County Connection

INTER OFFICE MEMO

Agenda Item 7.b.1.

To: Board of Directors Date: December 12, 2013

From: Anne Muzzini, Director of Planning & Marketing Reviewed by:

Subject: Final Adaptive Service Plan

Background:

Measure J Transpac funds were used to do a study of alternative transit service in areas where traditional fixed route transit isn't working. It was envisioned that creative new services would be developed. The planning team first selected neighborhoods for study within the Transpac area, then narrowed down the choices to the Trotter/South Walnut Creek area, Downtown Martinez, and Shadelands.

Service options were developed and specific recommendations are made to improve service to these neighborhoods. The executive summary is a concise version of the process and recommendations. Paul Supawanich from Nelson Nygaard will be present at the Board meeting to present the plan and answer questions.

After the plan is adopted staff will proceed with implementation by working with the Operations and Scheduling Committee. Input from the public, and stakeholders will be used to develop final recommendations. The Board will need to take further action to approve implementation of final service changes.

Requested Action:

The MP&L Committee recommends that the Board adopt the Adaptive Service Plan and directs staff to proceed with implementation by obtaining public input and getting O&S approval of final service changes.

ADAPTIVE SERVICE PLAN

Final Report

Contra Costa County Transportation Authority

November 2013

NELSON NYGAARD

In partnership with
Fehr and Peers

EXECUTIVE SUMMARY

Traditional fixed route service is an effective mobility option in certain applications and in certain environments. Typically, this includes areas with ample residents and destinations along relatively direct corridors. Where fixed route service tends to underperform is in suburban and rural areas where development density is low and the roadway networks are incomplete or the roadway environment is unsuitable for the walking trips needed to access the service.

The goal of the Adaptive Service Plan is to explore options beyond traditional fixed route service and seek recommendations that might be more effective in meeting the mobility needs of certain focus areas within the CCCTA Transpac service area. In some cases, recommendations might not even include transit service at all. To develop recommendations, a data-driven approach was used, investigating the entire Transpac area, this approach is described in the Report Overview and Figure ES-1.

REPORT OVERVIEW

This report reviews the entire Transpac study area where County Connection operates. Considering numerous factors in combination with input from County Connection staff, the project narrows the study area to four "focus areas" for further analysis of service options. The process of selecting these initial four focus areas can be found in **Chapter 2: Demographic Analysis.**

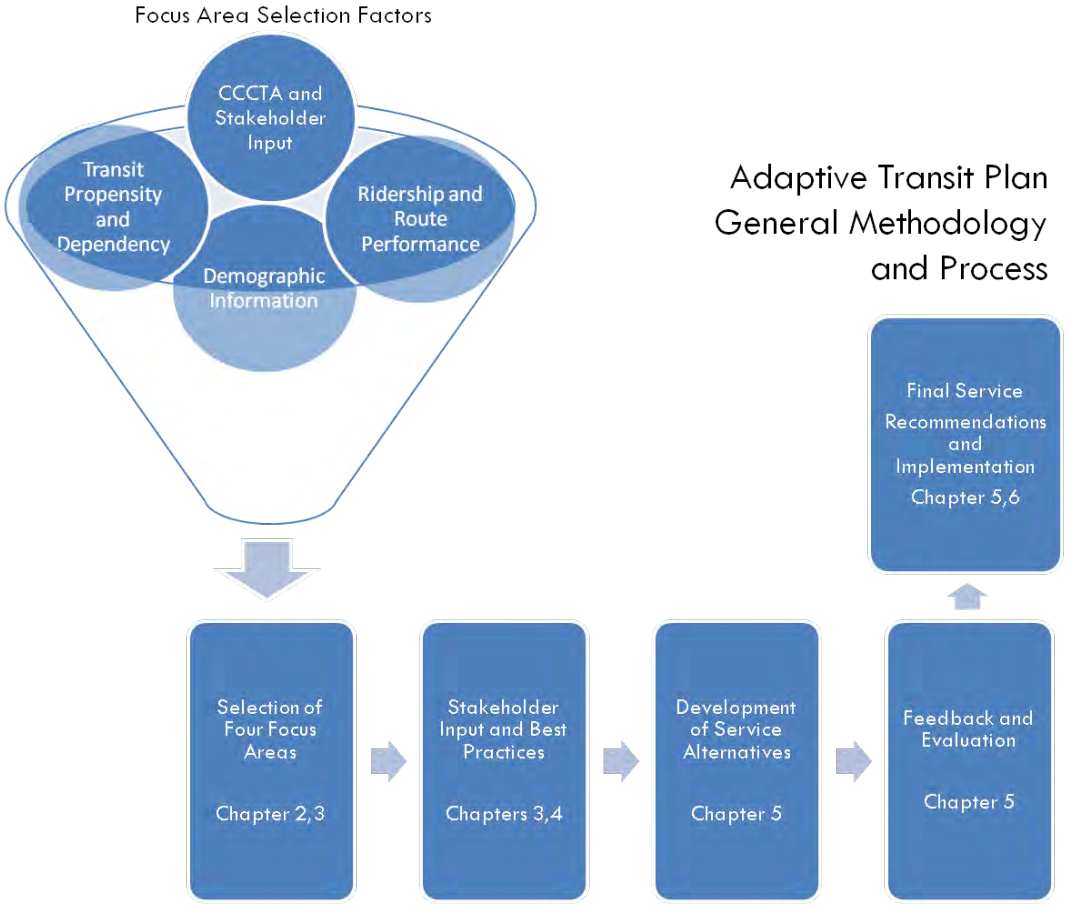
Upon selection of four focus areas, each was reviewed at a much higher level of detail, investigating elements such as major local destinations and attractions, existing transit service, local preference and physical characteristics such as the roadway network and pedestrian network.

A detailed analysis of each of the focus areas can be found in **Chapter 3: Focus Areas.** Given the context and background provided in these preliminary chapters, the study turns its focus externally to investigate various "adaptive service strategies" that have been employed in other locations around the country. Examples of strategies include deviated fixed route systems, flex-routes and non-fixed route options. A summary of these service delivery models and associated performance measures for their service are provided in **Chapter 4: Service Strategies.**

Chapter 5: Service Plan culminates the background information from each of the focus areas and applies different service strategies. Contrary to the initial expectation of the study, many of the strategies are not considered adaptive service strategies. In fact, in each of the three final focus areas, more traditional services including circulator shuttles and modifications to existing fixed route service are applied. This is not to say that different service strategies were not analyzed. They were deemed to not be applicable to the focus areas in question and enhancements to existing services are believed to be more effective at generating ridership.

Finally, **Chapter 6: Implementation Plan** briefly highlights key implementation tasks and associated organizations that should be involved in bringing service recommendations to fruition.

Figure ES-1 Adaptive Transit Plan General Methodology



FINAL FOCUS AREAS

Trotter/South Walnut Creek

The Trotter/South Walnut Creek focus area conveys two very different stories. Based on the low-density residential land uses and absence of major destinations, Trotter/South Walnut Creek (specifically, areas south of Rudgear Road) has little potential for near-term growth in transit ridership. From a transit operations perspective, it is challenging to justify the need and relevance of traditional fixed-route transit service in this neighborhood. Existing service (Route 2) experiences very low route ridership and productivity, which could warrant the introduction of a flexible service type. However, given that many other neighborhoods in the central county with similar land use characteristics do not have any transit service, even a flexible service type may not be warranted in this area.

On the contrary, the Creekside Drive area has characteristics that lend itself to successful transit service. The combination of high-density housing, constrained parking supply and roadway options that limit access to the area suggest that transit could be competitive with drive alone

trips. While the pedestrian network and connectivity is constrained, the area's proximity to shopping and recreational trails would be supportive of transit service modifications that better serve local needs.

Martinez

Downtown Martinez's combination of jobs density, walkable street network, and relatively close major regional destinations make it an interesting candidate for improvements. Feedback from stakeholders and a review of local demographic data shows that a need and desire for transportation services exists, yet current transit does not seem to fully capitalize on these specific needs. Intra-Martinez trips between the downtown core, the County Regional Hospital, and retail on Route 4 may include markets that could be more efficiently served by transit.

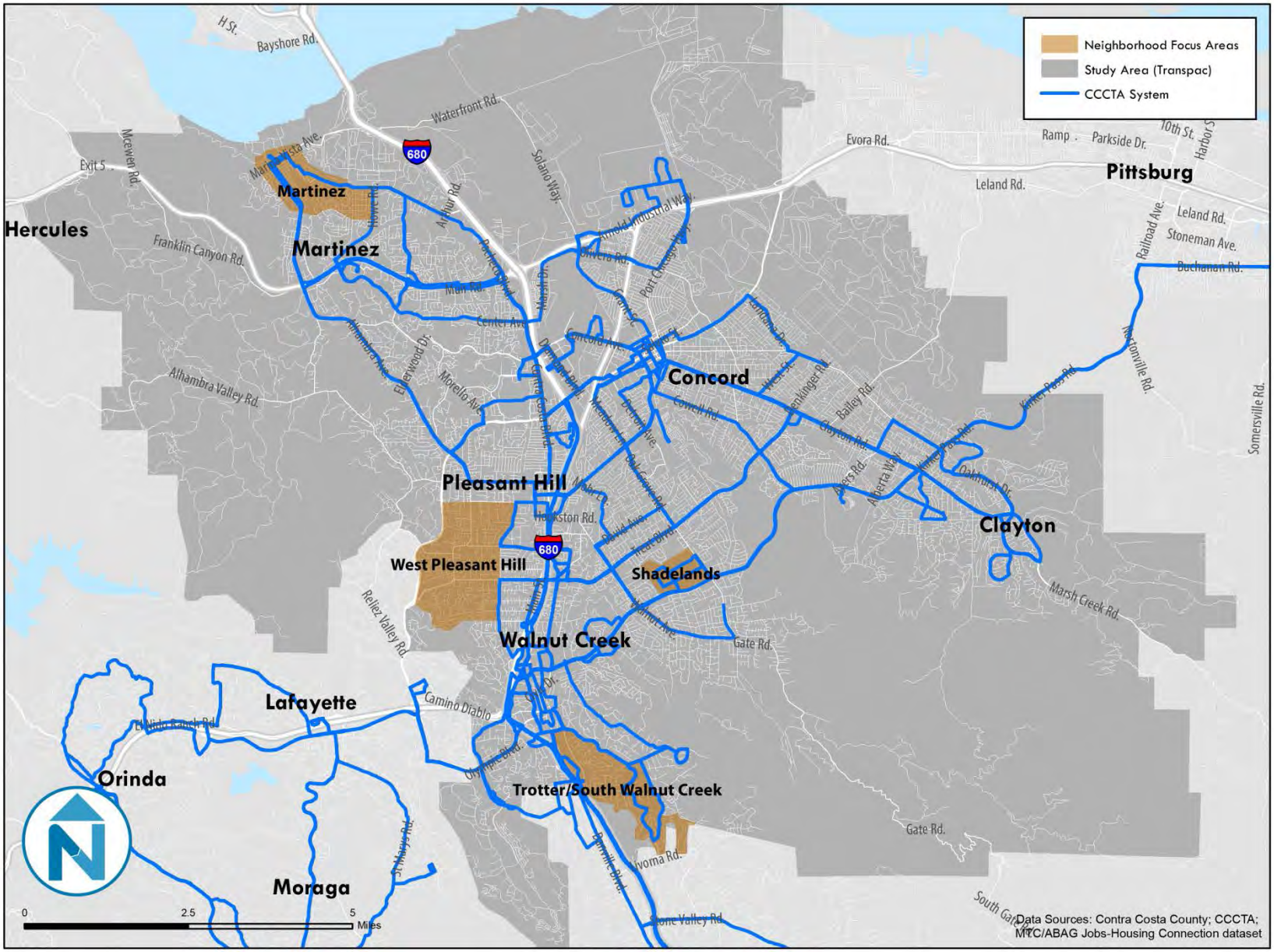
Shadelands

Shadelands is the only commercially-focused (primarily office) site of this study. It is worth noting that that many employees who work at Shadelands reside in areas adjacent to or nearby the office park, therefore it may benefit most from improving access for non-motorized transportation modes. Further investigation of this site may include recommendations for "transit-supportive" strategies rather than flexible transit or route modifications. Currently, Route 1 and Route 7 provide transit service between Shadelands and the Walnut Creek and Pleasant Hill BART Stations. However, these do not provide direct, frequent service and may not attract regular commuting employees who would otherwise drive and have access to free parking. As a result, a dedicated Shadelands shuttle may be viable and is a service that has garnered interest from the local business community.

West Pleasant Hill (eliminated from final focus areas)

West Pleasant Hill was one of the four original focus areas selected for preliminary portions of the study. However, after an initial round of analysis, it was determined West Pleasant Hill had the lowest potential for transit service improvements as compared to other focus areas. As a result, this focus area was dropped from the service planning portion of the study.

Figure ES-2 Focus Areas



SERVICE RECOMMENDATIONS

Trotter/South Walnut Creek

Eliminate Route 2 and increase transit frequency on Route 5

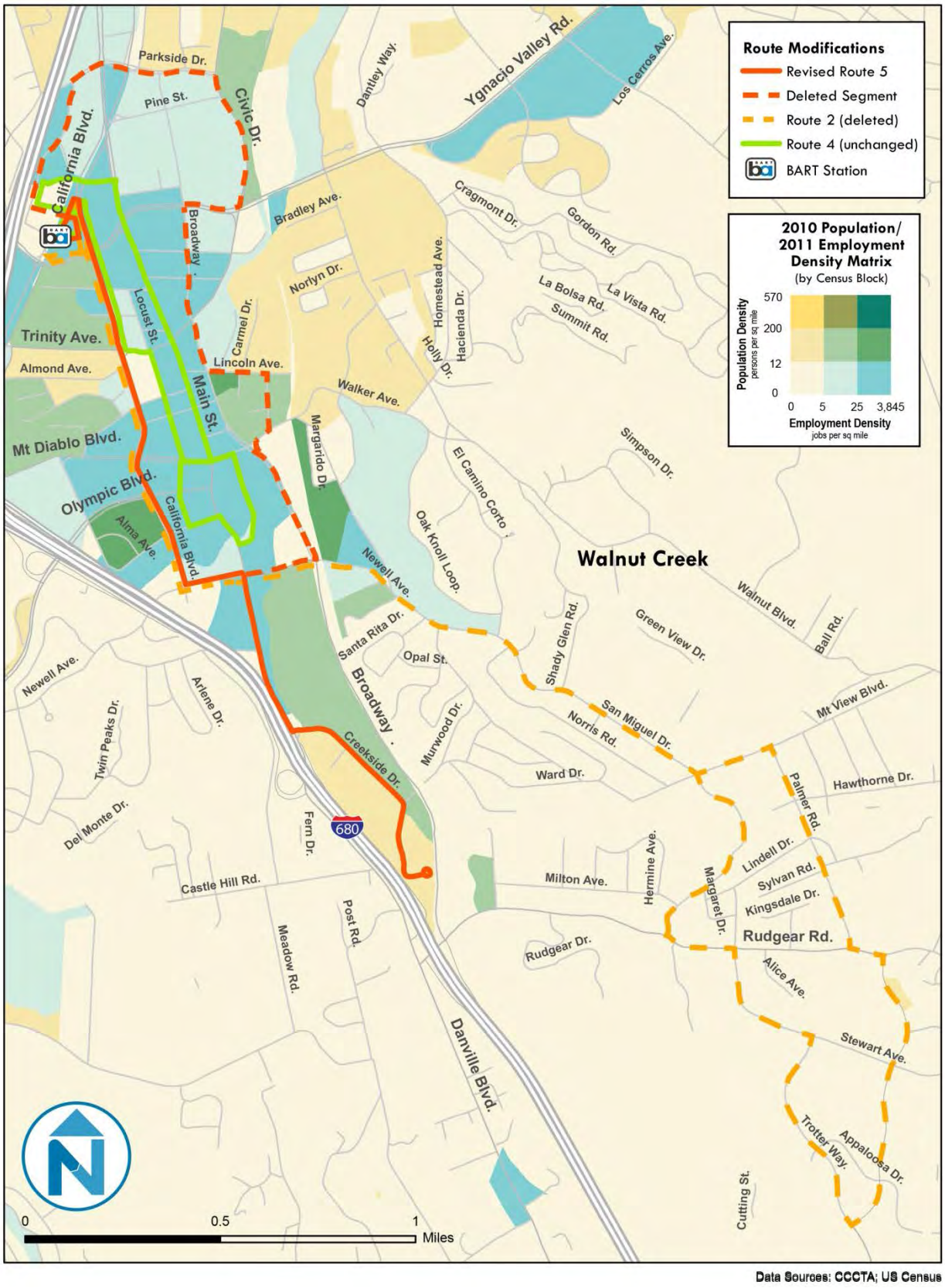
Service recommendations in the Trotter/South Walnut Creek Area include the elimination of Route 2 given its low productivity (nearly 7 boardings per hour) and reallocation of resources to improve Route 5 service on Creekside Drive.

This reallocation of resources would provide improved service to an area with one of the highest population densities in Walnut Creek. School trippers, which carry many students, would continue to operate in the Trotter neighborhood. Given that Route 2 and Route 5 currently interline, this option provides the opportunity for Route 5 to nearly double its frequency to Creekside Drive. This route would enable service frequencies in upwards of 20-25 minutes to residents along Creekside Drive in addition to 30 minute service from Route 21.

Feedback from existing residents of Creekside Drive includes the criticism that Route 5 takes too long to get to BART. It is suggested that Route 5 be realigned to travel on a more direct path to BART using California Boulevard (following Route 21). This would save approximately 1.4 miles (round trip) in travel distance and associated travel time.

The northern and eastern segments of Route 5 (Parkside Drive, Civic Drive, Lincoln, South Broadway, Newell) would be eliminated altogether. Currently, Route 4 operates within ¼ mile of the existing segments of Route 5 proposed for elimination. Route 4 operates more frequently and over a longer service span, thus justifying service elimination of this segment of Route 5.

Figure ES-3 Trotter/South Walnut Creek Recommendations



Data Sources: CCCTA; US Census

Martinez

Modify existing fixed route services and provide a community-focused shuttle in Martinez

Community Shuttle

Based on the service goals and criteria in Martinez, a shuttle service similar to the 2009 Community Based Transportation Plan recommendation is still valid. That recommendation outlined several potential routing options between Downtown and destinations along Highway 4. This plan goes beyond the 2009 recommendations to provide more detailed routing, potential schedules, and other variants that may help the service better meet current community goals.

Preliminary service would be scheduled to operate hourly between approximately 7:00a.m.-9:30p.m. It is likely that routes would be scheduled to enable timed transfers at the Amtrak station or mid-route for routes traveling to Walnut Creek. Two routing alternatives are possible; one includes a one-way loop route that services Muir Road and Arnold Drive in a counter-clockwise loop and a two-way service on Arnold Way that would have a bus turnaround near Morello Avenue.

It is assumed that a Community Shuttle would have the same fares as all other service. However, fares could be subsidized by the City of Martinez or other entities similar to how the City of Walnut Creek subsidizes fares on the Route 4 Trolley.

Figure ES- 4 Martinez Community Recommended Shuttle Routing

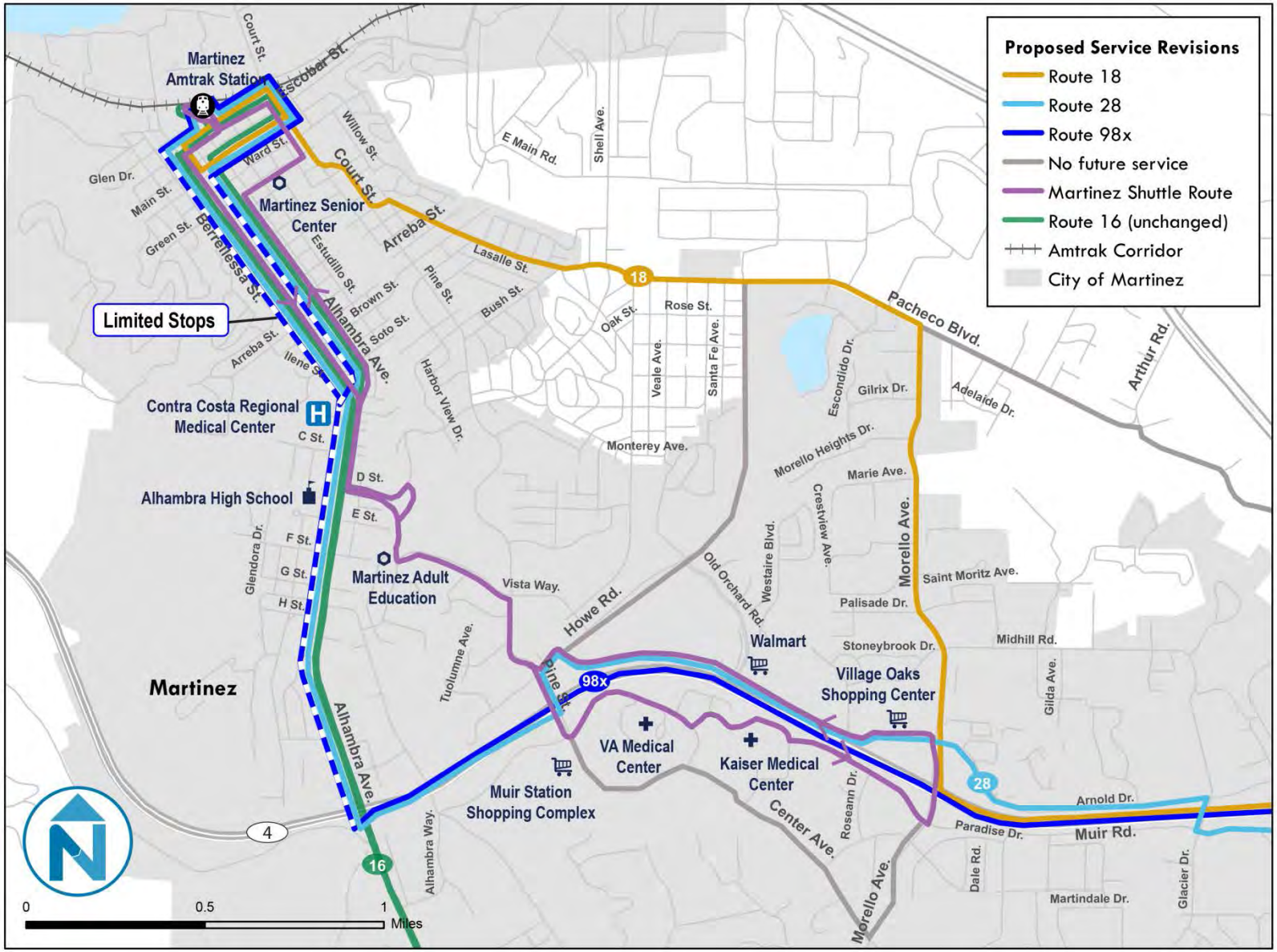
Data Sources: CCCTA

Fixed Route Modifications (Martinez Focus Area)

Several modifications are recommended to existing routes in the Martinez area including the elimination of Route 19. The route modifications described below assume that a Community Shuttle would be implemented and are designed to complement that service. The elimination of Route 19 will free up resources that could help support the initiation of a Community Shuttle service.

Route Number	Proposed Service Change	Implications on Service Hours	Additional Comments
16	No service changes	N/A	If additional resources become available, it is recommended that service frequencies be set at hourly clockface headways (0:30 minute frequencies) for passenger convenience. Current frequency is 40 minutes between trips.
18	Route realignment: Route 18 and Route 28 switch alignments between Morello Avenue and Pacheco Boulevard. Route 18 now travels on Highway 4.	Any route efficiencies due to alignment changes should be used towards improving route frequency.	The proposed route provides a slightly faster travel time which could marginally improve frequencies. However, if additional resources become available, it is recommended that service frequencies be standardized at hourly (0:60) headways for passenger convenience. Current frequencies vary.
19	Route elimination: All segments of route are recommended to be eliminated due to low ridership.	Route elimination provides approximately 13.8 (13:50) weekday fixed route service hours to be applied towards other services.	Route eliminated
28	Route realignment: Route 28 would be realigned from Pacheco Boulevard to Alhambra Avenue and Berrellesa Avenue. The route would also serve Arnold Drive and previous segments of Route 18 (Arnold Drive, Muir Road)	Any route efficiencies due to alignment changes should be used towards improving route frequency.	The proposed route provides a slightly faster travel time which could marginally improve frequencies. However, if additional resources become available, it is recommended that service frequencies be standardized at hourly (0:60) headways for passenger convenience.
98X	Stop Reduction: Eliminate low-ridership stops to improve overall travel time. Stop location: Stop directly at DVC on both northbound and southbound trips.	Any route efficiencies due to alignment changes should be used towards improving route frequency.	The proposed route provides a slightly faster travel time which could marginally improve frequencies. However, if additional resources become available, it is recommended that service frequencies be standardized at hourly (0:30) headways for passenger convenience.

Figure ES-5 Martinez Area CCCTA Service Recommendations



Data Sources: CCCTA

Shadelands

Establish dedicated BART Shuttle to Shadelands and support efforts to organize a Shadelands Transportation Management Association (TMA)

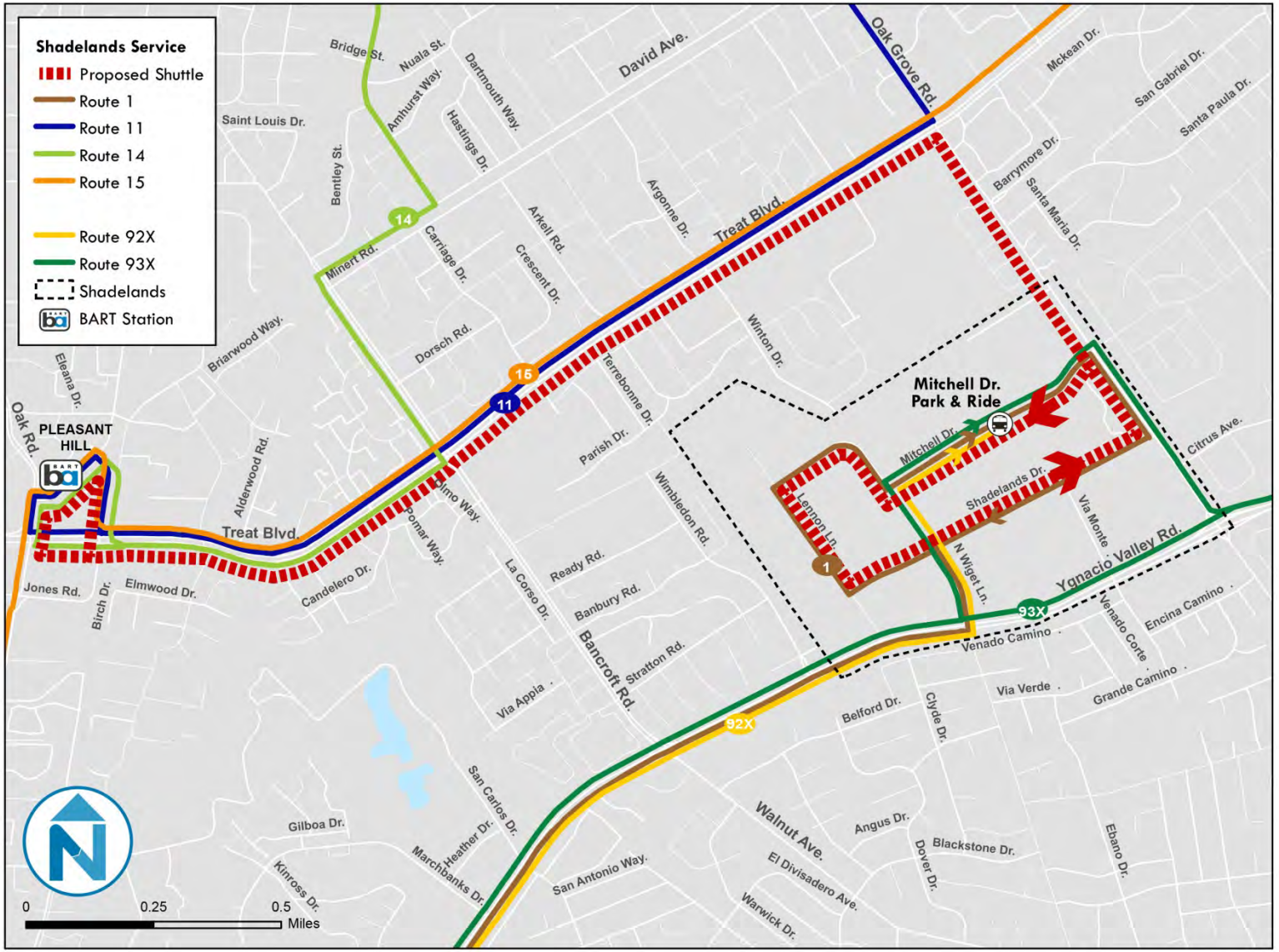
Shadelands BART Shuttle

Compared to the existing County Connection service, a dedicated BART shuttle could reduce travel times between destinations in Shadelands and Pleasant Hill BART. Presently, the fastest County Connection trip from the Mitchell Park and Ride takes approximately 24 minutes (Route 7, one-way). A dedicated service could reduce the travel time to approximately 18-20 minutes. Travel time savings would be achieved by reducing the total number of stops and utilizing a travel corridor with less variable traffic congestion than the current alignment.

Increasing the frequency of operations would also make the service more attractive to potential users. 15 minute (peak) service frequency would match BART train arrivals at Pleasant Hill BART and provide a much higher level of travel flexibility as compared to current transit options. Given the limited information about potential ridership demand and needs, it is preliminarily proposed that service operate between 7 a.m. and 10 a.m. in the morning and between 3 p.m. and 7:30 p.m. in the evening. Route 7 that currently serves Shadelands should not duplicate the Shadelands Shuttle. Instead, it should be truncated (to save resources) and not directly serve Shadelands or the route could be eliminated altogether to provide resources for a shuttle.

Figure ES- 6 Shadelands Shuttle Alignment

Note: Route 7 is no longer shown and is assumed to be replaced by a Shadelands Shuttle.



Data Sources: Contra Costa County

Establishment of a Shadelands Transportation Management Association (TMA)

In an area like Shadelands that is already served by transit, a TMA may serve as a sounding board or decision-making body that could articulate certain "on-campus" transit needs to County Connection or lead the charge in improving transit amenities such as stops, shelters or even creating a new consolidated "transit hub."

As of September 2013, it has been rumored that numerous companies in Shadelands are exploring the formation of a Property Based Improvement District (PBID). A PBID could establish the administrative foundation under which a TMA could operate. It is recommended that County Connection continue to maintain involvement with any organized efforts within the Shadelands Office Park related to transportation.

Table of Contents

Table of Figures

1 INTRODUCTION

STUDY PURPOSE

According to research completed by a variety of institutions such as APTA (American Public Transportation Association) and TRB (Transportation Research Board), it's fairly clear that most Americans have never used public transportation. For those that have, (primarily those living in dense urban metropolitan areas like New York City, Chicago, etc) their exposure is primarily limited to traditional fixed route services, much like those currently operated by CCCTA.

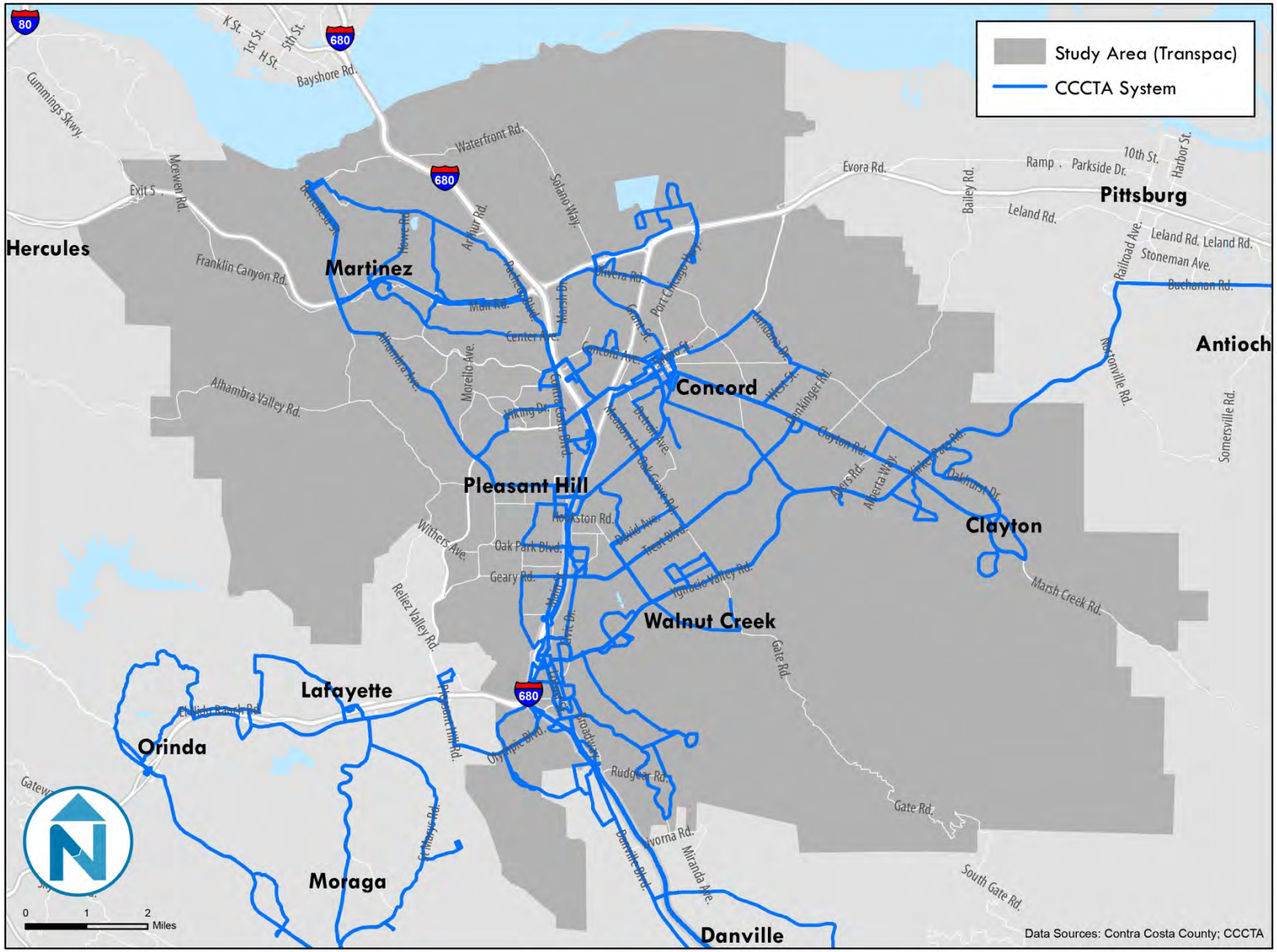
Traditional fixed route service works very well in certain applications and in certain environments. Fixed routes can be a great mobility option, and very cost effective to operate, in places that have high levels of development density located adjacent to major arterial roadways. Where fixed route service tends to underperform is in suburban and rural areas where development density is low and the roadway networks are incomplete or the roadway environment is unsuitable for the walking trips needed to access the service.

The primary goal of the Adaptive Transit Plan is to explore options beyond traditional fixed route service that might be more effective in meeting the mobility needs of certain geographic areas within the CCCTA service area. In some cases, the "options" might not even include transit service at all.

PROJECT STUDY AREA

The County Connection serves the communities of Concord, Pleasant Hill, Martinez, Walnut Creek, Clayton, Lafayette, Orinda, Moraga, Danville, San Ramon, and unincorporated communities in Central Contra Costa County. This study was commissioned and funded by the Transpac, a subset of the County Connection's service area. The Transpac includes the cities of Walnut Creek, Pleasant Hill, Concord, Clayton, and Martinez—and as such the focus of analysis and recommendations is limited to this area. As can be seen in the map in Figure 7, the project study area includes only a portion of CCCTA's overall system. While service solutions may include other parts of the service area outside of the Transpac, recommendations in this project will be limited to the study area.

Figure 1-1 Transpac Study Area



STUDY METHODOLOGY

This report reviews the entire Transpac study area where County Connection operates. Considering numerous factors in combination with input from County Connection staff, the project narrows the study area to four "focus areas" for further analysis of service options. The process of selecting these initial four focus areas can be found in **Chapter 2: Demographic Analysis.** Upon selection of four focus areas, each was reviewed at a much higher level of detail, investigating elements such as major local destinations and attractions, existing transit service, local preference and physical characteristics such as the roadway network and pedestrian network. A detailed analysis of each of the focus areas can be found in **Chapter 3: Focus Areas.** Given the context and background provided in these preliminary chapters, the study turns its focus externally to investigate various "adaptive service strategies" that have been employed in other locations around the country. Examples of strategies include deviated fixed route systems, flex-routes and non-fixed route options. A summary of these service delivery models and associated performance measures for their service are provided in **Chapter 4: Service Strategies. Chapter 5: Service Plan** culminates the background information from each of the focus areas and applies different service strategies. Contrary to the initial expectation of the study, many of the strategies are not considered adaptive service strategies. In fact, in each of the three final focus areas, more traditional services including circulator shuttles and modifications to existing fixed route service are applied. This is not to say that different service strategies were not analyzed. They were deemed to not be applicable to the focus areas in question and enhancements to existing services are believed to be more effective at generating ridership. Finally, **Chapter 6: Implementation Plan** briefly highlights key implementation tasks and associated organizations that should be involved in bringing service recommendations to fruition.

2 DEMOGRAPHIC ANALYSIS

The purpose of this chapter is to provide study-area specific background information, local demographics and other factors that either support or infer the potential for the use of public transportation. The content includes a series of maps charting topics that help illuminate areas that either serve as a direct indicators or proxy for transit ridership potential or markets for other transportation alternatives. In addition, this chapter reviews several key studies and documents that are relevant to future transit service planning within the study area.

This chapter also serves as a foundation from which to help select "Focus Areas" from the Transpac study area. These Focus Areas are intended to be sites that have a high potential for public transportation to succeed. However, transit success may be dictated on service being delivered differently than it is today. Criteria that will major factors in selecting the Focus Areas include the following:

- Locations with high employment or residential density
- Areas with unique commute patterns (or limited mobility options) due to topography, street network, or similar.
- Areas with high transit propensity or dependency
- Areas with high potential for new riders (or to have increases in ridership as compared to today)
- Geographic distribution throughout the study area

Household Income

Average median household incomes in the Transpac study area are shown in the map in Figure 2-1. As can be seen, large areas in the area are above the median family income for Contra Costa County ($79,135).[1] Based on the 2011 U.S. Health and Human Services Poverty Guidelines, 100% of poverty for a family of four was $22,350 and 200% of poverty was $44,700 per year. The two lower categories in the map below show census tracts where the majority of households are in poverty. This is primarily concentrated around the Concord BART, in Martinez near the Amtrak station, and in the area around Buchanan Field Airport.

Household Density

Household density in the study area for 2010 and 2040 is based on the Metropolitan Transportation Commission (MTC) land use population and employment projections developed

[1] Area median household income from the American Community Survey 2011 5-year estimates

for the PlanBayArea Program[2] through 2040. These projections are by traffic analysis zone (TAZ), and have been averaged by acre for the purpose of this analysis. As can be seen in the maps (Figure 2-2 and Figure 2-3), density is concentrated along the I-680 and SR-242 corridors. Between 2010 and 2040, density will continue to increase in these areas, particularly around the Walnut Creek, Pleasant Hill, and Concord BART stations. The southern portion of the study area is not projected to experience any increases in density, with most growth occurring along SR-4 in north-east Concord and along Clayton Road towards Clayton.

Employment Density

Employment density for the study area is shown based on the same MTC land use projections for 2010 and 2040 in Figure 2-4 and Figure 2-5. The total numbers of jobs for TAZ's with more than 20 jobs per acre are labeled on these maps. Jobs in the study area are concentrated in pockets of the county, and are fairly well-aligned with the BART station locations. The largest numbers of jobs are in the Walnut Creek BART station area— around the Kaiser Permanente Walnut Creek, Las Lomas High School, and the commercial districts along South Broadway and South Main Street. There are also small pockets of employment in Martinez around the Amtrak station, and in Concord and Pleasant Hill around the BART stations. The most prominent area of projected jobs growth for 2040, outside of the BART station areas and Martinez Amtrak area, is the Shadelands Business Park off Ygnacio Valley Road.

[2] Plan Bay Area is an integrated long-range transportation and land-use/housing plan for the San Francisco Bay Area. More information can be found at http://onebayarea.org/regional-initiatives/plan-bay-area.html

Figure 2-1 Average Median Household Income

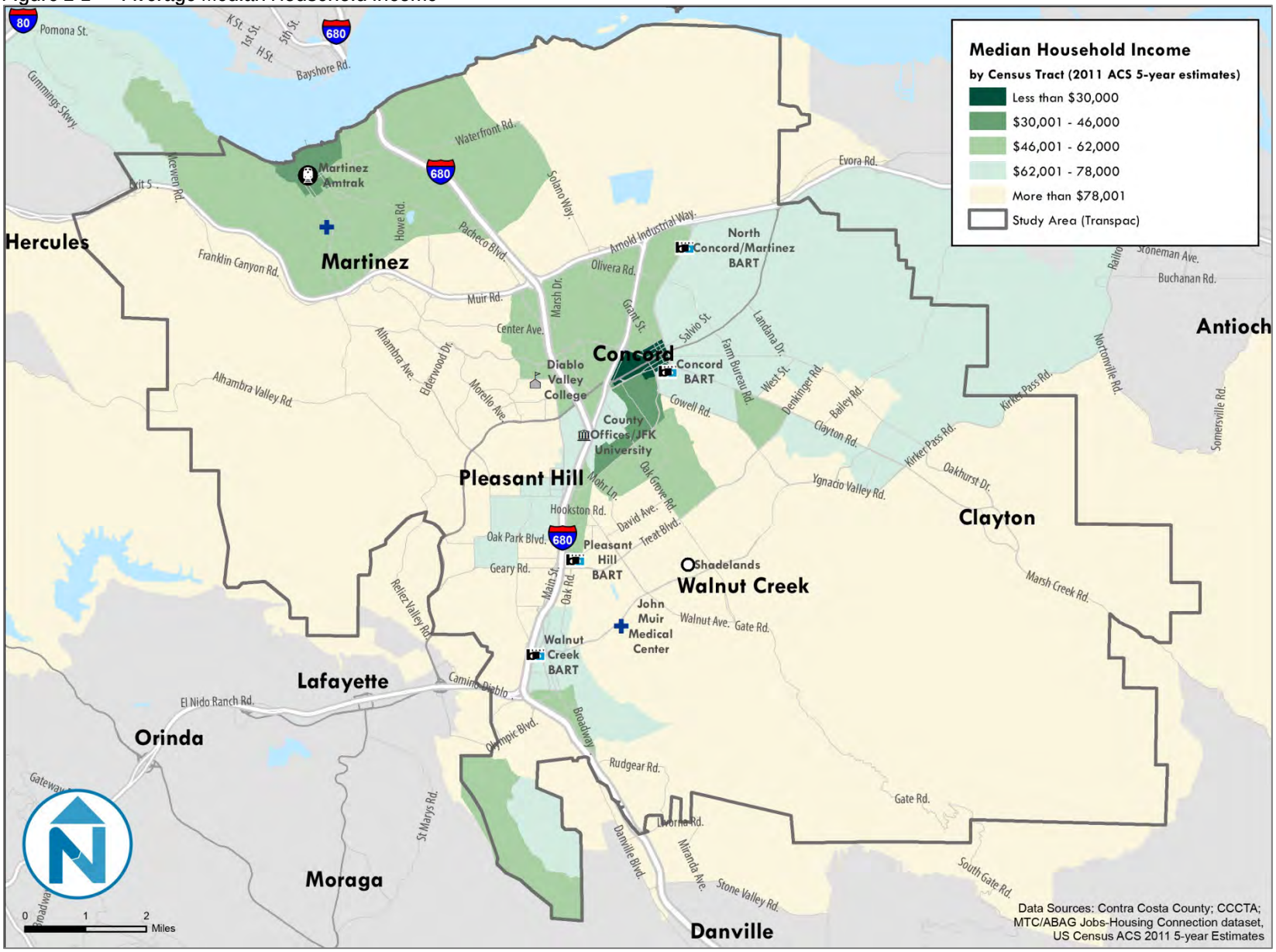


Figure 2-2 Households per Acre (2010)

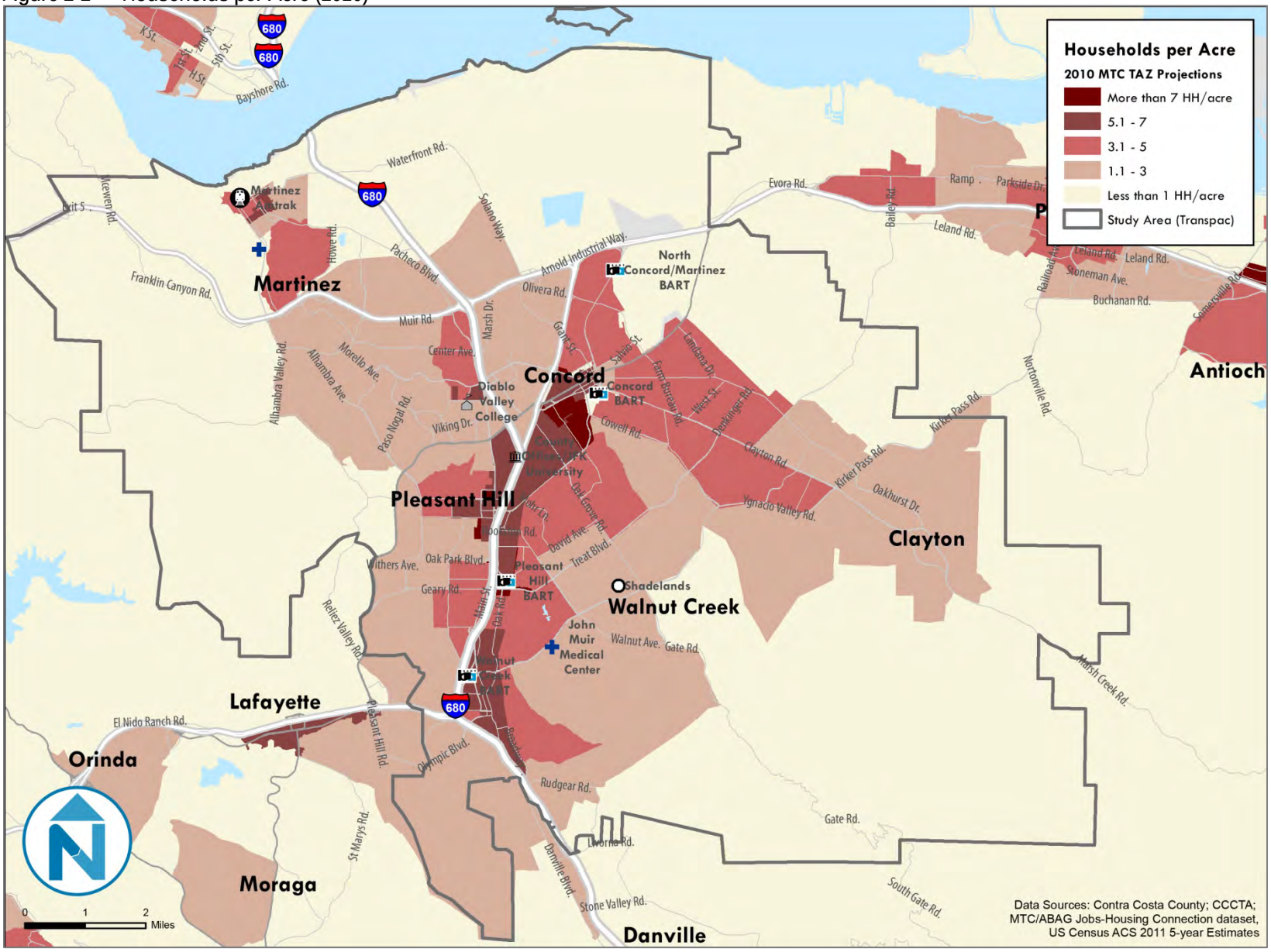


Figure 2-3 Households per Acre (2040)

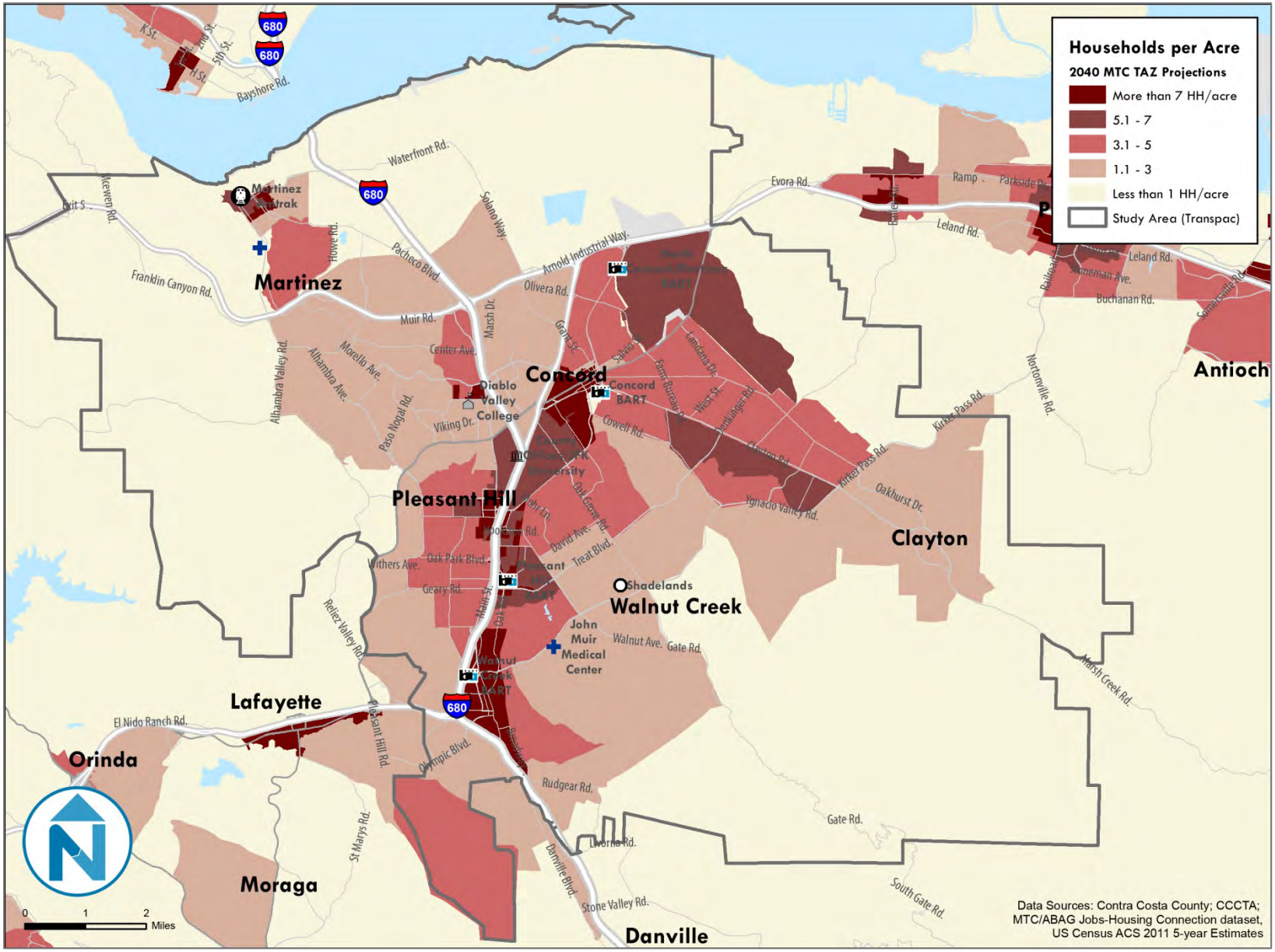


Figure 2-4 Jobs per Acre (2010)

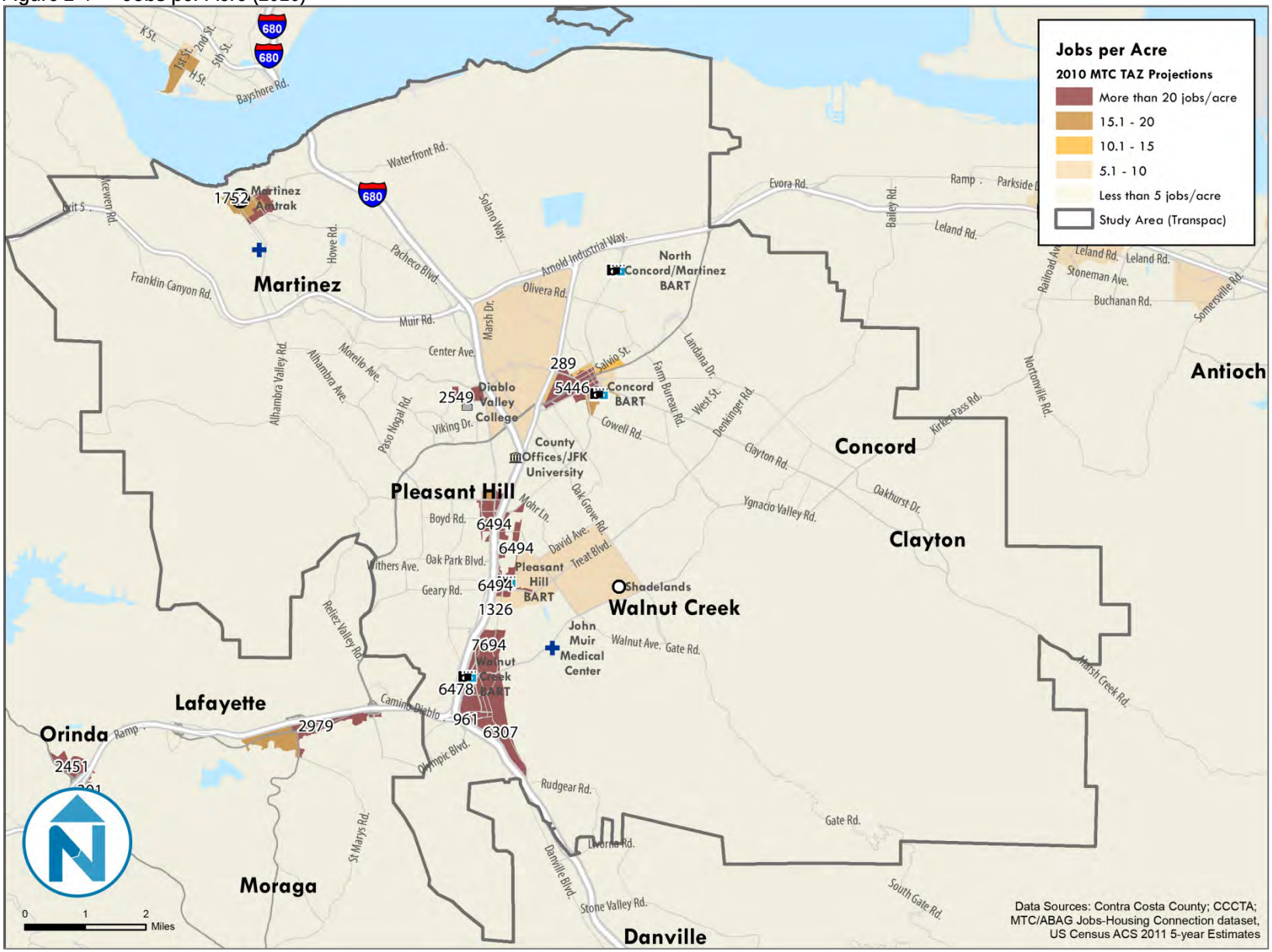
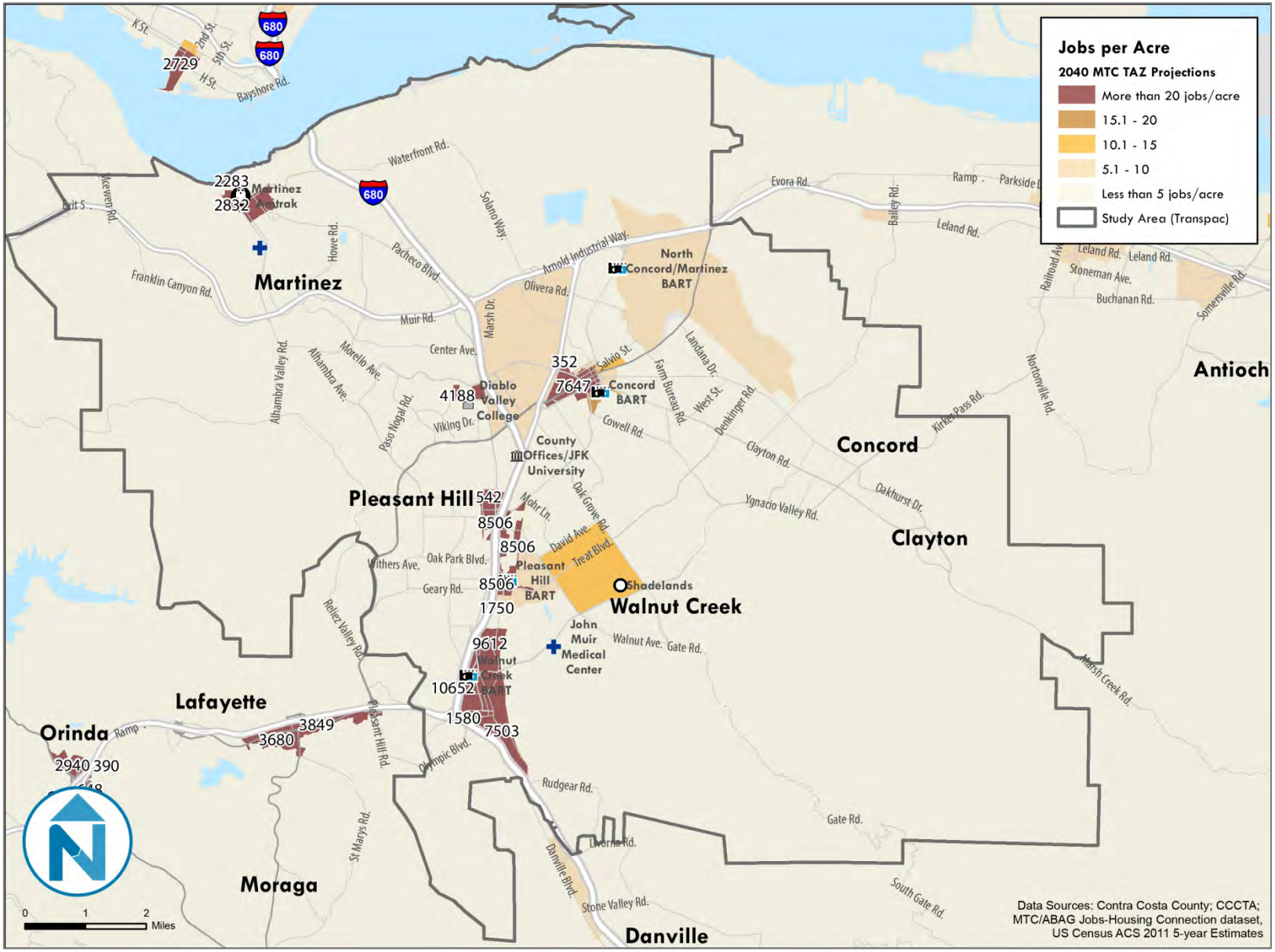


Figure 2-5 Jobs per Acre (2040)



Vehicle Access

Household vehicle ownership rates by Census tract are shown in Figure 2-6 below. Vehicle ownership across the study area is generally high, with only a small area around the Concord BART station with average rates of lower than one vehicle per household. Low ownership rates are concentrated along the I-680 corridor and in lower income areas, such as Martinez, around the Buchanan Field Airport, and along Clayton Road. As the average household size for the Transpac is 2.6 persons per household, there are likely significant numbers of residents in the study area without access to a vehicle on a daily basis, even in tracts with averages of more than two vehicles per household.

Language

The total number of households who reported speaking English less than "very well" is reported by Census tract in Figure 2-7 below. The highest concentration of these households is in the Monument Corridor south-west of the Concord BART station. The Monument Corridor is one of the most densely populated and ethnically diverse neighborhoods in Contra Costa County.[3] In addition to this area, areas in north-east Concord and along Clayton Road towards Clayton also have a higher number of households that speak English less than "very well" compared to the rest of the Transpac study area.

[3] Monument Corridor Community Based Transportation Plan. City of Concord and Nelson\Nygaard Consulting Associates. 2006. http://www.mtc.ca.gov/planning/cbtp/Monument_Corridor_CBTP.pdf

Figure 2-6 Vehicles Available per Household

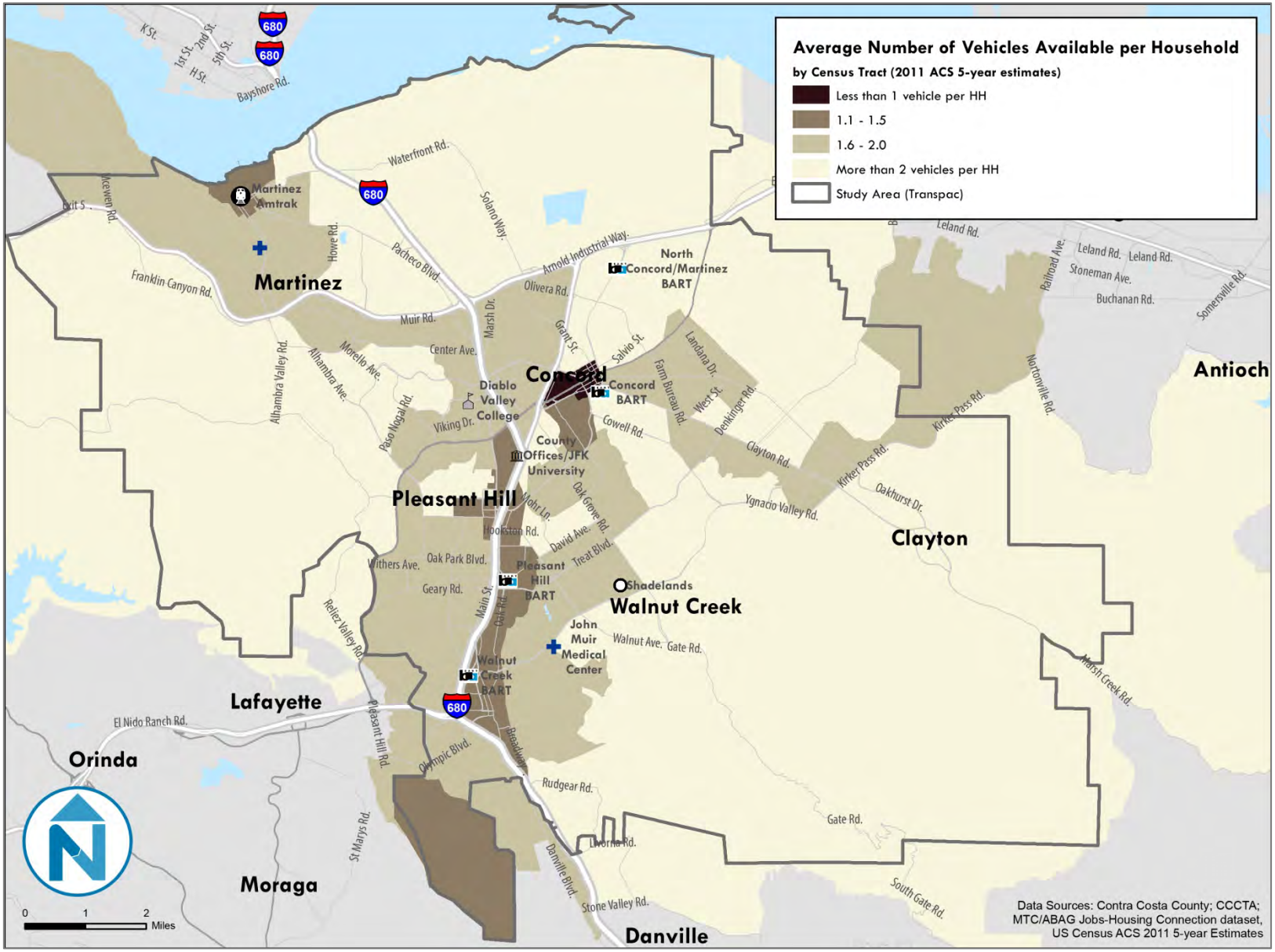
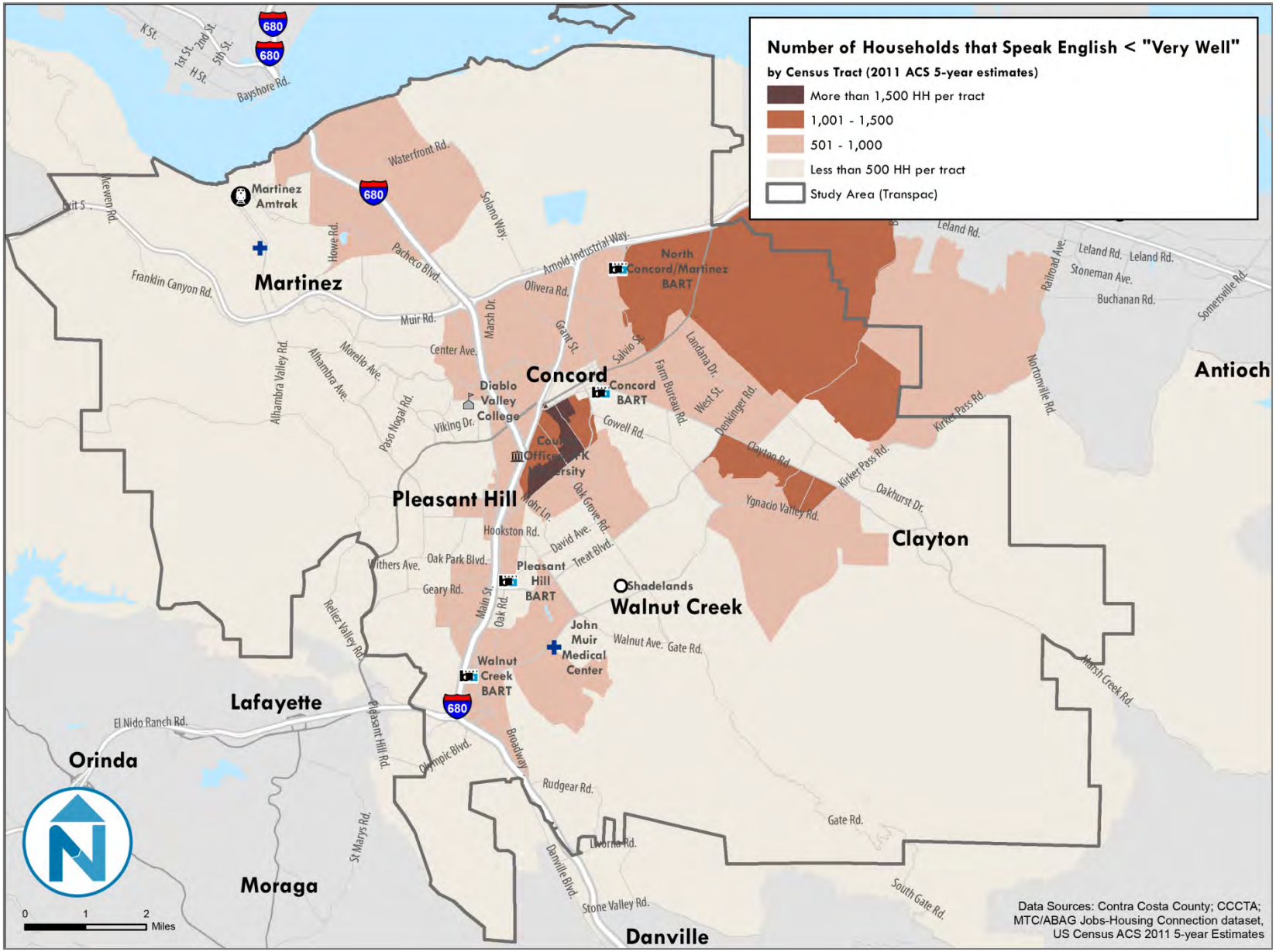


Figure 2-7 Study Area Language Proficiency



EXISTING SERVICE CHARACTERISTICS

Qualitative Review of 2012 On-board Rider Survey Findings

In 2012, Redhill Group conducted an on-board and phone survey of transit riders on County Connection. Key findings for this survey are as follows:

- **Trip Purpose:** Of the riders surveyed, 52% of trips are for work and 17% for school trips, including college. A large number of trips are for other errands and shopping purposes (19%), with the remaining 11% for social/recreational purposes.
- **Access to transit:** The vast majority (87%) of riders walk to transit, while 5% drive alone, 4% are dropped off, 2% carpool, and 2% bicycle. The average walk time to a rider's destination from transit 5.6 minutes while the average walk time from a rider's home to first boarding point is 9.1 minutes. This indicates that CCCTA riders will walk longer distances from their homes to reach the bus than from the end point of their trip to their destination, perhaps because they are travelling from lower density neighborhoods to higher density, more specific destinations (mall, business park, school, BART, etc). Of those who did not walk, the majority are going less than 2 miles to their destination from transit end point, and are coming from an origin 2-5 miles away to transit start point, representing a similar trend as with walkers.
- **Fare media:** 42% of passengers use cash, while 24% use a pass specific to CCCTA. It appears that only a small percentage use Clipper cards, although the survey did not specifically mention Clipper (4% used a Commuter Card, 3% an RTC card).
- **Transfers:** 38% of riders can complete their bus travel without a transfer, while 45% make one transfer, and 17% make two or more transfers.
- **Service improvements:** When asked about desired improvements to CCCTA service, the majority requested more frequent service (41%), followed by later evening service (25%) and better on-time performance (13%).
- **Transit alternatives:** Based on the survey results, 17% of riders would not make their trip if transit were not available, 27% would get a ride, and 25% would walk. Only 9% would drive alone if transit were not available, indicating a high level of transit dependency among current CCCTA riders. As further evidence, 53% of surveyed riders responded that they do not have a driver's license.
- **Vehicles available:** Vehicles ownership is low among CCCTA riders. 31% of riders live in a zero vehicle household, and an additional 33% have only one vehicle available for use in their household.
- **Frequency of use:** Most riders surveyed (93%) use the system at least once a week and 60% of riders use the County Connection 5 or more days a week.
- **Technology:** Use of technology is relatively moderate among riders, with only 43% reporting that they have access to a smart phone and 69% with access to a traditional computer.
- **Age:** The largest age category of riders is those in their 20s (26%), followed somewhat evenly by other age categories (30s, 40s, 50s, over 60). The smallest ridership group is those under 20 (9%).
- **Household income:** CCCTA ridership is predominantly from households with incomes below 200% of poverty for a family of 4 ($47,100 in 2013), as 67% have incomes under

$49,000. The ACS 2010 5-year estimated median family income for Contra Costa County is $88,024, and as the top breakpoint for income on the rider survey was $75,000 or more, it can be assumed that less than 19% of riders who reported this income make over the median family income for Contra Costa County.

- **Language:** It is important to note, for outreach efforts, that 33% of respondents report that they speak a language other than English at home, with the majority reporting that they speak Spanish at home (45%) followed by "Other" (25%) and Tagalog (17%).

Ridership Activity

CCCTA ridership within the study area is concentrated at several key locations including the key transit hubs (BART Stations), major regional destinations (retail, medical centers, colleges) and along several distinct corridors. Key corridors that stand out include Monument Blvd and Willow Pass Road (just to the east of I-680) and Clayton Blvd. Additional pockets of ridership are found in the vicinity of Martinez and in the area around the Shadelands Business Park. However, the majority of ridership in the study area can be plotted roughly on an axis spanning between Clayton and Martinez and another spanning across Pleasant Hill BART and Concord BART. Figure2-8 below shows existing ridership by stop across the study area.

Route Productivity

Route productivity in the context of this report is defined by passenger boardings per revenue hour of service. Within the study area, routes have been divided into thirds, reflecting the lowest productivity routes (bottom third), the middle performing routes, and top performing routes (upper third). While the bottom and middle thirds are somewhat distributed across the study area, the top performing routes are roughly in an area bounded by I-680 to the west and CA-4 to the North. The service area of all routes, regardless of their ridership performance will be evaluated for potential locations for further study. Areas with high ridership performance may have unique opportunities for service enhancements to capture additional ridership. Similarly, areas with low productivity may be investigated to determine if a different transit service delivery model may make sense for those areas. Figure 2-9 shows route productivities across the service area.

Transit Walk Shed

Safe and convenient pedestrian access is an elemental need for effective transit service. The transit walk shed consists of the area within a certain distance walk of a transit route. In Figure 2-10, the transit walk shed of the existing County Connection routes is shown as orange lines. The lines reflect a 10-minute walk distance from existing bus stops. It is from this area where transit can effectively draw ridership. Areas beyond the transit walk shed may attract riders, but these riders may be required to walk a longer, less attractive distance or may be required to take other forms of transportation to access the bus stop.

Figure2-8 Average Daily Boardings by Stop

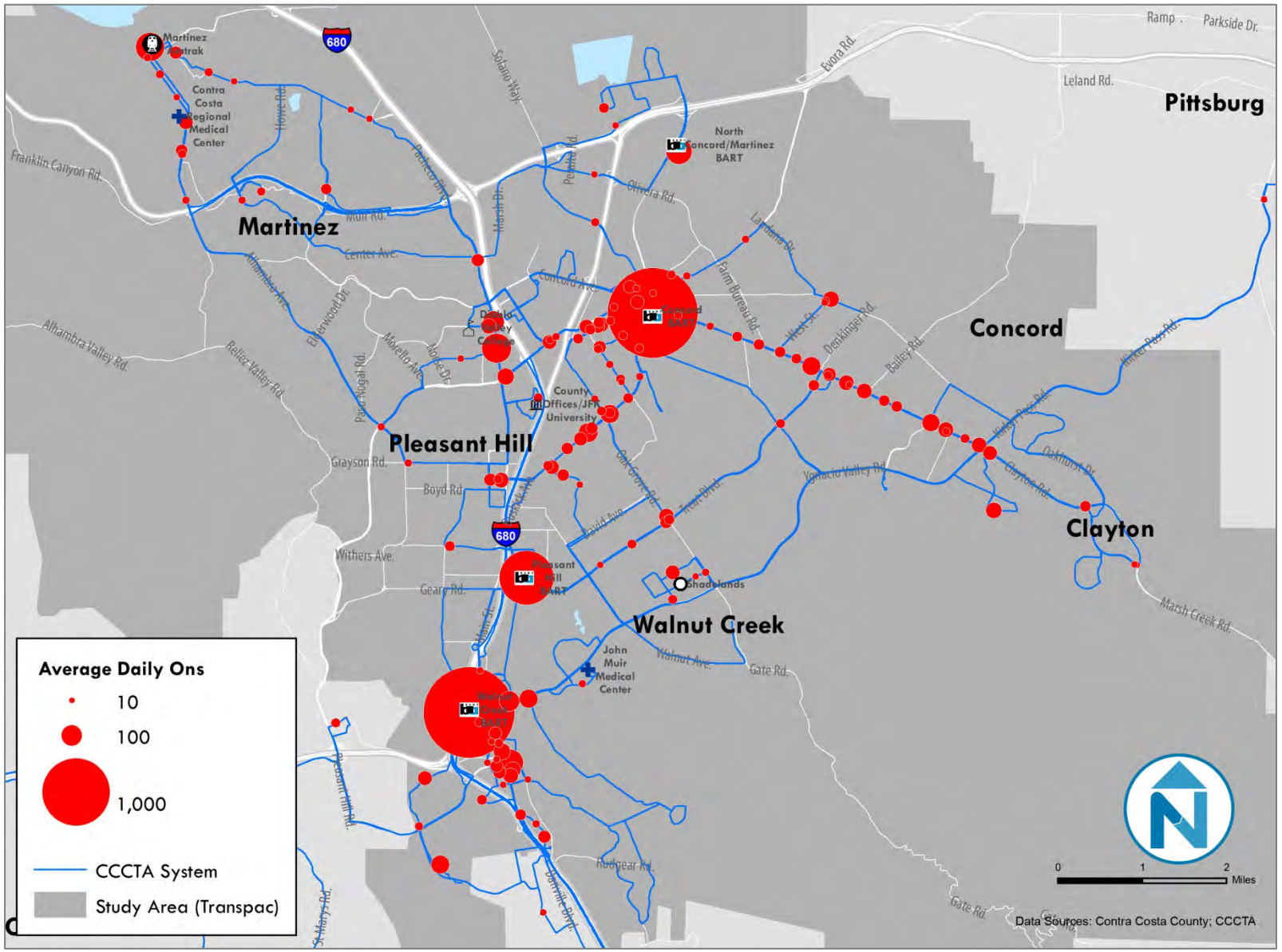


Figure 2-9 Route Productivity

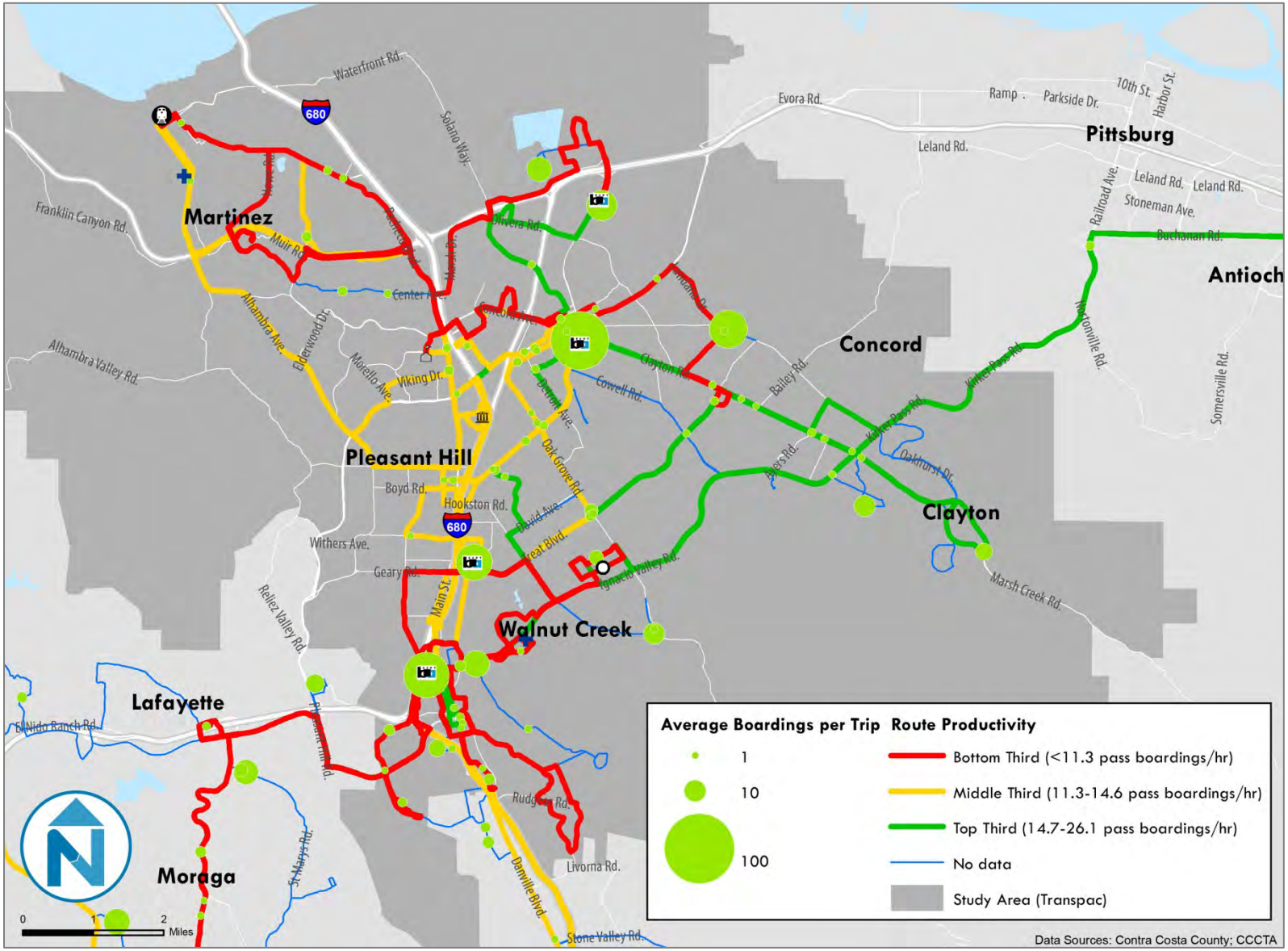
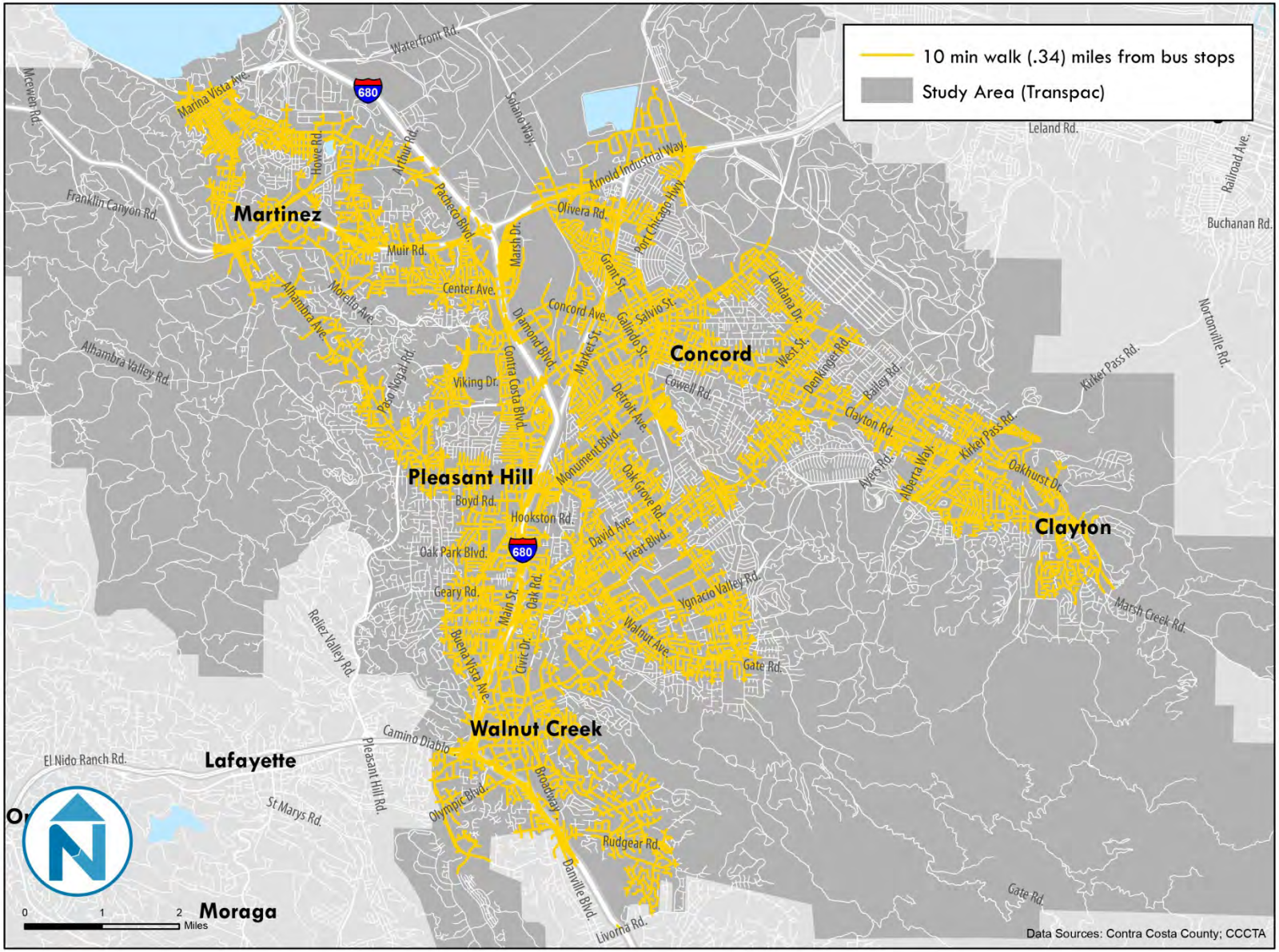


Figure 2-10 Areas within 10 Minute walk of Bus Stop



TRANSIT PROPENSITY AND DENSITY

To help filter the various data inputs reflecting transit potential and actual ridership in the study area, two composite maps are presented. These composite maps integrate several metrics into one map to help one better digest multiple factors at once. These maps then superimpose existing boardings by stop. The intent of these maps is to help identify areas that may have additional potential for ridership based on local demographics. The two composite maps presented in this section include the following:

- **Transit Propensity:** This map is a combination of two factors including household density per acre and a younger age cohort (16-34 year olds). Studies and market research has shown that younger generations are less inclined to purchase a personal vehicle and as a result, may be more interested in taking transit or other alternative modes of transportation. Furthermore, the lure of ownership of single-family homes has also changed over the last several years. Thus, there has been an increase in the construction of housing stock to accommodate this demand. This type of housing is conducive for transit ridership and may reflect a ridership subset that would choose to take transit for reasons other than financial need or necessity.
- **Transit Dependency:** In many suburban areas, it is typical that many transit riders are riding out of financial need. This is reflected in the County Connection on-board survey result that shows the majority of its ridership coming from low-income households. For the purpose of this study, a transit-dependency map was created that combines low-income households with low-vehicle households. Other factors also can serve as effective proxies for transit dependent households. However, the data for low-income households and low-vehicle households appeared to provide the greatest gradient of separation between various areas of the study area.

Figure 2-11 Transit Propensity

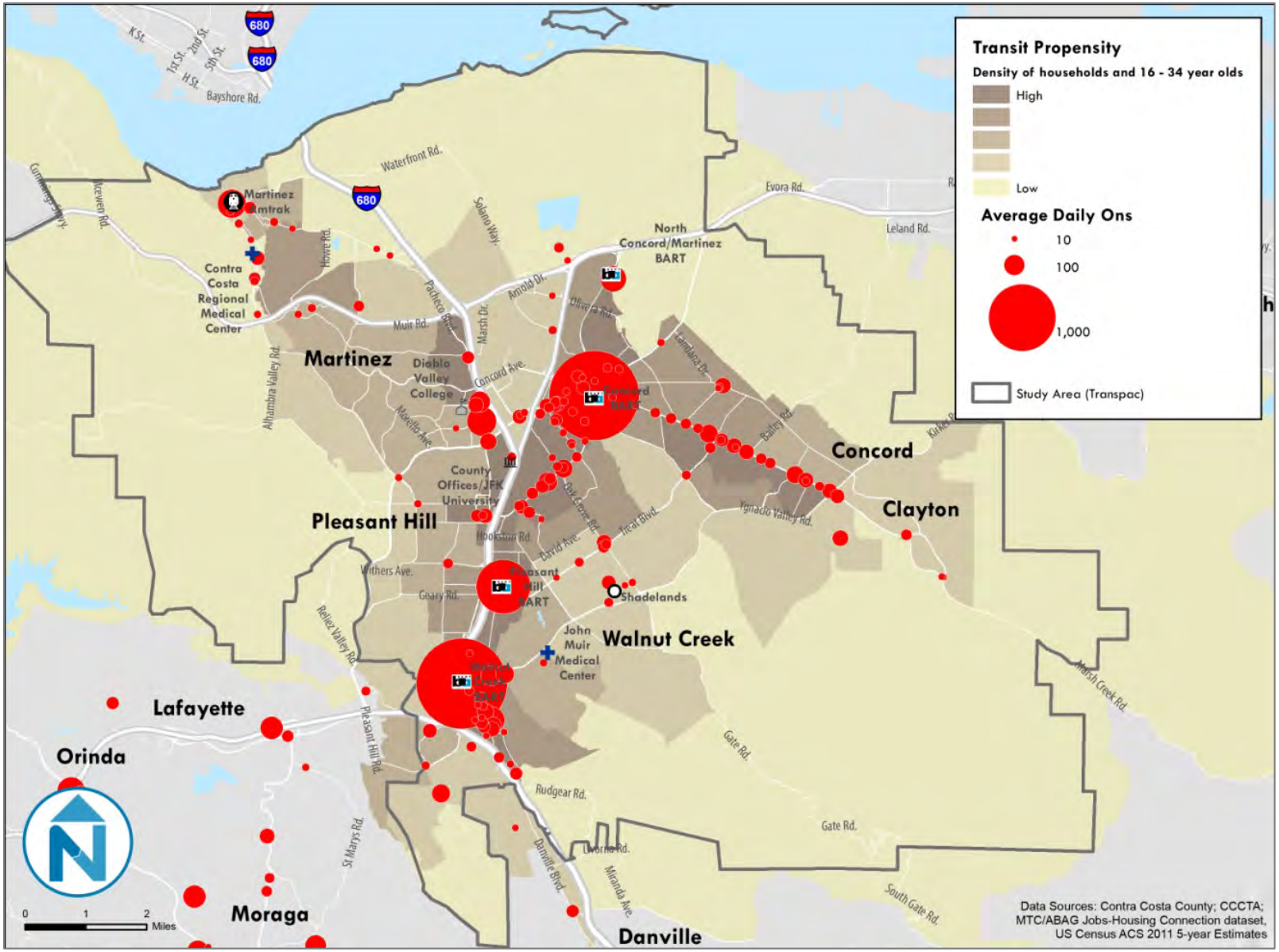
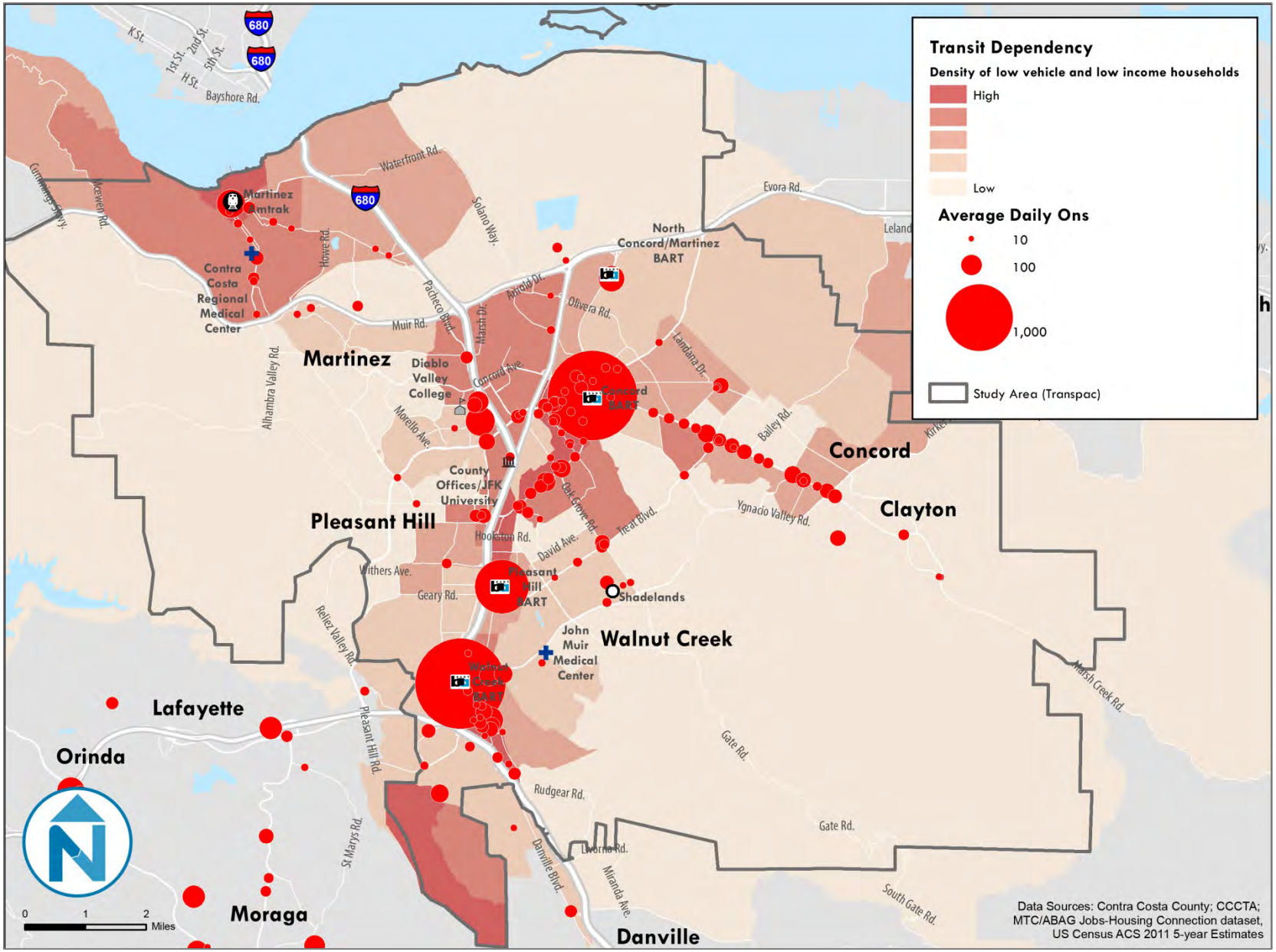


Figure 2-12 Transit Dependency



3 FOCUS AREAS

This chapter highlights the potential opportunities, challenges, and considerations for future public transportation options in four focus areas in the County Connection service area. Each of the four focus areas were selected based on their unique characteristics based on findings in Chapter 2. Those traits, similarities, and differences will be highlighted in the sections that follow.

SELECTION OF FOUR FOCUS AREAS

The selection approach for the four focus areas included:

- Selecting areas that are currently challenging to serve with fixed route transit or have the potential to benefit from public transportation, but are unlikely to be served with traditional fixed route transit.
- Geographic diversity within the CCCTA Transpac area[1].
- Areas that may benefit from a variety of transportation solutions replacing or in addition to fixed route service.

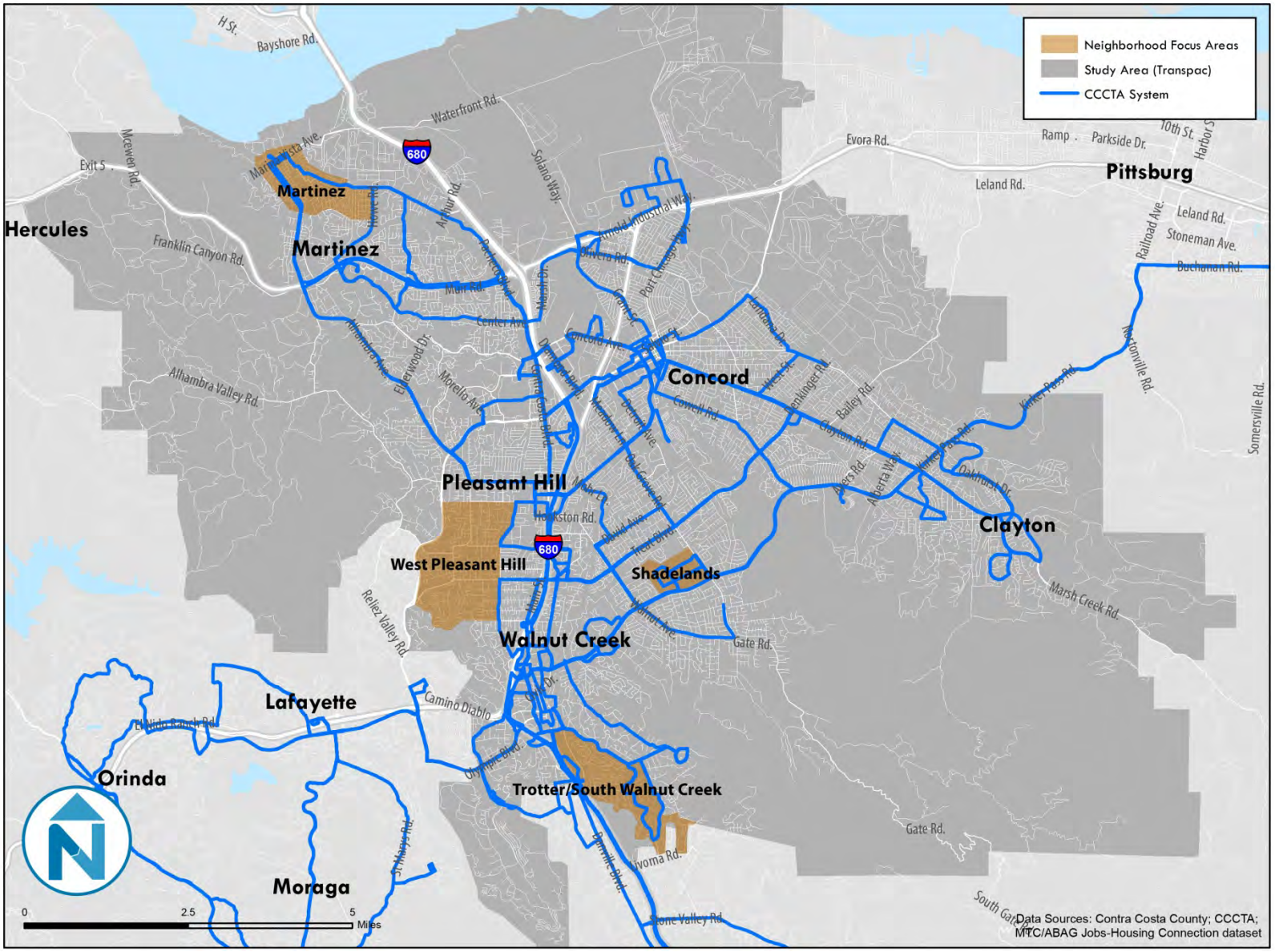
The four focus areas were finalized during a Nelson\Nygaard and CCCTA team meeting on Tuesday, March 19, 2013.

Figure 3-1 shows the location of each of the four focus areas:

- Trotter/South Walnut Creek
- Downtown Martinez
- West Pleasant Hill
- Shadelands

[1] The Transpac includes the cities of Walnut Creek, Pleasant Hill, Concord, Clayton, and Martinez

Figure 3-1 Neighborhood Focus Areas Context Map



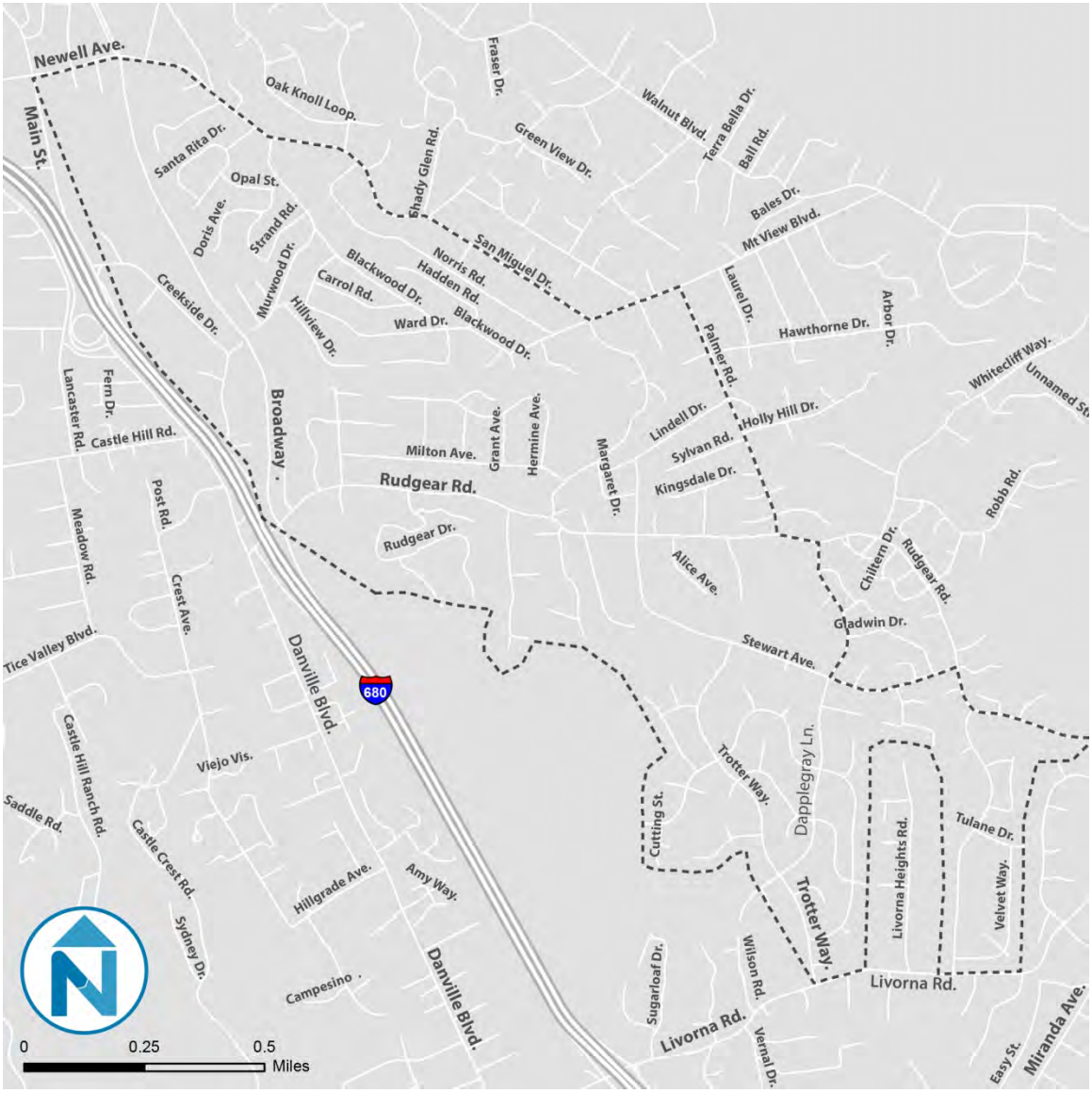
TROTTER/SOUTH WALNUT CREEK AREA

The Trotter and South Walnut Creek area (Figure 3-2) is a mix of single family housing developments in the south and east of the area, and a small cluster of multi-family housing, medical offices, and an area high school just south of the downtown Walnut Creek shopping district.

Figure 3-2 Trotter/South Walnut Creek Context Maps

Source: Google Earth

Figure 3-3 Trotter/South Walnut Creek Context Maps



Data Sources: Contra Costa County

This area was selected for two primary reasons. First, Trotter has few of the characteristics[2] associated with good transit ridership. Thus it is not surprising that the ridership performance on Route 2 is low. For that reason, the study team believed it to be prudent to include Trotter as a test case to see if a different approach could increase ridership in an area with low ridership potential or at least provide more cost-effective service. The second justification includes development along Creekside Drive in South Walnut Creek. In contrast, Creekside Drive is a location with great ridership potential, due to density and high level of multi-unit residential

[2] Characteristics of the Trotter neighborhood include low-density, detached single family homes, limited street connectivity and high auto ownership among other factors.

buildings. However, the area currently generates very little ridership despite having direct access to Route 5. While there is no defining characteristic that limits the success of Route 5, contributing factors may include the limited street and pedestrian network or the routing characteristics of Route 5 itself. Furthermore, it is also possible residents are walking along the Iron Horse Trail or Main Street to destinations or even catching the free downtown trolley circulator. At this point, specific information is not available related to user transportation patterns in this area. However, it is being considered for future data collection.

Challenges and Opportunities

Key issues in the Trotter area emanates from low-density development patterns. Regardless of any changes in service routing or service frequencies, existing transit services have low ridership potential simply as a result of the low number of people living and working within walking distance of the route. Lack of sidewalks can also be a barrier to transit access (such as along Rudgear Road).

In areas of South Walnut Creek (Creekside Drive), the dead-end roadway network provides very limited access to nearby land uses and requires all trips to enter and exit via Main Street on the road's west side. However, this presents an interesting opportunity for transit service given the high-density of apartments and the need for all individuals to travel in or out via Main Street.

Figure 3-4 Challenges and Opportunities in Trotter/South Walnut Creek

Challenges	Opportunities
▪ Low-density, suburban street grid in Trotter with limited pedestrian connectivity ▪ South Walnut Creek has limited ingress/egress access for vehicles ▪ Predominately residential neighborhoods with few commercial destinations throughout the focus area	▪ Creekside Drive has very high-density of residents and good pedestrian infrastructure (on-street) ▪ South Walnut Creek is within walkable distance to downtown Walnut Creek and shopping district.

Physical Environment

Roadway Network

The Trotter/South Walnut Creek focus area is generally bounded by Newell Avenue to the north, I-680 to the west, Livorna Road to the south, and Palmer Road to the east. The walking environment is rather poor due to the discontinuous street network, hilly terrain, and lack of sidewalks on some streets.

Livorna Road is a two lane road with a posted speed limit of 35mph, running east-west, which provides a connection across Interstate 680. The terrain to the east of Interstate 680 is hilly, with many windy residential roads. Several of the roads are wide with sidewalks, including Trotter Way, Lariat Lane, Dapplegray Lane and Appaloosa Drive, while some streets are narrower and without sidewalks, including Grover Lane, Youngs Valley Road, and Livorna Heights Road.

Built Environment

As shown in the land use map in Figure 3-6 below, the area is predominately single family residential, with a mixed-use area in South Walnut Creek along Creekside Drive. A portion of the focus area is unincorporated county land, and as such, land use data was not available for this section, however, aerial maps indicate this area is mostly single family housing.

In the Trotter area north of Rudgear on the east side of Vanderslice are the Walnut Knolls, Blackwood, and Walnut Creek Estates developments. The neighborhoods south of Rudgear include the Livorna Estates, Rudgear Estates, Rudgear Meadows, and other small single-family housing developments around Stewart Avenue and Trotter Way.

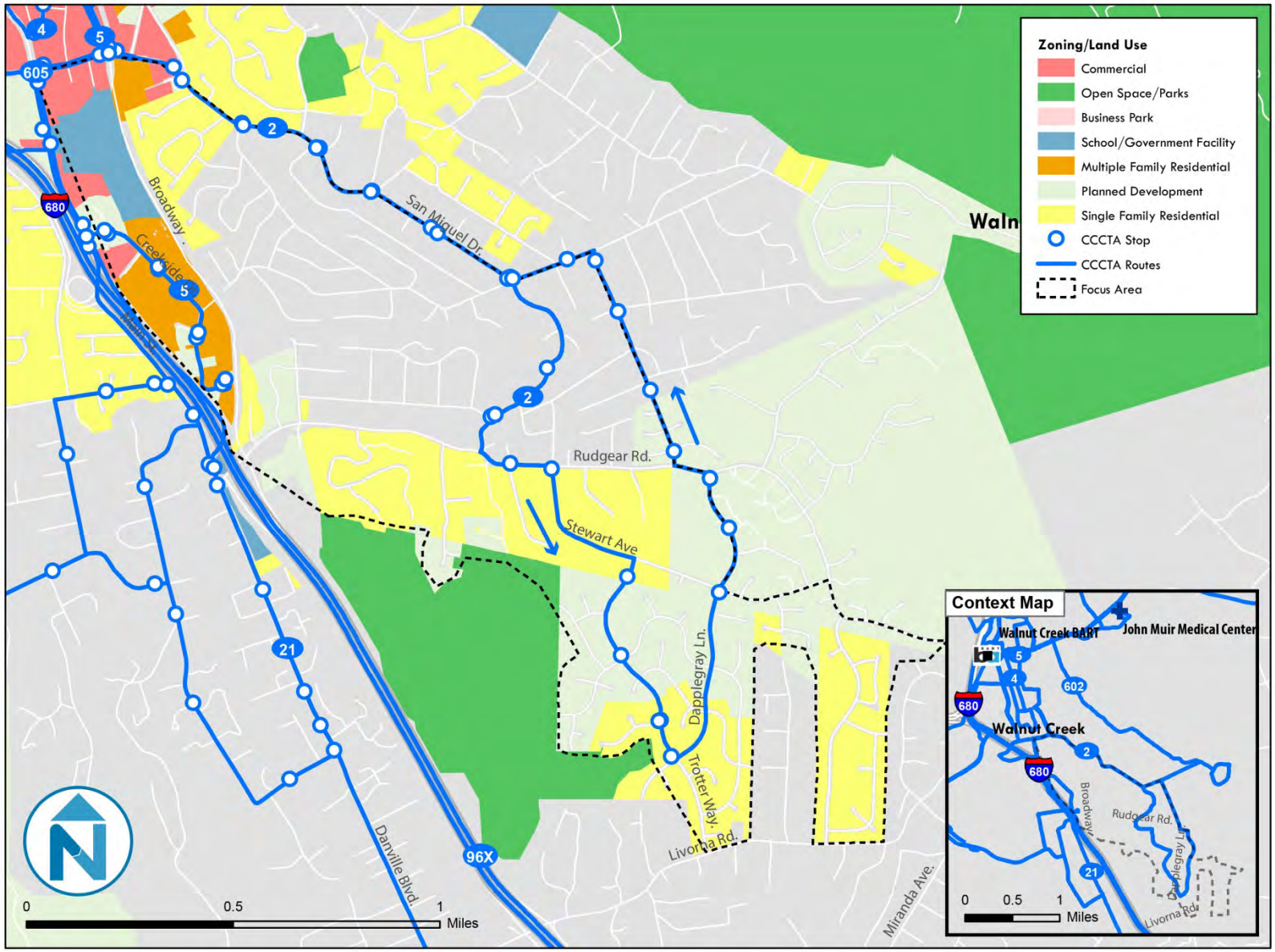
Figure 3-5 Missing Sidewalk in Trotter/ South Walnut Creek

Source: Nelson\Nygaard

Aside from single-family housing in the Trotter area, there are churches, some condominium/townhome developments, the occasional small business, and private/membership-based community centers with pools.

In contrast to Trotter, the South Walnut Creek area has several large apartment complexes, shopping centers, office parks, and Los Lomas High School. Muirwood Elementary School is also in this area. The Kaiser Permanente Walnut Creek Medical Center and Hospital is located at Main and Newell, outside of the boundaries of this focus area. There is a large parking lot for Kaiser employees on Newell just east of Broadway which has capacity for approximately 65 vehicles.

Figure 3-6 Walnut Creek Land Use Designations in Trotter/South Walnut Creek



Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset; City of Walnut Creek

Existing Transit

Transit Network

Three County Connection bus routes and one "school tripper" operate adjacent or within the Trotter/South Walnut Creek focus area. Route 2 serves the housing development along Trotter Way and connects those neighborhoods to the Walnut Creek BART station, operating a one-way loop through the Trotter area in the counter-clockwise direction. Route 5 connects the Creekside area, Los Lomas High School, downtown Walnut Creek, and the Walnut Creek BART station. Data collected in the 2011-12 CCCTA Short Range Transit Plan (SRTP) indicates that Routes 2 and 5 are among the lowest performing routes in the system. Route 602 operates on Creekside Drive as a "school tripper" providing service for the Walnut Creek School District. Route 21 operates on Main Street adjacent to the focus area providing service between Walnut Creek BART and San Ramon.

Figure 3-7 provides an overview of key transit indicators for performance of Routes 2, 5, 21 and 602 based on the 2011-12 SRTP. Both routes generate fewer than 100 passengers boarding, on average, per day. This activity translates into boardings per revenue hour of 8.0 for Route 5 and 7.1 for Route 2. These are low levels of performance even for a typical suburban transit system. Route 21 is also included in this figure as it runs adjacent to the Creekside area along Main Street. Given the low ridership performance on Route 2, it is among one of the most highly subsidized routes in the CCCTA system. In addition, Route 2 and 5 operate at irregular headways switching between 45/60/90 minute frequencies. Figure 3-8 provides a summary of transit activity by route by stop. Ridership is consistently low along Route 2 in the Trotter area, with no stop generating more than 16 average daily boardings. Route 5 performs with higher productivity on Creekside Drive, with high boardings and alightings near the route terminus at the end of Creekside Drive. At this location, over 100 boardings and alightings per day were measured at the two Creekside stops combined.

Figure 3-7 CCCTA Service Overview: Trotter/South Walnut Creek

At a Glance	Route 2	Route 5	Route 21	Route 602
Key Destinations	Rudgear Road and Walnut Creek BART via Newell and San Miguel	Creekside and Walnut Creek BART via Newell and Creekside	Walnut Creek BART, Alamo Plaza, San Ramon	School Tripper serving the Walnut Creek School District
Weekday Span	6:40a.m.- 6:40p.m.	6:50a.m.-7:30p.m.	5:30a.m.-11:20p.m.	Aligns with school schedules
Average Daily Boardings	63	75	633	125
Revenue Hours/Day	9	9	45.5	Aligns with school schedules
Boardings/ Revenue Hour	7.1	8.0	13.9	36.5

At a Glance		Route 2	Route 5	Route 21	Route 602
TDA[3] Cost per Passenger (System Average = $2.87)		$19.14	$8.99	$4.88	$2.43
Frequency (minutes)	Peak	60	45	30	Aligns with school schedules
	Midday	90	90	60	
	Evening	90	90	60	

Source: 2012 CCCTA SRTP, Spring 2013 ridership data provided by CCCTA.

Rider Origins and Destinations[4]

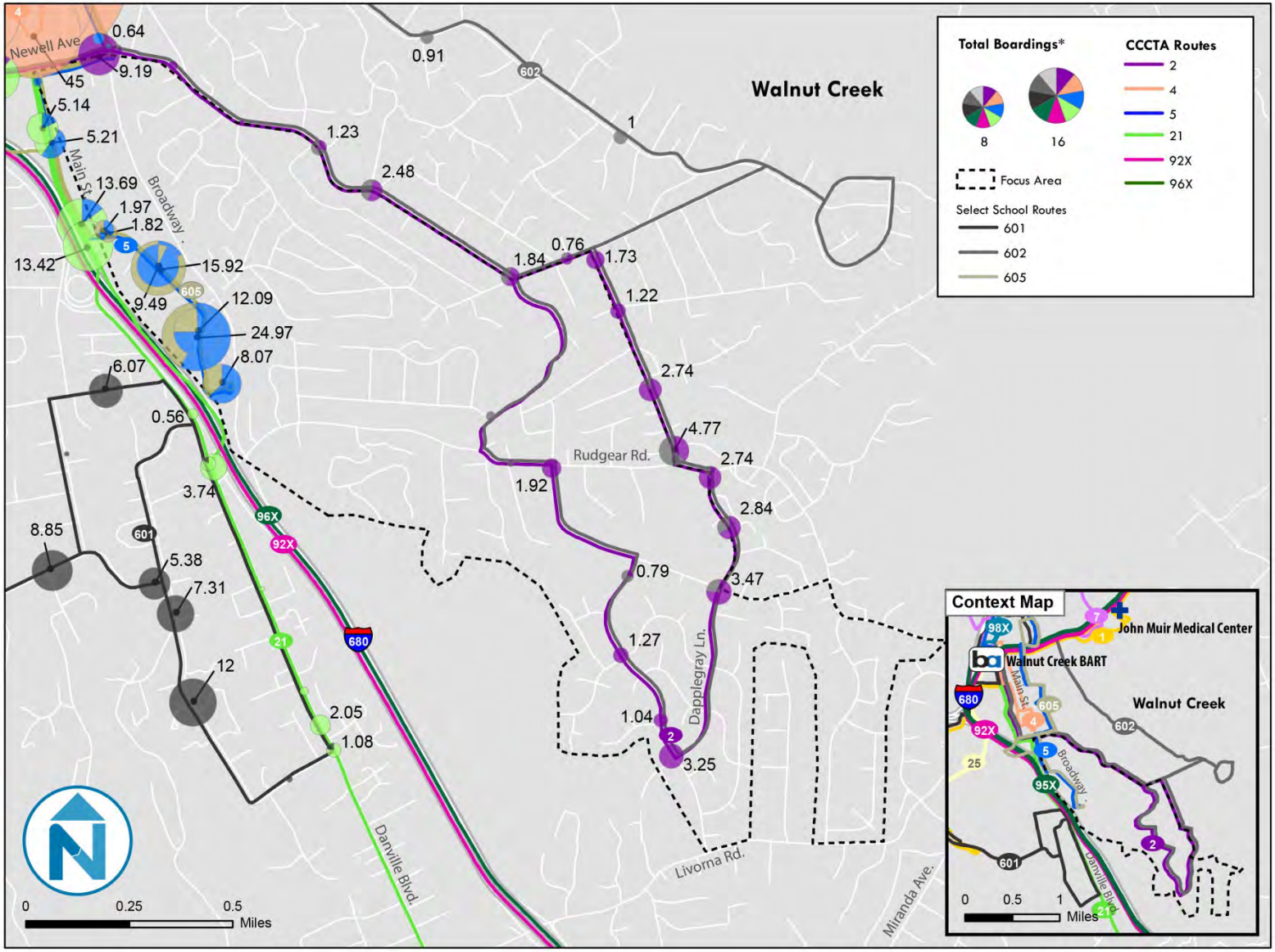
Figure 3-9 highlights a sample of origins, destinations and ADA paratransit pickups. This information is derived from the 2012 on-board passenger survey which asked passengers to list their origins and destinations for their trip. There are very few origins and destinations along the Route 2 corridor, indicating that the need for transit is highly dispersed and that the area continues be challenging to serve with traditional fixed-route transit. The origins and destinations in the Creekside area are relatively close to Creekside Drive (Route 5). This is expected given the limited connectivity to parcels not adjacent to Creekside Drive.

ADA paratransit activity is taken from a one-day activity log in 2012. In the Trotter area, there are a few ADA trips, though they occur far from the Route 2 corridor and would not be easily served by fixed-route service.

[3] Transit Development Act (TDA) is California's provides two major sources of funding for public transportation: the Local Transportation Fund (LTF) and the State Transit Assistance fund (STA).

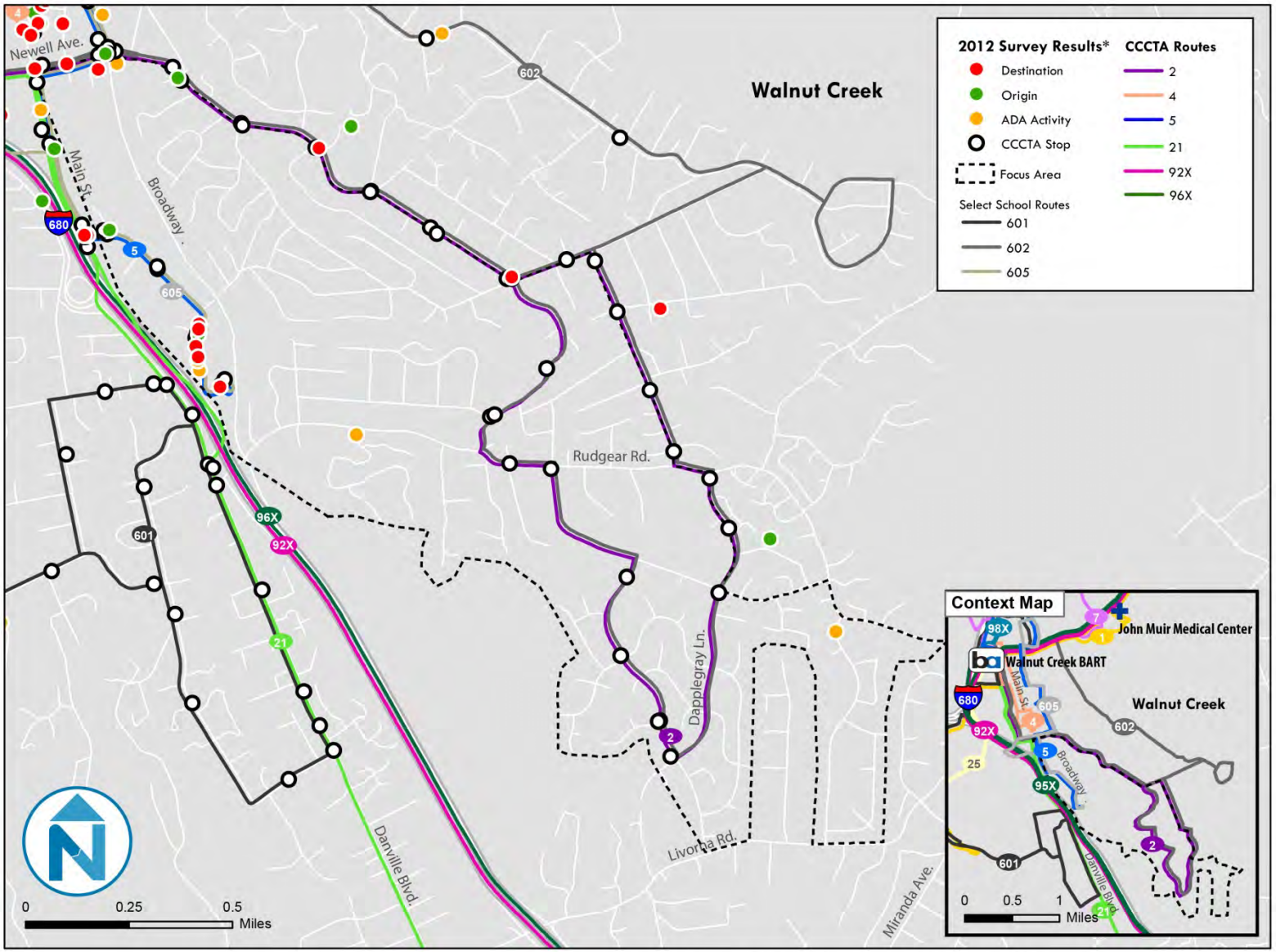
[4] Disclaimer: ridership characteristics described in this section are based on a small sample size due to the limited participation in the on-board survey in this area.

Figure 3-8 CCCTA Daily Transit Boardings in Trotter/South Walnut Creek



*Note: Boarding activity based on Spring 2013 daily averages.
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Figure 3-9 Sample Origin-Destination and ADA Activity in Trotter/South Walnut Creek



*Note: Destination and origin data based on 2012 one-day survey and ADA activity based on 2012 one-day activity log
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Demographics

A representative Census tract was selected to allow for a better understanding of key characteristics of population, income, and travel patterns in the area. However, this tract does not necessarily match the exact demographics of the focus area boundaries. The representative tract includes a large portion of the sparsely populated area east of the Trotter neighborhood. By virtue of the tract boundaries, it likely provides a better snapshot of the Trotter area as compared the South Walnut Creek area, summarized in Figure 3-10.

Over 70% of the residents of this Census tract commute to work by driving alone. This is on par with the rate of drive alone travel in Contra Costa County. However, the rate of transit usage is higher than countywide rates. This is likely due to the rate of higher income households in this Census tract with members who commute on BART to work. As can be seen in Figure 3-11, the median earnings for a person who commutes on public transportation is almost twice that of someone who drives alone. This is very likely correlated with BART riders who commute to higher wage jobs in downtown San Francisco or other parts of the Bay Area. Lower income households that are commuting to work by driving are likely not as well served by CCCTA's BART-focused routes.

The Creekside area of South Walnut Creek has approximately 2,523 people in 439 households, according to the 2010 US Census. The majority of households in this area are one-person households (45%) and 31% are two-person households.

Figure 3-10 Employment, Income and Commuting Characteristics in Trotter/ South Walnut Creek

	Contra Costa County		Tract 3430.03 (Trotter)	
	Estimate	Percent	Estimate	Percent
Percent Unemployed	--	9.5%	--	5.5%
Median household income (dollars)	79,135	--	120,250	--
Commuting to Work				
Car, truck, or van -- drove alone	331,081	70.4%	1,336	71.8%
Car, truck, or van -- carpooled	55,380	11.8%	60	3.2%
Public transportation (excluding taxicab)	41,797	8.9%	206	11.1%
Walked	7,903	1.7%	40	2.2%
Other means	7,863	1.7%	12	0.6%
Worked at home	26,317	5.6%	206	11.1%

Source: 2006-2011 5-year ACS Estimates

Figure 3-11 Median Earnings by Mode of Travel to Work in Trotter/South Walnut Creek

Mode	Median Earnings
Total	$59,830
Car, truck, or van -- drove alone	$49,495
Car, truck, or van -- carpooled	$59,861
Public transportation (excluding taxicab)	$98,500

Source: 2006-2011 5-year ACS Estimates

Rider Characteristics and Outreach

To reach residents of the suburban-style developments in this district, the consultant team conducted outreach efforts both on-the-ground, through communications with local residents, and utilizing existing on-board rider surveys for Routes 2 and 5. Outreach was conducted in the vicinity of the Whole Foods at Newell Avenue and South Broadway on Tuesday May 21st and asked participants several questions regarding their knowledge, perceptions, and suggestions for County Connection.

The outreach effort in this focus area had limited success but did obtain a few responses (less than 10) that provide context for potential future service changes in the area. Basic responses referred to challenges using the service due to infrequent headways (leading individuals to more likely bike or walk) and that weekend service is minimal and doesn't serve rider needs.

In addition, several other neighborhood and apartment/condo organizations were contacted to participate in an online survey focused on capturing information about transportation preferences and needs in the area. Organizations contacted in this area include the following:

- Creekside Apartments (Managed by ParkOne Properties)
- Livorna Estates Homeowners Association
- Rudgear Estates Homeowners Association
- Rudgear Meadows
- The Retreat (Managed by Rocklin)

However, due to privacy or management solicitation concerns, the online survey had limited distribution and resulted in approximately five responses.

As a supplement to outreach efforts, the study also relied on previous survey efforts. The 2012 on-board survey asked passengers about their experience on County Connection service. Passengers surveyed on Route 2 (7 surveys were collected for a route with 63 average daily boardings, or 11% of passengers) provided feedback on CCCTA service. When asked how they would have made their trip if County Connection were not available, passengers responded that they would have walked or been dropped off by someone. One passenger said they would drive alone and one said they would not have made the trip. Most respondents are frequent riders, using County Connection 5 or more days a week.

When asked what they would most like to see improved in County Connection service, respondents prioritized "later evening service," followed by "don't know/more weekend service," "on time service" and "earlier morning service." There were no respondents who selected "fewer

transfers to make the trip." Also of note is that all respondents have at least one vehicle available in their household.

Route 5, which travels to Creekside Drive received five survey responses (7% of average daily boardings), and all but one respondent would have walked were County Connection not available for their trip. One passenger would have taken a taxi. Survey respondents were frequent riders, using the service either 5 or more days a week or 1-2 days a week.

When asked about service improvements, most Route 5 passenger respondents listed "later evening service," while one listed "more frequent service" and one listed "on time service." Two of the five respondents do not have a vehicle available, while the other three have one or two vehicles in their household.

Given the limited success in conducting outreach in this area, the consultant team conducted a second round of outreach to help inform service recommendations. Feedback from this outreach effort can be found in Appendix B.

Figure 3-12 Vehicles Parked on Creekside Drive

MARTINEZ

The City of Martinez is located in the northwest corner of the County Connection service area and is the county seat. Development has been limited by hilly areas to the west of downtown and industrial development to the east (oil refineries). Downtown Martinez is a highly walkable and geographically condensed area with numerous activity generators including the Amtrak station, Contra Costa Community College District Office, Contra Costa Superior Court, Martinez library, Martinez Senior Community Center, and numerous restaurants and shops. The Martinez focus area encompasses downtown Martinez and areas to the south and east which includes the Contra Costa Regional Medical Center and numerous neighborhoods.

Figure 3-13 Martinez Context Maps

Source: Google Earth

Figure 3-14 Martinez Context Maps

Martinez has several attributes that make it an area worth exploring for transit service modifications. First, it is the county seat and has a large number of job attractors. It also has lower average household incomes and rates of vehicle ownership than many other parts of the CCCTA service area. Interestingly, this area ranked high in transit dependence, yet the transit service in this area is only moderately utilized, with several of the routes performing very poorly. Martinez is also the furthest jurisdiction in the study area from a BART station, making the travel patterns less BART-commute oriented and possibly creating an environment where alternative transportation strategies could be successful. Finally, downtown Martinez is adjacent to the Martinez Amtrak Station, which is among the busiest Amtrak stations in California with over 40

trains arriving daily. While Amtrak trips may not reflect a high proportion of daily commute trips, they do represent a significant volume of transportation activity in the focus area.

Figure 3-15 Main Street Martinez

Challenges and Opportunities

Downtown Martinez is a well-connected and pedestrian friendly area destination. It has a thriving farmers market twice a week and is home to numerous local businesses and restaurants. County Connection service within the downtown Martinez focus area operates primarily along Pacheco Boulevard, Court Street, Marina Vista Avenue, Escobar Street, Alhambra Avenue, and Berrellesa Street. These streets generally provide ample width for transit vehicles to operate freely, provide direct access in and out of the city, and have good pedestrian facilities at bus stops.

Despite the great framework for transit in downtown, other portions of the focus area are less well connected due to a circuitous street network and topography. There are no direct, frequent services that connect downtown to the County Regional Medical Center or retail opportunities (Wal-mart, Home Depot, Village Oaks Shopping Center, Muir Station Shopping Complex) along Highway 4. Presently, there is no cross-town bus service in Martinez that connects downtown to the residences that lie between the Berrellesa/Alahambra and Pacheco corridors. The lack of pedestrian amenities in some parts of the focus area, such as missing sidewalks, crosswalks, and curb ramps is also a barrier, which could inhibit users from safely and easily accessing bus stops.

Figure 3-16 Challenges and Opportunities in Downtown Martinez

Challenges	Opportunities
▪ Boundaries created by parks, railroad tracks, water and major industrial land uses limits potential transit service. ▪ Steep topography and lack of sidewalks in some portions of Martinez (along Pine Street)	▪ Centralized location of high levels of employment and relative proximity to other major destinations (hospital) ▪ Well-connected street network including pedestrian infrastructure ▪ Potential for local-circulation services in Martinez

Physical Environment

Roadway Network

The northern part of the focus area is a vibrant commercial district with metered on-street parking. This downtown commercial district is relatively flat and has an inviting pedestrian environment. Along Main Street there is a plaza with outdoor seating and a separated pedestrian and bicycle path that connects mid-block to Ward Street. In addition, many restaurants on Main Street have parklets and outdoor seating. Several of the streets in this area have decorative brick sidewalks and other treatments to enhance pedestrian safety, including bulb-outs and textured crosswalks. Outside of this commercial district, the majority of the area is residential. The pedestrian facilities in the residential areas are lower quality, with missing sidewalks and crosswalks.

The majority of the focus area has a grid street network, running in the northwest-southeast and southwest-northeast directions. However, to the west the street network loses its grid pattern due to the hilly terrain. The grid network is also disrupted in the center of the focus area by Martinez High School, Alhambra Creek, and a hilly terrain.

The focus area is connected to California State Route 4 from the south by Alhambra Avenue, which is a two-lane, one-way arterial with bike lane and a posted speed limit of 30mph that runs in the northwest direction. Alhambra Avenue becomes two-way between Escobar Street and Buckley Street. Alhambra Avenue functions as a one-way couplet paired with Berrellesa Street, which is a two-lane, one-way arterial with a bike lane that runs in the southeast direction. Downtown Martinez connects to Interstate 680 to the east near Marina Vista Avenue, which becomes a one-lane, one-way road, with a posted speed limit of 25 mph that runs in the southwest direction. Court Street, Pine Street, and Pacheco Boulevard are two-way, two-lane arterials located on the western side of the focus area.

Figure 3-17 Alhambra Avenue in Martinez

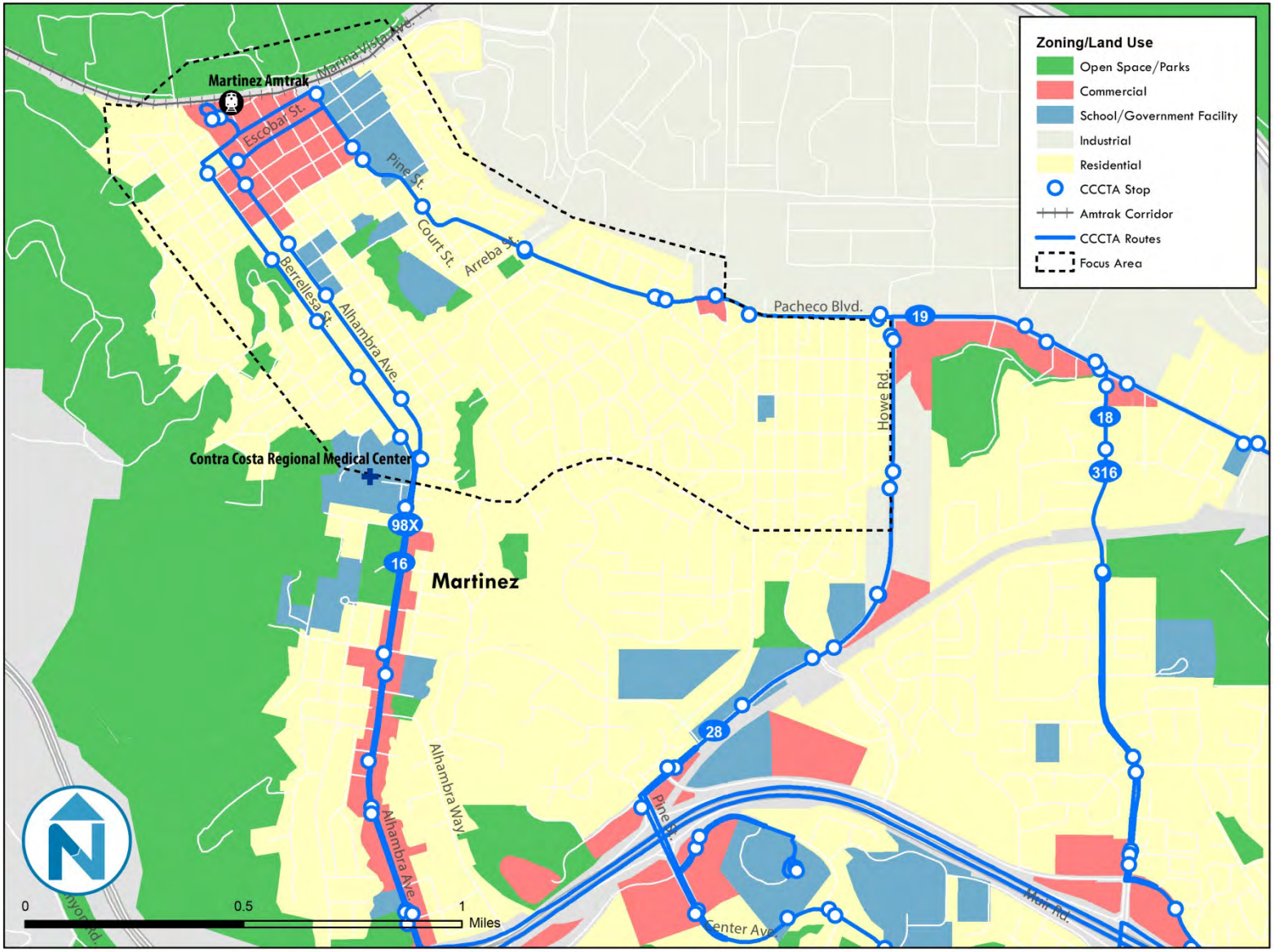
Built Environment

Downtown Martinez has a mix of commercial and residential development, and a number of significant government facilities that serve as transportation attractors in the area. As can be seen

in the land use map in Figure 3-18, there are a number of institutional facilities around the downtown core and in the southwest corner of the focus area, including the Contra Costa Regional Medical Center and offices associated with Contra Costa County. Directly outside of the focus area along Route 4 there is a commercial strip that includes a Wal-mart shopping center. The nearest grocery store to the focus area is a Safeway on the south end of Alhambra Ave.

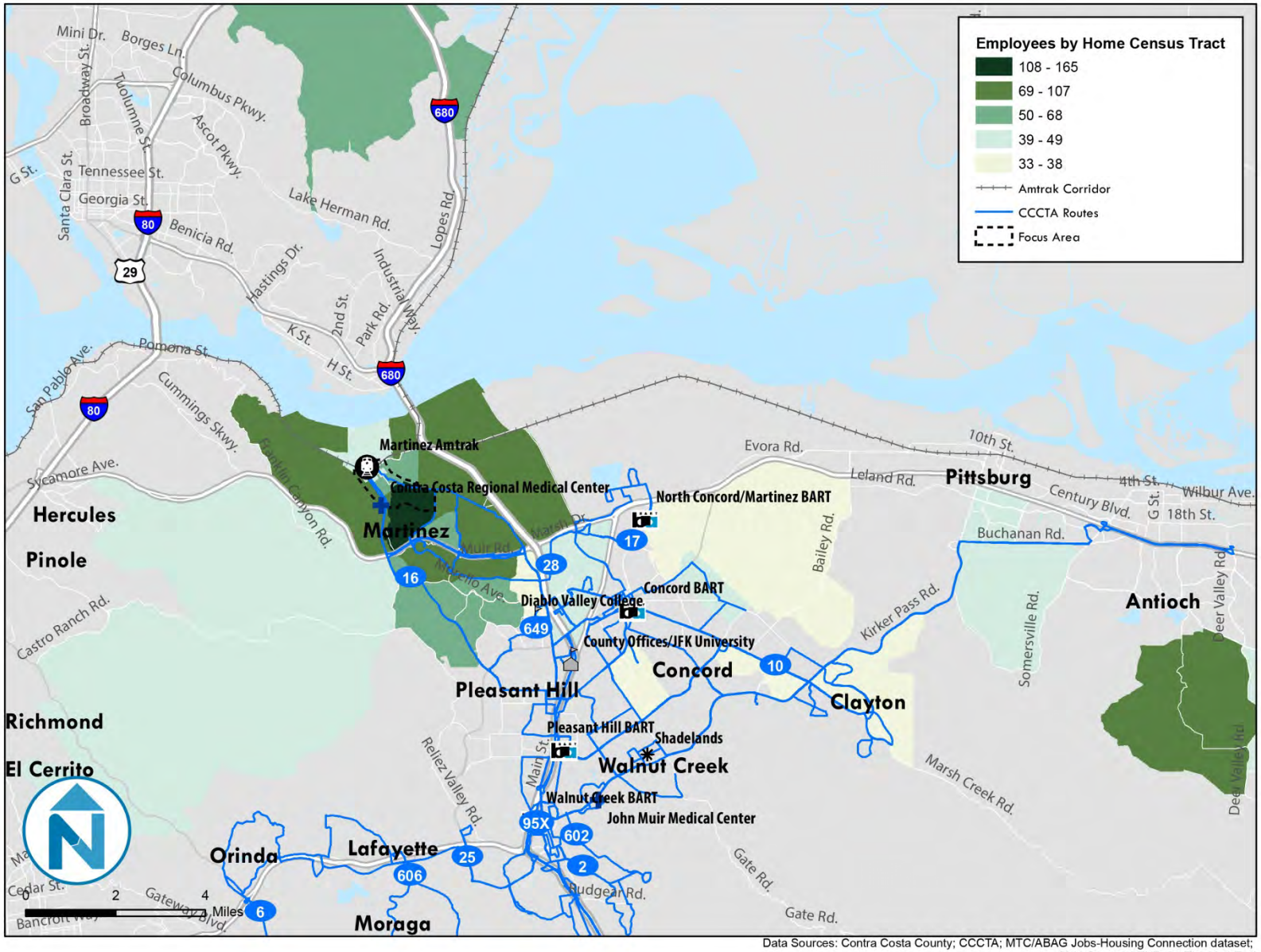
The most recent Census reports that many of the individuals who work in the downtown Martinez area also live within relatively close distance. Figure 3-19 provides a snapshot of employees by home census tract for those working in downtown Martinez. Other areas of high employee residence include areas south of Antioch and to the north in Solano County.

Figure 3-18 Downtown Martinez Land Use Designations



Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset; City of Martinez

Figure 3-19 Home Census Tracts for Downtown Martinez Employees



Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset; 2011 Census LEHD On The Map Tool

Existing Transit

Transit Network

Martinez is primarily served by County Connection fixed-route bus service. Other services include Tri Delta Transit (Route 200), WestCAT (30Z) and Amtrak rail services. Five weekday and one weekend County Connection route serves Martinez, all of which stop at the Amtrak station. The Amtrak station is used by four train services: the California Zephyr, Capitol Corridor, Coast Starlight, and San Joaquin. In fiscal year 2012, Amtrak boardings at the Martinez Station were approximately 1,300 boardings/alightings daily.[5]

Figure 3-20 County Connection Bus Stop in Downtown Martinez

County Connection bus route information for routes that serve the Martinez focus area is shown in Figure 3-22. Route 16 travels on weekdays between the Martinez Amtrak and the Concord BART station, operating as a loop in Martinez, with in and out service on the one-way couplet of Alhambra Avenue and Berrellesa Street, turning around in the downtown core on Marina Vista Avenue and Escobar Street. Route 98x also travels along Berrellesa Street and Alhambra Avenue, serving the western side of Martinez and then providing express service to stops along Contra Costa Boulevard in Pleasant Hill and the Walnut Creek BART. Route 18 travels into and out of downtown Martinez on the east side, along Pine Street and Pacheco Boulevard, and then serves numerous locations along a one hour trip to the Pleasant Hill BART station. Routes 19 and 28 follow the same routing out of and into Martinez; Route 19 serves the Concord BART station and Route 28 serves the North Concord BART station. The frequencies provided by County Connection services are at best 45 minutes (Route 98X). No services in Martinez provide consistent 30 minute service. At best, Route 16 provides consistent 40 minute service, but this frequency does not allow "clockface" headways. (headways that arrive consistently at a certain minute past the hour).

Figure 3-21 provides an overview of key transit indicators for performance of the relevant routes based on data from the 2011-12 SRTP. Of these five routes, Route 16 has the highest average daily boardings with over 700 passengers, the fourth highest in the CCCTA system. This route also provides the most frequent service and longest span of service of all routes in Martinez, operating 54 revenue hours per day.

[5] Based on 2012 Amtrak ridership figures http://www.amtrak.com/pdf/factsheets/CALIFORNIA12.pdf

The only County Connection route that operates on weekends is Route 316, which originates at the Pleasant Hill BART station, travels along Contra Costa Boulevard in Pleasant Hill, and serves the east and west sides of Martinez, functioning as the only route that would allow for a one seat ride to/from east Martinez to west Martinez. Route 316 is the highest performing of the Martinez routes, with 14.7 boardings per revenue hour, however much of this ridership comes from route segments in Concord.

Figure 3-21 CCCTA Service Overview: Downtown Martinez

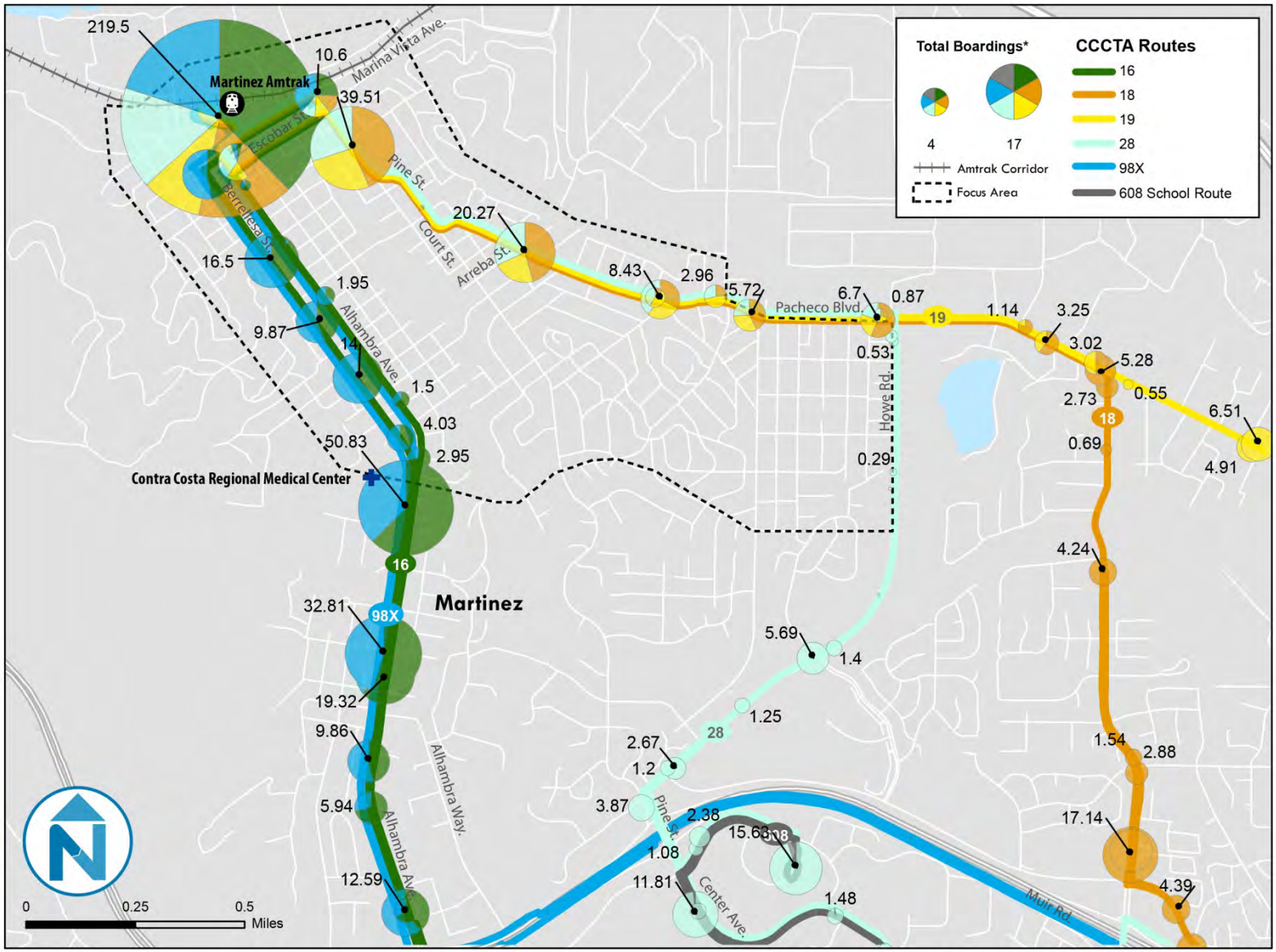
At a Glance		Route 16	Route 18	Route 19	Route 28	Route 98x	Route 316 (weekend)
Key Destinations		Martinez Amtrak and Concord BART via Alhambra and Berrellesa	Martinez Amtrak and Pleasant Hill BART via Pine and Pacheco	Martinez Amtrak and Concord BART via Pine and Pacheco	Martinez Amtrak and North Concord BART via Pine and Pacheco	Express btw Martinez Amtrak and Walnut Creek BART via Hwy 4 and I-680	Martinez Amtrak, Diablo Valley College, Pleasant Hill BART
Weekday Span		5:05a.m.-11:22p.m.	6:00a.m.-9:30p.m.	6:15a.m.-8:00p.m.	6:00a.m.-7:46p.m.	5:40a.m.-7:20p.m.	8:45a.m.-7:39p.m.
Average Daily Boardings		727	441	114	306	353	252
Revenue Hours/Day		54	31	14	30	29	17
Boardings/ Revenue Hour		13.5	14.4	10.4	10.1	12	14.7
TDA Cost per Passenger (System Average = $2.87)		$0.63	$1.48	$5.74	$6.36	$0.06	$0.06
Frequency (minutes)	Peak	40	80	120	60	45	75
	Midday	40	80	120	60	45	150
	Evening	40	80	120	60	45	150

Source: 2012 CCCTA SRTP

Rider Origins and Destinations

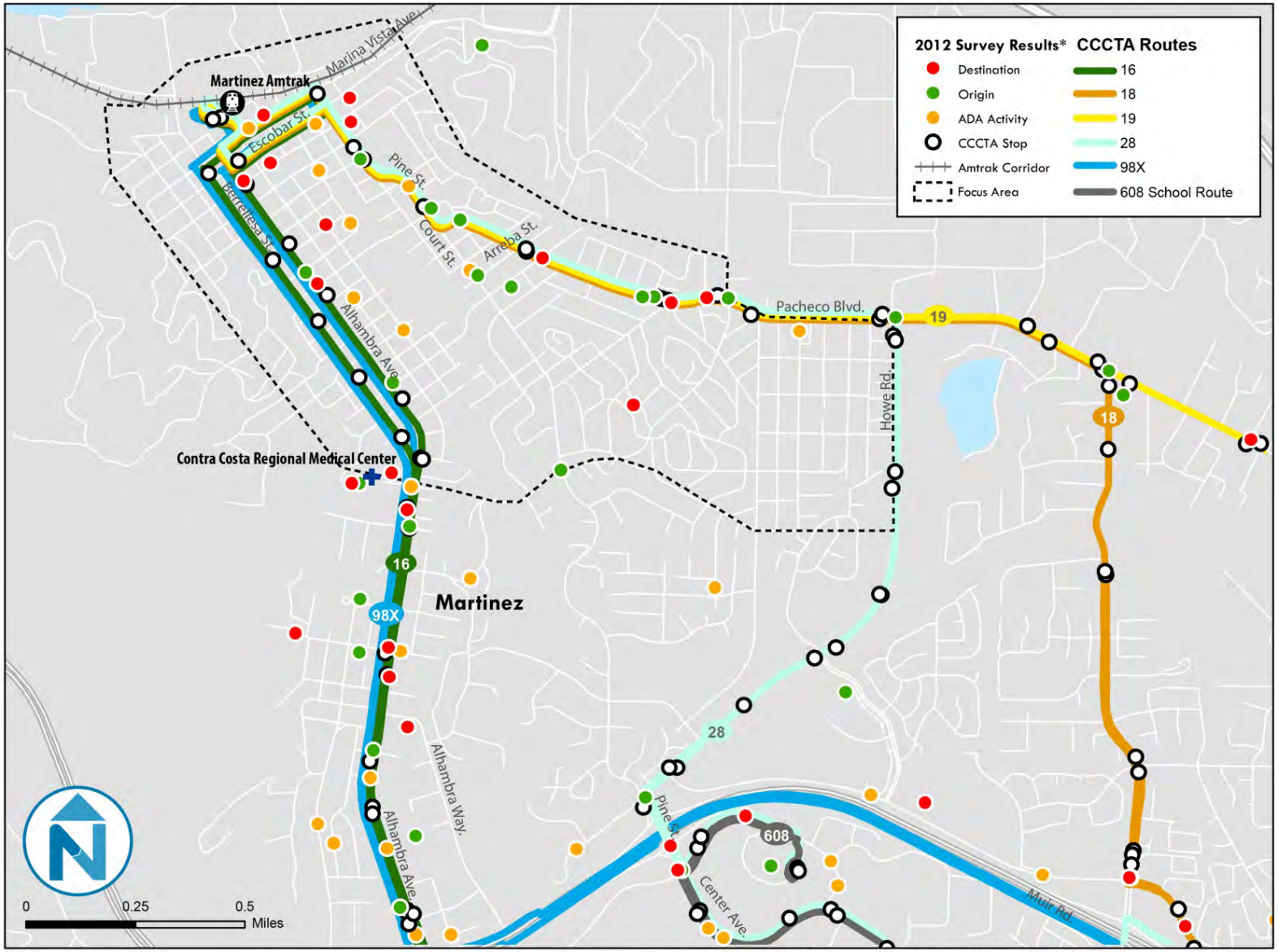
Riders on County Connection within the Martinez focus area were surveyed as part of the 2012 County Connection on-board survey effort. As shown in Figure 3-23below, there are a number of origins and destinations along the transit routes. The map also includes ADA activity from a 2012 one-day activity log. The majority of ADA activity sites are within a very short distance of the main transit corridors in Martinez, particularly in the downtown area around the senior center and at the Regional Medical Center.

Figure 3-22 CCCTA Daily Transit Boardings in Downtown Martinez



*Note: Boarding activity based on Spring 2013 daily averages
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Figure 3-23 Sample Origin-Destination and ADA Activity in Downtown Martinez



*Note: Destination and origin data based on 2012 one-day survey and ADA activity based on 2012 one-day activity log
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Demographics

In comparison to Contra Costa County, the downtown Martinez focus area stands out as an area of lower median household incomes.[6] Commute modes are similar to the countywide rates, with slightly lower drive alone rates and a higher rate of public transportation usage than the rest of the county. Additionally, transit riders and carpoolers in Martinez earn significantly lower incomes than workers who drive to work, as shown in Figure 3-24. This disparity further indicates that there are more transit dependent residents in the area.

Based on 2011 Census employment data[7], there are approximately 5,681 jobs within the focus area. Employees travel from the east and southeast of the area, and many only travel short distances. Forty four percent of employees travel less than 10 miles to work, and another 44% travel between 10 and 24 miles for work.

Figure 3-24 Employment, Income and Commuting Characteristics in Downtown Martinez

	Contra Costa County		Tract 3170 (Martinez)	
	Estimate	Percent	Estimate	Percent
Percent Unemployed	--	9.5%	--	11.5%
Median household income (dollars)	$79,135	--	$60,972	--
Commuting to Work				
Workers 16 years and over	470,341	470,341	1,229	1,229
Car, truck, or van -- drove alone	331,081	70.4%	836	68.0%
Car, truck, or van -- carpooled	55,380	11.8%	106	8.6%
Public transportation (excluding taxicab)	41,797	8.9%	119	9.7%
Walked	7,903	1.7%	29	2.4%
Other means	7,863	1.7%	13	1.1%
Worked at home	26,317	5.6%	126	10.3%

Source: 2006-2011 5-year ACS Estimates

Figure 3-25 Median Earnings by Mode of Travel to Work in Downtown Martinez

Mode	Median Earnings
Total	$39,694
Car, truck, or van -- drove alone	$51,007
Car, truck, or van -- carpooled	$20,455
Public transportation (excluding taxicab)	$25,640

Source: 2006-2011 5-year ACS Estimates

[6] Demographics as part of this section are based on a representative Census tract selected for analysis. The location of this tract relative to the focus area boundaries can be found in Appendix A.

[7] Information comes from the Longitudinal Employer-Household Dynamics (LEHD) program which is part of the US Census Bureau.

Local Outreach

The outreach strategy in Martinez is two-fold, using stakeholder interviews and an online survey distributed to the Main Street Martinez's[8] email list, which has a readership of approximately 3,000 people. In addition, the following individuals were contacted to better understand transportation needs and usage in downtown Martinez.

- Rob Schroder (previous Mayor of City of Martinez)
- Kathi Curry, Martinez Senior Center Director
- John Stevens, Martinez Chamber of Commerce
- Doug Stewart, Contra Costa Homeless Outreach
- Ajana Mepani, City of Martinez

Some key findings from stakeholder discussions and outreach survey[9] include the following:

- Current transportation options do not support tourism opportunities in Martinez.
- There are no frequent transit connections between downtown Martinez and hotels/retail along Route 4 (Arnold Drive) and the Regional Medical Center.
- Existing transit service has limited coordination with arriving/departing Amtrak trains.
- Access to/from BART is probably the biggest transit need.
- Existing transit users often are stranded due to early stop time of County Connection service.
- Unique transit markets to and from Martinez include jurors and those leaving the jail.
- Bus stop signage is sometimes not up-to-date.

As a follow up to preliminary outreach effort in Martinez, a focus group was held to further inform service recommendations in this area. Feedback from this focus group can be found in Appendix B of this report.

WEST PLEASANT HILL

The West Pleasant Hill focus area is generally bounded by Grayson Road to the north, Taylor Boulevard to the west, San Luis Road to the south, and Putnam Boulevard to the east. The area is primarily low density residential. While many streets are narrow and some are missing sidewalks, the area does have good pedestrian amenities in the form of paved recreational trails. Both the Contra Costa Canal Trail and the EBMUD Trail pass through this focus area.

The area is located just east of current CCCTA service formed by the westernmost portion of Routes 7 and 9 (along Putnam Boulevard). The area also contains community facilities, including Larkey Park, Palos Verdes Shopping Center, Contra Costa Christian Schools, Pleasant Hill Elementary School, Dinosaur Hill Park, and shopping on Oak Park Boulevard.

[8] Main Street Martinez is a nonprofit organization that focuses on preserving, protecting, and enhancing the historic and unique character of the area.

[9] Despite being circulated to a high number of individuals, less than 20 survey responses were obtained through the online survey. It is anticipated that a second round of outreach will attempt to collect additional data and information though an on-the-ground survey effort at the Downtown Farmers Market.

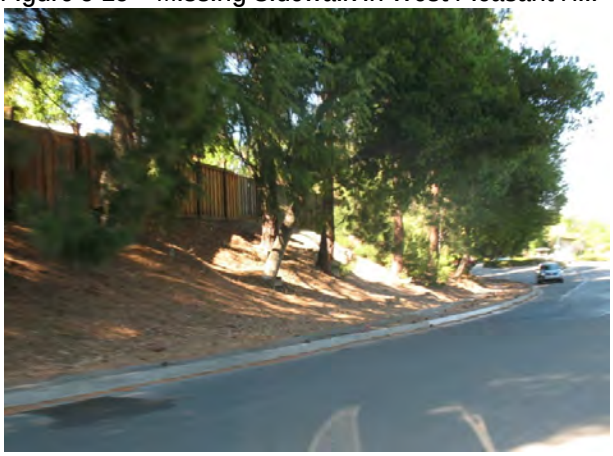
Figure 3-26 West Pleasant Hill Context Maps

Source: Google Earth

Figure 3-27 West Pleasant Hill Context Maps

West Pleasant Hill was selected for further study because it is a neighborhood with almost no existing transit service and the physical environment could benefit from bicycle and pedestrian improvements. The area is relatively flat and the Pleasant Hill BART station is located within a mile of the focus area.

Figure 3-28 Missing Sidewalk in West Pleasant Hill



Challenges and Opportunities

A major barrier to providing transit service in this area is the lack of general street network connectivity. While sidewalks exist in many parts of the focus area, this does not override the need for general grid connectivity. A modified grid exists on the eastern side of the focus area but this connectivity degrades as one travels west. Due to the low density and limited destinations within this focus area, it is difficult to identify a corridor that has a critical number of potential riders.

The Palos Verdes Mall and Shopping Center is one destination within this focus area but the shopping center is very auto-oriented and there is poor pedestrian access to the adjacent neighborhoods.[10] While it is not completely clear if the focus area is the origin for many BART trips, it is in relatively close distance to the Pleasant Hill BART station and retail options along Main Street.

Figure 3-29 Challenges and Opportunities within West Pleasant Hill

Challenges	Opportunities
▪ Poor street connectivity and many non-residential destinations ▪ Some areas with limited pedestrian infrastructure	▪ Relative proximity to BART and retail on Main Street. ▪ Access to recreational trails system ▪ Several senior facilities and close proximity to the Pleasant Hill Senior Center

Physical Environment

Roadway Network

The street connectivity in much of the West Pleasant Hill focus area is fragmented. Rather than a grid street network, the focus area is made up of many short street segments and cul-de-sacs. Running east-west through the center of the focus area is Geary Road, a two lane arterial with a bike lane and a posted speed limit of 35mph. Geary Road connects the focus area to Interstate 680 and the Pleasant Hill BART station to the east. Running north-south through the focus area

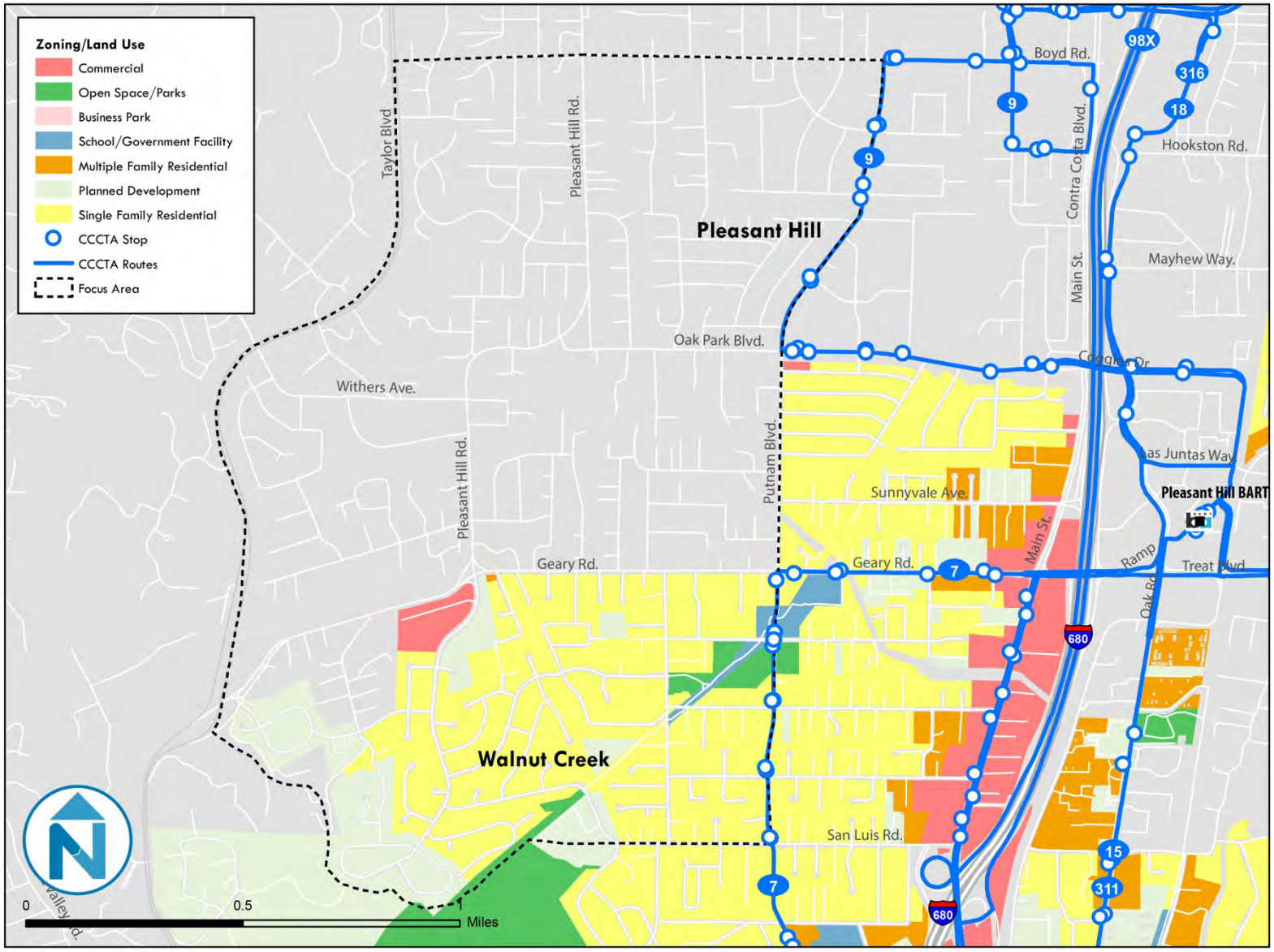
[10] Discussions with County Connection staff indicated that transit service previously existed to Palos Verdes Shopping Center but was later eliminated. Anecdotal evidence noted that some ridership existed at the shopping center itself, but limited ridership was generated on Geary Road (the corridor it traveled).

is Pleasant Hill Road, a two lane road with a posted speed limit of 30mph, which connects the focus area to Route 4 to the north.

Built Environment

As West Pleasant Hill is almost entirely residential, most transportation attractors are located outside of the focus area, with the exception of the shopping center at Pleasant Hill and Geary (Palos Verdes Mall) and several local churches and schools. The land use map for the Walnut Creek portion of this focus area is shown in Figure 3-30. Land use information for Pleasant Hill was not available when producing this report. However, the majority of land within the focus area in Pleasant Hill is residential uses. Just to the east of the focus area, there is a significant amount of commercial retail on Main Street.

Figure 3-30 West Pleasant Hill Land Use*



Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset; City of Walnut Creek

*The focus area includes portions in Walnut Creek and Pleasant Hill. Land use data for Pleasant Hill was not available when producing this map.

Transit Network

Two County Connection routes operate adjacent to the eastern border of the focus area but do not penetrate the area. While the key characteristics of those routes are displayed in the following figures and maps, it is important to keep in mind that this information does not necessarily represent travel patterns of the focus area. Figure 3-31 provides an overview of key transit indicators for performance of Routes 7 and 9 from the 2011-12 SRTP.

Route 7 travels along Buena Vista Avenue south of Geary Road. This route has low ridership and performance, and provides peak-only service in a clockwise and counterclockwise loop, with a meandering route that serves two BART stations, the Shadelands office park, and numerous other corridors. The stops at the edge of the focus area of Route 7, as shown in Figure 3-32, have almost no daily boardings (1-2 per day, based on 2012 data). In addition, the peak-only nature of Route 7, 40 minute frequencies in combination with its "loop" route pattern may contribute to its limited attractiveness for ridership in this area.

Route 9 is a north-south route that extends from Diablo Valley College to the Walnut Creek BART station. It passes by the northeast border of the West Pleasant Hill area between Oak Park Boulevard and Boyd Road along Patterson Boulevard. Route 9 is a moderately performing route, with relatively higher frequency in the peak period. There are 53 average daily boardings and alightings at the Oak Park Boulevard and Patterson Boulevard stop, the closest to the focus area.

Figure 3-31 CCCTA Service Overview: West Pleasant Hill

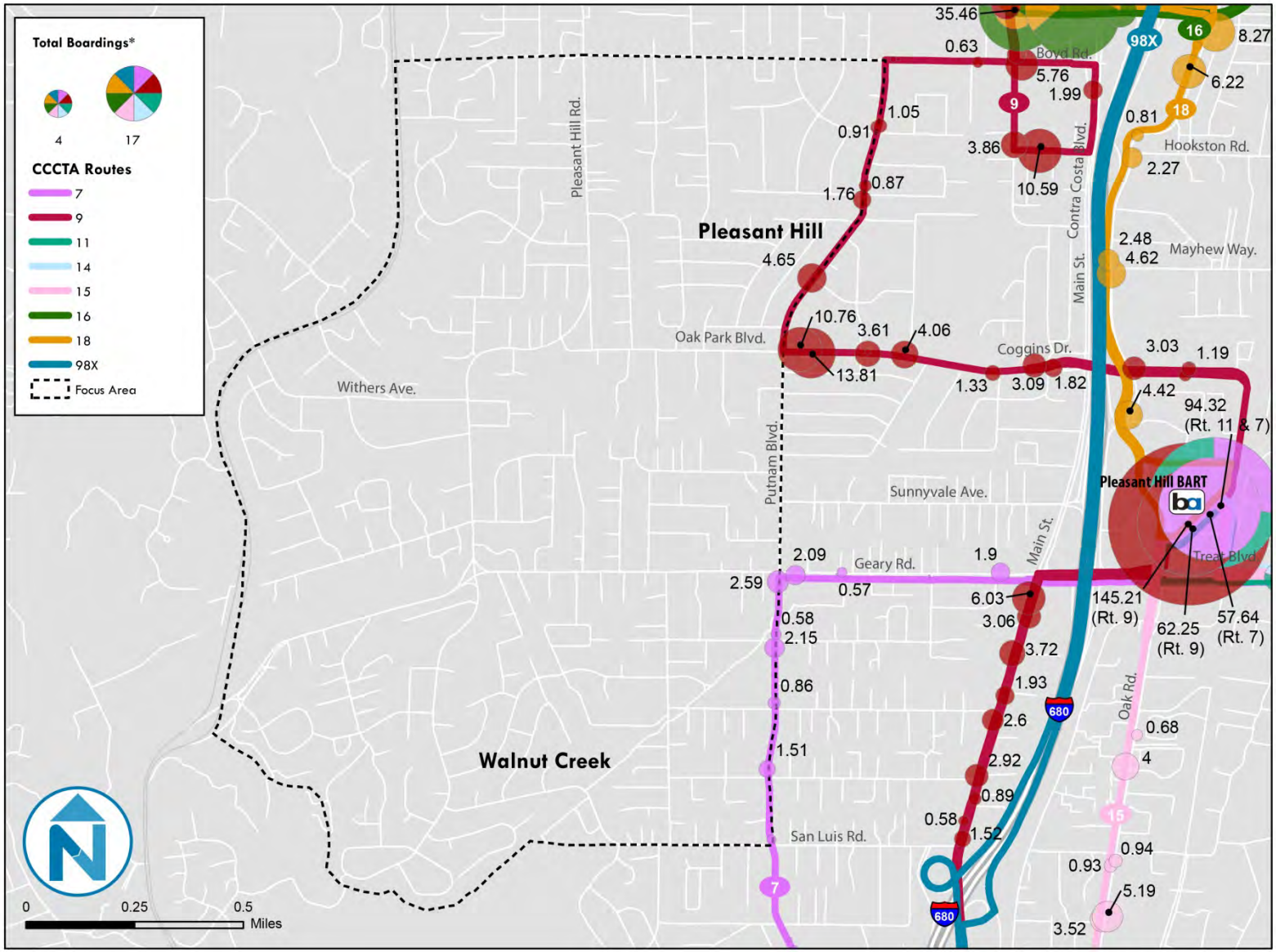
At a Glance		Route 7	Route 9
Key Destinations		Shadelands, Pleasant Hill BART, and Walnut Creek BART via Geary and Buena Vista	Diablo Valley College and Walnut Creek BART via Patterson and Boyd
Weekday Span		6:00a.m.- 10:30a.m. & 4:00p.m.- 8:40p.m.	6:00a.m.-10:43p.m.
Average Daily Boardings		244	612
Revenue Hours/Day		32	42
Boardings/ Revenue Hour		6.9	14.6
TDA Cost per Passenger (System Average = $2.87)		$10.12	$1.50
Frequency (minutes)	Peak	40	30
	Midday	--	60
	Evening	--	60

Source: 2012 CCCTA SRTP

Rider Origins and Destinations

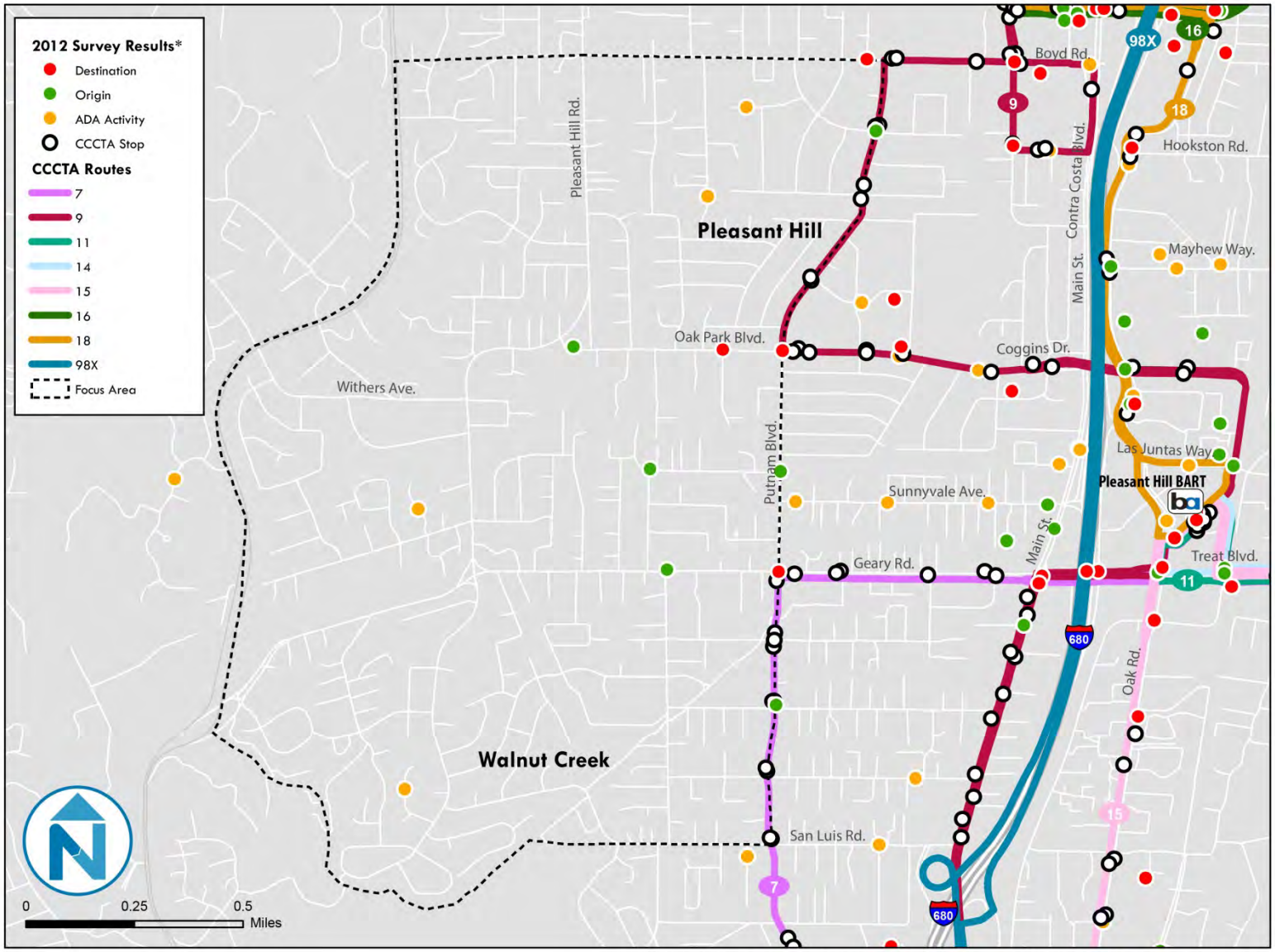
As shown in Figure 3-33, the 2012 SRTP survey snapshot of origins and destinations for the County Connection system in the West Pleasant Hill area showed very little activity in the area, with the exception of a few locations along the major arterials, such as Geary Road, Oak Park Boulevard, and Putnam Boulevard. ADA activity from a single day in 2012 showed a few points of activity well away from the existing transit network in the western part of the focus area.

Figure 3-32 CCCTA Daily Boardings in West Pleasant Hill



*Note: Boarding activity based on Spring 2013 daily averages.
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Figure 3-33 Sample Origin-Destination and ADA Activity in the West Pleasant Hill



*Note: Destination and origin data based on 2012 one-day survey and ADA activity based on 2012 one-day activity log
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Demographics[11]

Residents in the West Pleasant Hill area have median household incomes significantly higher than the countywide median; summarized in Figure 3-34 along with other key area characteristics. The rate of drive alone travel is higher in this area, with about three-quarters of residents driving alone to work.

While other modes are used less compared to countywide travel, public transit has a slightly higher rate of usage among residents of the focus area, likely due to prevalence of BART. As the Census does not ask how respondents reach their primary mode of travel to work, it is not known if these commuters drive to the BART station. According to the 2008 BART station Profile Study[12], at Pleasant Hill Station 56% of riders, on an average weekday, drive alone to the station, 19% walk, 11% are dropped off, and only 5% ride transit.

The median earnings for those who commute to work by public transportation in West Pleasant Hill is significantly higher than those who drive, as it is in Trotter/South Walnut Creek, likely due to the fact that these commuters are riding BART to higher wage jobs out of the area, while those who drive are employed at lower wage jobs not served by BART or outside of BART service hours.

Figure 3-34 Employment, Income and Commuting Characteristics in West Pleasant Hill

	Contra Costa County		Tract 3260 (West Pleasant Hill)	
	Estimate	Percent	Estimate	Percent
Percent Unemployed	--	9.5%	--	9.5%
Median household income (dollars)	79,135	--	110,313	--
Commuting to Work				
Workers 16 years and over	470,341	--	1,561	--
Car, truck, or van -- drove alone	331,081	70.4%	1,185	75.9%
Car, truck, or van -- carpooled	55,380	11.8%	99	6.3%
Public transportation (excluding taxicab)	41,797	8.9%	154	9.9%
Walked	7,903	1.7%	11	0.7%
Other means	7,863	1.7%	7	0.4%
Worked at home	26,317	5.6%	105	6.7%

Source: 2006-2011 5-year ACS Estimates

[11] Demographics as part of this section are based on a representative Census tract selected for analysis. The location of this tract relative to the focus area boundaries can be found in Appendix A.

[12] BART 2008 Station Profile Report.
http://www.bart.gov/docs/StationProfileStudy/2008StationProfileReport_web.pdf

Figure 3-35 Median Earnings by Mode of Travel to Work in West Pleasant Hill

Mode	Median Earnings
Total	$72,500
Car, truck, or van -- drove alone	$64,737
Car, truck, or van -- carpooled	$77,500
Public transportation (excluding taxicab)	$98,889

Source: 2006-2011 5-year ACS Estimates

Local Outreach

While there are no neighborhood associations that are highly active in the area, several private athletics groups are active including swim clubs (Larkey Park Private Swim Club, Buena Vista Swim Club). In addition, Poet's Corner does have a Facebook page that highlights local events. Other key destinations in the area include Larkey Park, local schools, and local retailers including grocery stores.

For the first round of outreach, the team conducted an intercept survey at the Christ the King church's annual community event in May 2012. This community gathering provided a consolidated location with a fair amount of activity at which many of the patrons were local residents. The intercept survey provides a better understanding of travel behavior in the area. The team also contacted several senior centers to obtain a high-level understanding of transportation needs for seniors within this focus area.

Some key findings from West Pleasant Hill based on stakeholder discussions and the outreach event at Christ the King include the following:

- People are supportive of transit in general, though many do not feel the "need" to take it themselves.
- County Connection is viewed as a service for the poor or those who cannot afford their own vehicle.
- Biggest challenges to increasing the appeal of transit: available/free parking at BART, workplaces, and frequent destinations like grocery stores.
- People want more frequent, visible service with more access to route and schedule information.
- The majority of individuals had heard of County Connection but don't think it would work for their lifestyle (have kids with erratic trip patterns or long-distance commutes).
- Many seniors that require trips are traveling to hospitals (versus special medical facilities), the Senior Center in Martinez, or local shopping.
- There are opportunities for additional marketing of services in schools and churches in this area.
- Area is not affluent but is also not low-income. Has had transit before on Geary Rd. with limited success.

Due to the interest in senior transportation in the area, the project team also contacted some senior centers and a senior transportation provider in the area. The following organizations were contacted related to senior transportation in West Pleasant Hill.

- The Kensington
- Boyd Senior Care Home
- Pleasant Hill Senior Van Services

The following is a summary of information obtained from these discussions:

- Many individuals currently use County Connection's Link service for ADA paratransit trips
- Many senior trips go to Kaiser (Walnut Creek), the Senior Center on Gregory Lane or shopping trips
- Both the Boyd Senior Care Home and The Kensington also provide their own limited transportation services.
- The current Pleasant Hill Senior Van service is subsidized through local funds and was originally initiated through a Caltrans grant in 2000. The service does not provide transportation for those in wheelchairs.

SHADELANDS

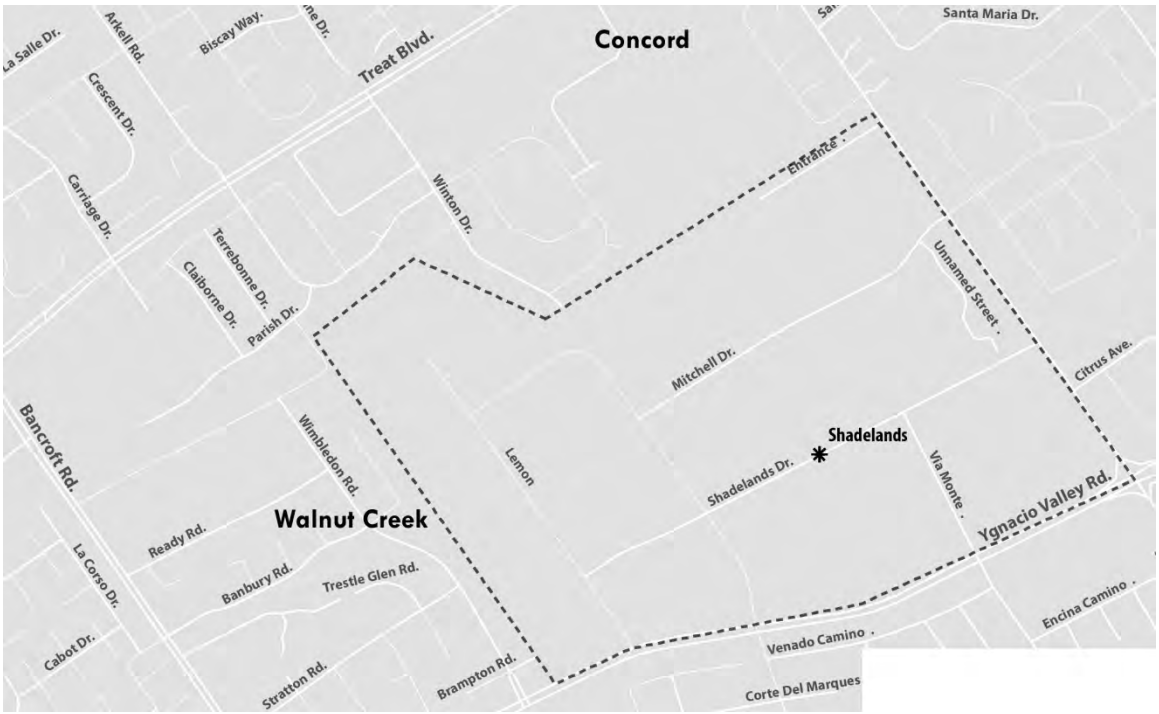
The Shadelands Business Park is located in the City of Walnut Creek, about three miles from the I-680 corridor and the Pleasant Hill and Walnut Creek BART stations. The area is home to numerous private and commercial businesses, including medical offices and a center for arts education. A context map of the area is shown in Figure 3-36.

Figure 3-36 Shadelands Context Map

Source: Google Earth

Shadelands was selected as an area for study because of its dispersed office park environment that is potentially facing a period of growth and expansion. New growth may provide an opportunity to provide better transportation services and capture more of the commute market in this area, given its relative proximity to BART and downtown Walnut Creek. The area is widely dispersed and existing bus stops may not be easily accessible for pedestrians, despite the fact that numerous County Connection routes serve the area. There is ample on and off-street parking in the entire Shadelands focus area.

Figure 3-37 Shadelands Context Map



Challenges and Opportunities

The Shadelands focus area is served by several bus routes that go directly to the Walnut Creek and Pleasant Hill BART stations. However, it has been anecdotally reported that this service is not well utilized and that employees are interested in a dedicated shuttle service. Sidewalks and crosswalks in this focus area are generally present, but the large block sizes result in long walking distances for pedestrians. The pedestrian environment surrounding the focus area is not inviting due to the wide streets and ubiquitous parking lots. Sixty-eight percent of the Shadelands development is used for on and off-street surface parking, which feels empty and underutilized, as described in Figure 3-38.

Figure 3-38 Percentage of Shadelands Property Dedicated to Parking

Aerial view of Shadelands neighborhood boundaries

Land dedicated to parking and vehicular roadways are highlighted in gray. Buildings and open space are shown in black.

Ground Cover	Area (acres)	% of Total Shadelands Area
Parking lots	186	68%
Roadways	15	5%
Building cover	49	18%
Green/Open Space	24	9%
Total	273	100%

Figure 3-39 Challenges and Opportunities within Shadelands

Challenges	Opportunities
▪ Sprawling development pattern with numerous empty parcels ▪ Few nearby walkable destinations ▪ Perception of no fast, efficient means to connect to BART	▪ Large population of individuals living within close proximity of campus ▪ Relatively low congestion within the office park itself ▪ Access to well-connected street grid and Contra Costa Canal Trail

Physical Environment

Roadway Network

Figure 3-40 Bus Stop at Shadelands

Source: Nelson\Nygaard

The Shadelands focus area is bounded by Contra Costa Canal Trail to the north, Oak Grove Road to the east, Ygnacio Valley Road to the south, and Lennon Lane to the west. This focus area is primarily an office park with extremely large block sizes. The Contra Costa Canal Trail, which is a segregated bicycle and pedestrian path, runs along the northern side of the focus area. Sidewalks are generally only provided on one side of the street, and although pedestrians are able to cut across the enormous blocks, this requires passing through the profuse parking lots surrounding the buildings.

Both Shadelands Drive and Mitchell Drive run east-west across the focus area. North Wiget Lane and North Via Monte are north-south running streets within the focus area. These are wide, two lane roads with some on-street parking allowed.

Ygnacio Valley Road is the southern border of Shadelands and is a six-lane, east-west divided arterial that extends from I-680 to Clayton Road, where it continues as Kirker Pass Road. The posted speed limit on Ygnacio Valley Road in the area is 30 mph. Sidewalks are provided on both sides of the street through the focus area. Ygnacio Valley Road is a designated enhanced Class III bicycle route. No parking is permitted on this roadway. Ygnacio Valley Road carries approximately 66,100 vehicles per day just east of I-680.[13]

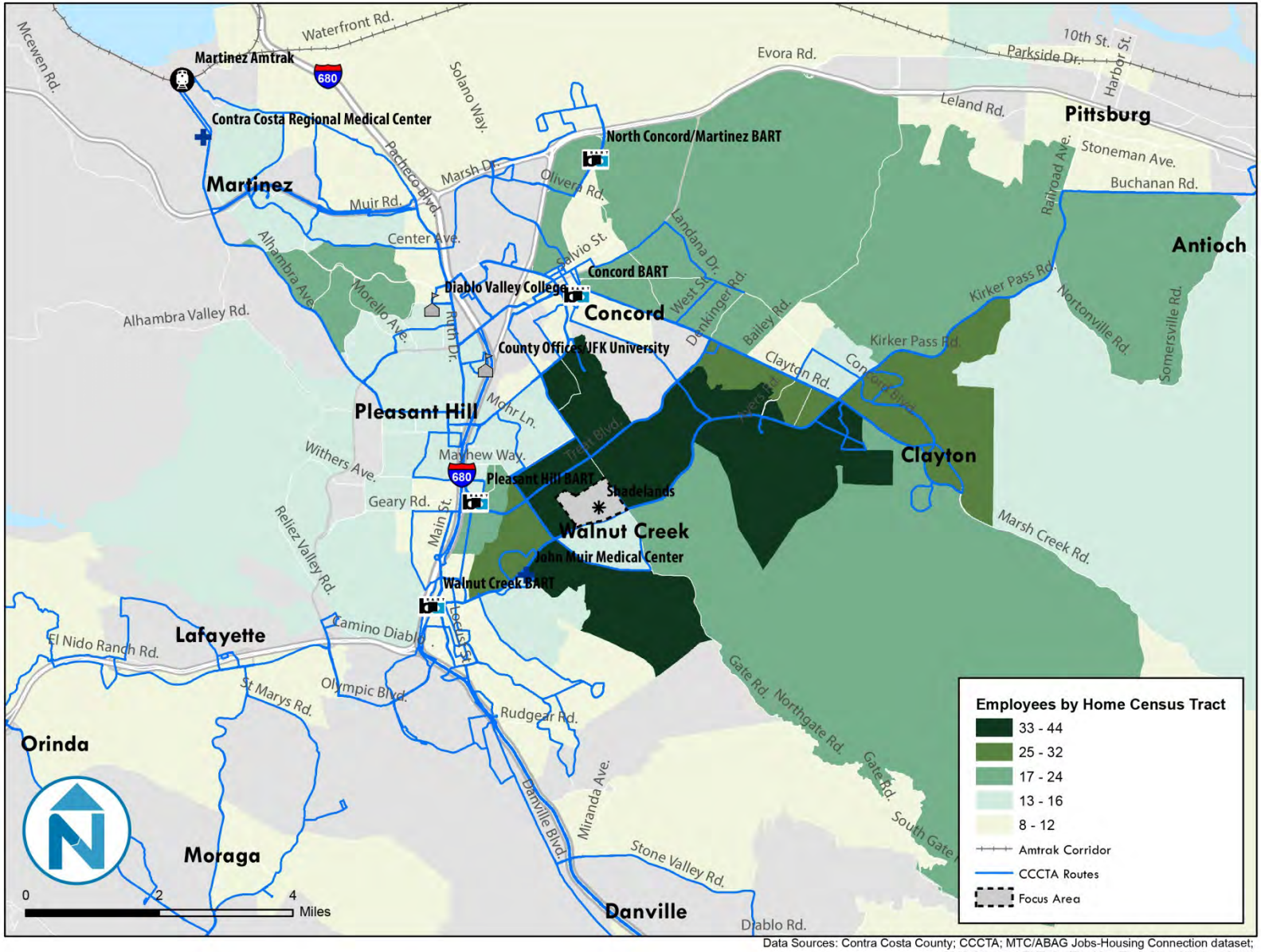
Built Environment

Shadelands contains a variety of employment sites, including a Kaiser Permanente medical facility, the Shadelands Art Center, Contra Costa Times, and numerous other medical and office facilities. Transportation needs in this area are primarily employment based, with some mid-day demand for the medical and educational facilities. This is an employment and medical trip destination area, with demand for mid-day and traditional commute-oriented trips. There are no residential properties within the focus area. However, the area is surrounded by residential neighborhoods on all sides. Figure 3-42 provides an illustration of land uses around Shadelands.

Figure 3-41 below provides a snapshot of home census tract locations for employees working within Shadelands. It is interesting to note the high level of workers living adjacent to the focus area. This observation highlights the potential for many trips to/from Shadelands to be completed by non-motorized modes such as bicycling or walking.

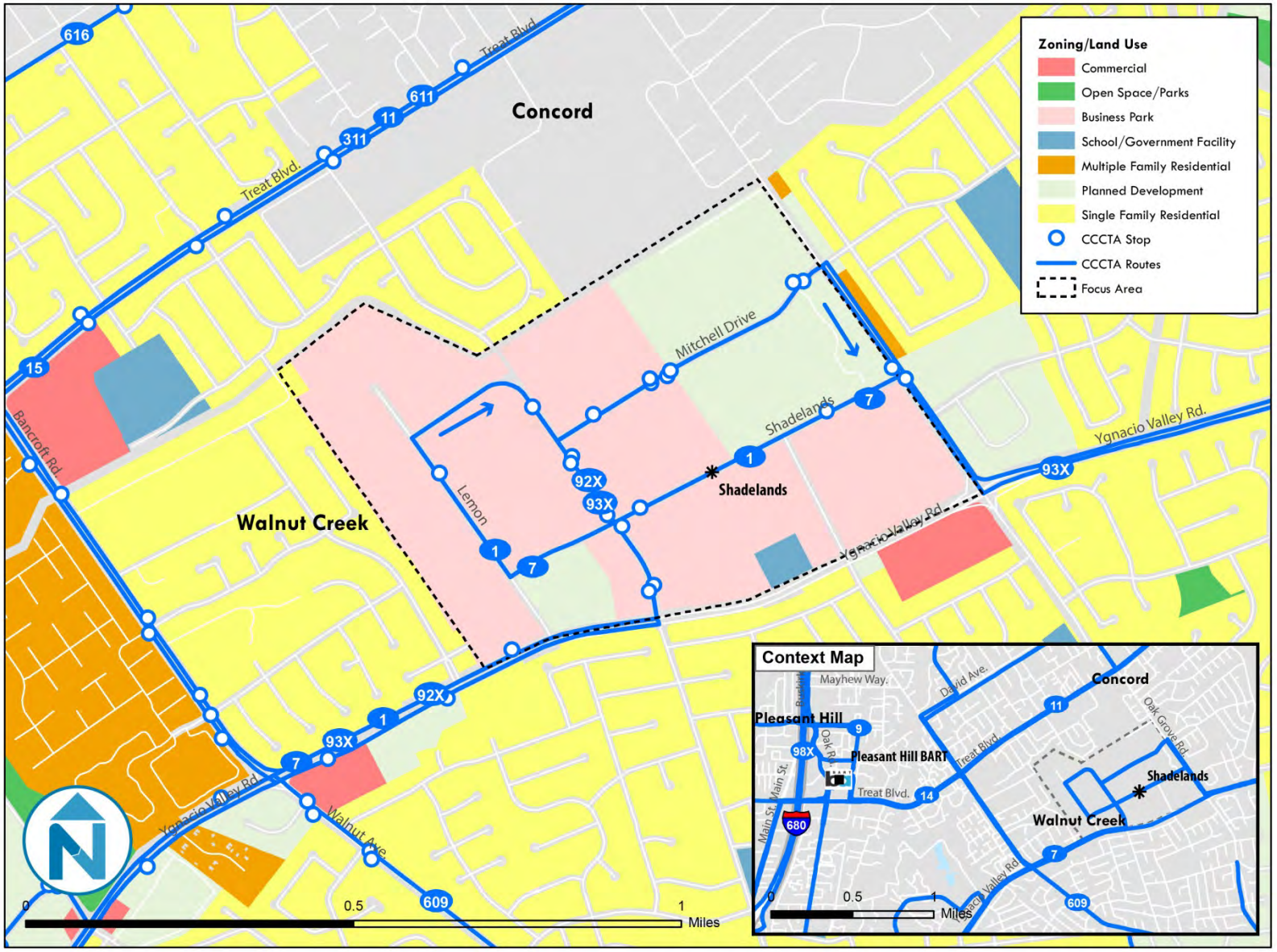
[13] City of Walnut Creek, 2010

Figure 3-41 Home Census Tracts for Shadelands Employees



Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset; 2010 Census LEHD On The Map Tool; City of Walnut Creek

Figure 3-42 Walnut Creek Land Use Designations in Shadelands



Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset; City of Walnut Creek

Transit Network

Transit service in Shadelands is provided by four County Connection routes. All routes except one approach Shadelands from the west along Ygnacio Valley Road, entering the business park on Wiget Lane. and looping around. All routes serve the Mitchell Drive Park-and-Ride, which is the site of the highest number of boardings and alightings for the routes in Shadelands, as shown in the transit activity map (Figure 3-44). The stop outside of the arts center also has high average daily boardings and alighting for this area, suggesting that there is some transit usage by students and patrons as well.

Route 1 travels between Rossmoor and Shadelands, connecting Shadelands with points along Ygnacio Valley Road and the Walnut Creek BART station with 60 minute headways. Based on data collected in the 2011-12 CCCTA Short Range Transit Plan (SRTP), Route 1 is a moderately performing route. Route 7, which was also discussed in the West Pleasant Hill section, serves both the Pleasant Hill and Walnut Creek BART stations. For BART commuters, the route is oriented to connect both BART stations with Shadelands in two bi-directional loops. While the loop nature of Route 7 provides good service coverage, it adds to the perception that the route does not provide fast, direct service to BART. This route is the most poorly performing route that serves Shadelands, with only 6.9 boardings per revenue hour.

Route 92x, the ACE express, is a limited peak-direction service that operates between Shadelands and the ACE train station[14]. It also serves Bishop Ranch. This route takes residents who live near Shadelands to the ACE train in the morning and returns to the same point in the evening. This service is not likely used by Shadelands employees.

Route 93x is the only route that travels to points east of Shadelands. The route goes eastbound in the evening from Walnut Creek BART to Antioch (Hillcrest Park and Ride) and serves the same destinations traveling westbound in the morning. The route serves Shadelands employees who reside in Pittsburgh and Antioch.

[14] The ACE (Altamont Commuter Express) provides commute-period commuter rail services between San Jose and Stockton. Intermediary stops include Pleasanton, where Route 92X terminates.

Figure 3-43 CCCTA Service Overview: Shadelands

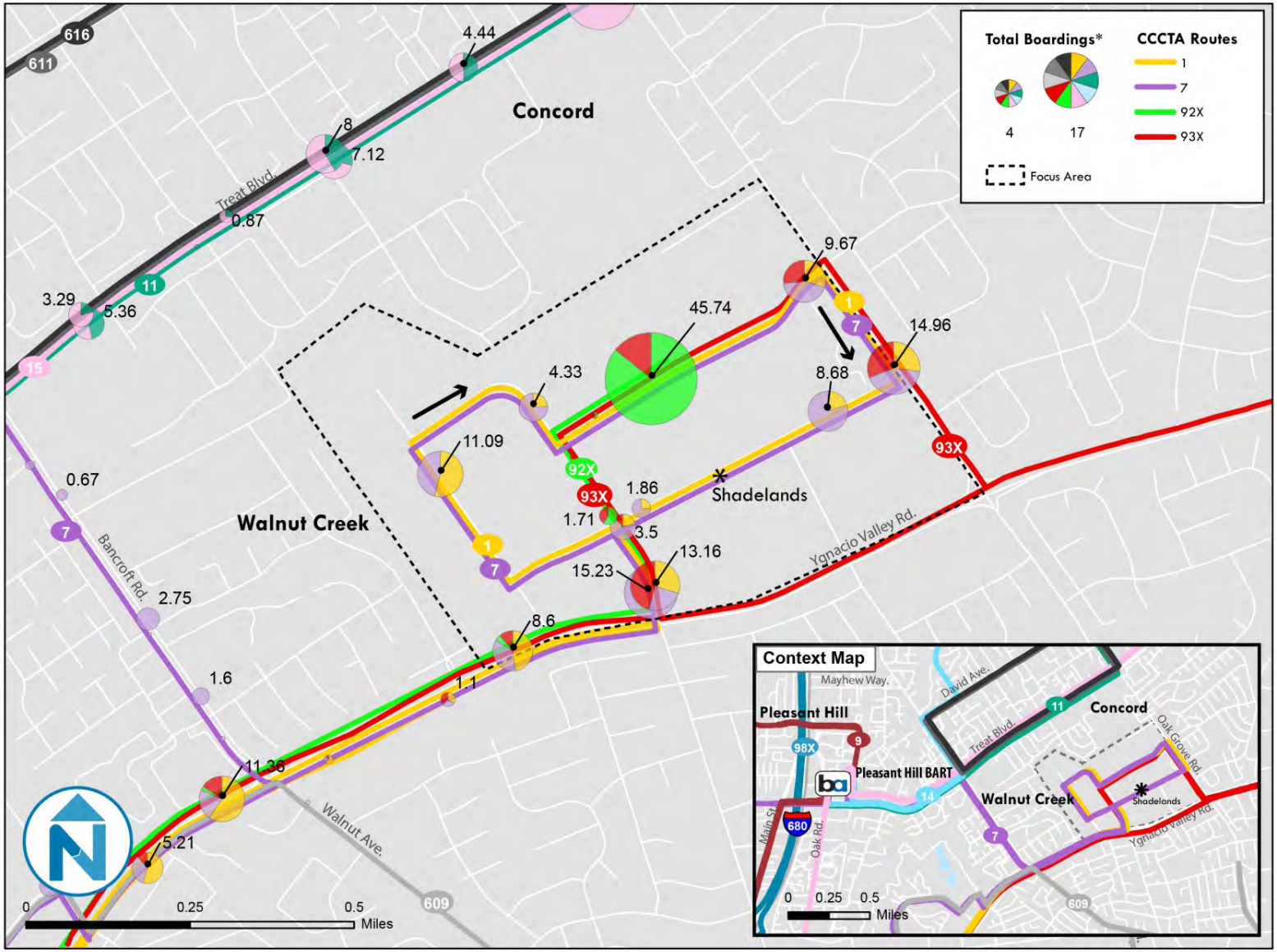
At a Glance		Route 1	Route 7	Route 92x	Route 93x
Key Destinations		Rossmoor and Shadelands via Ygnacio Valley	Shadelands, Pleasant Hill BART, and Walnut Creek BART via Ygnacio Valley	Shadelands and Altamont Commuter Express via Ygnacio Valley	Walnut Creek BART, Shadelands, and Hillcrest Park and Ride via Ygnacio Valley
Weekday Span		5:55a.m.- 7:30p.m.	6:00a.m.- 10:30a.m. & 4:00p.m.- 8:40p.m.	4:33a.m.- 8:54a.m. & 3:40p.m.- 7:20p.m.	4:40a.m.- 8:25a.m. & 3:05p.m.- 7:45p.m.
Average Daily Boardings		390	244	174	194
Revenue Hours/Day		26	32	8	12
Boardings/ Revenue Hour		15.1	6.9	20.8	15.6
TDA Cost per Passenger (System Average = $2.87)		$2.28	$10.12	$0.93	$4.96
Frequency (minutes)	Peak	60	40	60	30
	Midday	60	--	--	60
	Evening	60	--	--	--

Source:2012 CCCTA SRTP

Rider Origins and Destinations

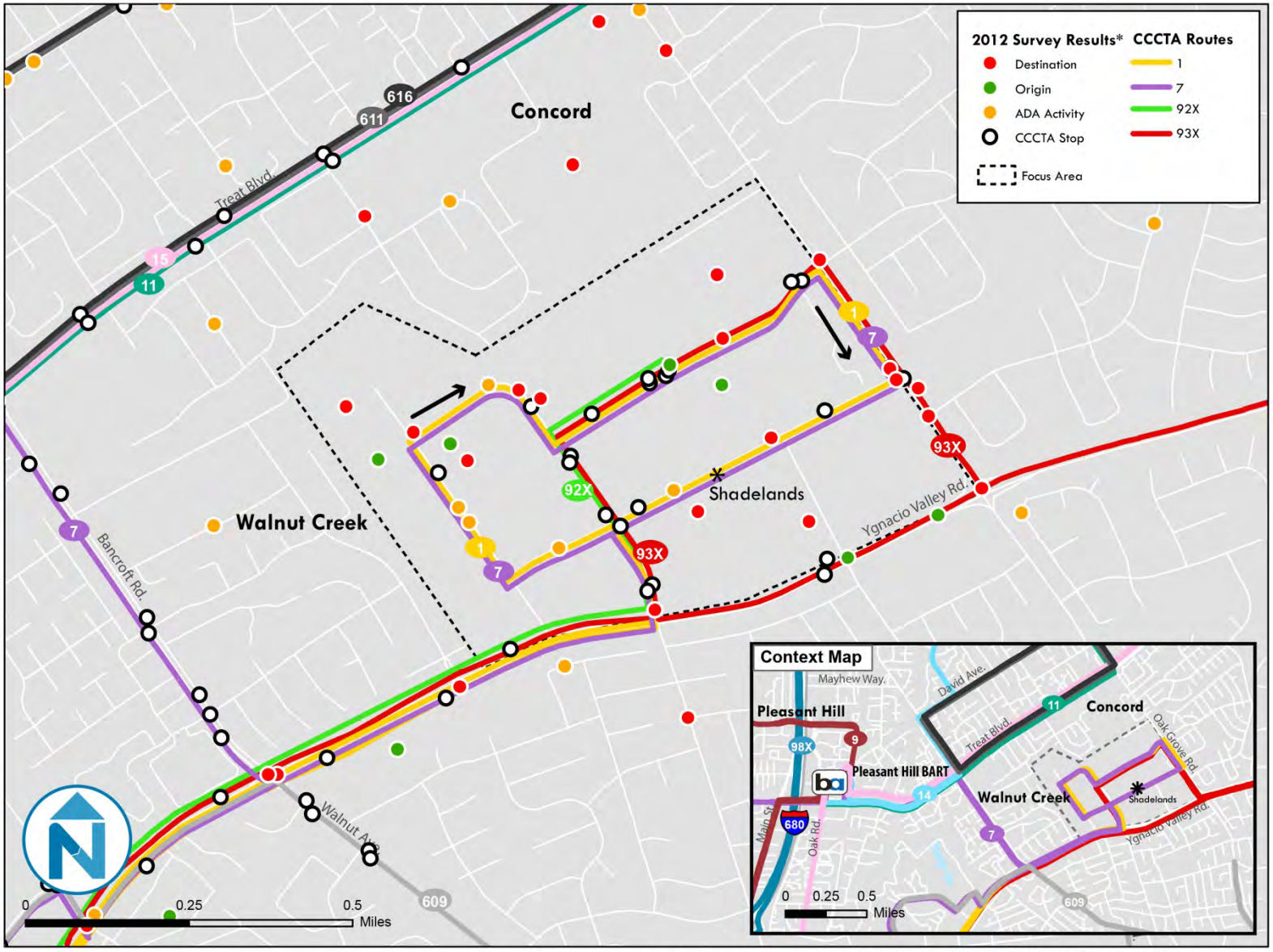
During the 2012 on-board survey, a significant number of origins and destinations were stated that fall within the Shadelands area. As can be seen in Figure 3-44there are destinations scattered throughout Shadelands. In addition, there is ADA activity concentrated at the medical facilities in Shadelands. Based on the rider survey, the majority of ridership activity occurs near the entrance on Wiget Lane and on Mitchell Drive. Boardings and alightings outside of the focus area are more sporadic.

Figure 3-44 Daily CCCTA Boardings in Shadelands



*Note: Boarding activity based on 2013 spring averages
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Figure 3-45 Snapshot of Origin-Destination and ADA Activity in Shadelands



*Note: Destination and origin data based on 2012 one-day survey and ADA activity based on 2012 one-day activity log
Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset

Demographics

The Shadelands area is primarily office and commercial development. 2010 LEHD Census Data provides characteristics about the jobs in the Shadelands area, including the home locations of those employed in Shadelands. According to 2010 data, there are 3,797 jobs in Shadelands.

Figure 3-46 provides the percentages of jobs based on the distance travelled to work by employees. As can be seen, a third of employees reside within 10 miles of their job, and another third are 10 to 24 miles from their job.

Employees of Shadelands travel from home locations all around the Bay Area. The highest concentration of areas where Shadelands employees reside are the Census tracts immediately surrounding the office park to the north, east, and south.

Figure 3-46 Distance Travelled to Work by Shadelands Employees

	Count	Share
Total All Jobs	3,797	100%
Less than 10 miles	1,233	32.5%
10 to 24 miles	1,282	33.8%
25 to 50 miles	654	17.2%
Greater than 50 miles	628	16.5%

Source: 2010 Census LEHD On The Map Tool

Local Outreach

The City of Walnut Creek is currently working with Shadelands business park tenants to establish future economic growth priorities and goals. Our project team has been working directly with City of Walnut Creek staff related to obtaining feedback and input on transportation issues for this focus area. During the time of the study, the City's Chamber of Commerce released a survey instrument to the businesses located in Shadelands and noted that information included within the survey would be shared with the consultant team when it was finalized.[15] However, based on previous discussions with local tenants several transportation-related priorities and issues have been raised.

- Current BART service is indirect[16]
- Better security is needed on Shadelands property (outside of buildings themselves)
- There is no organized association to manage or deal with transportation/commute related issues and/or benefits
- Existing parking is unregulated (campers, RVs and park-and-ride users will utilize Shadelands for long-term parking)

[15] Information is still pending.

[16] While County Connection does provide a connecting service between BART and Shadelands, there may be a perception that it is not direct or efficient since it is not specifically branded for Shadelands workers

4 SERVICE STRATEGIES

THE CHALLENGE OF FIXED ROUTES IN SUBURBS

Regardless of whether transit is operating in an urban, suburban or rural environment, there are several critical elements from a customer's perspective that need to be present (aside from the route network itself) to attract riders to the system. These elements are universally important and should be considered a foundation for any transit service.

- Bus service that is on-time and reliable
- Good pedestrian access to bus stops that are accessible, safe and convenient to attractors/destinations
- Signage (wayfinding) that make service recognizable and easy to understand
- Routes and service levels designed to meet customer needs in an efficient and attractive manner.

It is universally understood by transportation planners that generating transit ridership in suburban settings is more challenging than in urban settings. For that reason it is critical in suburban settings such as Contra Costa County that the system be designed to satisfy the basic criteria listed above. Without these foundational elements, transit service of any type will not be able to achieve its full potential.

Some key challenges for fixed route services in suburban settings are outlined below.

Service Environment

Suburban transit services typically operate in areas with development densities that are much lower than their urban counterparts. This is often the result of decades of constructing commercial buildings that are usually no higher than three floors, surrounded with ample parking and residential neighborhoods where the typical dwelling is a single family home on a ¼ acre lot. These factors contribute to an overall lower ridership potential within almost every corridor or community. Complicating matters is the fact

Figure 4-1 Challenges in the Pedestrian Environment

Roadways without pedestrian facilities create hazards for transit riders who ultimately walk to and from the bus stop

that most suburban areas were not constructed using a grid roadway network with an ample number of connecting through streets. Instead, the road network in many suburbs consists of cul-de sacs, low speed neighborhood streets and in general a circuitous overall street pattern. Lastly, the pedestrian network in suburbs is often incompatible with the basic act of walking. Paths aren't straight, sound walls block access and multilane arterials create a threatening environment for simply crossing a street.

These factors combined, it is clear why traditional fixed route transit, which performs best along developed arterial corridors, typically fail in the suburbs.

Travel Patterns

Most urban areas often have a traditional central business district and a high concentration of jobs and desired destinations in a compact area. Travel patterns to these core areas are often referred to as "many to one." This means that people come from many destinations (usually dispersed residential areas) to a central area like a central business district. Traditional transit is often very effective at serving many to one travel markets.

Suburban communities, on the other hand, tend to have very dispersed origins and destinations, creating what is known as a "many to many" style of travel patterns. This type of disaggregated travel is frequently very challenging to serve with fixed route transit and often requires riders to make transfers. Due to the low density nature, commute trips are generally longer for many tasks – making it challenging for transit to be competitive in terms of travel time and general route directness.

Ridership Characteristics

People living in the suburbs tend to have higher levels of vehicle ownership than people living in urban areas and this can make the use of transit less attractive to suburban dwellers. People living in suburbs will use transit for commute trips, especially for trips to an urban job center, provided that the transit service is perceived as faster, cheaper and/or easier than driving.

Characteristics of Fixed Route Systems

Currently, County Connection operates both fixed route transit service and supplementary paratransit service. Fixed route service is provided predominately by a fleet of 40' transit buses which are common to the transit industry in urban and suburban settings. These vehicles travel over a consistent, "fixed" route through the scheduled service and may make occasional, pre-planned deviations on certain trips. The 40' buses are best suited to operation on arterial corridors. They are typically not suitable (size, noise, etc) to operations on neighborhood and collector streets.

Figure 4-2 County Connection Fixed Route 40' Transit Bus

Fixed route services are often evaluated using standard performance metrics such as:

- Boardings per Revenue Hour
- Cost per Revenue Hour

While there is no specific universal threshold for what constitutes a "productive" route, there are numerous routes that exist in the County Connection service area that serve fewer than 15 riders per hour. Some may consider productivity levels in this range as potential justification to consider different strategies for providing transportation or in some cases, eliminating the route altogether. For urban fixed route public transportation systems a recent TCRP publication noted that routes with ridership productivity between 5-16 passengers per hour could benefit from an alternative service delivery model.[1]

Goals for Suburban Transit

Based on the most recent County Connection Short Range Transit Plan (SRTP), several performance standards are outlined for the fixed route system. Some selected performance measures from the SRTP are shown in Figure 4-3.

[1] TCRP Report 140: A Guide for Planning and Operating Flexible Public Transportation Services. 2010. Transportation Research Board.

Figure 4-3 Selected County Connection Short Range Transit Plan Goals

Metric	Systemwide Goal	FY 2010-2011 (actual)
Cost per Revenue Hour	Increases at rate less than inflation ($115.55)	$114.34
Cost/Passenger	< $7.00/passenger	$7.30
Farebox Recovery Ratio	18.0%	17.3%
Passengers per Revenue Hour	17.0	15.8
Passengers per Revenue Mile	1.31	1.44

While these performance metrics are industry-standard and are relevant for County Connection, the goals themselves may not be applicable to all components of the existing transit system. As an example, routes providing service to areas with very low transit demand may appear to be underperforming and may be candidates for elimination. However, these routes may in fact be providing an important service but the means of providing that service is not optimized.

It's useful to consider the following questions when thinking about transit performance standards in suburban settings:

- How should goals be structured and how should they be different for various parts of the service area?
- Who and what is the travel market we are trying to serve?
- For the study areas, what is the unmet/latent demand, if any?
- Do existing performance metrics seem realistic and reasonable universally across the service area?
- What defines a "good route" in suburban terms versus traditional urban fixed route systems?

FLEXIBLE SERVICE DELIVERY OPTIONS

This chapter outlines several alternative flexible or "adaptive" service delivery options for transit service. The service delivery options are not intended to be a wholesale replacement for fixed route service. Fixed route service and flexible services may be used throughout a service area and often complement one another depending on the ridership market being served.

Three service delivery models are described in this chapter including:

- Deviated Fixed Route
- Flex-Route/Zone Service
- Demand Response (Dial-a-Ride) Service

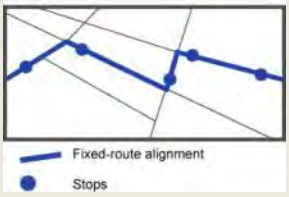
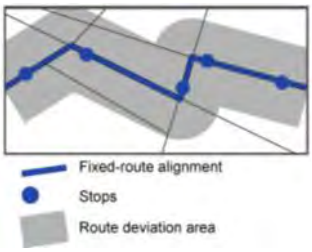
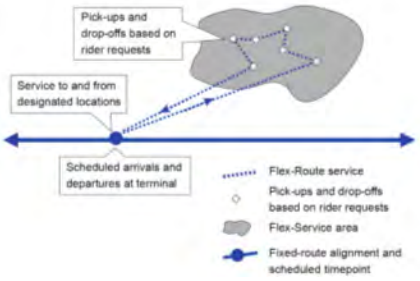
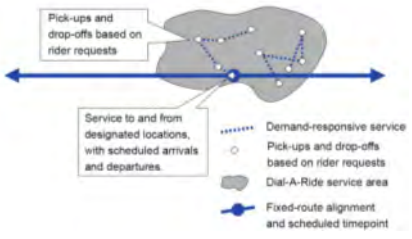
Figure 4-4 presents a summary of these service models in contrast to traditional fixed route service.

These three service types have been employed in numerous cities across the country with varying degrees of success. Based on a 2008 report, Denver Regional Transportation District (RTD) found five specific variables that have a high correlation to the performance of these transit service delivery options:

- Population density
- Employment density
- Senior density
- Youth density
- Median income

These variables could be used to identify choice areas where alternative service delivery options could be utilized to serve new markets for County Connection as well as to replace existing fixed route services that may be underutilized.

Figure 4-4 Flexible Service Delivery Strategies

Service Type	Description	Diagram
Fixed Route (Traditional Service)	Local service with fixed route and schedules (e.g., 30-60 minutes). Requires complementary ADA Paratransit (curbside pickups/drop-offs).	
Deviated Fixed Route	Local service with optional deviations (e.g., ¾ mile area) along a route to make curbside pickups/drop offs on demand.	
Flex Route/Zone Service	Local service with some fixed time points but offers curbside pickups/drop offs on demand in a defined zone.	
Demand-Responsive (Dial-A-Ride)	Point-to-point local service with curbside pickups/drop offs on demand.	

Passengers per revenue hour is also used to determine the need for different types of service options. For fixed route public transportation systems, such as County Connection, a recent TCRP publication noted that routes with ridership productivity rates between 5-16 passengers per hour are those that could benefit from an alternative service delivery alternative such as dial-a-ride or flex routes.[2] These types of services frequently use smaller vehicles such as mini buses or large vans. Flex routes are often given their own identities, with unique logos and color schemes.[3] The most common uses of flexible transit services include:

- Serving areas that are physically difficult to serve based on geography, street layout, etc
- Providing service during low-demand time periods when it might be too expensive to use traditional "big bus" service.

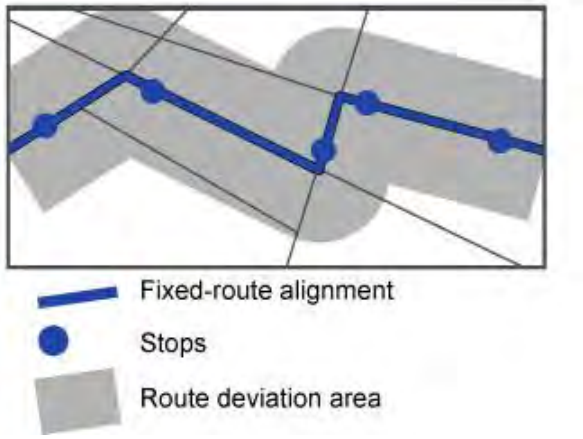
An additional consideration for these types of services is the ability to integrate fixed route and paratransit service. Traditionally, fixed route service must be supplemented by ADA-compliant paratransit services. In a time when agency budgets are tight, providing a service option that can blend these two services (and subsequent resources) into one can be a good option for providing cost effective service. However, providing an integrated fixed route and paratransit services brings drawbacks. In addition to productivity limitations, there are several other challenges that need to be resolved before effectively implementing a flexible service as defined above. Some challenges include:

- Funding for capital requirements (different vehicles, dispatching software if applicable)
- Marketing campaign to educate on the opportunities and limitations of a flexible service
- Labor agreements with existing service providers

The following section will describe each service strategy in greater detail and will outline service area characteristics that have been shown to be conducive for flexible transit services. Case studies are provided for each of the flexible service options.

DEVIATED FIXED ROUTE

Deviated fixed route services (route deviation) are a slight variation on a traditional fixed route service. Deviated fixed route services typically operate a pre-determined path, but allow for deviations up to a given distance (typically one-half or three-quarters of a mile) from the route to pick up or drop off passengers.



Deviated fixed route services are often used to extend the range of transit service and to eliminate the need to provide complementary ADA paratransit service in addition to fixed route service. However, as a tradeoff, deviated fixed

[2] TCRP Report 140: A Guide for Planning and Operating Flexible Public Transportation Services. 2010. Transportation Research Board.

route services are limited in their potential productivity (passengers per revenue hour) due to the scheduled time required for route deviations off the primary route. Among the options for flexible transit services, deviated fixed route systems tend to have the most "fixed service schedule" (as compared to zone systems or dial-a-ride/feeder systems).

Among flexible transit service strategies, deviated fixed route systems can be the best option when/where:

- Strong ridership destinations exist on either endpoint of the proposed route
- An existing (and necessary) transit corridor is modestly productive, but falls below existing service standards
- There are no nearby suitable transfer locations to a fixed route or regional transit service (in the case of developing a "feeder" service).

The following case studies are examples of deviated fixed route services:

Stockton, CA (Hopper Service)

San Joaquin RTD (typically referred to as RTD) is an intergovernmental transit district that provides service to Stockton, CA and many nearby cities including Lodi, Lathrop, Manteca and Tracy. RTD operates 36 fixed routes, regional commuter routes, and five deviated fixed route services. RTD began its operation in 1964 serving only the City of Stockton. In 1994, service expanded from Stockton to serve the remainder of San Joaquin County (Contra Costa County's eastern neighbor). In 2009, RTD introduced six deviated fixed route services within the City of Stockton that were intended to replace dial-a-ride service in the same area[3]. The Metro Hopper was designed and advertised as a "hybrid route" that combined elements of fixed route service and traditional dial-a-ride. Routes are served using smaller cutaway vehicles (12 passenger buses).

Figure 4-5 Metro Hopper Service

Source: The Stockton Record

A major impetus for creating the Hopper service was a need to reduce costs from paratransit trips. In 2009, RTD's paratransit service represented 2% of ridership but consumed 11% of the operations budget.

Unlike the previous dial-a-ride service which was "one ride, point to point", Some Hopper passengers might require a transfer to reach their final destination. Transfers may occur to either routes fixed routes or other Hopper routes.

The key feature of the Hopper service is its ability to make deviations up to one mile off of the traditional route (for ADA-eligible customers). The service covers approximately 75% of the Stockton Metro Area for ADA-certified customers.

[3] Some passengers can still qualify for traditional dial-a-ride service.

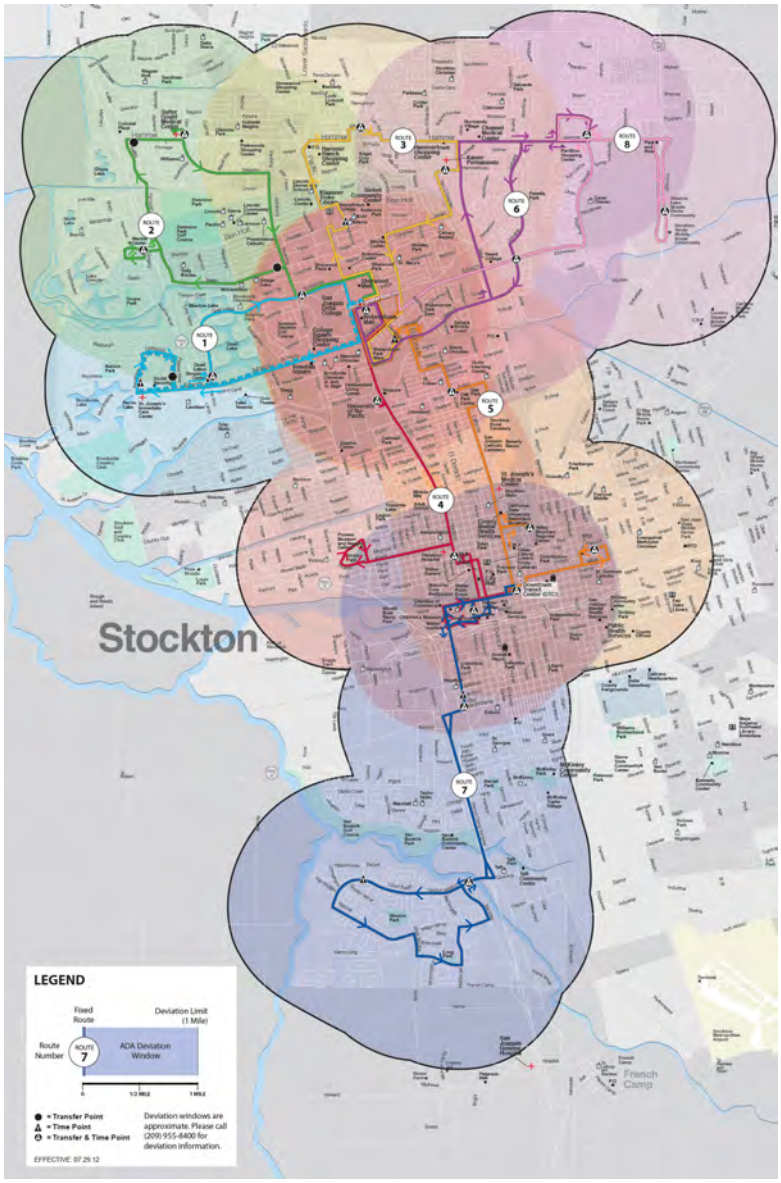
Metro Hopper service has the same fare as fixed route service. Adult trips are $1.50 and discounted trips are $0.75. A day pass is also offered at $4.00. Deviations (within one mile of the fixed route) are an additional $1.00 per deviation.

If an individual wishes to be picked up or dropped off, they must make a reservation at least one day in advance. Pick-ups from deviations require a 40-minute window (before and after the designated pick-up time). The Hopper service is contracted to MV Transportation.

The Hopper was designed to focus on several target markets including:

- Current ADA customers who could use a fixed route service
- Potential new ADA customers currently not riding RTD
- Local senior populations at assisted living centers
- Members of the general public

Figure 4-6 Metro Hopper Service Area



To ensure that trips are reliable and on time, each trip is limited to maximum of two passenger deviations.

Within the first six months of operations, the Metro Hopper, in combination with supplementary dial-a-ride service, experienced a 46% increase in ridership.[4]

[4] Information based on RTD website and presentation given at APTA Bus and Paratransit Conference. May 12, 2012.

The Metro Hopper can be credited with a very effective marketing and outreach campaign of its service. Upon initiation of the service RTD made a concerted effort to educate the public about the Hopper program, its benefits and how the program worked.

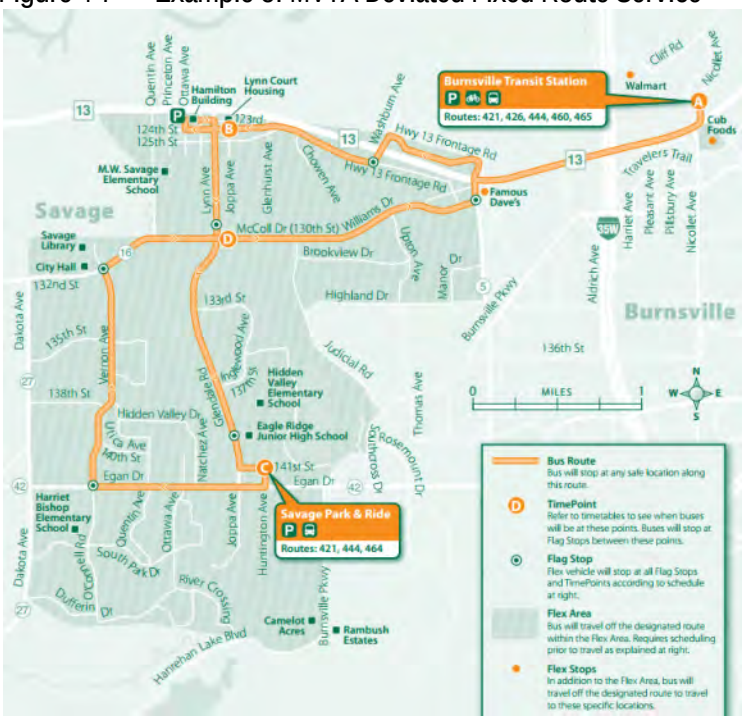
Minneapolis, MN

The Minnesota Valley Transit Authority (MVTA) was created in 1990 through an agreement between municipalities and counties in the Minnesota Valley area that opted-out of the Metro Transit service. MVTA provides service to five suburbs around the Minneapolis/St. Paul region. The MVTA service is designed primarily to provide commuter transportation connecting the residential suburbs surrounding the Twin Cities with major job and activity centers. In addition to fixed route services, MVTA operates two deviated fixed route services (route 420, 421) that can deviate within a pre-defined zone around the route. As compared to other deviated fixed route services, Routes 420 and 421 have selective service deviation areas including some portions of the route that do not allow for deviations at all. (As compared to other deviated fixed route systems that specify an approximate distance buffer around the route.)

For individuals who wish to be picked up or dropped off within the deviation area, riders are encouraged to make a reservation the day prior to travel. Fares for travel are different based on time of day. Base, non-rush hour fares are $1.75 while rush hour fares are $2.25. There is no surcharge for deviations.

MVTA Route 421 which services the City of Savage, MN is highlighted below. Savage is served by MVTA and SmartLink, operated by Scott County Transportation Program. The MVTA runs three buses in Savage, one of which provides service as a deviated fixed route service (Route 421). Route 421 is a deviated/flex route that travels between the Burnsville Transit Station and the Savage Park and Ride. The area shaded with diagonal stripes is the route deviation area in which the bus will depart from the regularly scheduled route to make stops reserved in advance. Regularly scheduled time points, shown in Figure 4-7, are located at the Burnsville Transit Station, in

Figure 4-7 Example of MVTA Deviated Fixed Route Service



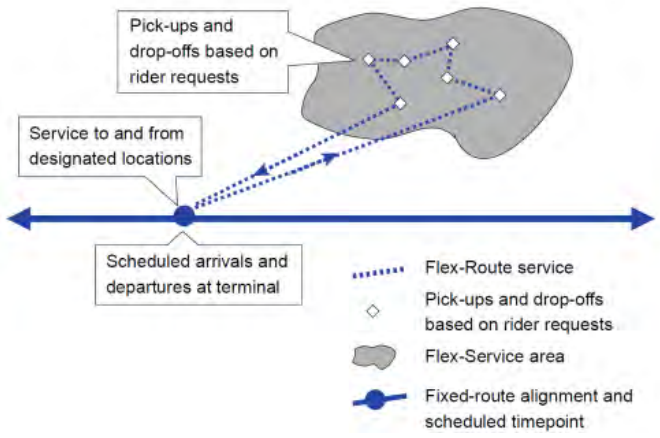
Source: Minnesota Valley Transit Authority

downtown Savage at 124th St/Joppa Ave, at the Savage P&R, and near McColl Dr/Lynne Ave. Between time points, buses stop at flag stops that are located along the route at key destinations such as elementary and junior high schools, City Hall and the library, and major commercial areas.

Figure 4-8 Summary of Deviated Fixed Route Case Studies

Case Studies	Stockton, CA (2011)	Twin Cities (2008)
Location	Stockton, CA	Suburban Minneapolis-St. Paul
Market Served	Urban-Suburban	Suburban
Passengers /Hour	3.4 (Routes 1-8)	5.3 (Routes 420, 421)
Number of Deviated Routes	8	2
Fare Structure	Fixed Route (full fare): $1.50 Deviated Routes: $1.50 ($1.00 per deviation)	Fixed Route (full fare, non-rush hour): $1.75 Deviated Routes (full fare, non-rush hour): $1.75

FEEDER/ZONE SERVICE



Feeder (or zone) service is unique in that it retains a level of consistency similar to a deviated fixed route yet it typically only has one or two fixed time points and a limited predetermined path (if any). Vehicles operate within a given service area (or zone) as long as they arrive on schedule at pre-determined stops or time points. Often the time points are located at transit hubs where passengers can transfer to trunk or express service. These services can take a wide range of forms. The most flexible example is a service that basically functions like a demand-response service and operates consistently between two hubs or time points.

Zone services are commonly designed to provide a basic level of transit service to a larger geographic area with minimal resources. Similar to deviated fixed route services, they are not intended to provide fast, direct service. Instead, they provide a consistent link between a geographic area and a key destination such as a transit transfer point (to make connections to other parts of the service area) or other destinations within the zone.

Among flexible transit service strategies, feeder/zone services may be most applicable under the following criteria:

- Areas where a circuitous road network makes providing fixed route service challenging
- Proximity to a transit hub or location that makes transfers seamless and convenient

The following case studies are examples of feeder/zone route services:

Golden, CO

RTD operates local, express, and regional bus routes and SkyRide, a regional bus service to the Denver International Airport; a regional system of five light rail lines called FasTracks; and Call-n-Ride, Access-a-Ride, and SeniorRide demand-responsive transit services.

RTD runs Call-n-Ride transit service in approximately 20 communities in the region. Typically, RTD's Call-n-Ride services run on a specified route with scheduled stops and passengers can make advance reservations (at least two hours and up to 2 weeks before the desired time) to be picked up/dropped off anywhere within the local Call-n-Ride service area. Riders can call the bus operator to schedule a pick up/drop off anywhere within the Call-n-Ride boundary or can be picked up/dropped off at one of the regularly scheduled timed checkpoints without calling in advance. RTD service standards specify Call-n-Ride areas to be between 4 and 10 square miles with 2 to 4 persons per acre and 1 to 3 employees per acre. Call-n-Ride services typically range from about 3 to 10 daily boardings per acre.

The City of Golden (18,900 residents) is partnering with RTD and the Colorado School of Mines to launch a local circulator bus timed with the opening of a new West Rail Line to provide transit service from the light rail station to destinations in Golden. The light rail station will be located in the southern portion of the city, and providing a transit (not exclusively park-and-ride) connection was a key motivation for both the City of Golden and RTD. The City was awarded a Congestion Mitigation and Air Quality (CMAQ) grant to perform a transit feasibility study. As an outcome of the study, the circulator bus model in Golden will operate as a Call-n-Ride service operated by RTD.

The Golden Call-n-Ride service will have scheduled stops at the West Rail Line light rail station, every 30 minutes during peak times and every 60 minutes at other times. As

Figure 4-9 City of Golden Local Transit Map (Call-n-Ride)

Area shaded in green reflects Call-n-Ride service area

illustrated in Figure 4-9, there are also several zones with specific checkpoints where customers can be picked up and dropped off; checkpoints may have a scheduled pick-up time when a reservation would not be required.

The City, RTD, and the Colorado School of Mines secured a 3-year federal grant to fund operation of the service. In the first two years, the grant will pay for operations of two buses, and three buses in the 3rd year. The City and the School of Mines are each contributing $50,000 in local matching funds. RTD is contributing savings from truncation of Route 17 at Red Rocks College, the next station to the east of Golden, and is paying for the cost of vehicles.

LATVA Direct Access Responsive Transit (Dublin, CA)

Livermore Amador Valley Transit Authority (LATVA) began operating DART service in Pleasanton and Dublin during May 1997. The start of service coincided with the opening of BART's new service to the East Dublin/Pleasanton Station. The original goal of DART was to provide a flexible service option that could replace under-performing traditional fixed routes that had been carrying 3 to 4 passengers per revenue hour.

DART had several zones with a common transfer point at the East Dublin BART Station. Riders could utilize the transfer point to transfer to other transit systems including BART, local fixed route buses, or other regional commuter services.

DART provided off-peak (mid-day, weekend and evening) service to and from the East Dublin BART station on a fixed schedule. It would serve riders traveling anywhere within the service zone. Similar to a dial-a-ride service, DART responded to telephone requests for service and plotted a flexible route within its zone to meet requested needs. At the BART Station, passengers could board and state their destinations to the driver, who would provide service so long as the rider's destination was within the designated service zone. For pickup, passengers within the zone could call in advance (usually two hours or more), and asked to be picked up.

In December 2005, LAVTA decided to eliminate DART service because ridership demand was outstripping the capacity of the system. DART was subsequently replaced with several new fixed routes that built upon the travel patterns identified during the operation of DART.

Some specific challenges for LATVA related to DART included the large burden on dispatch and customer service staff, a need for strong geographic familiarity for drivers and dispatchers, and the unpredictable nature of service at service points that were not designated as a time point. Furthermore, language barriers existed due to the high level of reliance on phone conversations to provide service. However, the program was successful in the regard that it helped increase public transit usage in the area and provided the foundation for fixed route service. The cost of the LAVTA service when it was in operation was consistent with the general LAVTA fare structure for fixed route service.

Omnitrans Omnilink (San Bernardino, CA)

The Omnilink service is a publicly-accessible demand-response service that provides curb-to-curb service in Yucaipa, Chino Hills and portions of Calimesa. Omnilink vehicles provide connections to/from the Omnitrans fixed route service or any destination within the Omnilink service area. Similar to the other general public dial-a-ride services, Omnilink requires reservations that can be scheduled up to three days in advance or on the same day. Same day rides may be subject to availability. "Repeater" or subscription service can be scheduled one month at a time provided the

pick-ups are at the same time at least three times a week. Cancellations must be made within two hours of a pick-up time.

Fares for Omnilink service vary from $3.00 for regular fare, $2.00 for students, $1.50 for seniors and those with disabilities, and free for children 46" and under. Ten ticket booklets are also available for all of the fare categories. Omnilink riders can transfer free of charge to Omnitrans fixed routes with the option of exchanging their Omnilink fare for a Day Pass up to two hours after the original boarding. Figure 4-10 below shows the service area for the Chino Hills Omnilink service.

The Omnilink service began in 2002 with three different service areas, one of which was eliminated due to poor performance (farebox recovery ratio of 4-5%, as compared to roughly 10% for the other two service areas). Prior to Omnilink service, there was no local public transportation serving these communities. Omnilink vehicles have been exclusively branded and are used only for Omnilink service.

Omnitrans staff noted that a longer-term goal is to transition the Omnilink service from its current general public dial-a-ride to a deviated fixed route service. They recognize that a major hurdle in doing so would be in educating the public in how to use this type of service.

Figure 4-10 OmniLink Service

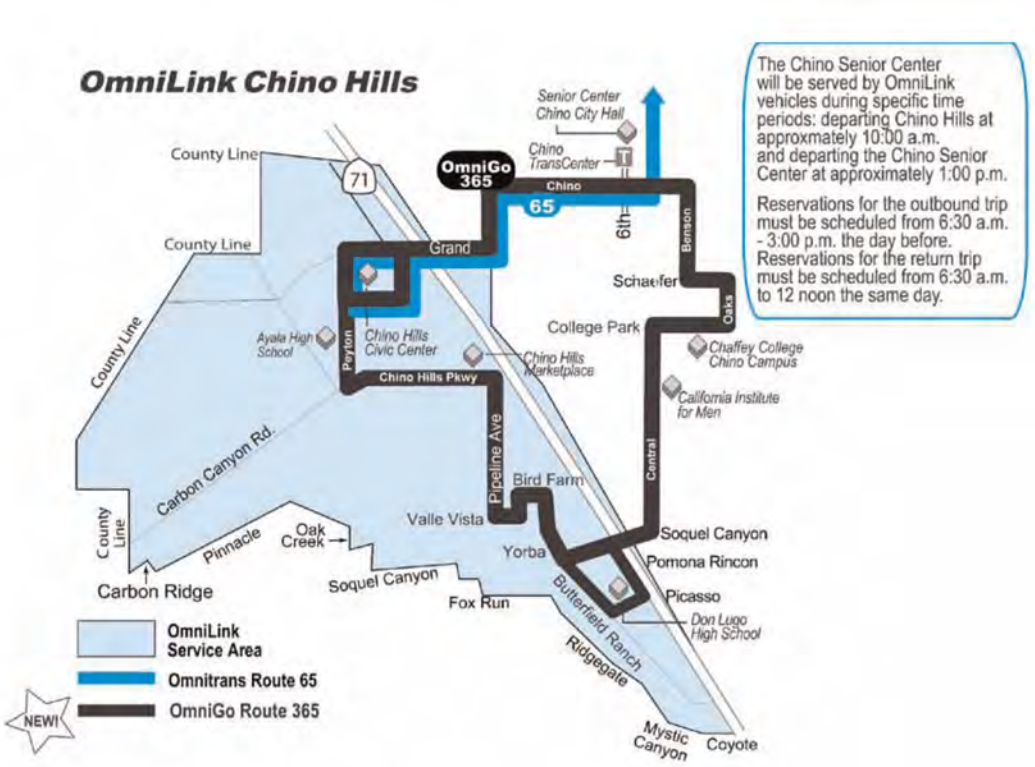


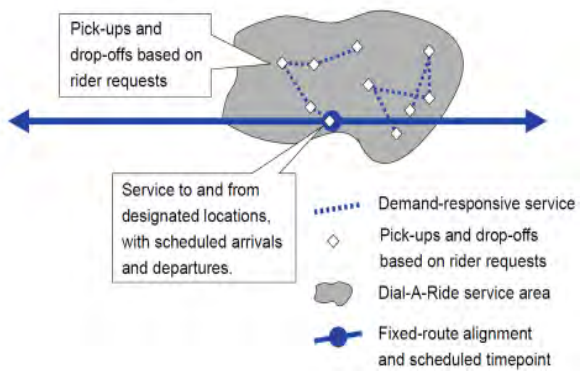
Figure 4-11 Summary of Flex-Route Services

Case Studies	RTD Call-n-Ride	LAVTA DART	Omnitrans OmniLink
Location	Golden, CO (Denver Region)	Livermore-Amador Valley, CA	San Bernardino, CA Region
Market Served	General transit riders in Golden, CO	Off-peak service to and from BART Station for riders in portions of Dublin and Pleasanton.	General transit riders in Chino Hills, Grand Terrace and Yucaipa, CA.
Passengers /Hour	9.0	3	2.91
Number of Routes	Numerous (up to 24 areas served)	Five	Two
Vehicle Type	Cutaway vehicle	24-27 foot cutaway vehicle	Cutaway vehicle
Fare Structure	$2.25 (within one Call-n-Ride Area)	N/A	$3.00 Full Fare

GENERAL PUBLIC DIAL-A-RIDE

General public dial-a-ride is similar to paratransit services or County Connection's Link service with the exception that it is open to the general public. General public dial-a-ride is most effective in areas of low-density development or areas with widely dispersed trip generators that would otherwise be difficult to serve with conventional fixed route transit.

Service is initiated by calling to request a ride. Vehicles are then dispatched to pick up and drop off passengers in a designated service area based on the requested origins and destinations. Service areas may be designed to serve local trips only but are often inclusive of some type of connections to regional transit providers (similar to a zone service). Advance reservations typically vary between 24 hours and up to five days. Dial-a-ride services use smaller vehicles than fixed route services such as small buses or vans that are more fuel efficient, can more easily navigate narrow streets, and are better suited to smaller passenger loads. Although dial-a-ride services are relatively simple to operate, they require more communication equipment compared to a fixed route services including dispatching equipment and real-time information software for managing reservation requests.



Among flexible transit service strategies, general public dial-a-ride services may be most applicable under the following criteria:

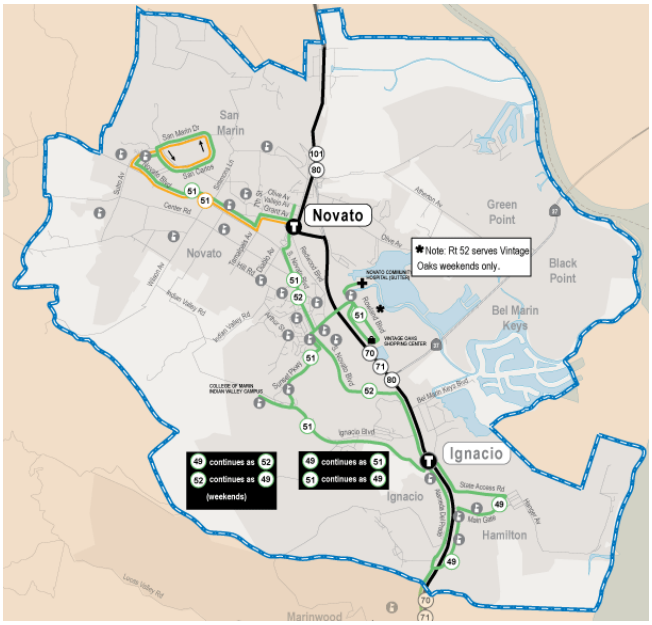
- Areas where a circuitous road network makes providing fixed route service challenging
- Many origins and destinations within the same general zone
- Limited demand for transfers beyond the zone

The following case studies are examples of general public dial-a-ride systems.

Novato Dial-a-Ride (Marin County, CA)

The Novato Dial-a-Ride is a special general public service provided by Marin Transit. It is designed to fill gaps in the local fixed route network and provide additional service to areas that traditionally would not be served by fixed routes. The Dial-a-Ride can be used to make a complete trip within the City of Novato or to connect to/from fixed routes that serve destinations outside of the City limits. In 2013, as a result of the Novato and Tiburon Transit Needs Assessment, Marin Transit proposed adding service to a senior center and human needs facilities on select days on weekdays. There is also a proposal to begin operating one hour earlier on weekdays, transitioning from a 9:00 am start to a 8:00 am start time.

Figure 4-12 Novato Dial-A-Ride Service Area



Curb-to-curb service is provided within the Novato service area (See Figure 4-12). Advance reservations are required and can be scheduled seven days before a trip up to the day of travel (if availability exists). Passenger fares on the Novato Dial-a-Ride are consistent with other trips on Marin Transit ($2.00 adult, $1.00 for youth, seniors, and those with disabilities, free for children six and under) and transfers from other local systems are honored.

Monterey-Salinas Transit On Call (CA)

The Monterey-Salinas Transit (MST) On Call service provides publicly-accessible demand response service to portions of the MST Service Area (South County, Marina). On Call service is typically provided anywhere within the areas that are not served by traditional fixed route transit. The service operates within a pre-defined service area and provides connections to fixed route transit service or round-trip service to/from destinations within the On Call service area. Reservations are required and can be made up to one hour before scheduled pick-up time. Recurring reservations can be made on a daily, weekly, or monthly basis.

The On Call service was initiated in 2007 in Marina and in 2010 in South County (Gonzales). It was based on a previous general public dial-a-ride service known as DART that operated between 1999 and 2007 with mixed success. It had reliability issues related to dispatching which ultimately led to its demise It was later converted back to a fixed route structure. However, it continued to suffer from low productivity, and was replaced in 2007 with a system modeled after LAVTA's DART.

The dispatching operations were revamped along with other minor service modifications and it was converted back to the On Call service. In 2010, the South County On Call began operations to augment On Call service in the Marina. On Call service uses 17 passenger minibuses which are

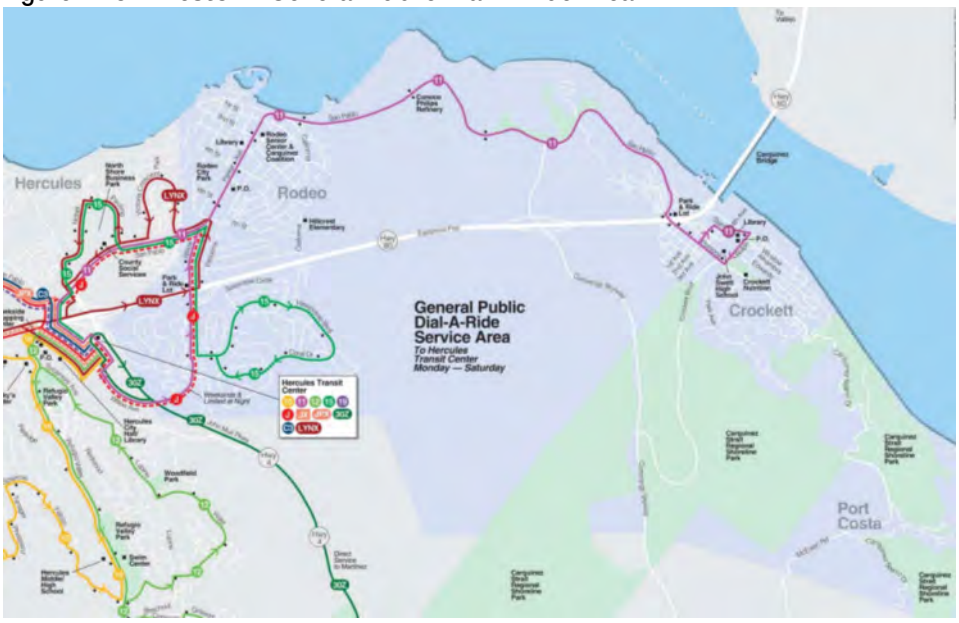
used interchangeably with regular fixed route service. Fares for the On Call service are $1.00 for adult and $0.75 for youth, elderly, disabled, or Medicare care holders. MST passes are also accepted on the On Call service vehicles.

MST staff offered some advice to agencies considering general public dial-a-ride service. They emphasized that the level and quality of dispatching services is critical. MST utilized a contracted dispatching service when operating DART which ultimately led to several instances of miscommunication between drivers and dispatchers, missed pick-ups, and other service-related problems. These incidents ultimately reduced service credibility and customer confidence in the service, which negatively impacted ridership. MST staff cautioned that steps should be taken to ensure dispatcher reliability and quality before initiating this type of service.

WestCat Dial-A-Ride (CA)

The Western Contra Costa Transportation Authority (WCCTA) provides service to just over 20 square miles of West Contra Costa County including the cities of Pinole and Hercules. WCCTA (otherwise known as WestCAT) provides a variety of services including fixed route, dial-a-ride (DAR) and commuter express services to San Francisco. Curb-to-curb DAR transit service is provided to the entirety of the service area on weekdays and Saturdays. The service is primarily focused on persons with disabilities or seniors 65 years of age or older within the general service area. In certain segments of the service area, the service is open to the general public (Port Costa, Crockett and Rodeo). These areas are the exception due to the steep topography and a road network that makes traditional fixed route transit more challenging to provide.

Figure 4-13 WestCAT General Public Dial-A-Ride Area



In the past several years, the DAR service has continued to provide service to seniors and the disabled. However, the proportion of the general public using the service has dropped. Based on WestCAT reports, this drop has been caused by the enhancement of fixed route service in both Crockett and Rodeo and a price increase in 2008. In FY 2011/2012, only 35 passengers of the general public were recorded using the DAR service (total of 42,219 trips in total).

Figure 4-14 Summary of General Public Dial-A-Ride Services

Case Studies	Marin Transit *Novato Dial A Ride*	Monterey-Salinas Transit (MST) *On Call*	WestCat Dial-a-Ride
Location	Novato, CA	Monterey County, CA	Contra Costa County
Markets Served	Novato residents/employees. Internal trips within service area and to connect riders to fixed route transit.	Local trips in Marina and Gonzales who don't have access to fixed route transit.	Monday-Friday, members of the general public in Port Costa, Crockett and Rodeo may use service.
Passengers per Hour	Not Available	3.7	3
Number of Service Areas	One	Two	One
Fare Structure	$2.00 Adult	$2.50 fare Adult	$4.00

PERFORMANCE MONITORING AND STANDARDS

When implementing flexible services, performance standards should subsequently be modified to fit the service type. Based on past research, few transit systems have been shown to have specific standards for deviated fixed route, zone or general public dial-a-ride systems. However, it can be assumed that any proposed service standard would be lower than an agency's service standards for fixed route service. Based on TCRP Report 53 *Operational Experiences with Flexible Transit Services*, half of surveyed transit agencies (12 of 24) stated that they do not have minimum performance measures for flexible services. In some of these instances, the exclusion of performance standards was done intentionally, providing the agency with greater flexibility in evaluating route performance. In other instances, agencies did not provide different service standards due to the difficulty in capturing information about the performance of their flexible services separately from other services. This issue was due to operations being too closely integrated to allow for convenient separation of performance measures.

As a measure of consistency, it is recommend that fixed route systems and flexible services use similar performance metrics. The most common means of evaluation remains passengers per revenue hour. If County Connection wishes to implement some type of flexible transit service, it should continue to use passenger per revenue hour as a service standard but reduce it to a level that will be below the existing fixed route standard, but above what would be estimated for a simple dial-a-ride.

Figure 4-15 below provides examples of other transit agencies use of fixed route service standards and how that compares against proposed standards for flexible or "adaptive" transit services.

Figure 4-15 Flexible Service Standards[5]

	Passengers per Revenue Hour Fixed Route Service	Passengers per Revenue Hour Flexible Transit Service
Sarasota County Area Transit	12 to 16	8.8 for combined flexible and fixed route for one grant-funded service.
Minnesota Valley (request stop)	10 – 11	8 - 9
Fort Worth	$3.50*	$11 - $13*
Minnesota Valley (point deviation)	10 – 11	5 - 6
Madison County (planned flex route)	6	3

*Subsidy per passenger

While riders per passenger hour is the most common metric, it should not be the only metric. When applying flexible service to an area, it is likely the area has specific reasons why service is maintained that may not be easily quantifiable. Other potential service metrics that could be considered include:

- Subsidy per Passenger
- Cost saved per revenue hour (as compared to operating a fixed route and paratransit service)
- Area (spatial area) served per revenue hour

[5] As referenced in TCRP Report 140 *A Guide for Planning and Operating Flexible Transportation Services*

A challenge with establishing service standards for flexible service options is that a maximum threshold of productivity theoretically exists. This maximum is due to the flexible nature of a service that requires time to allow for deviations – which inherently limits the upper bound of productivity. Four transit systems described maximum ridership levels above which they would not consider implementing flexible transit services.

Figure 4-16 Maximum Feasible Ridership on Flexible Services

	Standard	Estimated Maximum
Corpus Christi	none	10
Madison County (planned flex route)	3	8
Minnesota Valley (point deviation)	5 to 6	About 8
Minnesota Valley (request stop)	8 to 9	About 15[6]
River Valley Transit District	none	7

Fixed Route vs. Flexible Route Thresholds

As a route becomes more or less productive over time, one may inquire about the right threshold or "tipping point" to convert a route to or from a flexible service. It is unlikely that achieving or falling below a certain number will automatically trigger a conversion given the numerous factors that should be under consideration. Instead, some agencies may define a threshold where a route will come under *consideration* for review and then review additional characteristics such as destinations served by the route, boarding patterns at specific stops or the considerations of providing (and funding) separate ADA service in addition to fixed route service.

TRANSIT SUPPORTIVE SERVICES

The previous section identifies several flexible transit services that may be considered by County Connection for the four focus areas as part of the study. However, depending on the nature of challenges within each focus areas, improving transportation and mobility options may not warrant a change in public transit service at all. There might be other strategies for improving mobility, which do not rely directly on transit service. In these cases, County Connection could serve simply as a partner to help initiate, support, or advocate for these types of solutions with local governments or other organizations. This section outlines several transit supportive services that may be suggested within the four focus areas.

[6] The request stop service functions more similarly to a fixed route service, thus its estimated service maximum is higher than its point deviation service equivalent.

Circulator Shuttles

Circulator shuttle's intent is to connect employment locations (including colleges and hospitals) to a regional transit center (station) enabling access to jobs that are too distant from the station for a convenient walk. Circulator shuttles are included in the "Transit Supportive Services" section since they provide a different service focus as compared to a flexible transit service, even though shuttles themselves can be the size of a 40' transit vehicle.

Figure 4-17 Shuttle Serving Caltrain Commuter Rail

Shuttle services can be effective in several situations such as:

- Providing a connector to and from a regional transit center or station with employers, institutions or other transit centers (e.g., airports and train stations)
- Serving as a circulator in a neighborhood or large employment or mixed use complex
- Supplementing public transit service along busy corridors or major thoroughfares
- When a creative, unique and identifiable marketing campaign and incentives are developed to build shuttle ridership, in collaboration with community partners

Shuttle services provide point to point transportation, or between one point and many to fill gaps or make connections with the broader public transit network, often for specific groups of individuals. Shuttle services typically serve riders in a well-defined area or along a specific route and provide convenient and direct service to desired destinations. They function as an important first mile/last mile connection and often connect a regional rail station, such as the Martinez Amtrak station, with residential areas in the immediate surrounding area or with major employment sites. Shuttles fares are usually free or nominal and are often funded through public/private partnerships.

A good shuttle planning effort requires an understanding of the potential market and costs, necessitates policy direction from participants, identifies the service characteristics that will best meet the market needs, and will include an effort to design a shuttle to address the markets.

Vanpool and Carpooling

Vanpool programs may be organized formally through an employer or less formally through coordination services that work to match riders with similar commute patterns. Typically vanpools utilize passenger vans that carry between seven to 15 passengers (including the driver). The vehicle itself may be owned by one of the vanpoolers or it may be leased from a vanpool rental company. These types of services often work best when a van's riders' origins or destinations are clustered relatively close together.

Carpools may be formal - arranged through an employer, public website, etc. - or casual, where the driver and passenger might not know each other or have agreed upon arrangements. Carpooling is the shared use of a car by the driver—usually the owner of the vehicle—and one or more passengers. When carpooling, people either get a ride or offer a ride to others instead of each driving separately. Carpooling arrangements and schemes involve varying degrees of formality and regularity.

In the case of either vanpooling or carpooling programs, County Connection would not operate either service directly, but could play an active role in working with 511 Contra Costa and/or major employers and providing information about the benefits of vanpooling and carpooling. Furthermore, County Connection could play a role in marketing these types of programs to employers or the general public. Costs for such coordination efforts would depend largely on level of involvement.

Carsharing (Traditional or Peer to Peer)

Carsharing is a rental car service that offers vehicles for rent by the hour or a similar shorter time period than conventional rental car services. The service reduces the need for businesses or households to own their own private vehicles, reducing transportation costs and vehicle miles traveled (VMT). Carshare vehicles available near a person's place of work or school can enable them to commute to work via other means, and use a car during the day only as needed.

Traditional carsharing companies and Peer to Peer (P2P) operate similarly from the perspective of the user (driver), however are somewhat structurally different from the vehicle owner perspective. Traditional carsharing companies (such a Zipcar) own their fleet of vehicles whereas a P2P provides a platform from which everyday car owners can rent out their vehicles for a fee. In either scenario, County Connection could play a role in coordinating the expansion (or introduction) of carsharing services within the service area. It is very unlikely that County Connection would take any direct role in implementing a carsharing service. However, there is an opportunity for carsharing expansion given there are very few existing carsharing pods in the current service area.

Figure 4-18 City CarShare Vehicle

Figure 4-19 Bay Area Bike Share

Source: Nelson\Nygaard

Bicycle Sharing Program

Bike sharing is a form of bicycle rental where people can have access to a shared fleet of bicycles on an as-needed basis. Bicycle sharing programs provide safe and convenient access to bicycles for short trips, such as running errands or transit-work trips. The international community has experimented with bicycle

sharing programs for nearly 40 years. Until recently, bicycle sharing programs worldwide have experienced low to moderate success; in the last five years, innovations in technology have given rise to a new (third) generation of technology-driven bicycle sharing programs. These new bicycle sharing programs can dramatically increase the visibility of cycling and lower barriers to use by requiring only that the user have a desire to bicycle and a smart card, credit card, or cell phone. Similar to carsharing, County Connection would likely play a very small role in implementing any type of bicycle sharing program. However, it could play a major role in marketing and promoting a program to its users.

Transportation Management Association

A Transportation Management Association (TMA) is a non-profit, member-controlled organization that provides transportation services in a particular area, such as a commercial district, mall, campus or industrial park.[7] A TMA's particular focus is on more efficient use of transportation and parking resources to *support economic development*. It is generally a public-private partnership, consisting primarily of area businesses with local government support. For the most part, TMAs form as 501 (c) (4) or (6) under federal non-profit statutes.

TMAs provide an institutional framework for programs and services and allow employers to collectively provide transportation services. This collective framework can create economies of scale, leverage and equity, which also allow small employers the opportunity to provide commute trip reduction services comparable to those offered by large companies. TMAs provide a variety of services that encourage more efficient use of transportation and parking resources. Such services can include:

- Access Management
- Advocacy
- Education and Outreach
- Flextime Support
- Guaranteed Ride Home Services
- Coordinated Incentive and Reward Programs
- Individualized Commute Trip Planning Services
- Marketing and Promotion
- Parking Management
- Pedestrian and Bicycle Planning
- Rideshare Matching and Vanpool Coordination
- Shared Parking Coordination
- Telework Support
- Transit Fare Products and/or incentives
- Transit Improvements
- Transportation Access Guides

In addition to developing and coordinating transportation management strategies, a TMA can bring a variety of stakeholders together to jointly address transportation challenges – and to give

[7] Outlined in the *Transportation Demand Management Encyclopedia* (Victoria Transport Policy Institute, 2010),

stakeholders a unified voice in advocating for enhanced transportation investments and coordination in their area. TMAs often represent the only organization providing private sector decision makers and full coverage of a geographic area with common transportation challenges; this can offer a unique forum for coordination of public and private transportation programs in a downtown area.

Regional or local governments, chambers of commerce, downtown business associations or internal management of a major facility/campus can help create a TMA. Affiliation with existing business associations is common to many TMAs, which allows for integration of an aggressive and innovative transportation management program into a broader downtown economic development program and vision.

5 SERVICE PLAN

This chapter provides an in-depth investigation of three final focus areas selected for additional analysis and recommendations. Recommendations included as part of this chapter include service alignments and other transit characteristics such as frequencies, service hours and other considerations to provide a improved service in each focus area.

SELECTION OF FINAL FOCUS AREAS

Based on research and on-the-ground observations in each of the four original focus areas, each site could benefit from transportation service modifications. However, the areas with the greatest opportunity for improvement through transit or transit-supportive changes include the following:

- Trotter/South Walnut Creek
- Downtown Martinez
- Shadelands

Trotter/South Walnut Creek

The Trotter/South Walnut Creek focus area conveys two very different stories. Based on the low-density residential land uses and absence of major destinations, Trotter/South Walnut Creek (specifically, areas south of Rudgear Road) has little potential for near-term growth in transit ridership. From a transit operations perspective, it is challenging to justify the need and relevance of traditional fixed-route transit service in this neighborhood. Existing service (Route 2) experiences very low route ridership and productivity, which could warrant the introduction of a flexible service type. However, given that many other neighborhoods in the central county with similar land use characteristics do not have any transit service, even a flexible service type may not be warranted in this area.

On the contrary, the Creekside Drive area has characteristics that lend itself to successful transit service. The combination of high-density housing, constrained parking supply and roadway options that limit access to the area suggest that transit could be competitive with drive alone trips. While the pedestrian network and connectivity is constrained, the area's proximity to shopping and recreational trails would be supportive of transit service modifications that better serve local needs.

Martinez

Downtown Martinez's combination of jobs density, walkable street network, and relatively close major regional destinations make it an interesting candidate for improvements.
Feedback from stakeholders and a review of local demographic data shows that a need and desire for transportation services exists, yet current transit does not seem to fully capitalize on these

specific needs. Intra-Martinez trips between the downtown core, the County Regional Hospital, and retail on Route 4 may be travel markets that could be more efficiently served by transit.

Shadelands

Shadelands is the only commercially-focused (primarily office) site of this study. It is worth noting that that many employees who work at Shadelands reside in areas adjacent to or nearby the office park, therefore it may benefit most from improving access for non-motorized transportation modes. Further investigation of this site may include recommendations for "transit-supportive" strategies rather than flexible or route modifications. Currently, Route 1 and Route 7 provide transit service between Shadelands and the Walnut Creek and Pleasant Hill BART Stations. However, these do not provide direct, frequent service and may not attract regular commuting employees who would otherwise drive and have access to free parking. As a result, a dedicated Shadelands shuttle may be viable and is a service that has garnered interest from the local business community.

TROTTER/SOUTH WALNUT CREEK

This section will describe the proposed service recommendations in the Trotter/South Walnut Creek Focus Area.

Service Goals

Trotter and South Walnut Creek (Creekside Drive) provide an opportunity to take existing resources on current local routes (Route 2 and Route 5) and provide alternatives that more effectively serve those markets. The goals for service concepts for this focus area include the following:

- Capitalize on potential ridership opportunities
- Analyze existing routes to determine if they effectively serve the area (Routes 2, 5, 21)
- Reduce operating costs on low performing routes by investigating adaptive service strategies
- Maintain or enhance rider experience
- Stay within existing financial resource levels

Key Factors for Service Changes

Based on previous research and observations in this focus area, several issues stand out as factors for potential service changes.

- **Low ridership along San Miguel Drive:** Much of Route 2 has poor ridership performance, particularly the segment of San Miguel Drive between Newell and Mountain View. This segment of Route 2 should be considered for elimination in favor of other use of the resources. The loop turnaround of Route 2 has stronger ridership and may be justified, but potentially could be served through a different service type.
- **Low mid-day ridership in Trotter Neighborhood:** Based on discussions with operators, there is considerable feedback that mid-day service in the Trotter neighborhood is unnecessary based on existing ridership patterns. This is further supported by demographic information that indicates this area is far less transit-dependent than other portions of the study area.
- **Traffic speed and parking issues in evenings in Creekside Drive:** Based on weekday evening observations and discussions with neighborhood residents, the high-density and low off-street parking availability along Creekside Drive results in a high amount of "circling" for parking along a constrained corridor. This sometimes results in erratic driver behavior (speeding, unexpected U-turns) from drivers and unsafe conditions for pedestrians. However, the limited parking availability presents an opportunity for transit service to succeed.
- **Complaints of Route 5 trip travel times:** Both operators and Creekside residents provided feedback that Route 5 in its current alignment takes too long (residents) or is difficult to operate due to limited schedule (operators). Operators specifically called out that the Civic Drive and Parkside Drive portion (northern loop) of the route is unnecessary and adds additional time to the route.

- **Proximity of Civic Drive to Route 4:** Operators have noted the low ridership on Route 5 on Broadway/Civic Drive. It is believed that this may be due to the close proximity and cost of the Free Ride Downtown Shuttle (Route 4).

Service Strategies

Given the factors noted above, several service modifications were discussed including retention of fixed route service for both Route 2 and 5, and alternatives that suggest eliminating Route 2 altogether. For this focus area, several variants have emerged, each with distinct disadvantages and advantages. These variants are not mutually exclusive alternatives, but can be "mixed and matched" to provide different approaches to service in the South Walnut Creek Area.

Route 2 Variants

Realignment to Rudgear Road

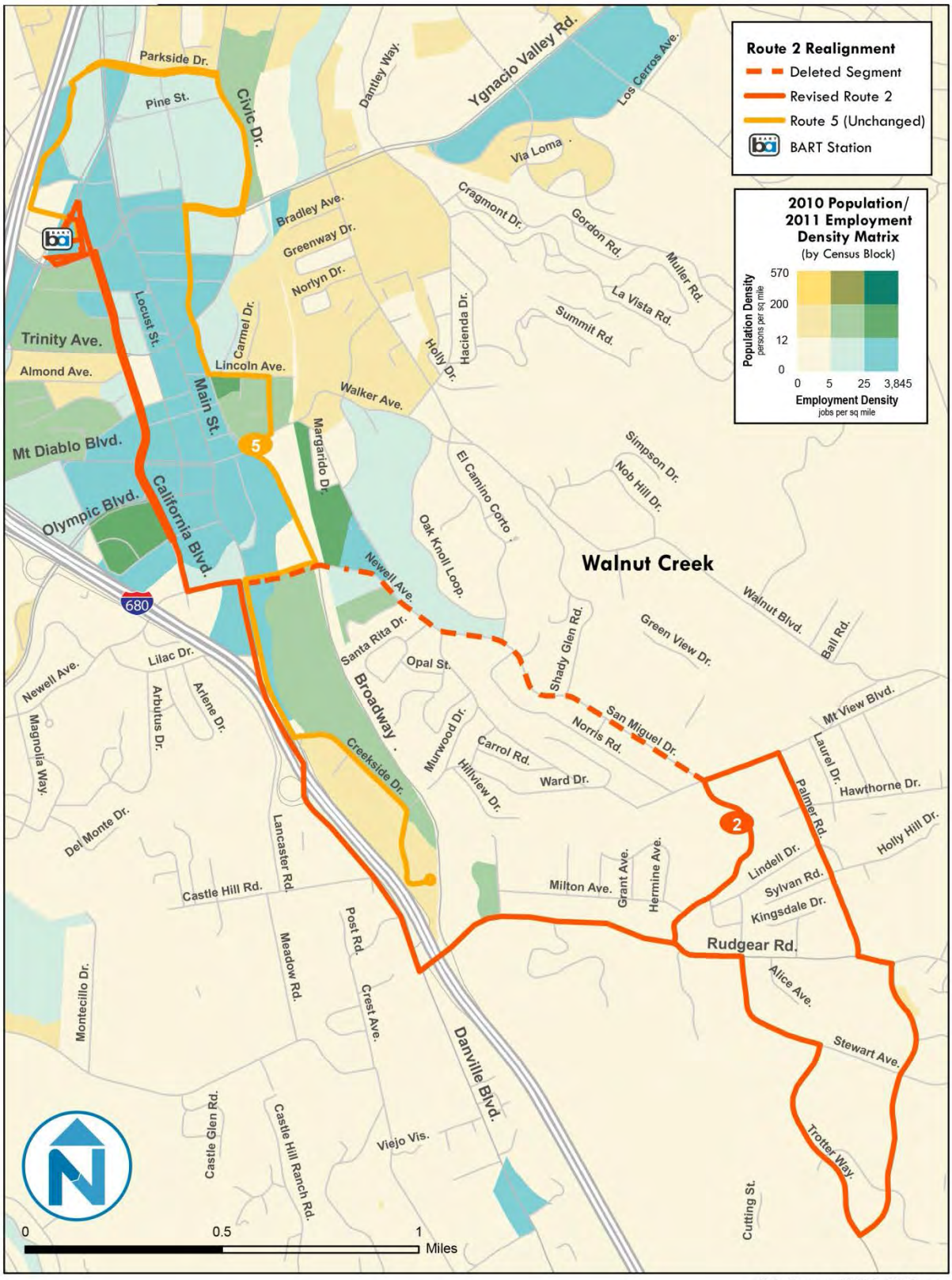
A modification to Route 2 would include the realignment of low-performing segments of the route. Presently, Route 2 completes its one-way loop entering and departing via San Miguel Drive. The segment of San Miguel Drive between Newell Avenue and Mountain View Boulevard typically attracts very low ridership (less than three daily boardings). A variant of Route 2 would maintain the one-way loop at the route's terminus, but would change the alignment to follow South Main Street, Danville Blvd, and Rudgear Road. This alignment is not optimal given the limited potential for new ridership along most of its path which includes adjacency to Interstate 680 and hilly terrain. However, it does provide an opportunity to pass the entrance to Creekside Drive, providing additional service to the current bus stop for Route 21. As a result, this variant could increase the frequency of service to Creekside Drive while maintaining existing service levels to the majority of Route 2. This routing alignment adds approximately 1.6 miles (round-trip) as compared to the San Miguel Drive alignment, but this additional time may be offset through various strategies that include shortening Route 5:[1]

- Elimination of the Parkside Drive segment of existing Route 5 due to low ridership. This modification would eliminate approximately 2.4 miles of run time.
- Elimination of North Broadway and Civic Drive segments of existing Route 5 in favor of a more direct path to the BART station on California Boulevard (similar to how Route 2 operates today).

Both of these Route 5 strategies will be described in greater detail in the next section. The realignment of Route 2 is shown in Figure 5-1 below.

[1] Since Route 2 and Route 5 are currently interlined services, a shortening of run-time on Route 5 could enable Route 2 to operate a slightly longer service within the same round-trip cycle.

Figure 5-1 Potential Route 2 Realignment



Data Sources: CCCTA; US Census

Zone Service

Given the low ridership within the Route 2 service area (excluding school trips), another option is modifying the existing fixed route service to change to an hourly (or longer) zone service. A zone service in this context would likely only have one to two timepoints. BART would certainly be one of the key timepoints and another may include a key shopping destination. A zone service would be structured with a pre-defined service area (zone) and would require drop-offs and pickups to be prescheduled (potentially between two and 24 hours in advance). The current residential density in this area (two to three persons per acre) would make the provision of zone services consistent with other similar services around the country (the successful Call-n-Ride service in metropolitan Denver has a similar service standard). It is likely that the service zone would exist within or adjacent to the "loop" at the terminus of Route 2, and services would go directly back and forth between this service area and the Walnut Creek BART Station.

The provision of a zone service could enable greater flexibility and would be operated using a smaller vehicle as compared to a fixed route service. It is anticipated that a zone service would only be operated during peak periods. The service area of a modified Route 2 with a zone service is shown in Figure 5-2.

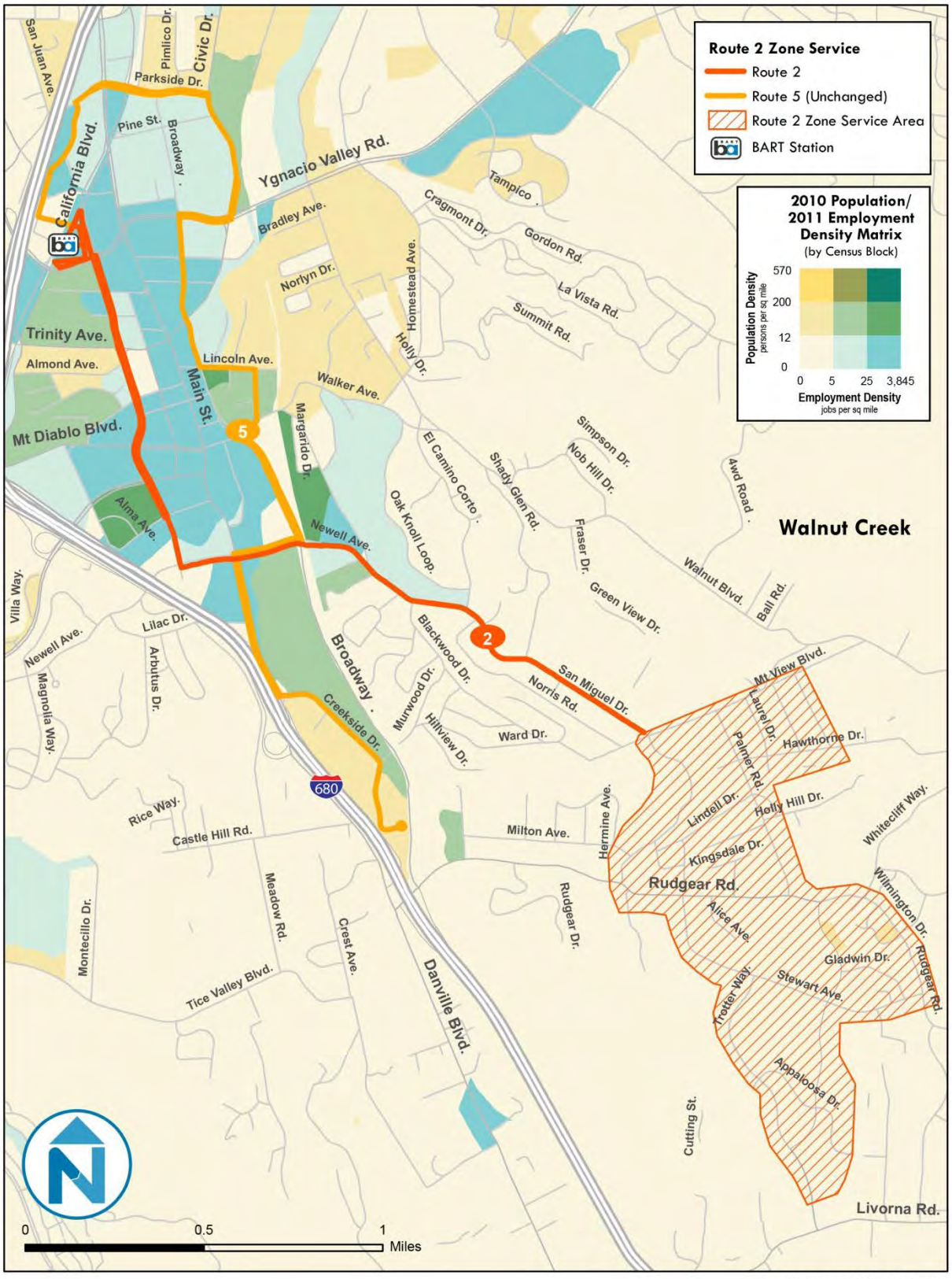
Elimination

One variant suggests the elimination of Route 2 given its low productivity (nearly 7 boardings per hour) and would reallocate resources to improve service to other areas of South Walnut Creek such as Creekside Drive as illustrated in Figure 5-3.

This figure also highlights the low population and employment density currently served by Route 2 as compared to other portions of South Walnut Creek.

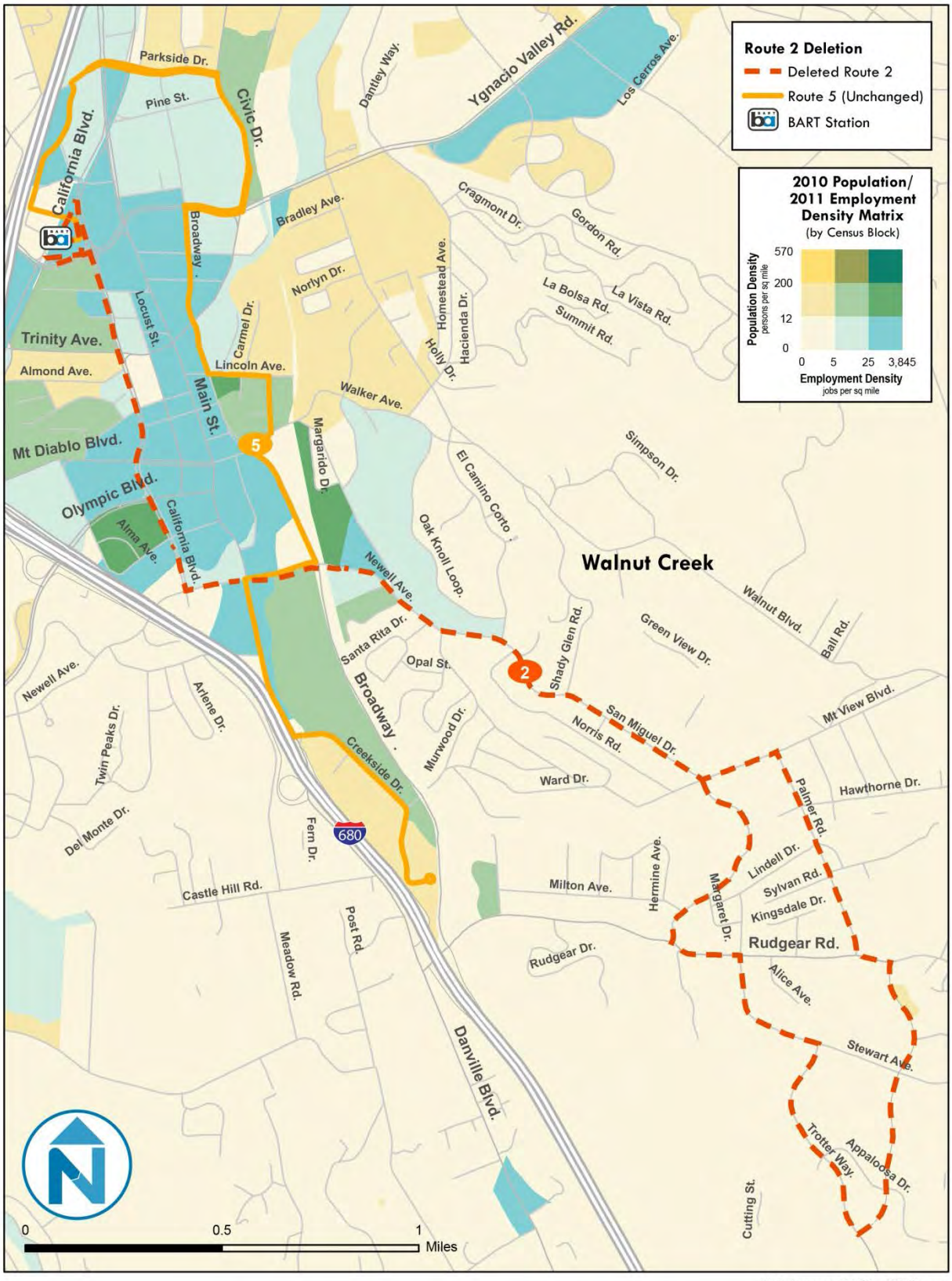
This reallocation of resources would provide improved service to an area with one of the highest population densities in Walnut Creek. School trippers would continue to operate in this neighborhood. Given that Route 2 and Route 5 currently interline, this option provides the opportunity for Route 5 to nearly double its frequency to Creekside Drive. This route would enable service frequencies in upwards of 20-25 minutes to residents along Creekside Drive in addition to 30 minute service from Route 21.

Figure 5-2 Potential Route 2 Zone Service



Data Sources: CCCTA; US Census

Figure 5-3 Potential Elimination of Route 2



Data Sources: CCCTA; US Census

Route 5 Variants

Realignment to California Avenue

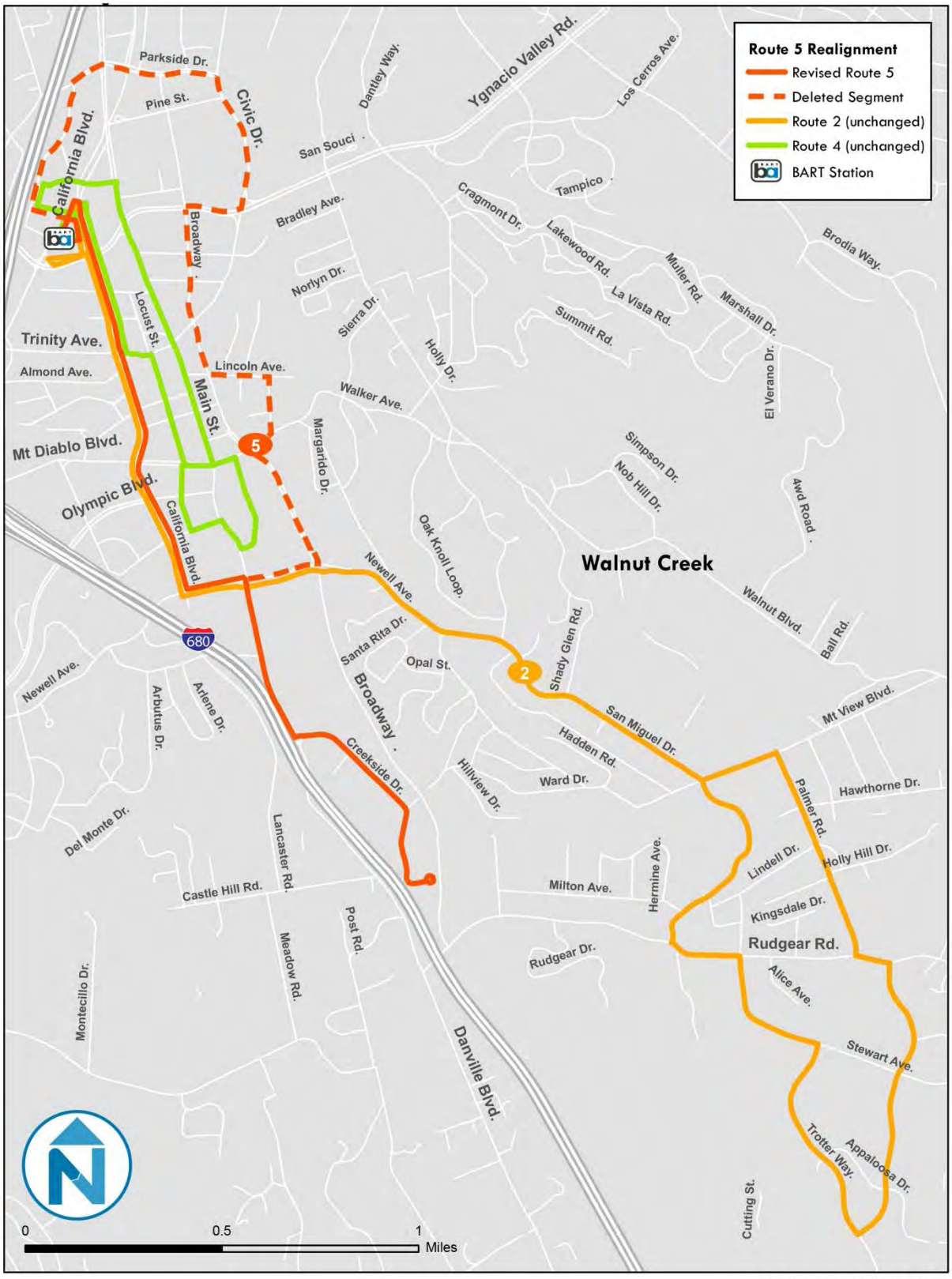
Feedback from existing residents of Creekside Drive includes the criticism that Route 5 takes too long to get to BART. Based on the existing schedule, the trip between the Creekside Drive terminus to the Walnut Creek BART station is approximately 21 minutes, nearly three times the travel time by car. While it is certainly true that bus travel times will always be slower due to dwell time and acceleration differences, shortening the distance (and improving directness) to the BART station will improve transit's competitiveness. It is suggested that Route 5 be realigned to travel on a more direct path to BART using California Boulevard (following Route 21). This would save approximately 1.4 miles (round trip) in travel distance and associated travel time. The northern and eastern segments of Route 5 (Parkside Drive, Civic Drive, Lincoln, South Broadway, Newell) could either be served with a realignment of Route 2 (route alignments between Route 2 and 5 would switch) or eliminated altogether. Currently, Route 4 operates within ¼ mile of the existing segments of Route 5 proposed for elimination. Route 4 operates more frequently and over a longer service span, thus justifying service elimination of this segment of Route 5. This option is illustrated in Figure 5-4.

Increase service frequencies either on Creekside Drive directly or via South Main Street

In any scenario, it is suggested that Route 5 frequency be improved beyond the current 45 minute headway. Currently, residents in the neighborhood have a choice between 30 minute service on Route 21 (on South Main) or 45 minute Route 5 service. Given the high density of residents in this area and the propensity of individuals traveling to/from BART, it is likely that any increase in transit frequency would produce gains in ridership. An improvement in transit frequency in this neighborhood would include having a single stop (or group of stops) that have frequent transit service (20 minute service or better). This would be possible at the South Main Street/Creekside Drive bus stop if Route 2 service was realigned to pass by Creekside Drive. Alternatively, Route 5 service could be increased to provide direct, 20-3o minute service on Creekside Drive itself. The latter would likely garner larger improvements in ridership given the existing interest in transit paired with the difficulties in finding parking along Creekside Drive.

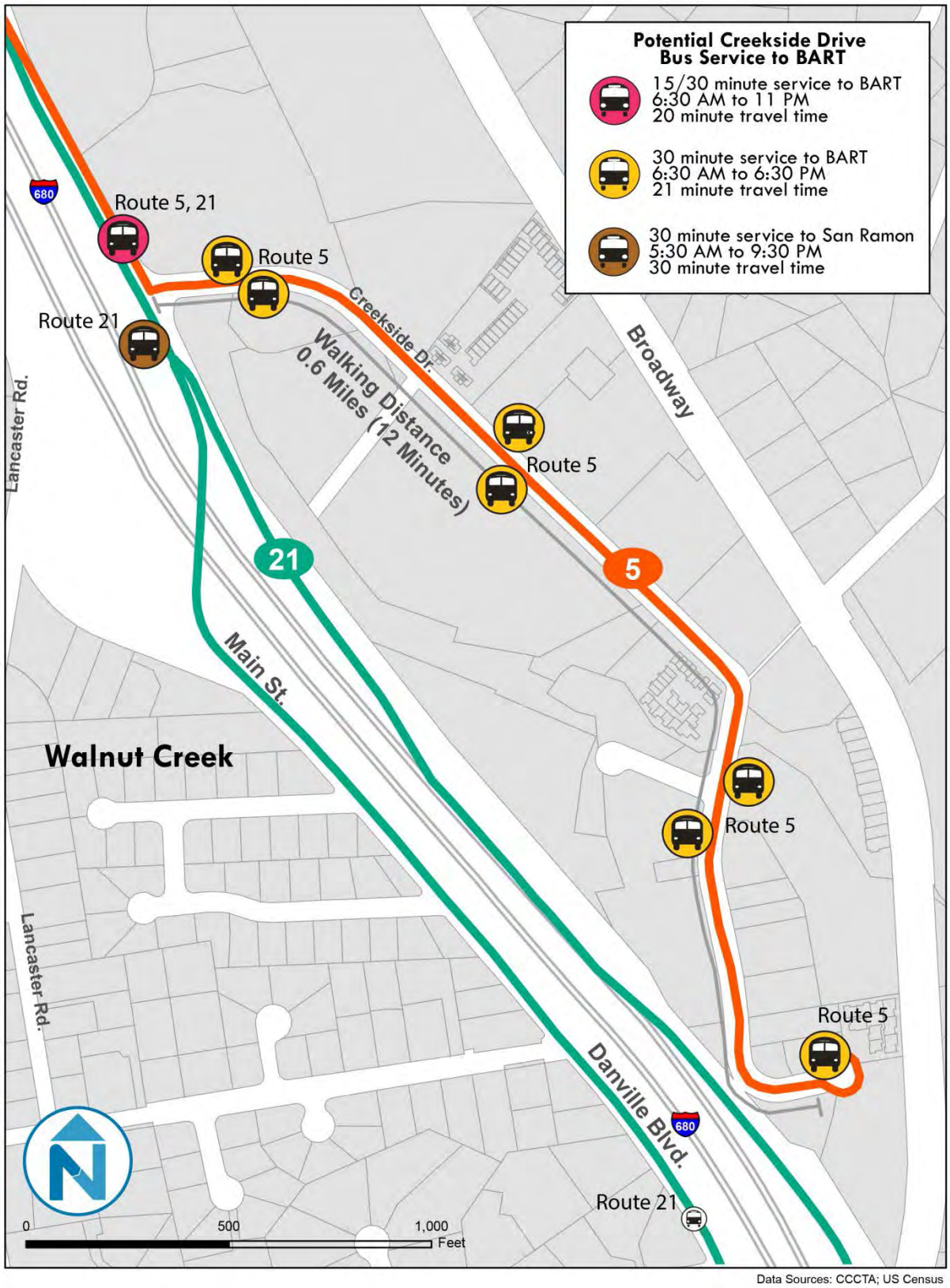
Figure 5-5 shows the current bus stops near Creekside Drive, including those on South Main Street itself. In the event that Route 5 service was increased to 30 minute frequencies, service schedules could be offset with Route 21 to provide 15 minute frequencies on South Main Street for those willing to walk. The maximum distance of Creekside drive is just over one-half mile. Thus, for those living within relatively quick walking distance to South Main Street, the amenity of buses every 15 minutes would be a significant benefit. Additionally, if Route 2 were to be realigned to South Main Street, service frequencies could be even higher.

Figure 5-4 Potential Realignment of Route 5



Data Sources: CCCTA; US Census

Figure 5-5 Hypothetical Bus Service from Creekside Drive



Summary

Figure 5-6 provides a summary of the various strategies for Route 2 and Route 5. Given that these routes are currently interlined, changes in one service would directly affect the available resources available for the other. Thus, some of the service strategies outlined below could be implemented as a package to enable a cost neutral outcome.

Figure 5-6 Route 2 and Route 5 Service Strategies

Strategy	Intent	Implication on Resources
Route 2		
Realignment to Rudgear Road	Provide additional service past Creekside Drive	Requires additional running time due to longer segment (1.6 miles round trip)
Zone Service	Provide service coverage while eliminating fixed-route service, reducing overall service costs	Reduced resources required as compared to existing fixed route service
Elimination	Free resources for other fixed routes	Would provide additional resources for other routes such as Route 5
Route 5		
Realignment to California Avenue	Reduce travel time between Creekside Drive and the Walnut Creek BART Station	Reduced running time due to more direct service. (1.4 miles shorter round trip)
Increase service frequencies either on Creekside Drive directly or via South Main Street	Provide more frequent service and increase ridership in a high-density segment of the service area	Would require additional resources, but resources could be provided through modifications in Route 2 or 5 service

Given these variants, it is the consultant recommendation that Route 2 be eliminated and Route 2 resources should be applied to provide higher frequencies on a realigned Route 5. School tripper service (serving students) would continue to operate in the Trotter neighborhood.

Supporting Strategies

Creekside Drive Pedestrian and Bus Stop Improvements

Given the potential future investment in transit frequency on Creekside Drive, pedestrian access and safety should be a priority on this dense corridor. Presently, four bus stops exist on Creekside Drive. None of which have any form of crosswalk or warning that pedestrians may be present. The sole crosswalk that exists directs individuals to the Iron Horse Trail access point. This crosswalk is placed on a curve where sightlines are difficult, and is potentially dangerous for those crossing.

As a result of the pedestrian safety concerns, a pedestrian audit was conducted by the project team in late August with a focus on improving the pedestrian environment within the study area. The full report of the pedestrian audit can be found in Appendix C. Suggested recommendations as part of this walking audit aim to generally improve the experience for pedestrians and those

walking to and from the bus stops. Recommendations are both general (applying to the full length of Creekside Drive) while others are more specific.

General recommendations for Creekside Drive include:

- Repave and level sidewalks to reduce potential pedestrian tripping hazards.
- Ensure continuous sidewalk along the length of Creekside Drive.
- Add shelters at all bus stops, including landscaping and pedestrian scale lighting.

More specific recommendations related to bus stop improvements include the following**.** Specific locations for these improvements can be found in Figure 5-8.

- Remove bus stop **(1)** in westbound direction near Main Street to both reduce pedestrian crossings at location and to speed up bus operations
- Work with the City of Walnut Creek and property owners along Creekside Drive to create additional formalized pathways from the Iron Horse Regional Trail to the neighborhood and school. Currently, a break in the fence **(2)** signifies an existing need for additional connections.
- Install bus bulbs in conjunction with a high-visibility crosswalk at the existing bus stop along Creekside Drive **(3)**
- Replace standard crosswalk at the with yellow high visibility ladder crosswalk **(4)** at bend in Creekside Drive including ADA accessible curb ramps and pedestrian-scale lighting
- Relocate bus stops **(5)** to the far side of crosswalk in both directions to improve transit access to Iron Horse Regional Trail and encourage crossings behind stopped buses.

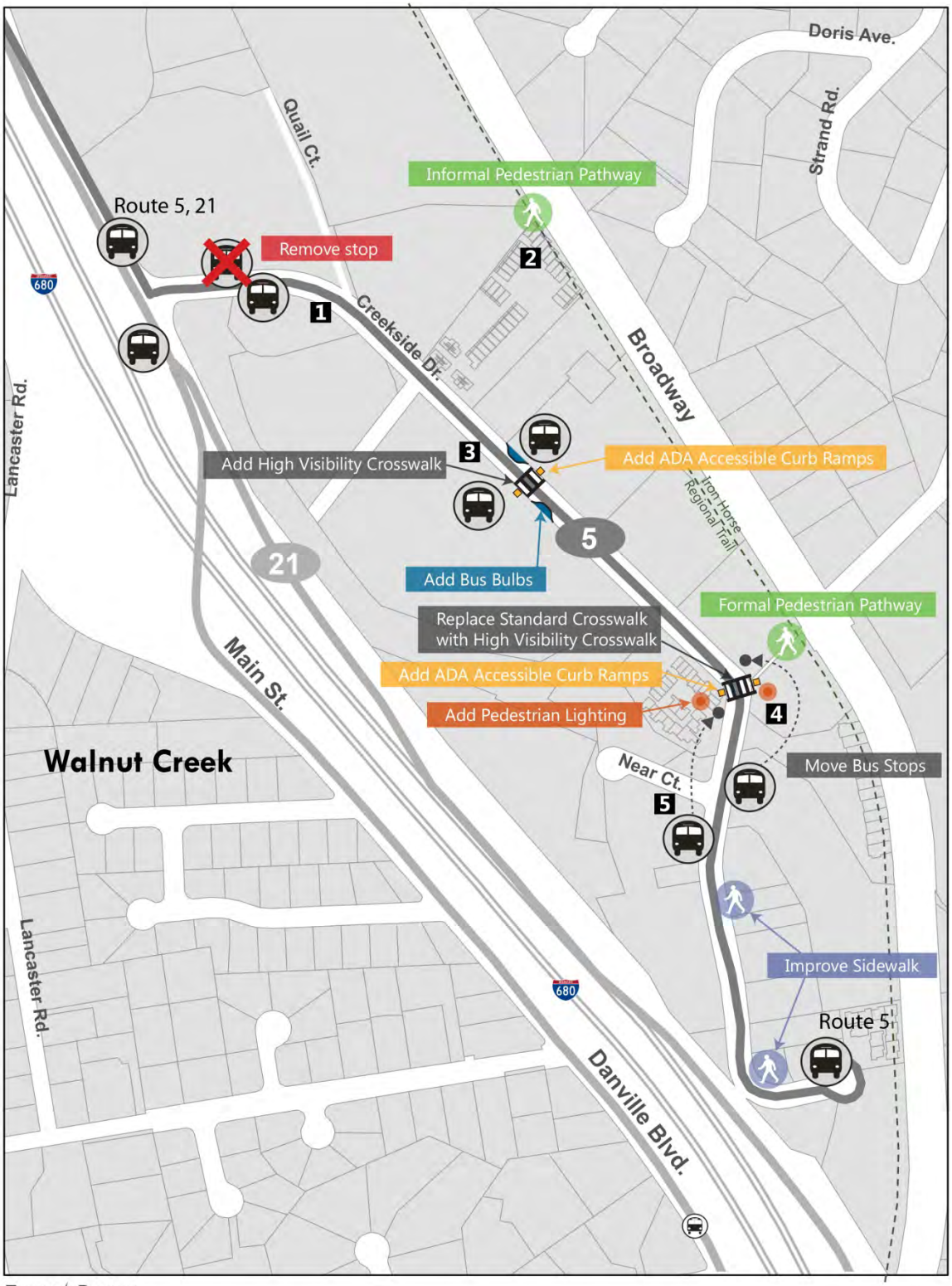
Before recommendations are implemented City staff should conduct any appropriate additional analysis to ensure that the concepts are contextually appropriate and do not negatively impact pedestrian safety or accessibility from issues including, but not limited to: vehicular traffic, physical characteristics, unsafe conditions, or improper implementation. In Fall 2013, the City of Walnut Creek will be embarking on a Pedestrian Master Plan. The findings and recommendations as part of this project should utilized as a resource for that effort.

Figure 5-7 Creekside Drive Crosswalk

One crosswalk exists on Creekside Drive to access the Iron Horse Trail. However, it is placed on a curve which may limit driver sightlines

Source: Nelson\Nygaard

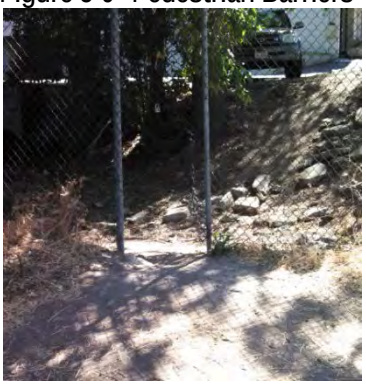
Figure 5-8 Creekside Drive Pedestrian and Bus Stop Improvements



Investigate easement to install an additional access point to Iron Horse Trail

Based on a field analysis of existing transportation access to the Creekside Neighborhood, there is only one formal access point to the Iron Horse Trail approximately 1/3 mile from the entrance on South Main Street. While this point of access is beneficial, it is not convenient for many who live further to the north on Creekside Drive. Perhaps this is why another informal access point has been found slightly to the north. This access point is a hole cut through a chain link fence, providing direct access to the Trail from approximately behind the 1470 Creekside Drive apartment complex. This informal solution does provide access, and signals a clear desire line from local residents. Given this observation, this access should be formalized to ensure equal access to all individuals (not simply those who are physically able to crawl through the existing break in the fence)

Figure 5-9 Pedestrian Barriers



Observed fence breaks indicate additional access is desired between Creekside Drive and the Iron Horse Trail

Source: Nelson\Nygaard

It is recommended that an easement be investigated to provide another point of access to and from the Iron Horse Trail from Creekside Drive. This will improve walk and bike access to shopping along South Broadway and Newell Avenue and increase recreational opportunities to the Iron Horse Trail for the numerous residents living on Creekside Drive.

Develop Ecopass with local residential organizations

Feedback from residents along Creekside Drive noted that parking availability was a frequent problem and that on-street parking is very challenging to find. This in large part may be attributed to many apartment complexes providing one parking space per unit for many rentals. This environment is a major opportunity to attract transit riders and to partner with apartments to help them attract new tenants. In many cities, bundled “Ecopasses”, or unlimited transit passes, are a strategy to help alleviate parking issues for residential developments. From the perspective of a residential complex, at a much cheaper rate than providing parking with new units, they instead can purchase and provide transit passes (at a much lower opportunity cost) and separately rent parking spaces at a market rate. This can be a significant win for both parties; however, the service provided by a local transit provider must be competitive to driving for at least some trips. It is recommended that County Connection develop a relationship with apartment complexes along Creekside Drive to investigate an Ecopass.[2] The building of this relationship should be contingent on service changes on the corridor and showing that additional value is being provided. Other local Bay Area transit agencies have been leaders in developing these programs including the AC Transit EasyPass and the VTA Residential Ecopass (described below).

[2] Through the course of the study, contacts were developed with several of the largest apartment complexes such as The Retreat, Diablo Pointe, Quail Hill, Creekside Glen and the Four Seasons Apartments. These organizations may be starting points for a future transit pass relationship.

Figure 5-10 Example Bay Area Ecopass Programs

AC Transit EasyPass
Get Going • Start Saving

The AC Transit EasyPass is geared towards employers, residential developments and colleges. The residential communities program provides discounted bus passes valid on any AC Transit local and Transbay lines to residences with 100 or more units. Pricing is based on the "Level of Transit Service" that is provided for the participating business. As an example, areas with the highest level of transit service would have the highest cost per EasyPass. However, these costs are still at a discount as compared to typical monthly passes.

For more information: http://www.actransit.org/rider-info/easypass/easypass-for-residential-communities/

Photo Credit: Flickr User Paul Sullivan

residential ecopass

VTA's Residential Ecopass program is an annual validated photo ID sticker that provides unlimited rides on bus and light rail services. Similarly to the EasyPass program, pricing is based on the level of transit service within close proximity to the participating residential complex. Eligible residential complexes must have 25 units or greater and must decide to purchase Ecopasses for every resident within their community, apartment, association, or similar.

For more information: http://www.vta.org/ecopass/ecopass_resi/index.html

Conceptual Cost Estimates

The following section provides order-of-magnitude cost estimates for the recommendations in the Trotter/South Walnut Creek focus area.

Operational Costs

Given that routes subject to modification in this focus area are interlined, changes in one route (Route 2 or 5) would directly affect available resources available for the other route. Based on the service strategies outlined in this section, it is suggested that strategies be implemented in a combination that enables a cost-neutral outcome. As an example, recommended strategies on Route 2 involve modifying the service to require fewer resources by way of route elimination or converting the route to a Zone service (lower operating cost per hour). These modifications would provide additional resources for Route 5.

Capital Costs

Capital costs presented in Figure 5-11 represent the conceptual costs for pedestrian upgrades along Creekside Drive (including installation)[3]. Unit costs are based on MTC's Pedestrian and Bicycle Toolkit[4] and have been escalated to 2013 dollars at 2% inflation.

Figure 5-11 Estimated Costs for Capital Improvements along Creekside Drive

Capital Improvement	Per Unit Cost	Quantity	Total Cost
High-visibility Crosswalk	$300-600	2	$600-$1,200
Bus Bulb	$18,000-$29,000	2	$36,000-$58,000
ADA Accessible Curb Ramp	$3,000-$3,500	4	$12,000-$14,000
Pedestrian Lighting	$3,500-$5,900	4	$14,000-$23,600
General Sidewalk Improvements	$9-$12/linear feet	400 ft.	$3,600-$4,800

Note: For planning purposes, bus stop relocation and removal is not included in the above cost estimates.

[3] Does not include contingency or design fees.

[4] http://www.mtc.ca.gov/planning/bicyclespedestrians/Ped_Districts/04-Generic-Cost-Estimating-Tool.pdf

MARTINEZ

Service Goals

The primary goal in Martinez is to provide access to areas and destinations that are currently not accessible via County Connection. This may require operation of transit on streets where transit currently does not operate and where stops do not exist. Additional service goals for Martinez service include:

- Provide access to Martinez social services, retail and educational facilities currently not served by County Connection
- Improve transit access to portions of Martinez with high propensity for transit use
- Provide a service focused on community needs and destinations (as compared to regional destinations)

Key Criteria for Service Recommendations

Based on the previous research and observations in this focus area, several issues stand out as important factors for future service recommendations.

- **No existing services in "The Wedge":** which is roughly composed of the portion of Martinez between Alhambra Avenue, Pacheco Boulevard and Howe Road. This segment of the City is bisected by Pine Street and has been an area of focus for previous discussions about transit service.
- **Existing transit routes are regionally focused:** While some ride County Connection for trips within Martinez, many state that County Connection is more suited for connecting people to other cities such as Concord and Walnut Creek. There are no services to local destinations such as the Senior Center, Adult School or major retail adjacent to Highway 4.
- **Topography and street network limits transit options:** While much of Downtown Martinez is highly walkable and well connected with a dense street grid, other portions of the city are quite hilly which results in circuitous streets, steep inclines, portions of roadway without sidewalks and dead end streets. These factors certainly do not preclude transit from succeeding, but do limit where transit can be most effective.
- **Local residents interested in basic access over frequent service:** After discussing potential service options with several residents and individuals involved with the 2009 Downtown Martinez Community Based Transportation Plan, it became clear that a wider transit service area is preferable to speed. This includes provision of service into the evening to accommodate seniors who are unable to drive at night.

Service Strategies

Service strategies in Martinez include a community shuttle to serve Martinez-specific trips and other route alignment changes on existing fixed route County Connection services.

Community Shuttle

Based on the service goals and criteria in Martinez, a shuttle service similar to the 2009 Community Based Transportation Plan recommendation is still valid. That recommendation

outlined several potential routing options between Downtown and destinations along Highway 4. This plan goes beyond the 2009 recommendations to provide more detailed routing, potential schedules, and other variants that may help the service better meet current community goals.

Service Alignment

When determining the proposed route, several alternatives were considered. All alternatives included a stop at the Amtrak station (a key transit transfer point for Martinez) and at the Wal-mart, which was consistently noted as a community destination.

Berrellesa/Alhambra versus Pine

Two north-south configurations were considered for the northern portion of the route. The first alternative would use the Berrellesa/Alhambra couplet, duplicating existing County Connection service. The second alternative would use Pine Street, which does not have transit service. Between the two alternatives, the Berrellesa/Alhambra couplet has wider, flatter streets, which would be easier for a bus to traverse, while Pine Street is more hilly with many curves. The Berrellesa/Alhambra couplet has more destinations such as Contra Costa Regional Medical Center and Alhambra High School, higher density housing, and is also served by other County Connection routes (enabling transfers if necessary). Pine Street has fewer destinations and for most of the street the housing density is low. It was decided to use the Berrellesa/Alhambra couplet for a proposed route between Marina Vista Avenue and D Street due to the better conditions and higher number of destinations.

Shell versus Estudillo and Vista Way

In order to connect the route to apartment complexes located along Pine Street between Vista Way and Howe Road, two alternatives were considered. The first would run along D Street, Shell Avenue, and Pine Street. The second alternative would run along D Street, Estudillo Street, Vista Way, and Pine Street. Both options are somewhat hilly and curvy. The first option would provide service to La Salle Manor apartments. The second option is shorter and would provide service to the Housing Authority of the County of Contra Costa, Martinez Adult Education (within a short walk), the American Indian Cultural & Education Program, and Vicente Martinez High School. Since the second option is shorter and would provide service to more destinations, it was selected as the preferred alignment. This around alignment was field reviewed and determined to be suitable for 35' bus operations.

Muir Road loop connection

Two loop options were considered for the southern portion of the route. The first loop would run counterclockwise along Center Avenue, Morello Avenue, and Arnold Drive. The second loop option would run counterclockwise along Center Avenue, Muir Road, Morello Avenue, and Arnold Drive. The first option would duplicate service along County Connection Route 28. A final option eliminates a loop altogether and would provide two-way service along Arnold Drive. This option is contingent on the ability to place an eastbound bus stop on Arnold Drive near Wal-mart (or alternatively, provide a bus stop on Old Orchard Road, near Arnold Drive).

At this time, a counterclockwise loop or two-way service on Arnold Drive are the recommended options to carry forward for future consideration.

Figure 5-12 Proposed Martinez Shuttle Alignment

Figure 5-13 Proposed Bus Stop Locations (Alternative Routing)

Data Sources: CCCTA

Proposed Stops

Twenty-eight stops were identified along the proposed route, 18 of which are at existing County Connection bus stop locations. Therefore no additional bus stop amenities would be needed at these locations except for signage identifying it as a Martinez community circulator route. Ten of the proposed stops would be at new locations and would therefore require additional amenities. At a minimum, basic signage and schedule information should be included at each stop, and stops should meet other basic bus stop criteria (see *New Bus Stop Locations* for additional guidelines for siting bus stops, page 5-26). Additional amenities could include benches and shelters. The proposed shuttle stop locations are summarized in Figure 5-14 . New stop locations are described in more detail below. A full assessment of these stop locations can be found in Appendix E.

This list of stop locations assumes that a counter-clockwise loop alignment is selected for the route's southern terminus. If a two-way Arnold Drive alignment is selected, the stop list would be slightly different and would not include stops at Center/Muir, VA Clinic, Kaiser, and Muir/Morello Ave.

Figure 5-14 Proposed Bus Stop Locations (Assuming Loop Terminus)

Stop Name	Distance from Previous Stop (miles)[5]	Existing County Connection Stop	Destinations Served
Amtrak Station	0	Yes	▪ Martinez Amtrak Station ▪ Martinez Chamber of Commerce
Berrellesa & Escobar (SB)	0.2	Yes	▪ Rankin Park
Berrellesa & Mellus (SB)	0.2	Yes	▪ Plaza Ygnacio Martinez Park
Berrellesa & Jones (SB)	0.2	Yes	▪ Plaza Ygnacio Martinez Park
Berrellesa & Robinson (SB)	0.2	Yes	
Berrellesa & Soto (SB)	0.1	Yes	▪ Contra Costa Regional Medical Center
Alhambra & Wano (SB)	0.2	Yes	▪ Alhambra High School
Estudillo & Vista Way (SB) (shared NB/SB stop in pullout)	0.4	No	▪ Martinez Adult Education ▪ Vicente Martinez High School ▪ The Housing Authority of the County of Contra Costa ▪ American Indian Cultural & Education Program
Vista Way & Pine (SB)	0.4	No	▪ John Muir Park ▪ John Muir Elementary School
Pine & Sentinel (SB)	0.1	No	▪ High density housing

[5] County Connection currently references the Orange County Transportation Authority's Bus Stop Safety and Design Guidelines. For an environment similar to the service alignment in Martinez, service spacing is suggested between 900 (.17 mile) to 1300 feet (.25 mile). However, these standards are not appropriate to some portions of Martinez that have limited pedestrian facilities and hilly topography.

Stop Name	Distance from Previous Stop (miles)[5]	Existing County Connection Stop	Destinations Served
Center & Howe (SB)	0.1	Yes	▪ Contra Costa County Veterans ▪ Contra Costa County Community Services
Center & Muir (SB)	0.2	Yes	▪ Muir Station ▪ Contra Costa Cinemas ▪ Contra Costa County Health Services ▪ Contra Costa County Aid
VA Clinic (SB)	0.5	Yes	▪ Veterans Affairs Medical Center
Kaiser (SB)	0.3	No	▪ Kaiser Permanente Medical Center
Muir & Morello (NB)	0.6	Yes	▪ Contra Costa General Services Department
Village Oaks (NB)	0.4	No	▪ Village Oaks Shopping Center
Wal-mart (NB)	0.5	No	▪ Wal-mart
Howe & Center (NB)	0.7	Yes	▪ Contra Costa County Veterans ▪ Contra Costa County Community Services
Pine & Sentinel (NB)	0.1	No	▪ High density housing
Pine & Vista Way (NB)	0.1	No	▪ John Muir Park ▪ John Muir Elementary School
Estudillo & Vista Way (NB) (shared NB/SB stop in pullout)	0.4	No	▪ Martinez Adult Education ▪ Vicente Martinez High School ▪ The Housing Authority of the County of Contra Costa
Alhambra & C Street (NB)	0.4	Yes	▪ Alhambra High School
Alhambra & Bertola (NB)	0.2	Yes	▪ Contra Costa Regional Medical Center
Alhambra & Allen (NB)	0.3	Yes	▪
Alhambra & Jones (NB)	0.1	Yes	▪ Plaza Ygnacio Martinez Park
Alhambra & Mellus (NB)	0.1	Yes	▪ Plaza Ygnacio Martinez Park
Senior Center (NB)	0.3	No	▪ Martinez Senior Community Center ▪ Contra Costa County Assistance ▪ Contra Costa County Public Defender ▪ Martinez Library
Court & Marina Vista (NB)	0.3	Yes	▪ Superior Court of CA-County of Contra Costa ▪ Martinez Museum ▪ Contra Costa Community College

Notes:

Source: Fehr & Peers, 2013

These stops assume a counterclockwise loop at route's southern terminus. Two-way service on Arnold Drive would preclude stops on Center & Muir, VA Clinic, Kaiser, and Muir & Morello Ave.

Route Deviations

As a strategy to increase the coverage area of this service, one variant could include expanding the fixed route service to include deviations along certain segments of the route. Generally, this would include a quarter-mile area around the regular route alignment. Deviations would be restricted on dead-end, one-way and other streets that would require the shuttle to perform any unsafe movements (i.e., backing up).

Route deviations require additional dispatching and call center support as deviations are fielded throughout the service day. Deviations should be requested at least two hours in advance of pick-up[6] and may be limited to a fixed number of deviations per one-way trip. Figure 5-15 outlines the proposed route deviation zone that would be accessible from this service.

Based on the current street network in Martinez and the difficult topography, route deviations are not recommended at this time for a shuttle service in Martinez. Segments of the proposed route that would actually be suitable for deviations (in terms of bus circulation) exist near Downtown Martinez, in areas that are already well connected to transit service. The segments along Pine Street, Muir, and Arnold are very constrained for deviations given the preponderance of dead-end streets and hilly topography. Given the additional resources needed to make a deviation service work (dispatching, rider marketing and understanding, and schedule flexibility), the benefits do not outweigh the costs for this particular service. The potential areas suitable for deviation services are shown in Figure 5-15.

[6] The RTD (Denver) Call-n-Ride service requires riders to make reservations at least two hours in advance of a scheduled pick-up. This can be done over the phone or online.

Figure 5-15 Proposed Martinez Shuttle Alignment including Deviation Zone

Data Sources: CCCTA

The areas adjacent to the proposed Martinez Shuttle Route suitable for deviated zone services are very limited. Thus, deviation service for this proposed service is not recommended at this time. This map reflects the one-way counterclockwise loop alternative.

Service Schedule

Preliminary service would be scheduled to operate hourly between approximately 7:00a.m.-9:30p.m. This 14.5-hour service span is intended to provide residents access to a range of community services and access to regional transit routes. It is likely that routes would be scheduled to enable timed transfers at the Amtrak station or mid-route for routes traveling to Walnut Creek. Key timepoints would include the Amtrak Station (0:20 past the hour), VA Clinic (0:44 past the hour) and Wal-mart (0:54 past the hour).

Figure 5-17 provides a basic outline of the proposed schedule. This schedule is preliminary and would need further field testing before finalization.

Figure 5-16 Martinez Amtrak

The Martinez Amtrak Station would remain a primary hub the shuttle service to enable transfers with existing County Connection routes

Source: Nelson\Nygaard

Figure 5-17 Proposed Schedule Information for Martinez Community Shuttle

Schedule Information	Time Information	Additional Information
Service Frequency/ Round Trip Cycle Time	60 Minutes	Operator relief/layover at Amtrak Station
Approximate Service Span	7:00a.m. - 9:30p.m.(Monday-Friday)	Schedule is designed to enable some level of coordination with transfers occurring at Martinez Amtrak Station. Service operates hourly with 0:20 timepoint at Amtrak to coordinate with some County Connection departures and layover.
First Bus (Inbound to Amtrak)	Leaves Wal-mart 6:54a.m.	
First Bus (Outbound to Wal-mart)	Leave Amtrak 7:20a.m.	
Last Bus (Inbound to Amtrak)	Leaves Wal-mart 8:54p.m.	
Last Bus (Outbound to Wal-mart)	Leaves Amtrak 9:20p.m.	

Figure 5-18 Martinez Community Shuttle Resource Summary

Service Span	Weekday Revenue Hours	Annual Revenue Hours (255 weekdays)
7:00a.m. - 9:30p.m.	14.5 hours	3,698

Fare and Transfer Policies

Many local community shuttle services charge a low fare or no fare at all. It is recommended that the standard County Connection fare be applied to this service to maintain consistency with others routes within the service area. Similar to Route 4 in Walnut Creek, if the community wishes to offer the service at a lower fare, the base fare could be subsidized by the City or other community partners and paid to County Connection.

Supporting Strategies

Creation of new bus stop locations

Several new bus stops are proposed along Pine Street, Estudillo, and Arnold Way. New stops will require capital investment and the following factors should be considered when designing the stops:

- **Spacing between stops** – balance walking distance vs. bus speeds and reliability; this is the key criterion that all others support.
- **Stop length** – provide adequate curb length to maneuver bus safely into and out of the stop; 65' is needed for far-side stops, 105' is needed for near-side stops. (cutaway vehicles would likely require less length)
- **Pedestrian access** – provide safe and convenient pedestrian access; locate stops close to intersections and crosswalks.
- **Amenities** – provide adequate space for shelters, benches, trash receptacles and signs as necessary.
- **Safe operations** – adequate site distances and clearance for safe bus operations into and out of the stop.
- **Traffic impacts** – limit impact on adjacent vehicular traffic.
- **Adjacent land use impacts** – minimize impacts on adjacent land uses but locate stops next to major traffic generators, activities and attractions; avoid driveways and "front facing" houses.
- **Americans with Disabilities Act (ADA) accessibility** – ensure access by persons with disabilities.
- **Security/lighting** – select safe, lighted locations.

Providing service information, vehicle branding and building community support

A locally-focused shuttle service can only thrive if given the backing and support from the community it serves. Thus, creating an image and perception of a locally-focused public service is critical. While there are numerous ways to market a product, selling a transit service begins with the basics including clear service information, clean and locally-branded vehicles, and partnerships with local organizations.

- **Clear Service Information:** Providing understandable schedules and maps are the first step in creating a good user experience. Confusing and illogical maps have the ability to turn off potential riders before they even step on a bus. It is important to ensure this information is communicated clearly, consistently, and as simply as possible.
- **Branded Vehicles:** Branding means creating an image for a product. Shuttle vehicles themselves provide the most effective moving advertising for a transit service. A community-based service warrants a shuttle bus color scheme that also reflects the local community (Figure 5-19). It is recommended that a community shuttle also be designed to be visually recognizable as unique to Martinez.
- **Local Partnerships:** A local Martinez shuttle service will provide great value to the community by enabling residents to access some of the City's key services and destinations. Efforts should be taken to ensure these locations help market the shuttle either formally or informally through word of mouth or co-marketing.

Figure 5-19 Examples of Community Focused Branded Shuttle Services

Safe turning movements

On the proposed route, two locations are brought up as areas for further field testing and warrant potential traffic improvements. In terms of bus circulation, these turning movements do not present an issue for a 35' bus. However, buses making unprotected left turns may be problematic for standard operations due to waiting for cross-traffic to clear.

Figure 5-20 Intersection of Terrace Way and Shell Avenue

Intersection of Terrace Way and Shell Avenue: Based on the current service plan, it is proposed that a left turn is made from northbound Terrace Way onto westbound Shell Avenue. Currently, this turning movement would be unprotected and a shuttle vehicle may be delayed by westbound traffic on Shell Avenue (coming down hill). It is recommended that this three-way intersection be converted to a three-way stop. This modification would allow the left turn to be made safely without delay.

Source: Google Maps (2013)

Figure 5-21 Intersection of Green Street and Pine Street

Intersection of Green Street and Court Street: The intersection of Green Street and Court Street presents an unprotected left turn from eastbound Green Street to northbound Court Street. The shuttle is on Green Street to provide direct access to the Martinez Senior Center. It is recommended that this three-way intersection be converted to a three-way stop to protect shuttle vehicles from potential circulation issues coming from traffic coming from either direction on Court Street.

Source: Google Maps (2013)

Fixed Route Modifications (Martinez Service Area)

This section focuses on several fixed route recommendations within the Martinez focus area, but suggestions are provided for segments that fall outside. The route modifications described below assume that a Community Shuttle would be implemented and are designed to complement that service.

The Martinez Amtrak station is currently the terminus point for County Connection routes 16, 18, 19, 28, 98X and 316 (weekends). Within the Martinez focus area, there is an opportunity to reevaluate these routes given that some provide overlapping service and several have low productivity relative to the rest of the system. As an example, Routes 19 and 28 have ridership of 10.4 and 10.1 passengers per revenue hour, respectively. This performance is well below the passenger per revenue hour standards as outlined by the 2012 CCCTA Short Range Transit Plan.

Route 16

Route 16 provides a key connection between the Monument Boulevard corridor and the Alhambra / Berrellesa corridor including the Regional Medical Center and downtown Martinez. This route does pass a relatively long stretch of corridor that has little opportunity for ridership. However, in aggregate, the route performs well relative to others in Martinez. Unlike other routes, Route 16 has consistent headways (40 minutes). While it would be preferred to have a consistent clockface headways (30 minute frequencies that allow consistent departure times), no changes are recommended to Route 16 at this time.

Figure 5-22 Route 16 Service Changes

Proposed Service Change	Implications on Service Hours	Additional Comments
No service changes	N/A	If additional resources become available, it is recommended that service frequencies be set at hourly clockface headways (0:30 minute frequencies) for passenger convenience. Current frequency is 40 minutes between trips.

Route 18

Route 18 provides service between Martinez, Diablo Valley College (DVC), downtown Pleasant Hill and the Pleasant Hill BART Station at infrequent 80 minute headways. Recommendations are suggested in the first segment of the route between Martinez and DVC. It is recommended that the alignment remain the same with the exception of the segment between Morello Avenue and Pacheco Blvd. In this segment, Route 18 should travel on Highway 4 (effectively swapping alignments with the existing Route 28). This route modification could reduce one-way travel times by approximately five minutes and prevents service duplication on segments on Arnold Drive (now served by Route 28). It is understood that the current frequencies are the result of past service cuts. It is recommended that service be increased to 60 minute frequencies when resources become available. Given that Route 18 has a shared termination points with Route 16 and 28 at the Martinez Amtrak, there are opportunities to interline services to help improve efficiencies and increase service frequencies.

Figure 5-23 Route 18 Service Changes

Proposed Service Change	Implications on Service Hours	Additional Comments
Route realignment: Route 18 and Route 28 switch alignments between Morello Avenue and Pacheco Boulevard. Route 18 now travels on Highway 4.	Any route efficiencies due to alignment changes should be used towards improving route frequency.	The proposed route provides a slightly faster travel time which could marginally improve frequencies. However, if additional resources become available, it is recommended that service frequencies be standardized at hourly (0:60) headways for passenger convenience. Current frequencies vary.

Route 19

Route 19 currently operates at infrequent 120 minute headways and currently is among the lowest performing routes in the service area (10.4 passengers per revenue hour). In addition, it operates overlapping service with Routes 18 and 28 on large portions of Pacheco Boulevard (between Martinez and Morello Avenue). The segments where Route 19 operates independently on Pacheco Boulevard, ridership opportunities are low given the sparse density and limited roadside development. As a result, it is recommended that Route 19 be eliminated due to its low ridership and low opportunity to gain ridership. This route modification will eliminate service to several bus stops with existing riders. The highest boarding stop on this segment is at Pacheco Boulevard and Camino Del Sol, which is within 0.4 miles (10 minute walk) of Route 18 at Pacheco Boulevard and Morello Avenue.

Use of resources for Community Shuttle

Route 19 currently operates 13:50 revenue hours at $120.22 per service hour[7]. It is anticipated that these resources could be applied directly towards a Community Shuttle operation. Assuming that a Community Shuttle could be operated using a cost per revenue hour on par with County Connection's paratransit service ($66.49 per service hour[8]), the elimination of Route 19 should provide ample resources.

Figure 5-24 Route 19 Service Change

Proposed Service Change	Implications on Service Hours	Additional Comments
Route elimination: All segments of route are recommended to be eliminated due to low ridership.	Route elimination provides approximately 13.8 (13:50) weekday fixed route service hours to be applied towards other services.	Route eliminated

[7] Estimated cost per service hour based on 2010-2011 Cost per Service Hour of $115.55 for County Connection fixed route service inflated at 2% per year for 2012-2013.

[8] Estimated cost per service hour based on 2010-2011 Cost per Service Hour of $63.91 for Link service inflated at 2% per year for 2012-2013.

Route 28

Route 28 currently provides service between Martinez, DVC and North Concord BART. Service frequencies are inconsistent; sometimes every 75 minutes and other times hourly. Among services in the Martinez focus area, Route 28 is the lowest performing route at 10.1 passengers per service hour. It is recommended that Route 28 be realigned to complement the proposed Community Shuttle service and connect some of the largest Martinez retail destinations. The proposed realignment shifts Route 28 from Pacheco Boulevard (continuing to be served by Route 18) onto the Alhambra/Berrellesa corridor, effectively increasing the combined transit frequency on this corridor (combination of Routes 16, 28, 98X and Community Shuttle). Route 28 would then travel on Route 4 (eastbound) to the Center Avenue interchange thus providing service to the intersection of Center Avenue and Howe Road. From this intersection, Route 28 would provide bi-directional service along Arnold Drive including Wal-mart[9] the Village Oaks Shopping Center. The route would then continue down Arnold Drive to serve previous segments of Route 18 before crossing Glacier Drive to Muir Road.

This new route alignment would connect those living on the west side of Martinez to major shopping destinations, and onto DVC. The proposed route is approximately two miles shorter (roundtrip) than the existing, and would save up to five minutes per direction (based on existing service miles per revenue hours for Route 28). The route would no longer serve a portion of Howe Road (between Pacheco Boulevard and Center Avenue). However, most stops on this segment have less than one rider per day. The bus stop at Howe Road and Old Orchard Road does have approximately seven boardings per day. This stop would have no service but would be within one-half mile (10 minute walk) to future Route 28 service.

Figure 5-25 Route 28 Service Changes

Proposed Service Change	Implications on Service Hours	Additional Comments
Route realignment: Route 28 would be realigned from Pacheco Boulevard to Alhambra Avenue and Berrellesa Avenue. The route would also serve Arnold Drive and previous segments of Route 18 (Arnold Drive, Muir Road)	Any route efficiencies due to alignment changes should be used towards improving route frequency.	The proposed route provides a slightly faster travel time which could marginally improve frequencies. However, if additional resources become available, it is recommended that service frequencies be standardized at hourly (0:60) headways for passenger convenience.

Route 98X

Route 98X provides express service between Martinez, Contra Costa Boulevard and Walnut Creek BART. For individuals traveling to/from Martinez, it provides that fastest trip to BART (approximately 30 minutes). While this service is labeled “express” service, it currently makes numerous stops in some segments including Alhambra Avenue/Berrellesa Street and Pacheco/Contra Costa Boulevard. As a means to reduce travel times and enable Route 98X to truly operate as an express route, it is recommended that lower-ridership stops be eliminated. On other segments, it is recommended that Route 98X make stops at the proposed Pacheco Park and Ride, Diablo Valley College (new), and Sun Valley Mall. However, these stops should be the only

[9] Currently, an eastbound bus stop on Arnold Road is not possible given the narrow right-of-way and Caltrans property line. Potential bus stop options are being explored at this time.

stops along this segment of the route. Stops proposed for elimination from Route 98X include the following.

Alternative routes at stop shown in parenthesis.

- Berrellesa/Jones (Route 16, Route 28)
- Berrellesa/Soto *(Route 16, Route 28)*
- Alhambra /J St *(Route 16, Route 28)*
- Pacheco/Carolos (*Route 28)*
- Pacheco/Pacheco (*Route 28)*
- Pacheco/Center (*Route 28)*
- Sun Valley Blvd/Parkside (*Route 20)*

A new stop at DVC is suggested due to the high demand of ridership traveling to/from DVC. This deviation adds an extra 0.8 miles (round trip) to the existing route. However, this can be accommodated given the faster travel time resulting from a reduced number of stops (and associated dwell time). The above stops that have been suggested for elimination will continue to be served by local services.

Figure 5-26 Stop Changes on Alhambra Avenue and Berrellesa Street

Figure 5-27 Route 98X Service Changes

Proposed Service Change	Implications on Service Hours	Additional Comments
Stop Reduction: Eliminate low-ridership stops to improve overall travel time. Stop location: Stop directly at DVC on both northbound and southbound trips.	Any route efficiencies due to alignment changes should be used towards improving route frequency.	The proposed route provides a slightly faster travel time which could marginally improve frequencies. However, if additional resources become available, it is recommended that service frequencies be standardized at hourly (0:30) headways for passenger convenience.

Figure 5-28 and Figure 5-29 reflect the above route modifications.

Figure 5-28 Summary of Routing Changes (Martinez)

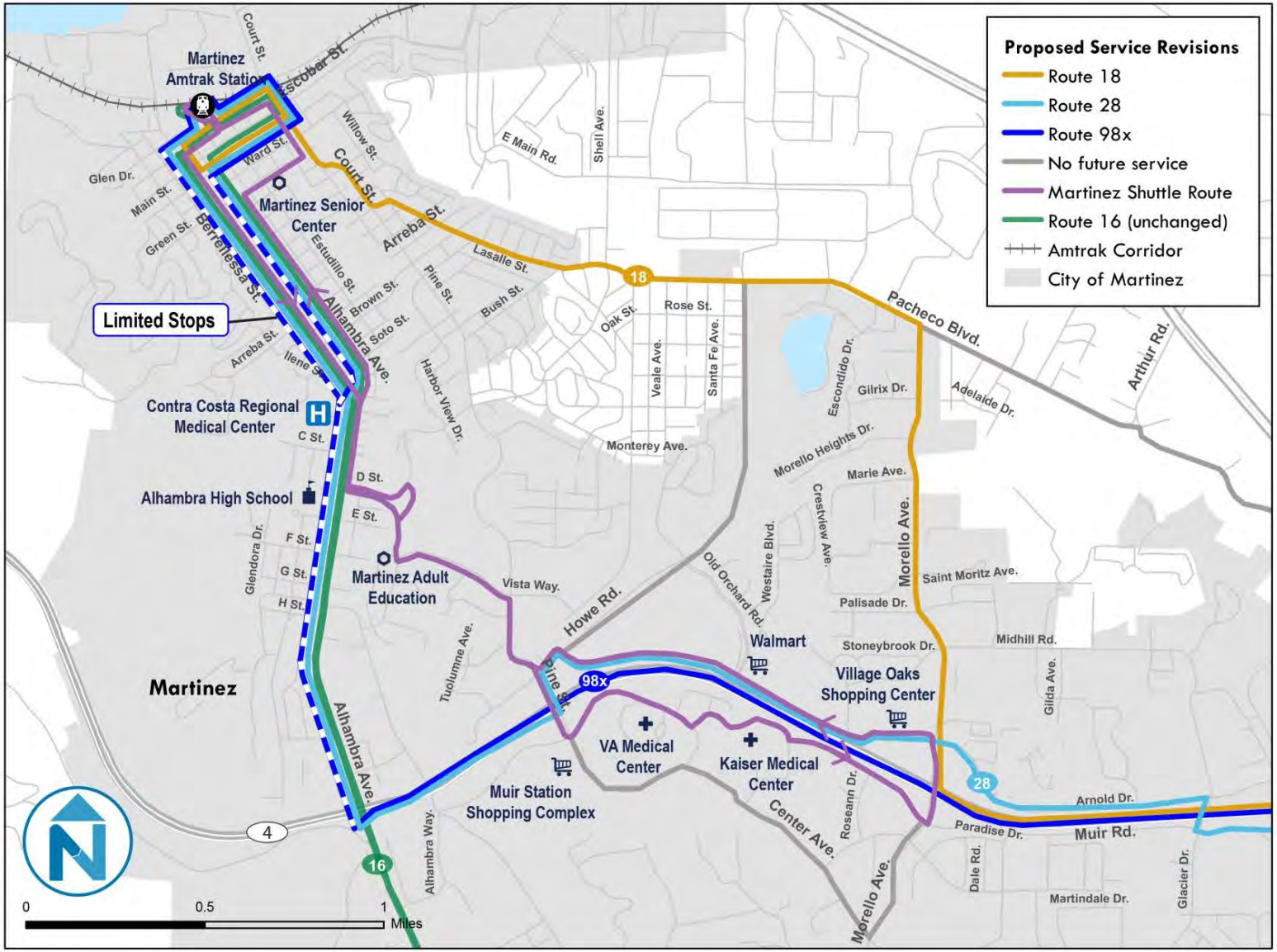
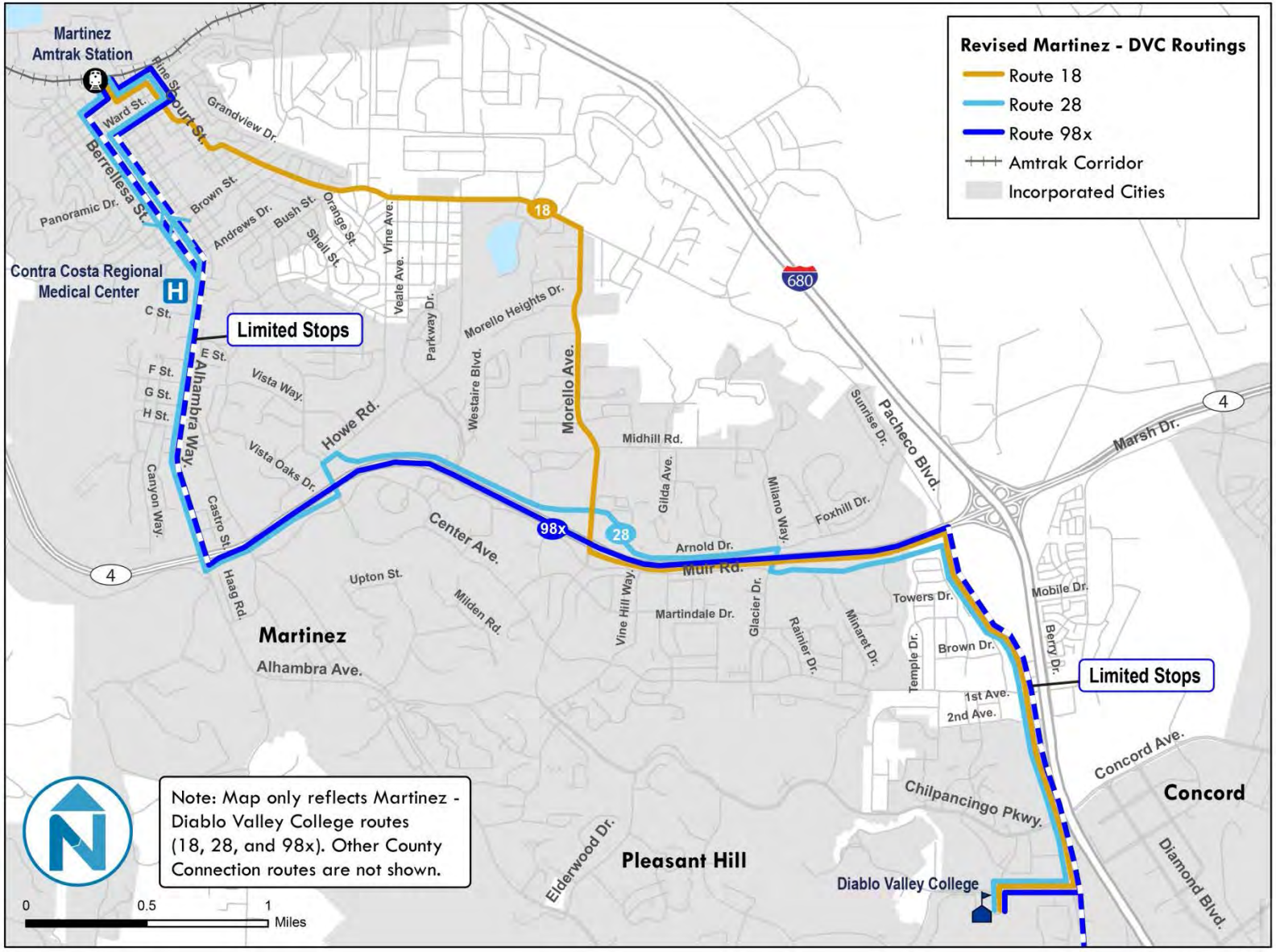


Figure 5-29 Summary of Routing Changes



Data Sources: CCCTA

Other Route Modifications

Beyond the focus area, some additional route concepts are offered for consideration:

- Splitting Route 28 into two routes including a route to the west of DVC (Martinez-DVC) and a route to the east (DVC-North Concord BART).
- Connecting the eastern portion of Route 28 (DVC-North Concord BART) with the southern portion of Route 18 (DVC-Pleasant Hill BART). This could allow Route 18 to "short-turn" at DVC and provide more frequent service.
- Creating a east-west "Cross County" route that would include an aggregation of Routes 98X, Route 20, and Route 10. This alternative could be explored as a possible County Connection Bus Rapid Transit Corridor.

Bus Stop Additions

One critical location for expanded service is the Wal-mart on Arnold Drive. Currently, transit service to Wal-mart is prohibited due to the limited options for providing transit along or near Arnold Drive. However, two potential stop locations could be utilized for future transit service to this major regional destination. The first location is on Old Orchard Road near Arnold Drive. The second location is on Arnold Drive between Old Orchard Road and Shadowfalls Drive, near a driveway entrance to the Wal-mart parking lot.

Based on the service plan, this bus stop addition would impact the Community Shuttle and Route 28.

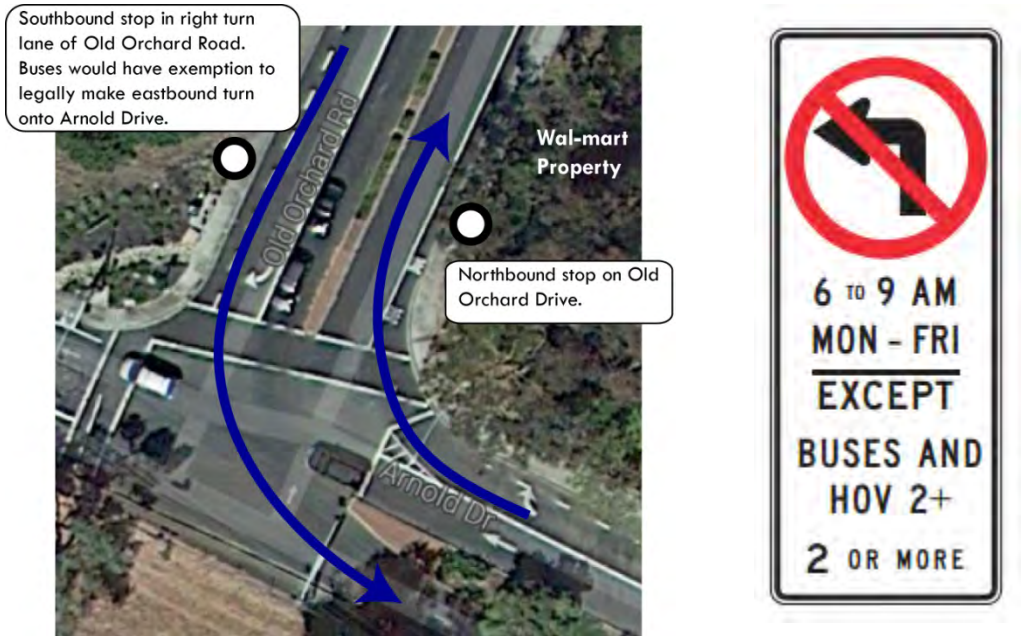
Old Orchard Road

The benefit of locating stops on Old Orchard Road, just north of Arnold Drive, is that no right of way changes are needed. If selected, it is recommended that the stop be located on Old Orchard in the southbound direction just north of the crosswalk at Arnold Drive. This would give passengers convenient access to the crosswalk to walk to the Wal-mart entrance located approximately 600 feet to the east.

In the southbound direction, a bus would stop partially in a right turn only lane, and would block traffic during boarding/alighting. Assuming the bus making a left turn onto Arnold Drive, it is recommended to apply a transit exemption for this movement from the curb lane. Transit exemption in right-hand turn lanes allows for transit through or left turn movements, while general traffic must turn right. This exemption would have to be approved by the City of Martinez.

In the northbound direction, it is recommended that the stop by located on Old Orchard Road, approximately 120 feet north of the crosswalk at Arnold Drive. The bus would stop in a bike lane and partially in the through lane. Auto speeds are not high at this location, so the risk for potential for transit-vehicle conflicts is low. It is also recommended that the City or Wal-mart create a formal pedestrian pathway leading from the sidewalk near the bus stop to the Wal-mart parking lot, to facilitate pedestrian access to the Wal-mart entrance.

Figure 5-30 Proposed Alternative Stop Location on Old Orchard Drive



Bus Stop on Arnold Drive

The second location for a Wal-mart stop would be on Arnold Drive itself. The benefit of locating stops here is that the stop would provide the most direct access to the Wal-mart and the other retail destinations.

In the westbound direction it is recommended that the stop be located on Arnold Drive, approximately 100 feet west of the crosswalk at the driveway entrance. The bus would stop in a bike lane/right turn only lane. It is not anticipated that this bus stop location would have a large impact on traffic due to the right turn lane preceding the proposed stop. Vehicles turning right out of the Wal-mart parking lot could pull into the through lane on Arnold Drive, thus avoiding any stopped buses.

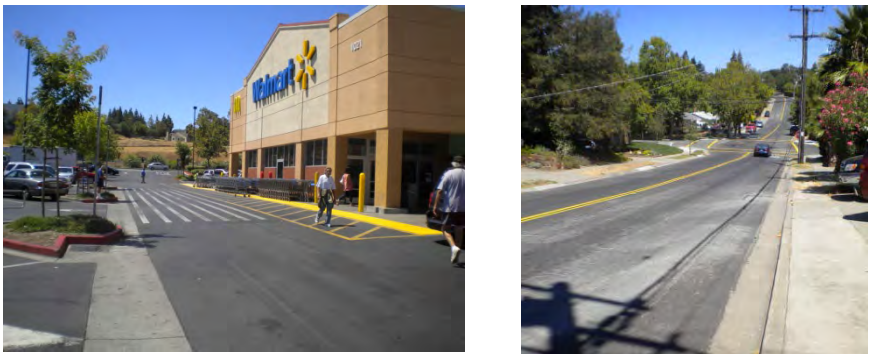
In the eastbound direction, we recommend that the stop be located on Arnold Drive, just west of the crosswalk at the driveway entrance. Due to the narrow width of the eastbound through travel lane (approximately 12 feet), vehicles would not be able to pass the bus pulled over at the stop within the lane (a width of 12' is desirable to reduce sideswipe accidents, but a 10' width is the minimum.)[10]. Due to the high traffic speeds and volumes along this roadway, it is anticipated that a bus stopping at this location would cause unsafe roadway conditions. Therefore a bus turnout is recommended at this location to accommodate the bus stop (Figure 5-31).

The bus turnout should be bordered by an 8'-10' sidewalk. In addition, ADA accessible curb ramps should be located on either side of the adjacent crosswalk. The existing sidewalk is approximately seven feet wide. The sidewalk is bordered by a fence marking the edge of Caltrans' right-of-way. Therefore, construction of the bus turnout would require construction on 11'-15' of

[10] OCTA Bus Stop and Design Guidelines, Prepared by Kimley-Horn and Associates, Inc., March 2004.

Caltrans' right-of-way. Therefore both Caltrans and the City of Martinez would have to be contacted to discuss the feasibility of this recommendation.

Figure 5-31 New Service Areas in Martinez



Shuttle service in Martinez would provide new service to several areas including to the Wal-mart on Arnold Road (left) and Pine Street south of Vista Way (right)

Figure 5-32 shows the recommended location and dimensions of the bus turnout on eastbound Arnold Drive. A westbound stop would not require any right-of-way changes.

Figure 5-32 Arnold Drive Bus Turnout Design

Source: Fehr and Peers

Preliminary Cost Estimates

This section provides order-of-magnitude cost estimates for recommendations in the Martinez Focus area.

Operational Costs

The addition of a community shuttle would be the only additional operating expense . Based on the proposed weekday revenue hours for the service combined with an estimated cost per hour of $63.91, it is estimated that a community shuttle would cost approximately $236,000 per year to operate. In addition, there would be additional costs for program branding and marketing. These costs are outlined in Figure 5-33 and Figure 5-34.

Figure 5-33 Community Shuttle Resource Summary

Service	Estimated Change in Weekday Revenue Hours	Estimated Cost/Hour	Annual Change in Operating Cost (255 days/year), rounded
Community Shuttle	+14.5 hours	$63.91[11]	+$236,300

Figure 5-34 Additional Operational Costs

Cost Type	Description	Estimated Cost
Branding and Marketing programs	Costs associated with marketing the program (including materials) to local businesses, social services and residents.	$4,000

A major cost savings can be realized with the proposed elimination of Route 19. This service elimination could save approximately 13.83 weekday service hours equating to approximately $424,000 per year. Other fixed route modifications may provide small time and resource savings. However, those efficiencies are recommended to be utilized to improve route frequencies as indicated in Figure 5-35.

Figure 5-35 Fixed Route Service Recommendations Resource Summary

Service	Estimated Change in Weekday Revenue Hours	Estimated Cost/Hour	Annual Change in Operating Cost (255 days/year), rounded
Route 16	No change	-	-
Route 18	No change (time savings to be used for frequency improvements)	-	-
Route 19	-13.83 hours	$120.22[12]	-$424,000
Route 28	No change (time savings to be used for frequency improvements)	-	-
Route 98X	No change (time savings to be used for frequency improvements)	-	-

[11] Estimated cost per service hour based on 2010-2011 Cost per Service Hour of $63.91 for Link service inflated at 2% per year for 2012-2013.

[12] Estimated cost per service hour based on 2010-2011 Cost per Service Hour of $115.55 for County Connection fixed route service inflated at 2% per year for 2012-2013.

Capital Costs

Capital costs presented in Figure 5-36 represent the conceptual costs for bus stop improvements and shelters along the proposed shuttle route[13]. Unit costs are based on MTC's Pedestrian and Bicycle Toolkit[14] and have been escalated to 2013 dollars at 2% inflation.

Figure 5-36 Estimated Costs Capital Improvements Related to Community Shuttle

Capital Improvement	Per Unit Cost	Quantity	Total Cost
New bus stops (assumes no new site work needed)[15]	$500	20	$10,000
Bus shelters	$10,000	4	$40,000
WB roadway improvements on Arnold Drive to accommodate bus stops[16]	$150,000	1	$150,000

SHADELANDS

The Shadelands Business Park is located in the City of Walnut Creek, about three miles from the Interstate 680 corridor and the Pleasant Hill and Walnut Creek BART stations. Currently, the area is spread out and difficult to serve with transit. During the project, the City of Walnut Creek was in the process of developing an ongoing relationship with local business leaders while also encouraging potential new tenants and redevelopment of the Shadelands Office Park. While these efforts are positive in terms of continued growth and "retooling" of Shadelands, our project team was not able to obtain any direct feedback about suggested or proposed changes in the transportation network for tenants or local employees.

Service Goals

Based on discussions with operators who serve the office park coupled with demographic analysis of the area, the following service goals are suggested:

- Create an environment within Shadelands that is easier to serve with traditional transit
- Take advantage of the many workers who live within close proximity to Shadelands
- Provide programs that promote alternative transportation options

[13] Does not include contingency or design fees.

[14] http://www.mtc.ca.gov/planning/bicyclespedestrians/Ped_Districts/04-Generic-Cost-Estimating-Tool.pdf

[15] It is assumed that the WB bus stop on Arnold Drive at Wal-mart would not need any capital design improvements and could be completed based on the existing street configuration.

[16] Assumes costs of new curb and gutter, new sidewalk, bus pullout paving, relocation of drainage inlet, curb ramps, and accounts for traffic control, mobilization, construction administration, contingency, and design.

Service Strategies

Given the limited input that the project team obtained, all service strategies listed below should be further discussed with City of Walnut Creek staff and the appropriate representatives within Shadelands. However, one of the key recommendations includes the creation of a Transportation Management Association (TMA) for Shadelands Office Park. This would dovetail with the property based improvement district (PBID) that is currently under exploration. This group would be tasked with seeking information about transportation preferences and patterns and then advocating to meet those needs. Additional service recommendations are route-specific and are preliminary subject to more detailed review.

Establishment of a Shadelands Transportation Management Association (TMA)

TMAs seek to improve access by reducing people's dependence on the single occupant vehicle and promoting strategies to make it easier to bicycle, vanpool, or take transit to the site. TMAs can be structured to serve one large development site such as Shadelands in whole or a group of employers. The following discussion provides some examples of TMAs, their functions and the roles they play.

A TMA could play a supporting role in encouraging nearby non-motorized trips. Events such as Walk to Work Day could be further promoted through a TMA.

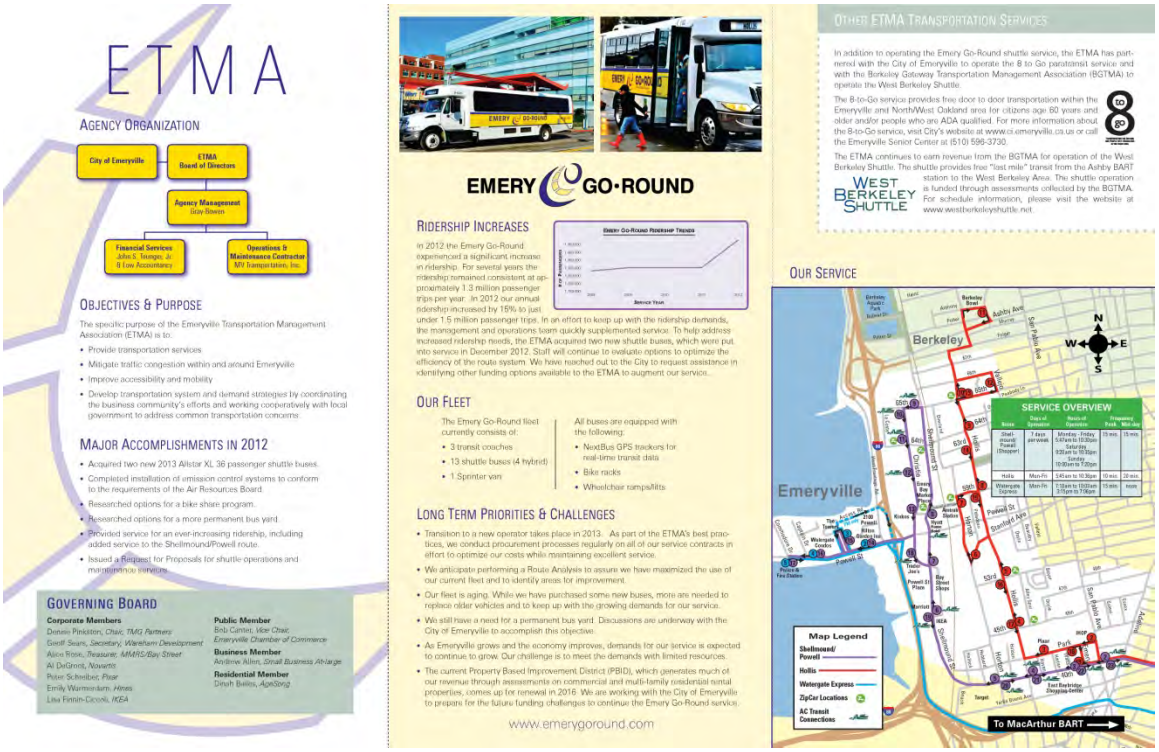
In an area like Shadelands that is already served by transit, a TMA may serve as a sounding board or decision-making body that could articulate certain "on-campus" transit needs to County Connection or lead the charge in improving transit amenities such as stops, shelters or even creating a new consolidated "transit hub." This type of local involvement could be beneficial as the TMA could also play a major role in internally marketing transit services or even setting up the framework for employer Ecopasses (or discounted transit passes).

Some TMAs are tasked with a very specific role, such as providing a first-last mile circulator shuttle. An example of a TMA with a large role in shuttle services is the Emeryville TMA. The TMA pools financial resources, coordinates the involved parties, provides administrative services to keep the shuttle on the road, and acts as an interface between those served by the shuttle (riders and area businesses) and the shuttle contractor.

The TMA may or may not be involved in other functions. For example, given the high number of Shadelands workers that live within close proximity to their employment (shown in Figure 5-38), a TMA could help increase the number of bicycle or walk trips to work. Programming efforts (such as Walk to Work Day) would help reduce vehicle trips but also could have numerous other positive wellness impacts. A TMA could be involved with programmatic efforts or advising local governments on engineering/infrastructure changes to make non-motorized commutes to work safer and more enjoyable.

As of September 2013, it has been rumored that numerous companies in Shadelands are exploring the formation of a PBID. A PBID could establish the administrative foundation under which a TMA could operate.

Figure 5-37 The Emeryville Transportation Management Association (ETMA) Annual Report



ETMA

AGENCY ORGANIZATION

City of Emeryville | ETMA Board of Directors | Agency Management: Bay Rivers | Financial Services: John S. Traynor, Jr. & Low Accountancy | Operations & Maintenance Contractor: MV Transportation, Inc.

OBJECTIVES & PURPOSE

The specific purpose of the Emeryville Transportation Management Association (ETMA) is to:

- Provide transportation services
- Mitigate traffic congestion within and around Emeryville
- Improve accessibility and mobility
- Develop transportation system and demand strategies by coordinating the business community's efforts and working cooperatively with local government to address common transportation concerns

MAJOR ACCOMPLISHMENTS IN 2012

- Acquired two new 2013 Allstar XL 36 passenger shuttle buses.
- Completed installation of emission control systems to conform to the requirements of the Air Resources Board.
- Researched options for a bike share program.
- Researched options for a more permanent bus yard.
- Provided service for an ever-increasing ridership, including added service to the Shellmound/Powell route.
- Issued a Request for Proposals for shuttle operations and maintenance services.

GOVERNING BOARD

Corporate Members
Dennis Pinkston, *Chair, TMG Partners*
Geoff Sears, *Secretary, Watertech Development*
Alice Rose, *Treasurer, MMRS/Bay Street*
Al DeGroot, *Novartis*
Peter Schreiber, *Pixar*
Emily Warmerdam, *Hines*
Lisa Finnin-Cecoli, *IKEA*

Public Member
Bob Cantel, *Vice Chair, Emeryville Chamber of Commerce*

Business Member
Andrew Allen, *Small Business At-large*

Residential Member
Dinah Bellis, *AgeSong*

EMERY GO·ROUND

RIDERSHIP INCREASES

In 2012 the Emery Go-Round experienced a significant increase in ridership. For several years the ridership remained consistent at approximately 1.3 million passenger trips per year. In 2012 our annual ridership increased by 15% to just under 1.5 million passenger trips. In an effort to keep up with the ridership demands, the management and operations team quickly supplemented service. To help address increased ridership needs, the ETMA acquired two new shuttle buses, which were put into service in December 2012. Staff will continue to evaluate options to optimize the efficiency of the route system. We have reached out to the City to request assistance in identifying other funding options available to the ETMA to augment our service.

OUR FLEET

The Emery Go-Round fleet currently consists of:

- 3 transit coaches
- 13 shuttle buses (4 hybrid)
- 1 Sprinter van

All buses are equipped with the following:

- NextBus GPS trackers for real-time transit data
- Bike racks
- Wheelchair ramps/lifts

LONG TERM PRIORITIES & CHALLENGES

- Transition to a new operator takes place in 2013. As part of the ETMA's best practices, we conduct procurement processes regularly on all of our service contracts in effort to optimize our costs while maintaining excellent service.
- We anticipate performing a Route Analysis to assure we have maximized the use of our current fleet and to identify areas for improvement.
- Our fleet is aging. While we have purchased some new buses, more are needed to replace older vehicles and to keep up with the growing demands for our service.
- We still have a need for a permanent bus yard. Discussions are underway with the City of Emeryville to accomplish this objective.
- As Emeryville grows and the economy improves, demands for our service is expected to continue to grow. Our challenge is to meet the demands with limited resources.
- The current Property Based Improvement District (PBID), which generates much of our revenue through assessments on commercial and multi-family residential rental properties, comes up for renewal in 2016. We are working with the City of Emeryville to prepare for the future funding challenges to continue the Emery Go-Round service.

www.emerygoround.com

OTHER ETMA TRANSPORTATION SERVICES

In addition to operating the Emery Go-Round shuttle service, the ETMA has partnered with the City of Emeryville to operate the 8 to Go paratransit service and with the Berkeley Gateway Transportation Management Association (BGTMA) to operate the West Berkeley Shuttle.

The 8-to-Go service provides free door to door transportation within the Emeryville and North/West Oakland area for citizens age 60 years and older and/or people who are ADA qualified. For more information about the 8-to-Go service, visit City's website at www.ci.emeryville.ca.us or call the Emeryville Senior Center at (510) 596-3730.

The ETMA continues to earn revenue from the BGTMA for operation of the West Berkeley Shuttle. The shuttle provides free "last mile" transit from the Ashby BART station to the West Berkeley Area. The shuttle operation is funded through assessments collected by the BGTMA. For schedule information, please visit the website at www.westberkeleyshuttle.net.

WEST BERKELEY SHUTTLE

OUR SERVICE

Berkeley

Emeryville

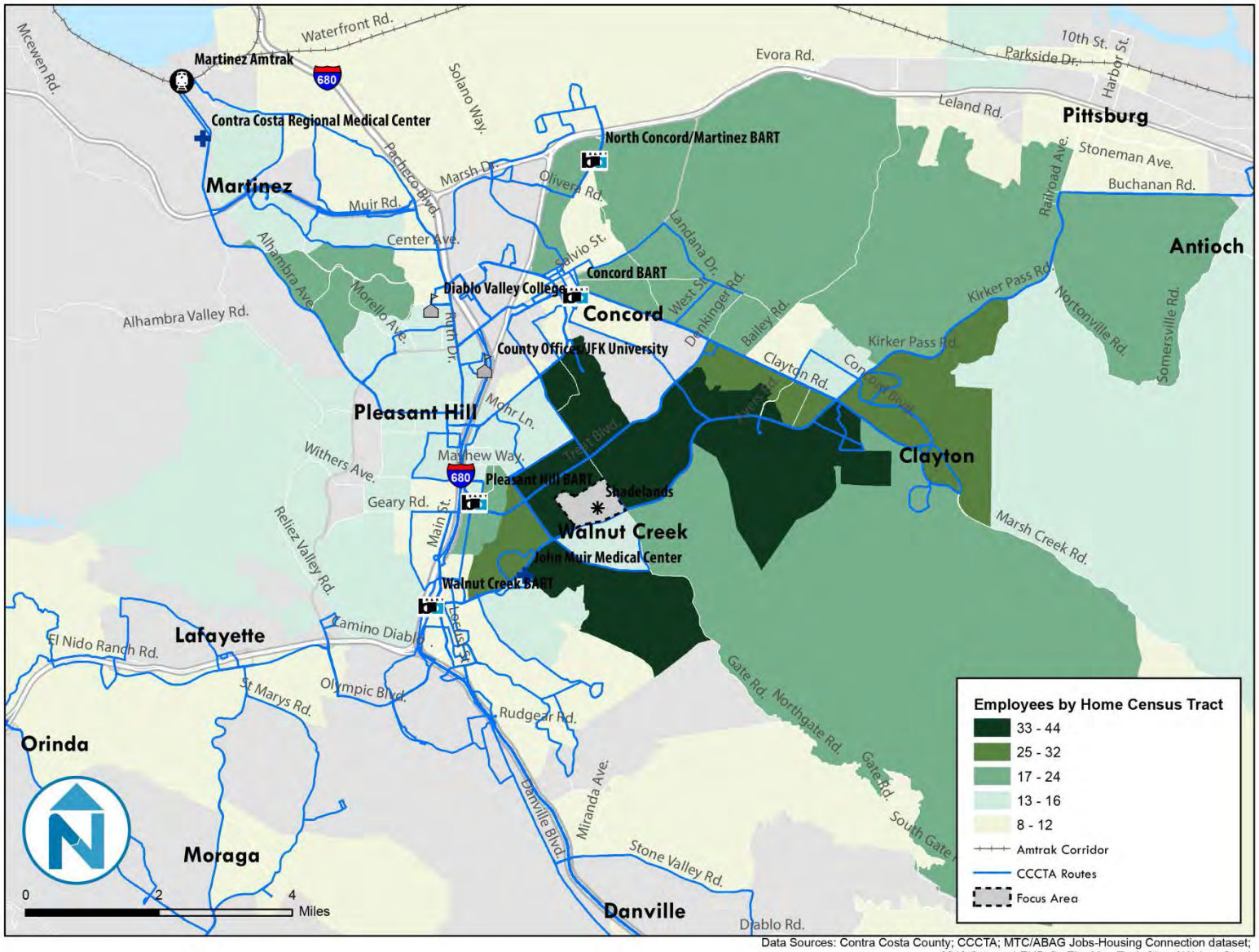
SERVICE OVERVIEW

Map Legend
Shellmound/ Powell
Hollis
Watergate Express
ZipCar Locations
AC Transit Connections

To MacArthur BART

Figure 5-38 Home Census Tracts for Shadelands Employees

As reported in Chapter 4, Shadelands employees are predominately clustered in census tracts adjacent to their employment (dark green)



Data Sources: Contra Costa County; CCCTA; MTC/ABAG Jobs-Housing Connection dataset; 2010 Census LEHD On The Map Tool; City of Walnut Creek

Evaluation of Existing Transit Services to Shadelands

If a TMA is established at Shadelands, one of its first tasks should be a survey of local employees t0 help pinpoint the potential transit market. Some of the Shadelands business leaders have made it clear that adequate transportation to the park is an important issue for their employees and that the current mix of County Connection services does not meet their definition of "adequate." There was a considerable amount of interest in a dedicated Shadelands-BART shuttle service and that idea is described below.

Shadelands Transit Hub Feasibility

Creation of an internal "transit hub" was investigated as an option for improving the attractiveness of transit service by creating a single embarkation point. This option was ruled out due to the large size of the Shadelands Office Park and the potential long walking distances to such a facility. Figure 5-40 depicts the area within ¼ mile (comfortable walking distance) and ½ mile from the Mitchell Park and Ride. This figure highlights that no single location could easily provide convenient walking service for all users on the site. This, in tandem with relatively fast running speeds within Shadelands, led to a recommendation to continue to operate service (and stops) on local streets as compared to focusing on a sole transit hub location within the Shadelands Office Park.

While a single transit hub may not be viable for the Shadelands Office Park, it is possible that street configuration modifications could help improve internal transit routing and also improve pedestrian access within the site. One such improvement includes the extension of Via Monte between Shadelands Drive and Mitchell Drive. This improvement would provide an additional means of internal circulation for vehicles, buses and pedestrians. In terms of transit service, this would allow shuttles to complete a full loop, covering the majority of the focus area without traveling through busier arterial streets and intersections. (Oak Grove Road, Ygnacio Valley Road)

Shadelands BART Shuttle

Overview

Compared to the existing County Connection service, a dedicated BART shuttle could reduce travel times between destinations in Shadelands and Pleasant Hill BART. Presently, the fastest County Connection trip from the Mitchell Park and Ride takes approximately 24 minutes (Route 7, one-way). A dedicated service could reduce the travel time to approximately 18-20 minutes. Travel time savings would be achieved by reducing the total number of stops and utilizing a travel corridor with less variable traffic congestion than the current alignment.

Increasing the frequency of operations would also make the service more attractive to potential users. 15 minute (peak) service frequency would match BART train arrivals at Pleasant Hill BART and provide a much higher level of travel flexibility as compared to current transit options. Given the limited information about potential ridership demand and needs, it is preliminarily proposed that service operate between 7 a.m. and 10 a.m. in the morning and between 3 p.m. and 7:30 p.m. in the evening. Route 7 that currently serves Shadelands should not duplicate the Shadelands Shuttle. Instead, it should be truncated (to save resources) and not directly serve Shadelands or the route could be eliminated altogether to provide resources for a shuttle.

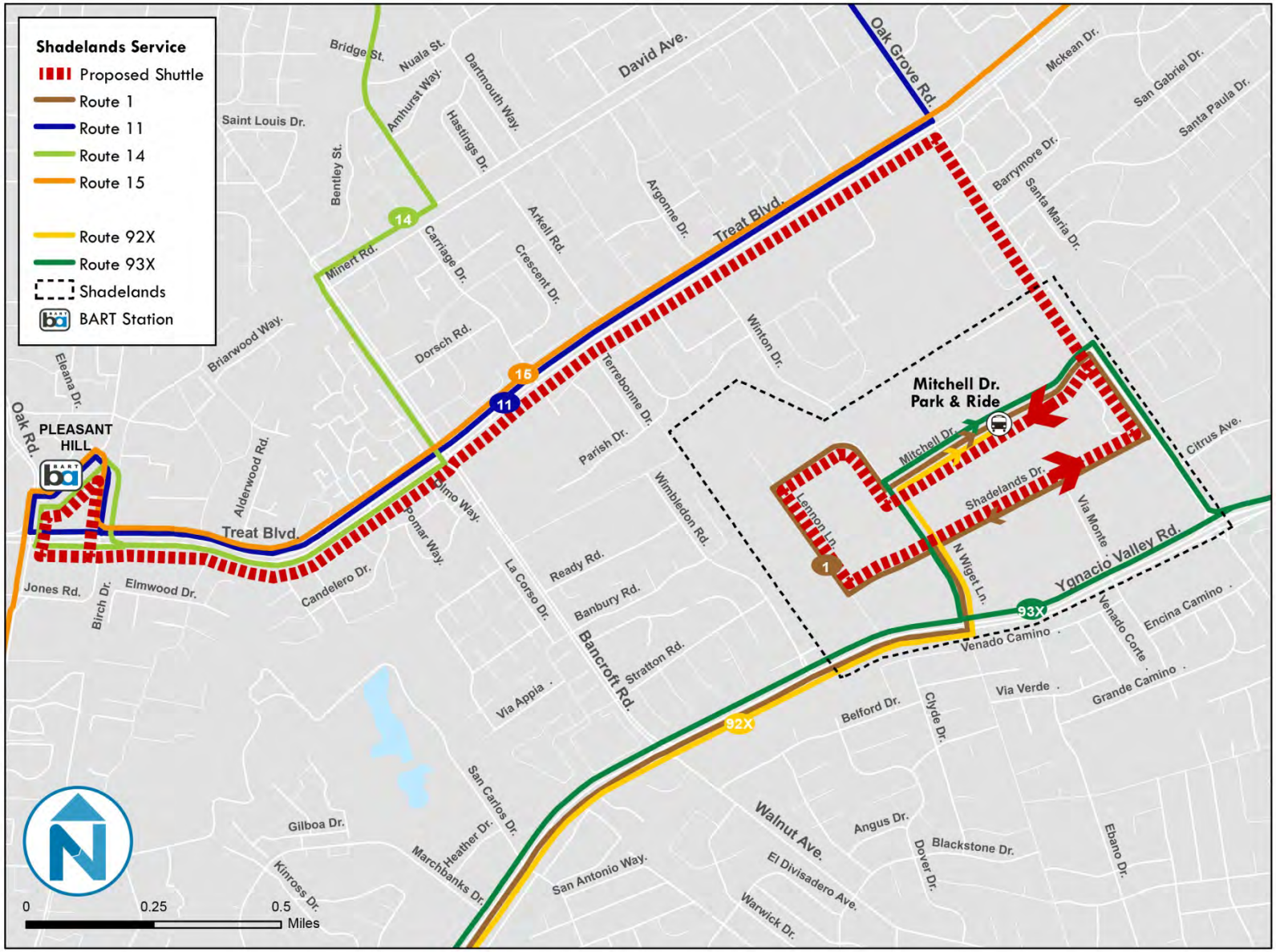
Figure 5-39 highlights service characteristics for the proposed shuttle. Based on 15 minute frequency during peak periods, the service would require four vehicles. This translates to 30 revenue hours per weekday and 7,658 revenue hours per year. It is proposed that the service be offered with a smaller transit vehicle similar to a 20-25 passenger cutaway bus. It is assumed that the operational cost of this service would be based on the cost per hour of the Link service.

Figure 5-39 Service Characteristics

Service Span	7 a.m. and 10 a.m., 3 p.m. and 7:30 p.m.
Service Frequency	15 minutes
Peak Vehicle Requirement	4
Estimated Weekday Service Hours	30
Estimated Annual Service (255 days/year)	7,658
Recommended Vehicle	Cutaway 20-25 passenger bus

To increase running speed and provide a reliable route in terms of congestion, it is proposed that the shuttle operate between Pleasant Hill BART and Shadelands via Treat Boulevard, Oak Grove Road, and then complete an internal loop within Shadelands itself. This alignment minimizes the overall number of traffic signals (improving travel times) and enables the use of existing bus stops. Figure 5-40 illustrates the proposed alignment of a future dedicated shuttle service between Shadelands Office Park and Pleasant Hill BART.

Figure 5-40 Shadelands Shuttle Route Configuration



Data Sources: Contra Costa County

Figure 5-41 Walking Distances within Shadelands Office Park

Data Sources: Contra Costa County

Coordination with Existing Services

Existing routes operating in Shadelands include Route 1, 7, 92X and 93X. It is proposed that Route 7 service be either truncated within Shadelands (replaced by the shuttle) or eliminated altogether. In the scenario of a truncated Route 7, the service would operate from Pleasant Hill BART to Downtown Walnut Creek via Treat, Bancroft and Ygnacio Valley with no service to Shadelands. This service modification saves approximately 23 minutes per trip (in both directions of Route 7) All other routes would continue to operate within Shadelands as they do today. A proposed shuttle would continue to serve all bus stops within Shadelands. One additional stop is recommended on northbound Lennon Lane (at Shadelands Drive) to accommodate potential passenger demand (based on operator feedback). In either scenario, service cutbacks on Route 7 could be used to provide resources for a Shadelands Shuttle.

Branding

A Shadelands shuttle should be marketed and branded as a standalone service that differentiates it from other County Connection services. This goes beyond unique color schemes for vehicles; it should also include consistent branding in print materials (maps, schedules) stop signage and bus stop shelters. Distinct branding will help communicate the shuttle's purpose and focus on to a particular target population (workers at Shadelands). Numerous examples of specially branded shuttle programs exist around the Bay Area.

Figure 5-42 Examples of Branded Shuttle Programs

Premium bus shelters (left) with clear signage can ensure riders understand how to use the service. Simple messaging such as "Express" can communicate that a transit service is non-stop direct to one's destination.

The "B-line" in downtown Oakland (left) provides a highly visible service with a tagline of "Hop on the B-Line". The Mission Bay shuttle in San Francisco (right) is specifically named after its destination, Mission Bay.

Marketing and Communication

Marketing and outreach activities must inform and educate potential riders about the availability of the shuttle service. This is particularly important prior to the implementation of the shuttle because in order to change behavior, it is necessary to let people know that they can take a shuttle that provides hassle-free and fast service from BART.

In order to inform and educate the public, it will be necessary to do the following:

- Provide useful, positive public information about the availability of shuttle service and connecting transit services.
- Emphasize the positive elements of using an alternative mode and its value to the community.
- Promote supportive services such as Guaranteed Ride Home programs that can ensure an expedient trip home (or to a loved one) in the case one has to stay late at work or other unforeseen emergencies.
- Provide real-time arrival information via smart- phone or text. Access to this type of service information been shown to be an extremely effective means to improve rider satisfaction and propensity to use transit.

Preliminary Cost Estimates

The following section provides order-of-magnitude cost estimates for service recommendations in the Shadelands Office Park. The costs of establishing and administering a TMA and employee transportation research tasks are not included in this section as these are anticipated to be costs incorporated into office park or property owner costs and fees.

Operational Costs

Figure 5-43 presents preliminary operational costs for a Shadelands Shuttle based on existing County Connection cost per hour services. A Shadelands Shuttle would cost approximately $490,000 to operate on an annual basis. However, some of these costs may be offset by modifications to Route 7. However, the shortening of Route 7 may also offer an opportunity to increase the route's frequency, which would then result in no cost savings. Additional ongoing costs would include funds to market (on a continual basis) the shuttle to local employees and business considering a move to the Shadelands Office Park.

Figure 5-43 Shadelands Shuttle Resource Summary

Service	Weekday Revenue Hours	Estimated Cost/Hour	Annual Change in Operating Cost (255 days/year), rounded
Shadelands Shuttle	30	$63.91[17]	+$488,900
Truncation of Route 7	-8.8[18]	$120.22[19]	-$269,800

[17] Estimated cost per service hour based on 2010-2011 Cost per Service Hour of $63.91 for Link service inflated at 2% per year for 2012-2013.

[18] Assumes approximately 23 minutes saved per 23 trip per weekday.

[19] Estimated cost per service hour based on 2010-2011 Cost per Service Hour of $115.55 for County Connection fixed route service inflated at 2% per year for 2012-2013.

Figure 5-44 Additional Operational Costs

Cost Type	Description	Estimated Cost
Branding and Marketing programs	Costs associated with branding and marketing the program to local Shadelands businesses and potential future tenants.	$4,000

Capital Costs

Capital costs in Figure 5-45 include the potential capital costs associated with a Shadelands Shuttle. This includes the cost of the vehicle itself and automatic vehicle locator (AVL) technology that would enable real-time arrival information. Furthermore, capital costs should include new bus stops to accommodate the counter-clockwise alignment of the shuttle within Shadelands and several new bus shelters. Unit costs are based on MTC's Pedestrian and Bicycle Toolkit[20] and the American Public Transportation Association's vehicle database and have been escalated to 2013 dollars at 2% inflation

Figure 5-45 Estimated Shadelands Shuttle Capital Costs

Capital Improvement	Per Unit Cost	Quantity	Total Cost
New bus stops	$500	7	$3,500
Bus shelters	$10,000	7	$70,000
Shuttle vehicles (20-25 passenger cutaway bus	$122,000[21]	4	$488,000
Automatic vehicle locator (AVL) systems	$1,200 / bus	4	$4,800
Wayfinding and enhanced signage	-	-	$3,500

[20] http://www.mtc.ca.gov/planning/bicyclespedestrians/Ped_Districts/04-Generic-Cost-Estimating-Tool.pdf

[21] Based on public transportation vehicle database. *American Public Transportation Association.* http://www.apta.com/resources/statistics/Pages/OtherAPTAStatistics.aspx

6 IMPLEMENTATION PLAN

This chapter focuses on next steps for service implementation in each of the three focus areas. Given that the focus areas have unique characteristics, elements of implementation are also very different in terms of the key parties to involve and the questions that need to be addressed. The following sections describe each focus area and key tasks for implementation and individuals or organizations who should lead those tasks.

TROTTER/SOUTH WALNUT CREEK

The primary service recommendation in Trotter and South Walnut Creek includes modifications to Route 2 and Route 5 in order to provide increased service to residents along Creekside Drive. Transit-supportive improvements and policies that include:

- Creekside Drive pedestrian and bus stop improvements
- Investigating easement to install an additional access point to Iron Horse Trail
- Develop Ecopass with local residential organizations

Figure 6-1 summarizes each of the key recommendations and staff to lead that effort. Organizations involved in a supportive role are noted in *italics*. Implementation tasks related to transit service changes and the provision of an Ecopass are the responsibility of County Connection. Implementation partners such as the City of Walnut Creek and landowners are also included given that many of the recommendations focus on improving access and safety around bus stops.

Figure 6-1 Trotter/South Walnut Creek Implementation Steps

Service Recommendation	Key Implementation Tasks	Organizational Lead and *Support (italics)*
Route changes on Route 2 and Route 5	▪ Finalize variants for Route 2 and Route 5 within South Walnut Creek. Service options may include elimination of Route 2 service, conversion to Zone Service and/or realignments of Route 2 and 5. (see Trotter/South Walnut Creek Service Strategies) ▪ Establish internal working agreement to provide Zone Services using Link vehicle and operators. (if applicable) ▪ Implement stop changes as needed (most likely removal of stops no longer being utilized) ▪ Revise schedules, bus stop signage (if needed) and conduct additional marketing and outreach efforts along Creekside Drive to ensure service enhancements are messaged to community.	County Connection
Creekside Drive Pedestrian and Bus Stop Improvements	▪ Conduct any additional data collection and develop detailed design drawings for proposed bus stop relocations along Creekside Drive and other pedestrian-related improvements. ▪ Construct improvements in tandem with any County Connection service changes. ▪ Work with local property owners along Creekside Drive to ensure continuous sidewalk exists along the length of the roadway.	City of Walnut Creek *County Connection* *Local Property Owners*
Investigating easement to install an additional access point to Iron Horse Trail	▪ Investigate options for easements to improve access opportunities between Creekside Drive and the Iron Horse Trail	City of Walnut Creek *Local Property Owners*
Develop Ecopass with local residential organizations	▪ Develop rules and regulations around a County Connection Ecopass program focused on residential developments ▪ Develop relationships with local residential apartment owners and condos to pilot a residential Ecopass program.	County Connection *Local Property Owners* *City of Walnut Creek*

MARTINEZ

Recommendations in Martinez are broader in scale compared to other focus areas. Key recommendations include the deployment of a Community Shuttle and modifications to the existing fixed route network. Figure 6-2 summarizes the two primary recommendations and outlines key implementation tasks followed by the organizations that should lead those efforts. The majority of implementation tasks in Martinez revolve around the initiation of a community shuttle service. County Connection should coordinate with the City of Martinez to finalize operational requirements, seek additional funding for work with local organizations to market the service. Thus, the organizational lead is shared between both the City of Martinez and County Connection. Other fixed route modifications in the Martinez area would also be lead by County Connection and supported by the City.

Figure 6-2 Martinez Implementation Steps

Service Recommendation	Key Implementation Tasks	Organizational Lead and *Support (italics)*
Community Shuttle[1]	▪ Finalize service alignment and stop locations ▪ Complete bus stops improvements for select locations if needed (road segments with new transit service) ▪ Complete intersection improvements to prevent "blind turns" – (Terrace Way/Shell Ave. and Green St. /Pine St.) ▪ Procure bus stop signage and marketing materials ▪ Determine service delivery technique (shuttle service contracted to County Connection or 3rd party, etc.) ▪ Develop Marketing/Outreach Plan for shuttle service ▪ Deploy Marketing/Outreach Plan and print schedules.	City of Martinez County Connection *Martinez Social Service Organizations*
Fixed Route Service Modifications	▪ Conduct public hearings – Elimination of Route 19 – Modification of Routes 18 and 28 ▪ Modify signage on Alhambra Avenue and Berrellesa Street to reflect 98X limited stop service ▪ Modify signage on other portions of Route 98X ▪ Complete bus stops improvements for select locations if needed (road segments with new transit service) – consistent with community shuttle implementation task	County Connection *City of Martinez*

[1] Given the implementation requirements of a community shuttle, it is assumed that the City of Martinez and County Connection would be equal partners in helping initiate a local circulator shuttle service.

SHADELANDS

Key recommendations in Shadelands focus are highly dependent on the collective input and preferences of local business leaders and their employees. As of August 2013, it has been rumored that Shadelands may be in the process of organizing a Property-based Business Improvement District (PBID). If formed, a PBID could help further articulate goals from the Shadelands business community in multiple arenas, including transportation. Figure 6-3 outlines three service recommendations in the Shadelands Focus Area. Presuming that a PBID is formed, it is possible to form a Transportation Management Association (TMA). A TMA will be a key component of future transportation decisions and a partner in implementing the service recommendations.

Figure 6-3 Shadelands Implementation Steps

Service Recommendation	Key Implementation Tasks	Organizational Lead and *Support (italics)*
Establishment of a Shadelands Transportation Management Association (TMA)	▪ Work with participating businesses within the Shadelands Office Park to establish a TMA.	Shadelands Businesses (Pending) City of Walnut Creek
Evaluation of Existing Transit Services to Shadelands	▪ Deploy a transportation-specific survey to employees within Shadelands Office Park	Shadelands TMA (pending)
Shadelands BART Shuttle	▪ Finalize service alignments and bus stop locations ▪ Procure vehicles (if necessary), Shadelands-specific bus stop signage, bus shelters and marketing materials ▪ Determine service delivery technique (shuttle service contracted to County Connection or 3rd party, etc.) ▪ Work with BART to establish dedicated space at Pleasant Hill BART for shuttle operations ▪ Develop Marketing/Outreach Plan for shuttle service ▪ Deploy Marketing/Outreach Plan and print schedules.	Shadelands TMA (Pending) County Connection *BART*

APPENDIX A

Stakeholder Contact List

Appendix A Stakeholder Contact List

The following individuals played a role providing input and feedback for various elements of this planning effort.

MARTINEZ FOCUS GROUP

- Anthony Chapa, Amtrak
- Kathi Curry, Martinez Senior Citizen Center
- Kathy Farewell, Martinez Adult School
- Frances Ferrante, Martinez Resident
- Ann Gwen, City of Martinez
- Anjana Mepani, City of Martinez
- John Stevens, Martinez Chamber of Commerce
- Doug Steward, Contra Costa County Planning Commissioner and Homeless Outreach Coordinator
- Leanne Peterson, Main Street Martinez
- Ron Schroder, City of Martinez

ADDITIONAL PROJECT STAKEHOLDERS AND CONTACTS

The following individuals were contacted once or over several occasions regarding project input

- Nasrin Akrami, Leasing Consultant, Diablo Point Apartments
- Alana Byrd, Leasing Consultant, The Retreat
- Barbara Dawson, Rudgear Homeowners Association
- Ron Gerber, City of Walnut Creek (Shadelands Business Park)
- Jeremy Lochirco, City of Walnut Creek
- Paula Lubner, Creekside Drive Resident Manager
- Mayra Mejia, Leasing Consultant, Four Seasons Apartments
- Galina Molenda, Community Manager, Creekside Glen Apartments
- Rick Ramacier, County Connection

APPENDIX B

Creekside and Martinez Outreach Summary

Appendix B Creekside and Martinez Outreach Summary

This appendix provides an overview of the data that was collected from Martinez and Creekside outreach events held during the week of July 22nd.

MARTINEZ

Background

To gather additional input in the Martinez focus area, a stakeholder focus group was held in late July 2013. During the meeting, the project team shared basic concepts and ideas for a Martinez Community Shuttle Service including routing, frequencies, and potential stops. These alternatives were based on the general framework provided in the 2009 Downtown Martinez Community Based Transportation Plan (CBTP), previous stakeholder interviews, and a recent site survey conducted by Nelson\Nygaard staff. The primary purpose of the meeting was to obtain feedback on these concepts and to ensure they "make sense" for further development for the County Connection Adaptive Service Plan.

For this effort, we reached out to previous stakeholders who were involved in the 2009 CBTP for Downtown Martinez. This group supplements individuals in Martinez who have already been contacted as part of the Adaptive Service Plan project.

Focus Group

During the focus group, several key topics were covered as part of the agenda. Topics are categorized below.

Discussion of the 2009 Downtown Martinez Community Transportation Plan

The workshop covered several key topic areas including confirmation of goals and outcomes that emerged from the 2009 CBTP. The conversation around the 2009 effort generated the following discussion and comments from the group, most of which was relatively general about transit issues in Martinez.

- Downtown Martinez needs additional transit service beyond what exists today.
- Much of Martinez does not currently have transit service and that any service, even infrequent would be better than no service.
- Comment that current services do not operate late enough to accommodate many trips (those coming from BART, adult school students).
- Later service needed to serve adult school – some can't take classes because current buses do not run late enough. Many students are from Martinez, some from surrounding communities such as Hercules (Adult school starts classes at 8:15a.m., also has classes at 12:15, 3:15p.m., 6p.m. and 9:30p.m.).
- County Connection previously had program where seniors and disabled with a card issued by County Connection could ride buses for free between 10a.m.-2p.m.. Participants would like to see program brought back.

- Buses are generally crowded during school bell times.
- Later bus service is desired. (last bus currently leaves Amtrak at 7:40p.m.).
- 8a.m.-5p.m. shuttle service as defined in the CBTP generally good for seniors. However some seniors will drive during the day but not at night, some would want to take evening adult school classes and would want transit service to classes because they cannot drive.

Discussion on Existing County Connection Service

Based on existing transit service levels provided by County Connection, the group offered the following comments and suggestions.

- There is a demand to provide services to areas of Martinez that currently have no service at all (Wal-mart mentioned frequently). Major destinations such as the Regional Medical Center are important to serve with a community shuttle, but would not be required since they already have existing frequent transit service.
- The senior center has a $2 discounted lunch program, but there is no bus service to the senior center and paratransit would be cost prohibitive to many. More would attend the lunches if served by transit.
- Many young students currently walk because buses do not serve their destinations – they are a potential unserved market for County Connection.
- One resident noted that it is easier to take County Connection to the Safeway in Pleasant Hill than to the Safeway in Martinez, which requires a transfer at the Amtrak Station.
- Not all residents have access to transit – no transit along Pine Street between Downtown and Highway 4.
- Many streets are not appropriate for transit because they are too narrow or hilly

Who is the Target Market?

In revisiting the 2009 shuttle study, the intended target shuttle market is not completely clear. Based on the discussion at the stakeholder meeting, it became clear that local citizens who are transit dependent and those unable to drive should be the focus of a community service. However, some did not want to lose sight of the possible positive impact a shuttle could have on downtown traffic congestion and parking supply issues. Furthermore, some individuals noted that peak period service should be more frequent, and mid-day service could be scaled back to a lesser frequency. Other comments related to the "target market" in Martinez included the following statements.

- If choosing between regional destinations and community destinations, a shuttle should serve the community, perhaps with less frequent but more extensive service.
- Service should be more frequent during peak times and less frequent during the middle of the day. This may cater to commuters during peak periods and other groups (seniors and disabled) during the mid-day.
- It was noted that Martinez does not have many "pass through" trips aside from those coming from Amtrak, who are already served by existing County Connection routes.
- Many jurors and others who arrive for County services arrive via Amtrak and walk to the courthouse.

What Areas Should Be Served?

The concept of a community shuttle in Martinez has been studied and discussed on several previous occasions. Fortunately, the potential service area is relatively limited, which makes the selection of key destinations relatively straightforward. Most agreed that destinations that absolutely needed to be served included Downtown Martinez (including Amtrak and the Senior Center), Wal-mart, and Pine/Center Avenue near Howe Road. Other destinations that were discussed included the Regional Medical Center, Contra Costa Public Housing (Estudillo Street) the Veterans Administration Hospital and northern sections of Pine Street. Other comments included the following:

- Transit is needed down Pine Street.
- Future service should serve elementary school and childcare on Vista Way.
- Service should serve homeless services, probation, child services, and health clinic at Center/Hwy 4.
- VA hospital currently served by transit, frequent service important.
- Important to serve Wal-mart, but frequency does not need to be high.
- Alhambra is currently well served by multiple agencies.
- Residents near Pine and Bush mainly drive; there is little market for transit use.
- The Senior Center offers more daytime events not because seniors don't want to drive at night and don't have transit access at night.
- Pine Street is narrow and might need smaller shuttle.
- County Connection previously had service down Pine Street and some didn't want the service going down their street.

Future Funding Opportunities

Finally, the discussion closed on the topic of potential future funding and who might be in a position to provide resources for such a service.

- The City previously applied for MTC funding for a shuttle but was refused due to low ridership expectations, they applied for bus shelter funds instead.
- The Walnut Creek free shuttle operated by County Connection is a good case study.

Preliminary Implementation Ideas

- Investigate alignments that serve key destinations and assume that deviations are possible with future service.
- Provide new service to Wal-mart and Martinez Senior Center.
- Potential similar services include Walnut Creek Downtown Circulator and Monument Corridor Community Van (being reintroduced in Fall 2013)[1]

[1] A full description of the revised Monument corridor neighborhood service can be found here: http://transpac.us/wp-content/uploads/2010/09/Item-15.pdf

CREEKSIDE DRIVE

Background

In June, Nelson\Nygaard staff completed an existing conditions study and conducted informal interviews with eight property managers at multi-family housing developments on Creekside Drive, as well as intercept surveys along the Iron Horse Trail in the South Walnut Creek area. Community outreach was conducted to assess the potential to modify transit service on Creekside Drive to better capture the existing and potential transit market. The area is characterized by a high concentration of multi-family housing along a narrow dead-end street with poor sightlines and parking on both sides. Based on information gathered in the first round of outreach and detailed in Outreach Technical Memo #1, the team determined that more direct feedback from residents of the area would be necessary to make planning and service recommendations.

The Elk's Lodge Parking lot offered ample space to conduct a survey and offer food to participants

View of Elks Lodge Parking Lot (facing north across Creekside Drive)
Photose: Nelson\Nygaard

A public event with intercept survey administration was selected as the method of outreach for the second round. The team utilized the large parking lot in front of the Elks Lodge (1475 Creekside Drive) near the start of Creekside Drive. In addition to the event, the team developed a more in depth survey tool to be administered on site and distributed electronically. The goals of the outreach event and survey were to:

- Obtain feedback on rider and non-rider habits, preferences, and commute patterns.
- Make contact with the residents of the Creekside Drive area to interface with the public and market County Connection services.

Outreach Event

The event was held from 4:00 to 8:00 p.m. on Tuesday, July 23rd. Two Nelson\Nygaard staff members were present, as well as Mary Burdick, Manager of Marketing and Public Relations at CCCTA. The event included a hybrid bus parked on site to attract attention and provide attendees with a chance to go onboard and answer questions about riding a bus. Free food and water were

provided, along with CCCTA maps and schedules, to all attendees who were willing to fill out the survey.

Thirty residents of Creekside Drive visited the event and twenty-five people completed a survey. While many visitors were interested in talking about their experience with transportation, and difficulties travelling to and from the Creekside Drive area, several major themes emerged during staff discussions with visitors.

Key Findings

- There is considerable interest in bus service to BART and other services, although a number of residents reported that they are not aware of existing routes, do not know how to find information about the service, or would like more frequent service/a longer span of service.
- There are many non-English speaking households in the Creekside area. This language barrier may contribute to the reported confusion about available transit services in the area.
- Residents of the Creekside area face parking challenges. There is limited available on-street parking, and most residents have only one off-street space with their unit. This results in significant time spent circling the block searching for parking.
- Residents would like bus information at stops, including a map and schedule, and ideally real time arrival information.
- Anecdotal conversations with property managers at many developments indicated that they are already providing residents with some information about transit service, schedules, and view the bus as an amenity.
- Many people are accessing the Iron Horse Trail through a hole cut in a fence behind one of the housing developments, and several respondents expressed the need for a more formalized access to the trail (in addition to the one existing trail connection near the south end of Creekside Drive).

Survey Feedback

Twenty-six residents of Creekside Drive completed a transportation survey regarding their current usage of public transit, daily travel habits, and their usage of the adjacent Iron Horse Trail. The survey contained skip logic to ask different questions of transit riders and non-transit riders. Half of all respondents have used County Connection Route 5 in the past six months. Another 11% had used other County Connection services, but not Route 5. Eleven respondents reported that they have not used the bus at all in the past six months.

Of the County Connection riders who responded to the survey, there was an even distribution of frequent and infrequent riders. Most riders use Route 5 or 605 (Creekside school tripper), while some also use Route 21/321 (Route 321 is the weekend service of Route 21).

County Connection Experience

Creekside residents, both current riders and non-riders, responded in the survey to questions about why they do not ride the bus more frequently (or at all) and what would encourage them to ride more/at all. The responses to these questions are shown in Figures B-1 and B-2. Key findings from this section are:

- The most common complaint for both riders and non-riders is that the bus takes too long; non-riders view this as a significant obstacle. Other important issues are span of service, frequency, and not knowing where to catch the bus.
- The most reported improvement that would encourage existing riders to ride more is more frequent service, whereas non-riders prioritize direct service to BART most highly.
- Many respondents use BART for commuting and there is a high desire for bus service to BART, including non-commute trips.

Figure B-1 Comparing Riders and Non-riders:
Why don't you ride more often (or at all)?

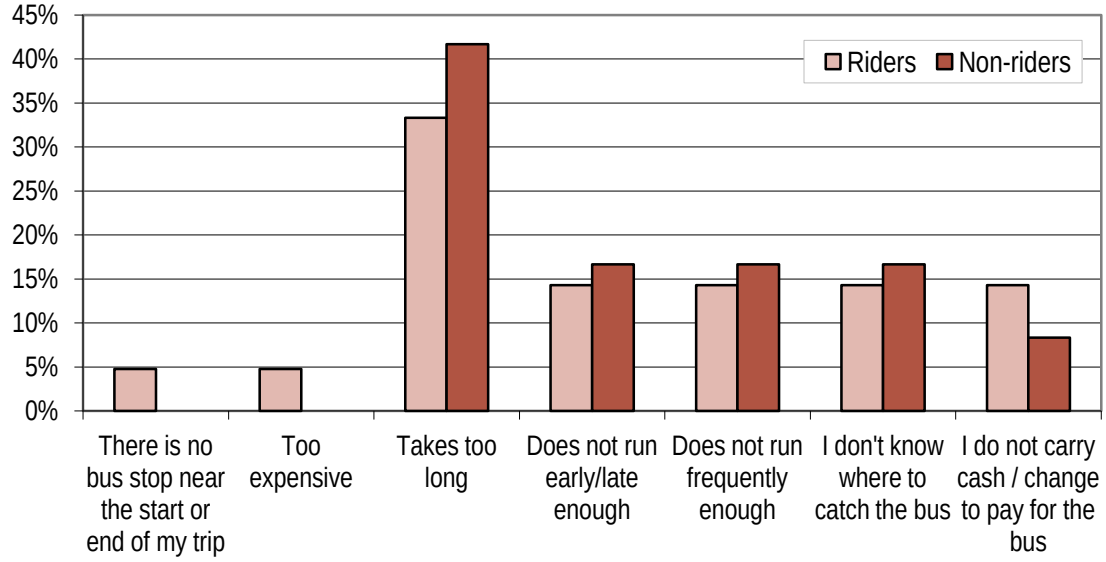
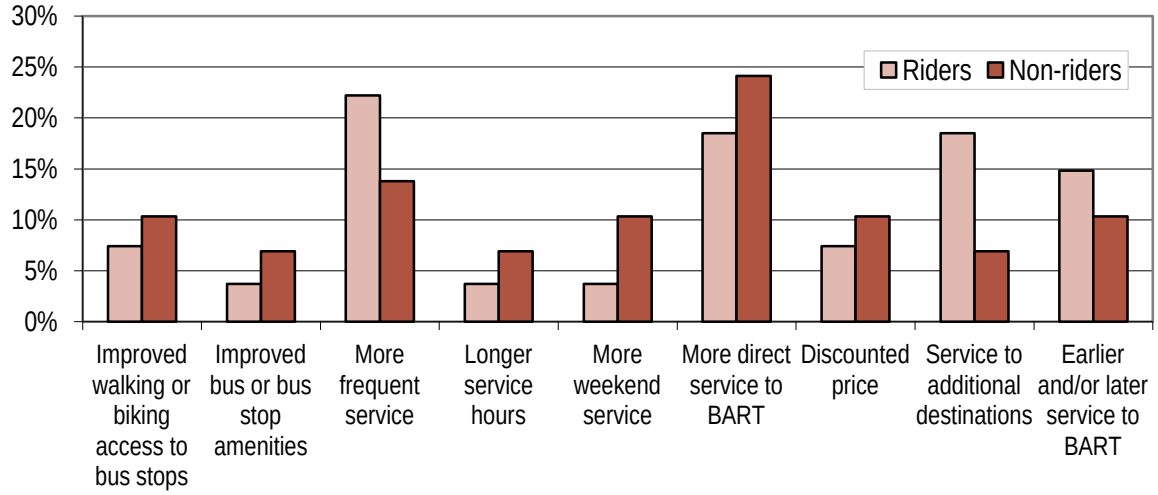


Figure B2 Comparing Riders and Non-riders:
What would encourage you to ride more often (or at all)?



General Trip Characteristics

The survey also collected information about general trip characteristics and usage of the Iron Horse Trail. The key findings from this section are listed below:

- Respondent's commute destinations are not clustered, but many do need to access BART to use the service or transfer.
- Majority of respondents indicate they do transfer buses on their typical commute.
- Several people noted the dire parking situation in Creekside and the need to mitigate this issue.
- Users of Route 605 (school tripper) expressed concern about walking and biking routes to and from transit.
- Very few respondents reported using a bicycle as a commute mode.
- Over three-quarters of respondents use a car for errands, but many also walk for shopping and recreation.
- Majority of respondents have used the Iron Horse trail in the last 6 months, typically for recreation.
- Poor lighting and personal safety concerns were the most common issues reported with the Iron Horse Trail.
- Demographically, the respondents were majority females in 2-person, 2-car households.
- Almost half of respondents reported household incomes over $78,000 per year and a significant portion of respondents reported incomes under $30,000 per year.

Preliminary Implementation Ideas

- Investigate issues such as speeding, unsafe pedestrian environment, trail access, and parking.
- Seek community partnerships with the housing developments on Creekside Drive to provide additional support and funding for service in this area to support the existing efforts of on-site property managers.[2],[3]
- A neighborhood eco-pass program or other developer-supported transit subsidy for residents.
- Seek opportunities to realign resources between Route 2 and Route 5 (currently interlined) to provide increased frequencies and more direct service between Creekside Drive and BART.

SHADELANDS

Despite continued efforts to reach out to business leaders at Shadelands (via City of Walnut Creek staff), we have been unable to obtain additional feedback from that focus area.

---

[2] Jaffe, Eric. "How to Fund Transit Without Raising Fares or Cutting Service" The Atlantic, July 18, 2013 http://m.theatlanticcities.com/commute/2013/07/how-fund-transit-without-raising-fares-or-cutting-service/6241/

[3] Example subsidy agreement between Transit Operator and Private Apartment Management Company http://www.kansascollaborative.com/resources/Briar%20Manor%20Appartments%20Subsidy%20Agreement%20-%20Route%207%206-21-10.pdf

APPENDIX C

Pedestrian Audit

FEHR PEERS

MEMORANDUM

Date: September 13th, 2013

To: Paul Supawanich, Nelson\Nygaard

From: Nikki Foletta and Brooke DuBose, Fehr & Peers

Subject: Creekside Drive Pedestrian Audit

SF13-0673

The following describes existing pedestrian environment conditions along Creekside Drive in Walnut Creek and provides suggestions to enhance pedestrian safety and pedestrian access to transit.

A pedestrian audit, led by Fehr & Peers, was conducted along Creekside Drive on Thursday, August 22nd from 9:30AM – 11:30AM. In attendance were representatives from County Connection, the City of Walnut Creek, Nelson\Nygaard and Fehr & Peers. Walking audits are typically conducted as a preliminary step in efforts to improve the pedestrian environment within a selected area. During a walking audit, positive practices are observed and issues and opportunities are noted. For each opportunity area, the group discusses options to address pedestrian safety concerns. Walking audits are highly interactive, and are a means to observe and learn how to "see through the eyes of the pedestrian."

This memorandum presents the observations and suggestions made during the walking audit conducted on Creekside Drive in Walnut Creek. Suggestions are based on best practices and discussions with the multidisciplinary participant group regarding local needs and feasibility.

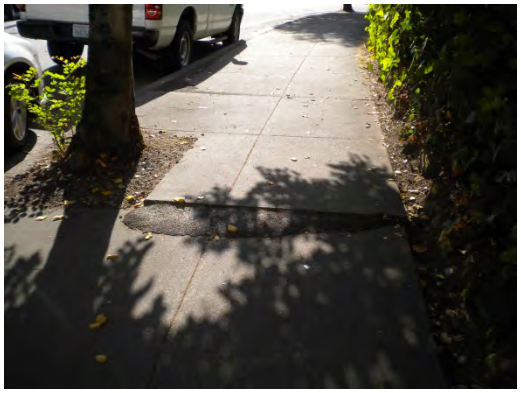
Conditions may exist in the focus areas that were not observed and are not compatible with suggestions in this report. Before suggestions are implemented City staff should conduct further analysis to ensure that the concepts are contextually appropriate and do not negatively impact pedestrian safety or accessibility from issues including, but not limited to: vehicular traffic, physical characteristics, unsafe conditions, or improper implementation.

Creekside Drive is a two-lane (one lane in each direction), half-mile stretch of roadway leading from South Main Street and ending at a cul-de-sac. The focus area of the walking audit was selected based on the following criteria:

- Location of several County Connection bus stops
- Potential for increased transit use
- Perceived high traffic speeds causing unsafe pedestrian crossing conditions
- Access point for Iron Horse Trail
- School zone

The following sections present the key issues identified during the walking audit. Suggestions for consideration are presented to respond to the issues at each site. Numbered locations and suggestions are displayed in the figure on page 8.

1. Creekside Drive between Main Street and Quail Court

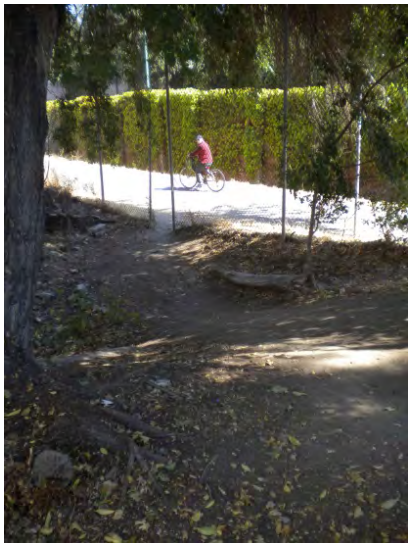


Observations: Sidewalks are provided on both sides of Creekside Drive between Main Street and Quail Court and no parking is allowed. Street trees provide shade along the segment, enhancing the pedestrian experience. The sidewalk is being uprooted by trees at some locations, providing a potential pedestrian tripping hazard. Bus stops are located on both sides of Creekside Drive at Quail Court. The westbound stop is located less than 500 feet from the proximate stop at Main Street. Ridership (boardings plus alighting) at the Creekside Drive/Quail Court stop is fewer than five passengers per day. According to surveys conducted in August 2013, the median traffic speed along this segment is 15mph while the 85th percentile speed is 24mph. The speed limit is 25mph. Average daily traffic along this segment is 6,700 vehicles per day.

Suggestions:

- Repave and level sidewalks to reduce potential pedestrian tripping hazards

- Remove bus stop in westbound direction to both reduce pedestrian crossings at location and to improve bus operations



2. 1470 Creekside Drive

Observations: The Iron Horse Regional Trail runs parallel to Creekside Drive. Just south of the Las Lomas High School baseball field, where the parking lot of 1470 Creekside Drive meets the Iron Horse Regional Trail, is an informal pathway leading from the trail, through a hole in the fence, and up a hill to the parking lot. Pedestrians use this pathway to access Las Lomas High School or Creekside Drive from the trail. This suggests a demand for increased pedestrian access to the trail.

Suggestion:

- Work with the City of Walnut Creek and property owners along Creekside Drive to create additional formalized pathways from the Iron Horse Regional Trail to the neighborhood and school

3. Creekside Drive between Quail Court and 1451 Creekside Drive

Observations: Sidewalks are provided on both sides of Creekside Drive between Quail Court and 1451 Creekside Drive. Parking is generally allowed on both sides of the street with some restrictions. Street trees provide shade along the segment, enhancing the pedestrian experience. Bus stops are located on both sides of Creekside Drive at this midblock location. This segment is a long stretch of roadway with no intersections or stop signs; conditions which can encourage speeding. According to surveys conducted in August 2013, the median traffic speed along this segment is 25mph while the 85th percentile speed is 30mph, which is well above the posted speed limit of 25mph. Average daily

traffic along this segment is 4,200 vehicles per day. According to SWITRS[1] data, 17 auto collisions occurred in this vicinity between 2001 and 2011, and two of those collisions included a pedestrian injury.

Suggestions:

- Install a high visibility ladder crosswalk at this location to formalize the pedestrian crossing location and improve pedestrian safety. Crosswalks can help to slow traffic and also make drivers aware that pedestrians may be crossing. ADA accessible curb ramps should be installed at both sides of the crosswalk. The crosswalk may be paired with advanced yield lines and advanced signage to further improve motorist compliance.
- Install bus bulbs on both sides of the street to reduce pedestrian crossing distance and enhance visibility for pedestrians and motorists; stagger bus bulbs so that passengers cross at crosswalk behind the bus (bus bulbs are an extension of the sidewalk that extend from the curb of the parking lane to the edge of the through lane; they may require removal of parking spaces)

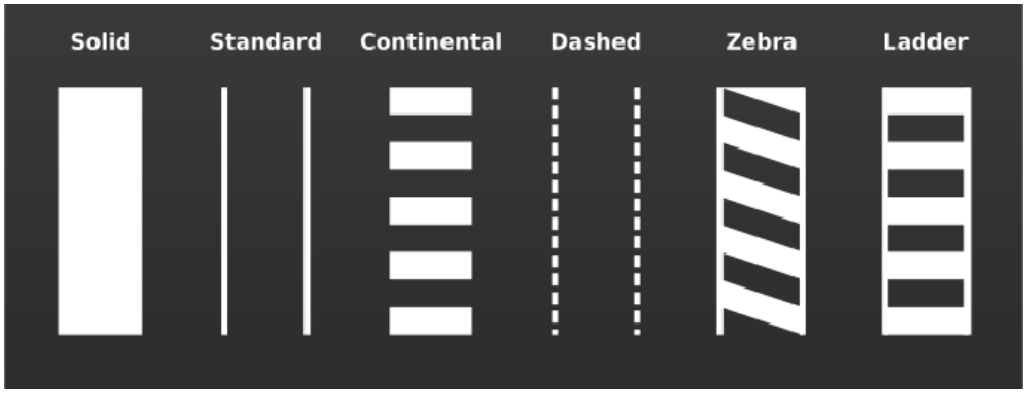


Image source: FHWA, Planning and Designing for Pedestrian Safety Course, 2008

[1] http://iswitrs.chp.ca.gov

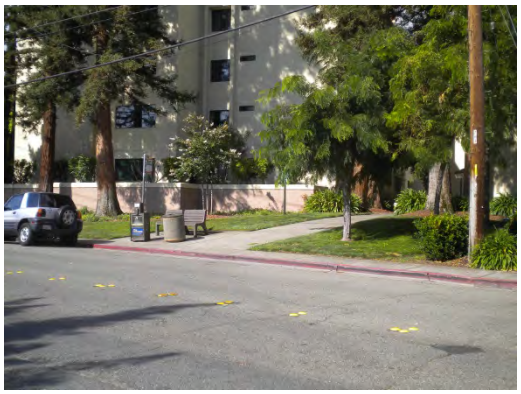
4. Creekside Drive between 1451 Creekside Drive and and Iron Horse Regional Trail Access Point

Observations: Sidewalks are provided on both sides of Creekside Drive between 1451 Creekside Drive and the Iron Horse Regional Trail Access Point. Parking is generally allowed on both sides of the street. Street trees provide shade along the segment, enhancing the pedestrian experience. The sidewalk is being uprooted by trees at some locations providing a potential pedestrian tripping hazard. This area is a school crossing zone, which is marked by yellow "SCHOOL XING" pavement stencils. An uncontrolled yellow standard crosswalk is located across Creekside Drive at the trail access point, which is enhanced by advance yield limit lines and pedestrian crossing signs. The side of the crosswalk at the trail access point has curb ramps but does not have truncated domes. The other side of the crosswalk does not have a curb ramp. Due to shade from the street trees, the crosswalk is not highly visible, especially to vehicles traveling at high speeds in the southbound direction coming from a long stretch of roadway with no stop signs or intersections. Furthermore, the roadway curves at the crosswalk, reducing visibility around the turn from either direction.

Suggestions:

- Replace standard crosswalk with yellow high visibility ladder crosswalk
- Install ADA accessible curb ramps on each side of crosswalk
- Install pedestrian scale lighting
- Relocate bus stops to the far side of crosswalk in both directions to improve transit access to Iron Horse Regional Trail and encourage crossings behind the bus
- Perform site distance evaluation to determine whether other measures are justified (such as a speed feedback sign)

5. Creekside Drive between Iron Horse Regional Trail and Near Creek



Observations: Sidewalks are provided on both sides of Creekside Drive between the Iron Horse Regional Trail and Near Court. Parking is allowed on both sides of the street with some restrictions. Street trees provide shade along the segment, enhancing the pedestrian experience. The sidewalk is being uprooted by trees at some locations providing a potential pedestrian tripping hazard. Bus stops are located on both sides of Creekside Drive at Near Court.

Suggestions:

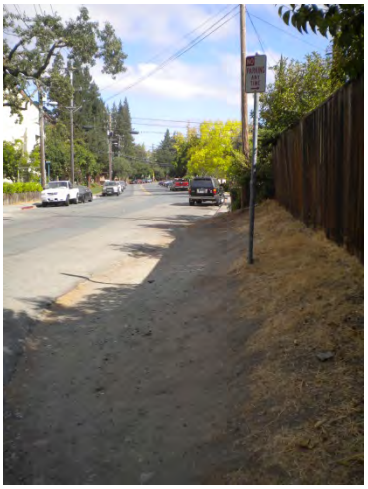
- Remove bus stops at this location and relocate to the Iron Horse Regional Trail access point (see above recommendations)
- Repave and level sidewalk to reduce potential pedestrian tripping hazards

6. Creekside Drive between Near Court and the End of Creekside Drive

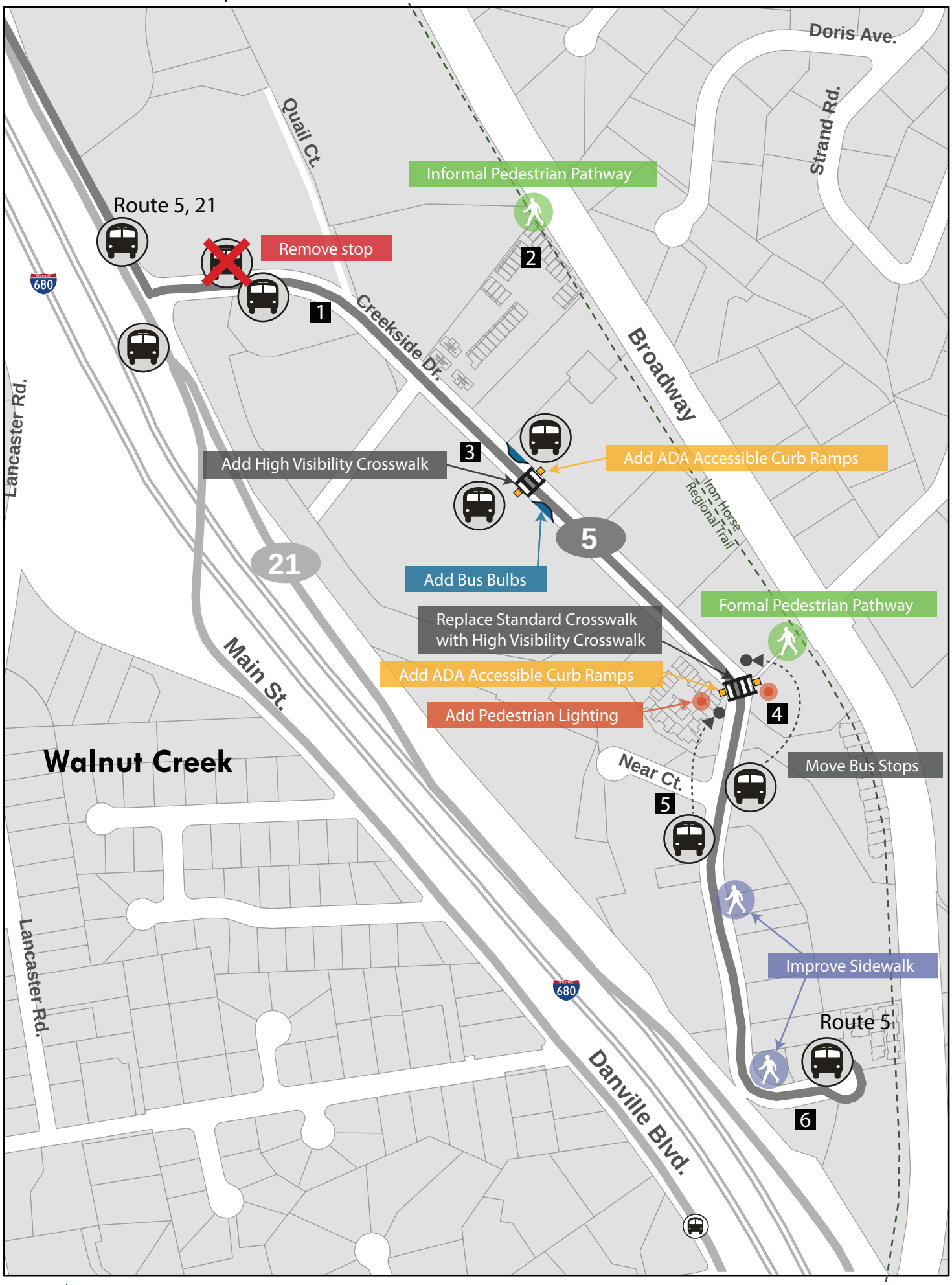
Observations: Sidewalks are provided on both sides of Creekside Drive for most of the segment between Near Court and the end of Creekside Drive; however, a few sidewalk gaps exist. The continuous sidewalk is broken by resident parking at 1364-1366 Creekside Drive and sidewalks are missing at the curve in the road near 1330 Creekside Drive. Street trees provide shade along the segment, enhancing the pedestrian experience. A bus stop is located at the end of Creekside Drive. According to surveys conducted in August 2013, the median traffic speed along this segment is 16mph while the 85th percentile speed is 23mph. The speed limit is 25mph. Average daily traffic along this segment is 1,440 vehicles per day.

Suggestions:

- Work with property owners to provide continuous sidewalk in front of 1364-1366 Creekside Drive
- Add sidewalk at curve in the road near 1330 Creekside Drive



Creekside Drive Pedestrian Improvement Recommendations



FEHR PEERS

SF13-0673_CCCTA_Adaptive_Transit\Graphics\Creekside Drive

APPENDIX D

Operator Interviews

Appendix D Operator Interviews

Operator interviews

CCCTA Offices, August 9, 2013 11:00 AM – 1:00 PM

Project staff visited the CCCTA operator's room to discuss issues and observations related to service in the three focus areas. Special attention was drawn to Routes 2 and 5 in South Walnut Creek; Routes 1, 7, 92x, and 93x on Ygnacio Valley Rd and in Shadelands; and Routes 16, 18, 19, 28, and 98x in Martinez. Operators were prompted with questions related to the following:

- **Operational issues**
  - Stops that cause delay
  - Schedule issues, chronic on-time performance issues
  - Circulation challenges (physical constraints, traffic issues, etc)
- Observed **passenger habits** in the area (trip distance, trip purpose, regular passengers, route preference in locations with service overlap)
- **Passenger feedback** or questions received regarding issues, desired destinations currently underserved, or other
- **Suggested changes** from operators (frequency, span, schedule, destinations, physical environment, etc)

Feedback from operators is summarized below:

Operational Issues

South Walnut Creek

- There are schedule reliability issues on Route 2/5; the route timetables are too tight and it reduces/eliminates layover time and makes the route chronically late. The issue with schedule adherence is not due to traffic but to schedule unreliability. Routes 2 and 5 get behind schedule and run late all day. The schedule is especially tight on Route 2 between Newell Avenue and Ygnacio Valley Road.
- It is difficult to maneuver the bus at the Route 5 turnaround at the end of Creekside Drive. There are also issues with double parking and blocked bus stops by moving vans and commercial vehicles along Creekside Drive.

Shadelands

- Due to multi-lane roads and congestion issues, the following merging issues were brought up by operators:
  - We heard from numerous operators that, on Routes 1 and 7, it is hard for the bus to merge from the eastbound stop at Ygnacio Valley/Wimbledon to the left turn pocket for North Wiget Lane into Shadelands. It is a four lane merge and is extremely challenging due to signal timing and congestion.
  - Similar issue on Route 7 traveling northbound on Bancroft merging from the stop at Bancroft/Amberwood Lane to the left turn lane onto Treat Blvd.

Martinez

- During the weekly Sunday Farmer's Market in Downtown Martinez, buses must operate on narrow side streets with parking on both sides and this is a challenge.

Passenger Habits and Feedback

South Walnut Creek

- There are a people riding in the southern part of the Route 2, mainly school kids and commuters in the peak period, but the middle part of the route has almost no riders at all. There is almost no midday ridership on Route 2.
- Route 5 is busy and many riders seem to rely on the bus. A lot of people do walk over to the stop at Creekside and Main to take Route 21, since it's more frequent and a faster ride to BART. There are also residents in the area who need to travel south to reach jobs along Danville Rd and could use more service on Route 21.
- There are people who live in Creekside Drive and work at Broadway Plaza who need later bus service.
- Drivers rarely pick up passengers on Route 5 around City Hall and the Library on Broadway. They believe that passengers would just walk over one block and take Route 4 instead.
- Drivers felt that the part of Route 5 north of Ygnacio is completely unnecessary. There are never any boardings in that segment and it delays riders going to/from BART.

Shadelands

- Operators expressed that the Route 7 return trip (westbound) deviation into the John Muir Medical Center on Ygnacio is time consuming and unnecessary. They felt the stop should be on La Casa Via rather than the hospital driveway to save time and better serve passengers, who mostly appear to use that stop to reach other destinations in the area than the hospital.
- On Routes 7 and 1, people are often waiting on the wrong side of the street to get to BART. At Montego/Tampico there is a stop for Route 1 and the stop for the 7 is around the corner. Often people are waiting at the wrong stop and miss the bus.
- Route 1 riders are often elderly passengers who live in Rossmoor and want a one-seat ride to a medical facility, so they use the Kaiser offices at Shadelands. It's still a very long trip for passengers, but is a critical connection.
- Route 7 doesn't provide enough service and should be extended into the midday period. Route 7 passengers will also take Route 1 if they miss Route 7.
- Route 7 passengers seem to be mostly Shadelands employees in the morning and residents of the area in the afternoon period.
- There is passenger demand for an additional Route 1 and 7 bus stop in Shadelands around Lennon Lane/Shadelands Drive.
- Passengers departing from Shadelands just take the first bus that comes, although the ride is quicker to Pleasant Hill BART (Route 7 counterclockwise).
- Need to make 7 all day service or add more Route 1 due to the medical facilities and IRS office at Shadelands.

- For midday travel to Shadelands, if passengers miss Route 1, they will take Route 15 and exit at Oak Grove/Treat and walk to Shadelands.

Martinez

- Passengers use the bus to travel from Amtrak to the Contra Costa Regional Medical Center.
- Drivers see a huge demand for more weekend service in Martinez. Passengers need a more frequent and direct weekend service to get them from Concord BART to the hospital. Route 316 should be re-routed to go from Concord BART to the hospital.
- The VA does not seem to be a very big attractor, it's mostly patients.
- The headsigns that say North Concord/Martinez are very confusing for passengers.
- There seems to be a lot of demand for service to the Wal-mart. There was a brief period of construction on Morello when Route 18 was re-routed to go along Arnold Drive past the Wal-mart and then up Old Orchard and Howe. During this time, many passengers exited the bus near the Wal-mart. There is also demand at the housing at Old Orchard/Howe. Right now, passengers get off Route 18 at Arnold/Morello and walk to Wal-mart.
- A prior service that went on Douglas and Center was a popular route, serving the probation office and other county services.

Suggested Changes

South Walnut Creek

- Route 2 could be cut in the midday period.
- Route 5 should be re-routed to travel more directly to BART, there are segments north of Newell with very little or no boarding activity (operators estimated one boarding per week).
- Routes 21/321 and should run more frequently and with a longer span. There are a lot of passengers on the first morning trip.

Shadelands

- Route 7 should be all day service and Route 1 should serve downtown Walnut Creek instead of Walnut Creek BART. Residents of Rossmoor would just use the other Kaiser and it would be a shorter ride.
- The Route 7 headsigns are very confusing and should be modified (clockwise, counterclockwise).
- Bus stop signs should say what bus serves that stop, particularly at locations served by only one bus but where multiple routes pass along that roadway.

Martinez

- Service frequency needs to be increased on Route 19.

APPENDIX E

Martinez Community Shuttle – Additional Information

Appendix E Martinez Community Shuttle – Additional Information

As presented by Fehr and Peers. Memo dated August 13th, 2013

The following describes the proposed route and stops for a Martinez community circulator shuttle. The purpose of the shuttle is to serve key destinations which are important to the Martinez community. Important destinations identified by community members in a stakeholder meeting held on July 23, 2013 include the Martinez Amtrak station, the Senior Center, Contra Costa Regional Medical Center, Martinez Adult Education, the Veteran's Affairs Medical Center, Kaiser Permanente Medical Center, Village Oaks Shopping Center, Wal-mart, Contra Costa County Community Services, and residences along Pine Street.

Route Description

The proposed shuttle route would start at the Martinez Amtrak station, then turn right on Marina Vista Avenue and left on Berrellesa Street, before making a slight right onto Alhambra Avenue. The shuttle would then turn left on D Street, make a slight right onto Estudillo Street and then turn left on Vista Way. The shuttle would then turn right on Pine Street and continue as Pine Street turns into Center Avenue. The shuttle would then make a one-way loop, turning left onto Muir Road, entering the Veterans Affairs Medical Center parking lot to make a stop, then continuing on Muir Road, turning left on Morello Avenue and left again on Arnold Drive. The shuttle would then continue down Arnold Drive, turn right to enter the Wal-mart parking lot to make a stop before continuing down Arnold drive, then turn left on Howe Road and right on Pine street to end the one-way loop. The shuttle would then continue down Pine Street, turn left on Vista Way, turn right on Estudillo Street, make a counterclockwise loop around an island to serve stop 19 before continuing northbound on Estudillo. The shuttle would then make a slight right on Terrace Way, turn left on Shell Avenue, continue on D Street and then turn right on Alhambra Avenue. The shuttle would continue down Alhambra Avenue, turn right on Green Street, left on Court Street, turn left on Marina Vista Avenue, and then turn right to enter the Martinez Amtrak parking lot to complete the route.

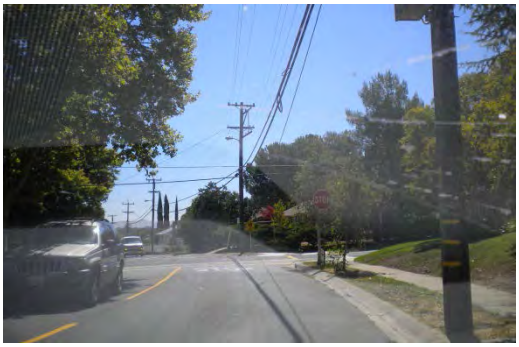
Route Stops

Twenty-six stops were selected along the proposed route. Eighteen of those stops are at existing County Connection bus stop locations. Therefore no additional but stop amenities would be needed at these locations except for signage indicating that the stop is a stop on the Martinez community circulator route. Eight of the proposed stops would be at new locations and would therefore require additional amenities. At a minimum a basic in-ground pole with a sign should be included at each stop. Additional amenities could include bus benches and shelters. New stop locations are described in more detail below.

Stop 8 and Stop 19: Estudillo & Vista Way

Both stop 8 and stop 19 would be served at the same location; to the west of an island located just off of Estudillo Street, across the street from the Housing Authority of the County of Contra Costa. In the southbound direction the shuttle would turn right at the island, serve the stop, and then continue traveling around the island to re-enter Estudillo Street in the southbound direction. In the northbound direction the shuttle would turn left at the island, serve the stop, and then turn left to loop around the island and continue traveling north on Estudillo Street. The stop location would provide minimal disruption to traffic on Estudillo Street since the shuttle can pull off of the main street. Also, the sidewalk provides an accessible location for passengers to board and alight. Since no sidewalks are located on the eastern side of Estudillo Street between Vista Way and Terrace Way, it is not recommended to locate a shuttle stop on that side of the street.

Stop 8 and Stop 19: Estudillo & Vista Way



Stop 9: Vista Way & Pine

Stop 9: Vista Way & Pine

Stop 9 would be located on the southern side of Vista Way, just north of Pine Street. This location provides adequate site distance for cars traveling eastbound on Vista Way to see the shuttle when approaching. It is preferable to locate the shuttle stop on Vista Way rather than on Pine Street since traffic volumes are lower on Vista Way and traffic disruption would therefore be lower.

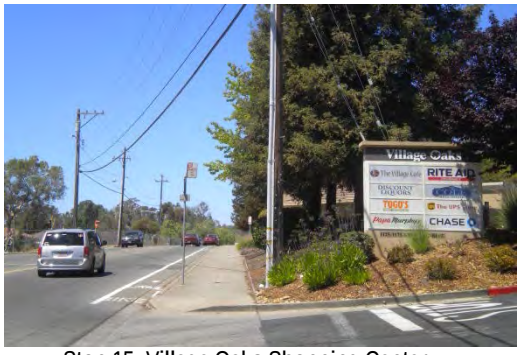
Stop 13: Kaiser Permanente

Stop 13: Kaiser Permanente

Stop 13 would be located on Muir Road, just to the east of the Kaiser Permanente driveway entrance. A WestCAT bus stop is currently located at this location. It is recommended that County Connection coordinate with WestCAT to add signage to the existing bus pole. This shuttle location may cause slight delay to vehicles exiting the Kaiser Permanente parking lot and turning right, but due to the low frequency of the shuttle route, this would likely be a very low impact. In addition, the shuttle would stop directly on a bike lane and therefore drivers should be alerted to use caution when approaching the stop to ensure safety of cyclists using this facility.

Stop 15: Village Oaks Shopping Center

Stop 15 would be located on the northern side of Arnold Drive, just to the west of the driveway entrance/exit for the Village Oaks Shopping Center. Similar to stop 13, this location may cause a slight delay to vehicles exiting the Village Oaks parking lot and turning right, however the impact would be minimal. The stop is also located on a bike lane, so caution should be used to avoid conflicts with cyclists. An alternative to this stop location would be for the shuttle to continue traveling north on Morello Avenue past Arnold Drive, turn left to enter the Village Oaks parking lot, stop in front of Rite Aid, turn left to exit the parking lot and then turn right onto Arnold Drive.



Stop 15: Village Oaks Shopping Center

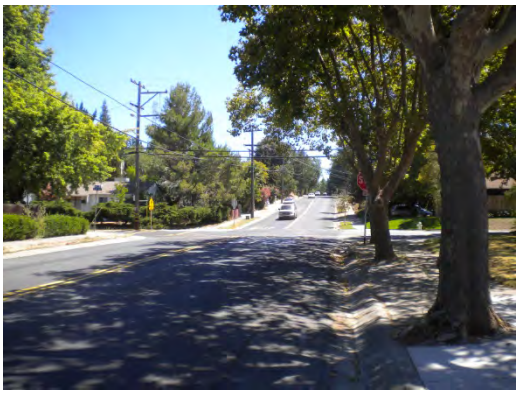
Stop 16: Wal-mart

Stop 16 would be located directly in front of the Wal-mart entrance, within the Wal-mart parking lot. County Connection should coordinate with Wal-mart to ensure that Wal-mart approves of this stop location.

Stop 16: Wal-mar
t

Stop 17: Howe & Center

Stop 17 would be located on the north side of Howe Road, just east of Pine Street. The stop should be located where sidewalks are present to ensure accessibility. This stop location may slightly delay vehicles turning right onto Pine Street.


Stop 18: Pine & Vista Way

Stop 18: Pine & Vista Way

Stop 18 would be located on the northern side of Vista Way, just west of Pine Street. This location provides adequate site distance and accessibility. It is not recommended to locate any shuttle stops on Pine Street between Howe Road and Sentinel Drive due to poor sight distances meaning oncoming traffic may not have enough time to see and react to a shuttle stopped along the side of the road in this area. However, as an alternative to locating the stop on Vista Way, it could be possible to place a stop on the eastern side of Pine Street between Sentinel Drive and Vista Way.


Stop 25: Senior Center

Stop 25: Senior Center

Stop 25 would be located on the southern side of Green Street, directly in front of the Senior Center. Parking would have to be removed to accommodate this stop. This stopping location would provide convenient access to the Senior Center.