County Connection

INTER OFFICE MEMO

To: Operations and Scheduling Committee **Date:** February 27, 2014

From: Laramie Bowron, Manager of Planning **Reviewed by**:

SUBJECT: Access Improvement Study – Final Draft

Background:

In June 2012, County Connection entered into an agreement with TJKM, a transportation consulting firm, to complete an Access Improvement Study funded by a Caltrans Planning grant. The project scope included ranking the top 50 bus stops for improvements, and developing improvement projects for those top ranked stops. In addition, TJKM was tasked with developing a database for all bus stops that County Connection staff could keep up to date. The ranking of stops and development of access improvements has been completed. The database is still being constructed.

Summary of Issues:

TJKM has coordinated with MTC, Contra Costa Transportation Authority (CCTA), the County Health department, and the Cities to obtain data necessary to rank and evaluate access improvements necessary at the bus stop level. The bus stop rankings were presented to the sub regional technical committees (SWAT and TRANSPAC TAC's) and their comments were incorporated. Once the final stop rankings were agreed upon, TJKM conducted field analysis and developed detailed projects which included preliminary design, engineering, and cost estimates for the top 50 stops. This study will serve to support future competitive grant applications to fund access improvements at these locations and to support City and County pedestrian improvement plans, PDA planning efforts, and developer improvements. Attached is the final draft of the County Connection Access Improvement Study.

Recommendation:

1. Recommend adoption of County Connection's Access Improvement Study
2. Recommend edits and deferral of approval till later date
3. Other action as determined by the Committee

Attachment:

County Connection Access Improvement Study – Final Draft

TJKM
Transportation
Consultants

Vision That Moves Your Community

Summary Report

Transit Access Improvement Project

For the Central Contra Costa Transit Authority (CCCTA)

February 28, 2014

In Association With

transpoGROUP

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Kott Planning Consultants, LLC

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Executive Summary

Introduction and Project Purpose

This report details the results and recommendations of the Transit Access Improvement Study for the Central Contra Costa Transit Authority (CCCTA or County Connection) prepared by TJKM Transportation Consultants. CCCTA was awarded a California Department of Transportation (Caltrans) Planning Grant to comprehensively study and recommend improvements to bicycle and pedestrian access at priority bus stops within the CCCTA service area. County Connection provides access to its bus system via 1,700 bus stops across its District. According to the CCCTA Short Range Transit Plan, the goal of the project is to evaluate fixed route bus stops within the system and prioritize improvements that will enhance pedestrian and bicycle access to these stops. Access to stops with high ridership is the primary focus of this project, as most of these stops are located in low-income, high-density, communities of concern.

CCCTA staff have identified several access issues at existing County Connection bus stops. Stops located in unincorporated areas often have no sidewalk, and stops in older neighborhoods often have uneven or narrow sidewalks that prevent them from being used by people using wheelchairs. Improvements that increase the ability of disabled riders to access the system are a top CCCTA staff priority for this project. In addition, many stops lack basic amenities such as benches, adequate passenger waiting areas, route map information, and trash bins. Ultimately, the recommendations in this project will be used to develop future capital grant applications for designing and constructing the recommended improvements.

Bus Stop Improvement Screening Process

The top 50 bus stops were selected as part of a multi-stage screening process that entailed four primary steps:

- Geographic Information System (GIS) analysis using US Census and other data plus identification of physical barriers that lead to unmet demand and poor bus stop connectivity for local populations served by the CCCTA system, in order to prepare an initial screening of priority bus stops. The main variables correlated with stop connectivity for this initial analysis were Census data on housing density and median housing income, as well as local pedestrian-bicycle safety (crash) data from the Contra Costa County Health Department.
- Presentations of initially screened stops at and technical feedback from two Contra Costa Regional Transportation Planning Committees (RTPCs) - SWAT and TRANSPAC.
- Additional feedback and screening from CCCTA technical staff, bus schedulers, and bus operators, incorporating their experiences and received customer comments on bus stop improvement priorities systemwide.
- Finalization of top 50 stops with additional weighting for stops with higher daily ridership in response to RTPC and CCCTA staff feedback.

Recommended Stops for Access Improvement

Based on the above described screening process, the following 50 stops were selected for access and amenity improvements:

1. Contra Costa Boulevard NB at Viking Drive, Concord
2. Monument Boulevard EB at Oak Grove Road, Concord
3. Oak Street NB at Galindo Street, Concord
4. Clayton Road WB at Fry Way, Concord
5. Monument Boulevard WB at Victory Lane, Concord
6. Golf Club Road WB at College Drive, Pleasant Hill

7. Clayton Road EB at Adelaide Street, Concord
8. Moraga Way EB at Miramonte Drive, Moraga
9. Monument Boulevard WB at Lacey Lane, Concord
10. Monument Boulevard WB at Meadow Lane, Concord
11. Monument Boulevard EB at Lacey Lane, Concord
12. Gateway Boulevard WB at Willow Pass Road, Concord
13. Willow Pass Road WB at Waterworld Parkway, Concord
14. Monument Boulevard EB at Reganti Drive, Concord
15. Monument Boulevard WB at Virginia Lane, Concord
16. Clayton Road EB at Alberta Way, Concord
17. 1370 Monument Boulevard EB, Concord
18. Clayton Road WB at Ayers Road, Concord
19. Clayton Road WB at Kirker Pass Road, Concord
20. Contra Costa Boulevard SB at Golf Club Road, Pleasant Hill
21. Mount Diablo Boulevard EB at Locust Street, Walnut Creek
22. Gateway Boulevard EB at Clayton Road, Concord
23. Clayton Road EB at Bel Air Drive, Concord
24. Creekside Drive WB (cul-de-sac), Walnut Creek
25. Sun Valley Boulevard WB at Contra Costa Boulevard, Concord
26. Clayton Road EB at Denkinger Court, Concord
27. Clayton Road EB at Washington Boulevard, Concord
28. Clayton Road WB at Terry Lynn Lane, Concord
29. Detroit Avenue NB at Laguna Street, Concord
30. Creekside Drive SB at Near Court, Walnut Creek
31. Sun Valley Boulevard EB at Santa Monica Drive, Pleasant Hill
32. Clayton Road WB at Denkinger Court, Concord
33. Laguna Street WB at Detroit Avenue, Concord
34. Mohr Lane SB at Monument Boulevard, Concord
35. Clayton Road WB at Thornwood Drive, Concord
36. Monument Boulevard WB at Detroit Boulevard, Concord
37. Mohr Lane NB at Monument Boulevard, Concord
38. Mohr Lane EB at Del Rio Circle, Concord
39. Crescent Plaza EB at Crescent Drive, Pleasant Hill
40. Crescent Plaza WB at Crescent Drive, Pleasant Hill
41. Oak Grove Road SB at Treat Boulevard, Concord
42. Clayton Road WB at Glazier Drive, Concord
43. Clayton Road WB at Indian Lane, Concord
44. South Main Street SB at Creekside Drive, Walnut Creek
45. Main Street NB at Duncan Street, Walnut Creek
46. Willow Pass Road EB at Diamond Boulevard, Concord
47. Clayton Road WB at Washington Boulevard, Clayton
48. Clayton Road EB at Ayers Road, Concord
49. Port Chicago Highway SB at Arnold Industrial Way, Concord
50. Pike Lane SB at Arnold Industrial Way, Concord

Following bus stop screening and field evaluation, TJKM developed a set of engineering recommendations to improve access and amenities at each bus stop. The recommendations focused on opportunities to enhance the rider experience at each stop, including Americans With Disabilities Act (ADA), pedestrian, and bicycle access; meeting minimum CCCTA requirements for passenger alighting and boarding areas; adding seating capacity at stops with high ridership; upgrading stop lighting, map, and route information displays; and installing combination trash/recycling bins. The

recommendations took into account existing field-observed deficiencies relative to these and other amenity and access elements. General categories of improvement common to several stops included:

- Solar-powered bus shelter installation
- Bench installation
- Simme-seat installation (signpost-mountable seats)
- Install combination trash/recycling bins
- Install route info on bus stop signs (all locations)
- Sidewalk resurfacing/reconstruction
- Reconstruct adjacent driveways with non-level sidewalk crossings or flares with cross slopes to Federal Highway Administration (FHWA) / ADA standards
- Reconstruct adjacent intersection wheelchair curb ramps (non-driveways) without level landings to FHWA and ADA standards
- Install route maps (all locations) on existing signposts, light standards, or shelters
- Bus stop sign replacement or repair
- Paint or repaint red curb along roadway to denote active bus stops and discourage illegal parking
- Address inadequate front and rear boarding clearances at bus stops per the CCCTA Bus Stop Safety and Design Guidelines
- Install new or repair existing concrete bus pads along roadway curb lane
- Install ADA-compliant wheelchair ramps at corners, median islands, and pork chop islands of adjacent intersections
- Refurbish shelters to accommodate minimum ADA wheelchair interior clearance (36 inches by 48 inches

Following field data collection and evaluation, TJKM prepared preliminary, conceptual engineering improvement plans and cost estimates for the top 50 ranked bus stops in the CCCTA system. The goal was to provide sufficient engineering detail so as to enable CCCTA application for future capital grants to construct the proposed pedestrian and bicycle access and amenity improvements. A detailed list of recommended improvements, conceptual drawings, and cost estimates are provided for each stop in the report appendix. Where applicable, the stop improvement summaries note where property easements may need to be obtained. Most commonly, such easements may be necessary in locations where a bench or shelter is relocated or newly installed outside of local jurisdiction public right-of-way, and also where driveway aprons are recommended for upgrade to current ADA standards.

It should be noted that the completed engineering designs and estimates developed for all project bus stops are conceptual in nature and are subject to refinements during the final design and construction bidding stages. In addition, while it is preferable that the complete set of design recommendations be implemented at each stop, the designs can also be implemented piecemeal depending on future available funding awarded to CCCTA. For example, if sufficient funds were obtained only to upgrade shelters and benches or reconstruct concrete bus pads, the currently proposed designs and cost estimates can be customized accordingly by CCCTA staff.

Bus Stop Improvement Screening Process

An initial task for this project was to develop evaluation criteria for purposes of determining the top 50 CCCTA bus stop locations that are candidates for pedestrian and bicycle access improvement based on socioeconomic, ridership, physical barrier, and related data. Below are details on the project team's approach to determining bicycle and pedestrian transit stop connectivity and prioritizing CCCTA bus stops for future access improvement. This includes a value-added analysis of GIS bus stop data and metrics that identify multimodal bus stop access enhancements.

Background and Approach – Transit Stop Connectivity

Planning agencies in the United States are seeking new methods to better quantify transit demand and identify multimodal access enhancements. Recent Federal Transit Administration (FTA), US Housing and Urban Development (HUD), and US Environmental Protection Agency policy guidance stresses livable and sustainable connections, with emphasis on efficient and low-cost walking and bicycle system improvements and increased land use mix and density to better serve populations that are reliant on transit. Existing tools and measures do not address transit connectivity at the land parcel level, account for demographic features of the area, or measure acute changes in connectivity in the transportation system at the transit stop level.

TJKM project partner Transpo Group has developed the Route Directness Index (RDI), which has been identified as an effective measurement of connectivity. RDI is a parcel-based metric for transit stops and stations that Transpo has automated through development of ViaCity™ and applied in recent station area and bus stop planning studies for DART and Tri-Met. Use of RDI scoring for each bus stop enables a consistent and efficient system-wide measure of transit connectivity; and the ability to simultaneously measure, document and rank (using cost-benefit) ADA Title II plan improvement projects that yield increased transit ridership and better transit coverage to transit-dependent populations in central Contra Costa County.

In order to develop RDI for this project, the project team assimilated the Contra Costa County parcel and street centerline GIS databases, which enable development of parcel-level connectivity scores within the County Connection service area. Past GIS-based connectivity research has indicated several relationships - mainly that better connected urban neighborhoods have lower severe traffic crash rates (more routes, lower vehicle speeds, thus lower severe pedestrian crashes), and higher journey-to-work travel rates by foot, bicycle and transit, and thus better health statistics (such as lower rates of heart disease, diabetes, asthma and high blood pressure). Linking parcel-based connectivity and transit access with relational demographic data noting local populations that are more transit-dependent is key to this project.

The project team reviewed County Connection's 2012 On-Board Rider Survey to determine key socioeconomic indicators for current bus riders. It was found that such riders are more apt to have 1) lower household income and 2) autos available to make trips.

ViaCity calculations of RDI connectivity were scored for each land parcel in the urban and rural areas of the County Connection service area, using a 1/4-mile buffer around all bus routes. The resulting RDI connectivity scores were stored in the CCCTA GIS geodatabase. The access-to-transit connectivity score were correlated to three key data elements:

1. Housing density (US Census)
2. Median housing income (US Census)
3. Local pedestrian-bicycle safety (crash) data (Contra Costa County Health Department)

A cross-tabular index and base map was developed based on the relational GIS data, indicating those transit stop areas with a range of daily boardings (ridership), connectivity quality, and transit population served. The complied and indexed data provide the baseline measures and mapping to assist the study team in identifying bus stop-specific amenity and stop area connectivity improvements for the top 50 bus stops selected. The composite connectivity measure provides the means to applying a direct, cost-to-benefit ratio which links the cost of walk-bike connectivity enhancements that are likely to yield a greater increase in transit ridership (in general), particular to those potential users who are more transit-dependent. The combination of the applied measures will help County Connection directly implement consistent FTA and HUD policy.

Appendix A contains a full description of the initial RDI connectivity analysis according to bus rider demographics and bus stop ridership, as well as the initial screening results for the top 50 stop improvement locations. It should be noted that the resulting screened stops focused on areas outside major transit centers, such as BART stations, which are considered to already have bus stop transfer areas with adequate amenities as well as pedestrian and bicycle access.

Public Input – Technical Advisory Committees and County Connection Bus Operators

Following the initial screening process, TJKM and County Connection staff solicited input from several public stakeholders on the initial screening of top 50 bus stop locations based on the RDI connectivity analysis. The purpose was to determine whether the screened bus stops were in line with the experience of local city and county transportation officials in terms of known pedestrian/bicycle safety and access concerns; and rider, operator, and constituent feedback. Input was also solicited from County Connection bus schedulers and operators in terms of their on-the-ground insight into the typical rider experience at these stops.

TJKM and County Connection staff presented the initially screened stops at the July 2013 meetings of the TRANSPAC and SWAT Regional Transportation Planning Committees (RTPCs), which are the primary RTPCs located within the County Connection service area. All participants agreed with the overall goal of improving amenities and enhancing pedestrian and bicycle access to bus stops, particularly those serving disadvantaged and transit-dependent populations. However, a primary concern raised by local transportation officials at these meetings was that the ranking of stops using RDI connectivity metrics had yielded locations with very low daily ridership. Some participants felt this result might lead to a perception of lack of cost effectiveness in implementing stop improvements at such stop locations.

After city and county technical staff input, an additional screening process was conducted with County Connection schedulers and bus operators. The primary scheduler provided revised ranking recommendations for the screened bus stops according to the level of feedback received from route drivers and bus riders. Additionally, TJKM provided CCCTA staff with a map and ranked list of the screened bus stops that was displayed in the County Connection headquarters building. The materials were displayed in the staff break room for one week to enable feedback from bus operators during all times of day and week, regardless of work shift. Operators were invited to fill out comment cards on the initially screened stops. Staff received a total of three comment cards from operators, whose comments focused mainly on the need for general maintenance of the stops, including foliage removal and repair existing benches and shelters.

Additional Screening by Ridership

Based on direction of County Connection staff and in response to public feedback, TJKM conducted a supplemental ridership analysis building upon the initial RDI connectivity analysis. The supplemental analysis focused on providing more weight to existing daily ridership at systemwide bus stops while still

incorporating the socioeconomic and spatial connectivity-based metrics of the initial connectivity analysis. The purpose was to ensure that amenities and access to existing high ridership stops were given additional priority for improvement, while still allowing for enhancement to other stops that based on socioeconomic and other characteristics have a greater potential for higher ridership.

TJKM re-ranked bus stops from the initial connectivity analysis by applying 30 percent greater weight to ridership totals at each stop. The 30 percent weighting was added to the initial overall RDI-based rank score for each bus stop systemwide. Based on TJKM and County Connection experience with systemwide bus stop evaluations, 30 percent was considered an optimal weighting. TJKM found especially in the County Connection case that higher ridership weightings (up to 50 percent) yielded bus stop rankings that almost exclusively emphasized ridership levels over any of the socioeconomic and spatial characteristics that were key indicators from the initial stop screening process. The results of this final screening, i.e. the top 50 candidate bus stops for access and connectivity improvements, are discussed in the next section.

Recommended Stops for Access Improvement

This section details specific CCCTA bus stops selected for access and amenity improvements, the most common improvements recommended, and the process in developing conceptual designs and cost estimates for the top 50 stops.

Bus Stop Ranking Results

Based on the preceding bus stop selection process and consultation with CCCTA staff, the following stops are recommended for access and amenity improvements. It should be noted that the last two stops (#49 and #50) on this list were added at the request of CCCTA staff, as these two stops are closest to the County Connection headquarters building on Arnold Industrial Way in Concord. The specific goal at these two stops was to provide better pedestrian access from the stops to the headquarters building for staff and also patrons seeking customer service or wishing to attend CCCTA committee meetings.

1. Contra Costa Boulevard NB at Viking Drive, Concord
2. Monument Boulevard EB at Oak Grove Road, Concord
3. Oak Street NB at Galindo Street, Concord
4. Clayton Road WB at Fry Way, Concord
5. Monument Boulevard WB at Victory Lane, Concord
6. Golf Club Road WB at College Drive, Pleasant Hill
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43. Clayton Road WB at Indian Lane, Concord
44. South Main Street SB at Creekside Drive, Walnut Creek
45. Main Street NB at Duncan Street, Walnut Creek
46. Willow Pass Road EB at Diamond Boulevard, Concord
47. Clayton Road WB at Washington Boulevard, Clayton
48. Clayton Road EB at Ayers Road, Concord
49. Port Chicago Highway SB at Arnold Industrial Way, Concord
50. Pike Lane SB at Arnold Industrial Way, Concord

Field Evaluation

After finalizing the top 50 bus stop locations, TJKM engineering staff conducted a field evaluation of each location to determine the level of improvement necessary to bring each location up to minimum CCCTA safety and design guidelines, as well as ADA access for riders and pedestrians. Field data collected at each stop included photos and measurements, assessment of bus stop amenities and equipment, and verification of bicycle and pedestrian access conditions. Existing amenities evaluated at stops included pathways to/from stops and through adjacent intersections/driveways, curb cuts, midblock pedestrian crossings, bicycle racks, solar shelters, benches, bus signage, shelter lighting, and variable information signage. Deficiencies in local stop amenities and conditions were noted for the preliminary engineering design stage. This collective information was incorporated into CAD base drawings developed for each bus stop and provides the basis for laying out proposed access and amenity improvements.

Bus Stop Improvement Categories

Following field evaluation, TJKM developed a set of engineering recommendations to improve access and amenities at each bus stop. The recommendations focused on opportunities to enhance the rider experience at each stop, including ADA, pedestrian, and bicycle access; meeting minimum CCCTA requirements for passenger alighting and boarding areas; adding seating capacity at stops with high ridership; upgrading stop lighting, map and route information displays; and installing combination trash/recycling bins. The recommendations are intended to address existing field-observed deficiencies relative to these and other amenity and access elements.

The following categories are the most common improvements that TJKM recommends at the project bus stops:

- Bus shelter installation (16 locations). Under this category, modern solar-powered shelters are recommended. Such shelters also will include graffiti resistant materials, lighting, electronic message signs, system map kiosks, route maps and timetables, and 36" x 48" minimum clear floor space (ADA guideline for wheelchairs within the shelter).

- Bench installation (15 locations). Improvements under this category consist of either replacing damaged benches (broken, vandalized, etc.) or installing new benches at certain stops where only signs mark the stop location and engineering field assessment indicates additional seating is feasible to provide.

- Simme-seat installation (3 locations). Simme-seats are seats that can be mounted on a bus stop sign pole. They provide basic seating at stops where it may not feasible to install a bench or shelter due to limited space and/or lack of significant ridership levels.

- Install combination trash/recycling bins (all locations). The intent of this category is to standardize the availability of such bins to patrons. Some stops had trash only bins, while some stops had none at all and exhibited a trash collection problem.

- Install route info on bus stop signs (all locations). The intent of this category is to provide route numbers on CCCTA bus stop signs, to provide CCCTA customers with information on routes served at each bus stop. Generally, the observed bus stop signs currently do not have this information.

- Sidewalk resurfacing/reconstruction (30 locations). TJKM staff field-observed a variety of sidewalk conditions for CCCTA riders walking, rolling, or bicycling to bus stops. Some sidewalks approaching stops required only spot resurfacing of the existing bituminous or cement concrete surfaces, while others were significantly degraded so as to also require reconstruction of the underlying subbase material. A couple of locations had no hard surfaces for pedestrians or wheelchair users accessing the bus stop, requiring a newly constructed sidewalk.

- Reconstruct adjacent driveways with non-level crossings or flares with cross slopes (21 locations). The Federal Highway Administration (FHWA) Office of Planning has issued design guidelines for driveway crossings in order to meet ADA standards. This category proposes reconstruction of driveway crossings to upgrade to these standards. Such improvements are subject to private property easements.

- Reconstruct adjacent intersection wheelchair curb ramps (non-driveways) without level landings (15 locations). TJKM documented the condition of wheelchair ramps at the closest intersections both upstream and downstream of project bus stops. These intersections were considered part of the individual bus stop study area since many wheelchair riders are rolling to stops from these nearby locations. For this improvement category, particular attention was paid to whether existing intersection ramps had level landings per current FHWA and ADA guidelines. The proposed improvement under this category is to reconstruct wheelchair curb ramps to meet these guidelines.

- Route map installation (all locations). Under this category, recommendations are made for installing route map information at each stop. For the vast majority of stops, it is recommended to add an informational cassette to the existing signpost or light standard that has an existing CCCTA bus stop sign. At a couple of locations, route maps are recommended within existing shelters. Where new or replacement shelters are proposed, route maps are also proposed.

- Bus stop sign replacement or repair (3 locations). At three bus stop locations, CCCTA bus stop sign replacement or repair is proposed due to field-observed damage. In each case, it is also proposed that route numbers served at the stop be included on the replaced or repaired sign.

- Paint or repaint red curb along roadway (37 locations). Under this category, TJKM recommends new or refreshed red paint within the established curb area of existing bus stops. The purpose is to reinforce active bus stop locations and discourage illegal parking.

- Address inadequate front and rear boarding clearances (25 locations). TJKM observed that half of the project bus stops do not have adequate passenger boarding clearance (front and/or rear) per the CCCTA Bus Stop Safety and Design Guidelines. This category addresses this deficiency by constructing additional sidewalk area within a given bus stop. At some locations, existing right-of-way is limited for constructing such an improvement and as a result is subject to private property easements.

- Install new or repair existing concrete bus pads along roadway curb lane (25 locations). At half of the project locations, TJKM staff observed two types of roadway surface conditions under this category. One observed condition was cracking or failure of the existing bituminous concrete surface, which suggested a need for a new cement concrete pad to provide a stronger roadway surface and foundation that better absorbs the frequent stops of buses. The other observed condition was cracking or failure of existing cement concrete bus pads, which would require restoration of the cement surface and/or subbase.

- Install wheelchair ramps at corners, median islands, and pork chop islands of adjacent intersections (4 locations). Under this category, intersections adjacent to four project bus stops were found to be missing ADA-compliant wheelchair curb ramps. Improvements under this category address this deficiency through ramp installation.

- Refurbish shelters to accommodate minimum ADA wheelchair interior clearance (6 locations). Under this category, TJKM identified existing shelters that are generally adequate for passengers but lack the minimum 36 inch by 48 inch interior clearance for wheelchairs required by ADA. The proposed improvement consists of replacing the seating area under the existing shelter to meet this standard, or replace the existing shelter with a new shelter meeting this standard.

Preliminary Bus Stop Designs and Cost Estimates

Following field data collection and evaluation, the final step in the bus stop improvement process is the preparation of preliminary, conceptual engineering improvement plans and cost estimates for the top 50 ranked bus stops in the CCCTA system. The goal of this step is to provide sufficient engineering detail so as to enable CCCTA application for future capital grants to construct the proposed pedestrian and bicycle access and amenity improvements. In order to develop preliminary designs and cost estimates, TJKM gathered aerial photo and other field data, as well as cost information on bus stop elements including shelters, benches, and electronic message signs. To-scale aerial photography effectively served as the engineering base maps upon which TJKM developed designs for each bus stop location.

It should be noted that the completed engineering designs and estimates developed for all project bus stops are conceptual in nature and are subject to refinements during the final design and construction bidding stages. In addition, while it is preferable that the complete set of design recommendations be implemented at each stop, the designs can also be implemented piecemeal depending on future available funding awarded to CCCTA. For example, if sufficient funds were obtained only to upgrade shelters and benches or reconstruct concrete bus pads, the currently proposed designs and cost estimates can be customized accordingly by CCCTA staff.

Appendix B provides a summary of field observed deficiencies and recommended improvements to address them at each stop. Also included in this appendix are the preliminary CAD designs of the improvements on aerial photo base maps. Where applicable, the stop improvement summaries note where property easements may need to be obtained. Most commonly, such easements may be necessary in locations where a bench or shelter is relocated or newly installed outside of local jurisdiction public right-of-way, and also where driveway aprons are recommended for upgrade to current ADA standards.

TJKM additionally developed preliminary cost estimates for each project bus stop, which are contained in Appendix C. It should be noted that the preliminary cost estimates do not include right-of-way acquisition or property easement costs as noted above. Any potential acquisitions or easements at these bus stops must be coordinated between the applicable local jurisdiction and/or appropriate private property owners. Also, these preliminary costs are subject to change at the final design and bidding stage of bus stop improvement implementation based on current construction rates for design items.

Study References

Consultant Team

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References

Bus Stop Safety and Design Guidelines, Orange County Transportation Authority, 2004 (Guidelines adopted by CCCTA)

Designing Sidewalks and Trails for Access, Office of Planning, Federal Highway Administration, US Department of Transportation. Accessed online February 2014 and updated from original 1999 document.

Appendix A – Initial Screening Summary

Introduction

CCCTA is seeking new methods to better quantify and relate transit demand with walk and bicycle transit access enhancements. Recent FTA, HUD and EPA policy guidance stresses livable and sustainable connections, with emphasis on efficient and lower cost walk and bicycle system improvements and increased land mix and density, better serving populations that are likely more reliant on transit.

Existing tools and measures do not address transit connectivity at the land parcel level, account for various demographic features of the area, or measure acute changes in connectivity in the transportation system at the transit stop level. The Route Directness Index (RDI) has been identified as the best measurement of connectivity. Parcel-based RDI measurement techniques for transit stops and stations have been automated by Transpo Group through development of ViaCity™ and applied in recent station area studies (DART and Tri-Met).

The study intent was to calculate and apply land parcel-level RDI scores (average) for each bus stop as a consistent and efficient measure of neighborhood transit connectivity; and then relate other socio-economic data to the stop-specific connectivity scores. The outcome sought was a composite bus stop scoring method which helped identify and rank stops where improved transit access might best yield better access to more transit-dependent populations in Central Contra Costa County.

A review of the CCCTA's 2012 On-Board Ridership Survey indicates (as shown in Figures 1 and 2) two key socio-economic indicators - current bus riders are more apt to have lower:

- Household income, and
- Autos available to make trips

The study approach was predicated on the availability and quality of local GIS base data. ViaCity calculations of RDI connectivity were scored for each land parcel in the urban areas. The RDI access-to-transit connectivity score was then correlated to three key data elements: (1) housing density, (2) median housing income, and (3) local pedestrian-bicycle safety (crash) data. Data originally thought to be helpful in the study, but found unavailable, included parcel-specific housing type (single family vs. multi-family)[1] and site-specific, affordable housing projects (point data, categorized as subsidized or unsubsidized). See **Appendix A-1** for a summary of the original GIS data investigation.

A cross-tabular index and summary map of priority bus stops is developed based on the relational GIS data. The compiled and indexed data provide the baseline measures and mapping to assist the study team in identifying the top 50 stop areas for bus stop-specific amenity and stop area connectivity improvements. The composite measure provides the study team the means to applying a general benefit ratio which can eventually link the cost of stop amenity and/or walk-bike connectivity enhancements which are likely to yield a greater increase in transit ridership (in general), particular to those potential users who are more transit-dependent. The combination of the applied measures will help CCCTA directly implement new FTA and HUD policy direction.

Figure 1: 2012 CCCTA Passenger Profile Household Income

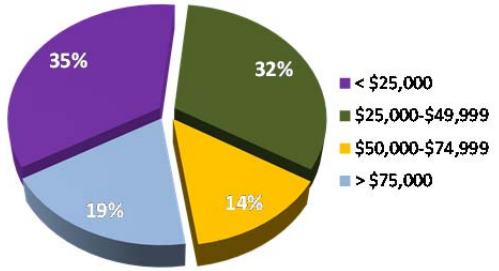
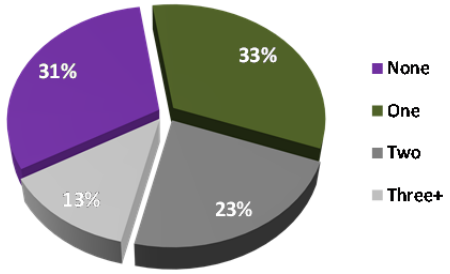


Figure 2: 2012 CCCTA Passenger Profile Auto Availability



Bus Stop Connectivity

Pedestrian Network

Bus stop connectivity was measured and evaluated at the land parcel level for the CCCTA study area. Baseline GIS land parcel and transportation street centerline files were assembled. Study parcels were generally all parcels within the urban areas served by CCCTA in Contra Costa County. Large parcels such as commercial areas, parks, and undeveloped land were subdivided into 2-acre areas or smaller. Non-applicable land uses such as right-of-way, airports, or military installations were excluded from study parcels. The study area pedestrian network was calculated within ViaCity™ based on the street centerline GIS file, supplemented with non-motorized, regional trail connections. CCTA staff also reviewed the initial study area network via Google Maps™ and helped identify network coding refinements.

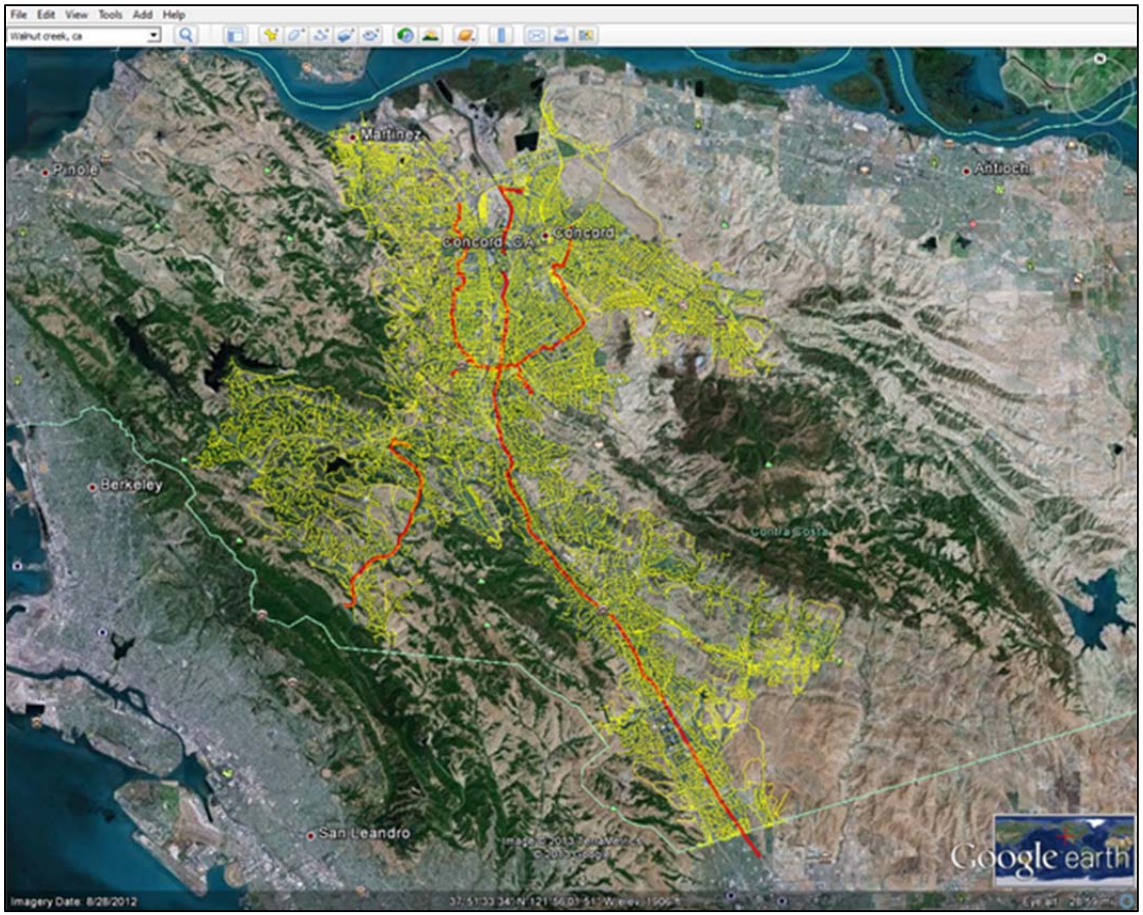
GIS Data Source(s):

CCTA: (a) street centerlines, (b) regional pathways, and (c) land parcels

Summary Map(s):

A CCCTA Study Area Pedestrian Network (atop Google)

Map A: CCCTA Pedestrian Network



Route Directness Index

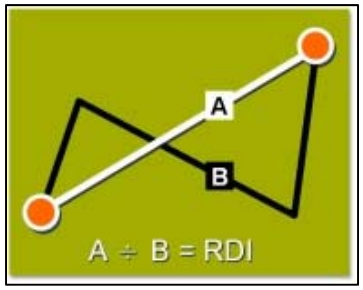
A connectivity score was calculated for every study area land parcel. The connectivity score is based on the route directness index (RDI), or the ratio of the straight-line distance to the network route distance between two parcels. RDI was calculated for each parcel, relative to every other parcel within 0.25 mile radius, then combined for one average RDI score. This RDI scoring process was repeated for every parcel in the CCCTA study area. The CCCTA study area include 179,154 land parcels, covering approximately 1,213 square miles. Scoring RDI was calculated within the ViaCity program.

For each bus stop a summary RDI score was calculated based upon an average RDI of all the parcels within 0.25 miles (straight-line) of the bus stop.

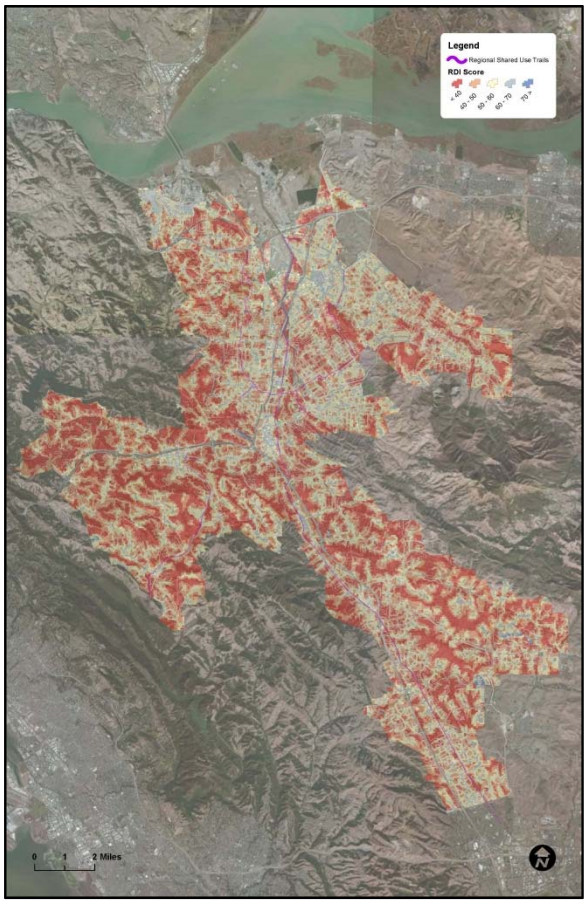
Software Source:
ArcGIS and ViaCity™

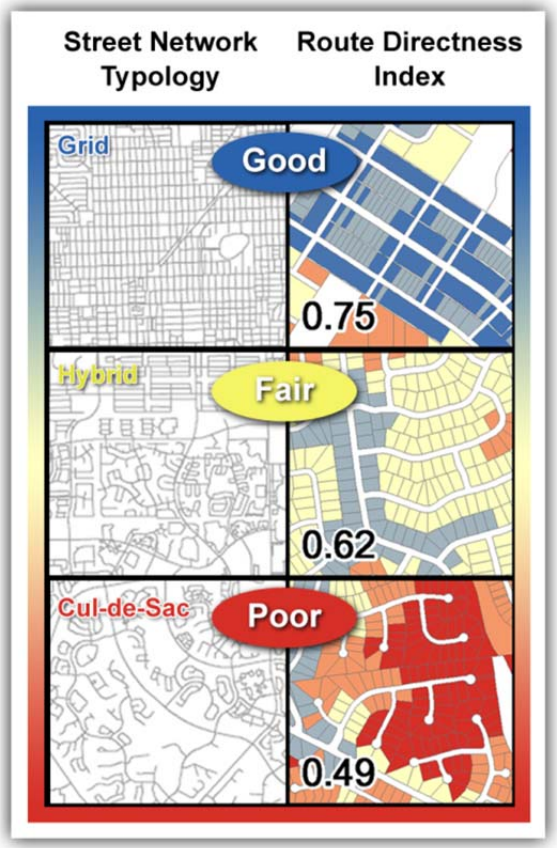
Summary Map(s):
- **B** Study Area-wide RDI
- **C** Route 10 RDI

Route Directness Index



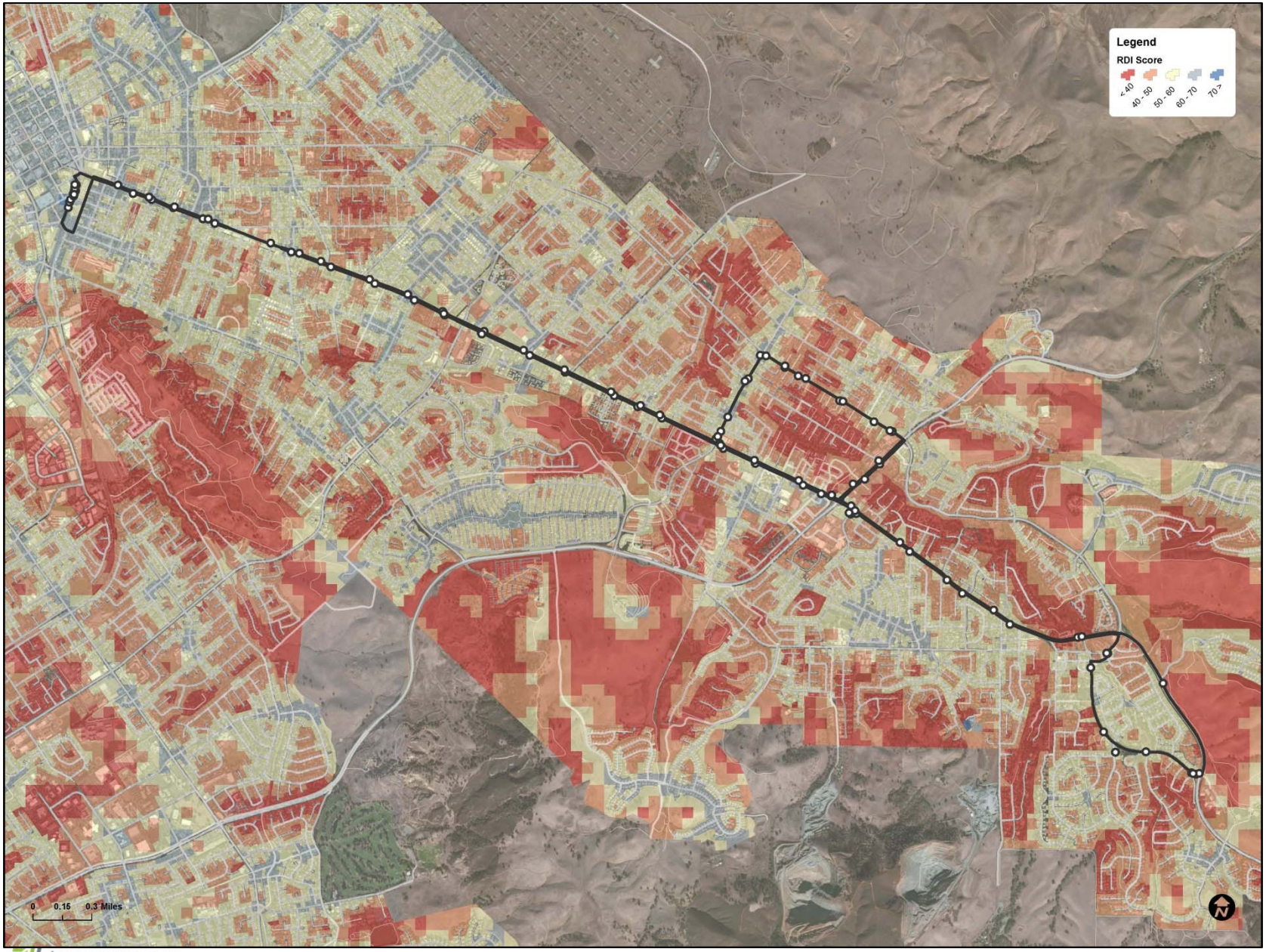
Map B Study Area RDI





Note: Topical summary maps of study data input and products are provided at two scales: (a) CCCTA study area and (b) Route 10 corridor (detailed example)

Map C Route 10 RDI



Socio-Economic Data

Median Household Income

Median household income is based on the American Community Survey 2007-2011 (U.S. Census Bureau) at the Census block group level. Incomes represent 2011 conditions. The median incomes were assigned to each study parcel within the block group, by means of proportionate disaggregation by parcel size (in the absence of any parcel-based socio-economic and land use data). The household income assigned to each bus stop reflects an average of all the parcels within 0.25 miles (straight-line) of the stop.

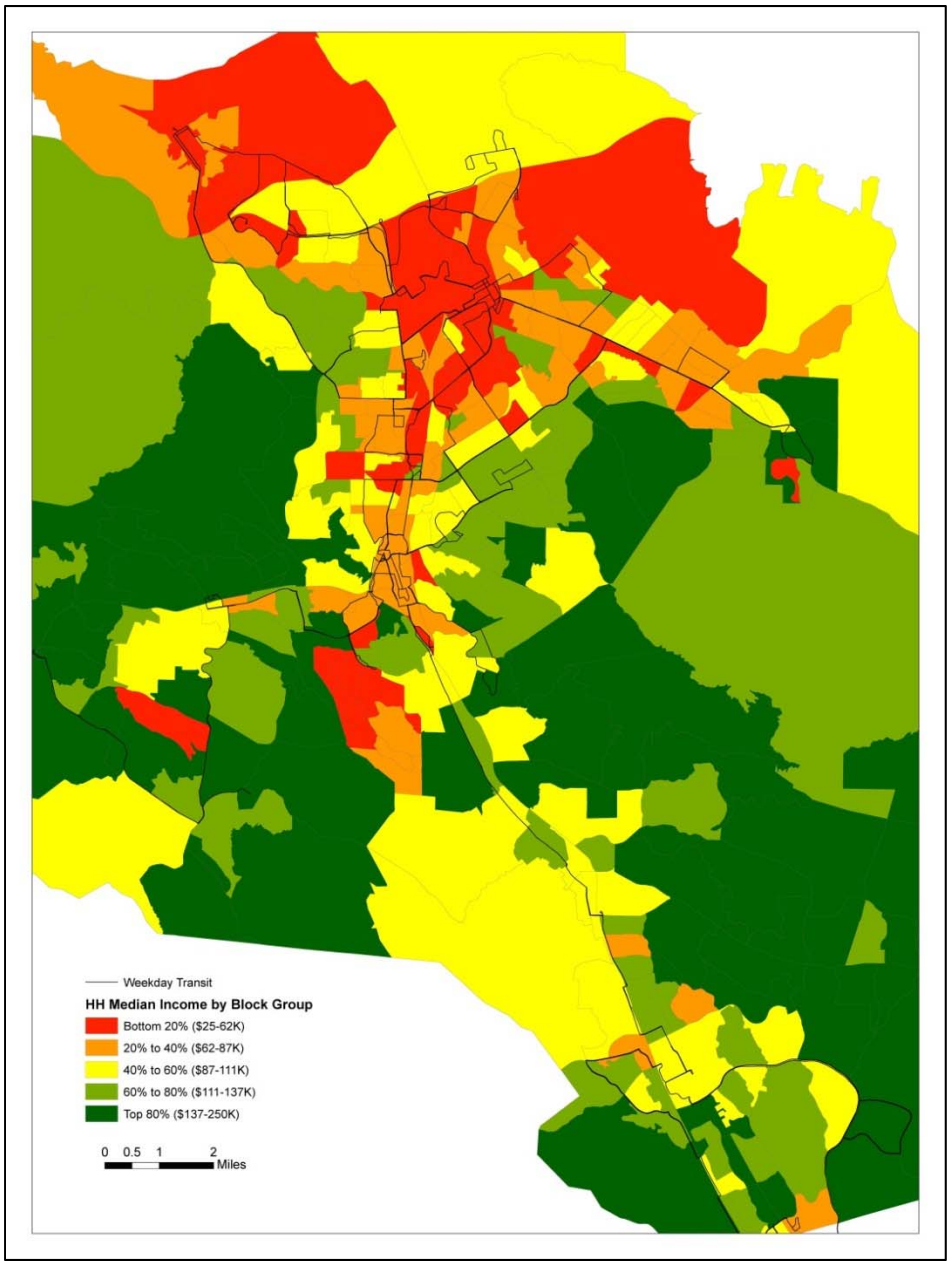
GIS/Data Source(s):

US Census, American Community Survey

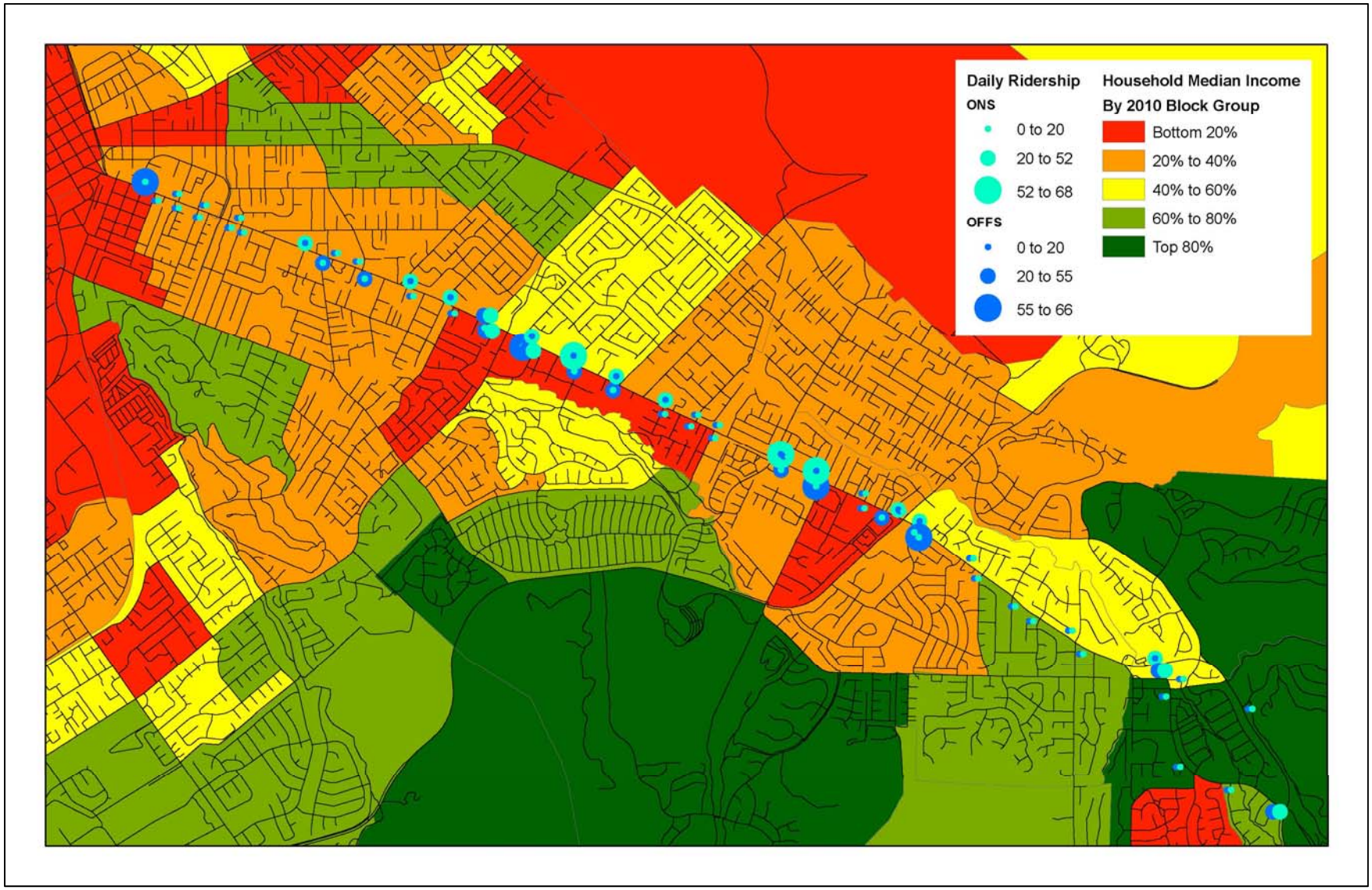
Summary Map(s):

- **D** Study Area Household Income
- **E** Route 10 Household Income (and 2012 Daily Ridership)

Map D Household Income



Map E Route 10 Household Median Income



Housing Density

Housing information was based on the 2010 Census (U.S. Census Bureau) at the Census block level. The number of households within each census block was distributed to study parcels within the block based on parcel area. Housing density was calculated for each parcel based on the households and area of the parcel. The housing density value assigned to bus stops reflects an average of all the parcels within 0.25 miles (straight-line) of the stop.

GIS/Data Source(s):

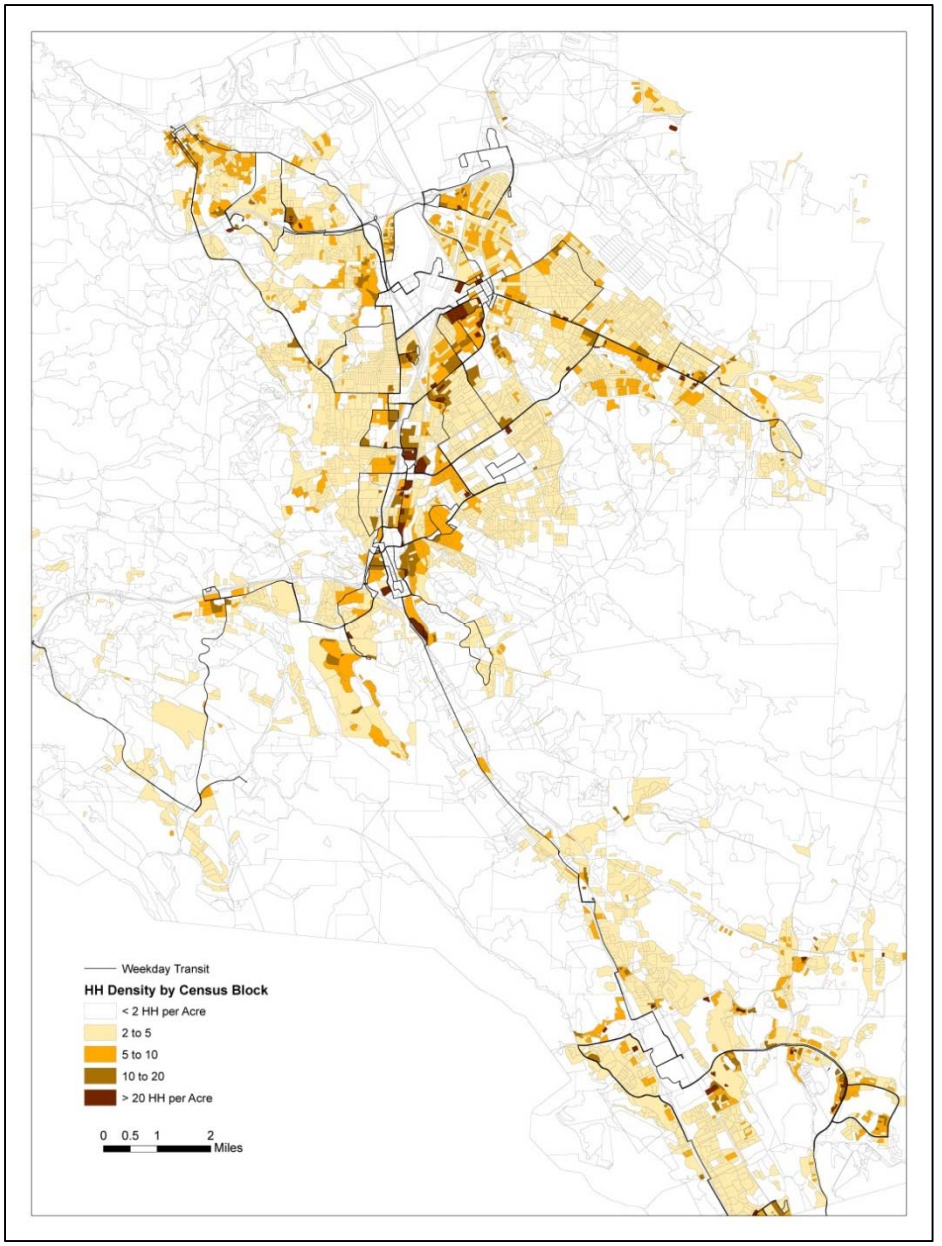
US Census, American Community Survey

Summary Map(s):

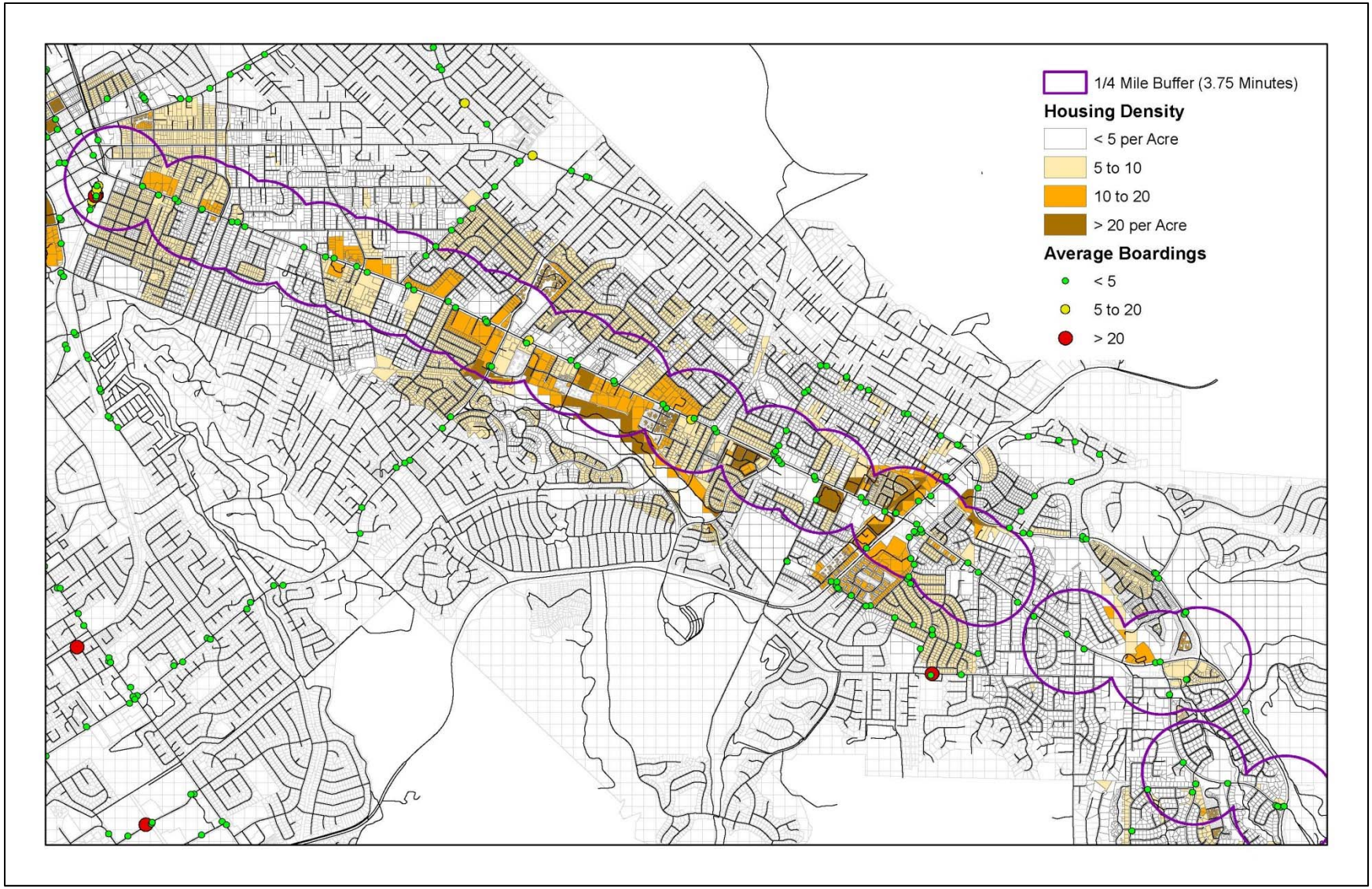
F Study Area Housing Density

G Route 10 Housing Density

Map F Housing Density



Map G Housing Density



Safety Data

Pedestrian & Bicycle Crashes

Pedestrian and bicycle crash data were provided by the Contra Costa Health Department. The original, GIS crash data mapping reference and format were adjusted to match nearby CCCTA bus stops. Non-motorized crash data from 2001-2010 were tallied and summarized for each bus stop (total number of crashes within 100 feet of stop). The non-motorized crash data does not directly indicate whether a transit passenger was involved. However, use of the crash data in the analysis is based on the assumption that bus stops near higher non-motorized crash rates are a flagging indicator for safety improvements (e.g. arterial crossing enhancements) that may yield a better walking/cycling environment and potentially attract latent transit demand.

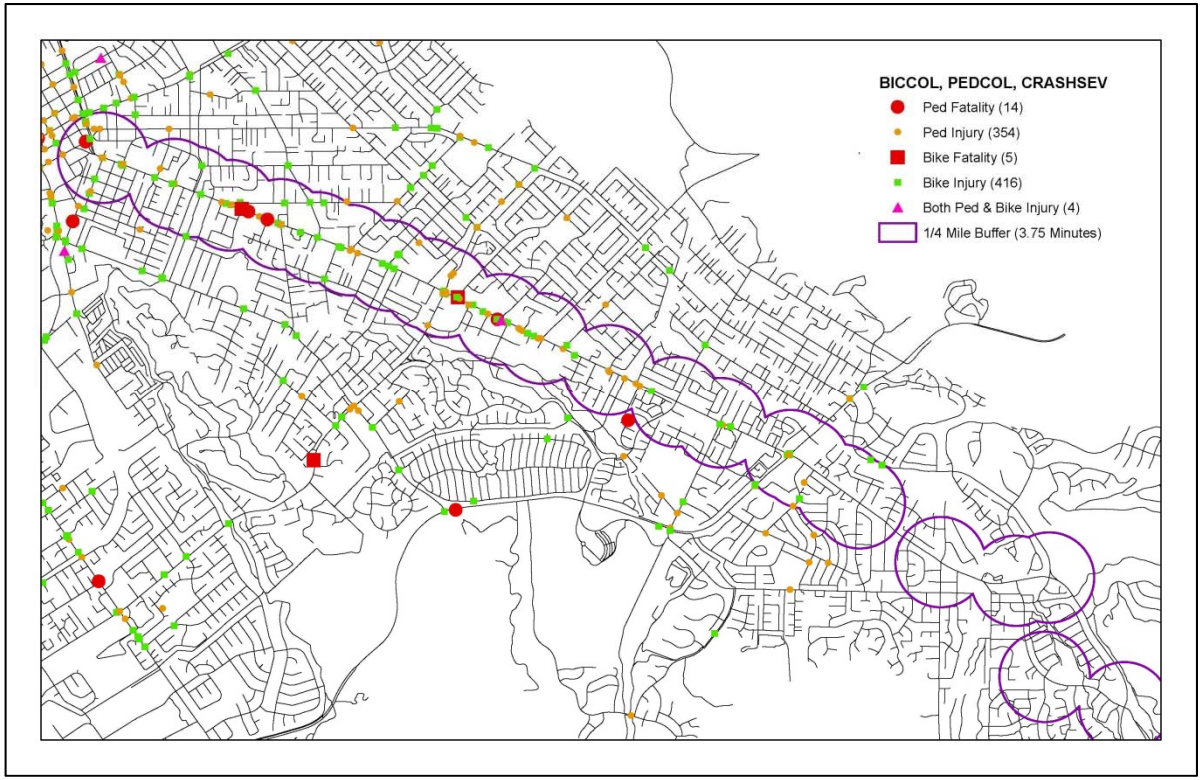
GIS/Data Source(s):

Contra Costa Health Department

Summary Map(s):

H Route 10 Ped-Bike Crashes

Map H Pedestrian-Bicycle Crashes



Prioritizing Bus Stop Areas

The Connectivity. Socio-Economic and Safety scores were added to determine a total ranking score for each bus stop. Existing (2012) stop boarding data was not initially established as an evaluative or ranking criterion. The bus stop scoring process was amended to include a final variable: "potential access improvement" – indicating whether the stop is located next to a 3-, 4- or 5+-lane, arterial/collector street crossing.

The number and placement of individual bus stops along many of the CCCTA routes result in significant overlap of the theoretical walk-sheds to each individual stop. A more uniform and equitable ranking of stops for the full study area is established by aggregating individual bus stops into ***Stop Areas***. The *Stop Area was* defined by a buffered area (660 feet diameter) around each arterial/collector street designated crosswalk, based on the following assumptions:

- Bus stops are usually paired (inbound vs. outbound stops) and the nearest crosswalk provides the link between these pairs;
- CCCTA passengers use the crosswalk at either their initial boarding or eventual alighting of their bus transit round-trip;
- Crosswalks are typically designated at either mid-block locations, pedestrian-only signals signalized intersections; and,
- Crosswalks serve one or several bus stop pairs.

Each bus stop is assigned to only one aggregate *Stop Area*. Where bus stops are not found within 660 feet of a designated crosswalk, then a new *Stop Area* is defined.

The *Stop Areas* were defined and limited to CCCTA weekday routes (excluding school route stops), and excluding park & ride, transit center and BART station stops.

Appendix A-2 summarizes the *Stop Area* scoring used to rank and prioritize both (a) stop area amenity and connectivity improvements, and (b) areas for more focused marketing campaigns. **Appendix A-3** lists the individual bus stops ranked amongst the top 50 *Stop Areas*.

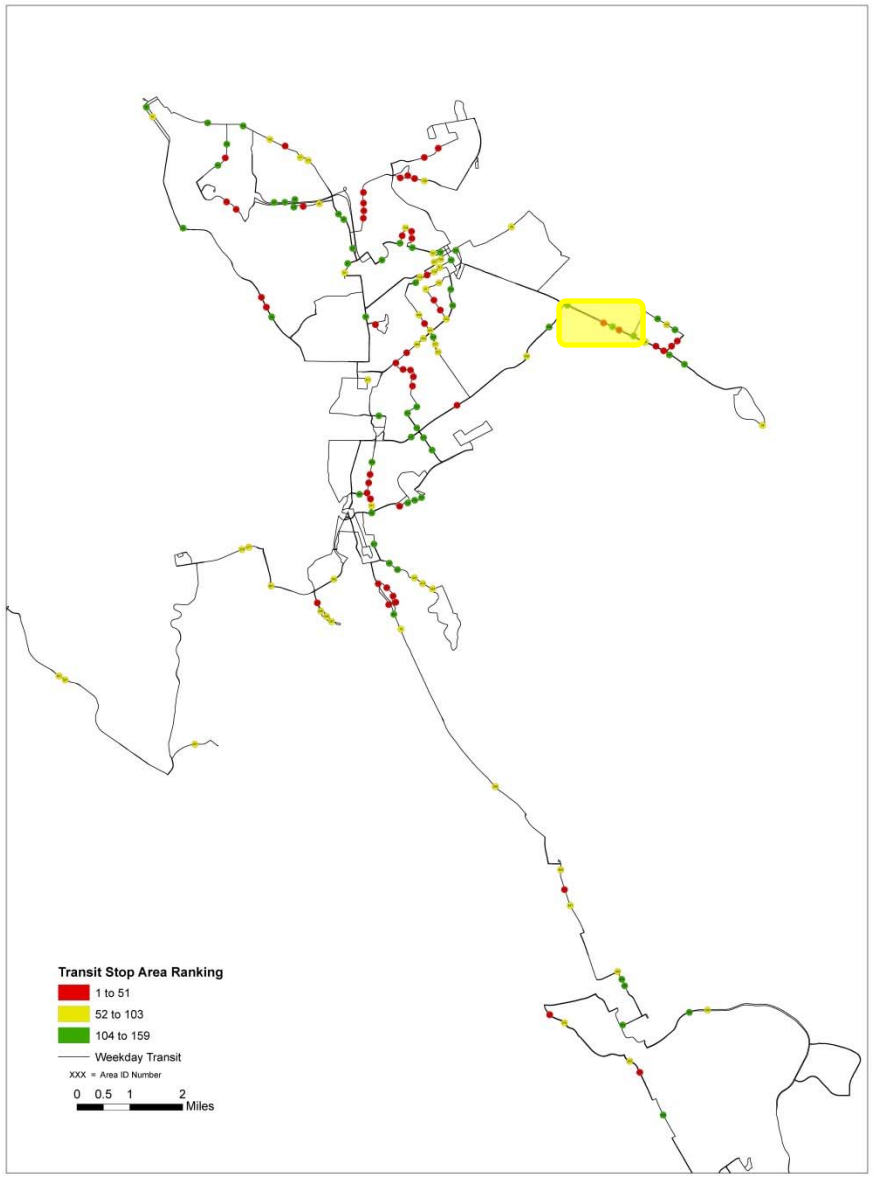
GIS/Data Source(s):

CCCTA (a) bus route and stop inventory; (b) 2012 Bus Stop Daily Boardings/Alightings

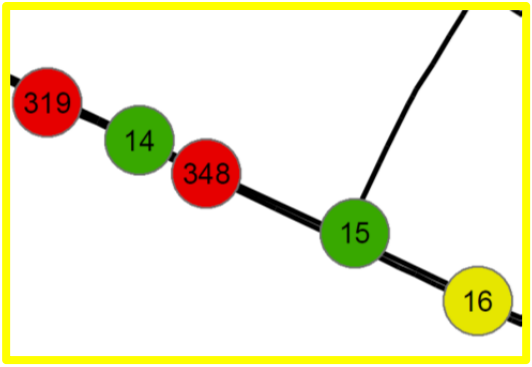
Summary Map(s):

I Priority Stop Areas

Map I Priority Bus Stop Areas



Detail Area – Clayton Road



Main St	Cross Street	Stop ID	Stop Area	Boardings	Ave RDI	Rank Score
CLAYTON RD	NEWHALL PKWY	537	348	1	45.4	15
CLAYTON RD	SILVERLEAF LN	547	348	1	45.6	15
CLAYTON RD	INDIAN LN	535	319	5	47.8	13
CLAYTON RD	INDIAN LN	549	319	21	48.0	13
CLAYTON RD	ALBERTA WAY	539	16	15	48.4	9
CLAYTON RD	TERRY LYNN LN	545	16	53	48.1	9
CLAYTON RD	CLAYCORD AVE	536	14	10	47.0	8
CLAYTON RD	CLAYCORD AVE	548	14	20	47.0	8
AYERS RD	CLAYTON RD	486	15	1	47.2	8
AYERS RD	CLAYTON RD	491	15	1	46.1	8
CLAYTON RD	AYERS RD	538	15	5	46.7	8
CLAYTON RD	AYERS RD	546	15	67	46.5	8

Identifying Walk-To-Transit Barriers

The parcel-level RDI data was evaluated in more detail to help identify sketch-level, walk barriers to transit. Google Earth was also referenced. There are a variety of natural and man-made barriers that make walk and bike access to transit difficult. The purpose of this step is to identify and map the general walk barriers by type, for later use in developing or refining local city and transit agency pedestrian and bicycle master plans.

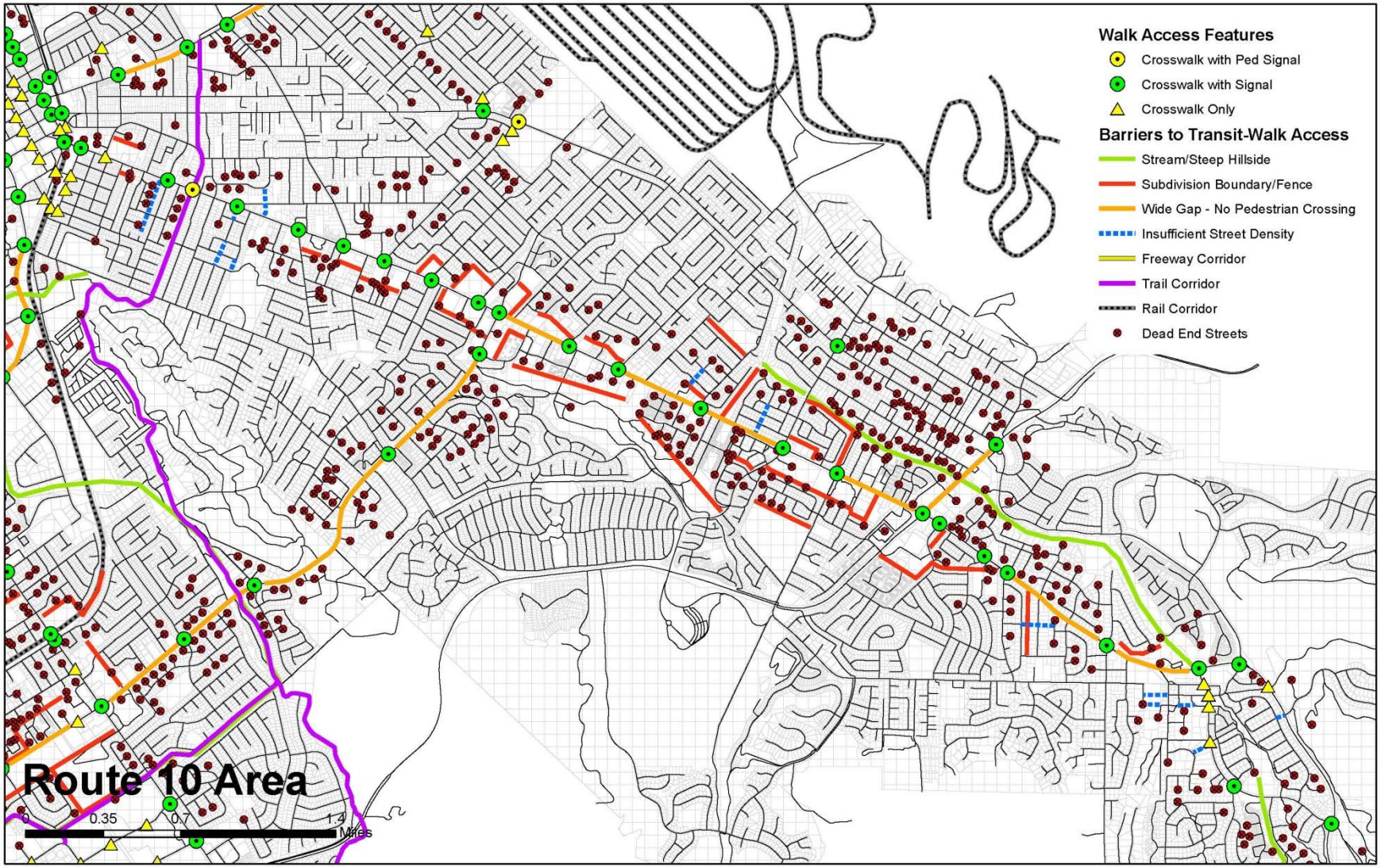
GIS/Data Source(s):

Parcel-Level RDI
Street, Waterway, Railroad
Google Earth

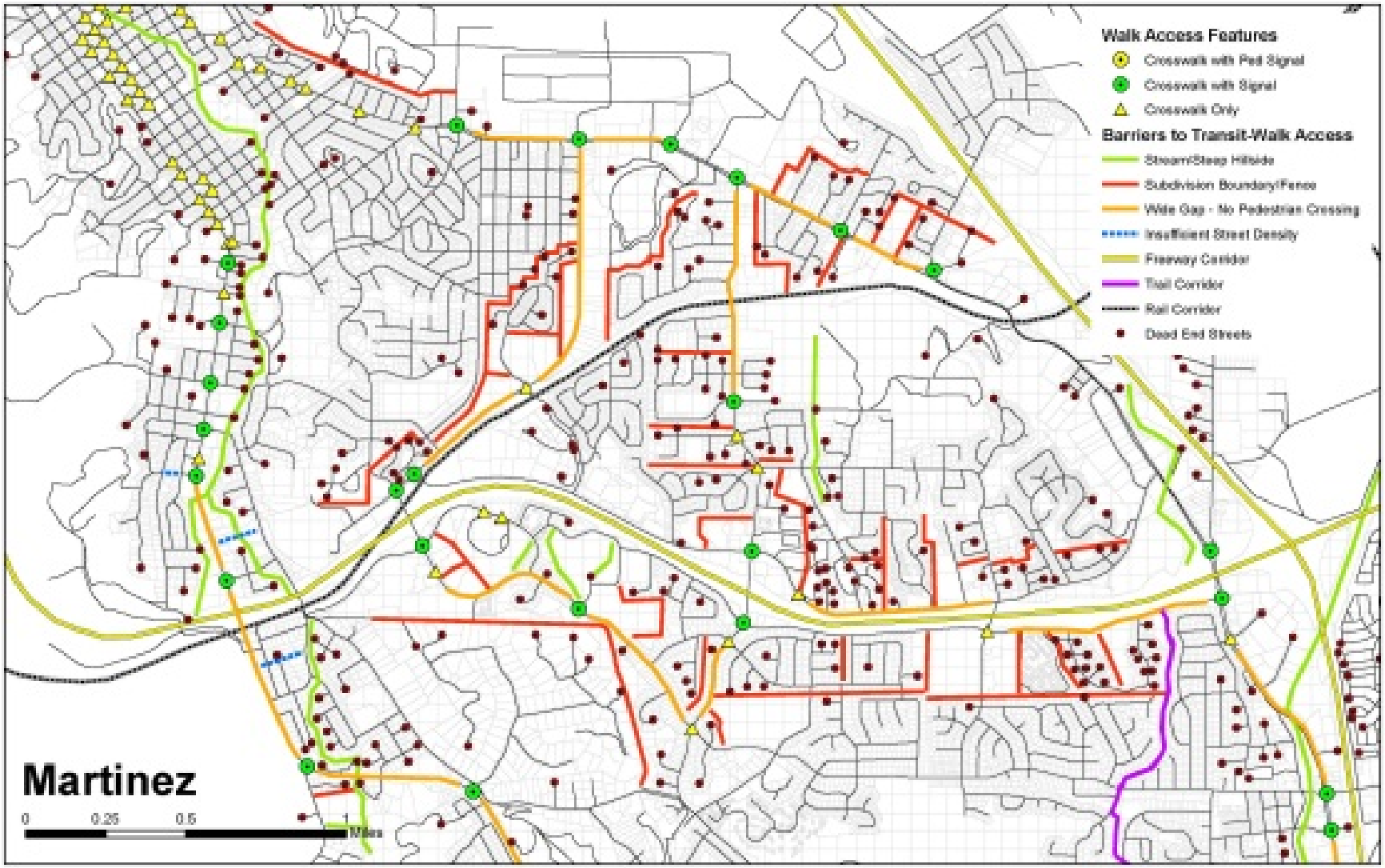
Walk Barrier Map(s):

J Route 10
K Martinez
L Concord
M Walnut Creek
N Pleasant Hill
O San Ramon

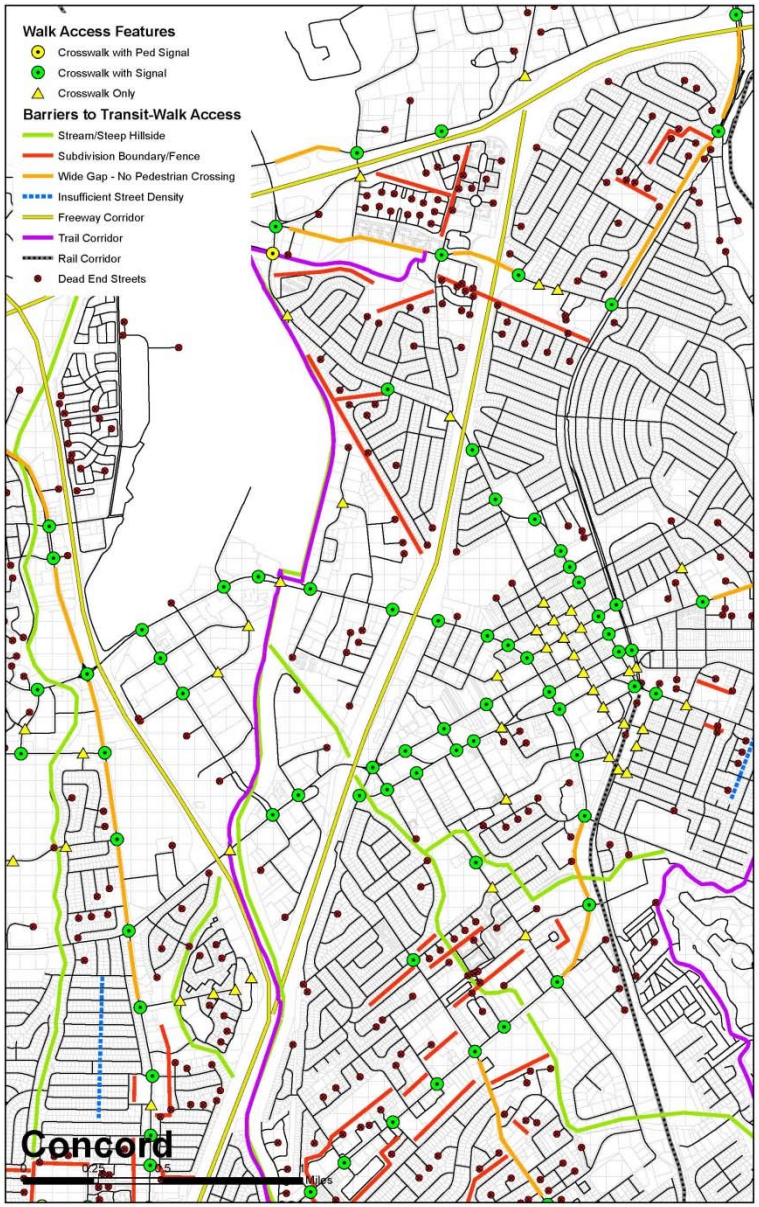
Map J Route 10 Walk Barriers



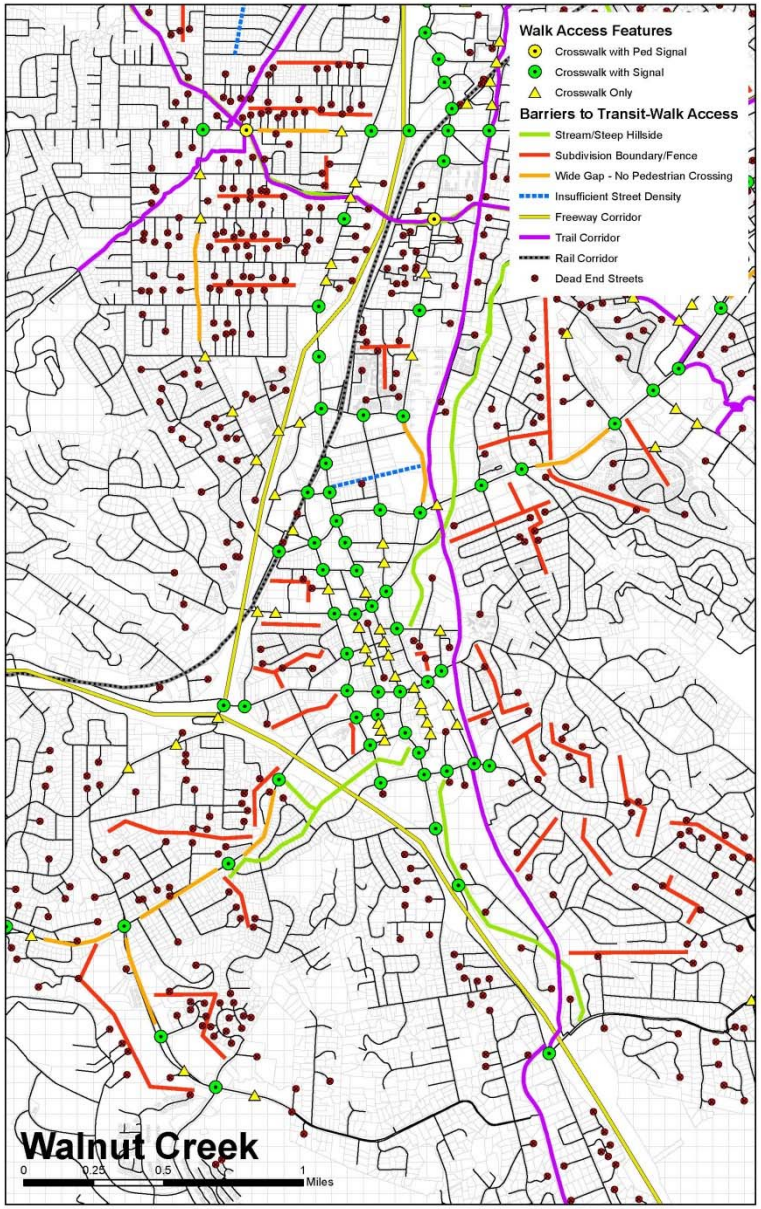
Map K Martinez Walk Barriers



Map L Concord Walk Barriers

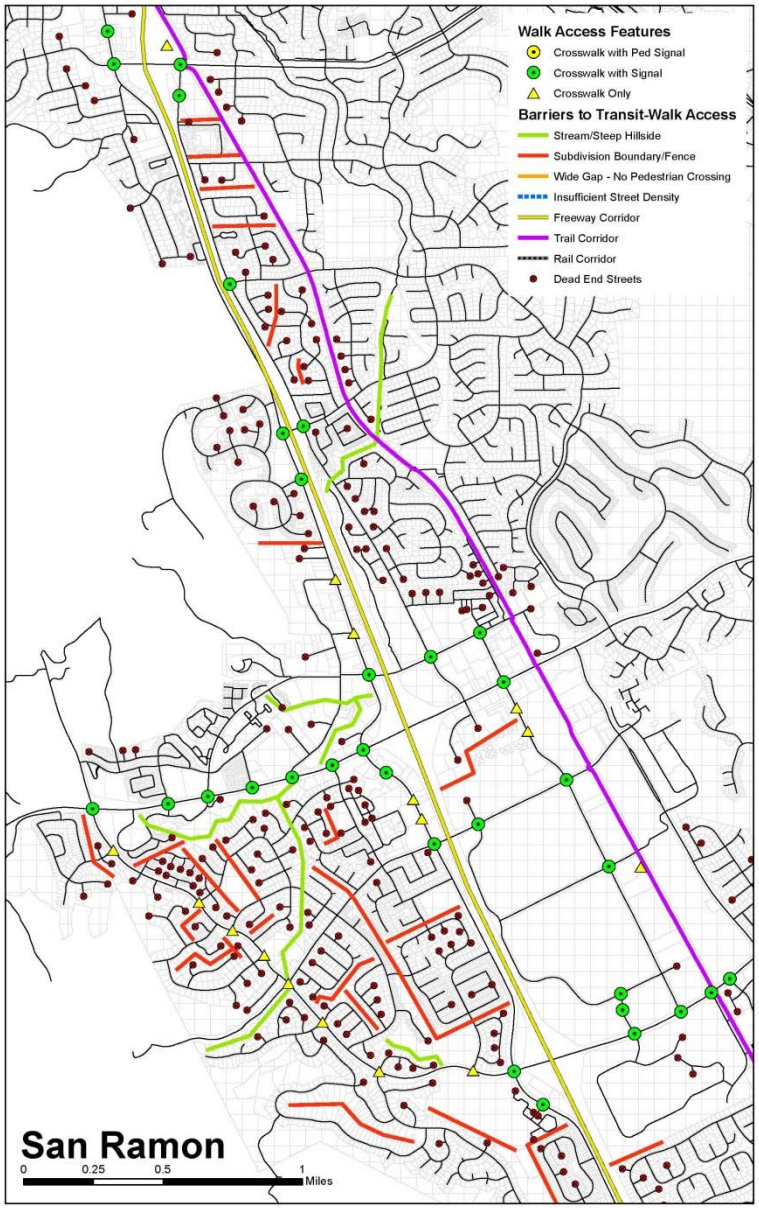


Map M Walnut Creek Barriers



Map N Pleasant Hill Walk Barriers

Map O San Ramon Walk Barriers



Appendix A-1

CCCTA Bus Stop Study: GIS Data Assembly		
Land Use	Tax parcel	Existing land use designation & density (if available)
	Building footprint (planimetric)	Existing land use designation & density (if available)
	Affordable Housing	point (parcel/building) data - subsidized vs. non-subsidized (if available)
	Senior Housing	point (parcel/building) data - subsidized vs. non-subsidized (if available)
	Major destinations	parks, major emplyment centers, etc
		schools
		special generators (from TransCAdd model)
Demographics	2010 Census/ 2006-2011 ACS Survey	Household income, poverty status, race/ethnicity, journey-to-work, etc. (by block group)
		Block Groups, Blocks & Census Tracts (shapefile)
	Base & Future Forecasts (2000 & 2040)	Housing & Employment Growth (by TAZ)
		TAZs (shapefile) - 1500 tazs
Multi-modal Networks	Street centerline file	functional classification, # lanes, vehicle speed limit
	Shared-use Pathways (bike-ped) - regional & local	existing & planned
	Trails, existing & planned	existing & planned
	Sidewalks	coverage
	Traffic Signals	by type: no ped signal or crosswalk, no ped signal with crosswalk, ped signal & crosswalk
	Pedestrian Signal	(assuming crosswalks)
	Crosswalks	(on arterial and collector streets, not otherwise designated by "Traffic Singals" or "Pedestrian Signals")
Transit	Transit Lines	route number & frequency (peak, off-peak, weekday & weekend)
	Transit Stops	route number
		boarding & alighting passenger counts, by time of day and route #
	BART Stations	
Passenger Survey		to be determined, depending upon survey database details, but may include: trip purpose mode of bus stop access minutes walk time to bus stop income (rider) race/ethnicity (rider)
Digital Terrain		Contour shapefile
Base Mapping		Railroads
		Rivers/creeks/lakes
Data received from either CCTA or CCCTA		
Data retrieved directly from US Census		

Appendix A-2

Prioritizing:	**Improvements**				**Marketing**		
Variables	**Scoring**	**Description**	**Points**		**Scoring**	**Description**	**Points**
Walk-Transit Index (RDI) (Built Environment)		Stop Area Connectivity - Average RDI of Parcels (within 1/4-mile of stop)				Stop Area Connectivity - Average RDI of Parcels (within 1/4-mile of stop)	
	Bottom 10%	Poor	10		Top 10%	Good	10
	10-25%		6		10-25%		6
	25%-50%	Fair	2		25%-50%	Fair	2
	Top 50%-100%	Good	0		Bottom 50%-100%	Poor	0
Safety Index		Ped-Bike Crashes					
	# Crashes	(within 100 ft of stop)					
	>3		3				
	2-3		1				
Housing Density		# Hholds (within 1/4-mile of stop)				# Hholds (within 1/4-mile of stop)	
	Top 10%		5		Top 10%		5
	10-25%		3		10-25%		3
	25%-50%		1		25%-50%		1
	Bottom 50%-100%		0		Bottom 50%-100%		0
Household Median Income		Median Hhold Income (within 1/4-mile of stop)				Median Hhold Income (within 1/4-mile of stop)	
	Bottom 10%		5		Bottom 10%		5
	10-25%		3		10-25%		3
	25%-50%		1		25%-50%		1
	Top 50%-100%		0		Top 50%-100%		0
Potential Access Improvement		Arterial Street Crossing - # Travel Lanes					
	# Lanes						
	4+		3				
	3		1				
TOTAL POSSIBLE SCORE			**26**				**20**

Appendix A-3

Bus Stop Location		Stop Area Data Estimates						Stop Ridership			Scoring							
Main Street	Cross-Street	Total Households	Average Household Size	Population	Average RDI Connectivity	Average Household Income	Average Housing Density (units/acres)	On	Off	Total	Hhold Density	Hhold Income	RDI - High	RDI	Safety	Street Crossing	Rank	Stop Area ID
MARSH DR	ARIA DR	1089	2.41	2193	44.5	$35,900	16.1	2	1	3	5	5	0	5	0		20	102
MARSH DR	ARIA DR	1108	2.21	2228	42.8	$35,900	14.9	1	1	2	5	5	0	5	0		20	102
MARSH DR	VISTA GRANDE	716	1.79	1439	37.0	$35,900	11.9	0	0	0	5	5	0	5	0		20	103
MARSH DR	VISTA GRANDE	625	1.81	1247	36.3	$35,900	11.5	0	0	0	5	5	0	5	0		20	103
MONUMENT BLVD	VICTORY LN	1610	3.64	5217	46.8	$41,745	10.9	34	36	70	5	5	0	3	3		19	448
1370 MONUMENT BLVD		1473	3.66	4881	46.9	$42,284	10.5	27	19	46	5	5	0	3	3		19	448
MONUMENT BLVD	THE TREES DR	1694	3.59	5300	46.0	$41,003	11.8	0	0	0	5	5	0	3	3		19	448
MOHR LN	DEL RIO CIR	1420	3.24	3855	37.9	$59,121	13.3	11	13	24	5	3	0	5	0		18	202
MOHR LN	DEL RIO CIR	1421	3.24	3861	38.0	$58,074	13.5	8	7	15	5	3	0	5	0		18	202
MOHR LN	DEL RIO CIR	1453	3.18	3996	39.6	$53,909	13.6	5	5	10	5	3	0	5	0		18	236
MOHR LN	DEL RIO CIR	1463	3.17	4017	39.8	$52,270	13.7	7	4	11	5	3	0	5	0		18	236
MODR		1366	3.22	3721	38.8	$57,942	12.9	0	0	0	5	3	0	5	0		18	202
KIRKER PASS RD	CLAYTON RD	1167	2.92	2457	41.5	$76,538	7.7	7	4	11	3	1	0	5	0	3	17	312
KIRKER PASS RD	ALLEGRO AVE	1021	2.93	2106	41.5	$79,270	7.4	6	12	18	3	1	0	5	0	3	17	312
MARSH DR	MOBIL DR	1065	2.51	2110	45.6	$37,850	13.7	0	1	1	5	5	0	3	0		16	106
MARSH DR	MOBIL DR	1072	2.49	2130	46.3	$35,900	15.1	0	0	0	5	5	0	3	0		16	106
MARSH DR	SAHARA DR	705	2.57	1385	46.7	$42,282	9.5	1	1	2	5	5	0	3	0		16	122
MARSH DR	SALLY RIDE DR	878	2.52	1732	46.1	$40,625	11.8	1	1	2	5	5	0	3	0		16	122
MOHR LN	DEL RIO CT	962	3.06	2462	40.6	$79,749	11.6	9	4	13	5	1	0	5	0		16	215
MOHR LN	WILLOW CREEK CENTER	1017	3.13	2643	39.6	$73,399	11.9	11	8	19	5	1	0	5	0		16	215
STANWELL DR	STANWELL CIR (SOUTH)	0	0.00	8	44.3	$35,900	0.0	0	1	1	0	5	0	5	0		15	201
STANWELL DR	STANWELL CIR (SOUTH)	0	0.00	12	41.0	$35,900	0.0	3	1	4	0	5	0	5	0		15	201
BISSO LN	GASOLINE ALLEY	61	1.56	225	43.7	$40,447	2.5	0	0	0	0	5	0	5	0		15	212
2333 BISSO LANE		31	1.08	121	43.2	$38,966	1.6	0	0	0	0	5	0	5	0		15	212
2380 BISSO LN		104	2.06	370	43.6	$41,985	3.3	0	1	1	0	5	0	5	0		15	214
2380 BISSO LN		107	2.12	378	43.7	$42,144	3.4	1	0	1	0	5	0	5	0		15	214
OLIVERA RD	PERALTA RD	717	2.67	1662	46.3	$48,800	9.1	1	0	1	3	5	0	3	0	1	15	220
OLIVERA RD	PERALTA RD	701	2.70	1643	45.9	$48,800	8.5	1	3	4	3	5	0	3	0	1	15	220
PERALTA RD	DALIS DR	681	2.42	1512	46.5	$50,194	9.6	1	1	2	3	5	0	3	0	1	15	220
KIRKER PASS RD	OLIVE DR	921	2.92	1869	43.7	$81,984	6.7	1	1	2	1	1	0	5	0	3	15	310
KIRKER PASS RD	OLIVE DR	897	2.93	1827	43.6	$81,314	6.7	3	2	5	1	1	0	5	0	3	15	310
5350 CLAYTON RD		1713	2.83	3743	44.3	$66,222	9.1	2	17	19	3	3	0	3	0	3	15	325
CLAYTON RD	SCHENONE CT	1655	2.85	3658	44.1	$66,507	8.8	20	6	26	3	3	0	3	0	3	15	325
CLAYTON RD	NEWHALL PKWY	1018	3.03	2684	45.4	$66,117	8.3	1	10	11	3	3	0	3	0	3	15	348
CLAYTON RD	SILVERLEAF LN	1038	3.03	2740	45.6	$65,838	8.6	1	0	1	3	3	0	3	0	3	15	348
BOLLINGER CANYON RD	ANZA CT	500	2.97	1365	41.4	$128,127	14.2	0	5	5	5	0	0	5	0		15	514

Bus Stop Location		Stop Area Data Estimates						Stop Ridership			Scoring							
Main Street	Cross-Street	0	0	0	0	0	0	On	Off	Total	Hhold Density	Hhold Income	RDI - High	RDI	Safety	Street Crossing	Rank	Stop Area ID
BOLLINGER CANYON RD	FOUNTAINHEAD DR	542	2.98	1469	41.3	$127,486	14.4	2	1	3	5	0	0	5	0		15	514
CLAYTON RD	YGNACIO VALLEY RD	1565	2.80	3374	43.8	$68,605	9.2	1	23	24	3	1	0	5	0		14	17
CLAYTON RD	KIRKER PASS RD	1441	2.85	3109	43.0	$71,545	8.8	50	10	60	3	1	0	5	0		14	17
2047 ARNOLD INDUSTRIAL WAY		96	1.87	359	43.4	$75,814	11.1	11	8	19	3	1	0	5	0		14	126
ARNOLD INDUSTRIAL WAY 2099		63	1.52	280	41.6	$86,800	3.6	4	11	15	3	1	0	5	0		14	126
ELLINWOOD DR	LONGBROOK WAY	1405	2.78	2806	45.3	$65,251	10.4	5	13	18	5	3	0	3	0		14	145
400 LONGBROOK WAY		1308	2.82	2624	46.7	$63,447	10.3	10	3	13	5	3	0	3	0		14	145
LONGBROOK WAY	ELLINWOOD DR	1397	2.80	2792	46.0	$65,334	10.4	3	0	3	5	3	0	3	0		14	145
CENTER AVE	ROLLING HILL WAY	306	2.96	812	43.5	$64,562	3.0	0	0	0	0	3	0	5	0	1	14	153
CENTER AVE	GRANITE CT	288	2.96	756	42.1	$65,601	2.9	0	0	0	0	3	0	5	0	1	14	153
CREEKSIDE DR	1459 CREEKSIDE DR	1322	2.86	2734	39.3	$83,536	9.1	15	11	26	3	1	0	5	0		14	268
CREEKSIDE DR	CREEKSIDE OAKS	1321	2.86	2730	39.4	$82,979	9.2	6	0	6	3	1	0	5	0		14	268
CREEKSIDE DR	QUAIL CT	1183	2.71	2499	39.1	$92,265	7.9	0	3	3	3	0	0	5	1		14	460
CREEKSIDE DR	QUAIL CT	1123	2.66	2377	39.1	$92,542	7.8	1	0	1	3	0	0	5	1		14	460
SOUTH MAIN ST	CREEKSIDE DR	1134	2.79	2414	38.7	$102,393	7.3	15	17	32	3	0	0	5	1		14	460
SOUTH MAIN ST	CREEKSIDE DR	1032	2.69	2227	40.2	$100,931	6.6	12	9	21	3	0	0	5	1		14	460
LCKP		1443	2.86	3115	42.9	$71,734	8.7	0	0	0	3	1	0	5	0		14	17
ACKP		1443	2.86	3115	42.9	$71,734	8.7	0	0	0	3	1	0	5	0		14	17
ARNOLD INDUSTRIAL WY/LOWES DRI		637	2.29	1497	44.8	$59,632	20.8	1	0	1	5	3	0	3	0		14	125
ARNOLD INDUSTRIAL WY/LOWES DRI		652	2.26	1478	45.0	$59,758	20.2	0	0	0	5	3	0	3	0		14	125
SMCR		1040	2.74	2232	39.4	$102,313	6.8	0	0	0	3	0	0	5	1		14	460
ALHAMBRA AVE	ROANOKE DR	508	2.70	1119	43.2	$100,939	4.9	1	1	2	0	0	0	5	0	3	13	43
MOHR LN	WICKET CT	615	3.01	1642	43.0	$90,471	8.3	0	0	0	3	0	0	5	0		13	114
MOHR LN	WICKET CT	623	3.01	1665	42.9	$90,455	8.3	0	1	1	3	0	0	5	0		13	114
ALHAMBRA AVE	BENHAM DR	313	2.75	745	41.8	$108,122	2.2	1	0	1	0	0	0	5	0	3	13	139
ALHAMBRA AVE	SHETLAND DR	408	2.67	923	40.8	$103,335	3.3	1	2	3	0	0	0	5	0	3	13	139
PACHECO BLVD	ARTHUR RD	210	2.49	590	39.8	$60,897	2.5	6	3	9	0	3	0	5	0		13	163
PACHECO BLVD	ARTHUR RD	205	2.84	578	40.5	$56,352	3.1	5	4	9	0	3	0	5	0		13	163
CENTER AVE	KAISER MEDICAL CENTER	255	2.89	604	44.1	$67,951	2.5	1	2	3	0	3	0	5	0		13	176
CENTER AVE	KAISER MEDICAL CENTER	234	2.87	559	42.8	$69,085	1.9	2	2	4	0	3	0	5	0		13	176
901 HOWE RD		424	3.15	1210	41.9	$80,687	6.2	0	0	0	1	1	0	5	0	1	13	183
950 HOWE RD		421	3.15	1199	41.9	$80,008	6.2	0	0	0	1	1	0	5	0	1	13	183
TREAT BLVD	ROYAL ANNE LN	395	2.76	934	39.8	$96,615	4.2	4	2	6	0	0	0	5	0	3	13	209
CLAYTON RD	FRY WAY	1680	2.42	4866	53.5	$43,565	15.9	54	35	89	5	5	3	0	3		13	217
CLAYTON RD	ADELAIDE ST	1638	2.30	4987	53.3	$43,180	17.3	38	50	88	5	5	3	0	3		13	217
FRY WAY	CLAYTON RD	1505	2.01	4316	54.0	$43,897	14.8	23	6	29	5	5	3	0	3		13	217
FRY WAY	CLAYTON RD	1425	1.93	4047	54.3	$44,201	13.7	4	18	22	5	5	3	0	3		13	217
1700 TICE VALLEY BLVD		535	2.78	988	37.6	$96,932	3.2	4	0	4	0	0	0	5	0	3	13	224
OLIVERA RD	TERRAZA DEL SOL	1120	2.79	2556	47.2	$49,294	10.1	1	4	5	5	5	0	1	0	1	13	226

Bus Stop Location		Stop Area Data Estimates						Stop Ridership			Scoring							
Main Street	Cross-Street	0	0	0	0	0	0	On	Off	Total	Hhold Density	Hhold Income	RDI - High	RDI	Safety	Street Crossing	Rank	Stop Area ID
CASTLEHILL RD	ARBOL GRANDE	1073	2.84	2162	42.7	$101,626	7.3	0	1	1	3	0	0	5	0		13	244
SOUTH MAIN ST	CREST AVE	826	2.81	1680	43.7	$97,066	7.4	0	2	2	3	0	0	5	0		13	244
CREEKSIDE DR	NEAR CT	1197	2.92	2384	40.6	$90,027	9.0	23	25	48	3	0	0	5	0		13	262
CREEKSIDE DR	NEAR CT	1208	2.92	2415	40.4	$89,139	8.8	14	0	14	3	0	0	5	0		13	262
CREEKSIDE DR	END	967	2.89	1956	42.6	$90,068	8.2	7	45	52	3	0	0	5	0		13	290
CLAYTON RD	INDIAN LN	1238	2.88	2759	47.8	$62,019	10.3	5	13	18	5	3	0	1	0	3	13	319
CLAYTON RD	INDIAN LN	1242	2.90	2763	48.0	$62,921	10.3	21	17	38	5	3	0	1	0	3	13	319
NORTH CIVIC DR	PARKSIDE DR	1477	2.63	2758	44.6	$78,864	14.9	5	3	8	5	1	0	3	1		13	403
NORTH CIVIC DR	PARKSIDE DR	1439	2.54	2667	45.3	$76,997	13.8	1	2	3	5	1	0	3	1		13	403
CAMINO RAMON	SAN THOMAS WAY	422	2.79	998	37.8	$104,942	8.3	0	1	1	3	0	0	5	0		13	478
CAMINO RAMON	SAN THOMAS WAY	436	2.74	1012	37.9	$108,459	8.6	1	0	1	3	0	0	5	0		13	478
SAN RAMON VALLEY BLVD	BARNWOOD DR	373	3.13	1092	43.0	$135,355	4.0	1	2	3	0	0	0	5	0	3	13	504
PAAR		195	2.79	547	40.2	$57,028	2.9	0	0	0	0	3	0	5	0		13	163
FRCL		1510	2.01	4327	54.0	$43,998	14.3	0	0	0	5	5	3	0	3		13	217
OLIVERA RD	TERRAZA DEL SOL - PERALTA (MID	1019	2.72	2321	46.9	$48,972	10.1	3	2	5	5	5	0	1	0	1	13	226
CASM		1076	2.84	2164	42.5	$99,807	7.5	0	0	0	3	0	0	5	0		13	244
ACRE		988	2.91	1990	42.2	$89,245	8.4	0	0	0	3	0	0	5	0		13	290
LCRE		988	2.91	1990	42.2	$89,245	8.4	0	0	0	3	0	0	5	0		13	290
PARKSIDE DR	N CIVIC DR + PIMLICO DR	1326	2.43	2440	46.3	$75,507	12.9	2	2	4	5	1	0	3	1		13	403
MUIR RD	FOUNTAINHEAD CT	552	2.93	1438	43.3	$99,789	6.6	0	4	4	1	0	0	5	0	1	12	48
MUIR RD	FOUNTAINHEAD CT	487	2.91	1231	42.7	$99,751	6.5	1	2	3	1	0	0	5	0	1	12	48
OLIVERA RD	UPS DISTRIBUTION CENTER	302	2.59	788	46.2	$48,378	6.0	1	1	2	1	5	0	3	0		12	111
MEADOW LN	ROBIN LN	1237	3.71	4206	47.3	$49,332	18.4	7	6	13	5	5	0	1	0		12	186
MEADOW LN	LODGE DR	1182	3.62	4012	46.9	$45,740	18.0	6	3	9	5	5	0	1	0		12	186
MEADOW LN	ROBIN LN	1217	3.72	4073	47.0	$51,124	18.8	13	6	19	5	5	0	1	0		12	186
DETROIT AVE	SUNSHINE DR	1431	3.72	4773	48.0	$47,234	14.5	13	12	25	5	5	0	1	0		12	231
DETROIT AVE	LYNN AVE	1491	3.74	4960	48.2	$47,176	13.0	9	10	19	5	5	0	1	0		12	231
DETROIT AVE	WALTERS WAY	1353	3.43	4159	48.3	$43,768	20.4	11	16	27	5	5	0	1	0		12	232
DETROIT AVE	WALTERS AVE	1320	3.47	4117	48.1	$43,696	20.2	19	8	27	5	5	0	1	0		12	232
MONTEGO	SAN MARCO APARTMENTS	830	2.38	1643	46.1	$109,881	11.6	2	5	7	5	0	0	3	0	1	12	308
NORTH CIVIC DR	PINE ST	1155	2.34	2112	47.3	$78,334	11.3	3	2	5	5	1	0	1	1	3	12	326
NORTH CIVIC DR	PINE ST	1062	2.27	1930	48.0	$78,371	11.0	4	3	7	5	1	0	1	1	3	12	326
MOHR LN	MONUMENT BLVD	1300	3.18	3735	43.9	$51,006	9.3	19	27	46	3	3	0	3	0		12	375
MOHR LN	MONUMENT BLVD	1292	3.18	3714	43.8	$50,843	9.3	26	17	43	3	3	0	3	0		12	375
MONUMENT BLVD	MOHR LN	1365	3.24	3974	44.2	$48,895	8.9	9	20	29	3	3	0	3	0		12	375
MONUMENT BLVD	MOHR LN	1207	3.21	3501	45.0	$50,034	8.3	17	13	30	3	3	0	3	0		12	375
NORTH CIVIC DR	DEODORA WAY	1747	2.72	3336	44.4	$81,673	15.2	5	2	7	5	1	0	3	0		12	404
NORTH CIVIC DR	DEODORA WAY	1741	2.72	3322	44.6	$81,276	15.3	3	2	5	5	1	0	3	0		12	404
NORTH CIVIC DR	WALDEN RD	1650	2.62	3140	44.8	$84,198	14.7	2	1	3	5	1	0	3	0		12	405
NORTH CIVIC DR	WALDEN RD	1672	2.63	3185	44.7	$83,508	14.9	1	1	2	5	1	0	3	0		12	405
DEWA		1313	3.47	4079	48.0	$43,697	20.3	0	0	0	5	5	0	1	0		12	232
MONTEGO	YGNACIO VALLEY RD	895	2.55	1813	46.3	$107,783	10.3	1	1	2	5	0	0	3	0	1	12	308
MOMH		1306	3.22	3785	44.5	$49,466	8.6	0	0	0	3	3	0	3	0		12	375

Endnotes

[1] Preliminary regression and multiple regression analyses of the parcel-level, disaggregated socio-economic Census data did not reveal strong correlations between walk connectivity, housing density, household income and nearby bus stop ridership (boardings). These relationships are generally well recognized at a larger scale (city subarea, US Census Block Group and Tract), but have not been extrapolated to the land parcel scale. The absence of parcel-level land use data (housing type) inhibits the ability to more accurately disaggregate the US Census socio-economic data (including auto ownership) to the same scale as the connectivity scores and bus stop locations. Thus, the study methodology was adjusted to apply GIS measures of individual bus stop proximity to each of connectivity, socio-economic and safety data. Proximity scoring was then categorized and assembled for a composite index.

Appendix B – Stop-Specific Improvements and Preliminary Designs (Under Separate Cover)

Appendix C – Preliminary Cost Estimates for Top 50 Stops

Bus Stop Improvement Cost Estimate

Prepared by TJKM Transportation Consultants

Jurisdiction: 3CTA

Project: 3CTA Bus Stop Improvement Program

Date: February 18, 2014

General Items	**Cost Estimate**
Traffic Control System	$125,000
Rank 1, Contra Costa Boulevard & Viking Drive	$86,520
Rank 2: Monument Boulevard & Oak Grove Road	$52,910
Rank 3, Oak Street & Galindo Street	$111,220
Rank 4, Clayton Road & Fry Way	$68,170
Rank 5, Monument Boulevard & Victory Lane	$59,520
Rank 6, Golf Club Road & College Drive	$61,830
Rank 7, Clayton Road & Adelaide Street	$54,720
Rank 8, Moraga Way & Miramonte Drive	$75,070
Rank 9, Monument Boulevard & Lacey Lane (West)	$71,245
Rank 10, Monument Boulevard & Meadow Lane	$80,745
Rank 11, Monument Boulevard & Lacey Lane (East)	$79,970
Rank 12, Gateway Boulevard & Willow Pass Road	$16,120
Rank 13, Willow Pass Road & Waterworld Parkway	$65,120
Rank 14, Monument Boulevard & Reganti Drive	$61,995
Rank 15, Monument Boulevard & Virginia Lane	$23,995
Rank 16, Clayton Road & Alberta Way	$67,420
Rank 17, 1370 Monument Boulevard	$37,670
Rank 18, Clayton Road & Ayers Road (West)	$67,165
Rank 19, Clayton Road & Kirker Pass Road	$83,520
Rank 20, Contra Costa Boulevard & Golf Club Road	$119,920
Rank 21, Mt. Diablo Boulevard & Locust Street	$29,605
Rank 22, Gateway Boulevard & Clayton Road	$13,320
Rank 23, Clayton Road & Bel Air Drive	$21,250
Rank 24, End of Creekside Drive	$26,120
Rank 25, Sun Valley Boulevard & Contra Costa Boulevard (West)	$10,790
Rank 26, Clayton Road & Denkinger Court (East)	$25,095
Rank 27, Clayton Road & Washington Boulevard (East)	$16,790
Rank 28, Clayton Road & Terry Lynn Lane	$58,620
Rank 29, Detroit Avenue & Laguna Street (North)	$58,370
Rank 30, Creekside Drive & Near Court	$12,520
Rank 31, Sun Valley Boulevard & Santa Monica Drive (East)	$91,145
Rank 32, Clayton Road & Denkinger Court (West)	$53,120
Rank 33, Laguna Street & Detroit Avenue(West)	$50,495
Rank 34, Mohr Lane & Monument Boulevard (South)	$73,600
Rank 35, Clayton Road & Thornwood Drive	$52,595
Rank 36, Monument Boulevard & Detroit Avenue	$110,390
Rank 37, Mohr Lane & Monument Boulevard (North)	$53,150

Rank 38, Mohr Lane & Del Rio Circle	$18,835
Rank 39, Crescent Plaza & Crescent Drive (East)	$82,650
Rank 40, Crescent Plaza & Crescent Drive (West)	$14,595
Rank 41, Oak Grove Road & Treat Boulevard	$78,620
Rank 42, Clayton Road & Glazier Drive	$37,275
Rank 43, Clayton Road & Indian Lane	$17,785
Rank 44, South Main Street & Creekside Drive	$32,920
Rank 45, Main Street & Duncan Street	$22,000
Rank 46, Willow Pass Road & Diamond Boulevard	$75,910
Rank 47, Clayton Road & Washington Boulevard (West)	$69,430
Rank 48, Clayton Road & Ayers Road (West)	$71,145
Rank 49, Port Chicago Highway & Arnold Industrial Way	$111,620
Rank 50, Pike Lane & Arnold Industrial Way	$119,985
TOTAL ESTIMATE:	**$2,979,590**
CONTINGENCY:	15%
TOTAL ESTIMATE (ROUNDED):	$3,426,500.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 1, Contra Costa Boulevard & Viking Drive	Prepared:	JL
Stop ID:	602		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable/Bus Stop Sign	EA	$ 200.00	3	$600.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Install Route Map	EA	$ 200.00	1	$200.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	160	$800.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Pedestrian Landing	SF	$ 10.00	40	$400.00
Reconstruct ADA Ramps	SF	$ 5,500.00	4	$22,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			TOTAL:	$86,520.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 2: Monument Boulevard & Oak Grove Road	Prepared:	JL
Stop ID:	719		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Relocate Existing Shelter	EA	$ 200.00	1	$200.00
Reposition Bench	EA	$ 200.00	1	$200.00
Install EMS	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	550	$2,750.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	79	$790.00
Extend Concrete Bus Pad	SF	$ 45.00	570	$25,650.00
Reconstruct Driveways	EA	$ 10,000.00	2	$20,000.00
			SUBTOTAL:	$52,910.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 3, Oak Street & Galindo Street	Prepared:	JL
Stop ID:	745		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Install Concrete Sidewalk	SF	$ 10.00	1850	$18,500.00
Reconstruct ADA Ramps	EA	$ 5,500.00	4	$22,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			SUBTOTAL:	$111,220.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 4, Clayton Road & Fry Way	Prepared:	JL
Stop ID:	563		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Striping				
Install Red Curb	LF	$ 5.00	80	$400.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	825	$8,250.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			SUBTOTAL:	$68,170.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 5, Monument Boulevard & Victory Lane	Prepared:	JL
Stop ID:	713		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Above Ground				
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			SUBTOTAL:	$59,520.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Pleasant Hill	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 6, Golf Club Road & College Drive	Prepared:	JL
Stop ID:	1467		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable/Bus Stop Sign	EA	$ 200.00	3	$600.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Relocate Existing Bench	EA	$ 200.00	1	$200.00
Striping				
Install Red Curb	LF	$ 5.00	140	$700.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	1	$10.00
Reconstruct ADA Ramps	EA	$ 5,500.00	6	$33,000.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			TOTAL:	$61,830.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 7, Clayton Road & Adelaide Street	Prepared:	JL
Stop ID:	567		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Repair Bench	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	1000	$10,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			SUBTOTAL:	$54,720.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Moraga	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 8, Moraga Way & Miramonte Drive	Prepared:	JL
Stop ID:	1359		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable/Bus Stop Sign	EA	$ 200.00	3	$600.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Relocate Existing Bench	EA	$ 200.00	1	$200.00
Install Route Map	EA	$ 200.00	1	$200.00
Reposition Trash Bin	EA	$ 200.00	1	$200.00
Striping				
Install Red Curb	LF	$ 5.00	140	$700.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	15	$150.00
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Resurface Concrete Pad	SF	$ 30.00	50	$1,500.00
Reconstruct ADA Ramps	EA	$ 5,500.00	2	$11,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			TOTAL:	$75,070.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 9, Monument Boulevard & Lacey Lane (West)	Prepared:	JL
Stop ID:	712		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Striping				
Install Red Curb	LF	$ 5.00	135	$675.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	105	$1,050.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			SUBTOTAL:	$71,245.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 10, Monument Boulevard & Meadow Lane	Prepared:	JL
Stop ID:	710		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	275	$1,375.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	115	$1,150.00
Reconstruct ADA Ramps	EA	$ 5,500.00	3	$16,500.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$80,745.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 11, Monument Boulevard & Lacey Lane (East)	Prepared:	JL
Stop ID:	718		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Striping				
Install Red Curb	LF	$ 5.00	90	$450.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	1000	$10,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			SUBTOTAL:	$79,970.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 12, Gateway Boulevard & Willow Pass Road	Prepared:	JL
Stop ID:	635		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
			SUBTOTAL:	$16,120.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 13, Willow Pass Road & Waterworld Parkway	Prepared:	JL
Stop ID:	878		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install EMS	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	100	$1,000.00
Resurface Concrete Pad	SF	$ 30.00	960	$28,800.00
Reconstruct ADA Ramps	EA	$ 5,500.00	4	$22,000.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			SUBTOTAL:	$65,120.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 14, Monument Boulevard & Reganti Drive	Prepared:	JL
Stop ID:	717		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Striping				
Install Red Curb	LF	$ 5.00	295	$1,475.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	100	$1,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			SUBTOTAL:	$61,995.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 15, Monument Boulevard & Virginia Lane	Prepared:	JL
Stop ID:	711		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Striping				
Install Red Curb	LF	$ 5.00	295	$1,475.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	1000	$10,000.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			SUBTOTAL:	$23,995.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 16, Clayton Road & Alberta Way	Prepared:	JL
Stop ID:	539		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install Sign Post	EA	$ 50.00	1	$50.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	8	$44,000.00
Striping				
Install Red Curb	LF	$ 5.00	370	$1,850.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$67,420.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 17, 1370 Monument Boulevard	Prepared:	JL
Stop ID:	2176		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Striping				
Install Red Curb	LF	$ 5.00	230	$1,150.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	20	$200.00
Reconstruct Driveways	EA	$ 10,000.00	2	$20,000.00
			SUBTOTAL:	$37,670.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 18, Clayton Road & Ayers Road (West)	Prepared:	JL
Stop ID:	546		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	62	$620.00
Reconstruct ADA Ramps	EA	$ 5,500.00	1	$5,500.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Striping				
Install Red Curb	LF	$ 5.00	65	$325.00
			SUBTOTAL:	$67,165.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 19, Clayton Road & Kirker Pass Road	Prepared:	JL
Stop ID:	543		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Install New Bus Stop Pole	EA	$ 50.00	1	$50.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	10	$55,000.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Striping				
Install Red Curb	LF	$ 5.00	190	$950.00
			SUBTOTAL:	$83,520.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Pleasant Hill	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 20, Contra Costa Boulevard & Golf Club Road	Prepared:	JL
Stop ID:	604		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable/Bus Stop Sign	EA	$ 200.00	3	$600.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Striping				
Install Red Curb	LF	$ 5.00	160	$800.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	8	$44,000.00
Install Asphalt Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			TOTAL:	$119,920.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Walnut Creek	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 21, Mt. Diablo Boulevard & Locust Street	Prepared:	JL
Stop ID:	1791		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install Simme-Seats	EA	$ 765.00	1	$765.00
Striping				
Install Red Curb	LF	$ 5.00	108	$540.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	48	$480.00
Reconstruct ADA Ramps	EA	$ 5,500.00	3	$16,500.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			TOTAL:	$29,605.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 22, Gateway Boulevard & Clayton Road	Prepared:	JL
Stop ID:	634		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Relocate Shelter	EA	$ 10,000.00	1	$10,000.00
			SUBTOTAL:	$13,320.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 23, Clayton Road & Bel Air Drive	Prepared:	JL
Stop ID:	532		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install Sign Post	EA	$ 50.00	1	$50.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	17	$170.00
Reconstruct ADA Ramps	EA	$ 5,500.00	2	$11,000.00
Install Concrete Bus Pad	SF	$ 960.00	1	$960.00
Striping				
Install Red Curb	LF	$ 5.00	350	$1,750.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$21,250.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Walnut Creek	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 24, End of Creekside Drive	Prepared:	JL
Stop ID:	1741		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable	EA	$ 200.00	2	$400.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install Route Map	EA	$ 200.00	1	$200.00
Reposition Trash Bin	EA	$ 200.00	1	$200.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	100	$1,000.00
Reconstruct Driveways	EA	$ 10,000.00	2	$20,000.00
			TOTAL:	$26,120.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 25, Sun Valley Boulevard & Contra Costa Boulevard (W	Prepared:	JL
Stop ID:	879		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable	EA	$ 200.00	2	$400.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	414	$2,070.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			TOTAL:	$10,790.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Moraga	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 26, Clayton Road & Denkinger Court (East)	Prepared:	JL
Stop ID:	531		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Reposition Trash Bin	EA	$ 200.00	1	$200.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Reconstruct ADA Ramps	EA	$ 5,500.00	3	$16,500.00
Install Concrete Bus Pad	SF	$ -	1	$0.00
Striping				
Install Red Curb	LF	$ 5.00	215	$1,075.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$25,095.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 27, Clayton Road & Washington Boulevard (East)	Prepared:	JL
Stop ID:	542		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable	EA	$ 200.00	2	$400.00
Install EMS	EA	$ 2,500.00	1	$2,500.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Striping				
Install Red Curb	LF	$ 5.00	114	$570.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	2	$11,000.00
			TOTAL:	$16,790.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 28, Clayton Road & Terry Lynn Lane	Prepared:	JL
Stop ID:	545		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	2	$11,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Striping				
Install Red Curb	LF	$ 5.00	380	$1,900.00
			SUBTOTAL:	$58,620.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 29, Detroit Avenue & Laguna Street (North)	Prepared:	JL
Stop ID:	623		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	140	$700.00
Above Ground				
Resurface Concrete Surface	SF	$ 10.00	15	$150.00
Reconstruct ADA Ramps	EA	$ 5,500.00	2	$11,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			SUBTOTAL:	$58,370.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Walnut Creek	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 30, Creekside Drive & Near Court	Prepared:	JL
Stop ID:	1740		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
			SUBTOTAL:	$12,520.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 31, Sun Valley Boulevard & Santa Monica Drive (East)	Prepared:	JL
Stop ID:	858		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	60	$600.00
Reconstruct ADA Ramps	EA	$ 5,500.00	15	$82,500.00
Striping				
Install Red Curb	LF	$ 5.00	305	$1,525.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$91,145.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 32, Clayton Road & Denkinger Court (West)	Prepared:	JL
Stop ID:	553		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	35	$350.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Striping				
Install Red Curb	LF	$ 5.00	210	$1,050.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$53,120.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 33, Laguna Street & Detroit Avenue(West)	Prepared:	JL
Stop ID:	656		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	35	$175.00
Above Ground				
Resurface Concrete Sidewalk	SF	$ 10.00	260	$2,600.00
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
			SUBTOTAL:	$50,495.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 34, Mohr Lane & Monument Boulevard (South)	Prepared:	JL
Stop ID:	696		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Relocate Existing Bench	EA	$ 200.00	1	$200.00
Above Ground				
Resurface Concrete Sidewalk	SF	$ 10.00	1000	$10,000.00
Reconstruct ADA Ramps	EA	$ 5,500.00	1	$5,500.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Striping				
Install Red Curb	LF	$ 5.00	100	$500.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$73,600.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 35, Clayton Road & Thornwood Drive	Prepared:	JL
Stop ID:	551		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	20	$200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	6	$33,000.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Striping				
Install Red Curb	LF	$ 5.00	175	$875.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$52,595.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 36, Monument Boulevard & Detroit Avenue	Prepared:	JL
Stop ID:	2116		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	250	$1,250.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	24	$240.00
Reconstruct ADA Ramps	EA	$ 5,500.00	9	$49,500.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$110,390.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 37, Mohr Lane & Monument Boulevard (North)	Prepared:	JL
Stop ID:	707		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Striping				
Install Red Curb	LF	$ 5.00	240	$1,200.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	335	$3,350.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$53,150.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 38, Mohr Lane & Del Rio Circle	Prepared:	JL
Stop ID:	698		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install SimmeSeats	EA	$ 765.00	1	$765.00
Striping				
Install Red Curb	LF	$ 5.00	80	$400.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	15	$150.00
Reconstruct ADA Ramps	EA	$ 5,500.00	2	$11,000.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$18,835.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Pleasant Hill	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 39, Crescent Plaza & Crescent Drive (East)	Prepared:	JL
Stop ID:	1465		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install EMS	EA	$ 2,000.00	1	$2,000.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	290	$1,450.00
Above Ground				
Reconstruct ADA Ramps	EA	$ 5,500.00	14	$77,000.00
			SUBTOTAL:	$82,650.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Pleasant Hill	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 40, Crescent Plaza & Crescent Drive (West)	Prepared:	JL
Stop ID:	1462		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install EMS	EA	$ 2,000.00	1	$2,000.00
Striping				
Install Red Curb	LF	$ 5.00	55	$275.00
Above Ground				
Reconstruct ADA Ramps	EA	$ 5,500.00	2	$11,000.00
			SUBTOTAL:	$14,595.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 41, Oak Grove Road & Treat Boulevard	Prepared:	JL
Stop ID:	1987		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL	
Street Furniture					
Install Route Map/Timetable	EA	$ 200.00	1	$200.00	
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00	
Install New Bus Stop Sign	EA	$ 50.00	1	$50.00	
Install New Bench	EA	$ 2,000.00	1	$2,000.00	
Above Ground					105
Reconstruct Concrete Sidewalk	SF	$ 10.00	605	$6,050.00	500
Reconstruct ADA Ramps	EA	$ 5,500.00	4	$22,000.00	
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00	
Lighting					
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00	
			SUBTOTAL:	$78,620.00	

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 42, Clayton Road & Glazier Drive	Prepared:	JL
Stop ID:	552		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install Sign Post	EA	$ 50.00	1	$50.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	52	$520.00
Reconstruct ADA Ramps	EA	$ 5,500.00	3	$16,500.00
Install Concrete Bus Pad	SF	$ 960.00	1	$960.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Striping				
Install Red Curb	LF	$ 5.00	145	$725.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$37,275.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Moraga	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 43, Clayton Road & Indian Lane	Prepared:	JL
Stop ID:	549		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install Simmeseats	EA	$ 765.00	1	$765.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct Concrete Sidewalk	SF	$ 10.00	50	$500.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$17,785.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Walnut Creek	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 44, South Main Street & Creekside Drive	Prepared:	JL
Stop ID:	1891		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable	EA	$ 200.00	2	$400.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	60	$600.00
Resurface Concrete Bus Pad	SF	$ 30.00	960	$28,800.00
		TOTAL:		$32,920.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Walnut Creek	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 45, Main Street & Duncan Street	Prepared:	JL
Stop ID:	1760		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Above Ground				
Reconstruct ADA Ramps	EA	$ 5,500.00	4	$22,000.00
			SUBTOTAL:	$22,000.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Pleasant Hill	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 46, Willow Pass Road & Diamond Boulevard	Prepared:	JL
Stop ID:	46		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install EMS	EA	$ 765.00	1	$765.00
Striping				
Install Red Curb	LF	$ 5.00	465	$2,325.00
Above Ground				
Reconstruct ADA Ramps	EA	$ 5,500.00	13	$71,500.00
			SUBTOTAL:	$75,910.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Clayton	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 47, Clayton Road & Washington Boulevard (West)	Prepared:	JL
Stop ID:	451		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Update Route Map/Timetable	EA	$ 200.00	3	$600.00
Install New Bus Shelter (Solar)	EA	$ 15,000.00	1	$15,000.00
Install Trash Bin	EA	$ 250.00	1	$250.00
Relocate Existing Bench	EA	$ 200.00	1	$200.00
Reposition Bench	EA	$ 200.00	1	$200.00
Striping				
Install Red Curb	LF	$ 5.00	134	$670.00
Above Ground				
Reconstruct Concrete Sidewalk	SF	$ 10.00	1	$10.00
Reconstruct ADA Ramps	EA	$ 5,500.00	7	$38,500.00
Reconstruct Driveways	EA	$ 10,000.00	1	$10,000.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			TOTAL:	$69,430.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 48, Clayton Road & Ayers Road (West)	Prepared:	JL
Stop ID:	538		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install New Bench	EA	$ 2,000.00	1	$2,000.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	4	$22,000.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Striping				
Install Red Curb	LF	$ 5.00	285	$1,425.00
			SUBTOTAL:	$71,145.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 49, Port Chicago Highway & Arnold Industrial Way	Prepared:	JL
Stop ID:	780		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Reconstruct ADA Ramps	EA	$ 5,500.00	11	$60,500.00
Install Concrete Bus Pad	SF	$ 45.00	960	$43,200.00
Striping				
Install Red Curb	LF	$ 5.00	280	$1,400.00
Lighting				
Install Pedestrian Scale Lightpost	EA	$ 4,000.00	1	$4,000.00
			SUBTOTAL:	$111,620.00

CONSTRUCTION COST ESTIMATE: BUS STOP IMPROVEMENT

Jurisdiction:	Concord	Date:	2/18/2014
Project:	3CTA Bus Stop Improvement Program	Project No.:	029-178
Location:	Rank 50, Pike Lane & Arnold Industrial Way	Prepared:	JL
Stop ID:	2022		

Date: January 10, 2014	UNIT	UNIT COST	QUANTITY	TOTAL
Street Furniture				
Install Route Map/Timetable	EA	$ 200.00	1	$200.00
Install Trash Bin	EA	$ 1,120.00	1	$1,120.00
Install Simme Seat	EA	$ 765.00	1	$765.00
Above Ground				
Install Concrete Surface (Pedestrian Landing)	SF	$ 10.00	120	$1,200.00
Install Sidewalk	SF	$ 10.00	10000	$100,000.00
Install ADA Ramps	EA	$ 5,500.00	3	$16,500.00
Striping				
Install Red Curb	LF	$ 5.00	40	$200.00
			SUBTOTAL:	$119,985.00

Sidewalk L	1250
Sidewalk V	4
	5000
	10000