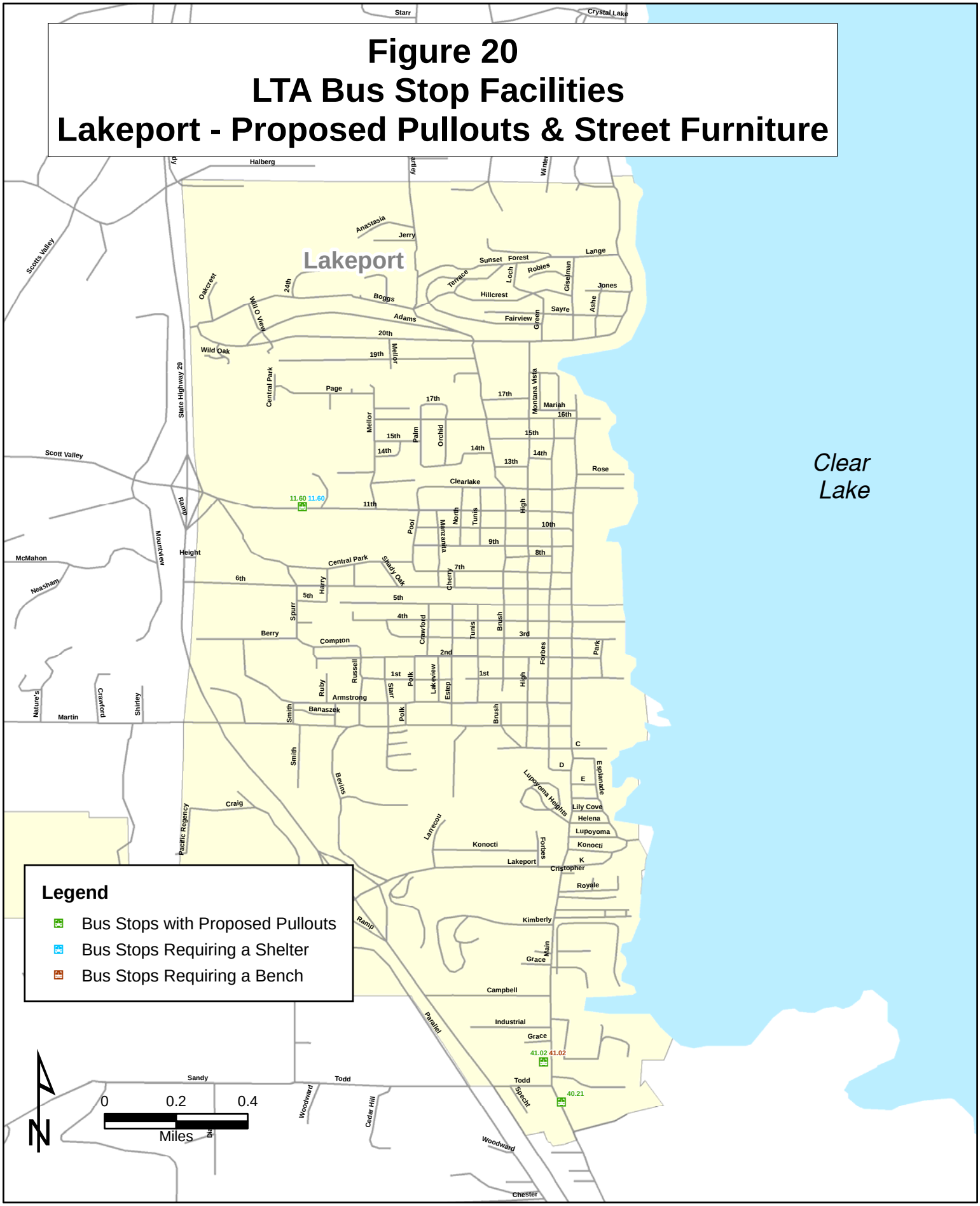


Figure 20
LTA Bus Stop Facilities
Lakeport - Proposed Pullouts & Street Furniture



UNINCORPORATED LAKE COUNTY

For the purposes of this study, unincorporated Lake County transit facilities have been examined in terms of geographic area.

MIDDLETOWN, HIDDEN VALLEY, COBB, AND LOWER LAKE

This area encompasses the southern portion of Lake County and is served by portions of Routes 2, 3, 4, and 6. The following is a description of the priority transit passenger facility improvements for the communities comprised by this area, as listed in Table 11.

Anderson Springs Road and SR 175, Bus Stop ID# 20.09, Route 2S, Anderson Springs

Anderson Springs Road
Route 2 Southbound

According to LTA staff, in order to serve passengers traveling southbound on Route 2, the transit vehicle currently makes a right-hand turn onto Anderson Springs Road followed by an immediate U-turn before parking on the opposite side of the road. Sight distance is poor for both the driver of the transit vehicle and oncoming traffic due to a hill. In order to reduce the potential for accidents, it is recommended that the stop is permanently relocated roughly 100 feet to the south of the Anderson Springs Road turnoff to an existing large gravel pullout area along SR 175. The location change will require patrons to walk a short distance in order to board and alight the vehicle. It is also recommended that a sign should be installed at the new location.

Middletown Senior Center, Bus Stop ID# 30.09, Route 3S, Middletown

Middletown Senior Center
Route 3 Southbound

While the Middletown Senior Center currently has a signed bus stop on Route 3, it lacks an accessible path and bus stop pad that meet ADA requirements. It is recommended that a bench should be installed and an accessible path from the entrance of the senior center to the stop should be constructed, along with an ADA compliant bus stop pad.

TABLE 11: LTA Priority Facility Improvements - Middletown, Hidden Valley, Cobb and Lower Lake

Priority Improvements

Stop ID #	Route #	Area	Street	Cross Street	Landmark	Recommended Improvements	Identical Stops[(1)]
20.09	2S	Anderson Springs	S.R. 175	Anderson Springs Road	Residential	Move stop 100' to the south of Anderson Springs Road, install sign	--
30.09	3S	Middletown	Pine	S.R. 29	Middletown Senior Center	Install bench, landing pad adjacent to stop	--

Other Improvements

Facility Improvement	Quantity
Signage	15
Improve Accessibility	3
Provide Bus Pullout	0
Install Bus Landing Pad	9
Provide Street Furniture	
Bench	6
Shelter	2

Note 1: Multiple routes stop at identical locations.
Note: Appendix A lists the complete LTA bus stop facility locations by area and route, as well as recommended improvements and general inventory.
Source: LSC Transportation Consultants, Inc.

Table 12 summarizes the transit facility improvements for Middletown, Hidden Valley, Cobb, and Lower Lake.

Signage

As described in Tables 11 and 12, 15 LTA bus stop facilities in this area require signage. Figure 21 illustrates bus stop facilities in this area with and without existing signage.

Improve Accessibility

As shown in Tables 11 and 12, only 3 bus stops in this area require improved ADA accessibility. These locations are illustrated in Figure 22.

Provide Bus Pullouts

It has been determined that no bus stop facilities require a bus pullout in this area at this time.

Provide Street Furniture

Tables 11 and 12 also show that 6 facilities in this area warrant the installation of a bench while 2 facilities warrant a shelter. Facilities that require a shelter are illustrated in Figure 22 as well.

Bus Landing Pads

It is also recommended that an elevated bus landing pad is installed at 9 stops throughout this area, as shown in Table 12, providing access at stops that lack an accessible path.

Additional Key Stop Modifications

Note: Several stop numbers for multiple routes may exist at each location.

*It is recommended that the following stops in this area are **relocated**:*

- 20.01, 30.03, and 40.07 (SR 53 & SR 29 - Tower Mart) – Relocate sign and official stop to Tower Mart.

TABLE 12: LTA Bus Stop Facility Improvements - Middletown, Hidden Valley, Cobb and Lower Lake

Stop ID #	Street	Cross Street	Landmark	Recommended Improvements
20.01	S.R. 53	S.R. 29	Tower Mart/KFC	Sign should be next to Tower Mart, install landing pad
20.02	S.R. 29	S.R. 281	Kits Corner Food Mart and Motel	Install sign
20.03	S.R. 175	Loch Lommand	Bar & Grill	Install sign, fill needed
20.05	S.R. 175	N/A	Cobb PO/Lobb /Café/Motel	Install sign
20.09	S.R. 175	Anderson Springs Road	Residential	Move stop 100' to the south of Anderson Springs Road, install sign
20.16	Central Park	Pine	Middletown Senior Center - South Side	Install bench
20.17	Twins Pine Casino	N/A	Twin Peaks Casino	Install shelter
30.05	Hartman	Hidden Valley	Hidden Valley Community Services	Install sign
30.06	S.R. 29	Young St.	Tri-county Bank, Market, Hardware	Install sign, bench
30.09	Pine	S.R. 29	Middletown Senior Center	Install bench, landing pad adjacent to stop
30.19	Calistoga	Young	Bank/Market	Install shelter
40.06	Anderson Pkwy	N/A	Social Services	Install sign
60.41	S.R. 53	S.R. 29	Lower Lake Medical	Install bench, sign
60.42	Main	S.R. 53	Tower Mart, PO, Dietricks Tires, Lower Lake Pizza	Install sign, fill needed
60.43	Lake	Main St.	Residential	Install bench, sign
60.44	Lake	Florence	Residential	Remove stop, minimal ridership, too close to previous stop
60.45	Lake	Lower Lake	Lower Lake High School	Install bench, sign
60.46	Lake	Cemetery	Elementary School	Install sign
60.47	Lake	Bryant Road	Rebeka's	Install sign, deploy ramp at Rebeka's lot

Source: LSC Transportation Consultants, Inc.

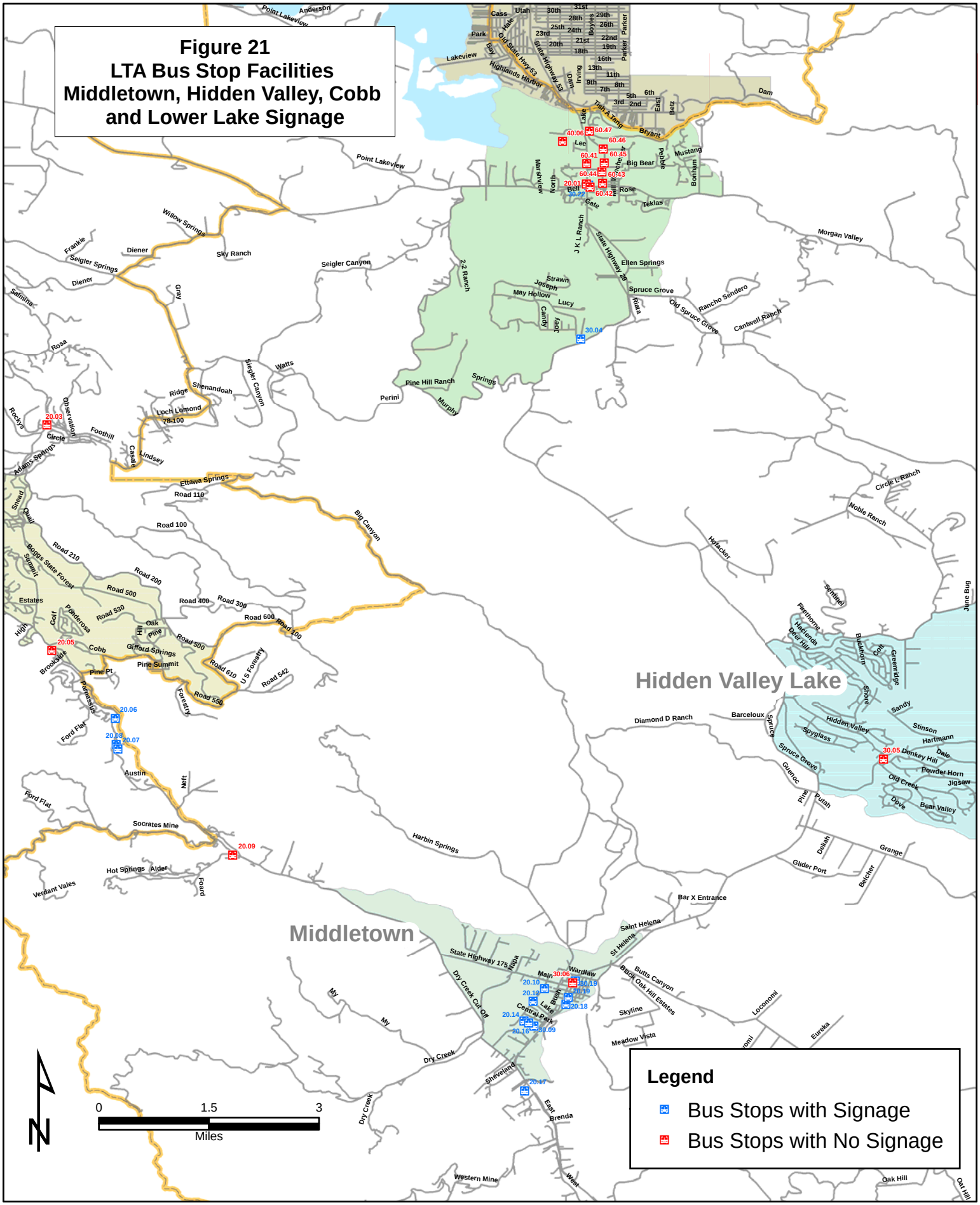
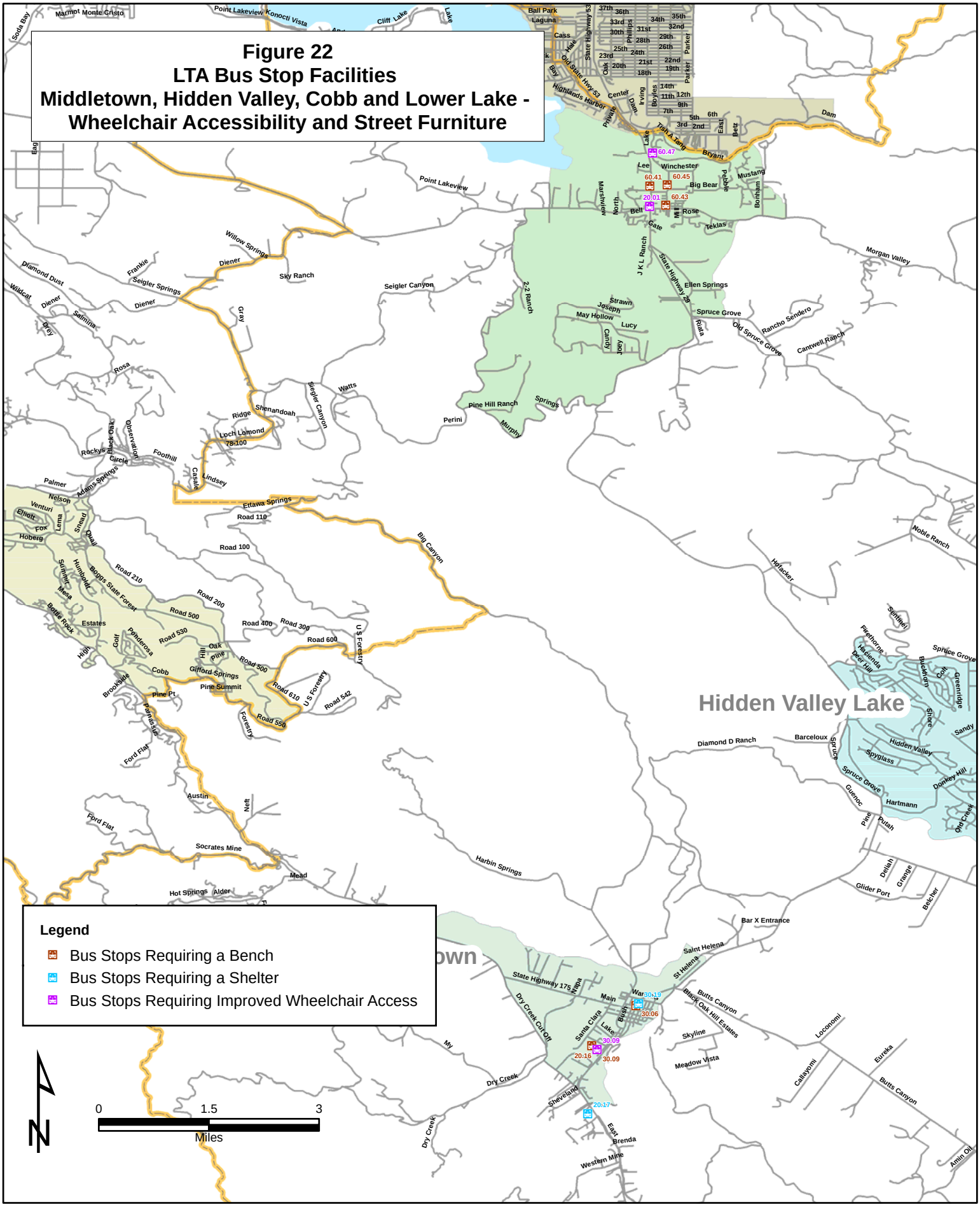


Figure 21
LTA Bus Stop Facilities
Middletown, Hidden Valley, Cobb
and Lower Lake Signage
Hidden Valley Lake
Middletown
Legend
Bus Stops with Signage
Bus Stops with No Signage
0
1.5
3
Miles
N

Figure 22
LTA Bus Stop Facilities
Middletown, Hidden Valley, Cobb and Lower Lake - Wheelchair Accessibility and Street Furniture



Legend

- Bus Stops Requiring a Bench
- Bus Stops Requiring a Shelter
- Bus Stops Requiring Improved Wheelchair Access

HIGHWAY 20 CORRIDOR

Most of the communities in this area are along the State Highway 20 corridor. Route 1 serves this area in both the east and west directions. According to the Regional Transportation Plan, through traffic is to be redirected to the south of Clearlake along Highways 29 and 53. The Lake County Redevelopment Agency and the Area Planning Council (APC) have developed a Traffic Calming Plan for the communities of Nice, Lucerne, and Clearlake Oaks entitled, *The Highway 20 Traffic Calming and Beautification Plan*. The purpose of this plan is to provide these three communities with conceptual improvements along the Highway 20 corridor. This *Transit Passenger Facilities Development Plan* includes recommendations that coordinate with some of the suggestions made in the *Highway 20 Traffic Calming and Beautification Plan*.

The following is a description of the priority transit passenger facility improvements for the Highway 20 corridor, as shown in Table 13. The facility improvement recommendations presented in this section are based on alternatives presented in *The Highway 20 Traffic Calming and Beautification Plan*. It is important to keep in mind that the alternatives devised in the *Calming Plan* are conceptual.

Figure 23 below illustrates the preferred alternative from the *Calming Plan*. As shown, this illustration shows a number of potential improvements in Lucerne, including new bus shelters. LTA can be proactive in facilitating these improvements by constructing the initial pieces of a facility, installing sections of sidewalk, etc. The use of temporary barriers, such as safety cones, or other fixes can be utilized until the remainder of the planned projects are built out.

Clearlake Oaks

Keys Blvd., Bus Stop ID# 11.18, Route 1, Clearlake Oaks

- Implement 1 new bus shelter and bus landing pad on the north side of Highway 20 at Keys Boulevard west of the shopping center driveway.

Post Office Looking West - Clearlake Oaks

TABLE 13: LTA Priority Facility Improvements - Highway 20 Corridor

Priority Improvements

Stop ID #	Route #	Area	Street	Cross Street	Landmark	Recommended Improvements	Identical Stops [1]
N/A	1E	Lucerne	S.R. 20	TBD	N/A	New eastbound stops to be implemented in coordination with Hwy 20 Plan, install signs, landing pads and shelters	--
10.36	1E	Clearlake Oaks	S.R. 20	Short St	Tower Mart	Coordinate with Hwy 20 Plan, work with Tower Mart, install shelter, landing pad	--
10.38	1W	Clearlake Oaks	Lake	S.R. 20	Residential	Coordinate with Hwy 20 Plan, install shelter, landing pad	--
10.39	1W	Clearlake Oaks	S.R. 20	High Valley	East Lake School/Caltrans Yard	Coordinate with Hwy 20 Plan, install shelter, landing pad	--
11.18	1W	Clearlake Oaks	S.R. 20	N/A	Clear Lake Oaks PO, Commercial Center	Coordinate with Hwy 20 Plan, install shelter, landing pad	--
11.19	1W	Clearlake Oaks	S.R. 20	Schindler	East Lake School/Caltrans Yard	Coordinate with Hwy 20 Plan, install shelter, landing pad	--
11.20	1W	Clearlake Oaks	S.R. 20	Lake	Residential	Coordinate with Hwy 20 Plan, install shelter, landing pad	--
11.36	1W	Nice	S.R. 20	Hudson	Nice market	Coordinate with Hwy 20 Plan, install shelter, landing pad	--
11.39	1W	Nice	S.R. 20	N/A	Sentry Market	Relocate bus stop to entrance of market - LTA Staff to collect passenger activity data	--

Other Improvements

Facility Improvement	Quantity
Signage	26
Improve Accessibility	11
Provide Bus Pullout	7
Install Bus Landing Pad	25
Provide Street Furniture	
Bench	0
Shelter	15

Note 1: Multiple routes stop at identical locations.

Note: Appendix A lists the complete LTA bus stop facility locations by area and route, as well as recommended improvements and general inventory.

Source: LSC Transportation Consultants, Inc.

FIGURE 23

HIGHWAY 20 TRAFFIC CALMING AND BEAUTIFICATION PLAN - LUCERNE PREFERRED ALTERNATIVE

Source: Highway 20 Traffic Calming and Beautification Plan, used with the permission of Rrm Design Group.

East Lake Elementary School, Bus Sto ID# 10.39 and 11.19, Route 1, Clearlake Oaks

- Implement 2 new bus shelters and bus landing pads in the vicinity of East Lake Elementary School on both the north and south sides of Highway 20.

Lake St., Bus Stop ID# 10.38 and 11.20, Route 1, Clearlake Oaks

- Implement 2 new bus shelters and bus landing pads at Lake Street to accommodate both eastbound and westbound passengers.

Tower Mart, Bus Stop ID# 10.36, Route 1, Clearlake Oaks

- Implement 1 new bus shelter and bus landing pad at the Tower Mart.

Lucerne

Currently, Route 1 follows Country Club Road eastbound through Lucerne. In order to be in conjunction with the improved streetscape elements presented in the *Calming Plan*, it is recommended that Route 1 eastbound is relocated to Highway 20. As the elements of the *Calming Plan* may not be fully implemented for a few years, the relocation of Route 1 should not occur until the alternatives are finalized and the improvements are constructed. The precise location of each bus stop will thereby be determined upon completion of the *Calming Plan* elements and will correlate with both the crosswalk locations as well as the bus stops located on the north side of Highway 20, which serve Route 1 in the westbound direction. Table 13 reflects the additional stops recommended along Highway 20 in the eastbound direction. For the purpose of calculating improvement costs, it has been estimated that an additional 6 to 8 bus stop locations will require the installation of a bus shelter, a bus pad, and a bus stop sign in adherence with the ADA guidelines. It is important to account for the fact that the *Calming Plan* was completed prior to this analysis and is still at the conceptual stage.

At Lucerne Elementary
Looking East

Nice

Sentry Market, Bus Stop ID# 11.39, Route 1W, Nice

The current bus stop location is on the north (far) side of the Sentry Market and serves westbound passengers. This requires passengers to cross SR 20 at a relatively high-traffic location, without a signal or other crossing protection. Recent, long-term counts of passenger activity at this stop were not available for this study. It is important to note that this stop is not unsafe in terms of accident history. The proposed improvement would enhance the viability of the stop by allowing passengers to feel more secure at an alternative stop location.

Sentry Market Bus Stop
Route 1 Westbound

One option would be to route the westbound bus onto the south side of SR 20, such as through the Sentry parking lot. This has the disadvantages, however, of adding to the travel time of the route (particularly regarding making the left-turn movement back onto SR 20, as well as the safety issues associated with bus movements in the parking lot), and would not be warranted if ridership at this stop is low. LSC recommends that LTA staff collect passenger activity data at this stop.

Hudson Avenue, Bus Stop ID# 11.36, Route 1, Nice

- Implement 1 new bus shelter and bus stop pad at the intersection of Hudson Avenue and Highway 20.

The above images from Clearlake Oaks, Lucerne, and Nice were taken directly from *The Highway 20 Traffic Calming and Beautification Plan*. These images have been reproduced with the permission from the Consultant, *RRM Design Group*. For details regarding the specific enhancement alternatives planned for these communities, please refer to the *Calming Plan*.

Signage

As described in Tables 13 and 14, 26 LTA bus stop facilities in this area either presently require signage or will require signage in the future as new stops are created. Figure 24 illustrates bus stop facilities in this area with and without existing signage.

Improve Accessibility

As shown in Tables 13 and 14, 11 bus stops in this area require improved ADA accessibility. These locations are illustrated in Figure 25.

TABLE 14: LTA Bus Stop Facility Improvements - Highway 20 Corridor

Stop ID #	Street	Cross Street	Landmark	Recommended Improvements
10.17	1st	Main	Abandoned Building	LTA to work with Upper Lake and move stop to Main St., install sign
10.18	Old Lucerne	1st	Upper Lake Middle School/High School	Install sign
10.19	S.R. 20	N/A	Robinson Rancheria	Install sign
10.20	S.R. 20	Lake	Sentry	Install sign
10.22	S.R. 20	Keeling	S&S Sport Cards, Woodpecker Bird Houses	Install landing pad
10.24	S.R. 20	N/A	World Mart/Nice Post Office	Install sign
10.25	S.R. 20	1st	Gas Station	Install sign, landing pad
10.26	Country Club	2nd	Residential	Install landing pad
10.28	Country Club	10th	Church/Senior Center	Coordinate with Hwy 20 Plan, install sign and pad
10.29	Country Club	15th	Lucerne Elementary School	Coordinate with Hwy 20 Plan, install sign and pad
10.31	Frontage Rd	N/A	Residential	Install landing pad
10.32	S.R. 20	Frontage Rd	Riviera Motel	Deploy ramp 100' west of existing stop
10.34	S.R. 20	Indian Beach Resort	Indian Beach Resort	Install sign
10.36	S.R. 20	Short St	Tower Mart	Coordinate with Hwy 20 Plan, work with Tower Mart, install shelter, bus stop pad
10.38	Lake	S.R. 20	Residential	Coordinate with Hwy 20 Plan, install shelter, landing pad
10.39	S.R. 20	High Valley	School - E. Lake Elem./Caltrans Maint.	Coordinate with Hwy 20 Plan, install shelter, landing pad
10.40	S.R. 20	Keys Blvd	Commercial	Coordinate with Hwy 20 Plan, install sign
11.21	S.R. 20	N/A	Nylanders Select Markets	Install sign on bldg.
11.18	S.R. 20	N/A	Clear Lake Oaks PO, Commercial Center	Coordinate with Hwy 20 Plan, install shelter, bus stop pad
11.19	S.R. 20	Schindler	East Lake School/Caltrans Yard	Coordinate with Hwy 20 Plan, install shelter, landing pad
11.20	S.R. 20	Lake	Residential	Coordinate with Hwy 20 Plan, install shelter, bus stop pad
11.25	S.R. 20	N/A	Farside Paradise Cove	Install sign
11.26	Frontage Rd	Larell Dell	Residential	Install landing pad
11.27	Frontage Rd	N/A	Residential	Install sign
11.28	S.R. 20	Lakeshore	Residential	Install sign
11.29	S.R. 20	Country Club	Residential	Install pullout, install landing pad
11.30	S.R. 20	15th	Residential	Install pullout
11.31	S.R. 20	11th	Commercial/Residential	Install sign on utility pole, pullout
11.32	S.R. 20	7th	Commercial/Residential	Install pullout
11.33	S.R. 20	5th	Supermarket, Visitors Center	Install pullout
11.34	S.R. 20	1st	Park	Install pullout
11.36	S.R. 20	Hudson	Nice market	Coordinate with Hwy 20 Plan, install shelter, bus stop pad
11.38	S.R. 20	N/A	Residential	Hill blocks patrons - regrade hill, install sign
11.41	Old Lucerne	N/A	Schools, church, med clinic	Install landing pad
11.42	1st	Main	East of Main St.	Install sign, relocate stop to Main St.
71.04	S.R. 20	N/A	Visitor Center	Install sign

Source: LSC Transportation Consultants, Inc.

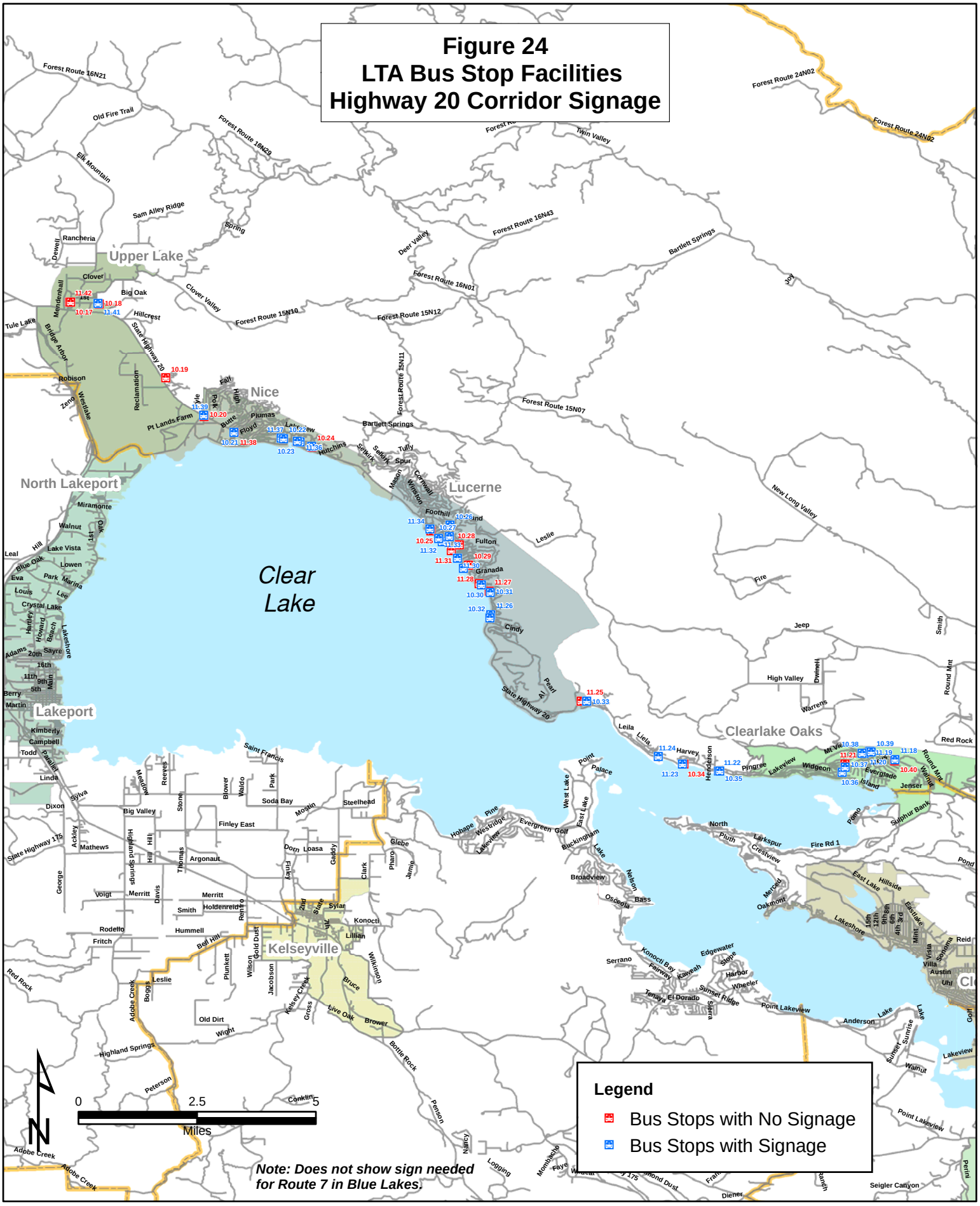


Figure 24
LTA Bus Stop Facilities
Highway 20 Corridor Signage
Clear Lake
Upper Lake
North Lakeport
Lakeport
Nice
Lucerne
Clearlake Oaks
Kelseyville
Legend
Bus Stops with No Signage
Bus Stops with Signage
0
2.5
5
Miles
Note: Does not show sign needed for Route 7 in Blue Lakes.

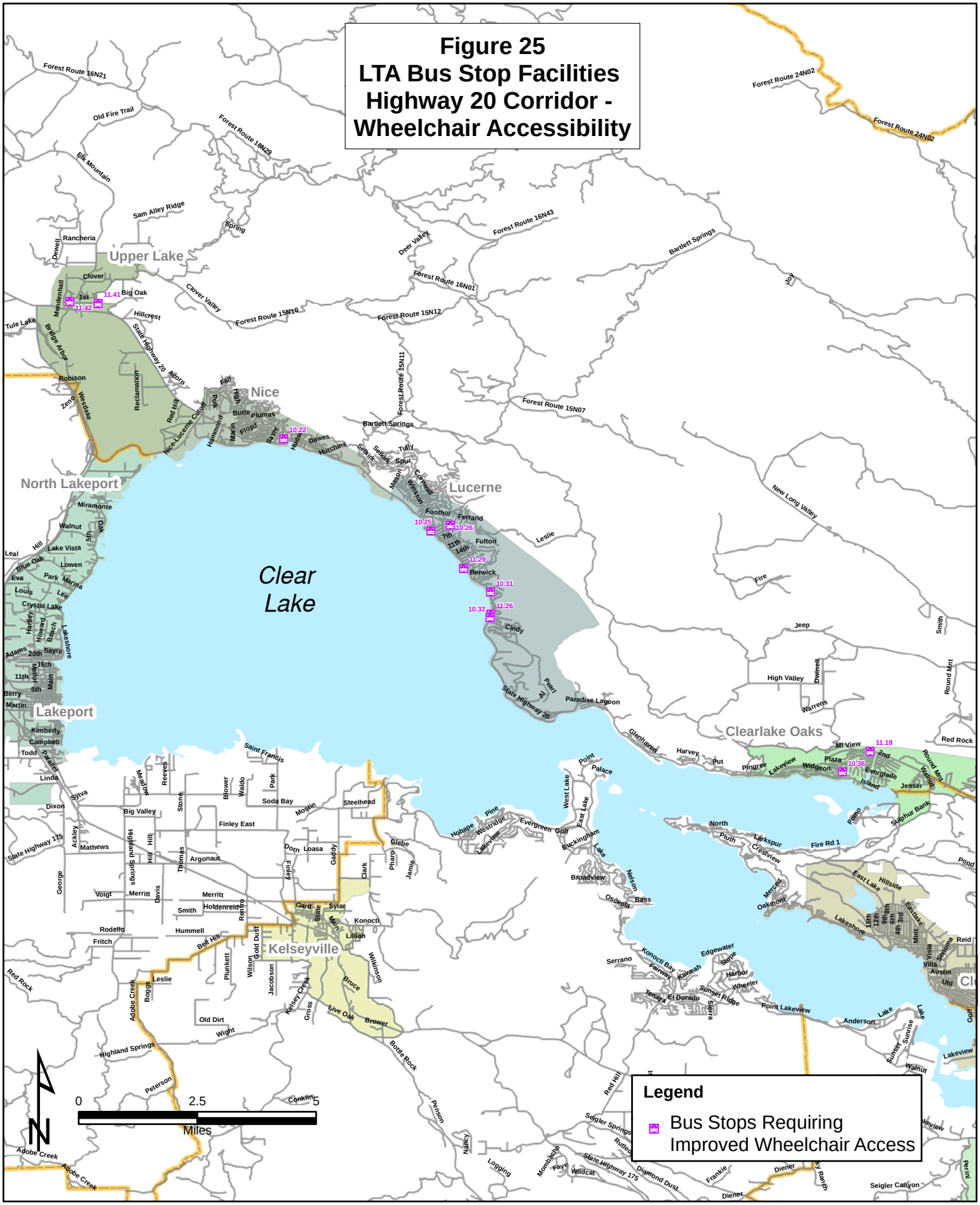


Figure 25
LTA Bus Stop Facilities
Highway 20 Corridor -
Wheelchair Accessibility
Clear Lake
Upper Lake
Nice
North Lakeport
Lucerne
Lakeport
Kelseyville
Clearlake Oaks
Legend
Bus Stops Requiring Improved Wheelchair Access
0
2.5
5
Miles

Provide Bus Pullouts

As shown in Tables 13 and 14, 7 bus stops in this area require a bus pullout. These locations are illustrated in Figure 26.

Provide Street Furniture

Tables 13 and 14 also show that 15 existing and proposed facilities in this area warrant a shelter while no facilities warrant a bench. Facilities that require a shelter are also illustrated in Figure 26.

Bus Landing Pads

As shown in Tables 13 and 14, it is also recommended that an elevated bus landing pad is installed at 25 stops, both existing and proposed, throughout the area.

Additional Key Stop Modifications

Note: Several stop numbers for multiple routes may exist at each location.

It is recommended that the following stops are ***eliminated:***

- 11.32 (Hwy 20 and 7th) – Remove stop due to poor sight distance and minimal ridership.

It is recommended that the following stops are ***relocated:***

- 10.17 (1st and Main) – LTA staff should work with Upper Lake to relocate stop to an appropriate location along Main Street in Upper Lake.

- 10.41 and11.17 (Orchard Shores) – Relocate bus stop sign from visitor center to existing shelter on Orchard Shore Drive.

- 11.35 (Nice Post Office) – Relocate existing sign adjacent to nearby LTA bench.

- 11.42 (1st and Main) – LTA Staff should work with Upper Lake to relocate stop to an appropriate location along Main Street In Upper Lake.

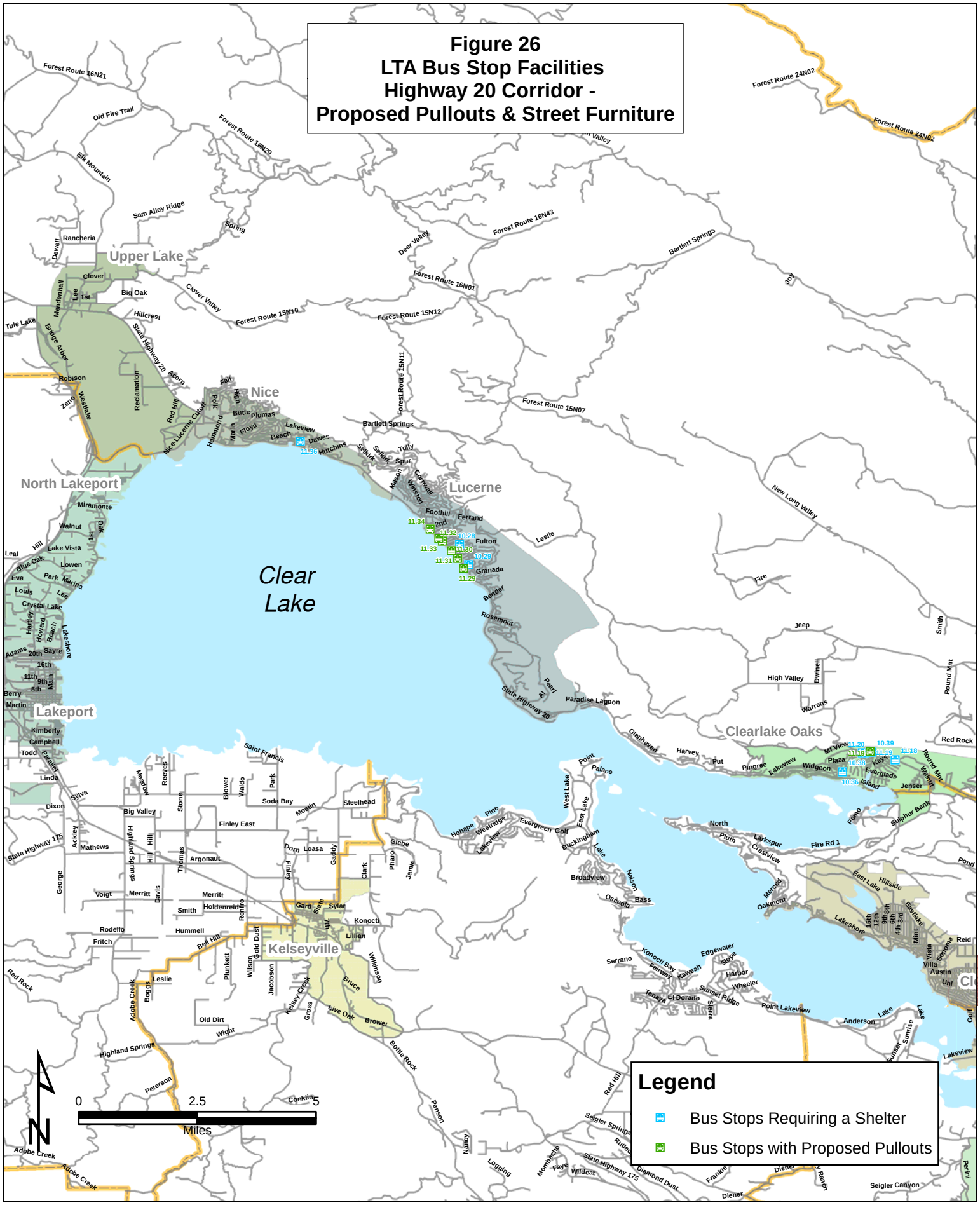


Figure 26
LTA Bus Stop Facilities
Highway 20 Corridor -
Proposed Pullouts & Street Furniture
Clear Lake
Upper Lake
Nice
North Lakeport
Lucerne
Lakeport
Clearlake Oaks
Kelseyville
Legend
Bus Stops Requiring a Shelter
Bus Stops with Proposed Pullouts
0
2.5
5
Miles

TABLE 15: LTA Priority Facility Improvements - North Lakeport Area

Priority Improvements

Stop ID #	Route #	Area	Street	Cross Street	Landmark	Recommended Improvements	Identical Stops [1]
11.46	1W	North Lakeport	Lakeshore	Walnut	People Services	Fill ditch, install landing pad, People Services to work with County / Rotary Club	--

Other Improvements

Facility Improvement	Quantity
Signage	4
Improve Accessibility	10
Provide Bus Pullout	1
Install Bus Landing Pad	5
Provide Street Furniture	
Bench	0
Shelter	0

Note 1: Multiple routes stop at identical locations.
Note: Appendix A lists the complete LTA bus stop facility locations by area and route, as well as recommended improvements and general inventory.
Source: LSC Transportation Consultants, Inc.

NORTH LAKEPORT

This area is served by portions of Routes 1 and 4a. The following is a description of the priority transit passenger facility improvements for this area, as shown in Table 15.

People Services, Bus Stop ID# 11.46, Route 1W, North Lakeport

- People Services has expressed an interest in working with Lake County Public Works as well as the Rotary Club to construct an improved facility, which will include fill for the ditch adjacent to the current stop. People Services is willing to donate a small portion of property for this project. It is recommended that LTA staff work with People Services in order to ensure ADA regulations are met before construction.

Table 16 lists the facility improvements warranted for the North Lakeport Area.

Signage

As described in Tables 15 and 16 , 4 LTA bus stop facilities in this area require signage. Figure 27 illustrates bus stop facilities in this area with and without existing signage.

Improve Accessibility

As shown in Tables 15 and 16, 10 bus stops in this area require improved ADA accessibility. These locations are illustrated in Figure 28.

Provide Bus Pullouts

As shown in Tables 15 and 16, only 1 bus stop in this area requires a bus pullout. This location is illustrated in Figure 28.

Provide Street Furniture

No facilities in the North Lakeport area warrant the installation of a bench or shelter at this time.

Bus Landing Pads

It is also recommended that an elevated bus landing pad is installed at 5 stops throughout this area, as shown in Tables 15 and 16, providing access at stops that lack an accessible path.

Additional Key Stop Modifications

Note: Several stop numbers for multiple routes may exist at each locations.

TABLE 16: LTA Bus Stop Facility Improvements - North Lakeport Area

Stop ID #	Street	Cross Street	Landmark	Recommended Improvements
10.06	Lakeshore	Beach Lane	Rainbow Restaurant	Install landing pad
10.07	Lakeshore	Crystal Lake Way	Chalet Apt./Motel	Deploy ramp in Chalet parking lot
10.08	Lakeshore	Altera	Gas Station	Install sign
10.13	Lakeshore	N. Walnut	People Services - Marina	Install sign
10.15	Parking Lot	N/A	Sutter Lakeside Clinic	Install sign
10.16	Parking Lot	N/A	Sutter Lake Hospital	Install sign
11.45	Lakeshore	Terrace	Residential	Eliminate, minimal ridership
11.46	Lakeshore	Walnut	People Services	Fill ditch, install landing pad, People Services to work with County / Rotary Club
11.47	Lakeshore	Rocky Point	Residential	Fill ditch, install landing pad
11.48	Lakeshore	N/A	Residential	Eliminate stop, poor sight distance
11.49	Lakeshore	N/A	At Rainbow Mobile Park	Deploy ramp in parking lot at Rainbow Park
11.50	Lakeshore	N/A	At Driftwood Houses	Install pullout
11.51	Lakeshore	Park Way	Residential	Fill ditch, install landing pad
11.53	Lakeshore	Crystal Lake Way	Mobile Home Park	Deploy ramp in parking lot
11.55	Lakeshore	Lang	School	Install landing pad

Source: LSC Transportation Consultants, Inc.

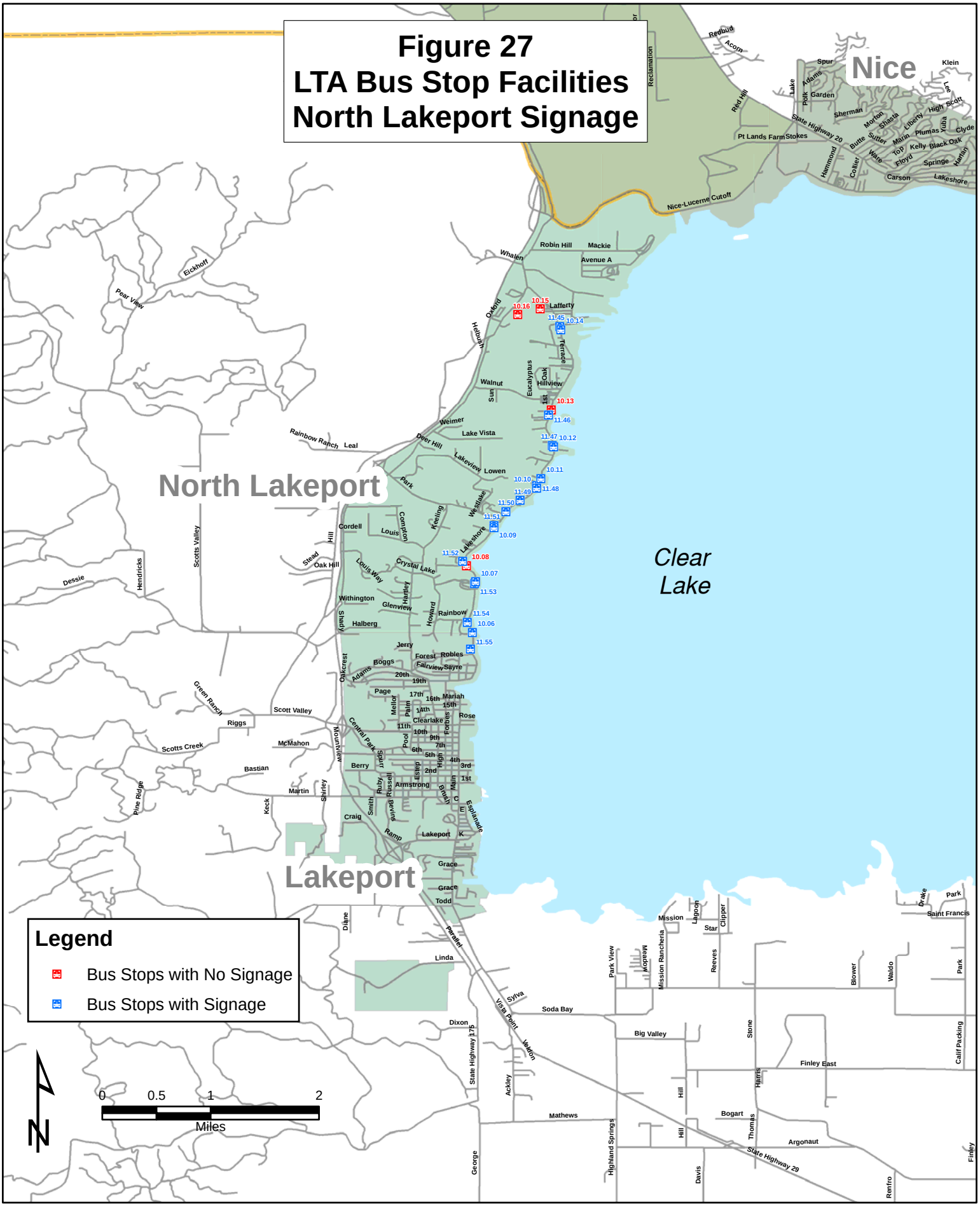


Figure 27
LTA Bus Stop Facilities
North Lakeport Signage
Nice
North Lakeport
Lakeport
Clear Lake
Legend
Bus Stops with No Signage
Bus Stops with Signage
0
0.5
1
2
Miles
Lafferty
Robin Hill
Mackie
Avenue A
Whalen
Oxford
Hillview
Terrace
Eucalyptus
Walnut
Sun
1st
Weimer
Lake Vista
Rainbow Ranch
Leal
Deer Hill
Lakeview
Lowen
Park
Westlake
Keeling
Compton
Louis
Cordell
Hill
Stead
Oak Hill
Louis Way
Crystal Lake
Lakeshore
Hardley
Glenview
Withington
Howard
Rainbow
Halberg
Shady
Jerry
Forest
Robles
Boggs
Fairview
Sayre
Adams
Oakcrest
20th
19th
Page
17th
16th
Mariah
15th
14th
Clearlake
Rose
Forest
Palm
Mellor
11th
10th
9th
7th
6th
5th
High
4th
3rd
2nd
1st
Estep
Main
Pool
Central Park
Mountain View
Spurr
Berry
Armstrong
Ruby
Russell
Smith
Craig
Ramp
Lakeport
K
C
Esplanade
Grace
Todd
Parallel
Linda
Diane
Scott Valley
Riggs
Scotts Creek
McMahon
Bastian
Martin
Shirley
Keck
Pine Ridge
Green Ranch
Scotts Valley
Dessie
Hendricks
Eickhoff
Pear View
Reclamation
Redbud
Acorn
Red Hill
Lake
Spur
Adams
Polk
Garden
Sherman
Morton
Shasta
Liberty
High
Scott
Lee
Klein
Yuba
Clyde
Plumas
Butte
Sutter
Marin
Top
Kelly
Black Oak
Ware
Floyd
Springe
Hartan
Collier
Hammond
Carson
Lakeshore
State Highway 20
Pt Lands Farm
Stokes
Nice-Lucerne Cutoff
Mission
Lagoon
Star
Clipper
Park View
Meadow
Mission Rancheria
Reeves
Blower
Waldo
Park
Drake
Saint Francis
Soda Bay
Vista Point
Veldon
Big Valley
Stone
Calif Packing
Finley East
Harris
Hill
Ackley
Mathews
Bogart
Thomas
Argonaut
State Highway 29
Highland Springs
George
Davis
Renfro
Finley
Dixon
State Highway 175
Syiva
10.15
10.16
10.14
11.45
10.13
11.46
11.47
10.12
10.11
10.10
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10.08
10.07
11.53
11.54
10.06
11.55

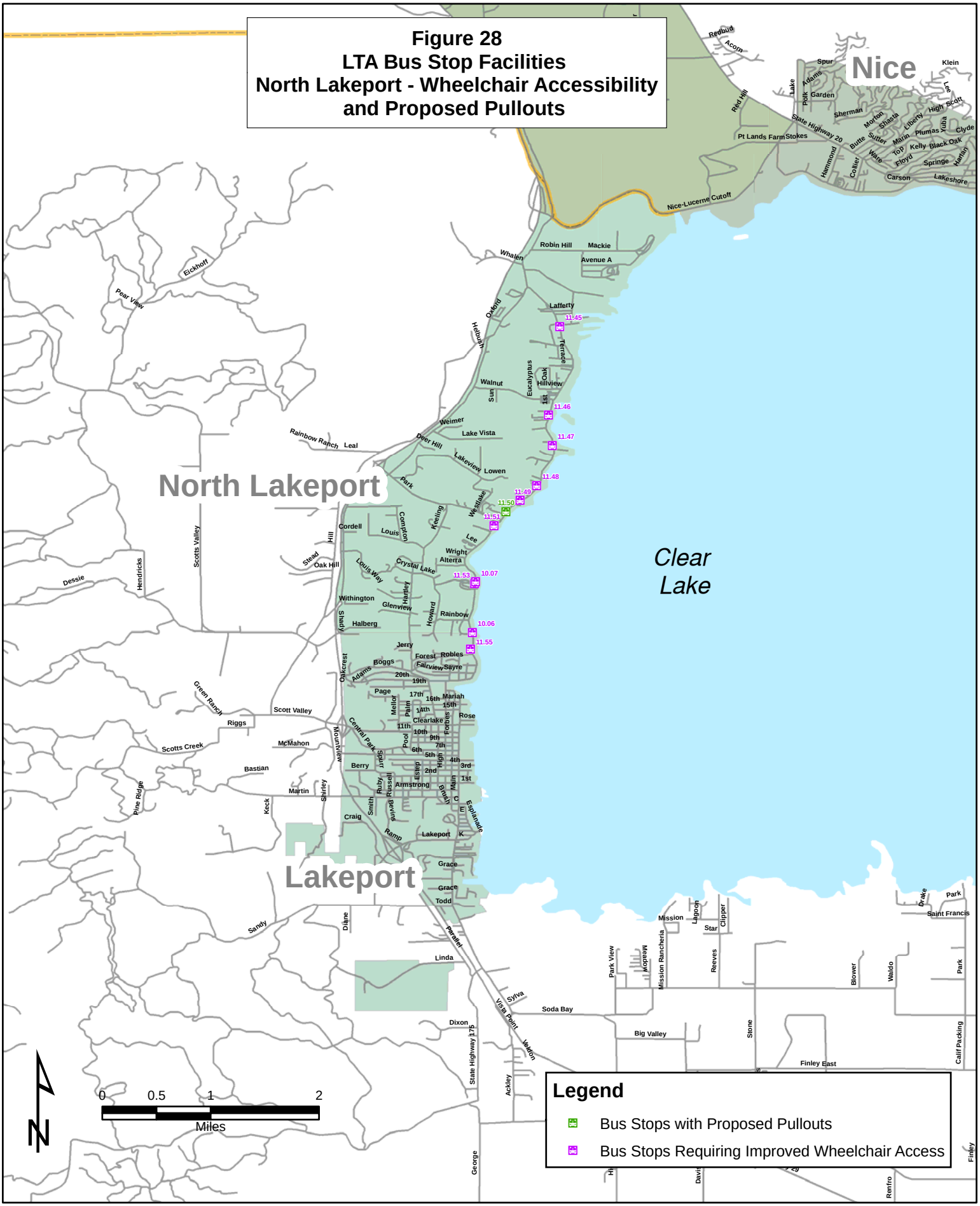


Figure 28
LTA Bus Stop Facilities
North Lakeport - Wheelchair Accessibility
and Proposed Pullouts
Nice
North Lakeport
Lakeport
Clear
Lake
Legend
Bus Stops with Proposed Pullouts
Bus Stops Requiring Improved Wheelchair Access
0
0.5
1
2
Miles

*It is recommended that the following stops are **eliminated**:*

- 11.45 (Lakeshore and Terrace) – Remove stop due to minimal ridership.
- 11.48 (Lakeshore - Residential Area) – Remove stop due to poor sight distance.

KELSEYVILLE / SODA BAY ROAD

This area is served by Routes 4 and 4a. The following is a description of the recommended transit passenger facility improvements for Kelseyville/Soda Bay Road, as described in Tables 17 and 18. As shown, there are no high priority facility improvements warranted in this area at this time.

Signage

As described in Tables 17 and 18, 4 LTA bus stop facilities in this area require signage. Figure 29 illustrates bus stop facilities in this area with and without existing signage.

Improve Accessibility

As shown in Tables 17 and 18, 6 bus stops in this area also require improved ADA accessibility. These locations are illustrated in Figure 30.

Provide Bus Pullouts

It has been determined that no bus stop facilities locate in this area require the installation of a bus pullout at this time.

Provide Street Furniture

Tables 17 and 18 also show that 3 facilities in this area warrant the installation of a bench. These locations are also illustrated in Figure 30.

Bus Landing Pads

It is also recommended that an elevated bus landing pad is installed at 9 stops throughout this area, as shown in Tables 17 and 18, providing access at stops that lack an accessible path.

Additional Key Stop Modifications

It has been determined that no stops in this area shall be either relocated or eliminated at this time.

TABLE 17: LTA Priority Facility Improvements - Kelseyville/Soda Bay Road

Priority Improvements

Stop ID #	Route #	Area	Street	Cross Street	Landmark	Recommended Improvements	Identical Stops [1]
N/A							

Other Improvements

Facility Improvement	Quantity
Signage	4
Improve Accessibility	6
Provide Bus Pullout	0
Install Bus Landing Pad	9
Provide Street Furniture	
Bench	3
Shelter	0

Note 1: Multiple routes stop at identical locations.
Note: Appendix A lists the complete LTA bus stop facility locations by area and route, as well as recommended improvements and general inventory.
Source: LSC Transportation Consultants, Inc.

TABLE 18: LTA Bus Stop Facility Improvements - Kelseyville/Soda Bay Road

Stop ID #	Street	Cross Street	Landmark	Recommended Improvements
40.09	Soda Bay Road	North of Riviera	Riviera Shopping Center	Install sign, install landing pad
40.14	Gaddy Court	Gaddy Lane	Gaddy Apts./PO	Install sign, install landing pad
40.16	Live Oak Dr	Live Oak Park	Kelsey Creek Mobile Home Park	Install landing pad
40.18	Main	Live Oak	Commercial/Residential	Install bench
40.19	Main	3rd	Main St. Commercial and PO	Install sign
41.10	Gaddy Lane	Gaddy Court	Gaddy Creek Apts./PO	Install bench, bus stop pad adjacent to stop
41.11	Soda Bay Road	Pine Dr.	5007 Bay Market	Install landing pad
41.13	Soda Bay Road	Montezuma Way	Konocti Bay Estates	Install landing pad
41.14	Soda Bay Road	Riviera	Riviera Hair Studio	Install landing pad
40.22	Big Valley Rd.	Finley Rd	PO/Town Center	Install sign, designate bay
40.23	N/A - Parking Lot	N/A	Konocti Vista Casino	Install bench

Source: LSC Transportation Consultants, Inc.

Figure 29
LTA Bus Stop Facilities
Kelseyville/Soda Bay Road Signage

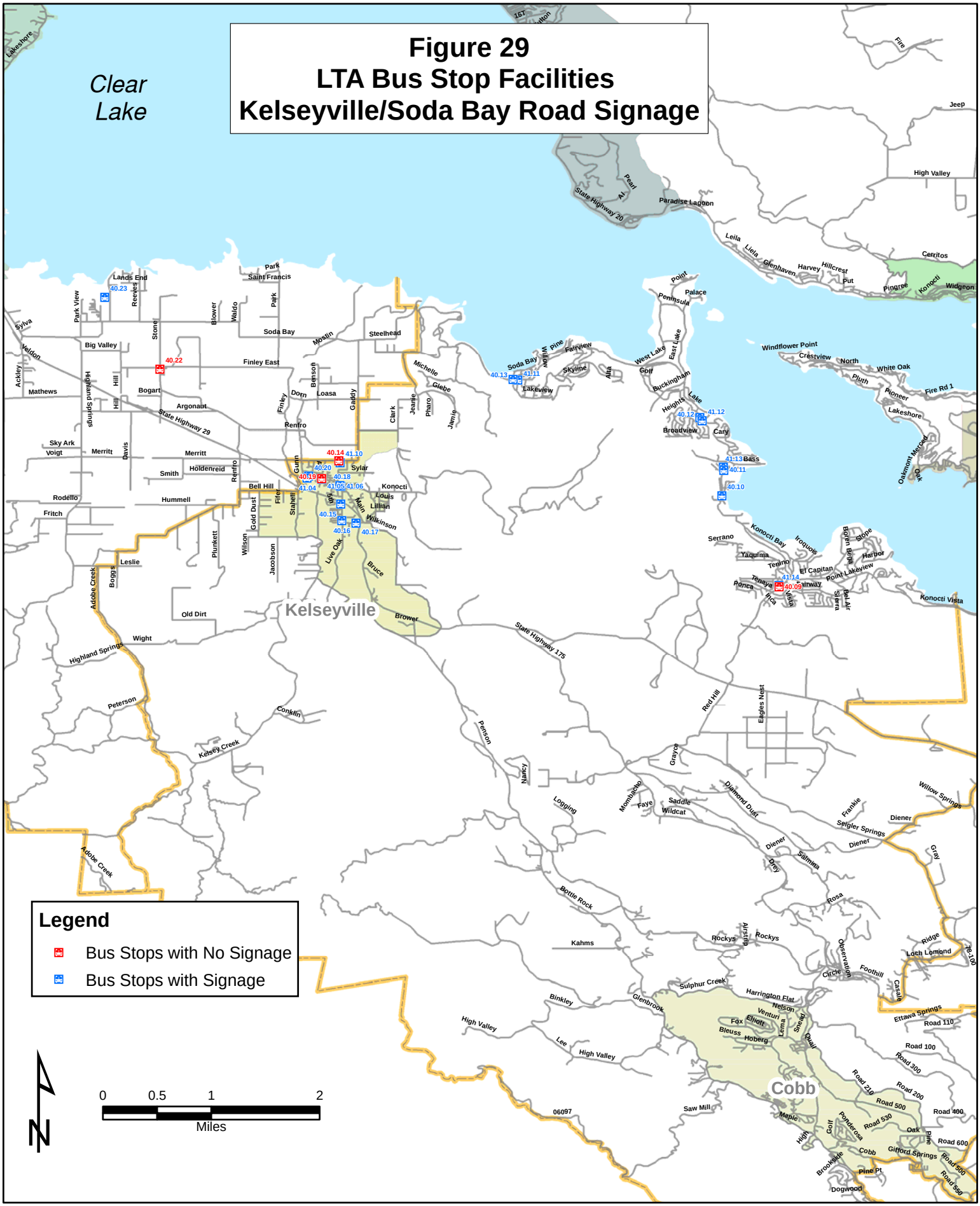
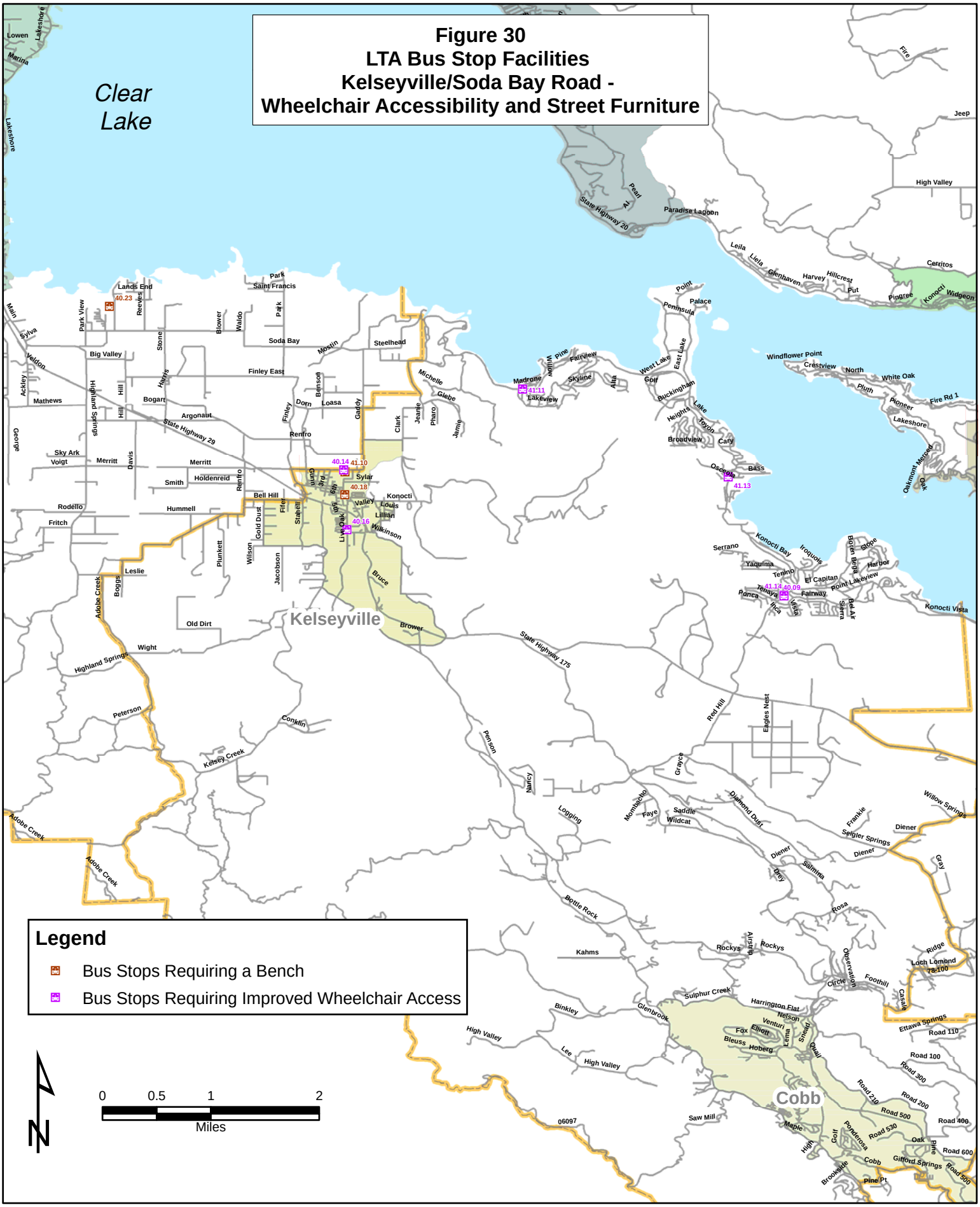


Figure 30
LTA Bus Stop Facilities
Kelseyville/Soda Bay Road -
Wheelchair Accessibility and Street Furniture



PASSENGER FACILITY IMPROVEMENT CAPITAL PLAN

According to LTA Staff, $45,000 in capital improvements has been allocated for LTA transit facility capital improvements for Fiscal Year 2006-07. Cost estimates for the passenger facility development plan have been developed based upon the following "unit costs":

- The cost of modern, off-the-shelf glass and extrude aluminum shelters average approximately $8,500 for most areas (including installation).

- Appropriate transit benches range from $550 for a vinyl-clad "stretched" steel bench to $1,500 for ornate iron and wood benches.

- The cost to add or replace bus stop signs can vary. Signs must be in compliance with 2004 ADAAG Guidelines as described in the "Design Standards" section. Cost depends upon materials, quantity, and conditions at each location. Range is $150 to $200 per sign to replace the panel. The range is typically $500-$600 per sign to install a post and a panel.

- The cost of constructing a bus stop pad and an accessible pathway can vary. In some cases, it will be necessary only to install a bus stop pad or "passenger waiting pad" for wheelchair boarding and landing, which is estimated to cost approximately $5,000. For a few locations, it will be necessary to construct an accessible pathway from the bus stop waiting area to an adjoining pedestrian walk. Given that the surface area will vary by project, the actual cost to construct an accessible pathway will have to be assessed during the design stage of each specific improvement. A working estimate for the construction of a 4-foot sidewalk with curb and gutter would cost approximately $48.00 per lineal foot.

- The cost of a pullout can vary greatly based upon existing site conditions, such as the presence of curb and gutter, the presence of power poles and other utilities, the need to make changes in drainage, and the availability of existing graded shoulder. For some sites identified in this study, simple asphaltic paving of the existing shoulder would probably be sufficient, though other sites would require extensive site work. While specific designs and associated costs would require site-specific civil engineering, a reasonable average cost estimate is $20,000.

Note that all of these costs assume that all improvements can be accomplished without land acquisition costs, either through use of existing public right-or-way or other public land, or through approval of a private land owner.

TABLE 19: LTA Passenger Facility Improvement Plan

Fiscal Year 2006-07

	Area													
	Clearlake		Lakeport		Middletown, Hidden Valley, Cobb and Lower Lake		Highway 20 Corridor		North Lakeport Area		Kelseyville/Soda Bay Road		Total LTA System	
Facility Improvement	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Signage [1]	38	$20,900	3	$1,650	15	$8,250	26	$14,300	4	$2,200	4	$2,200	90	$49,500
Provide Bus Pullout	15	$300,000	3	$60,000	--	--	7	$140,000	1	$20,000	--	--	26	$520,000
Improve Accessibility [2]														
- Accessible path	1	$5,000	--	--	1	$5,000	--	--	--	--	--	--	2	$10,000
- Shelter relocation	1	$5,000	--	--	--	--	--	--	--	--	--	--	1	$5,000
Install Bus Landing Pad	45	$225,000	9	$45,000	9	$45,000	25	$125,000	5	$25,000	9	$45,000	102	$510,000
Provide Street Furniture														
- Bench	18	$9,900	1	$550	6	$3,300	--	--	--	--	3	$1,650	28	$15,400
- Shelter	3	$25,500	1	$8,500	2	$17,000	15	$127,500	--	--	--	--	21	$178,500
Accessibility and Streetscape Contingency [3]	--	$154,075	--	$47,675	--	$19,638	--	$101,700	--	$11,800	--	$12,213	--	$347,100
Other	Ray's Food Place Improvements	$25,000	Safeway / Kmart Retrofits / Court House Stop Expansion	$75,000	--	--	--	--	--	--	--	--	--	$100,000
Total Project Cost by Area:		*$770,375*		*$238,375*		*$98,188*		*$508,500*		*$59,000*		*$61,063*		***$1,735,500***

Equipment / Furniture	Unit Price
Industry standard shelter [4]	$8,500
Industry standard steel bench	$550
Sign	$175
Post and sign	$550
Original sign design	$850
Reproduction of design per sign [5]	$250
Average cost of bus landing pad	$5,000
Pullout [6]	$20,000

Note 1: Sign costs include installation of sign and post.
Note 2: Accessible paths vary depending on size of project; costs presented are estimates.
Note 3: Estimation based on 25 percent of total cost by area.
Note 4: Includes installation of shelter. Cost does *not* include the installation of bus landing pads and accessible routes.
Note 5: Cost does not include $175 for the sign.
Note 6: Average estimated cost for constructing a pullout as cost will vary depending on land acquisition and the installation of curb and gutter.
Note 7: Costs correspond with average industry standards as of March 2006.
Note 8: The cost estimate is organized and presented on an average unit cost basis as well as production, installation, and routine maintenance. This cost estimate excludes cost for approvals, permits, etc., and is based on installation within public right-of-way.
Source: Metropolitan Transportation Committee (MTC) Transit Connectivity Study 2006, LSC.

Table 19 presents a summary of overall project costs by area, based upon these unit costs and the total number of locations for each type of recommended improvement. The following list presents a total project cost by area:

- Clearlake - $770,375
- Lakeport - $238,375
- Middletown, Hidden Valley, Cobb and Lower Lake - $98,188
- Highway 20 Corridor - $508,500
- North Lakeport Area - $59,000
- Kelseyville/Soda Bay Road - $61,063
- **Total LTA System - $1,735,500**

While all considerations discussed in this plan are important, it is recommended that addressing the immediate safety improvements and providing consistent signage at each stop should be of the highest priority.

PASSENGER FACILITY IMPROVEMENT POTENTIAL FUNDING SOURCES

FTA Section 5310 – Elderly and Persons with Disabilities Program

FTA Section 5310 funds are distributed to the states by the federal government to provide transit capital grants to non-profit agencies that provide transportation services to the elderly or persons with disabilities. Until recently, recipients of Section 5310 funding were restricted to non-profit organizations; with passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) and subsequent Transportation Equity Act of the 21st Century (TEA-21), however, local governmental jurisdictions are also eligible for funding.

FTA Section 5311 – Non-urbanized Formula Program

Section 5311 remains the core program for rural public transportation under SAFETEA-LU. A substantial increase in funding allocations are identified over the next five years. Section 5311 funds are distributed to the regions on non-urbanized area formula. These funds are used for transit capital and operating purposes in non-urbanized areas.

FTA Section 5317 – New Freedom Program

This new program under SAFETEA-LU provides formula funding for expanded public transportation services beyond those required by ADA for persons with disabilities. It is apportioned to the individual states based upon the disabled population, and only 20 percent is available to non-urbanized areas.

FTA proposes that *New Freedom* funds may be used to improve accessibility at existing transportation facilities, so long as the projects are clearly intended to remove barriers

to existing stations that would otherwise have remained, and are not projects that are part of an already planned station renovation or alteration.

FTA had originally planned to allow projects that are either "new" or "beyond the ADA," grouping them as two separate categories. As of June 2006, however, Congressional staff informed APTA that they want FTA to be somewhat more restrictive and to only

fund projects that are *both* "new" and "beyond the ADA." Lake County is within the "Governor's Apportionment" for New Freedom funds, which is $692,909 statewide for FY 2006.

Caltrans application forms and procedures are available from:
http://www.dot.ca.gov/hq/MassTrans/transitprograms.htm

Community Development Block Grant Program (CDBG)

The CDBG program is a flexible program that provides communities with resources to address a wide range of unique community development needs. Beginning in 1974, the CDBG program is one of the longest continuously run programs at the U.S. Department of Housing and Urban Development (HUD). The CDBG program provides annual grants on a formula basis to 1180 general units of local government and states.

Advertising

Many public transit systems nationwide generate a substantial level of transit funding through exterior bus advertising programs. Some systems lease space in fixed racks on the sides and rear of the vehicles, while others allow full-bus "wraps" using a plastic film technology. A disadvantage of this option is that some may find the vehicles unattractive, and the "image" of the public transit program may suffer. Issues have arisen in some areas over which advertisers are appropriate on a public transit vehicle (such as alcohol or tobacco ads). There is also a small level of staff time needed to administer the program. On the other hand, the amount of potential revenue – that would be completely flexible in how it is spent – could be significant. Annual income from this source would depend on the number of buses involved in the program.

LTA INTERACTIVE PASSENGER FACILITY LOCATION WEBSITE

In addition to maintaining the content of the transit facility database, an additional effort is highly recommended in order to allow various public agencies as well as the general public to have access to this information. As a result of the data collection effort, a comprehensive transit facility database has been created and is compatible with spatial, geographic data. The information can be made available through interaction between the database and a GIS ArcIMS system.

ArcIMS is the solution for delivering dynamic maps and GIS data and services via the Web. It provides a highly scalable framework for GIS Web publishing that meets the

needs of corporations and public agencies alike and demands of worldwide Internet access. ArcIMS services can be used by a wide range of clients including custom Web applications, the ArcGIS Desktop, and mobile and wireless devices. Using ArcIMS, city and local governments, businesses, and other organizations worldwide publish, discover, and share geospatial information.

With this application, LTA will have the ability to:

- Share transit facility information and site locations with other agencies and the general public.
- Deliver dynamic maps and data via the Web.
- Create easy-to-use applications that utilize geographic content.
- Develop custom applications using industry-standard Web development environments.

The benefit of such a product will provide a great service for the residents of Lake County and, in the long-term, will save time and money for all implicated agencies.

One option for implementation of this application is for LTA to purchase and operate ArcIMS independently of Lake County. According to Lake County GIS Staff, it is highly unlikely that the IT department at the County would be able to host an LTA ArcIMS application on the County site due to the fact that LTA is a joint powers agency between the two cities (Clearlake and Lakeport) and the county. If LTA were to decide to purchase ArcIMS independently, the cost for a standard application package is approximately $10,000. It is recommended that a consultant is contracted to implement the program.

In the case, however, that the County were able to host an LTA ArcIMS application, LTA would be billed at the standard rate for any work done, including site development, testing, maintenance, as well as a charge for the bandwidth and a cost-sharing plan for the use of the County's ArcIMS software.

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