Appendix 1.3.1
Typology and Modal Priority Memo

MEMORANDUM

Date: September 16, 2015

To: Saravana Suthanthira, Alameda CTC

Cc: Matthew Ridgway and Francisco Martin, Fehr & Peers

From: Phil Erickson, Bharat Singh, and Warren Logan

Re: Alameda CTC Countywide Multimodal Arterial Plan: Final Arterial Street Typology and Modal Priority Framework Concepts

The Alameda CTC Multimodal Arterial Plan (MAP) is developing a street typology framework to enhance the traditional arterial-collector-local functional classification system with a system that recognizes the importance of land use context and all the transportation modes. The development of a countywide typology framework is an unprecedented effort that identifies the characteristics of major streets across Alameda County. The MAP will evaluate street performance as *multimodal complete streets,* and suggest potential improvements to streets that are deficient do not adequately serve their multimodal function within the countywide network.

Alameda CTC defines multimodal complete streets and their benefits as—

> Streets that are designed, built and maintained to be safe, convenient and inviting for all users of the roadway, including pedestrians, bicyclists, motorists, persons with disabilities, movers of commercial goods, users and operators of public transit, seniors, and children.
>
> Streets that are built for all users have multiple benefits, including increased safety, improved air quality through the reduction of auto traffic, improved health through increased physical activity, and greater cost effectiveness.[1]

Jurisdictions such as Alameda, Emeryville and Fremont have developed similar street typology systems unique to these communities' General Plans or Specific Plans. Alameda CTC's typology framework will consider these jurisdictions' adopted typology systems, and ensure that they nest within the MAP street typology framework. Similarly, the typology framework is expected to inform or provide a base for any future effort to develop street typologies by other local jurisdictions in Alameda County as a part of their implementation of their complete streets policies.

This memorandum is an update to the April 15, 2015 memorandum that was distributed, along with the mapping of the street typology mapping and modal priorities memorandum, to all of the jurisdictions and transit agencies in Alameda County for review and comment.

[1] From the Alameda CTC's Complete Streets web page: http://www.alamedactc.org/app_pages/view/8563

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Introduction

Definition of the MAP Typology Framework

This memorandum describes the street typology framework for the MAP. The typology framework consists of three components: a set of land use context types, a set of base street types defined by vehicular functionality, and a set of multimodal emphasis overlays. The following are characteristics that street typology address, and therefore are the key components of the typology framework:

- **Land Use Context Types –** These define the context of built and natural environments that the streets pass through. Land use types have a relationship to specific street cross section elements, such as parking and loading lanes, and the desired width and use of different zones of the sidewalk.

- **Base Street Types –** Base street types are defined by their role in carrying sub-regional and local traffic along the *Study Network's*[2] streets. If a street is serving a high volume of vehicles that are traveling a longer distance, through movement is likely more important to those driving along the street than access to local destinations.

- **Multimodal Transportation Overlays –** While the base street types focus primarily on vehicular function, overlays define the priority given to other transportation modes: transit, bicycle, pedestrian, and goods movement. The multimodal transportation overlays identify levels of multimodal emphasis for segments of the *Study Network*.

At a minimum, all street segments will have a land use context and a street type, and some will have one or more multimodal transportation overlays. A map of the *Study Network* streets and the PDA place types and SCS land use is provided in Attachment B to illustrate the relationship between land use context and the network .

Further detail about how the land use and street types and multimodal overlays were determined, and examples of streets throughout Alameda County are provided in this memorandum, along with mapping in appendices.

How the Typology Framework will be used in the MAP effort

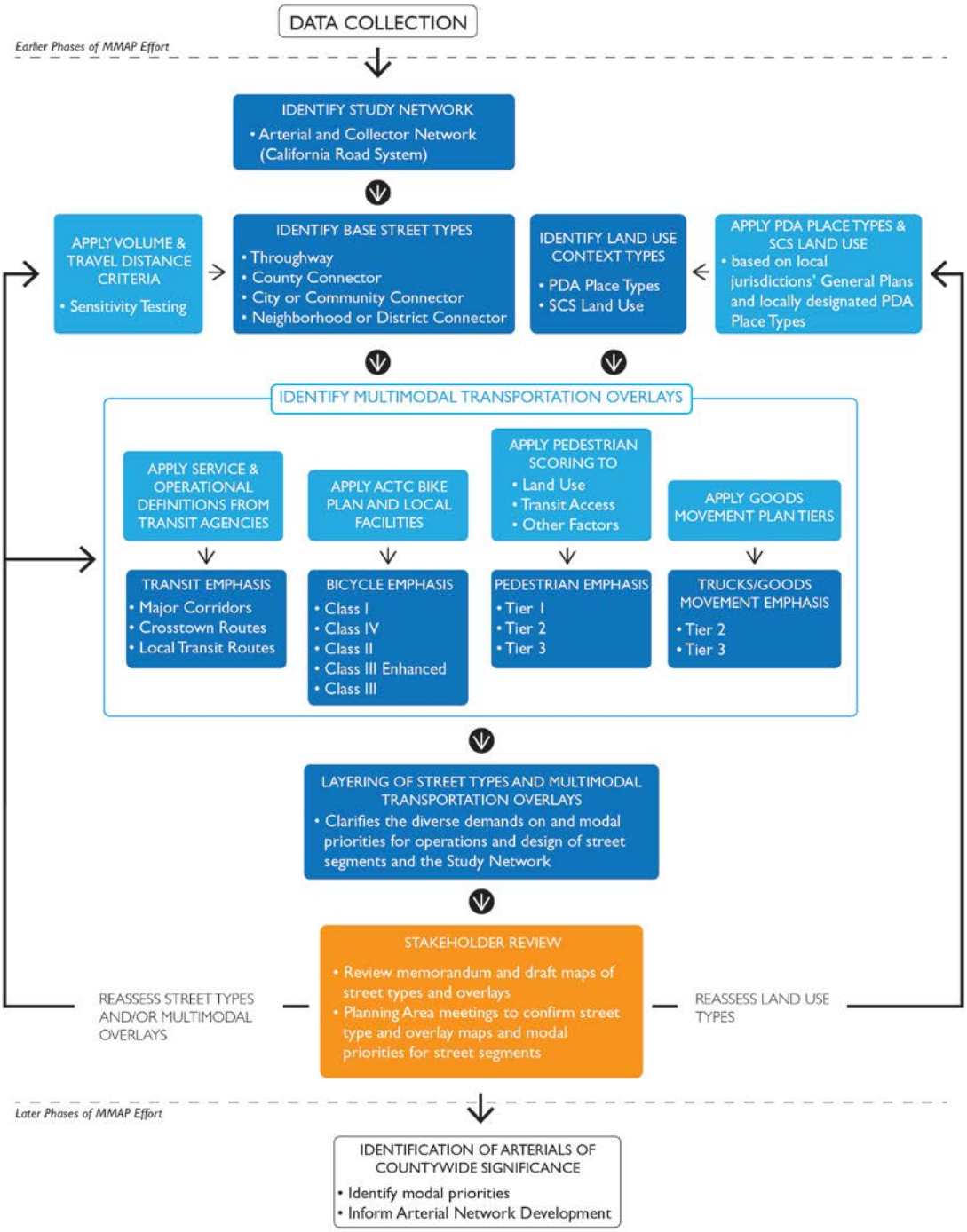
Traditional functional classification - the arterial, collector, and local functional classification system - is based only on vehicular mobility and access characteristics and fails to consider other street characteristics. Typologies diversify the consideration of the street to include land use context and other modes. For the MAP, street typologies and multimodal overlays will inform modal priorities of each street. The street types and multimodal overlays will also help identify *arterials of countywide significance* that are the *Arterial Network*[3].

This process is illustrated in Figure 1. Data collected from local jurisdictions, the ACTC Countywide model, MTC, ABAG, transit agencies, and other sources were used to identify land use context and base

[2] The *Study Network* consists of the arterials and collectors that are part of the California Road System (CRS) which was sent to all Alameda County jurisdictions for review, and to support data collection in December 2014.
[3] The *Arterial Network* is a subset of the *Study Network* consisting of those streets which satisfy the criteria for countywide significance that have been defined in a separate MAP memorandum.

street types and to develop the multimodal overlays. This information is used to define the multimodal demands of the network and determine the modal priorities of each segment of the countywide network. Modal priorities are discussed further in a forthcoming memorandum.

Figure 1: Multimodal Arterial Plan Typology Framework Process Diagram



The typology framework will not only inform modal priorities, but in subsequent phases of the MAP effort, it will be critical to defining desirable street design attributes, particularly using the land use context. For example, a pedestrian priority street along a commercial corridor would have a wider desired sidewalk than a pedestrian priority street in a residential corridor. Thus, street typologies are a critical component of the MAP development, as a particular street segment's land use type, street type, and multimodal overlays will directly inform the design solutions.

A series of initial maps of the land use types, street types, and multimodal overlays were presented to ACTAC on April 9, 2015 and were distributed prior to Planning Area meetings taking place during the week of April 20, 2015. A description of the methodologies used in generating the various mappings is included in the detailed discussion of the land use types, street types, and multimodal overlays. In addition, jurisdictions were given access to the online GIS Server maintained by Fehr & Peers to review the typology mapping and provide comments as necessary.

Land Use Context Types

A key element of the typology framework is the land use context types which define the physical context of streets. The land use types relate to desired design and operational characteristics, such as a priority for on-street parking and loading and a wider sidewalk frontage zone for window shopping and outdoor seating where the land use context is more intensive commercial or mixed use. The land use types are defined by a combination of Priority Development Area (PDA) place types and the land use types developed for the Alameda County version of the Plan Bay Area Sustainable Community Strategy (SCS), which was used in the adopted *2012 Countywide Transportation Plan*. Both intensity and mix of land use are important to consider in terms of defining context for major streets because the context has a relationship to the mix of various transportation modes and the priorities amongst modes. For example, industrial warehousing areas tend to have lower pedestrian activity and high levels of goods movement, while intensive mixed use areas have a mix of modes with an emphasis on pedestrian and transit activity. In addition, land use context affects specific street cross section elements, such as parking and loading lanes and the desired width and use of the sidewalk. Two types of land use classifications provide the starting point for developing land use context types for the MAP:

ABAG - PDA place types defined by ABAG that exist in Alameda County[4]:

- **Regional Center –** PDAs located in the most urbanized centers of the region's major cities, and are assumed under Plan Bay Area to accommodate high volumes of housing growth in the coming decades. ABAG suggests density ranges of 75-300 dwelling units per acre for housing and a 5.0 floor area ratio for employment.
- **City Center –** PDAs in already-established secondary cities in the Bay Area. ABAG suggests density ranges of 50-150 dwelling units per acre for housing and a 2.5 floor area ratio for employment.
- **Suburban Center –**PDAs with mixed-use character surrounding existing or planned transit stations, and typically have densities similar to City Centers but featuring more recent development. ABAG suggests density ranges of 35-100 dwelling units per acre for housing and a 4.0 floor area ratio for employment.

[4] PDA place type definitions are from PDA Readiness Assessment Final Report, 3/29/13.

- **Transit Town Center –** PDAs with mixed-use areas that offer relatively robust transit services within urban areas, but serve a more localized population of residents and workers, rather than attracting significant patronage from beyond the local area. ABAG suggests density ranges of 20-75 dwelling units per acre for housing and a 2.0 floor area ratio for employment.
- **Urban Neighborhood –** PDAs with moderate- to high-density residential uses that also feature supportive retail and employment centers, rather than being primarily commercial areas. Transit is present but not necessarily a focal point of the neighborhoods. ABAG suggests density ranges of 40-100 dwelling units per acre for housing and a 1.0 floor area ratio for employment.
- **Transit Neighborhood –** PDAs that are primarily residential areas, well served by transit, but with existing low- to moderate densities. ABAG suggests density ranges of 20-50 dwelling units per acre for housing and a 1.0 floor area ratio for employment.
- **Mixed-Use Corridor** –linear PDAs served by transit lines, and typically feature commercial development extended along a major surface roadway with residential neighborhoods flanking these commercial strips. ABAG suggests density ranges of 25-60 dwelling units per acre for housing and a 2.0 floor area ratio for employment.

Alameda CTC SCS Land Use Types – These are the land use types developed in the SCS process that were part of the Alameda CTC's 2012 *Countywide Transportation Plan.* The land use types were developed in coordination with the local jurisdictions and are based on the jurisdictions' general plan designations. The land use types are:

- Mixed Use (Commercial & Industrial)
- Mixed Use (Commercial & Residential)
- Commercial
- Industrial
- Education/Public/Semi-Public
- Residential
- Parks/Open Space
- Rural Residential & Open Space
- Agriculture/Resource Extraction
- Other/Unknown

The PDA place type designations and the SCS land use types have been combined into a set of 11 land use types for the MAP street typology system, as illustrated in Table 1. These were determined by considering which combinations of land use and density affect the function and design of the streets.

Table 1
MAP Land Use Context Types

MAP Land Use Types	Related PDA Place Types	Related SCS Land Use Designations
Downtown Mixed Use	▪ Regional Center ▪ City Center	▪ Mixed Use: Commercial & Industrial ▪ Mixed Use: Commercial & Residential ▪ Commercial ▪ Industrial ▪ Education/Public/Semi-Public ▪ Residential
Town Center Mixed Use	▪ Suburban Town Center ▪ Transit Town Center	▪ Mixed Use: Commercial & Industrial ▪ Mixed Use: Commercial & Residential ▪ Commercial ▪ Industrial ▪ Education/Public/Semi-Public ▪ Residential

Table 1 MAP Land Use Context Types		
MAP Land Use Types	**Related PDA Place Types**	**Related SCS Land Use Designations**
		▪ Agriculture/Resource Extraction
Corridor/Neighborhood Mixed Use	▪ Urban Neighborhood ▪ Transit Neighborhood ▪ Mixed-Use Corridor	▪ Mixed Use: Commercial & Industrial ▪ Mixed Use: Commercial & Residential ▪ Commercial ▪ Industrial ▪ Education/Public/Semi-Public ▪ Residential ▪ Agriculture/Resource Extraction
Mixed Use	N.A.	▪ Mixed Use: Commercial & Residential
Commercial	N.A.	▪ Commercial ▪ Mixed Use: Commercial & Industrial
Industrial	N.A.	▪ Industrial
Education/Public/Semi-Public	▪ All except City Center	▪ Education/Public/Semi-Public
Residential	N.A.	▪ Residential
Parks	▪ All	▪ Parks/Open Space
Rural/Open Space	N.A.	▪ Rural Residential & Open Space ▪ Agriculture/Resource Extraction
Other/Unknown	N.A.	▪ Other/Unknown

A map of the *Study Network* overlaid on the land use context types is provided in Attachment B.

Comments and Responses on Land Use Context

First Round Review Period (April – May 2015)

Several jurisdictions have asked for revisions and updates to the land use mapping provided for review. For the purposes of the MAP effort, the project team determined that if a requested land use change will not affect the resulting modal priorities for a street segment then land use change will not be made. For example:

- If a proposed land use does not shift the street segment from one land use context modal group to another, the land use change will not be made; or
- If the parcel is relatively small (a street frontage of about 250 feet or less), the land use change will not be made because modal priorities should not change for such a small length of street frontage, given that a change in street design over this short of a distance is unlikely.

There are several large areas throughout the County where new land use plans have been adopted since land use mapping was developed during the *2012 Countywide Transportation Plan*:

- Fremont asked that the detailed land use designations for the Warm Springs Community Plan be used in the land use context type mapping for the MAP. But the detailed land uses are not necessary for the MAP typology and modal priority mapping, because land use for this area is defined by PDA place type, and the PDA place type is mapped correctly in the MAP land use context mapping.

- At the request of City of Alameda and Dublin, Alameda Point and Dublin Crossings respectively will be updated to the MAP land use type of Town Center Mixed Use, based on their PDA place types of Transit Town Center and Suburban Town Center respectively. They had been mapped according to their 2012 Countywide Transportation Plan Land Use Scenario designation of public lands.

Second Round Review Period (July – August 2015)

Albany and Emeryville staff provided comments on the land use context overlay during the second round review period:

- Albany provided the latest citywide zoning map to inform the land use context map; relevant changes were made to the land use context map.
- Emeryville requested the inclusion of Doyle Hollis Park to the land use context map, however, the park has less than 250-foot frontage on Hollis Street and will not affect the modal priority, therefore no change to the land use context map was made.

A revised map of land use context overlay is provided in Attachment B.

Base Street Types

The base street types define a streets' vehicular mobility and access functions. Table 2 outlines the functions and characteristics of the proposed *Base Street Types* and the expected degree to which each street type will be included in the MAP *Arterial Network* as arterials of countywide significance. The final prioritized improvements for MAP will focus on improvements to the *Arterial Network*.

The proposed base street type system consists of the following four classification types based on vehicular mobility functions:

1. *Throughway*
2. *County Connector*
3. *City* or *Community Connector*
4. *Neighborhood* or *District Connector*

This framework is similar to the street types developed by various cities in and outside of Alameda County. The City of Alameda's *General Plan* defines major streets as: Regional Arterial, Island Arterial, Transitional Arterial, Island Collector, and Transitional Collector. Another example is the Urban Corridor street types in Fremont's *Warm Springs/South Fremont Community Plan*, which are a combination of the three MAP connector typologies as shown in Table 2. Fremont's *City Center Community Plan's* regional mobility corridors align with the MAP's county connectors as shown in Table 2. The MAP's street type system is also similar to the system used in the update to the City of Pasadena's *Mobility Element*, which defines the city's major streets as: *Connector City* and *Connector Neighborhood*.

Street Type Criteria

A set of planning area maps showing the initial network by applying the proposed *Base Street Types* is provided in Attachment C. Base street types are determined using two sets of criteria shown in Table 2, collectively called *Vehicular Mobility Criteria:*

- **Traffic volume measured by Average Daily Traffic (ADT).** An ADT threshold of 10,000 was used countywide to identify throughways and county connectors. The rationale for this volume threshold is that for a street with 10,000 ADT, typical peaking characteristics would result in it carrying between 800 and 1,200 vehicles during the peak hour of traffic (assuming 8 to 12 percent of daily trips occur in the peak hour) and about 480 to 720 peak hour, peak direction trips (assuming a 60/40 directional split). From a capacity perspective, a simple two-lane local or collector street could carry this volume, and therefore any street with a volume lower than 10,000 ADT would not meet the functional characteristics for being a throughway or county connector.
- **Travel distance** data generated by the Alameda Countywide Travel Demand Model for base year conditions is being used to identify street segments that meet the criteria listed in the table.

Sensitivity Analysis of Street Type Criteria

A sensitivity analysis was undertaken to determine the travel distance thresholds that are appropriate for the various street types. The analysis looked at applying various combinations of ADT volumes and percent trips by travel distance, and reviewed the results for reasonableness to finalize the suitable thresholds for these criteria. For example, for *Throughways*, a combination of ADT volumes and percent trips by travel distance was selected to exclude any obvious *Neighborhood Connectors* or *City Connectors* while still resulting in a reasonable network of streets. The criteria for North and Central Alameda County are different than those for South and East County because the network connectivity and density of these areas differ. Because of the generally lower density and more dispersed land use patterns, and less interconnected street networks, the percentage of trips threshold is higher for South and East County as compared with North and Central County. Therefore, a higher percentage of longer distance trips generally occur on collectors and arterials in the South and East County.

One issue that the sensitivity analysis and initial mapping of the street types has highlighted is that some streets that parallel freeways (e.g., Frontage Road parallel to I-80, Lewelling Boulevard parallel to I-238, and Pleasanton-Sunol Road parallel to I-680) are used as “reliever routes” when freeways are congested; as evidenced by observation of traffic patterns and driver behavior. Some of these parallel streets may be designated as throughways because of the traffic volume (ADT) criteria, but this may not be a desired function for the streets. This is something to address as the MAP study proceeds and stakeholders are reviewing the initial mapping.

Table 2
Typology Framework Summary and Criteria

Base Street Type	Base Functions and Characteristics	Vehicular Mobility Criteria	Expected Extent Street Type included in Arterial Network[1]	Examples
Throughway	Primarily high speed, with at-grade intersections, little direct relationship to surrounding context, and in some cases segments of streets connecting to a freeway with a good portion of trips crossing through multiple cities.	**Countywide:** at least 10,000 ADT **South & East County:** at least 55% of total volume traveling 8+ miles **North & Central County:** at least 50% of total volume traveling 8+ miles	Part of Arterial Network	Portions of Hegenberger Road in Oakland, Hesperian Boulevard in Alameda County, and Stanley Boulevard in Pleasanton and Livermore.
County Connector	Generally moderate speed with a good portion of trips crossing through multiple cities/communities, and segments of streets connecting to a freeway. This will also be applied to multiuse and pedestrian trails that connect to adjacent counties.[2]	**Countywide:** at least 10,000 ADT **South & East County:** at least 50% of total volume traveling 6+ miles **North & Central County:** at least 45% of total volume traveling 6+ miles	Part of Arterial Network	Ashby Avenue in Berkeley, Washington Avenue in San Leandro, A Street in Hayward, Alvarado-Niles Road in Union City, Santa Rita Road in Pleasanton, and South Vasco Road in Livermore.
City or Community Connector	Streets and trails with a good portion of trips made by those traveling across a city/community or to an adjacent city/community. [2]	**Countywide:** at least 50% of total volume traveling 4+ miles	Many will be part of the Arterial Network	Colusa Avenue in Albany and Berkeley, Tilden Way in Alameda, Fruitvale Avenue in Oakland, and Central Parkway in Dublin.
Neighborhood or District Connector	Streets and trails where most trips by those traveling across a neighborhood/district and to an adjacent neighborhood / district.	**Countywide:** at least 50% of total volume traveling less than 4 miles	Many will not be part of the Arterial Network	Portions of Solano Avenue in Albany and Berkeley, Encinal Avenue in Alameda, portions of Logan Drive in Fremont, and Rosewood Drive in Pleasanton.

Notes:
1. Criteria for countywide significance that makes a street part of the *Arterial Network* are defined in a separate memorandum. The *Arterial Network* is a subset of the *Study Network*.
2. Trails will be mapped when the *Arterial Network* is developed.

Comments and Responses on Street Typology

First Round Review Period (April – May 2015)

A range of specific comments about street typology has been provided by jurisdictions throughout the County. Most of these relate to changing a City or Neighborhood Connector street segment to County Connector, such as E. 14th Street in San Leandro and Alameda County, and Grant Line Road in the unincorporated East County. The majority of these changes were made to the street typology mapping. Some comments regard details of street function that the regional model does not fully reflect. For example, Livermore requested changing First Street to Neighborhood Connector from County Connector given the character and function of First Street as Downtown Livermore's main street and that Railroad Avenue provides parallel vehicle functionality as a County Connector. Similarly, Fremont has asked for classification of several streets in the downtown area that are not included in the Study Network. The Study Network is based on the California Roadway System classification, which was previously presented to stakeholders in December 2014 for review and comment, therefore additions to the Study Network will no longer be considered. Finally, a few jurisdictions requested that planned and funded streets in new development areas (e.g., Innovation Way in the Warm Springs area of Fremont) be included as part of the Study Network. Planned and funded roadways to be constructed in the future will be shown on future year maps, but will not be included as part of the Study Network. It is assumed that planned and funded new streets will be designed to the latest complete street standards; therefore, the Multimodal Arterial Plan will not evaluate these new street segments for future needs assessments. However, new street segments are included in the travel demand modal and considered in the development of future year (2020 and 2040) Study Network forecasts.

Second Round Review Period (July – August 2015)

Comments on the base street type overlay were not provided during the second round review period. A couple of first round comments were not adequately addressed within unincorporated Alameda County during the first round and were therefore addressed during the second round of updates (e.g., East Lewelling Boulevard was changed from Community Connector to County Connector).

A revised map of the base street type overlay is provided in Attachment C.

Multimodal Transportation Overlays

Four multimodal transportation overlays are used to provide additional definition to the multimodal characteristics and function of the streets in the *Study Network*. The overlays are used in combination with the base street types and land use context types to define street segments with respect to the vehicular function, multimodal emphases, and land use context. The combined definition of street segments will be used to establish modal priorities that define the design and operational needs of the street; this is discussed further in the accompanying modal priorities memorandum.

At a minimum, all street segments will have a land use context type and a street type, and some will have one or multiple transportation overlays. The multimodal transportation overlays indicate if particular modes should have an emphasis in the function and design of a particular street segment, and include transit, bicycle, pedestrian, and truck route/goods movement emphases.

Transit Emphasis

The transit emphasis overlay will be used to identify transit priority street segments in addition to being part of the selection criteria for arterials of countywide significance for inclusion in the *Arterial Network*. Transit emphasis categories have been defined by the transit providers and consist of three tiers:

- **Major Corridors** for bus rapid transit (BRT) either with or without dedicated lanes as identified by AC Transit's "Priority Corridors," and Wheels Tri-Valley Rapid. These corridors will be part of the *Arterial Network*.
- **Crosstown Routes** are designated on routes that generally have higher ridership, either today or projected for the future. A single "class" has been identified by AC Transit as their "Cross Town" routes and the Hollis and Shellmound/Powell routes of Emery Go-Round service,
- **Local Routes** for other bus transit service on segments of the *Study Network* for AC Transit, the Watergate Express route of Emery Go-Round service, LAVTA Wheels, and Union City Transit.

Maps of the proposed transit emphasis overlay are provided in Attachment D.

MAP transit overlay will coordinate with the proposed transit network from the *Countywide Transit Plan*, to the extent feasible from a timing standpoint. When the Transit Plan network becomes available, the MAP transit overlay will be reviewed and adjusted if the network is available prior to the review of *Arterial Network* cross section recommendations. Similarly, AC Transit is preparing an updated Comprehensive Operational Analysis (COA) which could restructure some routes. To the extent that information from the COA and other studies that transit agencies may have underway is available within time to be incorporated into the MAP (late spring), adjustment may be made to the transit emphasis overlay.

Comments and Responses on Transit Emphasis

First Round Review Period (April – May 2015)

Comments received on the transit emphasis overlay are:

- AC Transit requested additional roadway segments be designated as Major Corridors reflective of their COA study draft alternatives and the draft alternative corridors from the Alameda CTC Countywide Transit Plan. These have been marked as an alternative layer while keeping the initial modal priority in the base layer until the final future network or corridors are adopted, which is expected in October 2015. Keeping the alternative layer showing the new transit emphasis corridors serves two purposes –
    1. enables the project team to verify that the potential suggested improvements in the next steps do not adversely impact transit performance on these roadway segments identified in the final transit network; and
    2. to inform the jurisdictions on the potential modal emphasis change or added modal emphasis and help to initiate discussions between AC Transit and jurisdictions, as appropriate
- The City of Emeryville requested that Emery Go-Round service be added to the transit network and this has been done as discussed above.
- Several cities and LAVTA asked that transit service be located on segments of the network where it had not been indicated. These revisions have been made except for those routes that are not on the Study Network.

Second Round Review Period (July – August 2015)

AC Transit provided one comment on the transit emphasis overlay during the second round: assume that Solano Avenue between San Pablo Avenue and the Alameda in Albany is part of the transit major corridor network. The same comment was provided during the first round review period; however, the requested change was rescinded during the first round of mapping updates. This segment of Solano Avenue is not part of the Major Corridor network; it will remain part of the local route network in the transit emphasis overlay.

A revised map of the transit emphasis overlay is provided in Attachment D.

Bicycle Emphasis

Bicycle emphasis is developed by reviewing the existing bicycle facilities, *2012 Countywide Bicycle Plan* and the four trail types[5]. Comments from several jurisdictions around the county regarding the initial draft typology mapping have also led to many refinements to the bicycle emphasis overlay. The Countywide Bicycle Plan defines five categories of countywide significance: inter-jurisdictional network, access to transit, access to central business districts, inter-jurisdictional trails, and access to *Communities of Concern*. This includes existing and planned bicycle facilities on streets that are part of the *Study Network*, as well as some facilities that are on parallel non-*Study Network* streets or multiuse paths that serve significant connectivity functions. For example, some communities in Alameda County currently focus on placing primary bicycle facilities on non-arterial streets (e.g., Berkeley and Hayward).

The bicycle overlay types are shown below, from highest to lowest bicycle emphasis:

- Class I – bicycle and multiuse paths
- Class IV[6] – cycle tracks and similar protected bicycle facilities
- Class II enhanced –buffered bicycle lanes, and green bicycle lanes
- Class II – bicycle lanes
- Class III enhanced – bike boulevards and similar enhanced bike routes
- Class III – bike routes, shared use arrows, shoulders, and curb lanes

A map of the bicycle emphasis overlay is provided in Attachment E.

Comments and Responses on Bicycle Emphasis

First Round Review Period (April – May 2015)

Comments from eight cities across the County regarding the initial draft typology mapping have also led to many refinements to the bicycle emphasis overlay. To a great degree, this is reflective of the rapid changes that have been occurring at a national level regarding the planning and design of bicycle facilities since the adoption of the Countywide Bicycle Plan in 2012. Piedmont has only recently adopted a bicycle plan, Berkeley is currently doing a major update to their bicycle plan, and Oakland requested comprehensive refinements to their network in anticipation of planned improvement projects, future improvement projects and updates to their bicycle plan. The majority of these refinements will be made

[5] SF Bay Trail, East Bay Greenway, Iron Horse Trail and Inter-jurisdictional Trails.
[6] Class IV bike facilities is a new category that includes facilities that provide a higher level of cyclist separation from traffic than class II facilities.

by either adding or revising bicycle facilities on Study Network streets or by providing "markers" on non-Study Network streets that can be used to identify them as parallel facilities to Study Network streets during the development of design options. These updates were facilitated by several cities providing updated GIS data regarding bicycle improvements. Some requested refinements were about bike trails that are not part of the Study Network. These updates were not made, as they do not directly influence the Modal Priority approach described below.

Second Round Review Period (July – August 2015)

City of Emeryville provided several comments on the bicycle emphasis overlay, the majority of comments requested additions to the Study Network, these changes were not incorporated because additions to the Study Network are not currently being considered for reasons previously specified. Emeryville did however provide a citywide bike network GIS file, which was incorporated into the bicycle emphasis overlay for Study Network segments. In addition to changes in Emeryville, Kato Road in Fremont changed from a Class III to a Class II facility and Enterprise Drive in Newark changed to a Class II facility.

A revised map of the bicycle emphasis overlay is provided in Attachment E.

Pedestrian Emphasis

The mapping for the Pedestrian Emphasis, unlike the other transportation modes, is node- or area-based, instead of street network-based as pedestrian activity is driven by proximity to various uses, destinations, or by living in transit-dependent communities. This includes pedestrian facilities and planning areas of countywide significance as defined in the *2012 Countywide Pedestrian Plan*. These are areas where higher volumes of pedestrians exist or are expected, as well as locations where walking serves an important transportation function, such as access to transit or schools. Pedestrian emphasis also includes central business districts, activity centers, inter-jurisdictional trails, and access within "communities of concern" as defined in the Alameda CTC's Community-Based Transportation Plans. Portions of the *Study Network* that are not within the areas described above, but are within PDAs, have a lower level of pedestrian emphasis. Several cities have commented that they have pedestrian-oriented main streets or commercial districts that were not emphasized to the degree that they would expect or desire, and adjustments to the Pedestrian Emphasis overlay are being made to correct for these comments. A map of the pedestrian emphasis overlay is provided in Attachment F.

There are three levels of pedestrian emphasis designated by pedestrian priority "scoring," which combines scores given to street segments based on the following characteristics:

- **Priority Development Area (PDA) Place Type –** Each PDA type within the County was given a score with Regional Centers scoring the highest, while Suburban Center score the lowest.
- **Commercial and Mixed Use Areas –** Commercial and Mixed Use areas as identified from the ABAG standardized Local Jurisdiction General Plan data. These were scored with downtown or city center and other mixed use types scoring higher than predominantly single use type commercial areas. Some of the commercial areas with established high pedestrian activity that are not within multiple transit access areas such as Piedmont Avenue, College Avenue, 4th Street, Solano Avenue, have an eighth-mile buffer also scored (see Attachment A).
- **Census Tracts identified as Communities of Concern per MTC Equity Analysis –** Census tracts in the County were scored by MTC on eight categories wherein tracts over the score of 4

are considered as a Community of Concern. For mapping purposes, tracts with a MTC score of 6 are scored higher for pedestrian emphasis than ones with MTC scores between 4 and 6.

- **Employment Growth Opportunity Areas identified in ACTC 2012 CTP –** These areas were given an additional score.
- **Proximity to BART/ACE/Capitol Corridor stations –** half mile and quarter mile distances are scored.
- **Half-mile buffer off AC Transit's priority corridor –** half mile and quarter mile distances are scored.
- **Half-mile buffers around LAVTA Rapid stops –** half mile and quarter mile distances are scored.
- **One-eighth mile buffers around local bus stops –** one-eighth mile distance is scored.
- **Quarter mile buffers around activity & education centers, and parks –** quarter mile distance is scored.

Attachment A provides the methodology for how these scores combine and the thresholds to determine the three levels of pedestrian emphasis:

- Tier 1: High Pedestrian Score
- Tier 2: Medium Pedestrian Score
- Tier 3: Low Pedestrian Score

The three levels of pedestrian emphasis define increasing levels of improvement to the pedestrian environment[7].

Comments and Responses on Pedestrian Emphasis

First Round Review Period (April – May 2015)

Several cities have commented that they have pedestrian-oriented main streets or commercial districts that were not emphasized to the degree that they would expect or desire, and adjustments to the Pedestrian Emphasis overlay have been made to correct for these comments. Several cities had comments regarding the desire to increase pedestrian emphasis on certain street segments to reflect either community center or downtown pedestrian activity, or levels of pedestrian activity on particular commercial streets or districts. The majority of these revisions have been made. In addition, Oakland had comments related to broader conditions in the city and numerous commercial main streets or districts, and Berkeley commented about pedestrian activity adjacent to narrow PDA corridors. Oakland, as part of its Complete Streets Plan that is underway, has proposed a more comprehensive refinement of the pedestrian scoring method. It includes increasing the score for commercial mixed use zoning component that relate to their pedestrian-oriented main streets, as well as adjustments to some transit access component. It added additional pedestrian emphasis score for areas within an eighth-mile buffer around the commercial main street zones. This additional score reflects the higher levels of pedestrian activity in areas around main streets both from patrons parking adjacent to the main street and from local residents and employees walking to the services on the main streets, such as areas around Piedmont Avenue, College Avenue, 4th Street, and other streets. Considering the reasonableness of this additional step in scoring method, it was incorporated into the Pedestrian Scoring method for the MAP. Additionally, these changes reflect similar comments made by other cities for manual changes to streets in downtowns or commercial main streets.

[7] All streets should satisfy Americans with Disabilities Act (ADA) requirements and guidance.

Second Round Review Period (July – August 2015)

A couple of second round comments on the pedestrian emphasis overlay were provided by Albany and Newark. Changes requested by either City would require additions to the Study Network segmentation or result in changes that do not impact modal priority determinations, therefore no changes to the pedestrian emphasis overlay were made during the second round review period.

A revised map of the pedestrian emphasis overlay is provided in Attachment F.

Truck Routes/Goods Movement Emphasis

This multimodal overlay is coordinated with the *Countywide Goods Movement Plan* that has initially defined three tiers of truck routes[8] (a map of the truck emphasis overlay is provided in Attachment G).

- Tier 1 consists of interstate and state highways that carry the majority of through truck traffic in the county; note this tier is listed for reference but *it is only designated to freeways and is not designated to any street segments that are part of the Study Network.*
- Tier 2 network refers to other state highways and designated arterials that provide intra-County and intercity connectivity and last-mile connection to the Port of Oakland and Oakland International Airport.
- Tier 3 network refers to designated arterials and collectors that are used in a majority of local pickup and delivery.

Comments and Responses on Goods Movement Emphasis

First Round Review Period (April – May 2015)

Few cities had specific comments about adding or increasing the level of Goods Movement emphasis designations on specific street segments and the majority of these refinements have been made. Some comments were made regarding streets that are not part of the Study Network, and these changes were not made. There was also some confusion regarding the tier levels of the Goods Movement emphasis, in relation to federal and state truck route designations. The tiers used in the MAP work are those that have been determined by the Countywide Goods Movement Plan, and this emphasis does not include the word "truck" and instead only refers directly to "goods movement."

Oakland had a general comment about the Goods Movement emphasis not aligning with where staff would expect to see more truck activity, and therefore had some methodological concerns. Following discussions with city staff, the general concerns were addressed and the result was changes in emphasis for specific street segments.

Second Round Review Period (July – August 2015)

Comments on the goods movement emphasis overlay were not provided by stakeholder agencies during the second round review period. The *Countywide Goods Movement Plan* consultant team did however add the following roadway segments to the three-tier goods movement network:

- Segments of Santa Rita Road and Valley Avenue in Pleasanton were added as Tier 3 routes.

[8] See the Alameda County Goods Movement Plan, Draft Technical Memorandum for Task 3c – Identify Gaps, Needs, Issues, and Deficiencies, pages 2-5 and 2-6.

- Segments of Industrial Parkway and Whipple Road in Hayward were added as Tier 3 routes.

The segments listed above were included in the goods movement emphasis overlay, a revised map is provided in Attachment G.

Modal Priority

Together, these documents describe a technical process for using area character (land use context), street vehicular function (base street type), and modal networks (multimodal overlays) identified from on-going or recent plans (Alameda Countywide Transit, Goods Movement, Bicycle and Pedestrian Plans) to derive modal priorities for specific street segments. As this study progresses, there will be opportunities to adjust these recommendations:

- Consistent with the Vision statement, the Alameda Countywide Multimodal Arterial Plan will be sensitive to local context. If the technically generated modal priorities are inconsistent with local values, they will be modified in consultation with the local agencies.
- While the land use context includes information on aspirational (long term vision) land uses (SCS, PDAs, etc.), the base street types derive from current functions. To the extent that local agencies have aspirations to change the function of streets, the Multimodal Arterial Plan can reflect aspirations for the 2040 planning horizon.
- For analysis purposes, the Study Network is segmented based on CMP segmentation, PDA boundaries, changes in street cross-section and other reasons. Network analysis will be conducted after recommended improvements are generated to assure that segment-level improvements assemble into continuous and connected networks that supports system efficiency. Continuity analysis will include a review of user experience such that the comfort of bicycle improvements is consistent over the length of a corridor and transit improvements knit together into a cohesive/consistent alignment.
- Ultimately, the most important part of the MAP will be a set of recommendations that enhance multimodal mobility in Alameda County while meeting the MAP's goals; and doing this through an efficient investment strategy. Capital and operating cost estimates will be used in combination with other performance measures to prioritize those improvements that provide the greatest cost-benefit ratio.

Land use context types and base street types of the MAP's street typology framework inform the modal priority for streets. For example, the throughway street type has the highest level of auto mobility emphasis in most land use contexts. But a throughway in a Downtown Mixed Use land use context will prioritize pedestrians, bicycles, and transit because of the intensity of activity for these modes in the dense mixed use environment of a downtown.

Multimodal transportation overlays, or combinations of overlays, represent priority networks for specific modes – transit, bicycle, pedestrian and goods movement, modify modal priorities. Applying the street types, land use context types, and multimodal overlays results in a nuanced set of modal priorities for street segments in the *Study Network*. Considering the above points, to facilitate the process of identifying modal priority, three types of priority order were developed based on the land use context as shown in Table 3.

Table 3 MAP Modal Priorities – General		
Land Use Context Types ▪ Downtown Mixed Use ▪ Town Center Mixed Use ▪ Corridor/Neighborhood Mixed Use ▪ Education/Public/Semi-Public ▪ Parks	**Land Use Context Types** ▪ Mixed Use ▪ Commercial ▪ Residential ▪ Rural/Open Space ▪ Other/Unknown	**Land Use Context Types** ▪ Industrial
Associated Modal Priorities 1. Transit 2. Pedestrian 3. Bicycle 4. Auto 5. Goods Movement/Truck	**Associated Modal Priorities** 1. Transit 2. Auto 3. Goods Movement/Truck 4. Bicycle 5. Pedestrian	**Associated Modal Priorities** 1. Transit 2. Goods Movement/Truck 3. Auto 4. Bicycle 5. Pedestrian

This order generally iterates through the first highest order facilities for each mode; then the next highest order, and third highest order. For example, for transit, the highest order facilities are the Major Transit Corridors and the second highest are the Crosstown routes. The main deviation from this iterative approach is for the highest emphasis bicycle facilities: enhanced Class II and enhanced Class III facilities have the same priority as Class I and Class IV facilities. This approach intends to balance autos as the dominant form of transportation in Alameda County with State, regional and local policies related to reducing greenhouse gas emissions that focus on directing local development to creates and enhances activity nodes that support transit, walking and bicycling. It also provides an implementation tool for continuous and connected multimodal networks to facilitate travel by all modes. Table 4 displays the resulting priorities.

Table 4 MAP Modal Priorities – Specific		
Column 1	**Column 2**	**Column 3**
Land Use Context Types ▪ Downtown Mixed Use ▪ Town Center Mixed Use ▪ Corridor/Neighborhood Mixed Use ▪ Education/Public/Semi-Public ▪ Parks	**Land Use Context Types** ▪ Mixed Use ▪ Commercial ▪ Residential ▪ Rural/Open Space ▪ Other/Unknown	**Land Use Context Types** ▪ Industrial
Associated Modal Priorities 1. Transit: Major Corridors 2. Pedestrian: Tier 1 3. Bicycle: Class I, enhanced Class II, enhanced Class III or Class IV 4. Auto: Throughway 5. Goods Movement: Tier 2 6. Transit: Crosstown Routes 7. Pedestrian: Tier 2 8. Bicycle: Class II 9. Auto: County Connector 10. Pedestrian: Tier 3 11. Bicycle Class III 12. Transit: Local Routes 13. Goods Movement: Tier 3 14. Auto: Community Connector 15. Auto: Neighborhood Connector	**Associated Modal Priorities** 1. Transit: Major Corridors 2. Auto: Throughway 3. Goods Movement: Tier 2 4. Bicycle: Class I, enhanced Class II or enhanced Class III or Class IV 5. Pedestrian: Tier 1 6. Transit: Crosstown Routes 7. Auto: County Connector 8. Goods Movement: Tier 3 9. Bicycle: Class II 10. Pedestrian: Tier 2 11. Auto: Community Connector 12. Bicycle Class III 13. Pedestrian: Tier 3 14. Transit: Local Routes 15. Auto: Neighborhood Connector	**Associated Modal Priorities** 1. Transit: Major Corridors 2. Goods Movement: Tier 2 3. Auto: Throughway 4. Bicycle: Class I, enhanced Class II, enhanced Class III or Class IV 5. Pedestrian: Tier 1 6. Transit: Crosstown Routes 7. Goods Movement: Tier 3 8. Auto: County Connector 9. Bicycle: Class II 10. Pedestrian: Tier 2 11. Auto: Community Connector 12. Bicycle Class III 13. Pedestrian: Tier 3 14. Transit: Local Routes 15. Auto: Neighborhood Connector

By way of example, Table 5 highlights some example streets by Planning Area, listing their land use context and base street types, and multimodal transportation overlays. The final column shows their modal priorities (in ranked order). Walking through the first example – Hegenberger Road, the stepwise process proceeds as follows:

Mission Boulevard from Driscoll Road to I-680

Land use Context = Residential, Education, and Commercial (see column 2 of Table 4)

1. Is it a Transit Major Corridor?	NO	
2. Is it a Throughway?	YES	1st priority – Auto
3. Is it part of the Tier 2 Goods Movement network?	YES	2nd priority – Truck
4. Is it a Class I or Class IV Bicycle facility?	NO	
5. Is it a part of the Pedestrian Tier 1 network?	NO	
6. Is it a Transit Crosstown Route?	NO	
7. Is it a County Connector?	NA	

8.	Is it part of the Tier 3 Goods Movement network?	NA	
9.	Is it a Class II Bicycle facility?	YES	3rd priority - Bicycle
10.	Is it part of the Tier 2 Pedestrian network?	NO	
11.	Is it a Community Connector?	NA	
12.	Is it a Class III or Class III Enhanced Bicycle facility	NA	
13.	Is it part of the Tier 3 Pedestrian network?	NO	
14.	Is it a Transit Local Route?	YES	4th priority - Transit
15.	Is it a Neighborhood Connector?	NA	
16.	Does it have no Pedestrian emphasis?	YES	5th priority - Pedestrian

NA (not applicable) occurs when a question relates to a mode that is a priority based on a prior question. As an example, the response to "Is it a County Connector?" - a question that could result in the facility being designated as auto priority- is NA because the facility was already designated as auto priority from the question – "Is it a Throughway?"

In a few cases, the land use context of a segment includes categories within multiple columns of Table 4, such as with Foothill Boulevard between Castro Valley Boulevard and Grove Way. In these cases, the predominant land use contexts are used. In the case of Foothill Boulevard, column 2 of Table 4 is used as the predominant land uses are Mixed Use and Residential.

Comments and Responses on Modal Priority

First Round Review Period (April – May 2015)

As explained in the draft modal priority memorandum, applying the base street types, land use context types, and multimodal overlays results in a nuanced set of modal priorities for street segments along the *Study Network*. Based on the comments received on the draft typology, the approach to identifying the modal priority remains unchanged except for the bicycle emphasis. However, many specific comments were made to the identified modal priority reflecting the local priorities and local knowledge on the function of a particular street.

Regarding the modal priority approach, per recent legislative mandate (AB 1193 signed into law in September 2014) that added an additional class and provided emphasis for the protected bike lanes, enhanced class II and enhanced class III bicycle facilities that provide more protection for bicyclists over the other classes were also added to the highest emphasis for bicycles and have the same priority as Class I and IV. The redline changes to the modal priority approach are shown in Table 1 (on the following page) and the updated example on the following page shows the application of the revised modal priority on Mission Boulevard.

Regarding the specific modal priority changes for certain streets (segments), a majority of the comments have been incorporated by manually overwriting the draft modal priority list.

Second Round Review Period (July – August 2015)

Six jurisdictions (Alameda County, Albany, Dublin, Fremont, Newark and Oakland) requested modal priority changes during the second round review period and the majority of requested changes were made. The City of Oakland is in the process of developing their Citywide Complete Streets Plan and developed a separate methodology to identify modal priorities as part of that project. The modal priorities identified as part of the ongoing citywide plan were incorporated into the Countywide Multimodal Arterial Plan.

Table 5
Example Streets with Street Type and Overlay Designations

Planning Area	Street Segment	Land Use Context Overlay	Street Type	Transit Overlay	Bicycle Overlay	Pedestrian Overlay	Truck Overlay	Modal Priority (in order)
NORTH COUNTY	**International Blvd.** *(Fruitvale Ave. to 38th Ave.)*	Corridor/ Neighborhood Mixed Use	**Community Connector**	Major Corridor	None	***Tier 1 - (>9.0 score)*** ▪ Neighborhood Mixed Use PDA. ▪ On AC Transit Priority Corridor. ▪ Within 1/4 milt of BART Station ▪ Community of Concern Tract.	None	Transit Pedestrian Auto Bicycle Truck
	Telegraph Ave. *(40th to 51st St.)*	Corridor/ Neighborhood Mixed Use	**Community Connector**	Major Corridor	Class II	***Tier 2 - (4.1-9.0 score)*** ▪ Neighborhood Mixed Use PDA ▪ On AC Transit Priority Corridor. ▪ Within 1/4 mile of local bus stops. ▪ Community of Concern Tract.	None	Transit Pedestrian Bicycle Auto Truck
	Sacramento St. *(Dwight Way to Ashby Ave.)*	Commercial and Residential	**Neighborhood Connector**	Crosstown	None	***Tier 3 - (1.1-4.0 score)*** ▪ Within 1/2 Mile of ACT Priority Corridor. ▪ Within 1/4 mile of local bus stops. ▪ Community of Concern Tract.	None	Transit Pedestrian Auto Bicycle Truck

Table 3 Example Streets with Street Type and Overlay Designations								
Planning Area	**Street Segment**	**Land Use Context Overlay**	**Street Type**	**Transit Overlay**	**Bicycle Overlay**	**Pedestrian Overlay**	**Truck Overlay**	**Modal Priority (in order)**
CENTRAL COUNTY	**Foothill Blvd.** *(Castro Valley Blvd to Grove Way)*	Mix-use (Comm. & Res.) and Residential	**Throughway**	Local (on part of segment)	None	***Tier 3 - (1.1-4.0 score)*** ▪ Within 1/2 Mile of ACT Priority Corridor. ▪ Partially within 1/4 mile of local bus stops	Tier 2	Auto Truck Pedestrian Transit Bicycle
	D Street *(Mission Blvd. to 1st Street)*	Downtown Mixed Use	**Neighborhood Connector**	Local (on part of segment)	Class II	***Tier 1 - (>9.0 score)*** ▪ City Center PDA. ▪ Within 1/4 mile of ACT Priority Corridor. ▪ Within 1/4 mile of BART station. ▪ Community of Concern Tract.	None	Pedestrian [1] Bicycle Transit Auto Truck
	Watkins St. *(B St to D St.)*	Town Center Mixed Use	**Neighborhood Connector**	Local	Class II	***Tier 1 - (>9.0 score)*** ▪ City Center PDA. ▪ Within 1/4 mile of ACT Priority Corridor. ▪ Within 1/4 mile of BART station. ▪ Community of Concern Tract.	None	Pedestrian Bicycle Transit Auto Truck

Note:

[1] Hayward has requested that the modal priorities for D Street be changed to bicycle, pedestrian, auto, transit, and truck; this requested change was made to the modal priority mapping.

Table 3 Example Streets with Street Type and Overlay Designations								
Planning Area	**Street Segment**	**Land Use Context Overlay**	**Street Type**	**Transit Overlay**	**Bicycle Overlay**	**Pedestrian Overlay**	**Truck Overlay**	**Modal Priority (in order)**
SOUTH COUNTY	**Mission Blvd.** *(Driscoll Rd. to I-680)*	Residential and Education	**Throughway**	Local	Class II	***Pedestrian Emphasis not considered***	Tier 2	Auto Truck Bicycle Transit Pedestrian
	Thornton Ave. *(Paseo Padre Parkway to Fremont Blvd.)*	Corridor/ Neighborhood Mixed Use	**Community Connector**	Local	Class II	***Tier 2- (4.1-9.0 score)*** ▪ Transit Neighborhood PDA. ▪ On ACT Priority Corridor. ▪ Partially within 1/2 mile of Capitol Corridor/ACE station	Tier 3	Pedestrian Bicycle Transit Truck Auto
	Fremont Blvd. *(Nicolet Ave. to Thornton Ave.)*	Corridor/ Neighborhood Mixed Use	**County Connector**	Major Corridor	Class II	***Tier 2- (4.1-9.0 score)*** ▪ Transit Neighborhood PDA. ▪ On ACT Priority Corridor. ▪ Partially within 1/2 mile of Capitol Corridor/ACE station.	None	Transit Pedestrian Bicycle Auto Truck

Table 3 Example Streets with Street Type and Overlay Designations								
Planning Area	**Street Segment**	**Land Use Context Overlay**	**Street Type**	**Transit Overlay**	**Bicycle Overlay**	**Pedestrian Overlay**	**Truck Overlay**	**Modal Priority (in order)**
EAST COUNTY	**Stanley Blvd.** *(Bernal Ave. to Isabel St.)*	Rural/Open Space	**Throughway**	Local	Class II	***Pedestrian Emphasis not considered***	Tier 2	Auto Truck Bicycle Transit Pedestrian
	Dublin Blvd. *(Arnold Rd. to Hacienda Dr.)*	Commercial	**Throughway**	Major Corridor	Class II	***Tier 3 - (1.1-4.0 score)*** ▪ On LAVTA Rapid Corridor. ▪ Within Commercial Land use	Tier 3	Transit Auto Truck Bicycle Pedestrian
	Central Pkwy. *(Grafton St. to Lockhart St.)*	Town Center Mixed Use	**Community Connector**	None	Class II	***Tier 3 - (1.1-4.0 score)*** ▪ Within 1/2 Mile of LAVTA Rapid stops. ▪ Suburban PDA.	None	Bicycle Pedestrian Auto Truck

Maps in Attachment H show the updated top modal priority for the Study Network.

Next Steps

This memorandum describes how the project team had categorized the *Study Network* streets by land use context types, street types, and multimodal overlays, and reflects the first feedback loop of stakeholder review and comment as illustrated in Figure 2. The typology framework and initial mapping of the typologies and modal priorities were presented to the stakeholders for review in April – ACTAC on April 9, 2015; Planning Area meetings during April 20-22, 2015; and non-agency stakeholder meeting on April 20, 2015. The second draft mapping set of the typologies and modal priorities were presented to stakeholders for review at the PlanTAC meeting on July 21, 2015

The typology for the MAP will inform the modal priority for the *Study Network* segments, which in turn will lead to identifying the modal needs on the *Study Network* in combination with the Performance Objectives.

ATTACHMENT A: Pedestrian Emphasis Scoring Methodology

The Pedestrian emphasis scoring was performed by layering the categories listed in Table 4 through GIS mapping. The overlaying individual scores were summed to create a pedestrian emphasis intensity map of the combined layers scores. Maps in Attachment F show the gradation of these scores.

The Transit scores range from .25 to 2 points based upon the existing and planned transit capacity on those routes. Hence, BART Stations, AC Transit Major Corridor and Crosstown routes, select Emery Go-Round routes, and LAVTA Rapid corridors have higher scores than local routes. Locations where multiple transit facilities overlap have higher cumulative scores.

The Land Use/Demographic category scoring is more variable, ranging from .25 to 4 points depending upon the characteristic being scored. Existing commercial mixed use zones that are the most pedestrian oriented also include scoring in an eighth-mile buffer around the zoning boundary. This breadth of scoring occurs, because this category includes factors such as intensity of uses, high activity destinations, and demographic profiles through the scoring of MTC's *Community of Concern* assessment. Land use scoring includes PDA typologies with the highest score assigned to the highest PDA intensity type, a score of 4 for Regional Center. Many of the PDAs contain several types of high-activity uses (commercial and mixed use areas as defined in jurisdictions' general plans); therefore, those areas were assigned additional scores (ranging from .25 to 1) based upon the intended intensity of those specific uses. This additional scoring allows for gradation of pedestrian emphasis of streets within large PDAs. Areas identified as future employment zones in the County's RTP were given one point to highlight activity centers that aren't necessarily within transit corridors or PDAs, but would have a need for pedestrian improvements. Points were given to educational, cultural and government offices areas, as they bring additional pedestrian activity from employees, users, and visitors. Lastly, census tracts identified as Communities of Concern under the MTC equity analysis were scored (1 to 1.5) based upon whether more than four of the demographic factors identified in the MTC analysis were met. Tracts that met more than 6 factors were scored half a point higher.

Across categories, the scoring was scaled to relative expected level of pedestrian activity. For example, BART stations typically have a high level of pedestrian activity around them and a scored a 2. But those in city centers generally have even higher levels of activity, so a PDA place type score of 4 for a Regional Center or 3 for a City Center was added to the BART score. The relatively higher scoring for the PDA designation compared to the BART score is reflective of the pedestrian activity that occurs in these centers regardless of how a person travels to and from the center, such as an employee walking to get lunch or run errands.

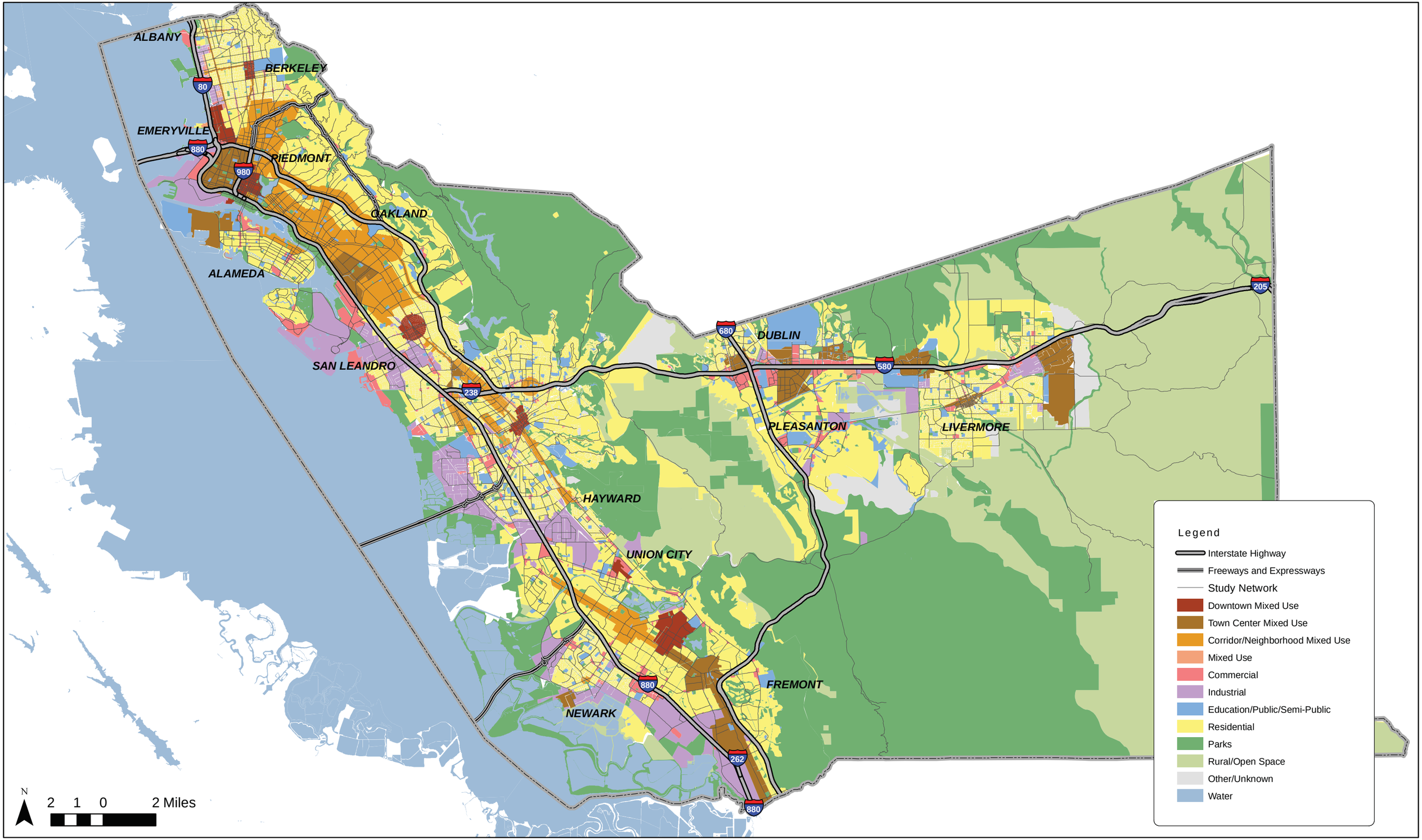
Table 4: Pedestrian Priority Scores

PEDESTRIAN PRIORITY MEASURE	REVISED SCORE	NOTES
TRANSIT (range of 0.25 to 2 point scores)		
1 BART STATIONS		
.25 Miles	2	
.5 Miles	1	
2 ACE STATIONS		
.25 Miles	0.75	
.5 Miles	0.5	
3 AMTRAK CAPITOL CORRIDOR		
.25 Miles	0.75	

	PEDESTRIAN PRIORITY MEASURE	REVISED SCORE	NOTES
	.5 Miles	0.5	
4	**AC TRANSIT PRIORITY CORRIDOR and EMERY GO-ROUND**		
	.25 Miles Major Corridor	2	
	.5 Miles Major Corridor	1	
	.25 Miles Crosstown and Emery Go-Round (selected routes)	0.75	
	.5 Miles Crosstown and Emery Go-Round (selected routes)	0.5	
5	**LAVTA CORRIDOR**		
	.25 Miles	2	
	.5 Miles	1	
6	**LOCAL BUS STOPS (AC/LAVTA/UCT/EMERY GO-ROUND)**		
	0.125 Miles	0.25	
	.25 Miles	0	
LAND USE/DEMOGRAPHIC (range of 0.25 to 4 point scores)			
7	**PRIORITY DEVELOPMENT AREAS**		
	Regional Center	4	
	City Center	3	
	Suburban Center	2	
	Transit Town Center	1.5	
	Urban Neighborhood	1	
	Transit Neighborhood	0.75	
	Mixed Use Corridor	1	
8	**EMPLOYMENT GOWTH OPPORTUNITY AREAS**	**1**	
9	**COMMUNITIES OF CONCERN**		
	below 6	**1**	
	6 and above	1.5	
10	**ACTIVITY CENTERS**		
	.25 Miles	0.25	
11	**LAND USE**		
	ALAMEDA		
	101 - Business Park or Office	0.25	
	101 - Community Commercial	0.25	
	101 - Island Auto Movie or Mariner Square	0.5	
	101 - Neighborhood Business or Northern Waterfront	0.75	0.5 for 1/8 mile buffer
	ALAMEDA COUNTY		
	199 - Mixed Use	0.5	
	ALBANY		
	102 - Community Commercial	0.5	
	102 - General Commercial	0.25	
	102 - Research	0.25	
	102 - Commercial/Service/Light Industrial	0.25	
	102 - Medium Density Res./Recreational/Comm'l	0.5	
	102 - Planned Res./Commercial or Res./Commercial	0.5	
	BERKELEY		
	103 - Avenue or Neighborhood Commercial (Solano Com'l, North Shattuck Com'l and South Area Com'l)	1	0.5 for 1/8 mile buffer
	103 - Avenue or Neighborhood Commercial (West Berkeley Com'l (outside of 4th Street Area), South Area Com'l (from Dwight to Ashby), General Com'l (on University, Shattuck, and Telegraph)., Residential Mixed Use (btwn. Bancroft and Durant), and Elmwood Commercial)	1.25	0.75 for 1/8 mile buffer
	103 - Downtown Mixed Use, Telegraph Commercial, West Berkeley Com'l in 4th Street Area	2	0.5 for 1/8 mile buffer
	103 - Manufacturing Mixed Use	0.5	
	CASTRO VALLEY		
	116 - General or Retail Commercial	0.25	
	116 - Office	0.25	

PEDESTRIAN PRIORITY MEASURE	REVISED SCORE	NOTES
116 - Restaurants & Entertainment	0.5	
116 - Mixed Use	0.5	
CHERRYLAND		
117 - General Commercial	0.25	
117 - San Lorenzo Village	0.5	
117 - Light Industrial and Research & Development/Office	0.25	
117 - General Comm'l or Medium/ High Density Res.	0.5	
117 - General Comm'l/Low-Medium Density Res. allowed	0.25	
117 - General Comm'l/Medium & High Density Res. allowed	0.5	
117 - General Comm'l/Medium Density Res. allowed	0.5	
117 - High Density Res/General Commercial allowed	0.5	
117 - Low-Medium Density Res/General Commercial	0.25	
DUBLIN		
104 - Campus Office	0.25	
104 - General or Neighborhood Commercial	0.25	
104 - General Commercial/Campus Office	0.5	
104 - Retail/Office	0.5	
104 - Retail/Office and Automotive	0.25	
104 - Mixed Use	0.5	
EMERYVILLE		
Doyle-Hollis Office and Office/Technology	0.75	
High Density Residential	1	
Mixed Use with Residential	1	
Mixed Use non-Residential	1	
FREMONT		
106 - Central Business District	1	
106 - Community or Office Commercial	0.25	
106 - Neighborhood Commercial	0.5	
106 - Mixed Use-Neighborhood Commercial (Res. 15-18 d/a)	0.25	
106 - Mixed Use-Neighborhood Commercial (Res. 18-23 d/a)	0.5	
106 - Mixed Use-Neighborhood Commercial (Res. 23-27 d/a)	1	
106 - Mixed Use-Neighborhood Commercial (Res. 27-35 d/a)	1	
HAYWARD		
107 - City Center - Retail and Office Commercial	1	
107 - General Commercial	0.25	
107 - Retail and Office Commercial	0.5	
107 - Commercial/High Density Residential	1	
LIVERMORE		
108 - Community Serving General Commercial	0.25	
108 - Neighborhood Commercial	0.5	
108 - Office Commercial	0.25	
108 - Mixed Use-Downtown Area SP	1	
108 - Mixed Use-Neighborhood Medium Density	0.5	
108 - Mixed Use-Neighborhood Low Density	0.25	
NEWARK		
109 - Community or General Commercial	0.25	
109 - Neighborhood Commercial	0.5	
109 - Office Commercial	0.25	
109 - Regional or Specialty Commercial	0.25	
OAKLAND		
110 - Business Mix	0.75	
110 - Central Business District	2	
110 - Community Commercial	0.5	
110 – Neighbor'd Ctr. Mixed Use (CN-3 and CN-4) or Hsg./Business Mix	0.75	0.5 for 1/8 mile buffer
Neighborhood Commercial 1 and 2 (CN-1 and CN-2)	1.25	0.75 for 1/8 mile

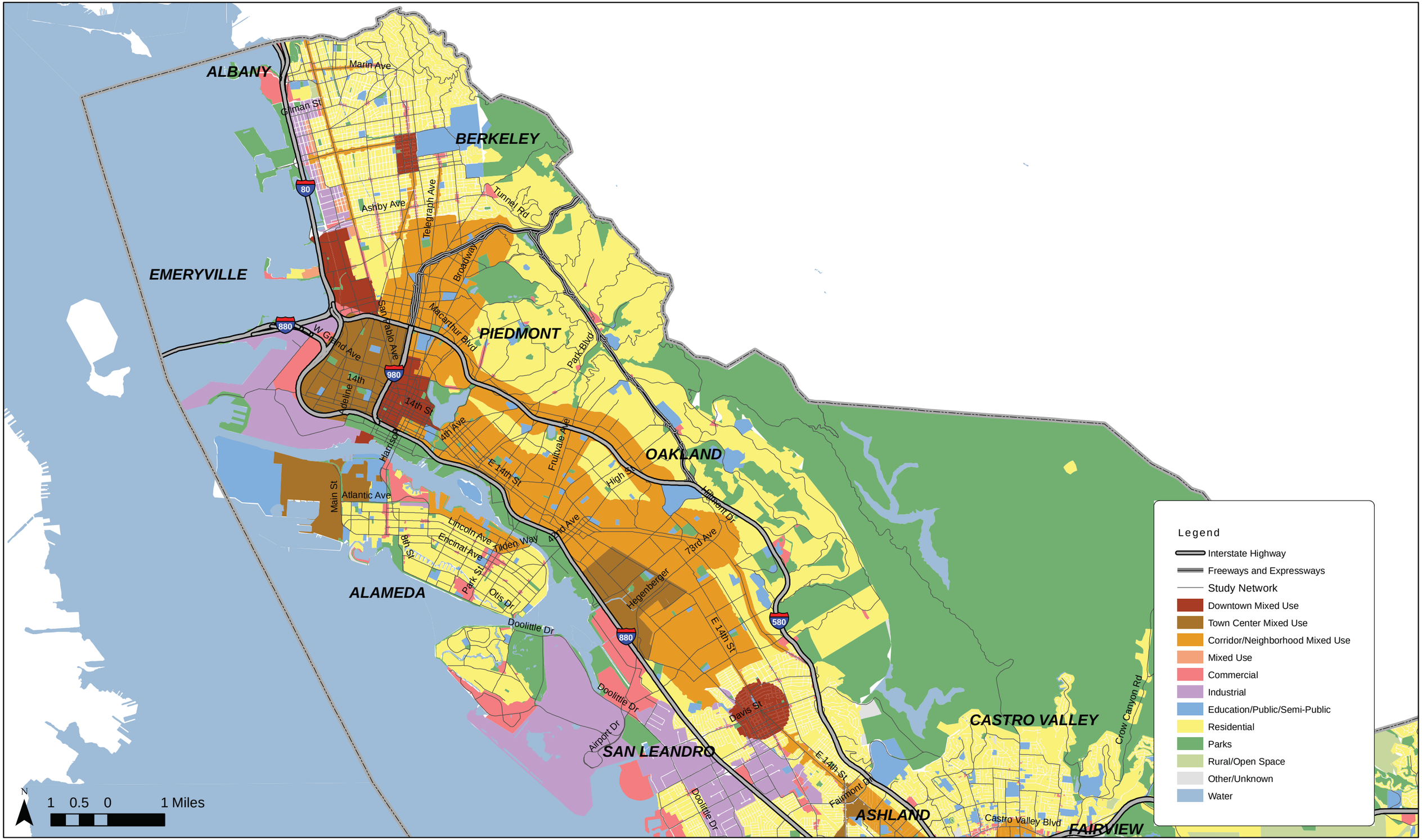
PEDESTRIAN PRIORITY MEASURE	REVISED SCORE	NOTES
		buffer
PLEASANTON		
112 – Comm'l and Office (Retail/Highway/Service/Professional)	0.25	
112 - Business Park (Industrial/Commercial and Office)	0.25	
SAN LEANDRO		
113 - General Commercial or Office	0.25	
113 - Neighborhood Commercial or Corridor Mixed Use	0.2	
113 - Downtown Mixed Use	1	
UNION CITY		
114 - Office Commercial or R&D Campus	0.25	
114 - Retail Commercial	0.25	
114 - Station Mixed-Use Commercial	1	



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment B - Land Use Context Type*



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment B - Land Use Context Type*

North County

ALAMEDA
OAKLAND
SAN LEANDRO
SAN LORENZO
HAYWARD
CASTRO VALLEY
ASHLAND
CHERRYLAND
FAIRVIEW
UNION CITY
NEWARK
FREMONT
DUBLIN
PLEASANTON
LIVERMORE
SUNOL

Airport Dr
Doolittle Dr
Davis St
E 14th St
Crow Canyon Rd
Castro Valley Blvd
Lewelling Blvd
Foothill Blvd
Grove Way
B St
2nd St
A St
Jackson St
Hesperian Blvd
Tennyson Rd
Mission Blvd
Industrial Pkwy
Alvarado Blvd
Alvarado Niles Rd
Decoto Rd
Dyer St
Union City Blvd
Niles Blvd
Paseo Padre Pkwy
Fremont Blvd
Peralta Blvd
Thornton Ave
Newark Blvd
Mowry Ave
Stevenson Blvd
Washington Blvd
Marshlands Rd
Dougherty Rd
Hopyard Rd
Hacienda Dr
Owens Dr
Santa Rita Rd
Stanley Blvd Stanley Blvd
First St
Bernal Ave
Sunol Blvd
Kitty Hawk Rd

238
580
680
880

N
1 0.5 0 1 Miles

Legend

- Interstate Highway
- Freeways and Expressways
- Study Network
- Downtown Mixed Use
- Town Center Mixed Use
- Corridor/Neighborhood Mixed Use
- Mixed Use
- Commercial
- Industrial
- Education/Public/Semi-Public
- Residential
- Parks
- Rural/Open Space
- Other/Unknown
- Water

September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment B - Land Use Context Type*

Central County

SAN LORENZO
FAIRVIEW
HAYWARD
UNION CITY
SUNOL
PLEASANTON
LIVERMORE
FREMONT
NEWARK
Hesperian Blvd
W Jackson St
Tennyson Rd
Mission Blvd
Industrial Pkwy
Union City Blvd
Dyer St
Alvarado Blvd
Alvarado Niles Rd
Fremont Blvd
Decoto Rd
Niles Blvd
Bernal Ave
Sunol Blvd
Isabel Ave
Vallecitos Rd
Peralta Blvd
Thornton Ave
Paseo Padre Pkwy
Fremont Blvd
Mowry Ave
Stevenson Blvd
Washington Blvd
Newark Blvd
Cherry St
Boyce Rd
Auto Mall Pkwy
Warm Springs Blvd
680
262
880
880

N
1 0.5 0 1 Miles

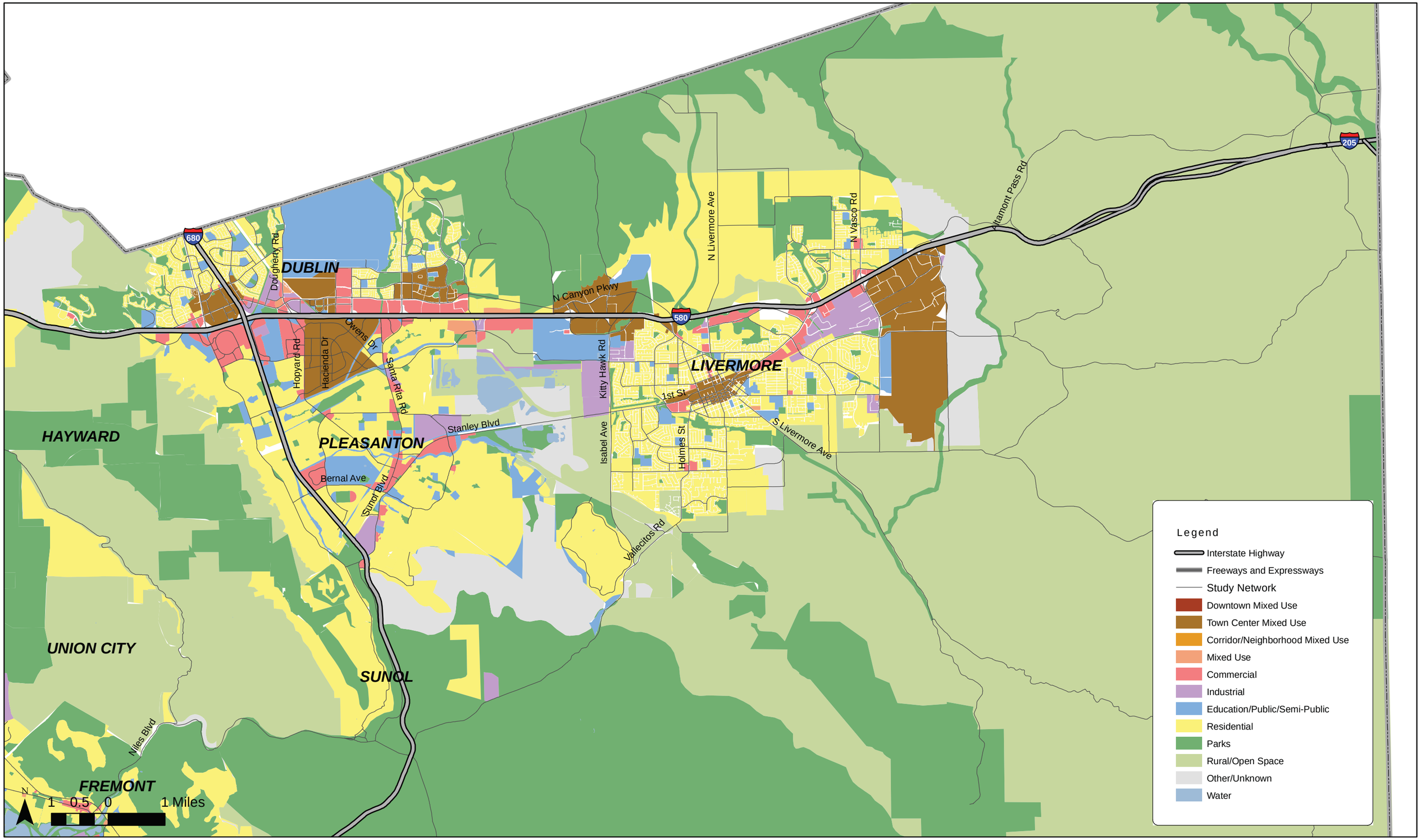
Legend
- Interstate Highway
- Freeways and Expressways
- Study Network
- Downtown Mixed Use
- Town Center Mixed Use
- Corridor/Neighborhood Mixed Use
- Mixed Use
- Commercial
- Industrial
- Education/Public/Semi-Public
- Residential
- Parks
- Rural/Open Space
- Other/Unknown
- Water

September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment B - Land Use Context Type*

South County

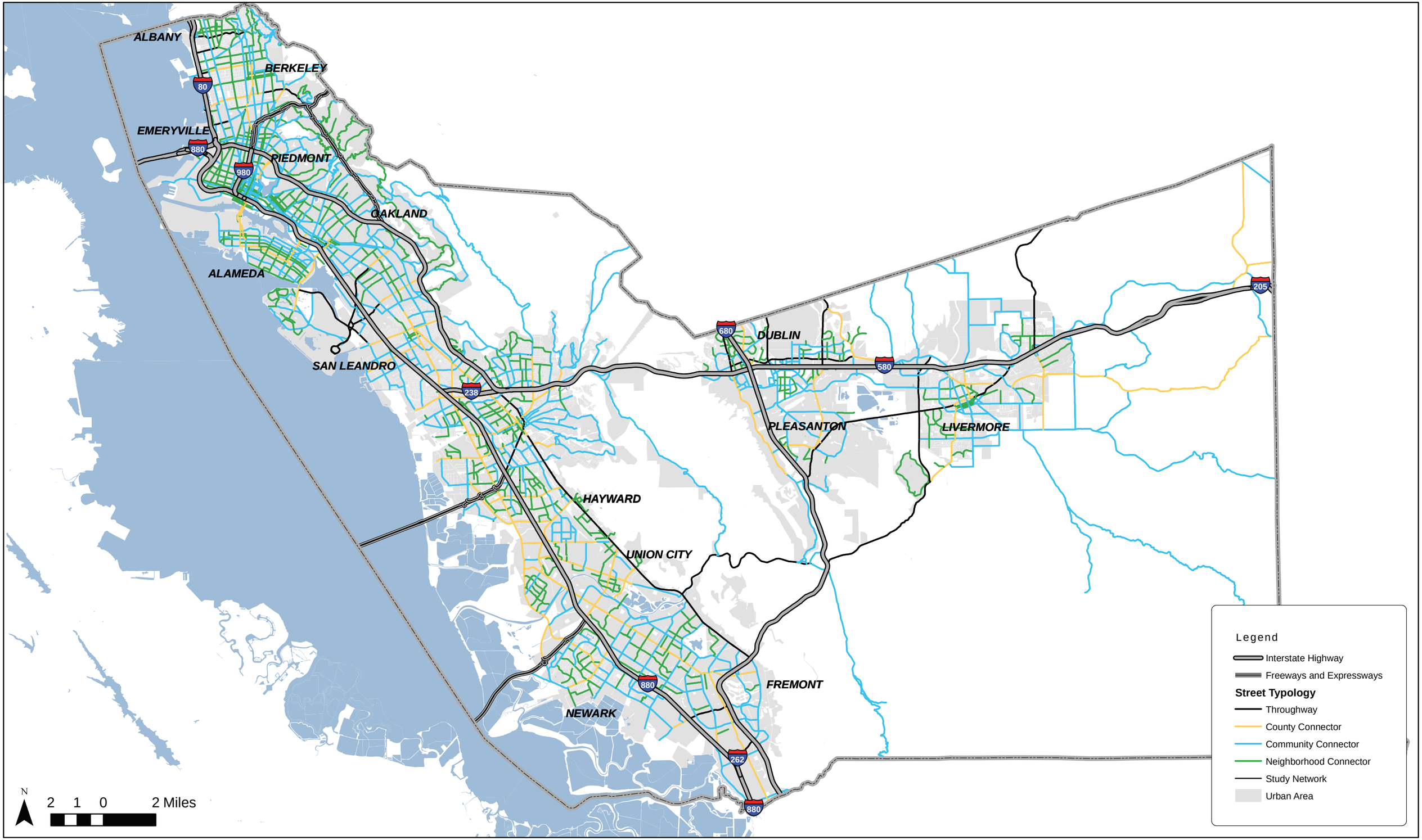


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment B - Land Use Context Type*

East County

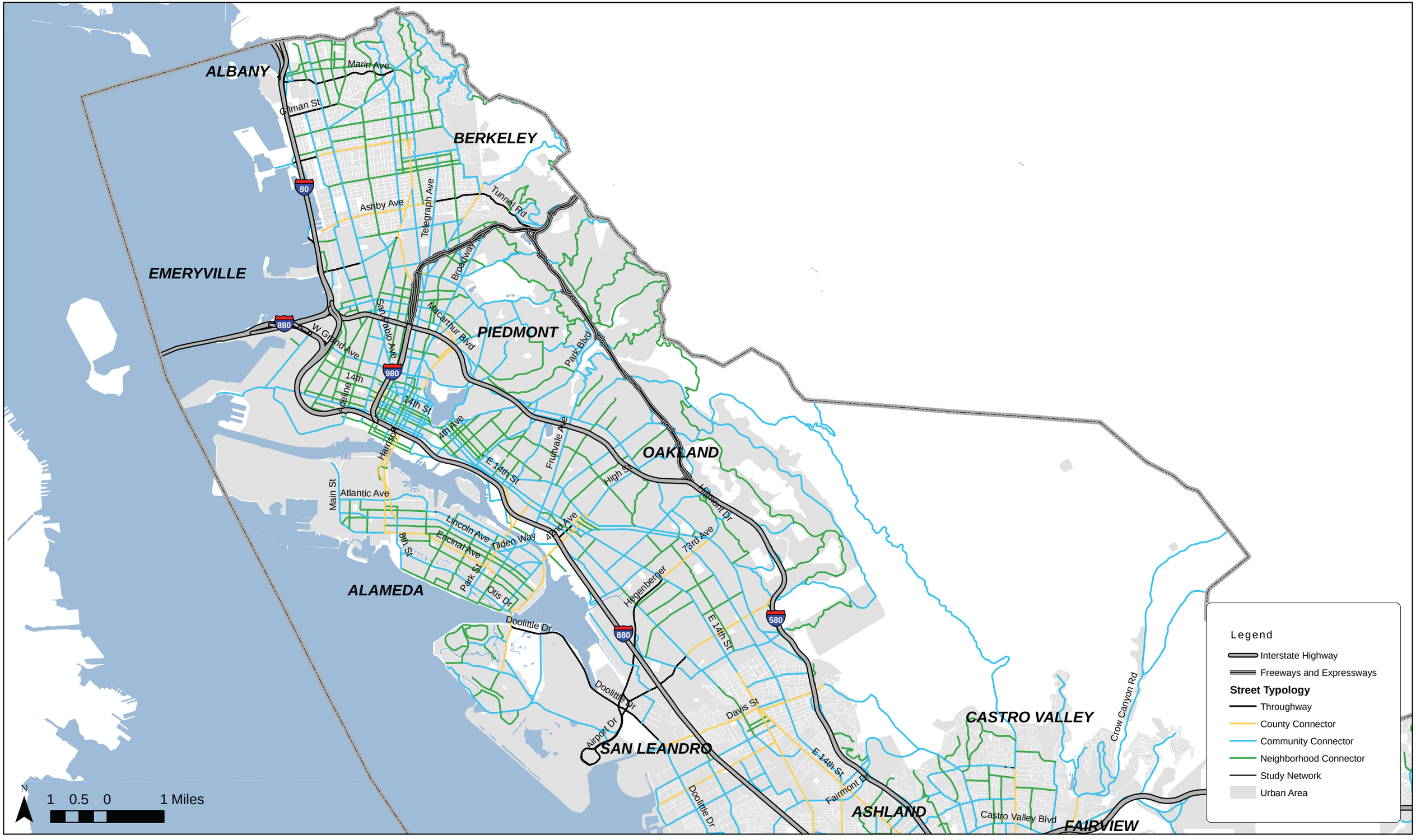


October 7, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment C - Street Typology*

Countywide

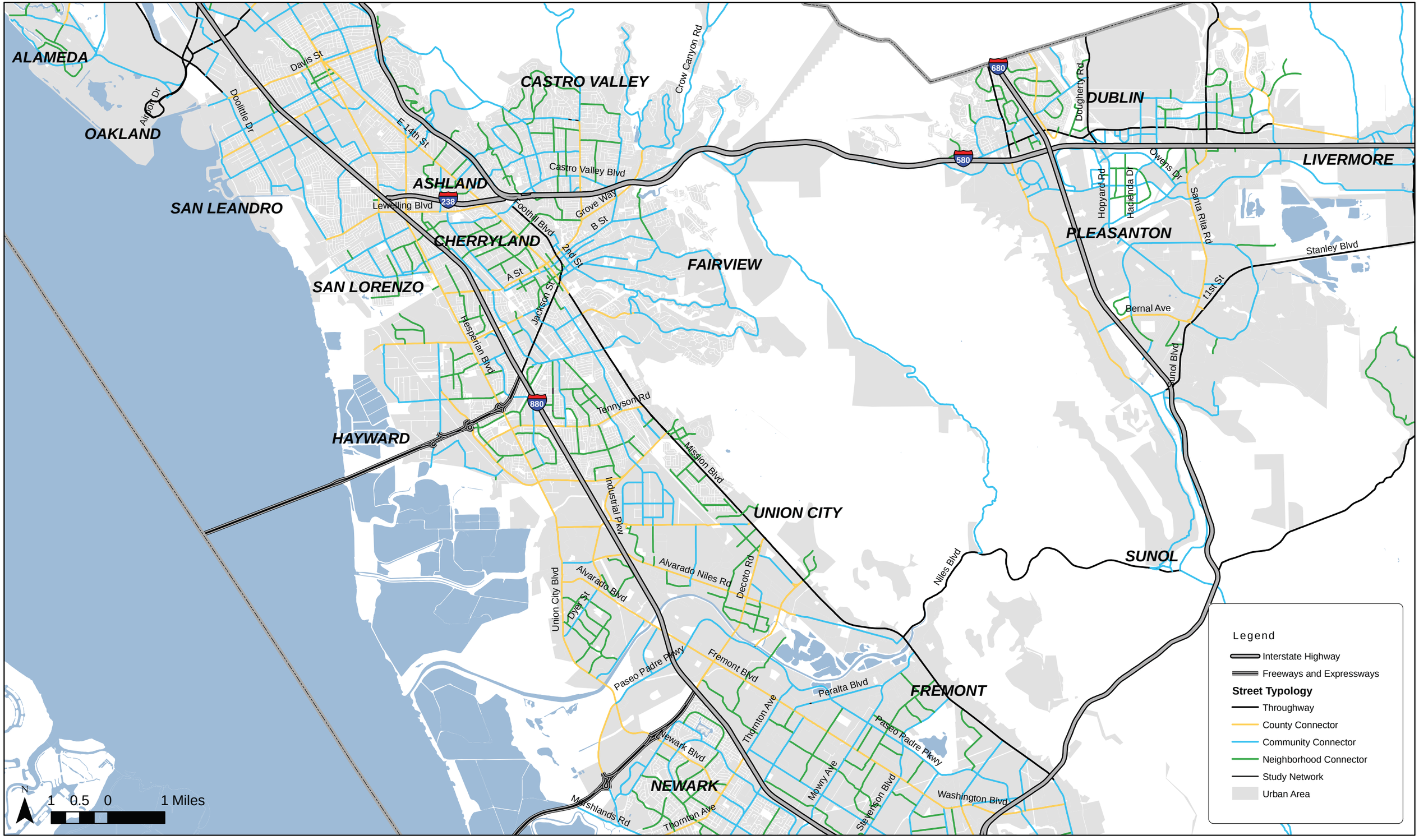


October 7, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment C - Street Typology*

North County

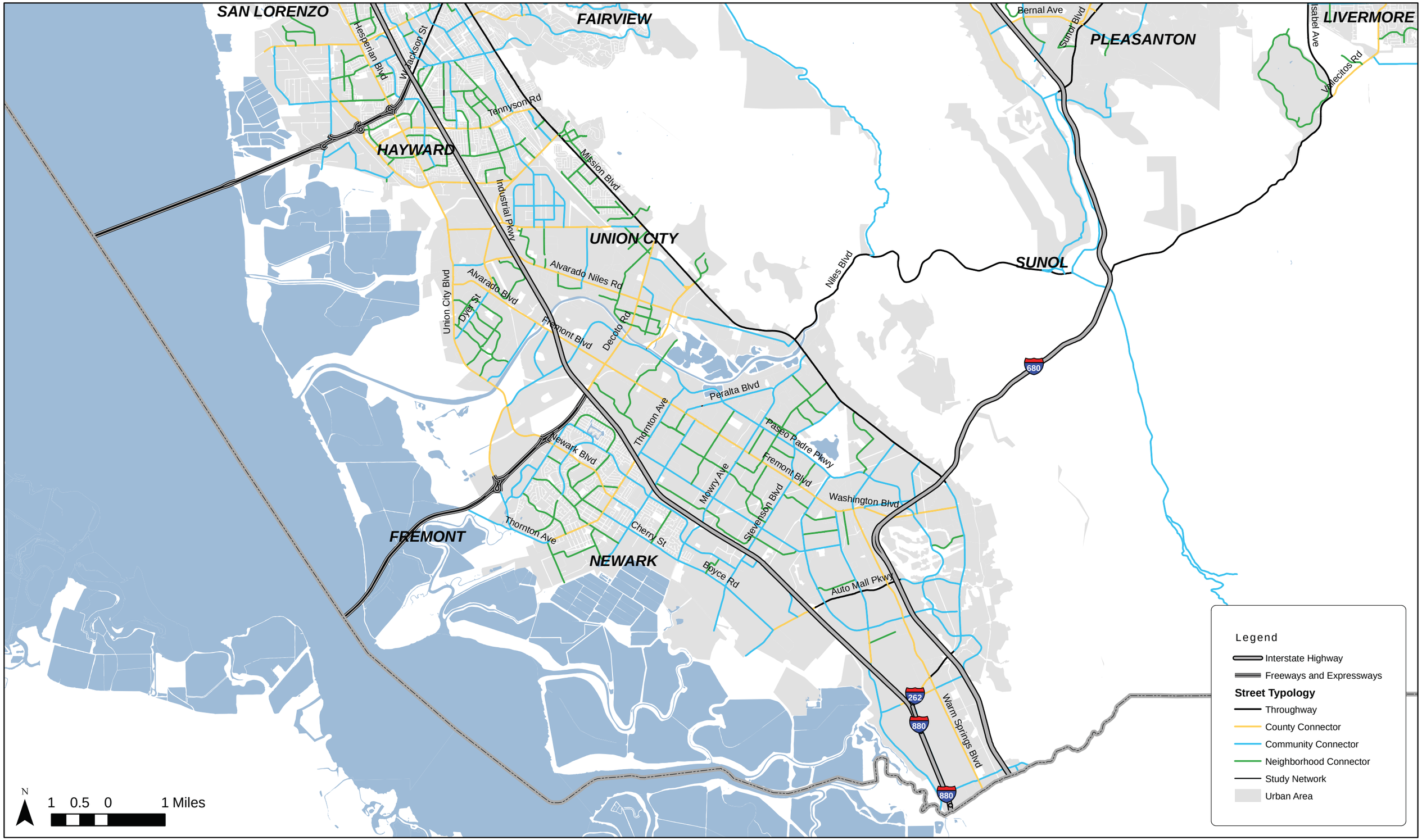


October 7, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment C - Street Typology*

Central County

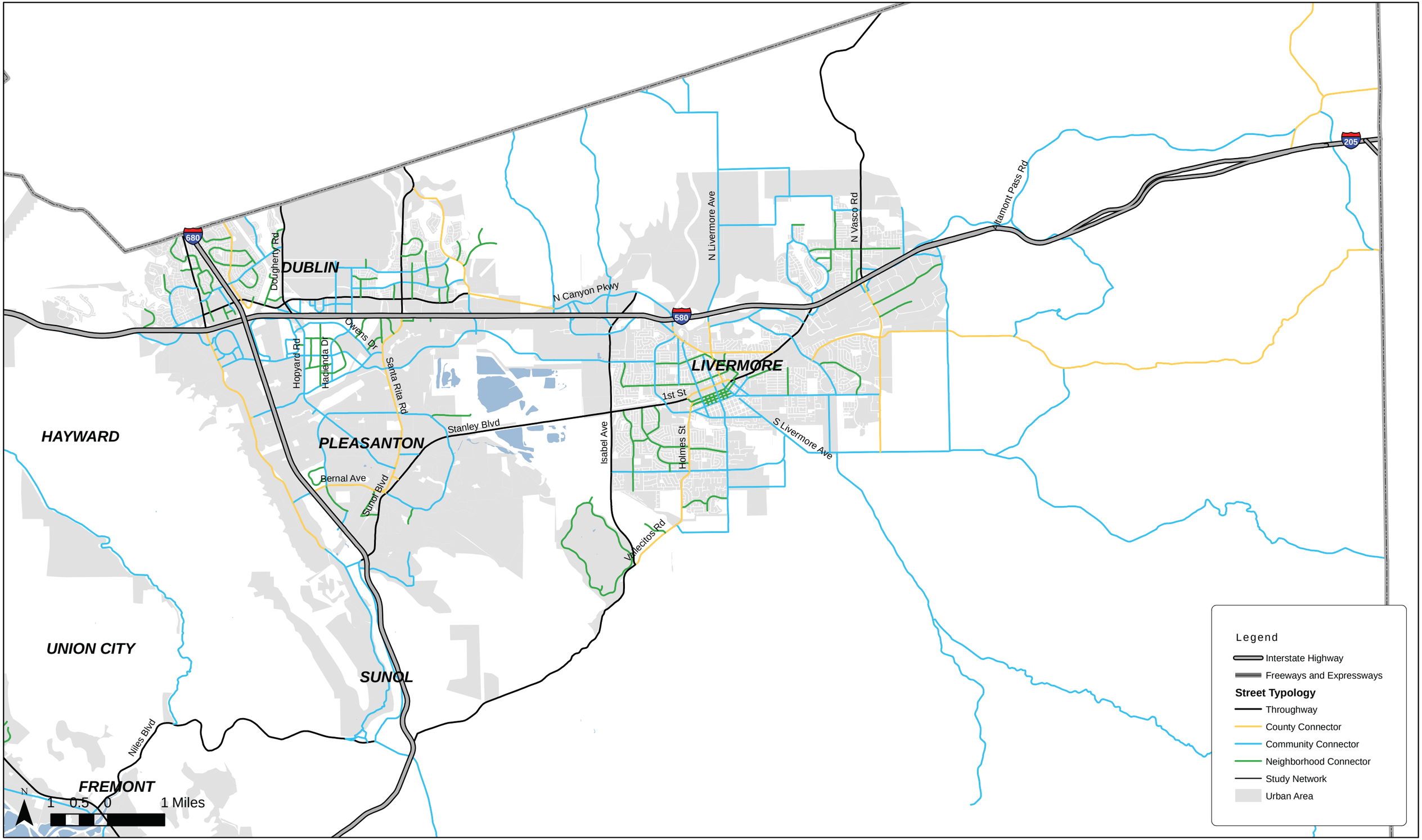


October 7, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment C - Street Typology*

South County

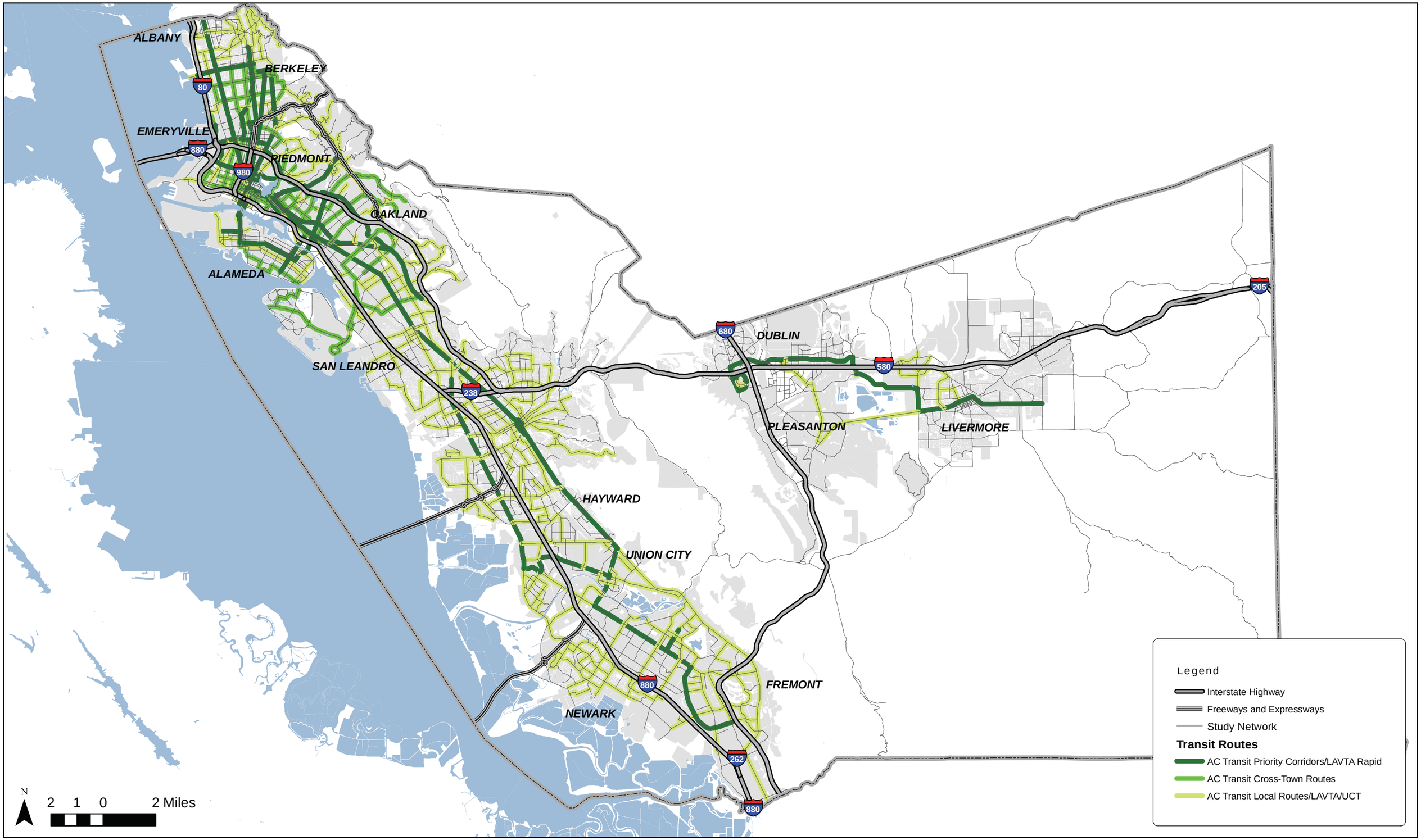


October 7, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment C - Street Typology*

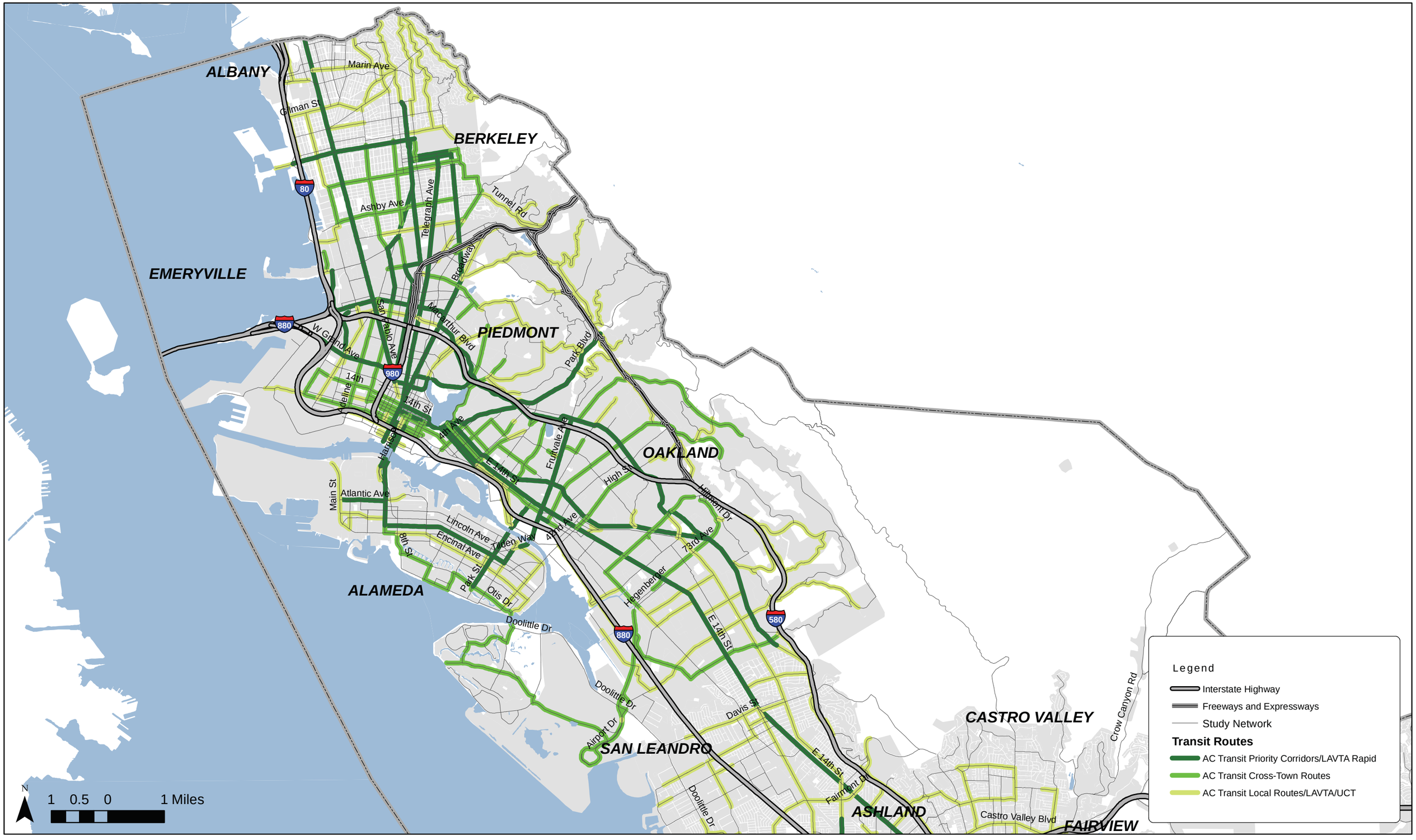
East County



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment D - Transit Emphasis*



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment D - Transit Emphasis*

North County

ALAMEDA
OAKLAND
SAN LEANDRO
SAN LORENZO
HAYWARD
CASTRO VALLEY
ASHLAND
CHERRYLAND
FAIRVIEW
UNION CITY
NEWARK
FREMONT
DUBLIN
PLEASANTON
LIVERMORE
SUNOL
Airport Dr
Doolittle Dr
Davis St
E 14th St
Crow Canyon Rd
Castro Valley Blvd
Lewelling Blvd
Foothill Blvd
Grove Way
B St
2nd St
A St
Jackson St
Hesperian Blvd
Tennyson Rd
Mission Blvd
Industrial Pkwy
Union City Blvd
Alvarado Blvd
Dyer St
Alvarado Niles Rd
Decoto Rd
Niles Blvd
Paseo Padre Pkwy
Fremont Blvd
Peralta Blvd
Thornton Ave
Newark Blvd
Marshlands Rd
Mowry Ave
Stevenson Blvd
Washington Blvd
Dougherty Rd
Hopyard Rd
Hacienda Dr
Owens Dr
Santa Rita Rd
Stanley Blvd Stanley Blvd
Kitty Hawk Rd
Bernal Ave
First St
Sunol Blvd
680
580
238
880
N
1 0.5 0 1 Miles

Legend

- Interstate Highway
- Freeways and Expressways
- Study Network

Transit Routes

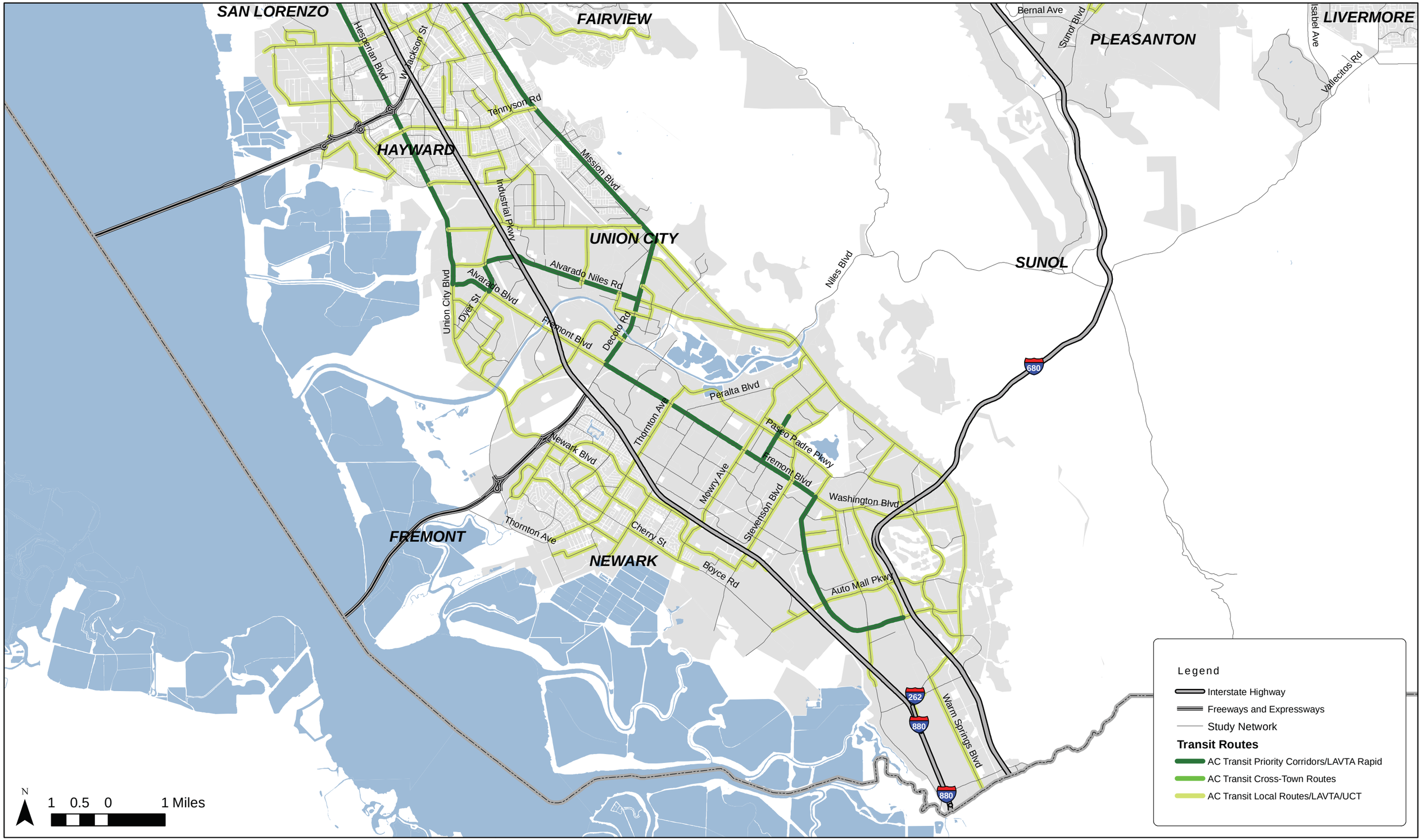
- AC Transit Priority Corridors/LAVTA Rapid
- AC Transit Cross-Town Routes
- AC Transit Local Routes/LAVTA/UCT

September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment D - Transit Emphasis*

Central County

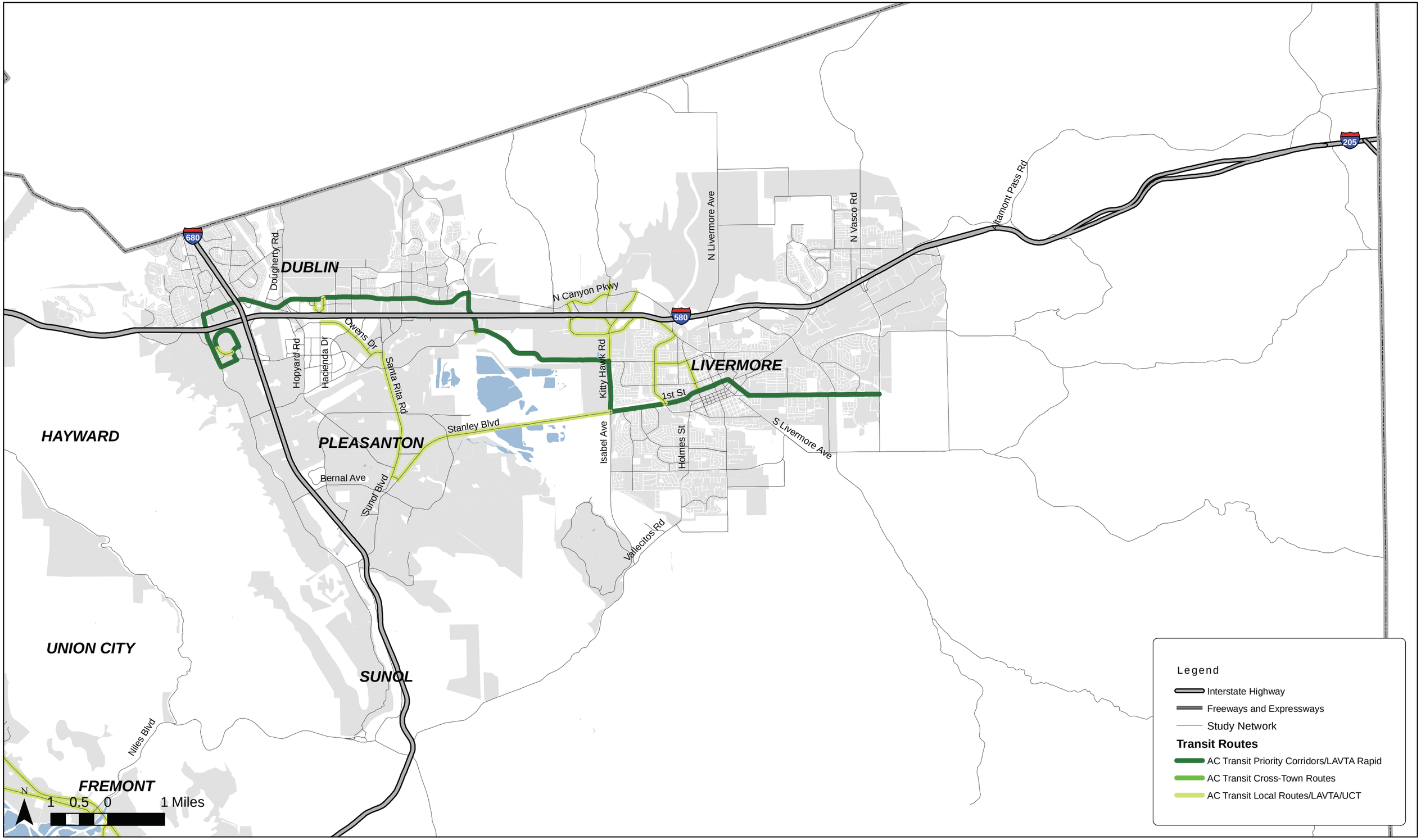


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment D - Transit Emphasis*

South County

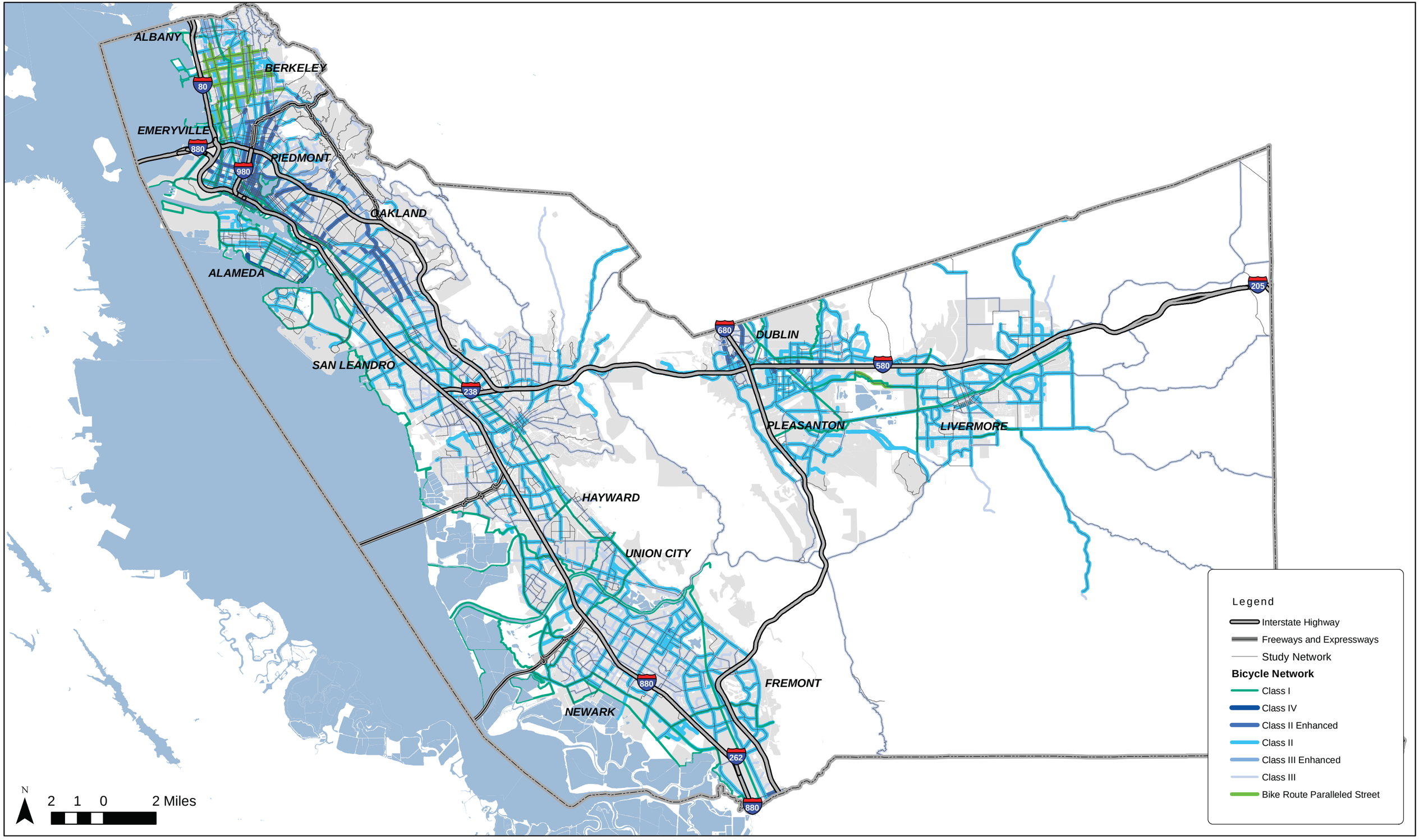


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment D - Transit Emphasis*

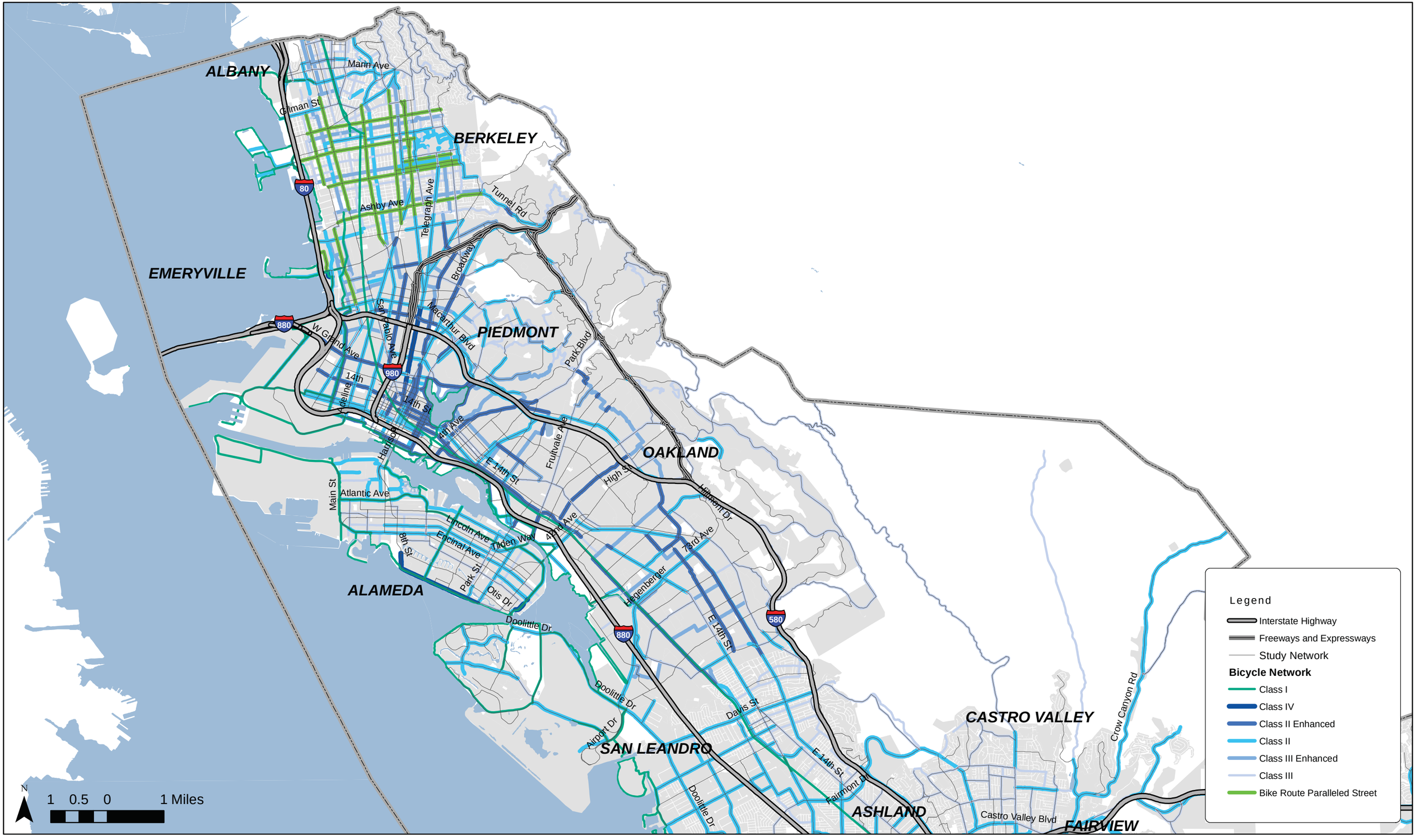
East County



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment E - Bicycle Emphasis*

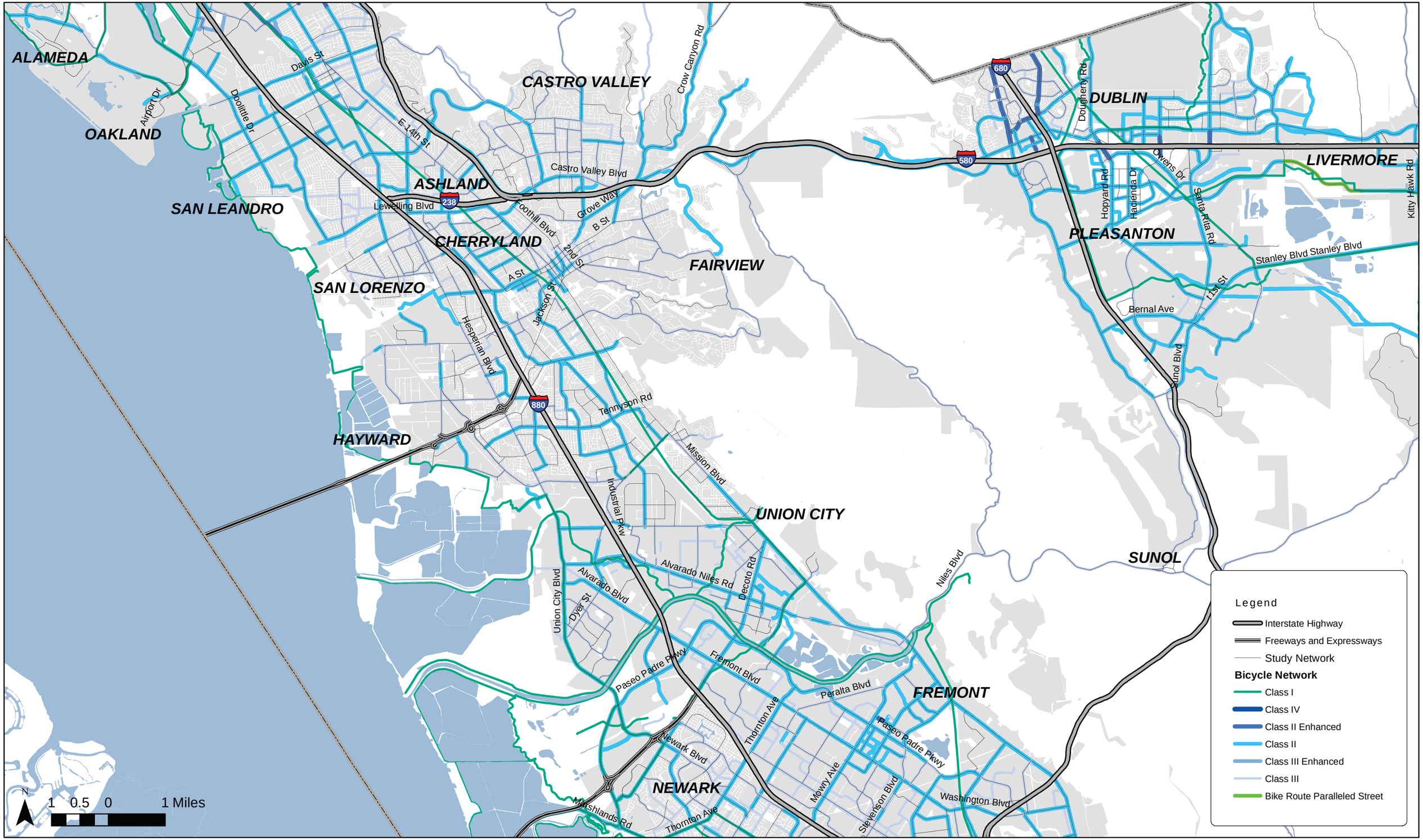


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment E - Bicycle Emphasis*

North County

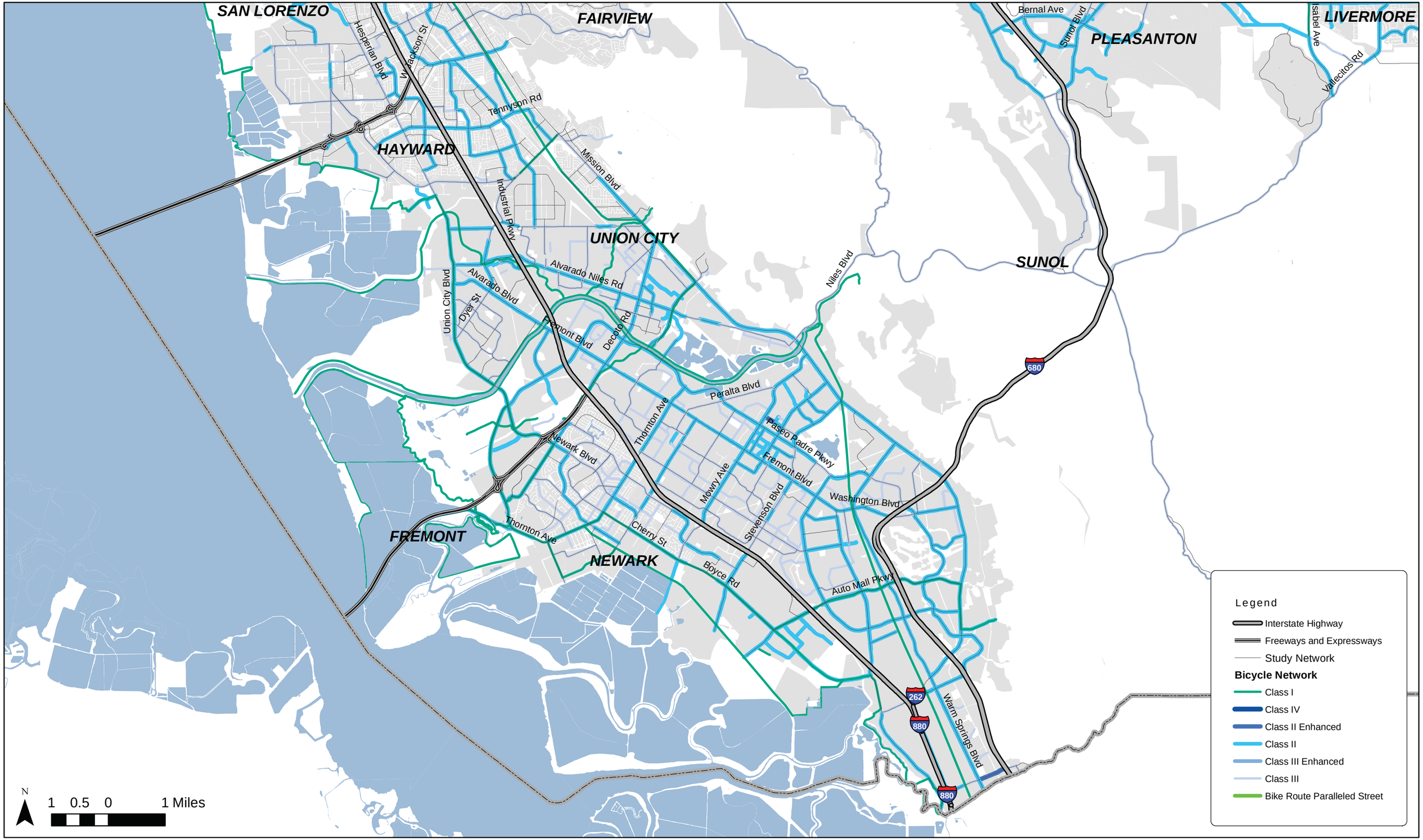


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment E - Bicycle Emphasis*

Central County

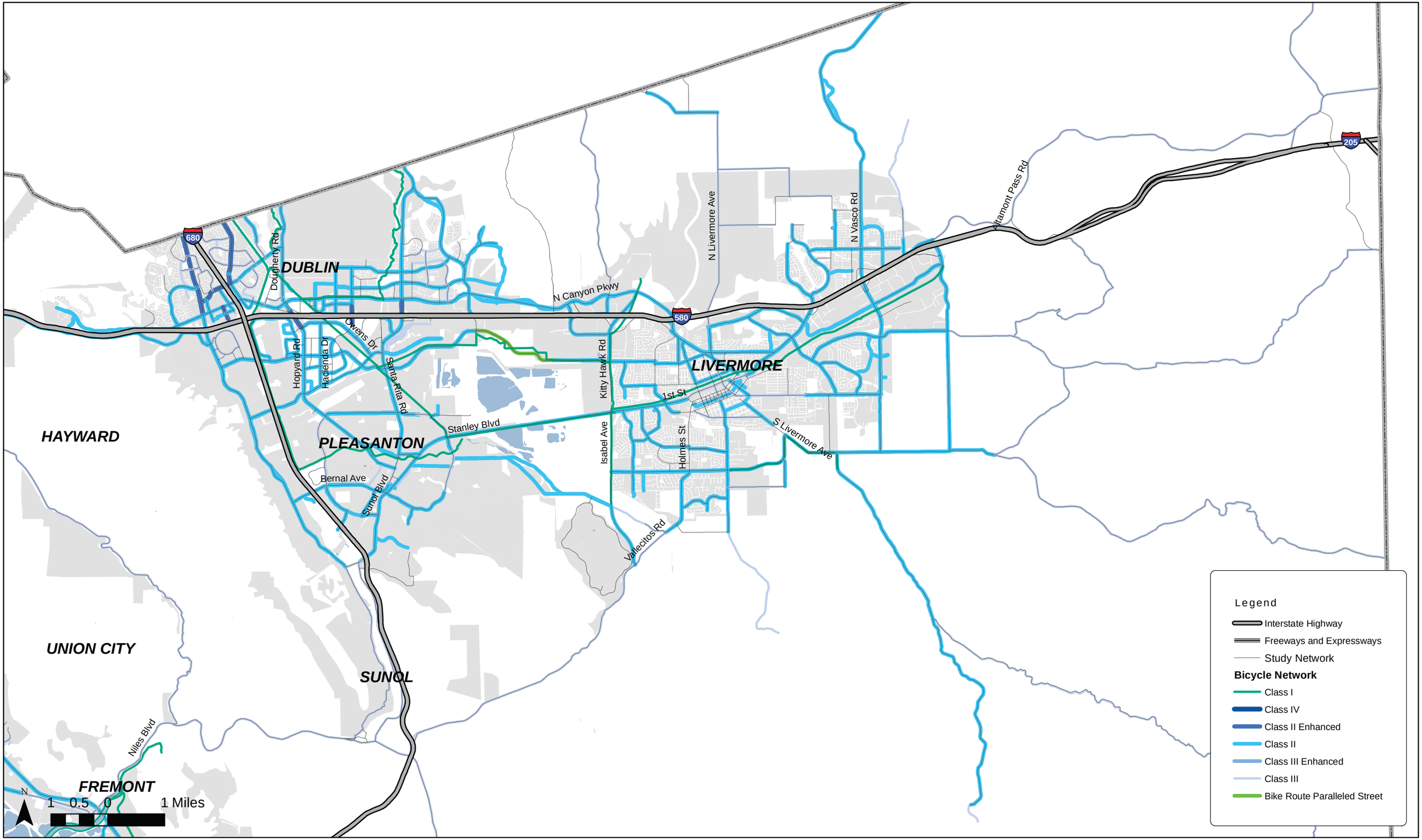


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment E - Bicycle Emphasis*

South County

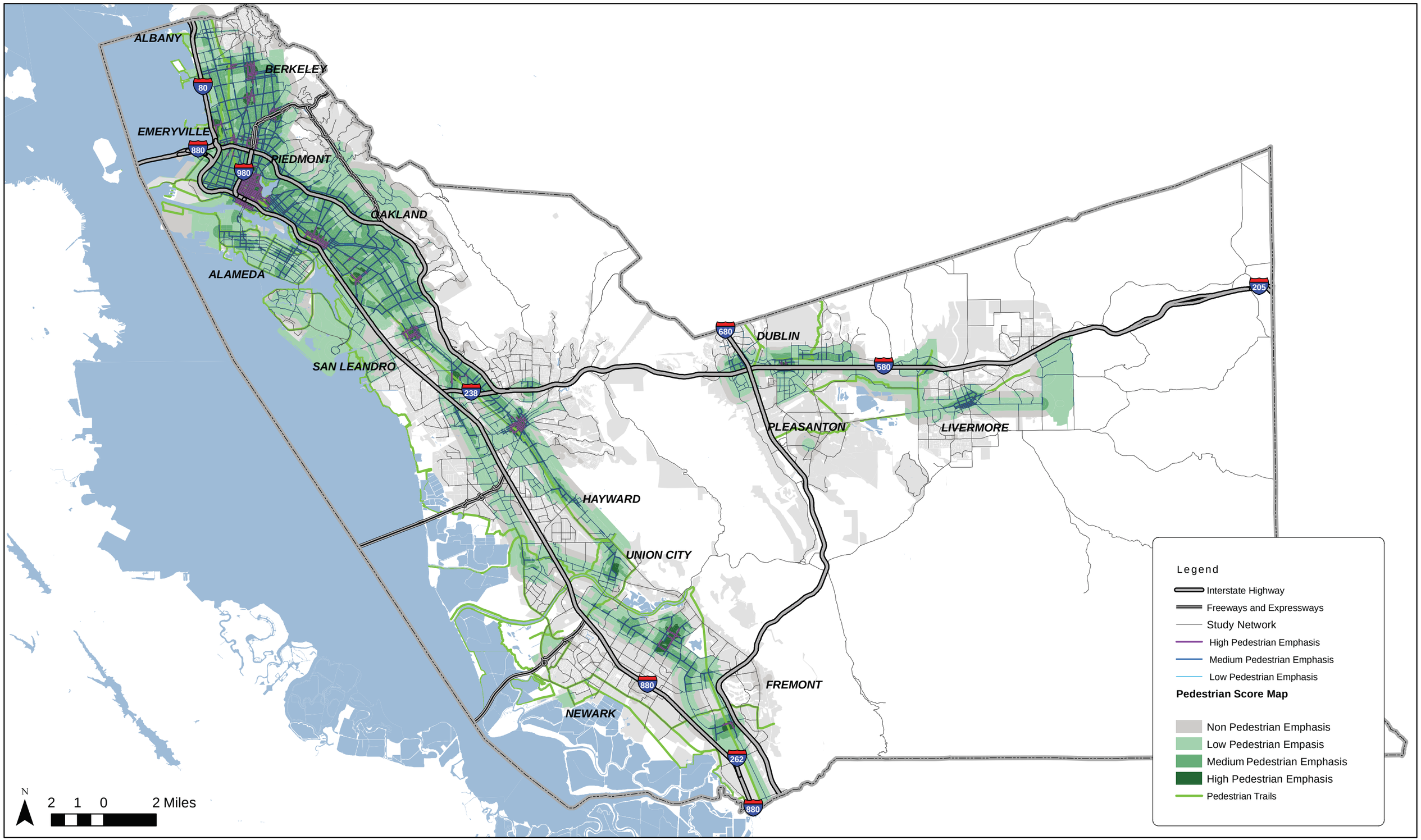


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment E - Bicycle Emphasis*

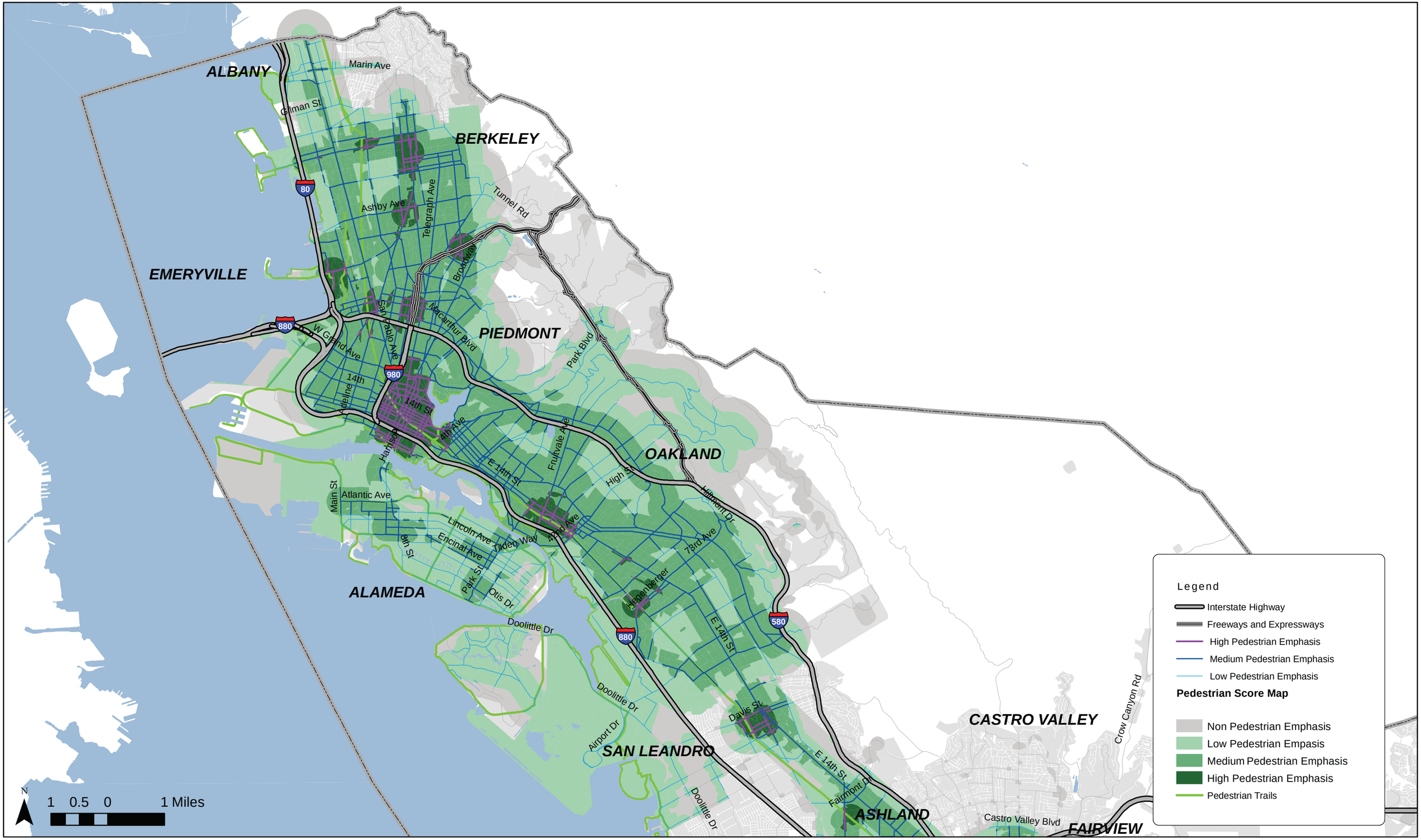
East County



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment F - Pedestrian Emphasis*

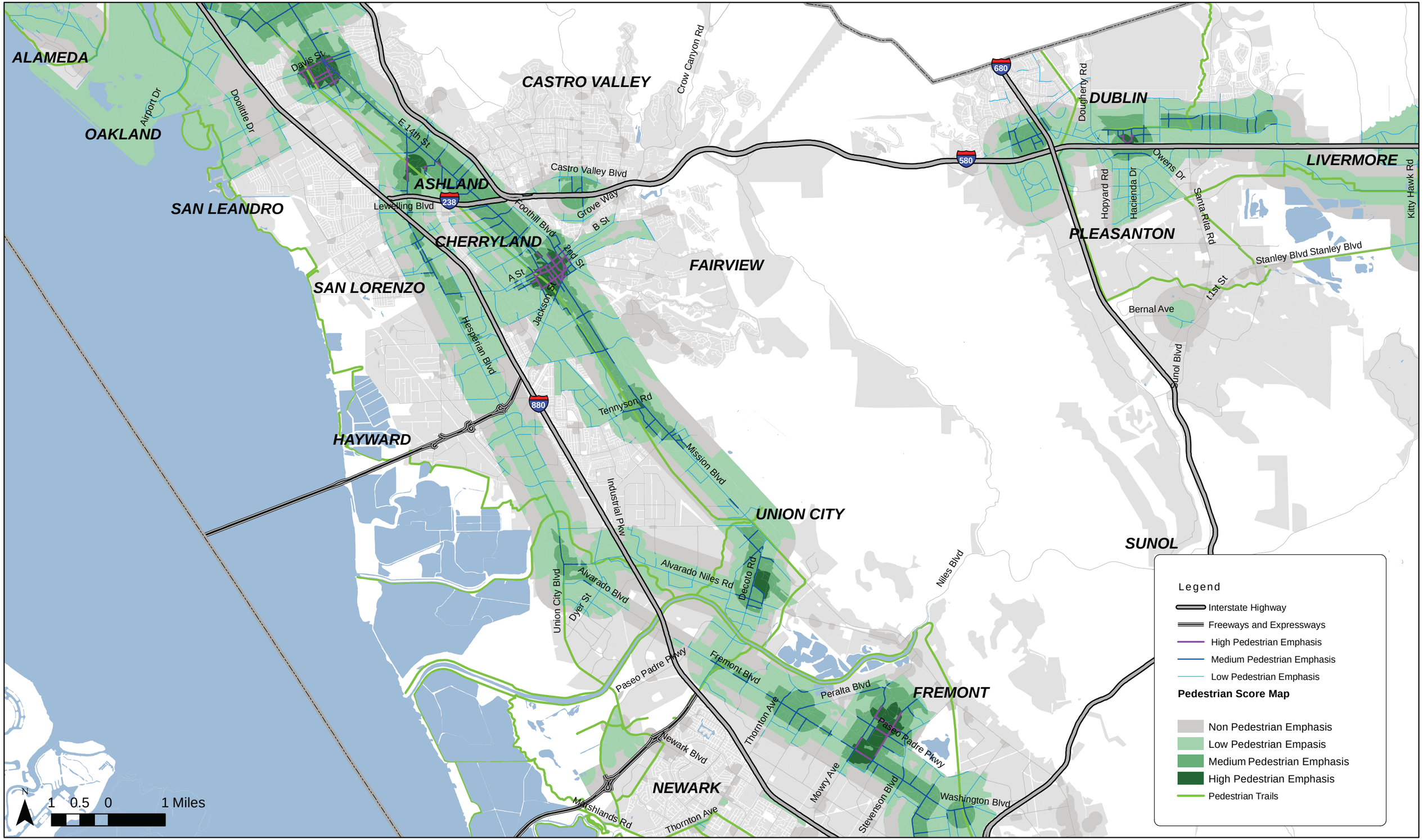


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment F - Pedestrian Emphasis*

South County

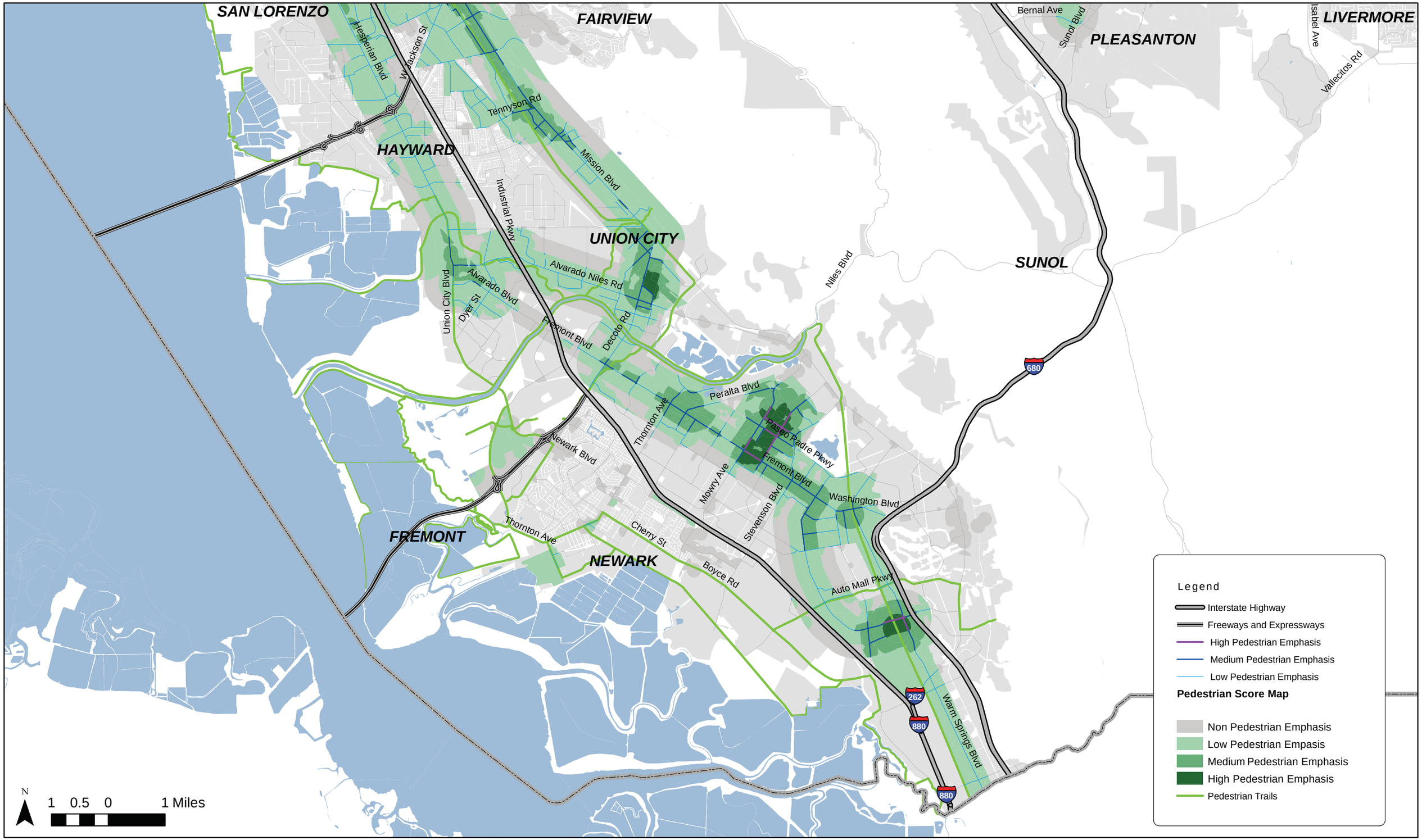


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment F - Pedestrian Emphasis*

Central County

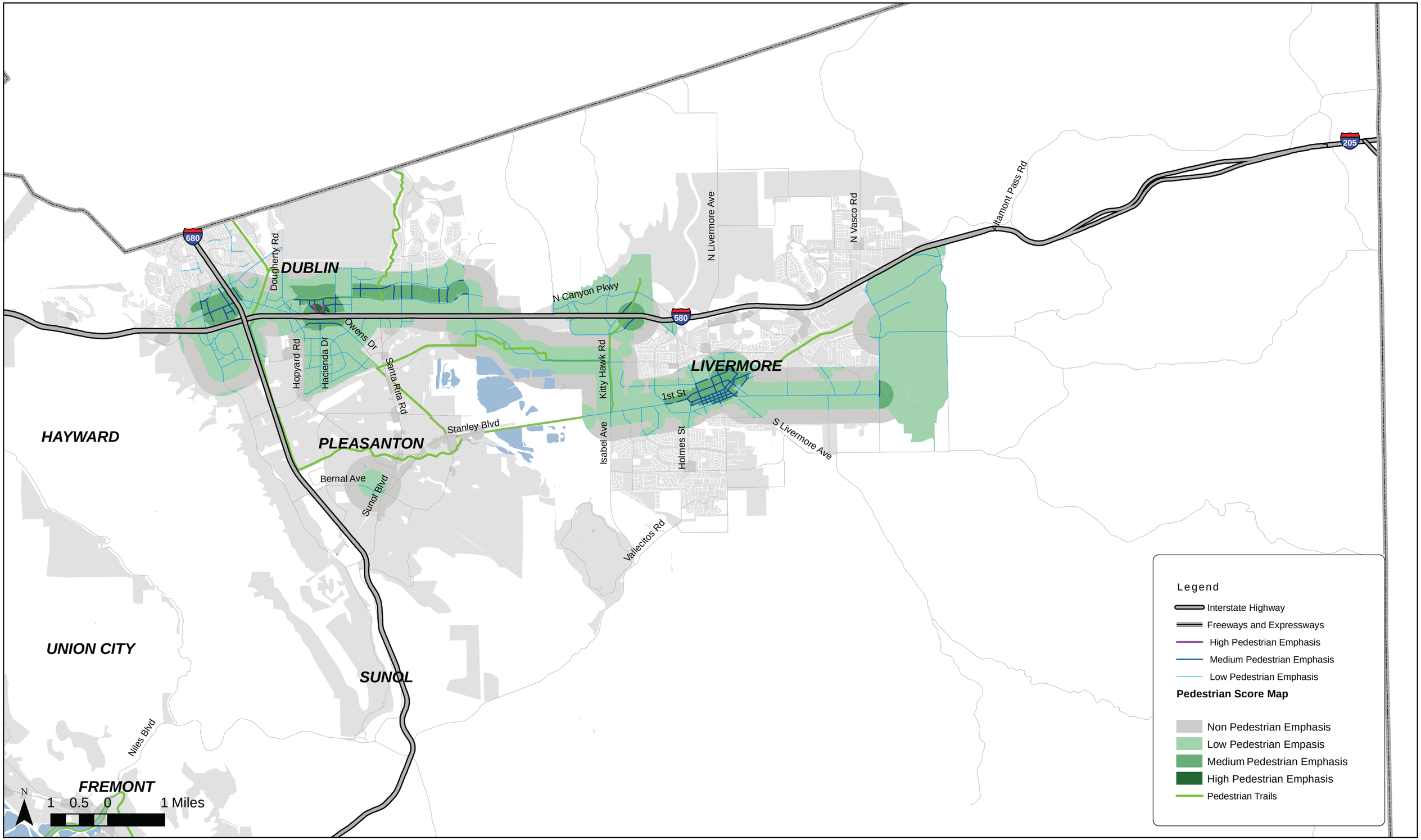


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment F - Pedestrian Emphasis*

South County



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment F - Pedestrian Emphasis*

East County

ALBANY
BERKELEY
EMERYVILLE
PIEDMONT
OAKLAND
ALAMEDA
SAN LEANDRO
HAYWARD
UNION CITY
NEWARK
FREMONT
DUBLIN
PLEASANTON
LIVERMORE
80
880
980
238
680
580
205
262

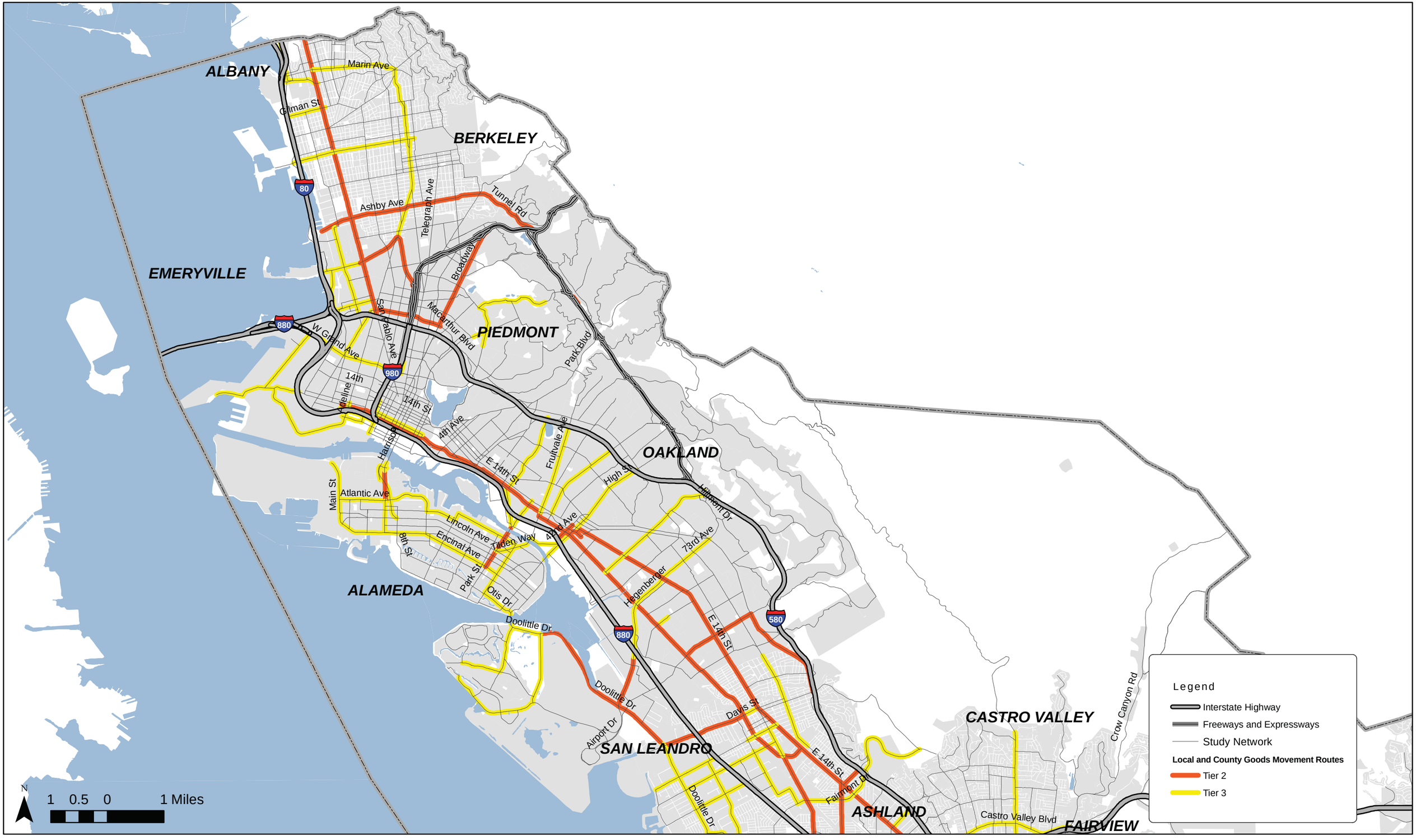
N
2 1 0 2 Miles

Legend
Interstate Highway
Freeways and Expressways
Study Network
Local and County Goods Movement Routes
Tier 2
Tier 3

September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment G - Goods Movement Routes*

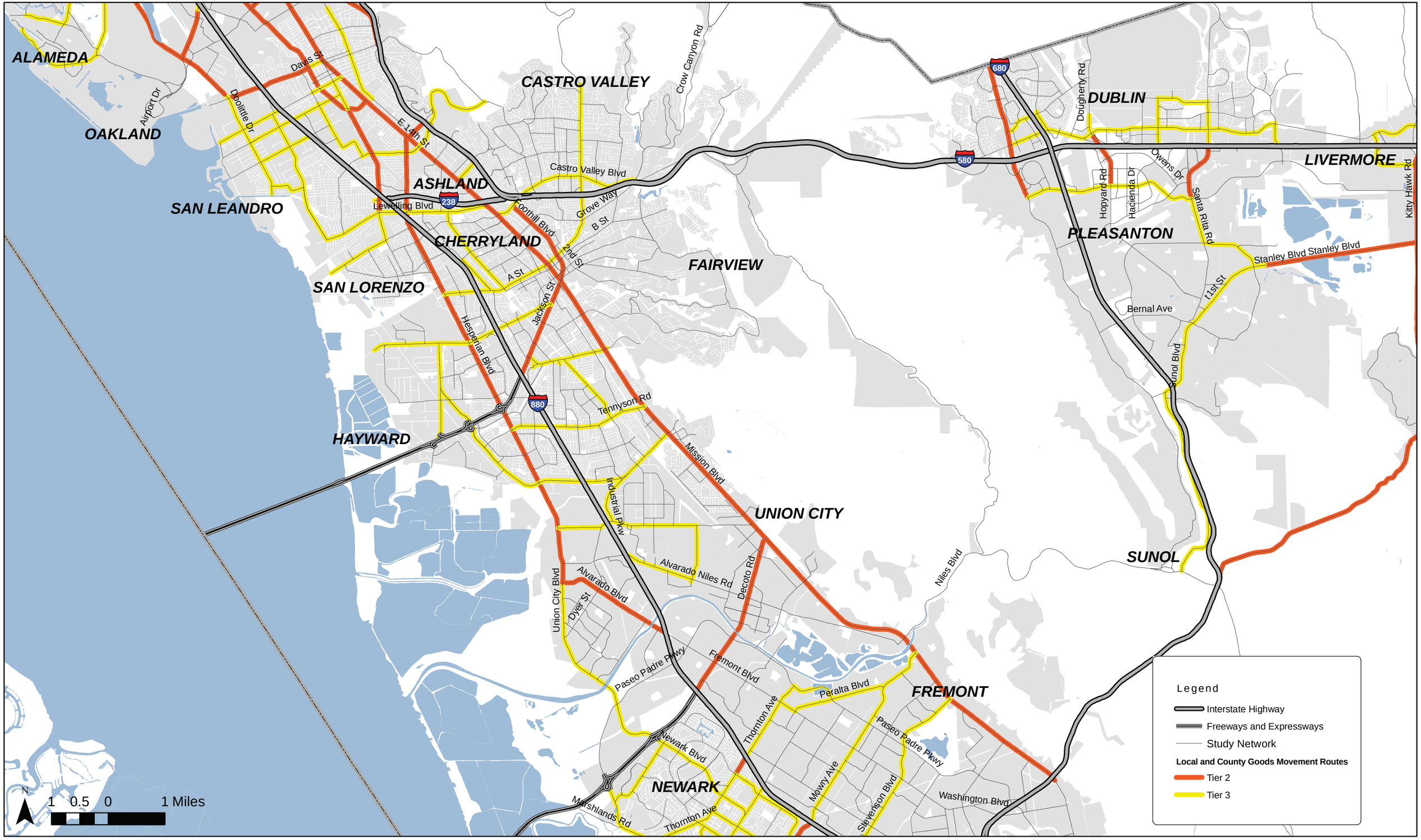


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment G - Goods Movement Routes*

North County

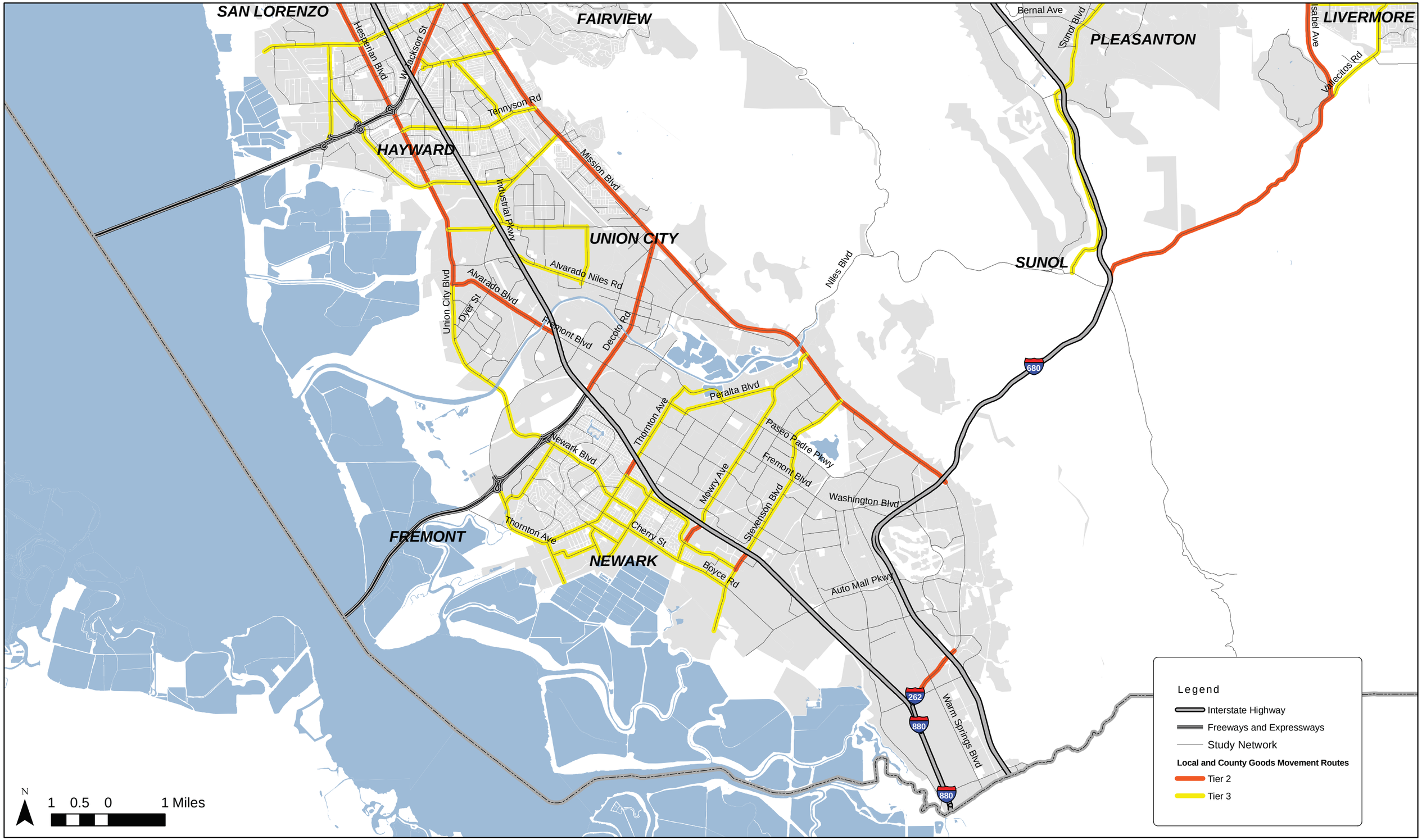


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment G - Goods Movement Routes*

Central County

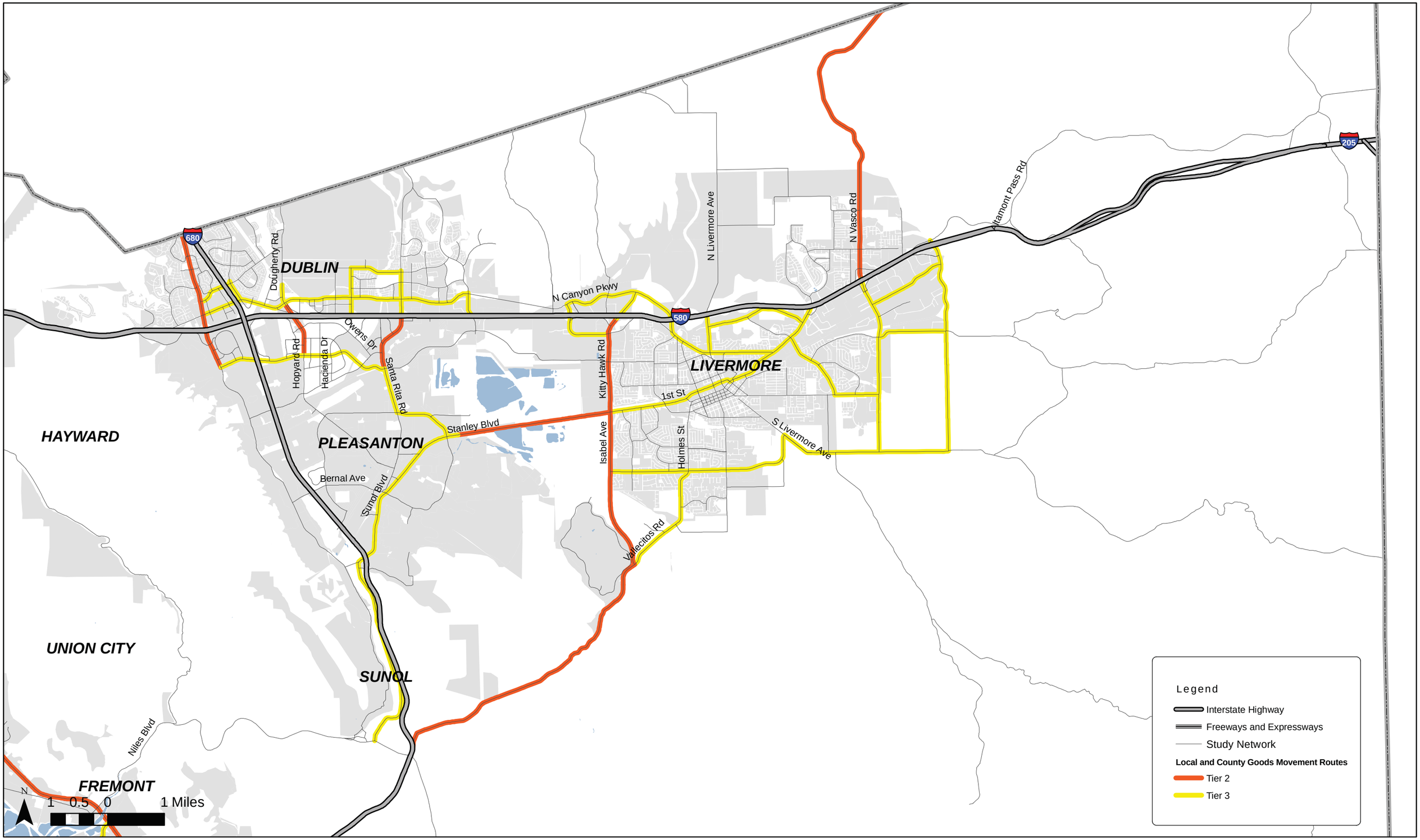


September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment G - Goods Movement Routes*

South County



September 16, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment G - Goods Movement Routes*

East County

BERKELEY
EMERYVILLE
PIEDMONT
OAKLAND
ALAMEDA
SAN LEANDRO
DUBLIN
PLEASANTON
LIVERMORE
HAYWARD
UNION CITY
FREMONT
NEWARK
80
880
980
238
680
580
205
262

N
2 1 0 2 Miles

Legend
- Interstate Highway
- Freeways and Expressways

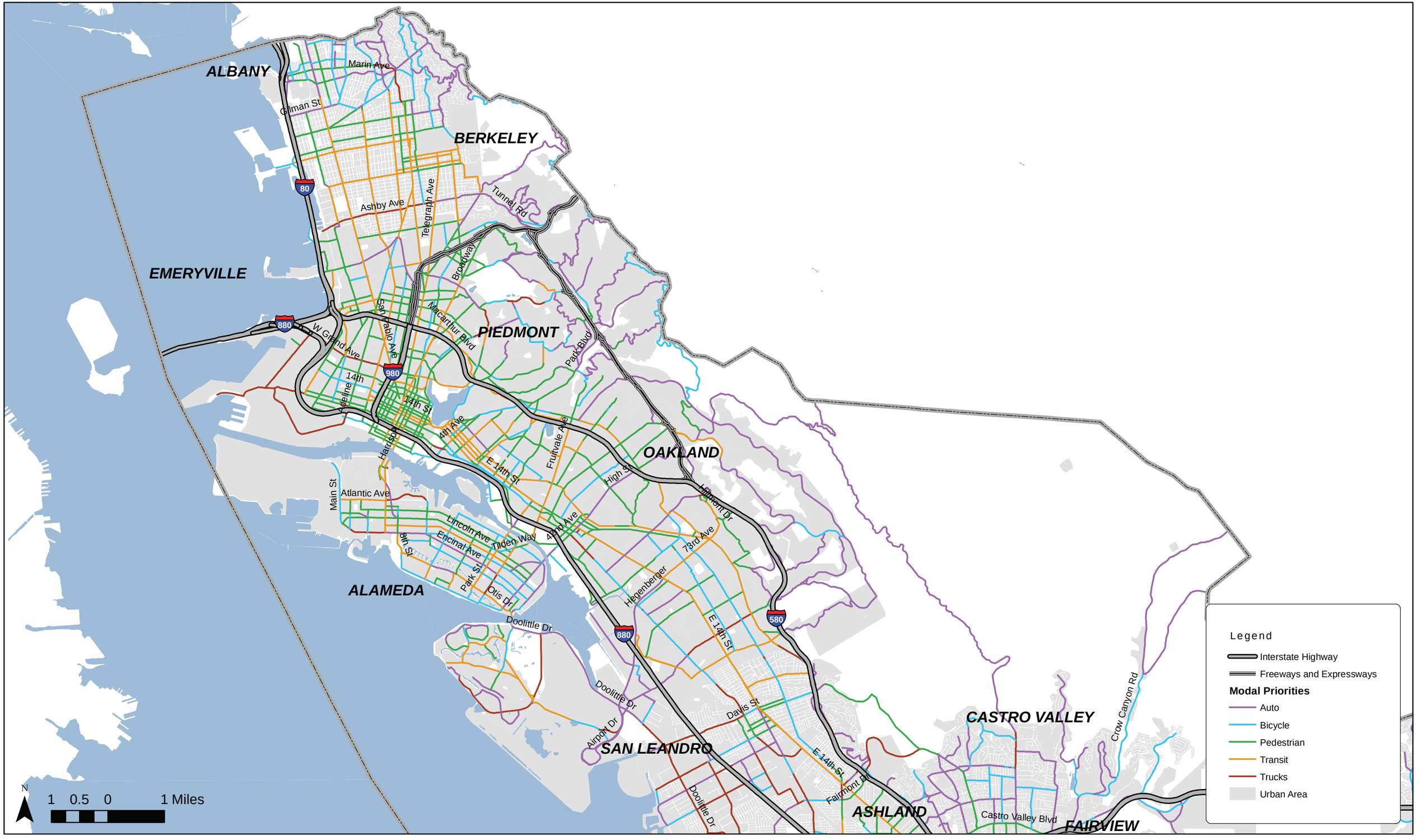
Modal Priorities
- Auto
- Bicycle
- Pedestrian
- Transit
- Trucks
- Urban Area

September 28, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment H - Modal Priority*

Countywide

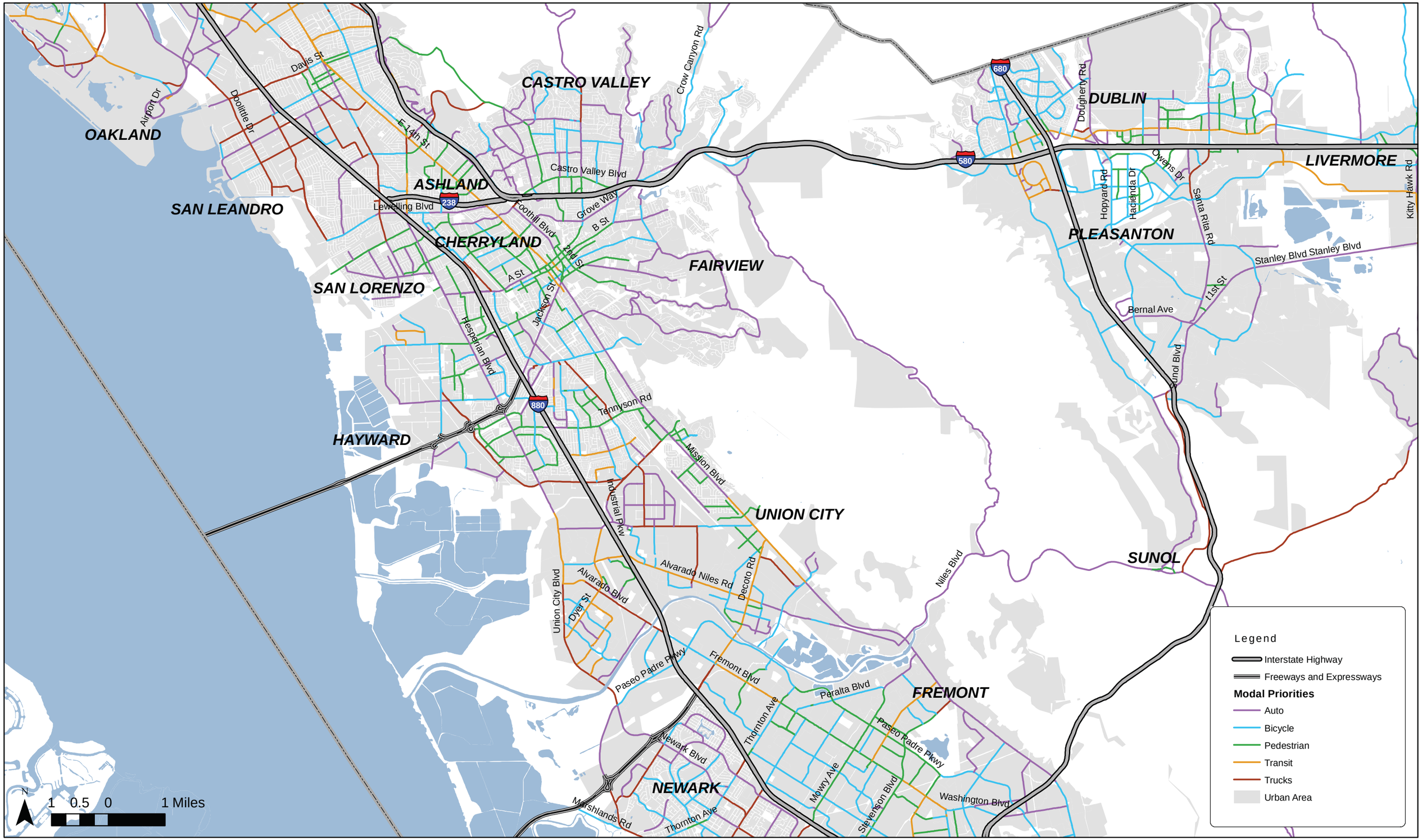


September 28, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment H- Modal Priority*

North County

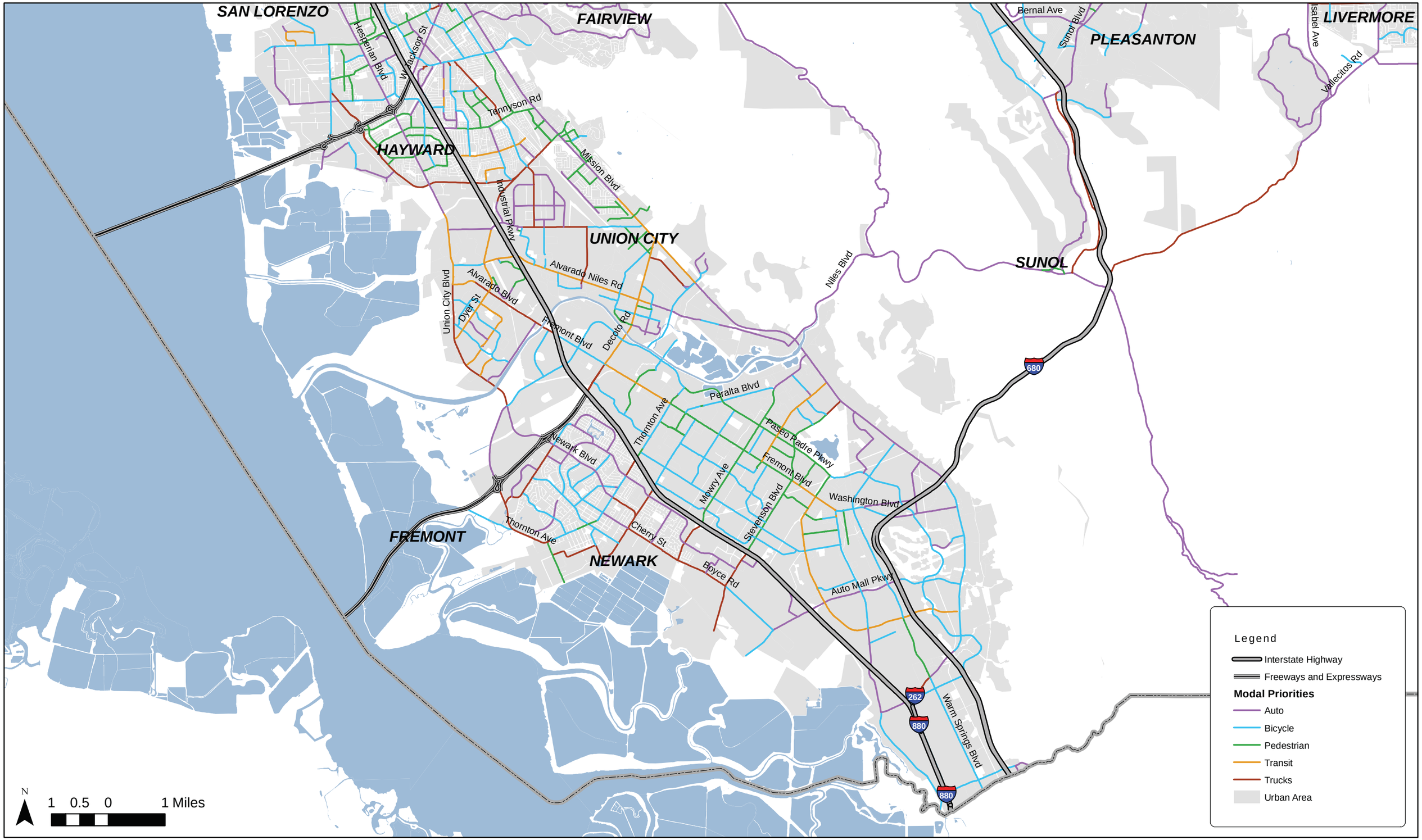


September 28, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment H- Modal Priority*

Central County

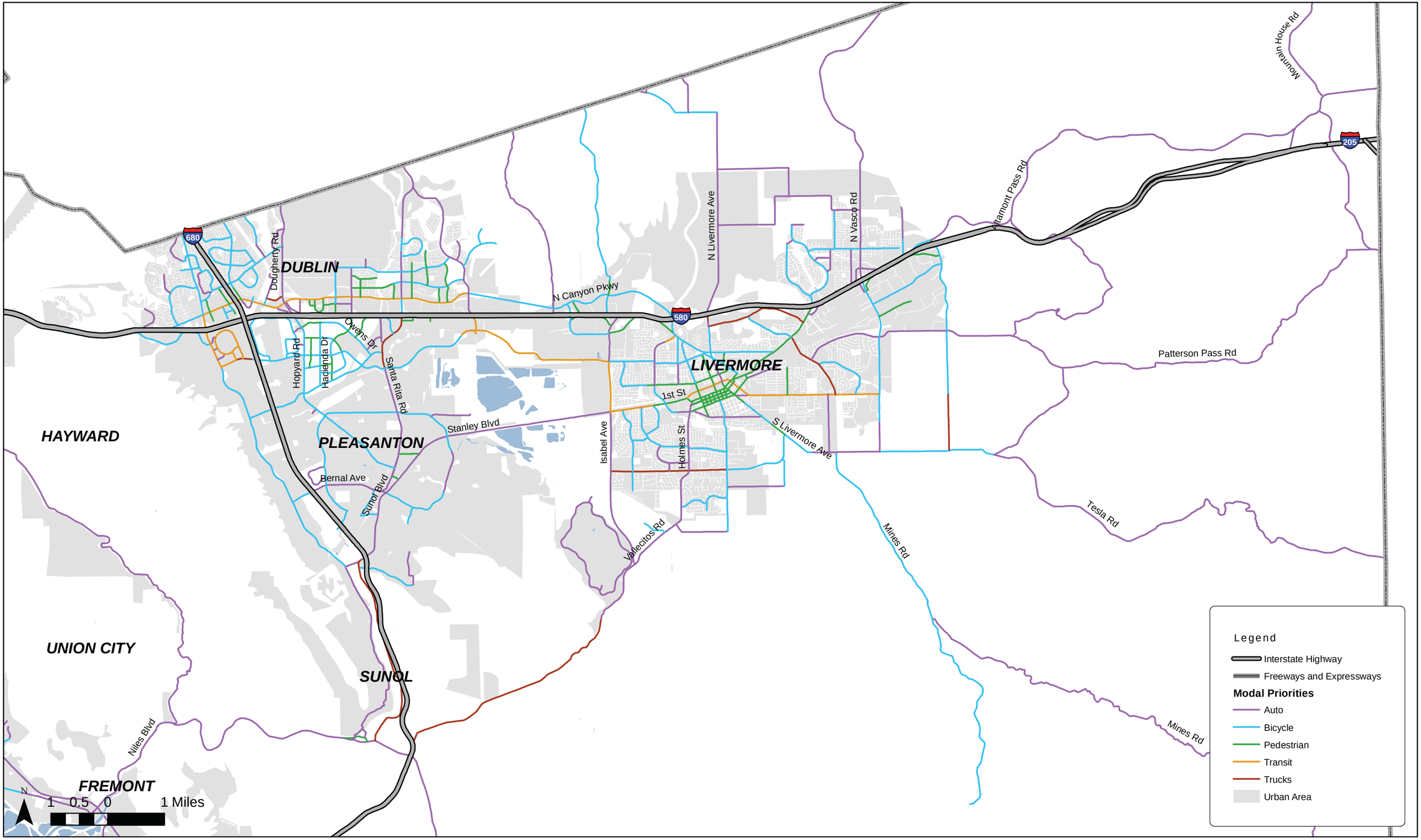


September 28, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment H- Modal Priority*

South County



September 28, 2015

ACTC Multimodal Arterial Study Network

FINAL *Attachment H- Modal Priority*

East County