Existing Conditions: Opportunities & Constraints

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1.0 Introduction

1.1. Program Objectives

The City of Antioch has initiated a program to update its General Plan Land Use Element and Zoning Ordinance, while concurrently preparing a specific plan for its Downtown (Rivertown) Area.

Antioch is situated at the Gateway to the California Delta, located on the banks of the San Joaquin River, at the junction of Highways 4, 160 and the State Route 4 Bypass, in eastern Contra Costa County. With a population of over 100,000 people, Antioch has become the heart of eastern Contra Costa County, offering a variety of employment, shopping and vast recreational activities.

As in many communities, development in Antioch slowed during the Great Recession and the City was forced to reduce in-house staffing levels. Coming out of the recession, the pace of development is beginning to increase; however, the housing and commercial real estate markets have changed considerably over the past several years. In response to the reality of new market conditions and community needs, the City desires to update the Land Use Element of its General Plan. The Zoning Ordinance will also be amended for consistency with the General Plan, and to help stimulate economic development and improve the quality of life in Antioch.

In tandem with the Land Use Element and Zoning Updates, the City desires to develop a detailed program focused on economic revitalization of the Downtown Area located north of Highway 4 along the San Joaquin River. The City was recently awarded a Strategic Growth Council grant to prepare a Specific Plan for the Downtown Area which has already been designated by the Metropolitan Transportation Commission (MTC) as a Priority Development Area (PDA).

Major objectives of this coordinated program are:

1. *Strive to Balance Job Creation with New Housing:* Utilize focused planning, environmental and market analysis to identify and accommodate, through changes in the Land Use Element and Zoning Ordinance, those compatible commercial and industrial land uses for which market demand is strongest in Antioch. Emphasis will be placed on new businesses capable of providing living wage jobs in proximity to the Downtown where higher density housing may be considered.

2. *Design for Feasibility & Sustainability of Downtown Area Plan:* Develop a series of alternatives which are informed by the realities of current market conditions and trends, the economic feasibility of higher density housing, necessary support levels for specialty retail, food and entertainment uses, and approaches which have been tested in other communities; utilize all existing background information including the 2006 Rivertown Waterfront Project study.

3. *Accommodate Compact Residential Uses:* Refine existing residential land use policy and development standards, as appropriate, to better align with market needs and affordability goals of the City, including accommodation of compact single-family housing products in appropriately compatible locations.

4. *Streamline the Development Review Process:* Streamline the permitting process and standards by which projects are evaluated on a City-wide basis, including potentially greater use of administrative permit procedures, in order to reduce the burden on City staff and promote a "business friendly" environment.

5. *Facilitate Informed Public Participation:* Design and implement a process to share background information on market opportunities and physical constraints, in order to facilitate informed community input; provide for follow-up on ideas from residents, land owners, the City's Economic Development Commission, Planning Commission, and City Council as well as "Partner" agencies.

6. *Maximize Self-Mitigation of Combined Program Impacts:* Develop an early profile of potential impacts from both program components, and shape alternatives to avoid significant impacts by balancing the land use programs; utilize integrated environmental review to screen out less-than-significant effects through use of an Initial Study, and focus EIR analysis on other issues.

1.2. Status of Antioch General Plan & Zoning Ordinance

A comprehensive update to the Antioch General Plan was prepared over ten years ago[1]. The City reviews and periodically amends various elements of the General Plan. The Antioch General Plan encompasses a comprehensive strategy for managing the community's future, and represents the community's policy regarding its ultimate physical, economic, and cultural development for the period through 2030. The General Plan is a legally binding policy document to be used by City officials, the development community, citizens, and others to guide decisions regarding the future development and management of community resources, including land, the natural environment, and public services and facilities. The General Plan expresses, in the form of text, maps, and illustrations, the organization of physical, environmental protection, economic, and social activities sought by the community in order to create and maintain a healthful, functional, and desirable place in which to live. The General Plan is contains an overall vision statement, together with 8 separate topical "elements" and an implementation strategy.

The Land Use Element, Chapter 4 of the General Plan, contains the community's goals and policies regarding the types, intensities and distribution of land use. A total of 28 separate land use classifications are identified in the Land Use Element, and spatially assigned to properties as shown in the Land Use Map, shown in Figure 1.2.1. The Land Use Element also contains special policies to guide land uses within ten (10) separate "Focus Areas". Included among these is the "Rivertown/Urban Waterfront" Focus Area. The Land Use Element currently anticipates a buildout population of approximately 128,000 residents and employment of 71,800 jobs (0.93 jobs/resident).

The last comprehensive update to the Housing Element, Chapter 9 of the General Plan, was prepared in June 2010 with a five-year planning horizon. The City is currently working on a further update to its Housing Element in order to address current market conditions and needs in light of the most recent Regional Housing Needs Allocation for Antioch (RHNA), as prepared by the Association of Bay Area Governments, working with the State of California. The Housing Element provides a detailed analysis of Antioch's demographic, economic and housing characteristics as required by State Law, and also provides a comprehensive evaluation of the City's progress in implementing the past policy and action programs related to housing production, preservation, conservation and rehabilitation. Based on the community's housing needs, available resources, constraints, opportunities and past performance, the Housing Element identifies goals, policies, actions and objectives that address the housing needs of present and future Antioch residents.

The Zoning Ordinance prescribes the process and standards by which all land uses and development are reviewed and entitled within the City's boundaries. The Zoning Ordinance is a principle mechanism by which the goals and policies of the General Plan are implemented. The Zoning Ordinance is codified in Chapter 9-5 of the City Code, establishing the procedures applicable to approval and operation of all land uses and development within the City. These regulations are further refined by "districts" and are accompanied by an official Zoning Map which geographically prescribes the boundaries of the various districts. The procedure for establishment of specific plans, such that for the Downtown Area, as well as the standards for already approved specific plan, are also found in the Zoning Ordinance.

[1] LSA Associates, Inc. *Antioch General Plan*, November 24, 2003.

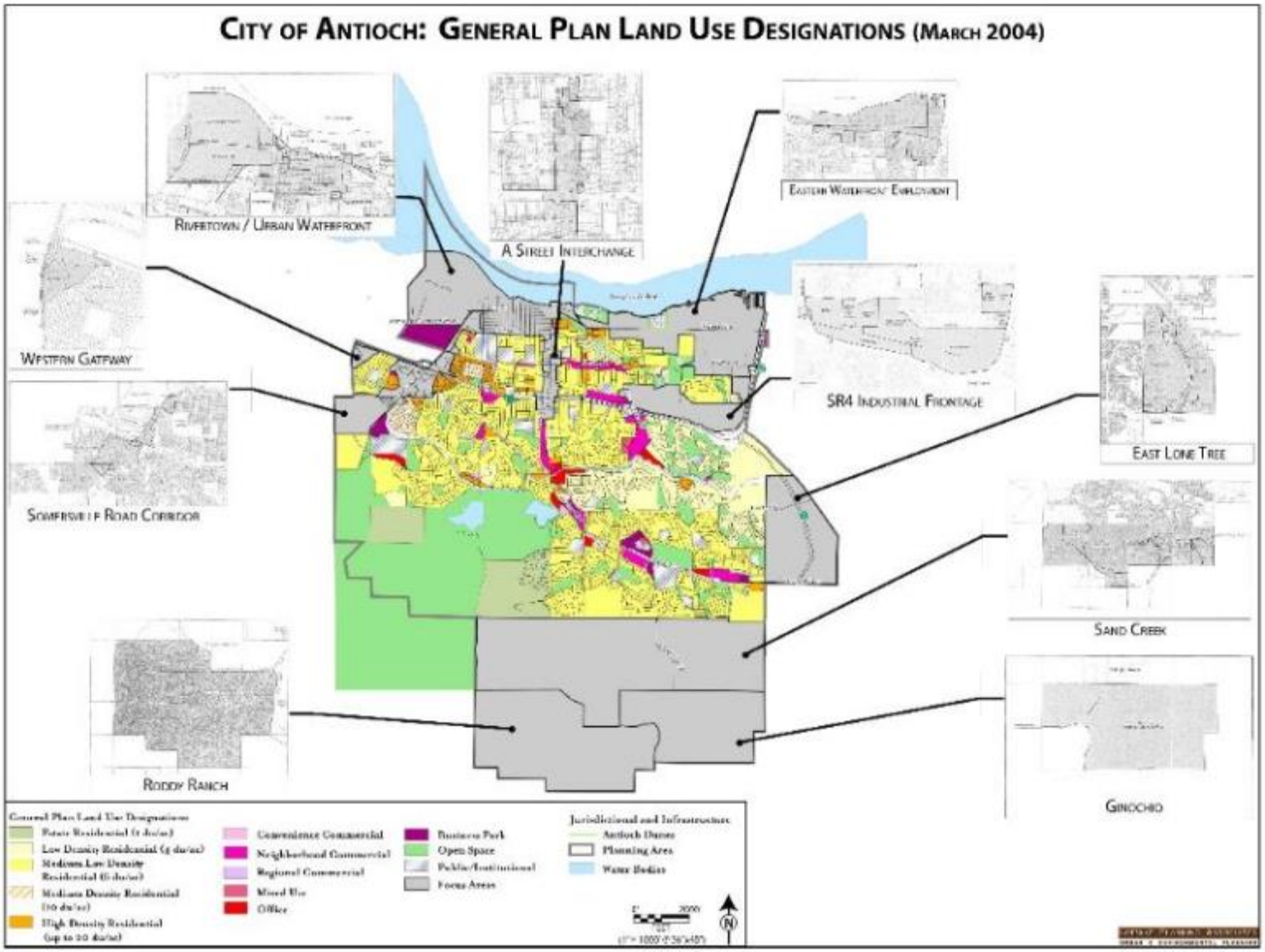


Figure 1.2.1: Antioch General Plan Land Use Map - 2004

1.3. Why a Downtown Specific Plan.

The Land Use Element of the Antioch General Plan (2003) contains the goals and policies which currently guide land uses within the Rivertown / Urban Waterfront Focused Policy Area. The policy direction for this Focus Area includes the following statement:

> *"The Rivertown area is intended to be a community gathering place focused on the waterfront, providing specialty retail, restaurant, and office uses, as well as recreational activities along the riverfront. Emphasis within Rivertown will be on daytime and nighttime activities. Thus, in addition to retail uses, the City will work to attract restaurant, entertainment, and arts-related uses to Rivertown. Other activity areas, such as bocce ball courts and other active recreational uses are also desirable as a means of generating high levels of activity. The General Plan intends the waterfront to be re-established as a major attraction for the downtown and the entire community by providing a range of activities for families and all age groups to enjoy public access and water-oriented recreation, waterfront commercial uses, RV camping, and environmental experiences. The downtown waterfront should serve as an extension of Rivertown commercial areas, and reflect its themes. To facilitate revitalization of the waterfront, improved boat launch facilities envisioned, along with establishment of dry boat storage and one or more recreational vehicle parks. Suitable locations for recreational vehicle parks include Fulton Shipyard Road, the City's former water treatment facility, and the existing industrial facility site on Fourth Street adjacent to the Municipal Marina. This older industrial facility could be redeveloped into a modern business park, with provision made for recreational vehicles adjacent to the marina. The density of new development within the developed portions of the Rivertown/ Urban Waterfront Focus Area may be increased as compared to existing development as a means of increasing use of the Rivertown area. These densities will be achieved by permitting three-story structures in limited areas, and providing public parking lots and/or structures as a means of reducing on-site parking requirements, and encouraging uses, such as residential, on the upper floor of commercial buildings."*

While much of this overall policy direction from the current 2003 Land Use Element may be applicable today, a number of contextual opportunities and constraints within the Downtown Area have changed over the past 10 years. As discussed in Chapters 2.11 through 2.14 below, both residential and commercial market conditions have since changed. In addition, as discussed in Chapters 2.4 through 2.10 below, the physical and environmental conditions affecting future development and operation of land uses within the Downtown include subtle but important differences from conditions in 2003.

The currently adopted land use classifications within the Rivertown/Urban Waterfront Focused Policy Area are shown in Figure 1.3.1 below. Figure 1.3.2 shows these current classifications in the context of the refined boundary for the Downtown Specific Plan Area. The current Rivertown/Urban Waterfront Focus Area contains a set of the detailed policies directed toward future development within this area (included in Appendix 4.7). The Downtown Specific Plan program will evaluate the land use classifications and policies from 2003 in the context of current opportunities and constraints as presented in this report.

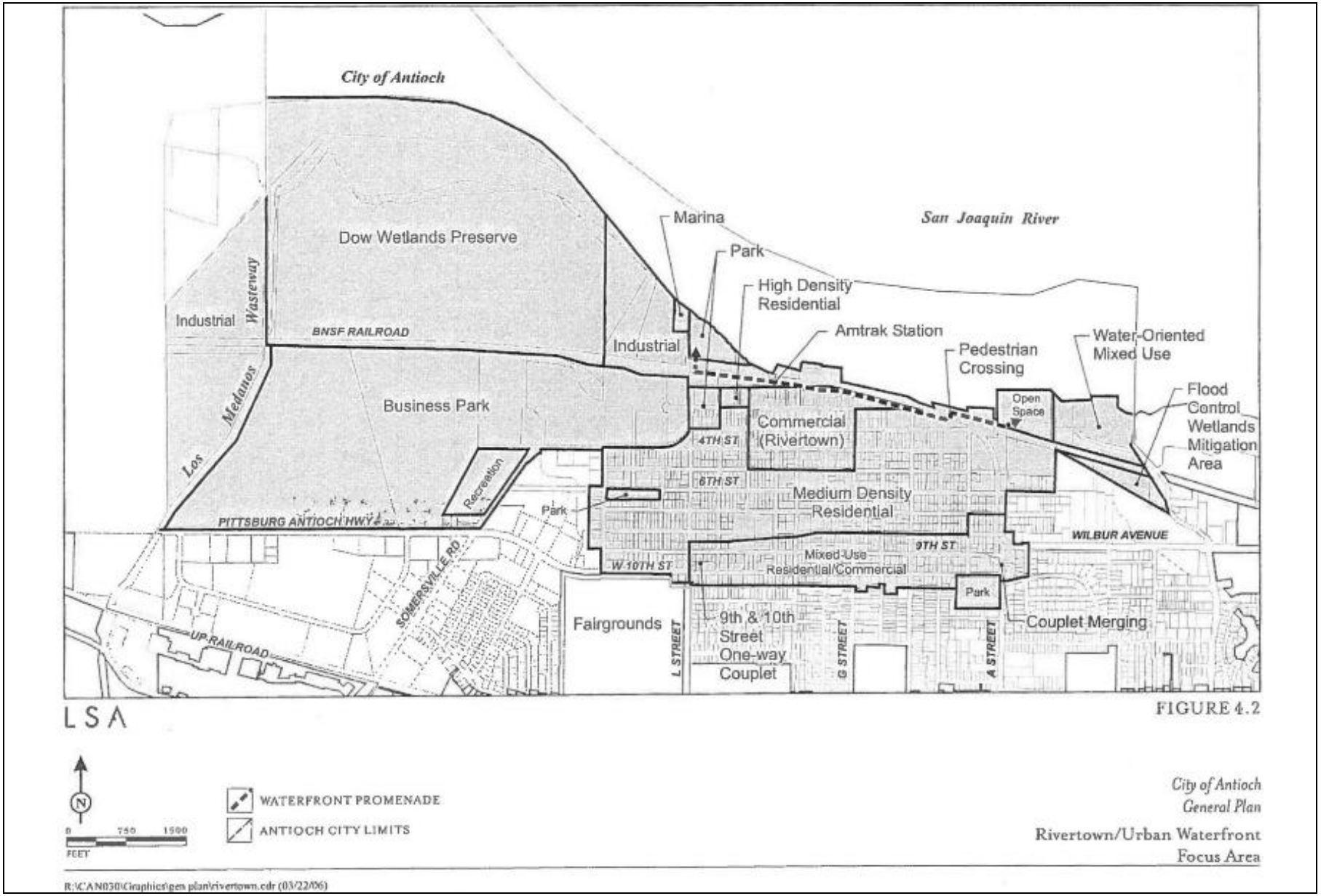


Figure 1.3.1: 2003 General Plan Rivertown/Urban Waterfront Focus Area Diagram

Figure 1.3.2: 2003 Land Use Designations within Downtown Area

1.4. Purpose of Land Use Element Update

As noted in Chapter 1.2, The General Plan Land Use Element was last comprehensively updated in 2003, although a number of individual amendments have been processed over the past decade. The current update program is intended to address further changes to the goals and policies of the Land Use Element needed to address current and anticipated future market conditions and community needs.

1.5. Purpose of Zoning Update

As one of the principal tools for implementing the General Plan, the Antioch Zoning Ordinance will be reviewed and updated for consistency with revisions to the Land Use Element, and to help facilitate realization of the objectives outlined in Chapter 1.1, including balancing job creation with new housing, supporting a feasible and sustainable specific plan program for Downtown Antioch, providing for accommodation of a wider range of housing product types such as compact single-family in appropriately compatible locations, and streamlining the development review process.

1.6. Integrated Planning Approach

The City of Antioch has chosen to conduct the community outreach, planning and environmental review processes for the Downtown Specific Plan concurrently with efforts to update the General Plan Land Use Element and Zoning Ordinance. This report therefore addresses opportunities and constraints associated with achieving the primary program objectives for all three components of the combined program together. Where issues have been identified specific to the Downtown Area, (aging infrastructure and constraints associated with the BNSF Railroad Line, for example) the following chapters identify the opportunities and constraints separately from those applicable to the community as a whole. Conversely, a number of important external market factors influence the Downtown in much the same way as the community as a whole, and are therefore addressed in a unified approach. As discussed in Chapter 3.6, following the preparation and selection of a preferred set of alternatives for all three components of the program, the environmental review process will be conducted concurrently. However, the environmental analysis prepared for the Downtown Specific Plan will be completed at a finer level of detail ("Project" level analysis) in order to further streamline the process for accommodation of new land uses and improvements.

1.7. Community Outreach Process

Initial "stakeholder" interviews were completed in October and November 2014 involving a wide range of potentially affected resident groups, developers, civic groups, real estate professionals and service providers, as summarized in Chapter 2.17 above. Additional community outreach efforts to be undertaken throughout this program include:

- Initial Community Workshops: An initial community workshop meeting was held on November 12, 2014 at the Prewett Park Community Center, during which City staff and consultant presentations will be made and both comments and questions from community participants were provided. A second community meeting was held on November 19, 2014 before a joint session of the City's Economic Development Commission and Planning Commission, where similar presentations were made and comments/questions from both the public and Commissioners were provided . All oral and written comments received at the community workshop meetings have been inventoried and are summarized in Appendix 4.9.

- Website: As further discussed in Chapter 3.7, the City and its consulting team have developed a project page linked to the City's website which highlights the various components of this program, and provides continually updated information on the schedule, opportunities for public input, and contact information.

- Use of Information Gathered: Information collected during the stakeholder interviews, presentations from the community workshops, and from website responses will be tracked, organized and updated by city staff and the consultant team for use in guiding research and development of work products for the Land Use Element/Zoning Ordinance Update and Downtown Specific Plan. As work products are prepared, the summary reports will provide a correlation of comments received and how the resulting policy and ordinance updates have been reached..

- Feedback on Draft Work Products: The proposed draft Downtown Specific Plan alternatives and General Plan Land Use Update (LUE) (and related General Plan amendments), Zoning changes and Ordinance updates will be made available to stakeholders and other interested individuals and groups in advance of scheduled hearings to receive feedback. Links to these draft work products will be posted on the project website page when they have been completed to facilitate community awareness and input. Comments received will then be evaluated to judge the effectiveness of the work products, and to consider further revisions and refinements.

- Public Meetings: As further detailed in Chapter 3.8, a series of public meetings will be held before the City's Planning Commission and City Council over the next 16 months as the initial planning alternatives are developed, and again as the draft LUE Update and related Zoning changes, and the Downtown Specific Plan are being reviewed. Public involvement and input at each of these meetings is strongly encouraged.

1.8 Executive Summary

The City of Antioch has embarked on a process to update its General Plan Land Use Element and Zoning Ordinance, while concurrently preparing a Specific Plan for the Downtown Area. This review of existing conditions has revealed a number of important opportunities and constraints affecting the City's ability to advance on the principal goals of the Antioch General Plan, including stimulating job creation to achieve a better balance with housing; supporting a feasible and sustainable specific plan program for Downtown Antioch; providing for accommodation of a wider range of housing product types to meet the needs of current and future residents; and streamlining the development review process. Following are the most important findings of this initial analysis:

Land Resources

1. The Downtown Area contains 17 identified key opportunity sites with an aggregate land area estimated at over 70 acres.
2. A number of other major vacant and under-developed properties directly adjoin the Downtown, representing important resource opportunities for economic activity within the Downtown.
3. Major vacant property resources remain within the Sand Creek and Ginochio Focus Areas, the East Lone Tree Specific Plan Area, the Hillcrest Specific Plan Area, and the Eastern Waterfront Employment Area along Wilbur Avenue.

Perceptions about Antioch

4. Crime is a leading constraint in Antioch; the levels of both actual crime and the public perception of crime risk are perceived in the business community as substantial obstacles to investment in Antioch, both Downtown and City-wide, and as contributing directly to a reduced quality of life.
5. Downtown districts in adjoining communities are perceived as a more desirable place to shop and live due to their superior amenities, relatively lower levels of crime, and the superior physical condition of properties.
6. High commercial vacancies and remaining residential foreclosures send a negative message to prospective Downtown Area employers, merchants and home purchasers.
7. The high visibility of homeless and disadvantaged individuals present in the Downtown Area is thought to be compounded by a concentration of publicly supported shelters, half-way houses and treatment facilities.
8. Additional owner-occupied housing in the Downtown may improve discretionary purchasing and stimulate improved property maintenance, thereby helping to offset the concentration of subsidized housing, while improving property values and supporting economic activity.
9. Employers and employees with children who can afford to do so tend to look outside of Antioch in order to gain access to better performing public schools.
10. The relative lack of restaurants, coffee shops and other uses where people gather to socialize has weakened the Downtown business environment, depressed real estate values, and diminished quality of life Downtown.
11. Businesses are discouraged from locating in the Downtown due to a lack of cell phone coverage, localized flooding, and the high levels of noise from the horns of passing trains.

12. The loss of themed festivals and public events within the Downtown Area contributes to the decline in business activity and quality of life in the community as a whole.
13. Current zoning regulations are considered a serious obstacle to occupancy of vacant ground floor commercial space in the Downtown by professional and administrative office uses.
14. Congestion on State Route 4 seriously constrains Antioch as a place to locate any business which is dependent on roadway access to markets outside the City.

Transportation

15. There are a number of regional transportation improvements expected to be completed, including the widening of the State Route 4 freeway and the construction of eBART and its associated Hillcrest Avenue station.
16. There have been discussions regarding a potential ferry terminal in downtown Antioch that could have intermodal connections to rail and bus transit.
17. There is a significant opportunity for reducing reliance on automobile travel by creating a downtown shuttle bus connection to the planned Hillcrest eBART station.

Air Quality

18. Modeling results show that trains on the BNSF rail line through the Downtown could pose a significant cancer risk (above 10 in one million excess cancer risk) for residents of any new housing developed without special mitigation within 200 feet of the line.
19. The modeling also shows that trains on the UP rail line extending through the Hillcrest Station Specific Plan Area could pose a significant cancer risk for residents of any new housing developed without special mitigation within 50 feet of this rail line.

Noise Environment

20. The current noise environment along the Downtown Area waterfront exceeds 75 dBA CNEL within about 200 feet of a grade crossing, making residential development unacceptable within this distance.
21. Under current operating conditions, the maximum noise levels resulting from train horns exceeds 100 dBA L_{max} within about 200 feet of the tracks; this is the highest level that can normally be mitigated to acceptable interior levels in new residences.

Infrastructure Capacity

22. Sanitary sewer main line pipes within the Downtown built prior to 1960 contain cement mortar joints which are prone to leakage; the high groundwater table in this area can lead to infiltration and inflow problems for such older lines.
23. Current capacity restrictions in the sanitary sewer trunk line from the Wilbur Overpass to the Antioch Pump Station located east of the Downtown Area will be compensated for by DDSD's phased construction of new force mains and upgraded pumps, which will support service to new development within the Downtown Area.

Biological Resources

24. Several Downtown opportunity sites adjoin the shoreline where a high number of special-status fish, plant and terrestrial wildlife species and related habitats occur; impacts from development within these areas may be mitigated through restoration of tidal marsh and emergent wetlands.

Potentially Dangerous Buildings

25. The City of Antioch has identified 57 properties located north of Highway 4 which contain structures which are potentially unsafe during major seismic events.

Market Opportunities and Constraints

26. Only 10 percent of Antioch's employed residents work within the City of Antioch; the remainder travel to their place of employment in other areas throughout the Bay Area.

27. Among the four East Contra Costa County cities, Antioch's recent crime rates are the highest on a per-capita basis, with violent crime rates being higher than those observed in Brentwood, Oakley, or Pittsburg.

28. It is anticipated that industry specialization in sonstruction and health care will become increasingly important sources of job growth in Antioch over the next several years; jobs in these industries are likely to support ongoing demand for medical-related office as well as service industrial space.

29. Antioch's industrial businesses make power, building products, machinery, tools, furniture, packaging materials, and a variety of other items. Local businesses also repair and/or store autos, boats, and RV's. This manufacturing and service role is critical to building the broader economy and could present a branding opportunity for the City's economic development efforts going forward.

30. Service industrial buildings with yard space present an opportunity for Antioch to expand its business and job base. Service industrial users typically occupy a single-story building with industrial or flex space and a small office component, accompanied by a substantial yard space for equipment, storage, and/or manufacturing.

31. Accommodation of additional small office users to fill existing vacancies in Downtown buildings could create the momentum to help attract a larger office user over time.

32. Antioch currently captures significant retail sales within department stores, new auto sales, and auto parts/repair, but is experiencing substantial leakage in a variety of other categories, including apparel, restaurants, and furniture.

33. Opportunities exist to support artisan retailers in the Downtown Area, including start-up artisan and craftsmen product shops. This type of use may be combined with evening music events at El Campanile Theatre and/or other festivals, and could support a spin-off opportunity for other new or established uses that emphasize evening and weekend retail activities, including Delta-based recreational retail and eateries. In the near-term these users would occupy existing spaces (and help fill vacant spaces, perhaps even in upstairs spaces).

34. The concentration of industrial space near Downtown may present some short-term opportunities for recreation-related industrial uses; however, in the long term it may be in the City's best interest to encourage relocation of some industrial users to Wilbur Avenue.

35. Antioch's current home values represent approximately 60 percent of the values that were registered during the "peak" of the housing "boom" in 2006. Nonetheless, home values have been steadily rising since 2011, and the prospects for future price appreciation are favorable.

36. Substantial additional residential development is currently planned for Antioch and the surrounding area that can satisfy growth pressures for many decades to come, but may compete with any planned or desired new housing in the Downtown Area.

37. Addition of the e-BART station in 2017 will position the Hillcrest Station Area Specific Plan Area for transit-oriented development including higher-density housing that caters to commuters and touts the convenience of commuting by rail. This type of development is a growing trend in the Bay Area, as consumers seek alternatives that provide lower-cost, low-maintenance, and

ease of access to various destinations. A key to the success of this type of development will be to include a mix of uses, especially shopping, dining, and personal services for residents of the area to enjoy.

38. The County Fairgrounds site could provide a long-term opportunity for housing, as it is a sizable, well-located parcel in the heart of the City, with good access to a variety of transportation options and amenities including the Downtown, marina, freeway, and shopping.

Higher Density Housing in the Downtown

39. In some areas across the nation, higher-density housing is becoming a more commonly accepted product type for a variety of demographic cohorts, including millennials, empty-nesters, and young families. Use of higher densities may be appropriate in specific circumstances where compatible with nearby land uses and supported by local infrastructure.

40. High-density housing prototypes such as townhomes or condominiums at 15 to 40 units per acre are not financially feasible Downtown in the near-term, given current real estate values (values would need to increase by 100% to 125% percent for these types of housing products to become feasible).

41. Opportunities may exist Downtown in the near term for small-scale developments at more moderate densities, such as compact small-lot residential at up to 12 units per acre. While Downtown may appear to be a logical location to support higher density housing given the general scale of development and the potential to add urban amenities, other areas (most prominently the Hillcrest Station Area) may present stronger prospects.

42. While it is possible to improve the financial feasibility prospects of higher-density downtown housing through direct subsidy or various means of cost reduction, the scale of subsidy that would be required is likely too high for the City to bear at the present time. For a 1-acre project, subsidies in the range of $1.5 million on the low end to $12.0 million on the high end will be difficult to obtain in today's financial climate. Alternatively, reductions in construction cost rates would also serve to increase financial feasibility of residential development, but are not likely to be achievable given prevailing construction cost dynamics.

    The City's consultants are continuing to evaluate the feasibility of for-sale senior housing within a range of densities. The findings of this analysis will be included in the next phase of work for the Downtown Specific Plan.

43. In the long-term, if real estate values continue to increase and the Downtown becomes a more appealing place to live, some of the more compelling Opportunity Sites for higher-density housing include the relatively large, vacant properties with waterfront views, including Sites #1, 6, 10, 11, 12, 14, and 15 (see Figure 2.3.9); each of these sites is located within a ½ mile of the Downtown core and would help to activate a 24/7 presence.

44. In the medium-term, Opportunity Site #16 could also present an interesting residential development opportunity for additional compact single-family or townhouse development.

2.0 Existing Conditions

2.1. City Boundaries & Downtown Specific Plan Area

Consistent with the primary program objectives listed in Chapter 1.1, this combined program will lead to preparation of a series of correlated alternatives for the Downtown Specific Plan as well as the Land Use Element and Zoning Ordinance Updates. Following review of these initial alternatives and based on policy direction from the Planning Commission and City Council, a "preferred" plan will be refined. The preliminary boundaries of Downtown Specific Plan are identified in Figure 2.1.1 below. As noted in Chapter 1.3 above, the boundaries delineated in Figure 2.2.1 differ slightly from those of the 2003 Rivertown/Urban Waterfront Focus Area. In addition, the Antioch City Limits have been modified since 2003, with several properties previously outside the City Limit but within the Planning Area Boundary having been annexed by action of the Contra Costa Local Agency Formation Commission, LAFCO (see Figure 2.1.2). This constraints analysis has been prepared concurrently for both the Downtown Specific Plan and the City-wide Land Use Element and Zoning Ordinance updates using the boundaries reflected in Figure 2.1.1 and Figure 2.1.2.

Figure 2.1.1: Downtown Specific Plan Area Boundary

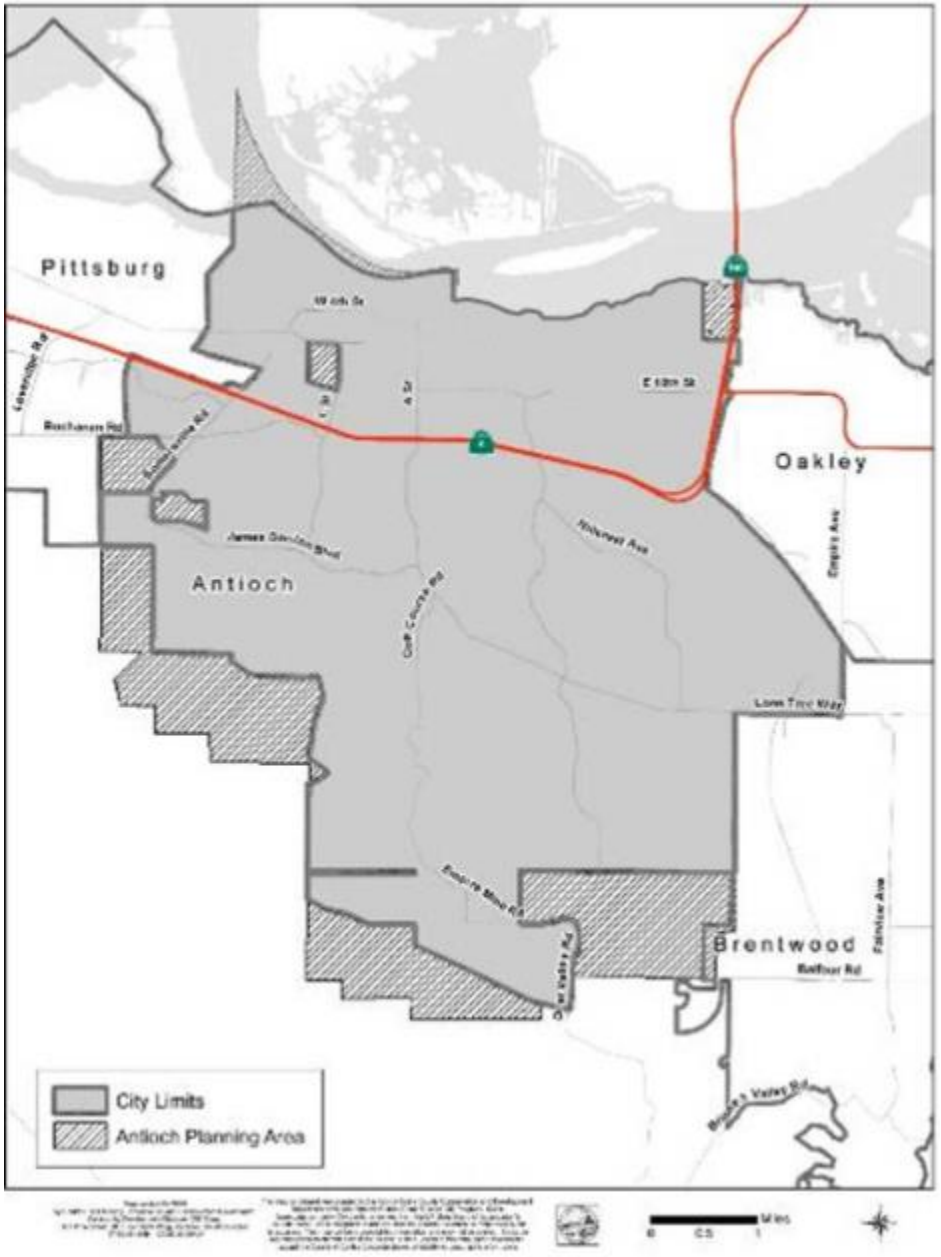


Figure 2.1.2: LAFCO Approved City Boundary and Planning Area Boundary

2.2. History & Pattern of Development

According to the current (2014) market research presented in Chapter 2.10 below, the housing supply in the Downtown Area is characterized by lower incomes (28% below the poverty line compared to 11% City-wide), a slightly smaller share of seniors age 55+ (19% compared to 22% City-wide), more than double the percentage of renters (76% Downtown compared to 36% City-wide), and almost three times the percentage of households living in structures with 5 or more units (35% Downtown compared to 12% City-wide).

Figure 2.2.1: Senior Housing on 7th at G Streets

Figure 2.2.2: 2nd Street at G Street Looking West

Intersections have been improved with red brick pedestrian crossings, punctuated by curb transitions to accommodate handicap access. The diversity and occupancy of ground floor retail uses has declined over the past 10 years in the Downtown Area. Jewelry and apparel stores have been replaced along Second Street with a number of personal service uses. Vacancies along the Second Street corridor have increrased over the past 10 years as rents have declined, but have recently shown signs of partial recovery (see Chapters 2.12 and 2.15).

Antioch's Downtown Area is characterized by a traditional grid street pattern, with two-story commerical storefronts adjoining the sidewalks. Mature trees line several of the Downtown streets, many of which accommodate on-street parking, separated from the sidewalks by planter strips, benches and other street furniture.

Figure 2.2.3: 2nd Street at G Street Looking East

The number of restaurants in the Downtown Area has declined over the past 10 years. A few remaining examples of themed eateries remain. As reviewed in Chapter 2.15, residents, business owners and real estate professionals interviewed for this report consistently reference the desirability of specialty food uses as an important amenity for the Downtown.

Figure 2.2.4: SW Corner of G Street at 4th Street

Figure 2.2.5: Early 20th Century Downtown Housing

The older part of the City, primarily north of Highway 4, was built mostly prior to the 1950's, and is characterized by a lower rate of homeownership and a larger degree of multi-family development. The Downtown Area east of G Street contains numerous examples of distinctive Victorian, Queen Anne, Craftsman and other period architectural styles.

The newer part of the City, located south of Highway 4, was built mostly in the 1980's, 1990's, and early 2000's and is characterized by a larger share of single-family detached units, larger household sizes, higher rates of homeownership, and higher home prices. The southern portion also contains a large quantity of City's undeveloped land (see Chapter 2.3, Opportunity Sites).

Figure 2.2.6: Large Family Homes South of Hwy. 4

2.3. Opportunity Sites, Downtown & Citywide

A number of vacant properties remain available for development within and adjoining the Downtown Area, as well as throughout the community as shown in Figures 2.3.8 and 2.3.9. Major vacant property resources remain within the Sand Creek and Ginochio Focus Areas (Areas 7 and 8 shown in Figure 2.3.8), The East Lone Tree Specific Plan Area (Area 6 shown in Figure 2.3.8), the Hillcrest Station Area Specific Plan (Area 4 shown in Figure 2.3.8, and in Figure 2.3.8), and the Eastern Waterfront Employment Focus Area along Wilbur Avenue (Area 2 shown in Figure 2.3.8).

Figure 2.3.1: 2.35 Acres on 10th St. at Cresview Dr.

Figure 2.3.2: 3.4 Combined Acres North of 2nd Street at K Street

Figure 2.3.3: Look West on J Street

The Downtown Area also contains 17 identified key opportunity sites with an aggregate land area estimated at over 70 acres, as shown in Figure 2.3.9 and listed in Table 2.3.1. These include the vacant 1.35-acre City-owned property on 2nd Street at E Street (Site #15 as shown in Figures 2.3.4 and 2.3.5), the partially developed 4.5 acres comprised of several smaller parcels located north of 2nd Street at J and K Streets (Site #1 as shown in Figures 2.3.2 and 2.3.3), and other undeveloped or under-developed property groupings ranging in size from one-half to over 16 acres in size.

In addition to these key opportunity sites within the Downtown Specific Plan Area, a number of other major vacant and under-developed properties directly adjoin the Downtown, representing important resource opportunities for economic activity within the Downtown. These adjoining properties include 2.35 acres on the south side of 10th Street at Crestview Drive (as shown in Figure 2.3.1), the Contra Costa County Fairgrounds site at 10th and L Streets, and those properties fronting the south side of 10th Street extending several blocks east of the Fairgrounds (Figure 2.3.7).

Figure 2.3.4: Water View from 1.35 Acres Between 2nd & 3rd Streets

Figure 2.3.5: Looking East on 1.35 Acres Between 2nd & E St.

Figure 2.3.6: Hillcrest Station SP Area & Future eBART Station

Figure 2.3.7: County Farigrounds Site on 10th at L Street

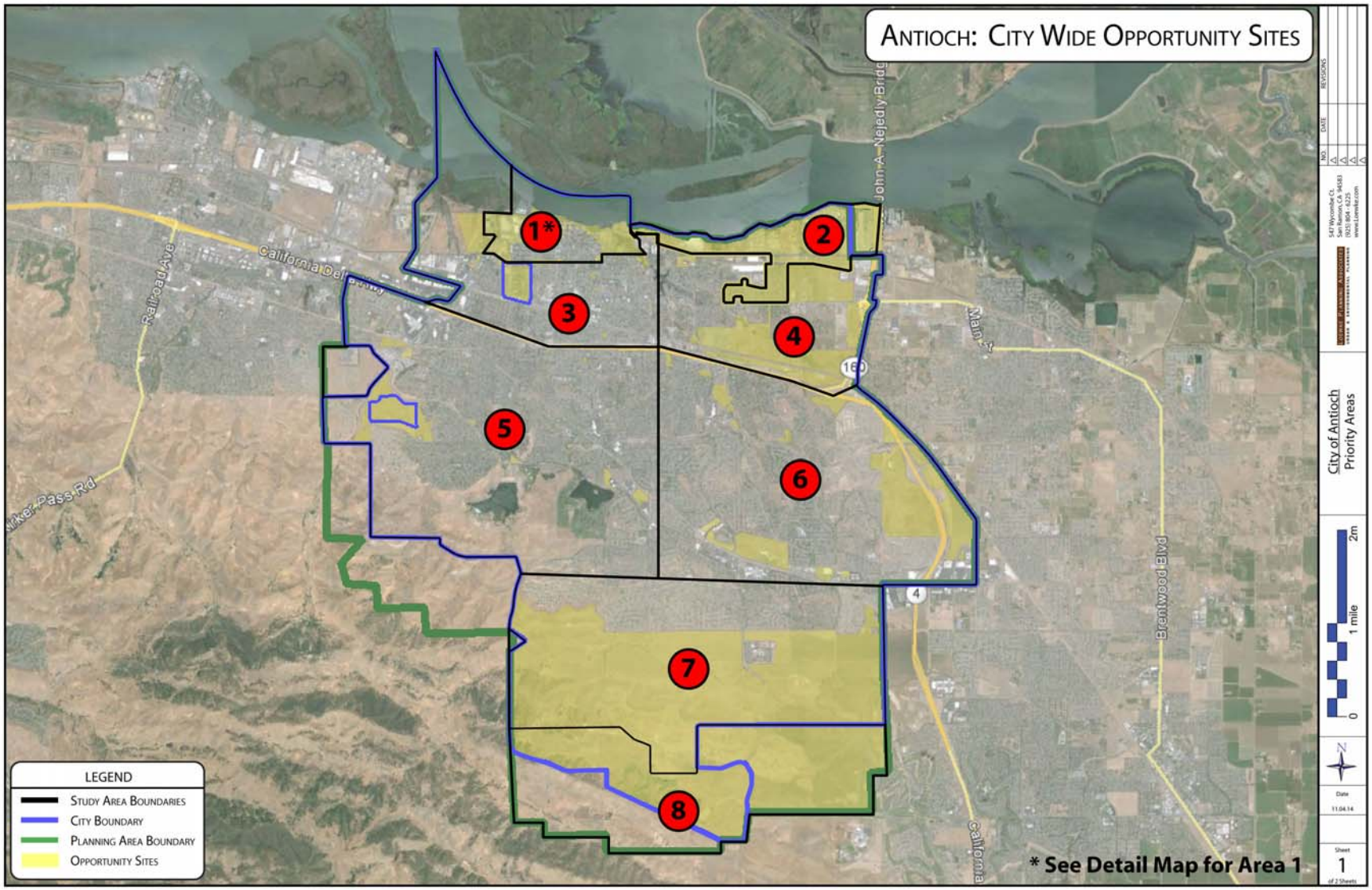


Figure 2.3.8: Citywide Opportunity Sites for Economic Development

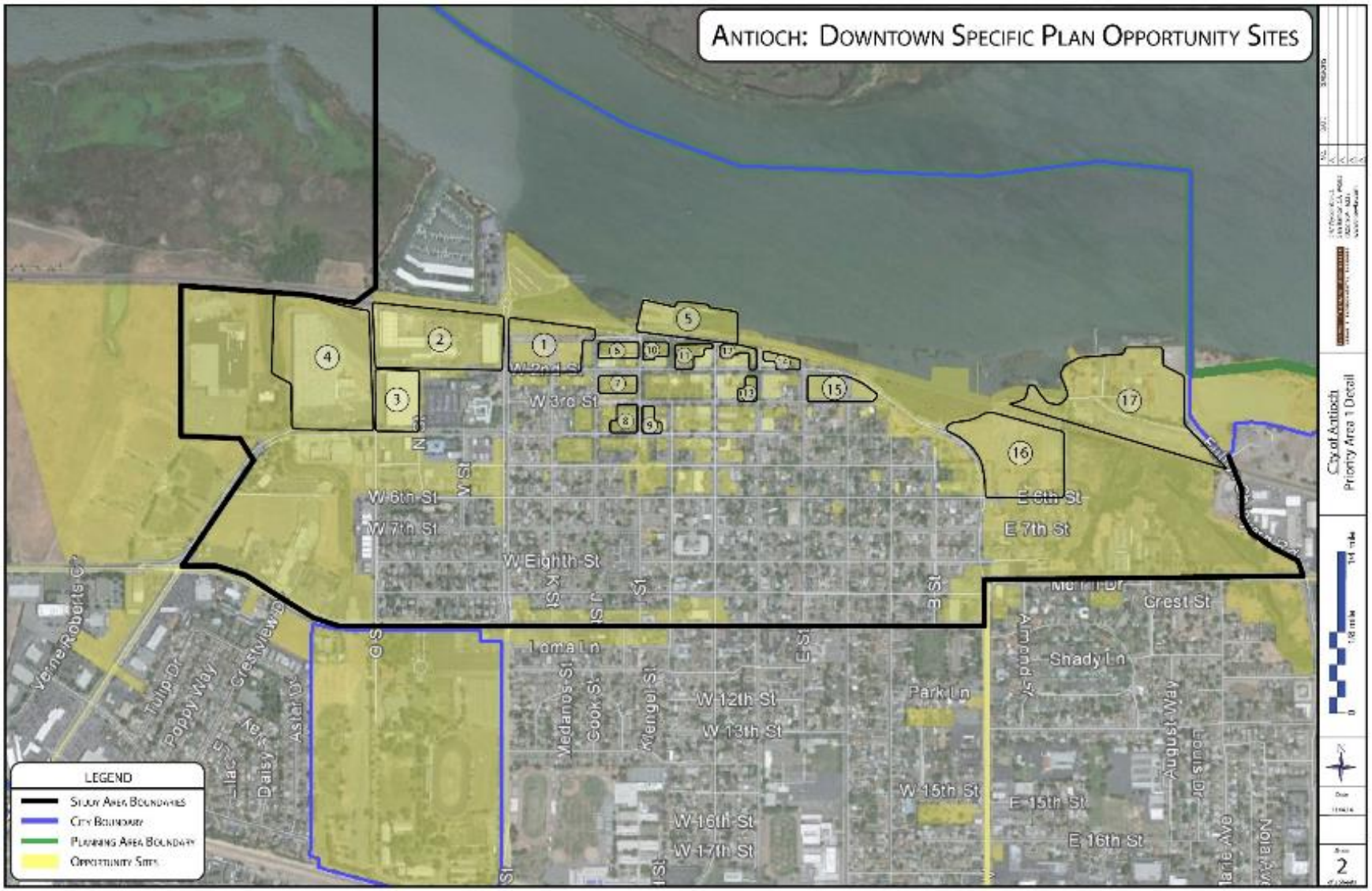


Figure 2.3.9: Map of Key Downtown Opportunity Sites for Economic Development

Site	APN	Acres	Location
1.	066-101-001, 020 & 014, 066-102-004, 008 & 010	4.49	North of 2nd Street between L and J Streets (6 contiguous parcels)
2.	066-110-009 & 008	11.02	West of L Street north of West 2nd Street (2 contiguous parcels)
3.	066-001-005	3.65	Existing industrial site north of 2nd Street between O and N Street (one parcel)
4.	074-040-002	16.61	Existing industrial building site currently used for warehousing and RV Storage (one parcel)
5.	066-010-009, 066-020-010, 066-081-XXX	5.00	Water frontage north of rail line between extension of G and I Streets (Riverview Lodge and two adjoining parcels, including water)
6.	066-091-016, 015 & 010	1.06	South side of J Street between I and J Streets (3 contiguous parcels including Lynn House)
7.	066-092-012, 013, 014 & 001	0.47	South side of 2nd Street west of I Street (4 contiguous parcels including Beer Garden Use)
8.	066-107-010, 011, 001, 003 & 004	0.80	West side of I Street between 3rd and 4th St. (5 contiguous parcels with City parking facilities)
9.	066-061-009 & 010	0.59	East side of I Street between 3rd and 4th Streets (2 contiguous parcels used for informal parking)
10.	066-082-005, 006, 007 & 008	0.49	Extension of J Street east of I Street (4 contiguous parcels used for parking)
11.	066-071-005, 015 & 012	0.79	North end of 2nd Street block between G Street and Waldie Plaza (3 contiguous parcels facing water)
12.	066-051-012, 015, 014, 001 & 002	0.67	North end of 2nd Street block between F and G Streets (Portions of 5 parcels)
13.	066-053-011 & 002	0.34	West side F Street between 2nd and 3rd Streets (2 contiguous parcels)
14.	066-052-002 & 003	0.80	North side of 2nd Street between E and F Streets (2 contiguous parcels, inc. Antioch Lumber site)
15.	066-055-001	1.35	South side of 2nd Street east of E Street (City RFP Site)
16.	066-032-024, 019, 006, 003, 015 & 016	7.62	East side A Street north of East 18th Street (6 contiguous parcels)
17.	066-031-001, 065-010-006, 001, 002 & 009	15.31	North end Fulton Shipyard Road north of tracks (4 contiguous parcels in Fulton Shipyard)
	TOTAL	71.06	

(Note: The foregoing sites are not all inclusive of development opportunities in Downtown Area; rather, they reflect the larger acreage properties used for estimation of land use potential and potential constraints. Properties listed correspond to locations shown in Figure 2.3.8.

Table 2.3.1: List Key Downtown Area Opportunity Sites for Economic Development

2.4. Downtown Specific Plan Transportation

2.4.1 Introduction.

The potential for long term economic development and conservation efforts within the Downtown Area is directly affected by the capacity, features and physical condition of the local transportation network. In addition to local policies and programs, the Downtown Area transportation network is also influenced by regional policies and external conditions. This chapter looks at current policies and programs, and inventories existing capacity and safety deficiencies, in order to explore the potential for network enhancements which could support future economic development and conservation programs. The concepts outlined in this chapter are designed to stimulate further discussion and support consideration of a range of land use and policy alternatives. The Downtown Specific Plan and surrounding areas are shown in Figure 2.4.1. The current transit network is presented in Figure 2.4.2, and the pedestrian bicycle network in the area is presented in Figure 2.4.3.

2.4.2 Regulatory Setting.

Federal Transit Act. The Federal Transit Act, approved in 1976, is the governing Federal legislation for transit-related issues. The Federal Transit Act is implemented in California through the California Transportation Plan (CTP), which provides guidance on inter-regional transit issues including rail, and the California Transportation Development Act, which provides guidance on local and regional programming of transit funds. Federal transportation policy is to increase non-motorized transportation to at least 15 percent of all trips and to simultaneously reduce the number of non-motorized travelers killed or injured in traffic collisions by at least 10 percent (TEA-21, 1998). This policy, which was adopted in 1994 as part of the National Bicycling and Walking Study, remains a high priority for the US Department of Transportation (USDOT). Federal Transportation Legislation provides the funding opportunities, planning processes, and policy language by which states and metropolitan areas can achieve these ambitious national goals.

California Bicycle Transportation Act, Streets and Highways Code 890-894 (1994). This is legislation that seeks "*to establish a bicycle transportation system designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist's property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills*." A city or county may complete a bicycle transportation plan pursuant to Section 891.2 in order for their project to be considered by the California Department of Transportation (Caltrans) for funding. Section 890.6 states that Caltrans, in cooperation with county and city governments, shall establish minimum safety design criteria for the planning and construction of bikeways and roadways where bicycle travel is permitted. Section 890.8 states the Department shall establish uniform specifications and symbols for signs, markers, and traffic

control devices to designate bikeways, regulate traffic, and improve safety and convenience for bicyclists, and alert pedestrians and motorists of the presence of bicyclists on bikeways and on roadways where bicycle travel is permitted. Finally, Section 891 states, "*All city, county, regional, and other local agencies responsible for the development or operation of bikeways or roadways where bicycle travel is permitted shall utilize all minimum safety design criteria and uniform specifications and symbols for signs, markers, and traffic control devices established pursuant to Sections 890.6 and 890.8.*"

Contra Costa Transportation Authority. The Contra Costa Transportation Authority was originally formed to manage and oversee the funds generated by the half-cent transportation sales tax Contra Costa County voters enacted in 1988 known as "*Measure C*." That sales tax expired in April 2009. In 2004, the sales tax was renewed for an additional 25 years (to 2034) and a new expenditure plan adopted, the "*Measure J Expenditure Plan*." As Contra Costa County's transportation sales tax agency, the Authority oversees the design and construction of the transportation projects included in the Expenditure Plans, carries out the programs included in the Expenditure Plans, most notably, the county's Growth Management Program, and provides the financial structure that ensures the optimum use of the sales tax dollars as intended by the voters. In 1990, the Authority took on the role of Contra Costa County's Congestion Management Agency (CMA). In that capacity, the Authority is the primary transportation planning agency for Contra Costa County, responsible for prioritizing the county's share of available federal, state and regional transportation funds. As the CMA, the Authority prepares the county's Congestion Management Program, monitors levels of service on the county's roadways and works with other CMAs and agencies to address regional issues.

Antioch Bicycle Plan. The City of Antioch adopted TRANSPLAN's East Contra Costa Bikeway Plan in 2001. In 2003, the Contra Costa Transportation Authority (CCTA) developed a comprehensive Countywide Bicycle and Pedestrian Plan, which incorporated Antioch's local projects and programs, and was subsequently adopted by the City of Antioch in 2003. The Countywide Bicycle and Pedestrian Plan serves as the foundation for improving the safety and attractiveness of bicycling and walking in Contra Costa County. The plan recommends a Countywide Bikeway Network along with various regional improvements and local projects including both on-street and off-street bikeways and pedestrian facilities in the City of Antioch. Furthermore, the Plan provides guidance and strategies for planning and funding of local and regional projects.

General Plan Transportation Policy. The Growth Management and Circulation Elements of the City of Antioch General Plan contain the following policies and objectives related to traffic and circulation. The Circulation Element also contains policies pertaining to non-motorized transportation.

Policy 3.4.4a Place ultimate responsibility for mitigating the impacts of future growth and development, including construction of new and widened roadways, on individual development projects. The City's Capital Improvements Program will be used primarily to address the impacts of existing development, and to facilitate adopted economic development programs.

Policy 3.4.4b Continue to develop and implement action plans for Routes of Regional significance.

Policy 3.4.4c Ensure that development projects pay applicable regional traffic mitigation fees and provide

appropriate participation in relation to improvements for Routes of Regional significance (see also Circulation Element Policy 5.3.1f).

Policy 3.4.4d Consider level of service standards along basic routes to be met if 20-year projections based on the City's accepted traffic model indicate that conditions at the intersections that will be impacted by the project will be equivalent to or better than those specified in the standard, or that the proposed project has been required to pay its fair share of the improvement costs needed to bring operations at impacted intersections into conformance with the applicable performance standard, or Findings of Special Circumstances have been requested from CCTA for intersections that will not meet the standard.

Policy 3.4.4e Because the policy set forth in Paragraph d, above, is based on projected, with project traffic conditions, it is a more stringent standard than that required by Measure C, which is based on existing conditions. It is therefore possible for Measure C requirements to be met (existing operations meet the established performance standard), even though the Antioch General Plan standard set forth in paragraph d, above, which is based on projected, cumulative traffic conditions, would not be met. In cases where the standard for Basic Routes is met for existing conditions (see Section 3.3.2.1), but the standard set forth in paragraph d, above, is not met in the no project condition (i.e., projected traffic will not meet the applicable standard, even if the proposed project is not built), General Plan traffic standards for Basic Routes will be considered to be met if (1) the proposed project has been required to pay its fair share of the improvement costs needed to bring operations at impacted intersections into conformance with the applicable performance standard and actual physical improvements will be provided by the project so as to not result in a further degradation of projected level of service at affected intersections, or (2) Findings of Special Circumstances have been requested from CCTA for intersections that will not meet the standard.

Policy 3.4.4f For projects that will generate more than 100 peak hour trips, approve only those for which "Findings of Consistency" with Measure C can be made (see Chapter 3.2.3.1) and which are consistent with the applicable provisions of the Antioch General Plan, including its transportation facilities performance standards and policies.

Policy 3.4.5c Work with Tri-Delta Transit and other service providers to promote regional transit service. Refer proposed development projects to Tri-Delta Transit, and require the provision of bus turnouts and bus stops in locations requested by the agency, where appropriate.

Policy 3.4.5e Synchronize traffic signals where feasible to improve the flow of through traffic.

Policy 7.3.2a Facilitate meeting the roadway performance standards set forth in the Growth Management Element and improving traffic flow on arterial roadways.

Policy 7.3.2b Provide adequate capacity at intersections to accommodate future traffic volumes by installing intersection traffic improvements and traffic control devices, as needed, as development occurs.

Policy 7.3.2c Require the design of new developments to focus through traffic onto arterial streets.

Policy 7.3.2d Where feasible, design arterial roadways, including Routes of Regional significance, to provide better service than the minimum standards set forth in Measure C and the Growth Management Element. Thus, where feasible, the City will strive to maintain a "High D" level of service (v/c – 0.85-0.89) within regional commercial areas and at intersections within 1,000 feet of a freeway interchange. The City will also strive where feasible to maintain Low-range "D" (v/c = 0.80-0.84) in all other areas of the City, including freeway interchanges.

Policy 7.3.2e Establish Assessment Districts in areas that will require major roadway infrastructure improvements that will benefit only that area of the City, and thereby facilitate the up-front construction of needed roadways.

Policy 7.3.2f Design street intersections to ensure the safe passage of through traffic and accommodate anticipated turning movements. Implement intersection improvements consistent with the following lane geometrics, unless traffic analyses indicate the need for additional turn lanes.

Policy 7.3.2n Use raised medians as a method for achieving one or more of the following objectives: access control, separation of opposing traffic flows, left turn storage, aesthetic improvements, and/or pedestrian refuge.

Policy 7.3.2p Where a series of traffic signals are provided along a route, facilitate the coordination of traffic signals to optimize traffic progression on a given route. Traffic signalization should emphasize facilitating access from neighborhood areas onto the City's primary roadway network, and should work to discourage through traffic from using local streets.

Policy 7.3.2s Expand intersections to include additional turning and through lanes where needed to relieve congestion and improve intersection operation, so long as the intersection can continue to accommodate pedestrians and bicyclists. Avoid traffic system improvements that facilitate vehicular turning and bus movements, but that also discourage pedestrian or bicycle movements. This can be accomplished on wide streets by providing safe stopping places for pedestrian crossing the street.

Policy 7.3.2x Require new development to construct all on-site roadways, including Circulation Element routes, and provide a fair share contribution for needed offsite improvements needed to maintain the roadway performance standards set forth in the Growth Management Element. Contributions for offsite improvements may be in the form of fees and/or physical improvements, as determined by the City

Engineer. Costs associated with mitigating off-site traffic impacts should be allocated on the basis of trip generation, and should have provisions for lower rates for income-restricted lower income housing projects needed to meet the quantified objectives of the General Plan Housing Element.

Policy 7.4.2a Provide safe pedestrian and bicycle access to schools, parks and neighborhood commercial facilities.

Policy 7.4.2b Design intersections for the safe passage of pedestrians and bicycles through the intersection.

Policy 7.4.2c Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and that contributes to vehicular, pedestrian, and bicycle safety.

Policy 7.4.2d Implement roadway designs that maintain mobility and accessibility for bicyclists and pedestrians.

Policy 7.4.2e Integrate multi-use paths into creek corridors, railroad rights-of-way, utility corridors, and park facilities.

Policy 7.4.2f Provide, as appropriate, bicycle lanes (Class II) or parallel bicycle/ pedestrian paths (Class I) along all arterial streets and high volume collector streets, as well as along major access routes to schools and parks.

Policy 7.4.2h Require the provision of bicycle parking and other support facilities (e.g., racks or lockers) as part of new office and retail developments and public facilities.

Policy 7.4.2i Where shopping facilities are located adjacent to residential areas, provide direct access between residential and commercial uses without requiring pedestrians and bicyclists to travel completely around the commercial development.

Policy 7.4.2k Orient site design in non-residential areas to allow for safe and convenient pedestrian access from sidewalks, transit and bus stops, and other pedestrian facilities, in addition to access through required parking facilities.

Policy 7.5.2g Preserve options for future transit use when designing roadway and highway improvements.

Policy 7.5.2h Include Tri-Delta Transit in the review of new development projects, and require new development to provide transit improvements in proportion to traffic demands created by the project. Transit improvements may include direct and paved access to transit stops, provision of bus turnout areas and bus shelters, and roadway geometric designs to accommodate traffic.

Figure 2.4.1: Downtown Specific Plan and Surrounding Areas

Figure 2.4.2: Current Transit Network Serving Downtown and Surrounding Areas

Figure 2.4.3: Current Pedestrian Bicycle Network Serving Downtown and Surrounding Areas

2.4.3 Transportation Constraints.

Transportation infrastructure in undeveloped areas typically must be extended or expanded to serve new development. However, in the Downtown Area the City has already provided a reliable and well connected street system and transit system and, as a result, there are few constraints to downtown development related to transportation infrastructure. In general, there is substantial available roadway and transit capacity to accommodate new development. The following is a summary of some of the existing constraints to transportation in the Downtown Area that could be factor in this planning process:

- The location of railroad tracks in area as well as natural barriers such as the San Joaquin River could pose challenges to providing connections to the existing motorized and non-motorized transportation networks in Antioch.

- Some of the existing industrial business within and adjacent to the Downtown Specific Plan area are reliant on large trucks to transport their goods. Maintaining adequate vehicle access to these businesses while minimizing conflicts with increased vehicle, bicycle and pedestrian activity, may create planning limitations.

- The railroad tracks located along the northern border of Downtown Specific Plan area create a barrier preventing effective access to the waterfront. In addition, safety, noise, and/or vibration mitigation may be needed for new development near the railroad tracks.

- While there are certainly still some key improvements that can be made to the roadway and transit networks in the area the biggest challenges for Downtown development could end up being be related to the provision of adequate parking and alternative transportation facilities.

- Parking is typically expensive to provide but is critical to the success of retail businesses in the Downtown Area. It is also a key component that will need to be resolved for any planned special events and/or potential street closures. While parking may not be a problem currently this could quickly change depending on the outcome of other elements of the Downtown Specific Plan. Unfortunately, the success of any special events or new retail developments could be significantly constrained if there isn't adequate parking available within a short walking distance.

- In the past, alternative transportation has typically been subordinate to roadway and intersection planning. However, new legislation is constantly being enacted to strengthen the connection between development and alternative transportation. For the Downtown Specific Plan it is expected that pedestrian, bicycle, and transit improvements will be given much higher priority. The construction of parking lots and roadway improvements will have to be carefully balanced with the installation of new bicycle lanes, pedestrian paths, and transit connections. Obviously some level of improvements will be needed in all of these areas to attract investment to Downtown Antioch. The challenge will be to allocate the limited resources available in a way that will most effectively facilitate implementation of the community's goals for the area.

2.4.4 Transportation Opportunities.

In general, the roadways and intersections serving the Downtown Area have sufficient excess capacity to accommodate increases in automobile traffic from approved and pending projects, including some future additional development. However, should the traffic generating potential of future development exceed the levels assumed in prior analyses, additional roadway enhancements may be necessary. Figure 2.4.4 presents some of the transportation opportunities in the City. Following is a summary:

- Various roadway capacity improvements have been identified for some locations in the City of Antioch which would be implemented over the next 20 years, improving traffic flow through the community.
- Additional roadway improvements could be made along the main routes to Downtown to further reduce delays and improve access to the area. Some of these could be expensive but others could be as simple as making some adjustments to traffic signal operations.
- There are a number of regional transportation improvements expected to be completed including the widening of the State Route 4 freeway and the construction of eBART and its associated Hillcrest Avenue station.
- There is a potential for improved Amtrak service in the future with a direct connection in Bakersfield to the planned California High Speed Rail Project.
- There have been discussions regarding a potential ferry terminal in Downtown Antioch that could have intermodal connections to rail and bus transit.
- Funding for traffic infrastructure has become more limited and there is a lot of competition among various jurisdictions for the remaining funding. As a result the Downtown Specific Plan will need to present a clear commitment to the implementation of sufficient alternative transportation facilities to remain competitive for transportation funding.
- It is important to highlight that many communities have found that Downtown congestion can actually be an indicator of a healthy economy rather than a hindrance to traffic access. Further increasing the capacity of roads in the Downtown Area could potentially disrupt the urban fabric and diminish the attractiveness of living, visiting or doing business Downtown. As a result, some communities have relaxed their level of service (LOS) thresholds in downtown areas to LOS E or even LOS F in favor of enhancing the street environment and prioritizing pedestrian, bicycle, and public transit travel modes.
- It should be noted that the existing network of bicycle lanes and multi-use trails in the northern part of the City is fragmented and has substantial potential for improvements that could attract additional users.
- There is a significant opportunity for reducing reliance on automobile travel by creating a downtown shuttle bus connection to the planned Hillcrest eBART station. The success of this shuttle would depend on its frequency which would, in turn, depend on the available service funding.

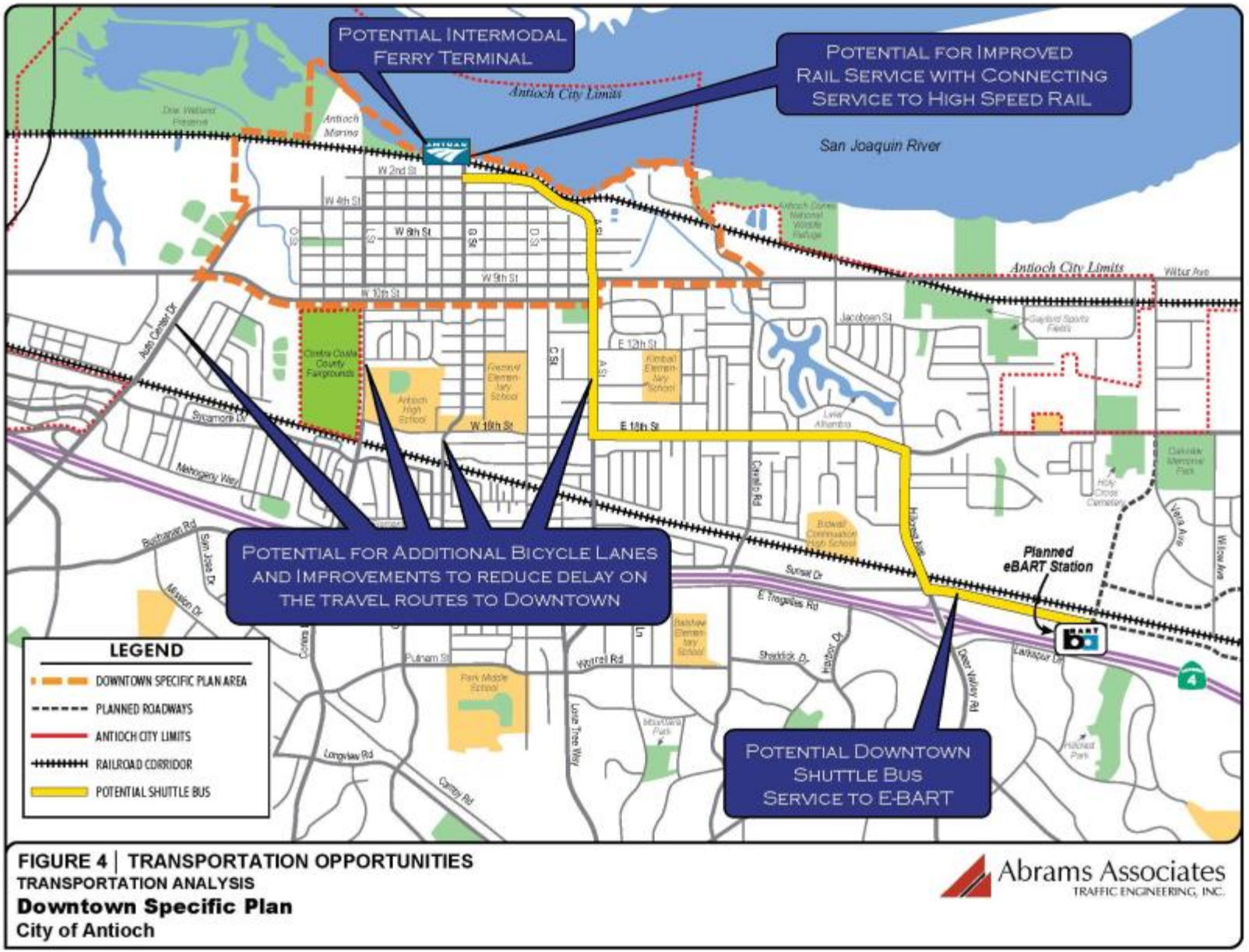


Figure 2.4.4: Potential Opportunities for Downtown Transportation Network Enhancement

2.5. Air Quality Constraints

2.5.1 Introduction.

This analysis evaluates the potential air quality constraints that development at the various Antioch opportunities sites may pose. Included in this chapter is a brief description of the environmental setting, a summary of applicable regulatory criteria, and the constraints assessment.

2.5.2 Regulatory Setting.

The planning area is Antioch, which lies in the eastern portion of the Contra Costa County. The planning area is located in the eastern portion of the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NOx). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic air contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific

issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of diesel particulate matter (DPM). Several of these regulatory programs affect medium and heavy duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[2] The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

The Bay Area Air Quality Management District (BAAQMD) is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has recently published the California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.[3]

[2] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: October 30, 2014.
[3] Bay Area Air Quality Management District. 2011. BAAQMD CEQA Air Quality Guidelines. May.

Sensitive Receptors. There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks.

Greenhouse Gases. Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO_2) and water vapor, but there are also several others, most importantly methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO_2 and N_2O are byproducts of fossil fuel combustion.
- N_2O is associated with agricultural operations such as fertilization of crops.
- CH_4 is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO_2 being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO_2 equivalents (CO_2e).

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California could be adversely affected by the global warming trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

2.5.3 Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These Thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines. The significance thresholds identified by BAAQMD and used in this constraints analysis are summarized in Table 2.5.1. These thresholds are considered the best available information available to assess air quality and greenhouse gas emission impacts from land use development projects.

BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order requires BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. However, this litigation remains pending as the California Supreme Court recently accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds. The specific portion of the argument to be considered is in regard to whether CEQA requires consideration of the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment). Therefore, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project.

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82	82	15
$PM_{2.5}$	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards for New Sources			
Excess Cancer Risk	10 per one million		
Chronic or Acute Hazard Index	1.0		
Incremental annual average $PM_{2.5}$	0.3 $\mu g/m^3$		
Health Risks and Hazards for Sensitive Receptors (Cumulative from all sources within 1,000 foot zone of influence) and Cumulative Thresholds for New Sources			
Excess Cancer Risk	100 per one million		
Chronic Hazard Index	10.0		
Annual Average $PM_{2.5}$	0.8 $\mu g/m^3$		
Greenhouse Gas Emissions			
GHG Annual Emissions (Project- and Specific Plan- Level)	4.6 metric tons CO_2e per capita		
GHG Annual Emissions (Plan Level)	6.6 metric tons CO_2e per capita		
Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less; CO_2e = equivalent carbon dioxide; and GHG = greenhouse gas.			

Table 2.5.1: Air Quality Significance Thresholds

2.5.4 Opportunities & Constraints

Construction Risks. Subsequent land use activities associated with implementation of the Land Use Element Update and Downtown Specific Plan could potentially include short-term construction sources of TACs and long-term operational sources of TACs, including stationary and mobile sources.

Implementation of the Land Use Element Update and Downtown Specific Plan would result in the potential construction of a variety of projects. This construction would result in short-term emissions of DPM, a TAC. Construction would result in the generation of DPM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The calculation of cancer risk associated with exposure to TACs is typically based on a 70-year period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. Cancer risk and $PM_{2.5}$ exposure would have to be analyzed through project-level analysis to identify the potential for significant impacts and measures to reduce those impacts to less than significant. Best Management Practices would be necessary to control fugitive dust and exhaust emissions. If during project-level analysis, including refined dispersion modeling as appropriate, construction emissions or risk was found to be significant, additional measures could be instated to further reduce impacts, including but not limited to, the use of later-model diesel engines, alternative-powered equipment (e.g., LPG-powered lifts), alternative fuels (e.g., biofuels), added exhaust devices, or a combination of measures.

Operational Risks. According to the BAAQMD CEQA Air Quality Guidelines, for a plan to have a less-than-significant impact with respect to TACs, overlay zones must be established around existing and proposed land uses that would emit these air pollutants. Overlay zones to avoid TAC impacts must be reflected in local plan policies, land use maps, or implementing ordinances.

The BAAQMD CEQA Air Quality Guidelines consider exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard, to be significant. For cancer risk, which is a concern with DPM and other TACs, the BAAQMD Risk Management Policy considers an increased risk of contracting cancer that is 10 in one million chances or greater, to be significant risk for a single source. The BAAQMD CEQA Guidelines also consider exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 micrograms per cubic meter ($\mu g/m^3$) to be significant. Non-cancer risk would be considered significant if the computed Hazard Index is greater than 1.0.[4] For cumulative sources, the BAAQMD CEQA Guidelines consider 100 in one million excess cancer risk, $PM_{2.5}$ concentrations that exceed 0.8 $\mu g/m^3$, and non-cancer Hazard Index greater than 10.0 to be significant.

The Land Use Element Update and Downtown Specific Plan would permit and facilitate the development of new sensitive receptors, such as new homes, in locations near arterial and collector roadways, highways, rail lines, and stationary sources of TAC emissions.

[4] The Hazard Index is the ratio of the computed receptor exposure level to the level known to cause acute or chronic adverse health impacts, as identified by BAAQMD.

Screening levels indicate that sensitive receptors within the Planning Area would be exposed to levels of TACs and or $PM_{2.5}$ that could cause an unacceptable cancer risk or hazard near highways and stationary sources.

- *Stationary Sources.* The Planning Area has numerous permitted stationary sources. These sources are located throughout the City, but mostly in industrial and commercial areas. The impact of these sources can only be addressed on a project-by-project basis, since impacts are generally localized. To assist lead agencies, BAAQMD has provided a database of permitted sources for each County. The database is contained in a Google Earth tool that allows a user to identify stationary sources within 1,000 feet of a receptor. The database can then be accessed through Google Earth to determine conservative screening levels of cancer risk, hazards and $PM_{2.5}$ concentrations. This allows many of the sources to be screened out of any additional analysis. Stationary sources that show the potential for significant community risk impacts after this first level of review are further analyzed by contacting BAAQMD for additional information and applying distance adjustment factors. A refined modeling analysis would be required if there are sources that still have potentially significant impacts after this level of review. A refined analysis would include dispersion modeling of the source using emissions and source information provided by BAAQMD. If the source still has significant community risk impacts following this level of effort, then risk reduction strategies would have to be implemented by the project on a case-by-case basis, including but not limited to, mechanical air filtration systems. Attachment 1 contains a list of BAAQMD-permitted stationary sources within Antioch. The reported screening risk values are assumed to be at a distance of 50 feet.

When siting new sensitive receptors, the BAAQMD Guidelines advise that lead agencies examine existing or future proposed sources of TAC and/or $PM_{2.5}$ emissions that would adversely affect individuals within the planned project. New residences and sensitive receptors could be located near stationary sources of TACs located throughout the City, such as gasoline dispensing stations, emergency back-up diesel generators, and dry cleaners. Without proper setbacks or mitigation measures, these sources could result in TAC levels that would be significant for new sensitive receptors.

Gasoline Stations. The Plan Bay Area DEIR[5] recommends a setback of 300 feet for large gasoline dispensing facilities (3.6 million gallons of throughput a year) and 50 feet for small facilities. This is consistent with CARB recommendations, which found that, except for the largest gasoline stations, health risks near gasoline stations should be less than 10 in one million at distances beyond 50 feet.

Dry Cleaning Facilities. Perchlorethylene (Perc) is the solvent used commonly in past dry cleaning operations. Perc is a TAC, because it has the potential to cause cancer. In 2005, CARB recommended setbacks of 300 feet between dry cleaning facilities that emit Perc and sensitive land uses. Since then, CARB has enacted new rules to substantially reduce Perc emissions and phase out the use of TACs in dry cleaning by 2023. However, CARB's recommended buffers are based on cancer risk based on a 70-year exposure computation.

[5] Association of Bay Area Governments, Metropolitan Transportation Commission, 2013. *Draft Plan Bay Area Environmental Impact Report*. State Clearinghouse No. 2012062029. April.

Therefore, the 300-foot setback may be overly conservative. Most dry cleaning facilities would need to be analyzed on a project-by-project basis, starting by determining if the facility in question uses Perc in their cleaning process.

Emergency Back-Up Generators. Electricity generators that are powered by diesel engines are common. They are typically located at facilities where uninterrupted electricity is necessary. Common facilities include fire and police stations, hospital or medical treatment facilities, pump stations, schools, offices, and data centers. Diesel engines powering these generators are regulated by BAAQMD and CARB. CARB has established strict emissions limits and operating restrictions for engines larger than 50 horsepower. BAAQMD has developed criteria (Regulation 2 Rule 5) for approval of projects with new or modified emission sources of TACs. As a result, all new engines have very localized impacts and would not be permitted if they would cause significant cancer risks or hazards. Existing engines are only permitted to operate for 50 hours per year for maintenance or routine testing.

Marsh Landing Generating Station. Located at 3201 Wilbur Avenue, the NRG power plant has a screening cancer risk of 37.64 in one million and $PM_{2.5}$ concentration of 29.2 $\mu g/m^3$. The Plan Bay Area DEIR does not provide a screening distance for power plants and would require project-specific review.

Antioch Municipal Marina. The Antioch Municipal Marina contains a gasoline-dispensing facility with a reported screening risk of 3.49 in one million, which is below the BAAQMD significance threshold for excess cancer risk. $PM_{2.5}$ concentration is not associated with this source.

- *Local Surface Streets.* Traffic on high volume roadways (such as Somersville Road, A Street, G Street, and W. 10th Street in the Downtown Area; and A Street, James Donlon Boulevard, Lone Tree Way, Hillcrest Avenue, Buchanan Road, Wilbur Avenue, Empire Avenue, and E. 18th Street in the City-wide Land Use Element and Zoning Ordinance Update) is a source of TAC emissions that may adversely affect sensitive receptors in close proximity to the roadway. For roadways, BAAQMD has published screening tables and data to determine if roadways with traffic volumes of over 10,000 vehicles per day may have a significant effect on a proposed project. For Contra Costa County, north-south directional roadways with average daily traffic (ADT) volumes of 60,000 or greater would have potentially significant risk impacts within 10 feet. For east-west directional roadways, potentially significant risks within 10 feet would occur for roadways with ADT of 40,000 or greater. For roadways with higher traffic volumes, refined dispersion modeling would be conducted for areas with sensitive receptors nearby. If the source still has significant community risk impacts following this level of effort, then risk reduction strategies would have to be implemented by the project on a case-by-case basis, including but not limited to, mechanical air filtration systems.

- *Highways.* The BAAQMD highway screening analysis tool indicates significant TAC exposures along the following highways potentially affecting the City-wide Land Use Element and Zoning Ordinance Update in terms of cancer risk and $PM_{2.5}$ exposure: State Route 4 (SR-4) and State Route 160 (SR-160). Table 2.5.2 identifies the approximate setback distances from highway sources that have potentially significant impacts at a distance of 50 feet or greater, using the data provided by BAAQMD. However, refined analysis of the effects from these sources through emissions and

dispersion modeling would likely show lower TAC exposure. BAAQMD screening data is not available for SR-4 south of the SR-160 interchange. SR-4 south of this area is assumed to present potentially significant risk to opportunity sites within 1,000 feet of this segment. For proposed development within these setback distances, refined dispersion modeling would be conducted for proposed development areas containing sensitive receptors. If the source still has significant community risk impacts following this level of effort, then risk reduction strategies would have to be implemented by the project on a case-by-case basis, including but not limited to, mechanical air filtration systems.

Source	Distance in Feet to Cancer Risk Threshold	Distance in Feet to $PM_{2.5}$ Threshold
State Route 4 – btwn. Somersvile Rd. and A Street (south of)	1,000	200
State Route 4 – btwn. Somersvile Rd. and A Street (north of)	750	100
State Route 4 – btwn. A Street and SR-160 (south of)	750	75
State Route 4 – btwn. A Street and SR-160 (north of)	400	50
State Route 160 – btwn. SR-4 and Main Street (west of)	200	10
State Route 160 – north of Main Street (west of)	25	10

Table 2.5.2: Approximate Setback Distances for Highway TAC Sources

- *Railroads.* Potential health effects from railroad traffic along the Union Pacific Railroad (UP) and Burlington Northern Santa Fe Railway (BNSF) rail lines in Antioch were evaluated. The BNSF rail line could potentially affect development in the Downtown Area, whereas UP could affect development for the City-wide Land Use Element and Zoning Ordinance Update. The Plan Bay Area DEIR recommends a setback of 200 feet for railroads, however, with relatively low rail traffic along the UP rail line, for example, refined modeling was conducted to provide for a more accurate constraints analysis.

  The BNSF rail line is located along the northern edge of Antioch and the UP rail line parallels SR-4 about one mile south of the BNSF tracks. The BNSF rail line is used by trains for passenger and freight service, while the UP rail line is used only for freight service. Passenger rail service on the BNSF line consists of the San Joaquin passenger line operated by Amtrak, with eight trains per day. In addition, there are about 18 freight trains that use the BNSF rail line and up to 2 freight trains on the UP line on a daily basis.[6] All passenger and freight trains using these rail lines use diesel-powered locomotives and emit diesel exhaust from the engines.

  The rail analysis is meant to show screening level community risk to residents in Antioch along the rail lines. The volume of train activity, operating characteristics, and rail line orientation has a considerable effect on the level of community risk. For this analysis, 2,250 foot segments of the rail line in the vicinity of existing and potential future residences were evaluated. To account for differences in rail line locations and operating characteristics, two cases were evaluated:

  1. Case 1 is for trains traveling on the BNSF rail line on a segment of the rail line adjacent to areas of potential future residential (or other sensitive receptor) development within the Downtown Specific Plan area. Passenger and freight trains running along this section of rail line were assumed to be traveling at an average speed of 25 mph.

  2. Case 2 is for freight trains traveling on the UP rail line on a segment of the rail line adjacent to areas of potential future residential (or other sensitive receptor) development. Freight trains running along this section of rail line were assumed to be traveling at an average speed of 25 mph.

  The locations of the BNSF and UP rail line segments evaluated are shown in Figures 2.5.1. Figure 2.5.2 shows the Downtown Specific Plan Area and the BNSF rail line segment evaluated and receptors used for the modeling.

[6] Metropolitan Transportation Commission, 2006. *Bay Area Regional Rail Plan Technical Memorandum 4a: Conditions, Configuration & Traffic on Existing System*. November 15.

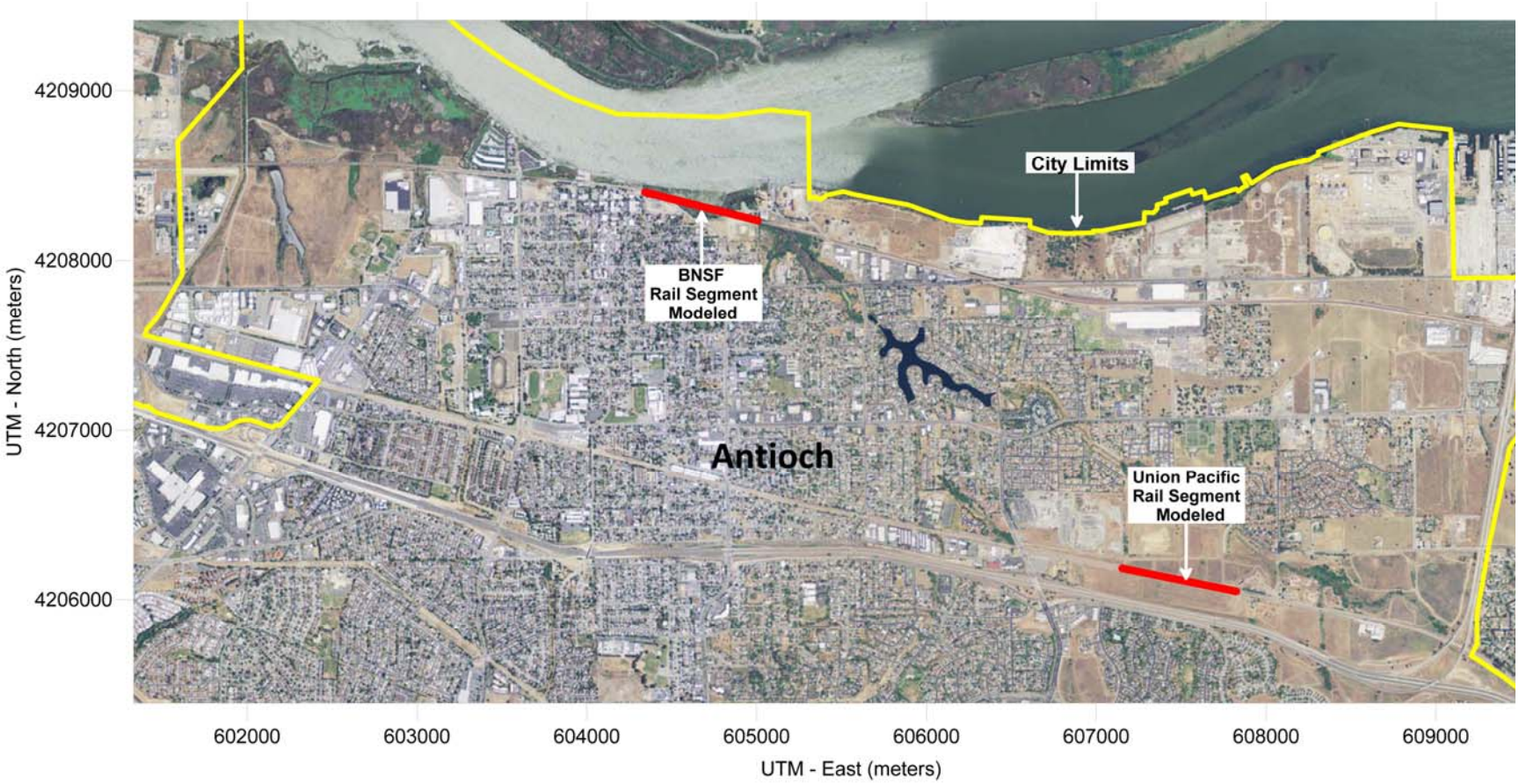


Figure 2.5.1: Rail Segment Evaluated

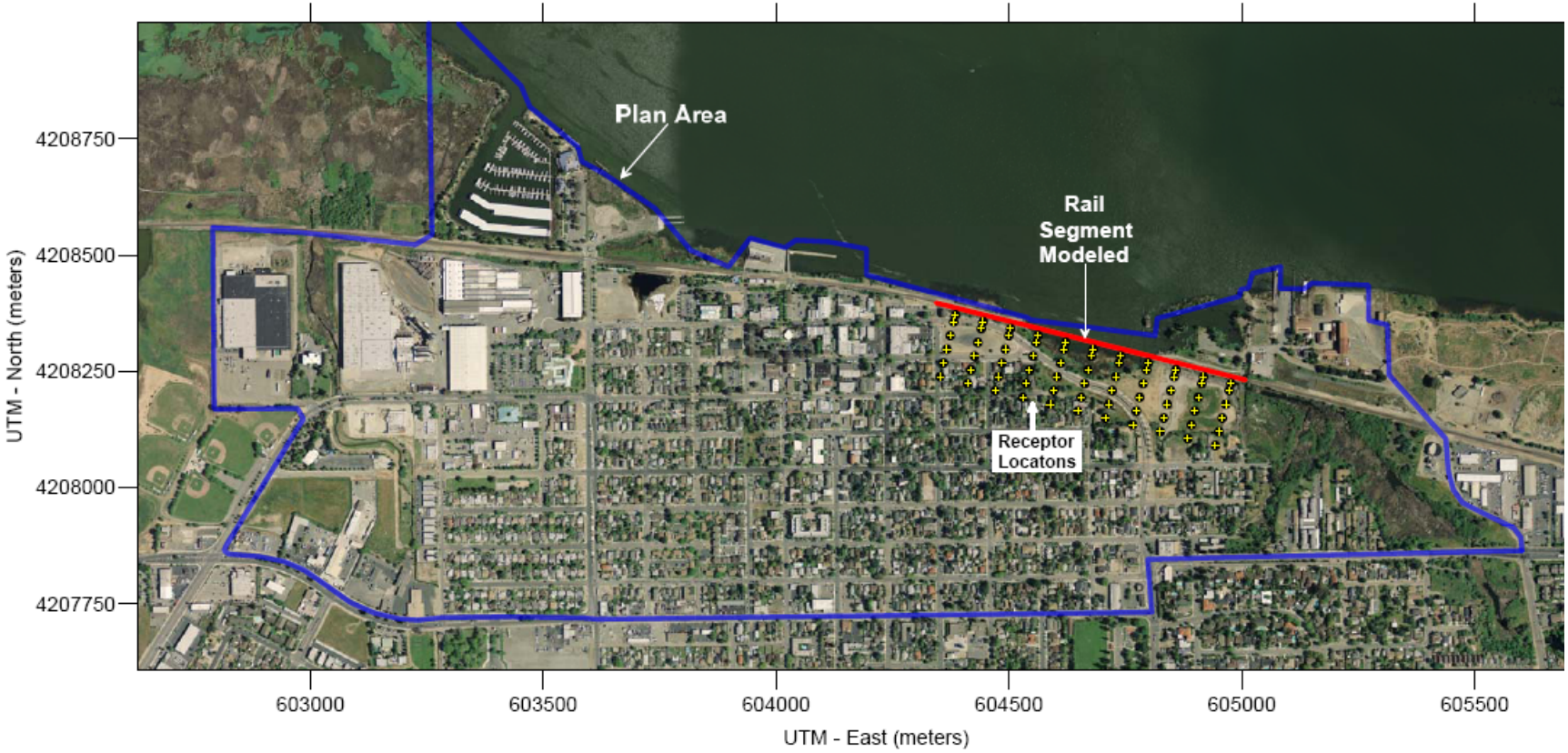


Figure 2.5.2: Modeled BNSF Rail Segment and Receptor Locations

Rail Line Emissions Modeling. DPM and $PM_{2.5}$ emissions from trains on the rail line were calculated using EPA emission factors for locomotives[7] and CARB adjustment factors to account for fuels used in California.[8] Amtrak's passenger trains in this area generally use locomotives with 3,200 horsepower (hp) diesel engines. In estimating diesel locomotive emissions, all passenger train locomotives were assumed to have 3,200 hp engines. Each passenger train was assumed to use one locomotive and would be operating at 60 percent engine load and traveling at an average speed of 25 mph. Emissions from the freight trains were calculated assuming they would use two locomotives with 2,300 hp engines (total of 4,600 hp) and would be traveling at about 25 mph with the engines operating at about 60% load. Since the exposure duration used in calculating cancer risks is 70 years, emissions for the period from 2016 through 2085 were calculated. Average DPM and $PM_{2.5}$ emissions were calculated based on EPA emission factors for the periods 2016-2019, 2020-2024, and 2025-2040, with the average emissions from 2025-2040 assumed to be representative of years 2025 through 2085.

Rail Line Dispersion Modeling. Dispersion modeling of locomotive emissions was conducted with the U.S. EPA's ISCST3 dispersion model. Hourly meteorological data used in the modeling was for a five year period from the Dow Chemical Company site in Pittsburg, about two miles west of the BNSF rail line segment modeled and four miles northwest of the UP rail segment modeled. These data, prepared for use with the ISCST3 model, were obtained from the BAAQMD. Locomotive emissions over the rail segments evaluated were modeled as a line source (a series of adjacent volume sources) along about 2,250 feet of track. A volume source release height of 5 meters with a plume height of 8 meters was used in the modeling. Concentrations were calculated at receptors that were placed perpendicular to the rail line at 50-, 100-, 200-, 300-, 400-, and 500-foot distances from the track about every 200 feet along the rail line on the south side of the BNSF track and on both sides of the UP track. Receptor heights were set at 1.5 meters (or about 5 feet).

Rail Line Cancer Risks and $PM_{2.5}$ Concentrations. Using the modeled long-term average DPM concentrations at each receptor location individual cancer risks were computed using the most recent methods recommended by BAAQMD.[9] The factors used to compute cancer risk are highly dependent on modeled concentrations, exposure period or duration, and the type of receptor. The exposure level is determined by the modeled concentration; however, it has to be averaged over a representative exposure period. The averaging period is dependent on many factors, but mostly the type of sensitive receptor that would reside at a site.

This assessment conservatively assumed long-term residential exposures. BAAQMD has developed exposure assumptions for typical types of sensitive receptors. These include nearly continuous exposures of 70 years for residences. The cancer risk calculations for 70-year residential exposures reflect use of BAAQMD's most recent cancer risk calculation method,

[7] United States Environmental Protection Agency (EPA). 2009. *Emission Factors for Locomotives*, EPA-420-F-09-025.

[8] California Air Resources Board (CARB). 2006. *Offroad Modeling, Change Technical Memo, Changes to the Locomotive Inventory*.

[9] Bay Area Air Quality Management District (BAAQMD). 2010. *Air Toxics NSR Program Health Risk Screening Analysis Guidelines*.

adopted in January 2010 which uses age-sensitivity factors to reflect the greater sensitivity of infants and small children to cancer causing TACs. The cancer risk calculations were based on applying age sensitivity weighting factors for each emissions period modeled. In addition to evaluating the cancer risks from TACs, potential $PM_{2.5}$ impacts from locomotive exhaust were evaluated. Annual average $PM_{2.5}$ concentrations were computed at each receptor location for each emissions period modeled and the maximum $PM_{2.5}$ concentration at each receptor location identified. To evaluate potential non-cancer health effects due to $PM_{2.5}$, the BAAQMD adopted a significance threshold of an annual average $PM_{2.5}$ concentration greater than 0.3 $\mu g/m^3$.

Figures 2.5.3 and 2.5.4 show the sections of rail line segment and receptors modeled and list the computed cancer risk and maximum annual average $PM_{2.5}$ concentrations for trains traveling on the BNSF rail line (Case 1) and UP rail line (Case 2), respectively. As indicated in Figure 2.5.3, trains on the BNSF rail line would have a significant cancer risk (above 10 in one million excess cancer risk) within approximately 200 feet from the rail line, consistent with Plan Bay Area recommendations for a general railroad setback distance. For the UP rail line, trains would have a less-than-significant cancer risk at distances of 50 feet or greater from the rail line in both directions (north and south), as shown in Figure 2.5.4. $PM_{2.5}$ concentration would not be significant (above 0.3 $\mu g/m^3$) either BNSF or UP rail lines at distances of 50 feet or greater.

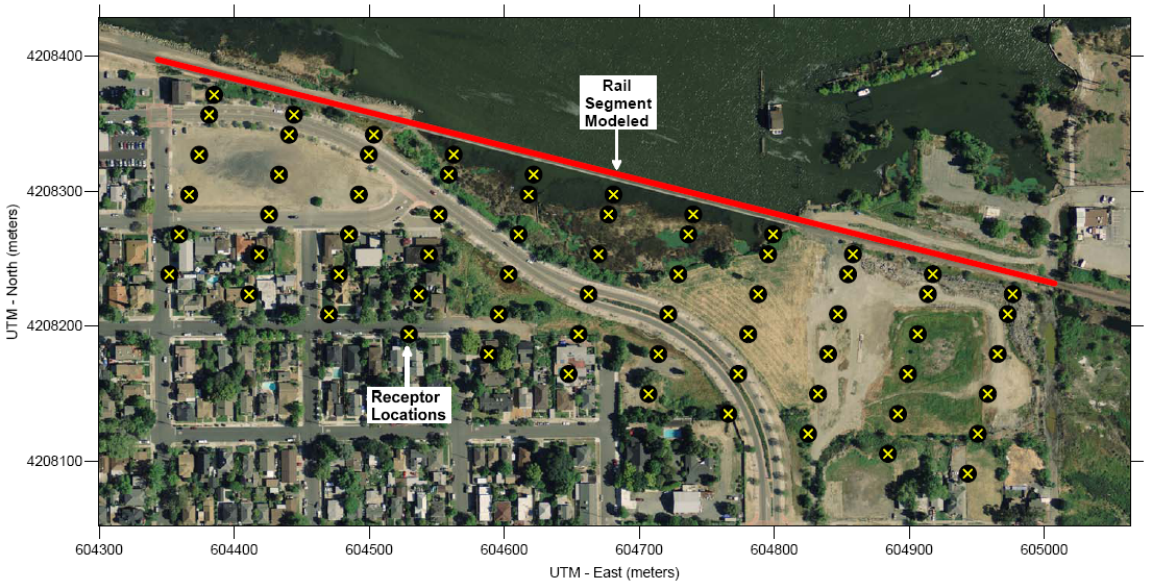
Hazard Index. Potential non-cancer health effects due to chronic exposure to DPM were not estimated since the concentration threshold for non-cancer effects is considerably higher than concentrations that would result in significant cancer risks that were described above. The chronic inhalation reference exposure level (REL) for DPM is 5 $\mu g/m^3$. The DPM modeling assessment predicted maximum annual DPM concentrations more than 10 times lower than the REL. Thus, the Hazard Index (HI), which is the ratio of the annual DPM concentration to the REL, would be much lower than significance criterion of a HI greater than 1.0.

For proposed development within 200 feet of the BNSF line, risk reduction strategies would have to be considered by the project on a case-by-case basis, including but not limited to, mechanical air filtration systems.

Potential to Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. The most recent clean air plan is the *Bay Area 2010 Clean Air Plan* (2010 CAP) that was adopted by BAAQMD in September 2010. An assessment of the consistency with the proposed Downtown Specific Plan and Land Use Element and Zoning Ordinance Update goals, policies, and implementation measures with the 2010 CAP would be conducted. If found to be inconsistent, the Specific Plan and Land Use Element and Zoning Ordinance Update would need to be revised, to the degree feasible to show consistency with the 2010 CAP. A comparison of the percent increase in vehicle miles traveled (VMT) to increase in population would be conducted. If VMT growth is projected to exceed population growth, VMT reduction measures would need to be considered in coordination with a qualified traffic and transportation expert.

Greenhouse Gas Emissions. Emissions of GHGs would be computed using the CalEEMod model, as recommended by BAAQMD. Inputs to the model would include the proposed land uses and sizes and traffic data from the project traffic consultant. Both the Downtown Specific

Plan and the City-wide Land Use Element and Zoning Ordinance Update would be evaluated with regards to the BAAQMD efficiency thresholds. If estimated emissions were to exceed BAAQMD thresholds, GHG reduction strategies, such as reductions in mobile emissions, energy emissions, and water consumption, would need to be considered.



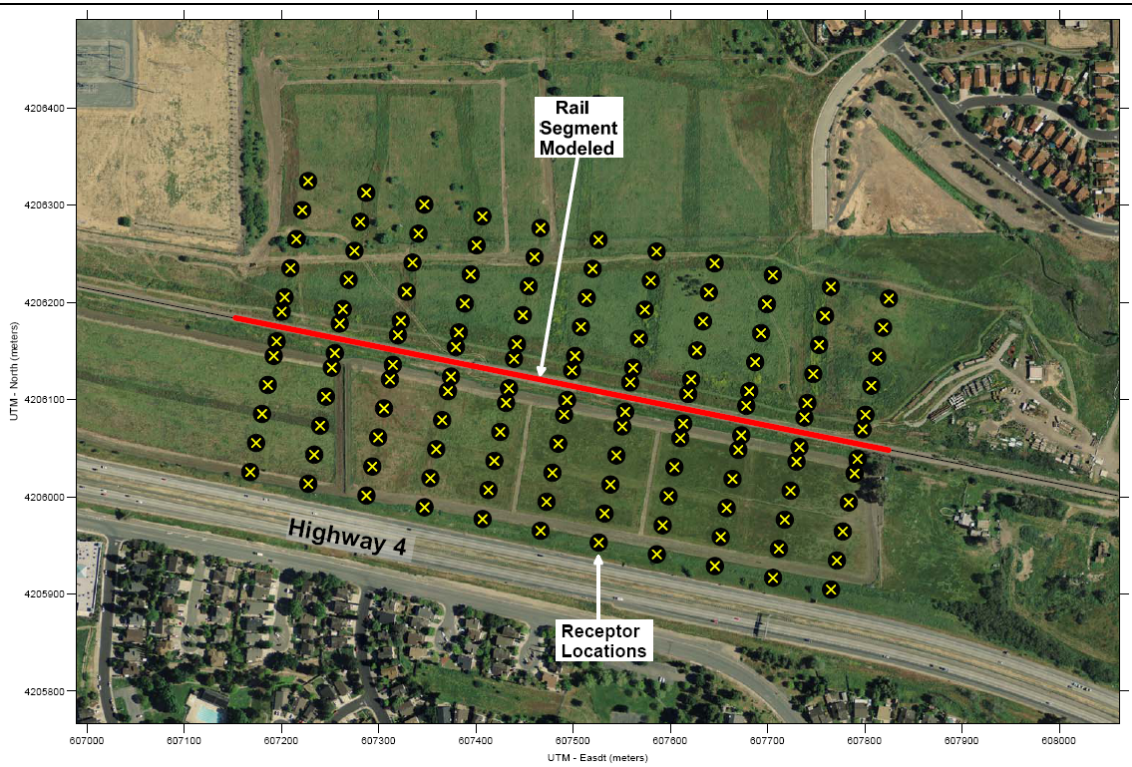
Antioch, CA - Cancer Risk and PM2.5 Modeling Summary

BNSF Rail Line Risks

	Lifetime Cancer Risk (chances in one million)					
Distance from Rail Line	**50 ft**	**100 ft**	**200 ft**	**300 ft**	**400 ft**	**500 ft**
South of Rail Line	20.6	15.0	9.6	7.0	5.4	4.3

	Annual PM2.5 Concentration ($\mu g/m^3$)					
Distance from Rail Line	**50 ft**	**100 ft**	**200 ft**	**300 ft**	**400 ft**	**500 ft**
South of Rail Line	0.08	0.06	0.04	0.03	0.02	0.02

Figure 2.5.3: BNMSF Rail Line Antioch



Antioch UP Rail Line- Cancer Risk and PM2.5 Modeling Summary

UP Rail Line Risks

	Lifetime Cancer Risk (chances in one million)					
Distance from Rail Line	**50 ft**	**100 ft**	**200 ft**	**300 ft**	**400 ft**	**500 ft**
North of Rail Line	1.9	1.4	0.9	0.6	0.5	0.4
South of Rail Line	2.0	1.4	0.9	0.6	0.5	0.4

	Annual PM2.5 Concentration ($\mu g/m^3$)					
Distance from Rail Line	**50 ft**	**100 ft**	**200 ft**	**300 ft**	**400 ft**	**500 ft**
North of Rail Line	0.01	0.01	0.00	0.00	0.00	0.00
South of Rail Line	0.01	0.01	0.00	0.00	0.00	0.00

Figure 2.5.4: UP Rail Line Antioch

2.6 Noise Constraints

2.6.1 Introduction.

This analysis evaluates the potential constraints that environmental noise and vibration may pose to the various opportunities, both for redevelopment of Antioch's Downtown Area, and on a City-wide basis. Included in this report is a brief description of the fundamentals of environmental noise and vibration, a summary of applicable regulatory criteria, and the results of the noise monitoring survey which was prepared for the City as a whole. This chapter relies on the included background information to evaluate noise and land use compatibility with respect to local policies, and to identify potential constraints resulting from train vibration.

2.6.2 Fundamentals of Environmental Noise.

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 2.6.1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA)*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2.6.2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the *sound level meter*. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level* (*CNEL*) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 p.m. - 10:00 p.m.) and a 10 dB addition to nocturnal (10:00 p.m. - 7:00 a.m.) noise levels. The *Day/Night Average Sound Level* (L_{dn} or *DNL*) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

2.6.3 Fundamentals of Environmental Vibration.

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV) and another is the Root Mean Square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous vibration levels produce. The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

Railroad operations are potential sources of substantial ground vibration depending on distance, the type and the speed of trains, and the type of railroad track. People's response to ground vibration has been correlated best with the RMS velocity level of the ground.

The velocity of the ground is expressed on the decibel scale. The reference velocity is 1 x 10-6 in/sec RMS, which equals 0 VdB, and 1 in/sec equals 120 VdB. Although not a universally accepted notation, the abbreviation "VdB" is used in this document for vibration levels in decibels to reduce the potential for confusion with airborne sound levels in decibels.

Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans (60 to 70 VdB). Perceptible vibration levels inside residences are attributed to the operation of heating and air conditioning systems, door slams and foot traffic. Construction activities, train operations, and heavy truck traffic are some of the most common external sources of vibration that can be perceptible inside residences. Table 2.6.4 illustrates some common sources of vibration and the association to human perception or the potential for structural damage.

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m.to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Table 2.6.1: Definition of Acoustical Terms Used

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, November 2009.

Table 2.6.2: Definition of Acoustical Terms Used

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013.

Table 2.6.3: Reactions of People and Damage to Buildings from Vibration

Human/Structural Response	Velocity Level, VdB	Typical Events (50-foot setback)
Threshold, minor cosmetic damage	100	Blasting, pile driving, vibratory compaction equipment
		Heavy tracked vehicles (Bulldozers, cranes, drill rigs)
Difficulty with tasks such as reading a video or computer screen	90	
		Commuter rail, upper range
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, occasional events		Commuter rail, typical Bus or truck over bump or on rough roads
Residential annoyance, frequent events	70	Rapid transit, typical
Approximate human threshold of perception to vibration		Buses, trucks and heavy street traffic
	60	
		Background vibration in residential settings in the absence of activity
Lower limit for equipment ultra-sensitive to vibration	50	

Source: Transit Noise and Vibration Impact Assessment, US Department of Transportation Federal Transit Administration, May 2006.

Table 2.6.4: Typical Levels of Groundborne Vibration

2.6.4 Regulatory Background for Noise.

The State of California, the City of Antioch, The U.S. Department of Housing and Urban Development (HUD), and the Federal Transit Agency have established plans and policies designed to limit noise and vibration exposure at sensitive land uses. These plans and policies are contained in the following documents: (1) the State of California Environmental Quality Act (CEQA) Guidelines, Appendix G, (2) the City of Antioch General Plan, (3) the City of Antioch Zoning Ordinance, (4) the HUD Noise Compatibility Criteria, and (5) the Federal Transit Agency train vibration criteria. Regulations, objectives, and policies presented within these documents form the basis of the significance criteria used to assess project impacts.

State CEQA Guidelines. The CEQA contains guidelines to evaluate the significance of effects of environmental noise and vibration. Under CEQA, environmental noise and vibration would be considered noise impacts significant if an action would result in:

(a) Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies;

(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

(e) For a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, if the project would expose people residing or working in the project area to excessive noise levels; or

(f) For a project within the vicinity of a private airstrip, if the project would expose people residing or working in the project area to excessive noise levels.

Of these guidelines, only items (a) and (b) are applicable to the constraints analysis. Guidelines (c) and (d) address impacts upon existing uses, the subject of the EIR, and (e) and (f) are not applicable because the project is not located in the vicinity of a public airport or private airstrip.

Environmental Hazards Chapter of the City of Antioch General Plan. The Environmental Hazards Chapter of the City of Antioch General Plan sets forth noise and land use compatibility standards to guide development, and noise goals and policies to protect citizens from the harmful and annoying effects of excessive noise. Objectives and policies established in the Noise Element of the General Plan that are applicable to the proposed project include:

11.6.1 Noise Objective: Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch as described below:

- Residential: Single-Family: 60 dBA CNEL within rear yards; Multi-Family: 60 dBA CNEL within exterior open space

- Schools: Classrooms: 65 dBA CNEL; Play and sports areas: 70 dBA CNEL
- Hospitals, Libraries: 60 dBA CNEL
- Commercial/Industrial: 70 dBA CNEL at the front setback.

11.6.2 Noise Policies: The following policies are applicable:

Noise Compatible Land Use and Circulation Patterns

a. Maintain a pattern of land uses that separates noise-sensitive land uses from major noise sources to the extent possible, and guide noise-tolerant land uses into the noisier portions of the Planning Area.

b. Minimize motor vehicle noise in residential areas through proper route location and sensitive roadway design.

    - Provide planned industrial areas with truck access routes separated from residential areas to the maximum feasible extent.
    - Where needed, provide traffic calming devices to slow traffic speed within residential neighborhoods.

Noise Analysis and Mitigation

c. Where new development is proposed in areas exceeding the noise levels exceeding the noise levels identified in the General Plan Noise Objective, or where the development of proposed uses could result in a significant increase in noise, require a detailed noise attenuation study to be prepared by a qualified acoustical engineer to determine appropriate mitigation and ways to incorporate such mitigation into project design and implementation.

d. In reviewing noise impacts, utilize site design and architectural design features to the extent feasible to mitigate impacts on residential neighborhoods and other uses that are sensitive to noise. In addition to sound barriers, design techniques to mitigate noise impacts may include, but are not limited to:

    - Increased building setbacks to increase the distance between the noise source and sensitive receptor.
    - Orient buildings which are compatible with higher noise levels adjacent to noise generators or in clusters to shield more noise sensitive areas and uses.
    - Orient delivery, loading docks, and outdoor work areas away from noise-sensitive uses.
    - Place noise tolerant uses, such as parking areas, and noise tolerant structures, such as garages, between the noise source and sensitive areas.
    - Cluster office, commercial, or multi-family residential structures to reduce noise levels within interior open space areas.
    - Provide double glazed and double paned windows on the side of the structure facing a major noise source, and place entries away from the noise source to the extent possible.

e. Where feasible, require the use of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts.

    a. The barrier must have sufficient mass to reduce noise transmission and high enough to shield the receptor from the noise source.

    b. To be effective, the barrier needs to be constructed without cracks or openings.

    c. The barrier must interrupt the line-of-sight between the noise source and the receptor.

    d. The effects of noise 'flanking' the noise barrier should be minimized by bending the end of the barrier back from the noise source.

f. Continue enforcement of California Noise Insulation Standards (Title 25, Section 1092, California Administration Code).

    The California Building Code (CBC) no longer includes noise insulation standards for residences. For compliance with the intent of this policy, the 2010 CBC noise insulation standards are used. The 2010 CBC established an interior noise level standard of 45 dBA CNEL/L_{dn} in any habitable room for new hotels, motels, dormitories, and apartment houses. This standard is generally also applied for single family dwellings.

HUD Noise Compatibility Criteria. HUD environmental noise regulations are set forth in 24CFR Part 51B (Code of Federal Regulations). The following exterior noise standards for new housing construction would be applicable.

- 65 dBA L_{dn} or less – acceptable.
- Exceeding 65 dBA L_{dn} but not exceeding 75 dBA L_{dn} – normally unacceptable (appropriate sound attenuation measures must provide an addition 5 decibels of attenuation over that typically provided by standard construction in the 65 dBA L_{dn} to 70 dBA L_{dn} zone; 10 decibels additional attenuation in the 70 dBA L_{dn} to 75 dBA L_{dn} zone)
- Exceeding 75 dBA L_{dn} – unacceptable

These noise standards also apply, "… at a location 2 meters from the building housing noise sensitive activities in the direction of the predominant noise source…" and "…at other locations where it is determined that quiet outdoor space is required in an area ancillary to the principal use on the site."

A goal of 45 dBA L_{dn} is set forth for interior noise levels and attenuation requirements are geared toward achieving that goal. It is assumed that with standard construction any building will provide sufficient attenuation to achieve an interior level of 45 dBA L_{dn} or less if the exterior level is 65 dBA L_{dn} or less. Where exterior noise levels range from 65 dBA L_{dn} to 70 dBA L_{dn}, the project must provide a minimum of 25 decibels of attenuation, and a minimum of 30 decibels of attenuation is required in the 70 dBA L_{dn} to 75 dBA L_{dn} zone.

Train Vibration Guidelines. The City of Antioch has not identified quantifiable vibration limits that can be used to evaluate the compatibility of land uses with vibration levels experienced at a project site. Although there are no local standards that control the allowable vibration in a new residential development, the U.S. Department of Transportation has developed vibration impact assessment criteria for evaluating vibration impacts associated with

transit projects.[10] The Federal Transit Administration (FTA) has proposed vibration impact criteria, based on maximum overall levels for a single event. The impact criteria for groundborne vibration are shown in Table 2.6.5. Note that there are criteria for frequent events (more than 70 events of the same source per day), occasional events (30 to 70 vibration events of the same source per day), and infrequent events (less than 30 vibration events of the same source per day).

[10]U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, FTA-VA-90-1003-06.

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 µinch/sec, RMS)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1 Buildings where vibration would interfere with interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]
Category 2 Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3 Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Notes:

1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research should always require detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels in a building requires special design of HVAC systems and stiffened floors.

Source: U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, FTA-VA-90-1003-06.

Table 2.6.5: Railroad Train Groundborne Vibration Thresholds

2.6.5 Existing Noise Environment

The Burlington Northern Santa Fe (BNSF) Railroad extends in an east-west direction through the Downtown Area, and runs along the waterfront. Land uses in the Specific Plan area include mixed commercial/office/retail, medium and high density residential, open space/park, marina, and industrial. The Union Pacific (UP) rail line extends in an east-west direction through the central portion of Antioch just north of State Route 4. Other major sources of environmental noise in Antioch include State Routes 4 and 160.

A noise monitoring survey was conducted from October 21-23, 2014 to quantify existing noise environments throughout the Downtown Area and the remainder of the City for the Land Use Element and Zoning Ordinance Update. The noise measurement survey included eight long-term noise measurements (LT-1 through LT-8 as listed in Table 2.6.7) adjacent to the railroad corridor and major arterials, and fourteen short-term noise measurements (ST-1 through ST-14 as listed in Table 2.6.8) throughout the City. Figure 2.6.1 depicts the noise measurement locations conducted for the Downtown Area, and Figure 2.6.2 shows the measurement locations for the Land Use Element and Zoning Ordinance Update in the remainder of the City. Railroad trains and vehicular traffic along the local roadway network are the predominant noise sources affecting the noise environment in Antioch.

Measurement locations LT-1 and LT-2 were selected to document noise levels in the Downtown Area. Noise measurement LT-1 was approximately 55 feet from the BNSF railroad, adjacent to the Barbara Price Marina Park and L Street to quantify noise levels generated by Amtrak and freight trains. Hourly average noise levels typically ranged from 42 dBA L_{eq} to 84 dBA L_{eq} during the noise monitoring survey. The large variation in hourly average noise levels was dependent on whether or not trains passed during the hour. Maximum noise levels generated by railroad train warning whistles were routinely 99 to 110 dBA L_{max} at this location with three excursions above 110 dBA L_{max}. A review of the noise data gathered at this location indicates that approximately 25 trains passed the site in a 24-hour period. The 24-hour average noise level at location LT-1 was 83 dBA CNEL and would represent a credible worst-case scenario for land uses located adjacent to grade crossings. In June of 2006, Illingworth & Rodkin, Inc. (I&R) conducted a long-term measurement of noise at a location approximately 90 feet from the railroad tracks, west of LT-1 and the grade crossing at L Street. This location is representative of potential land uses located adjacent to the railroad, but not directly adjacent to a grade crossing where train warning whistles are consistently used. In these locations, warning whistles are used less frequently due to increased distance from grade crossings. Adjusting for distance, maximum and 24-hour average noise levels resulting from train warning whistles at locations in these areas are calculated to be approximately 4 dBA higher than levels measured away from the grade crossing. Maximum noise levels would range from about 89-109 dBA L_{max}. The 24-hour average noise level would be approximately 77 dBA CNEL 55 feet from the tracks at locations throughout town and located away from grade crossings.

Table 2.6.6 provides distances to noise contours resulting from train activity through the downtown corridor of Antioch. These calculations assume no shielding from intervening buildings or topographic features and constitute a credible worst-case scenario of train activity along the rail corridor.

CNEL, dBA	Distance, in Feet		L_{max}, dBA	Distance, in Feet
	From Grade Crossing	From Typical Tracks		From Train Horn
80	90	30	110	60
75	190	70	100	200
70	400	140	90	500
65	870	310	80	1,260
60	1,740	660		

Table 2.6.6: Noise Contours Resulting from Train Activity

Measurement location LT-2 was approximately 32 feet from the center of WestTenth Street, at C Street. This measurement was made to quantify noise levels generated by vehicular traffic along West Tenth Street. Hourly average noise levels typically ranged from 65 dBA L_{eq} to 71 dBA L_{eq} during the day and from 57 dBA L_{eq} to 71 dBA L_{eq} at night. The weighted average noise level at location LT-2 was 73 dBA CNEL.

Measurement locations LT-3 through LT-8 were selected throughout the rest of the City. LT-3 was located approximately 60 feet from the center of A Street, at the corner of West Sixteenth Street. The dominant noise source at this location was vehicle traffic along A Street. Hourly average noise levels typically ranged from 65 dBA L_{eq} to 71 dBA L_{eq} during the day and from 56 dBA L_{eq} to 67 dBA L_{eq} at night. The average noise level at LT-3 was 71 dBA CNEL. Measurement location LT-4 was approximately 65 feet from the center of James Donlon Boulevard, east of Somersville Road. This location was chosen to quantify noise levels generated by vehicular traffic along James Donlon Boulevard. Daytime hourly average noise levels ranged from approximately 66 to 72 dBA L_{eq} and from 53 to 66 dBA L_{eq} at night. The level at this location was 71 dBA CNEL. Measurement location LT-5 was located approximately 85 feet from the center of Lone Tree Way, west of Deer Valley Road. Vehicle traffic along Lone Tree Way was the dominant noise source at this location. Daytime hourly average noise levels ranged from 67 to 74 dBA L_{eq} during the day and 58 to 69 dBA L_{eq} at night. The level at this location was 73 dBA CNEL. Measurement location LT-6 was 75 feet from the center of Hillcrest Avenue, east of Deer Valley Road. The predominant noise source at this location was traffic resulting from Hillcrest Avenue. Hourly average noise levels typically ranged from 59 dBA L_{eq} to 68 dBA L_{eq} during the noise monitoring survey. The level at this location was 71 dBA CNEL. Measurement location LT-7 was chosen to characterize noise levels on Hillcrest Avenue, north of Highway 4. The measurement was made approximately 65 feet from the center of the roadway. Daytime hourly average noise levels ranged from 63 to 69 dBA L_{eq} and nighttime levels ranged from 55 to 66 dBA L_{eq}. The level was 70 dBA CNEL. To conclude the long-term measurement survey, LT-8 was located 65 feet from the center of East Eighteenth Street, at Wymore Way. Vehicular traffic resulting from East Eighteenth Street was the dominant noise source at this location. Hourly average noise levels typically ranged from 64 dBA L_{eq} to 70 dBA L_{eq} during the day and from 54 dBA L_{eq} to 70 dBA L_{eq} at night. The level at this location was 72 dBA CNEL. Noise data gathered at these sites are summarized in Table 7 and charts are presented in Appendix A.

Noise Measurement Location	dBA, CNEL	Typical Daytime Levels, L_{eq}	Typical Nighttime Levels, L_{eq}
LT-1: ~55 feet from the center of UP/BNSF Railroad, at L Street. (10/21/2014 to 10/22/2014)	83	50-84	42-82
LT-2: ~32 feet from the center of W. 10th Street, at C Street. (10/21/2014 to 10/22/2014)	73	65-71	57-71
LT-3: ~60 feet from the center of A Street, at W. 16th Street. (10/21/2014 to 10/22/2014)	71	65-71	56-67
LT-4: ~65 feet from the center of James Donlon Boulevard, at Pintail Drive. (10/21/2014 to 10/22/2014)	71	66-72	53-66
LT-5: ~85 feet from the center of Lone Tree Way, near Deer Valley Road. (10/22/2014 to 10/23/2014)	72	67-74	58-69
LT-6: ~75 feet from the center of Hillcrest Avenue, East of Deer Valley Road. (10/22/2014 to 10/23/2014)	71	65-70	53-65
LT-7: ~75 feet from the center of Contra Loma Boulevard, northeast of James Donlon Boulevard. (10/22/2014 to 10/23/2014)	70	63-69	55-66
LT-8: ~65 feet from the center of E. 18th Street, at Wymore Way. (10/22/2014 to 10/23/2014)	72	64-70	54-70

Table 2.6.7: Summary of Long-Term Noise Measurement Data - October 21-23, 2014

Short-term noise measurements were made at 14 additional positions throughout the Specific Plan area and the City to help quantify noise levels. ST-1 through ST-4 were selected to characterize noise levels in the Downtown Specific Plan area and ST-5 through ST-14 were made throughout the rest of the City. Table 2.6.8 summarizes the results of the short-term noise measurements and presents the estimated CNEL levels at these locations.

Noise Measurement Location	L_{max}	$L_{(1)}$	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	L_{eq}	Estimated CNEL
ST-1: ~45 feet from the center of A Street, north of D Street. (10/21/20114, 1:00-1:10 p.m.)	73	69	65	58	45	61	67
ST-2: ~30 feet from the center of W. 6th Street, between H Street and G Street. (10/21/2014, 1:20-1:30 p.m.)	69	66	60	48	45	55	60
ST-3: ~26 feet from the center of G Street, between 7th Street and W. 8th Street. (10/21/2014, 1:40-1:50 p.m.)	83	79	70	58	48	67	71
ST-4: ~46 feet from the center of L Street, north of W. 5th Street. (10/21/2014, 2:00-2:10 p.m.)	75	72	62	52	47	59	63
ST-5: ~65 feet from the center of Somersville Road, north of James Donlon Boulevard. (10/21/2014, 2:40-2:50 p.m.)	87	75	66	57	44	65	65
ST-6: ~62 feet from the center of Buchanan Road, west of Somersville Road. (10/22/2014, 10:10-10:20 a.m.)	77	74	71	67	55	68	73
ST-7: ~75 feet from the center of Contra Loma Blvd., northeast of James Donlon Blvd. (10/22/2014, 10:40-10:50 a.m.)	69	67	63	56	48	59	64
ST-8: ~100 feet from the center of Lone Tree Way, adjacent to Antioch Town Center. (10/22/2014, 11:10-11:20 a.m.)	72	71	69	65	54	65	69
ST-9: ~72 feet from the center of Lone Tree Way, south of Putnam Street. (10/22/2014, 11:30-11:40 a.m.)	79	75	71	65	57	67	71
ST-10: ~72 feet from the center of Wilbur Avenue, east of Viera Avenue. (10/22/2014, 2:30-2:40 p.m.)	79	76	72	60	45	67	71
ST-11: ~82 feet from the center of Deer Valley Road, northwest of Sand Creek Road. (10/23/2014, 11:00-11:10 a.m.)	69	67	62	50	44	57	59
ST-12: ~62 feet from the center of Empire Avenue, north of Lone Tree Way. (10/23/2014, 12:00-12:10 p.m.)	88	82	67	63	55	68	71
ST-13: ~100 feet from the Center of Hillcrest Avenue, north of Lone Tree Way. (10/23/2014, 11:30-11:40 a.m.)	74	70	66	60	56	62	66
ST-14: ~36 feet from the center of Oakley Road, east of Willow Avenue.(10/23/2014, 12:30-12:40 p.m.)	79	71	58	46	44	58	62

Note: CNEL approximated by correlating to corresponding period at long-term site.

Table 2.6.8: Summary of Short-Term Noise Measurement Data on October 21-23, 2014

Two other major sources of transportation noise in the City of Antioch are State Route (SR) 4 and 160. In 2012, I&R completed a noise study for the Toscana residential property in nearby Pittsburg. A long-term measurement location was located 245 feet from the center of SR 4. This location is representative of potential noise-sensitive land uses developed adjacent to SR 4 in Antioch. The level at this location was 78 dBA CNEL. In 2010, I&R completed a noise study for the SR 4 Bypass/SR 160 Connector Ramps Project. A long-term measurement location was located 180 feet from the center of SR 160. The level at this location was 59 dBA CNEL. Table 2.6.9 provides distances to noise contours resulting from vehicle traffic along SR 4 and 160 through the City of Antioch.

CNEL, dBA	Distance, in Feet	
	From SR 4	From SR 160
75	380	20
70	840	30
65	1800	70
60	3880	160

Table 2.6.9: Noise Contours Resulting from Highway Noise

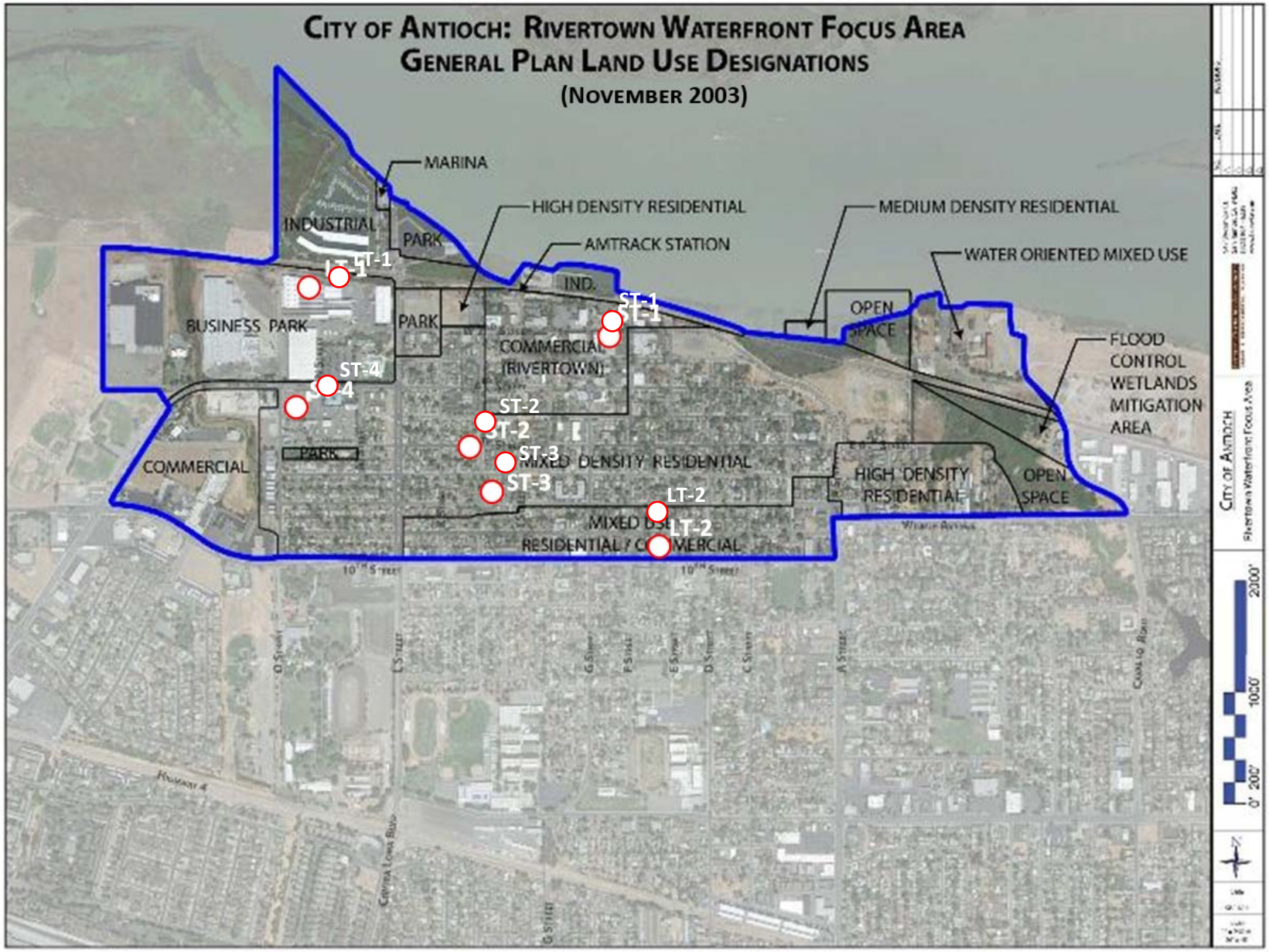


Figure 2.6.1: Noise Measurement Locations for the Downtown Specific Plan Area

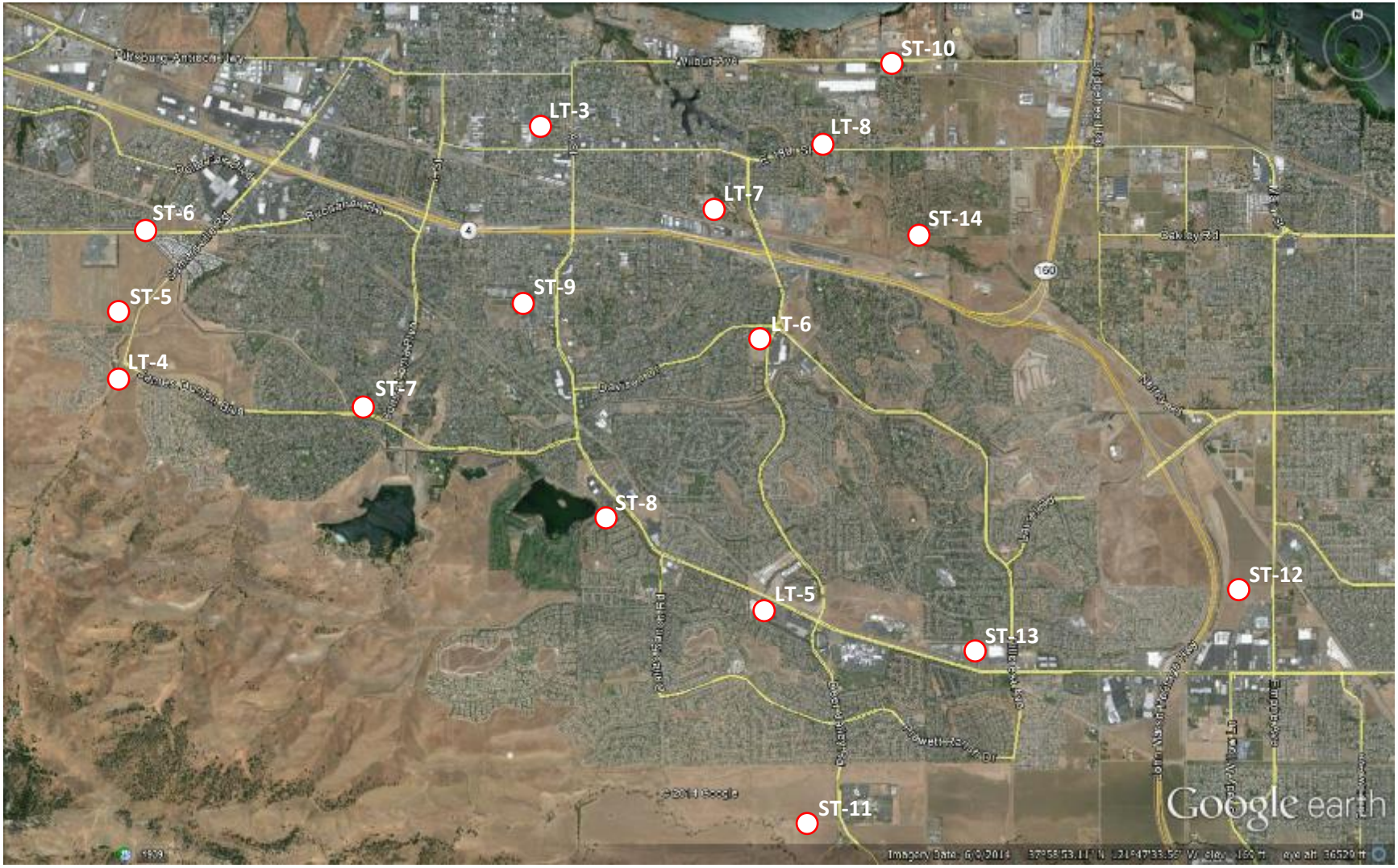


Figure 2.6.2: Noise Measurement Locations for the Land Use Element Update

2.6.6 Opportunities and Constraints for Downtown Area.

Railroad Train Noise. The Environmental Hazards Element of the City of Antioch General Plan identifies noise and land use compatibility objectives for various land uses. These standards are intended to provide compatible land uses throughout the community as related to environmental noise. Exterior noise level objectives range from 60 dBA CNEL for single and multi-family residential up to 70 dBA CNEL for commercial/industrial land uses. Following generally accepted guidelines such as those used by HUD, noise levels exceeding 75 dBA CNEL are considered severe and are unacceptable for residential development. HUD would not normally provide funding for sites located where the noise level exceeds 75 dBA CNEL. Where railroad trains are the primary sources of noise, the effect on residential outdoor activity areas is less than for traffic noise because the CNEL often results from a few trains in the middle of the night or early morning hours when people are inside their homes. The effect is primarily on the inside of a residence where the noise levels from the trains disturbs sleep or interrupts activities. To minimize these effects the noise levels inside residences should not exceed 45 dBA CNEL, and the typical maximum noise levels should not exceed 50 – 55 dBA L_{max} in bedrooms and 55 – 60 dBA L_{max} in other rooms.

The noise environment along the waterfront portion of the plan area results primarily from train activity, where noise levels vary depending on the proximity to grade crossings. As shown in Table 2.8.6, the noise level would exceed 75 dBA CNEL within about 200 feet of a grade crossing and would be considered unacceptable for residential development. Similarly, maximum noise levels resulting from train horns would exceed 100 dBA L_{max} within about 200 feet of the tracks, the highest level that can normally be mitigated to acceptable interior levels in residences. The noise environment considered normally acceptable for residential development as defined by the General Plan (60 dBA CNEL) would be located beyond a distance of 1,740 feet from a grade crossing and 660 feet from tracks in typical locations west of the Antioch Marina and east of the Amtrak station. Where the noise levels from trains are between 75 dBA CNEL and 60 dBA CNEL, and the maximum noise level is less than 100 dBA L_{max}, residential development can normally proceed with the incorporation of noise control measures.

Section 11.6.2 of the Environmental Hazards Element of the General Plan identifies noise policies that aid in achieving the noise and land use compatibility objectives set forth in Objective 11.6.1. Item "b" states: "maintain a pattern of land uses that separates noise-sensitive land uses from major noise sources to the extent possible, and guide noise-tolerant land uses in to the noisier portions of the planning area." Much of the railroad corridor through the waterfront area has been identified for potential future development. This provides an opportunity to site less noise sensitive land uses immediately adjacent to the railroad. Land uses such as light industrial, commercial/office, or retail that do not include noise sensitive outdoor areas and are less sensitive to noise indoors, would create spatial and physical buffers for potential residential uses located adjacent to these uses. An example of where this would be important is the parcel currently designated in the General Plan as "High Density Residential" on the south side of the railroad tracks at J and 2nd Streets (Downtown Opportunity Site #1). However, in the severe noise environment near grade crossings, the noise environment should be taken into account when evaluating any potential uses. Appropriate site planning, the use of buildings or sound barriers, and selection of building elements that control noise intrusion will be critical to successful land use planning in the Downtown Specific Plan Area along the rail corridor.

Railroad Train Ground Vibration. Ground vibration can also affect land uses built near railroad tracks. Normally, within most of the developed Bay Area where train speeds are less than approximately 40 mph, the railroad train ground vibration levels are at or below the threshold levels suggested by the Federal Transit Agency at a distance of 100 feet from the tracks. If, as the project planning develops setback distances from the railroad tracks to buildings approach 100 feet or less, it is recommended that additional ground vibration studies be conducted on a project by project basis to confirm that appropriate vibration thresholds would not be exceeded.

Street Traffic Noise. Along the major roadways in the Downtown Area, such as Somersville Road, A Street, G Street, and West Tenth Street, measured noise levels ranged from 67-73 dBA CNEL. Along minor roadways such as L Street and West Sixth Street measured noise levels ranged from 60 – 63 dBA CNEL. Existing noise levels are not severe, but exceed 60 dBA CNEL, the residential outdoor noise threshold, throughout the Downtown Area. Other land uses beside residential would be generally compatible with the noise environment throughout the Downtown Area. To reduce noise levels in residential outdoor activity areas to 60 dBA CNEL or less, noise-sensitive developments will likely need to be located at increased setbacks from these roadways, incorporate cluster buildings to create courtyards, or include roadside noise barriers. Readily available sound rated building elements may be necessary for residential projects adjoining major roadways, and adequate ventilation systems (allowing residents to keep out the noise and enjoy a comfortable interior environment) would be an integral part of future residential projects.

Housing Near Stationary Noise Sources. Placing residents in proximity to non-residential land uses can result in isolated noise problems. For instance, outdoor music played at outdoor dining areas or bars, collection of garbage dumpsters early in the morning, heating and air-conditioning equipment, loading docks, and outdoor maintenance activities can all annoy nearby residents in an urban setting. The purpose of a quantitative noise ordinance is to address such issues. The adoption of an ordinance is something the City should consider if the change in land use patterns results in conflicts than cannot be resolved through existing regulations.

2.6.7 Opportunities and Constraints for City-wide Land Use Element.

State Route 4 and State Route 160 Noise. Along the two major highways through Antioch, SR 4 and 160, measured noise levels ranged from 59 – 78 dBA CNEL. Existing noise levels are not severe, but exceed 60 dBA CNEL, the residential outdoor noise threshold, along SR 4 throughout the City. To reduce noise levels in residential outdoor activity areas to 60 dBA CNEL or less, noise-sensitive developments will likely need to be located at increased setbacks from these highways, incorporate cluster buildings to create courtyards, or include highway noise barriers. Readily available sound rated building elements may be necessary for residential projects adjoin SR 4, and adequate ventilation systems (allowing residents to keep out the noise and enjoy a comfortable interior environment) would be an integral part of future residential projects.

Street Traffic Noise. Along the major roadways in the City such as A Street, James Donlon Boulevard, Lone Tree Way, Hillcrest Avenue, Buchanan Road, Wilbur Avenue, Empire Avenue and East Eighteenth Street measured noise levels ranged from 70 - 73 dBA CNEL. Along minor roadways measured noise levels ranged from 59 - 65 dBA CNEL. Existing noise levels are not severe, but exceed 60 dBA CNEL, the residential outdoor noise threshold, along major and minor roadways throughout the City. Other land uses would be generally compatible with the noise environment throughout the City.

As noted above, to reduce noise levels in residential outdoor activity areas to 60 dBA CNEL or less, noise-sensitive developments will likely need to be located at increased setbacks from these roadways, incorporate cluster buildings to create courtyards, or include roadside noise barriers. Readily available sound rated building elements may be necessary for residential projects adjoining major roadways, and adequate ventilation systems (allowing residents to keep out the noise and enjoy a comfortable interior environment) would be an integral part of future residential projects throughout the City.

There is an opportunity available now to, over time, reduce street traffic noise throughout the City. The interaction of tires and pavement is the main source of traffic noise. Research on the effects of different types of pavement surfaces on the traffic noise has found significant differences depending upon the type of pavement. The City can select the type of pavement it uses to repave its streets. Quieter pavements such as open grade porous asphalt or rubberized asphalt are typically 3 – 5 dBA quieter than standard dense grade asphalt at local traffic speeds of 25 – 45 mph. The consideration of quieter pavement surfaces in the City's repaving plans provides an opportunity to make a noticeable reduction in noise throughout Antioch.

2.7. Infrastructure Capacity

2.7.1 Introduction.

This chapter reviews the current conditions, constraints and opportunities for enhancement of the major utility systems serving the Downtown Area. The major utility systems serving that portion of the City outside of the Downtown Area were reviewed as part of the 2003 update to the Antioch General Plan, and will be further addressed in the EIR for the current Land Use Element Update. The availability of adequate sanitary sewer, electrical, water, natural gas and cellular services within the Downtown Area are a critical factor in accommodation of new residential and non-residential development, and in attracting new uses within existing buildings. Following is a review of the major utility systems in the context of constraints and possible opportunities for future economic development within the Downtown Area. Figure 2.7.1 provides an overall graphic summary of the existing utility systems and identified constraints, in relationship to the Opportunity Sites discussed in Chapter 2.3.

2.7.2 Sanitary Sewer Service.

Existing Conditions. City of Antioch's Sanitary Sewer system consists of gravity sewer systems, manholes, cleanouts and other access structures. In addition to the City owned and operated wastewater systems, there are several other sewer conveyance facilities that are owned and operated by Delta Diablo Sanitation District (DDSD). In reviewing the Sanitary Sewer system, the following key documents were reviewed for this report:

- Conveyance System Master Plan Update Final Report ("Draft") prepared by RMC Water & Environment in April 2010 – Delta Diablo Sanitation District.
- Sanitary Sewer Utilities GIS Mapping Information within the Rivertown/Waterfront Specific Plan – City of Antioch, California.
- Wastewater Collection System Master Plan prepared by Winzler & Kelly Consulting Engineers, adopted September 2, 2003 – City of Antioch, Department of Public Works.

The Downtown Area presently includes several gravity lines flowing northerly towards the San Joaquin River, and then flowing easterly towards the Antioch Pump Station (APS), previously called the Fulton Shipyard Sewer Pump house. This planning area also includes two force mains flowing westerly from the APS to the Waste Water Treatment Plan (WWTP) located west of Antioch, which is also owned and operated by DDSD.

As shown in Figure 2.7.1, an existing 18"-21" VCP sewer main runs along O Street, then a 24" main runs easterly along West Fourth Street, then a 33" VCP runs northerly along L Street and then easterly along West Second Street, all the way through the Downtown Area towards the A Street extension into the APS. A 15" VCP sewer main, an 8" VCP sewer, and a 14"-24" VCP sewer pipe connect into this 33" inch main at J Street, F Street and B Street. The 33" main crosses the East Antioch Creek and discharges into the APS. Several other smaller pipes also connect to this segment.

DDSD has two 24" force mains (AFM-101 & ADM-102) operating from the APS to the WWTP. Bridgehead Pump station located further east near State Route 160 has two force mains (FM-1 & FM-2) which pump wastewater towards the APS. There is currently a section of gravity pipeline situated between these two pump stations.

Bellecci & Associates met with Delta Diablo Sanitation District staff on October 17, 2014 to review the project limits and discuss with Delta Diablo the force main system capacities and were directed to review their "Draft" DDSD Master Plan. Information from this draft plan has been utilized in preparation of this background report.

Utility System Constraints. Following are the key constraint issues identified for the Sanitary Sewer Facilities within the Downtown Area:

1. The City's Sewer Master Plan indicates that most of the main line pipes were built prior to 1960. These pre-1960 pipes were specified in the Master Plan to identify the pipes with cement mortar joints, since post 1960 the joints were primarily rubber compression joints for better leakage protection. The Master Plan identifies leakage from the aged pipes combined with a high groundwater table as a possible cause of infiltration and inflow problems. However, City of Antioch staff have clarified that they do not have any current information regarding sewage leakage due to joints and they do not have any soils samples. Consequently, some soil sampling within the Downtown Area may be useful to determine if there are any potential infiltration issues which need to be addressed with future developments.

2. The City's Master Plan also identifies a few segments of the 33-inch sewer main with negative slopes along West Second Street between I Street and J Street, and along the A Street extension between A Street and D Street. Reviewing the City's GIS mapping information, it appears some of the existing 33-inch lines were replaced along the A Street extension. These negative pipe slopes have the potential to create a pressure system in the gravity pipelines which can reduce the system capacity. The condition of these segments with negative pipe slopes is a possible constraint delivery of increased capacity needed for future development and/or intensification of land uses.

3. The City's Master Plan consultant has modeled the sewer system using a modeling software package called HYDRA. The Master Plan calls for use of unit flow factors in order to forecast population and land use demands. The modeling and demand forecasting methodology identified in the Master Plan will be used to evaluate sewer capacity needs associated with land use alternatives developed as part of the specific plan process for the Downtown Area.

4. DDSD has identified potential capacity restrictions in the trunk line from the Wilbar Overpass to the Antioch Pump Station located east of the Downtown Area, resulting in: (a) The occurrence of diversions to storage at APS Equivalent Storage Basins (ESB) during peak dry weather flow (PDWF); (b) Overflow at APS ESB during Peak wet weather flows (PWWF); and (c) Surcharge in the Antioch Collection system. To address the above limitations, DDSD's Master Plan identifies a phased construction process consisting of the following:

   - Eliminating the Bridgehead gravity lines to APS and connecting FM-1 & FM-2 to AFM-102 via a 24-inch force main. APS operating only on AFM-101 with existing pumps.
   - Upgrade pumps at APS to have capacity equivalent PDWF and optimize use of existing storage at ESB.

2.7.3 Electrical Service.

Existing Conditions. Electrical System GIS Mapping Information from PG&E was reviewed within the Downtown Area as part of this review. The record drawings have the latest PG&E corrections dated June 11, 2014 and have been updated from original drawings dated back to October 12, 1965. The Downtown Area was found to have streets with overhead power lines and streets that are undergrounded, as show on the PG&E record maps (and summarized in Figure 2.7.1). The City completed a major underground utility project on L Street between Tenth Street and Fourth Street. The following streets still have overhead electrical between O Street and A Street, with the exception of L Street: Fifth Street, Sixth Street, Seventh Street, Eighth Street and Ninth Street. The City has previously undergrounded the electrical lines on Fourth Street, and portions of Third Street, Second Street and First Street.

Electrical System Constraints. Following are the key constraint issues identified for the electrical facilities within the Downtown Area:

1. As shown on the Utility Constraint Map, there remains an island of overhead power lines in the Downtown bounded by L Street, I Street, First Street, and Third Street. This island of overhead power lines could be a potential underground utility district, under PG&E Rule 20A.

2. The City of Antioch receives a Rule 20A allocation of $212,000 per year. In February of 2015, the City will have a negative balance of -$136,000. The PG&E procedure to process and design a Rule 20A undergrounding project will require approximately 5 years. The City of Antioch Rule 20A funds will reach nearly $1,000,000 in year 2020. The City also has the option of borrowing another 5 years into the future, so there will be significant Rule 20A funding available for a project in year 2020. City staff can review the City-wide utility undergrounding priorities and, if the Downtown Area ranks as a high priority, the City can commence the process of establishing an underground utility district.

2.7.4 Water Service.

Existing Conditions. Water System GIS Mapping Information from the City of Antioch was reviewed within the Downtown Area for preparation of this review. The water system in the Downtown Area is owned and operated by the City of Antioch. Water is supplied to the City from the Contra Costa Water District via the San Joaquin River through an inlet at the Roger's Point boat ramp. The water system is divided into Zone 1 and Zone 2. The Downtown Area is primarily in Zone 1. Zone 2 is the area west of O Street towards Auto Center Drive and the Pittsburg Antioch Highway. Within Zone 1 the pipelines range from 2" diameter to 24" diameter. The 24" ductile iron pipe waterlines lie within D Street, and there is a 16" ductile iron pipe waterline in Fourth Street near the Police Station. A 12" cast iron pipe loop system encompasses K Street, Second Street, A Street, and Ninth Street with portions of Ninth Street being asbestos cement pipe.

Water System Constraints. Future development within the Downtown Area may be significantly constrained by available fire flows and pressures in the City water system. The City estimates that the pressure readings for Downtown Area currently range from 40 psi around Tenth Street to 48 psi around First Street. The City does not have any current flow readings.

Consequently, further analysis of water system capacity would benefit from collection of localized fire flow and pressure readings in the vicinity of the key Opportunity Sites, to confirm the extent of fire flow

constraints for new development, including especially any contemplated high-rise buildings. Flow and pressure readings can be taken at the existing fire hydrants.

2.7.4 Gas Service.

Existing Conditions. Maps and related information pertaining to gas lines were obtained from Pacific Gas & Electric (PG&E) Company. The record drawing maps provided information of Zone 3 from Somersville Road to Marie Avenue (West to East) and from the San Joaquin River shoreline to Tenth St (North to South). As shown in Figure 2.9.1, the gas main sizes vary 2" through 6" within the Downtown Area. Gas laterals varying in size from ¼" to 1" serve various residential units, and some laterals larger than 1" serve commercial and industrial establishments. The majority of the gas main pipe material consists of welded steel pipe with some smaller segments of gas mains consisting of plastic pipes.

An existing 6" welded and wrapped gas main is located along Tenth Street from A Street to E Street, which reduces to a 4" beyond E Street all the way to Somersville Road, and ties back into an existing 6" gas main. There are two 6" gas mains along Somersville road within the Downtown Area. The 4"-6" gas main along Tenth^{h} Street has several 2"-6" laterals feeding the Downtown Area. An existing 6" gas main is located along B Street up to Fourth Street. An existing 3" line runs along F Street from West Tenth to Second Street. A 4" gas main on H Street runs all the way to Third Street and on O Street up to Fourth Street. Several other smaller 2" gas mains are located along other streets.

Gas Line System Constraints. Future development and reuse of existing buildings within the Downtown Area will be affected by the following gas line issues:

1. On October 7, 2014 Bellecci & Associates meet with PG&E staff, and was informed that there are shallow and old gas lines which currently exist within the Downtown Area. As shown in Figure 2.7.1, the shallow gas lines are less than 24" deep and are in the area between G Street and D Street, and between Second Street and Tenth Street. City staff has also confirmed that they have encountered some shallow gas lines in the Downtown Area during various roadway reconstruction and concrete replacement activities.

2. Any program for development and/or major renovation and reuse of existing facilities within the vicinity of these shallow lines must address the potential risks associated with rupture and/or leakage. Such an effort will begin with a discussion with PG&E staff regarding the company's on-going program to replace old gas lines, and examination of the process to increase the priority level for funding of such efforts within the Downtown Area.

3. There are several overhead utilities within the Specific Plan area which could potentially be undergrounded as part of City's conditions of approval for development. PG&E staff mentioned that they would participate in any joint trench within the Downtown Area. However City staff has indicated that there is a negative balance of -$136,000 on the Rule 20A underground utility district funds from PG&E for the City of Antioch until 2014. The City earns annual funds of approximately $212,000 from Rule 20A. The amount of these funds and their availability for use as part of an initiative to upgrade and protect gas lines in the Downtown Area will need to be verified with the PG&E Rule 20 representative.

2.7.5 Cellular Service.

Existing Conditions. Review of cellular service issues involved examination of the Leased Cell Tower record drawing for Antioch, as provided via the City GIS system. The record drawing identifies of all the cell towers within the City of Antioch, which is dated October 2014, and is on an 11"x17" base map at 1" = .35miles (1848'). In the provided record drawing, the closest cell tower to the Downtown Area is located at the City Park on Tenth Street and A Street. This is the only cell tower north of State Route 4. The rest of the cell towers in Antioch are located south of State Route 4.

Cellular Service Constraints. Cell phone reception in the Downtown Area is reported as being very poor for all carriers, based on input from stakeholders at interviews conducted in October and November 2014. This limitation is a disincentive for businesses (and especially small businesses) considering locating within the Downtown Area. The poor service results in an inability to place calls, or dropped calls initiated from outside the area. Improvement of service within the Downtown Area will require development of a strategy to accommodate and incentivize placement of one or more towers within the area.

2.7.6 Storm Drainage Facilities.

Existing Conditions. Review of the storm drainage facilities involved examination of maps from the FEMA website (http://msc.fema.gov/portal), including Map Numbers 06013C0139F and 06013C0143F. In addition, City GIS mapping information of Storm Water Utilities within the Downtown Area was reviewed. The mean annual precipitation in this area is 13 inches. The Storm Drain system within the Downtown Area is owned and operated by the City of Antioch. The drainage flow is primarily from south to north.

As shown in **Figure 2.7.1**, there are 12 different storm drain systems present, and each storm drain system ultimately discharges into San Joaquin River. Storm drain pipe size varies anywhere from 6" through 72". There are seven different discharge locations into the San Joaquin River, one into the East Antioch Creek, and three into the West Antioch Creek. The eastern portion of the Downtown Area drains into an existing 48" RCP main along West Eighth Street which discharges into East Antioch Creek. This system includes a 27"-48" RCP main along West Tenth Street between A Street and E Street. Eastern portions of the Downtown Area drain via an existing 36" RCP into the San Joaquin River at West Third Street and the A Street extension. The central portion of the Downtown Area has several drainage outfalls into the San Joaquin River. Drainage systems are located on F Street, H Street, I Street and J Street with contributing drainage from side streets. The western portion of area drains into the West Antioch Creek at West Tenth Street, West Sixth Street and West FourthStreet.

Storm Drainage System Constraints. Future development and reuse of existing buildings within the Downtown Area will be affected by the following storm drain system issues:

1. FEMA's Flood Insurance rate map identifies majority of the area surrounded by West Antioch Creek between L Street and Somersville Road north of West Tenth Street as designated Zone AE and Zone X. Zone AE are areas where base flood elevations are determined. Analysis of Specific Plan alternatives will involve collection of more information from FEMA, the City and the County for flood zones, and to add to the utility constraints map.

2. According to City staff, at the time of a heavy rain and also when the tides are high, the storm drain is reported to overflow onto some of the industrial parcels. Interviews conducted as part of the public outreach process included reports of flooding on several of the key Opportunity Sites within the Downtown Area (including developed properties). Additional hydrology/hydraulics information will be requested from City staff and the County flood control department, in order to identify potentially economical improvements to increase the storm drain capacity and provide relief from flooding.

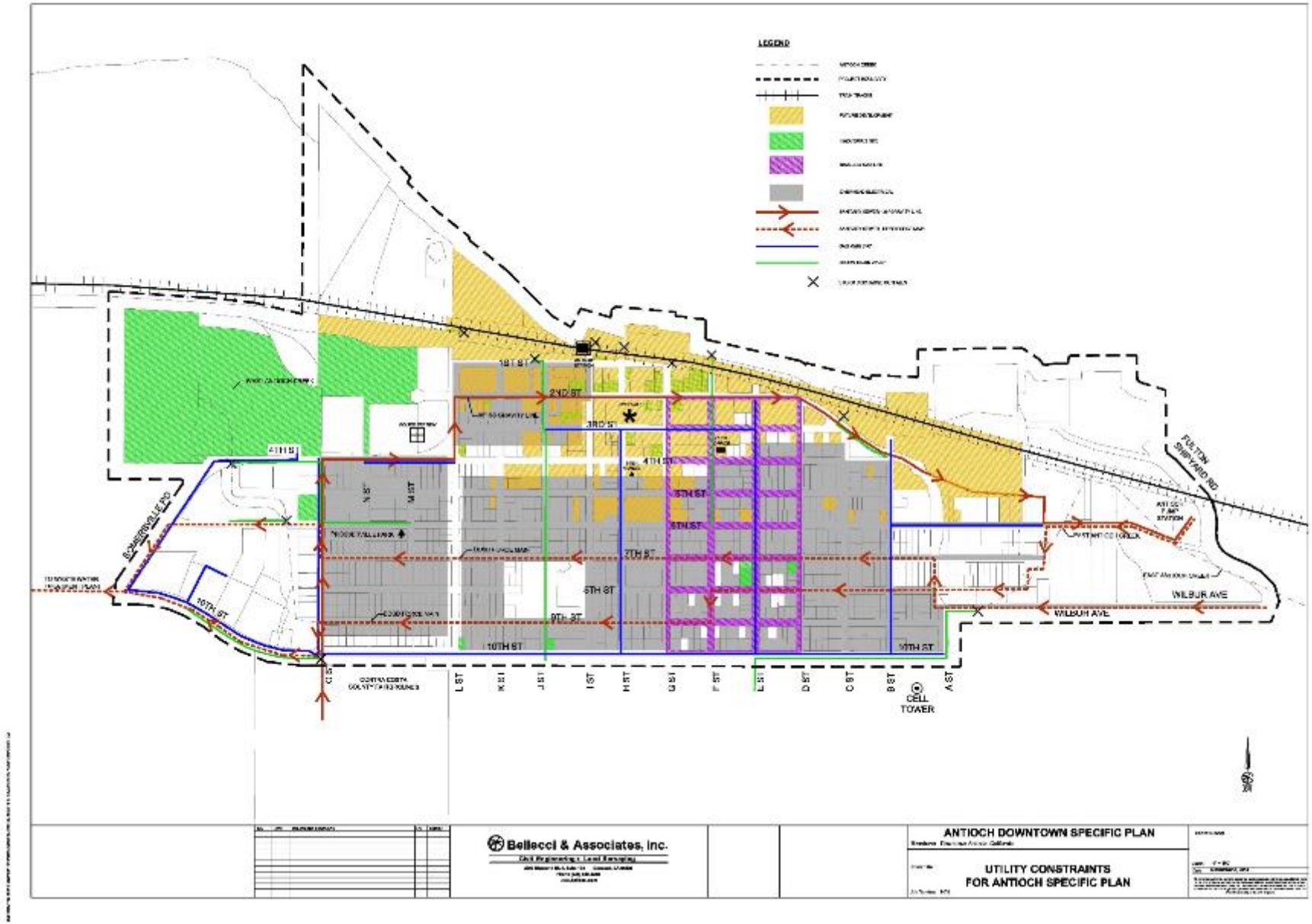


Figure 2.7.1 Summary of Utility Constraints within Downtown Area

2.8. Biological Resources

2.8.1 Introduction.

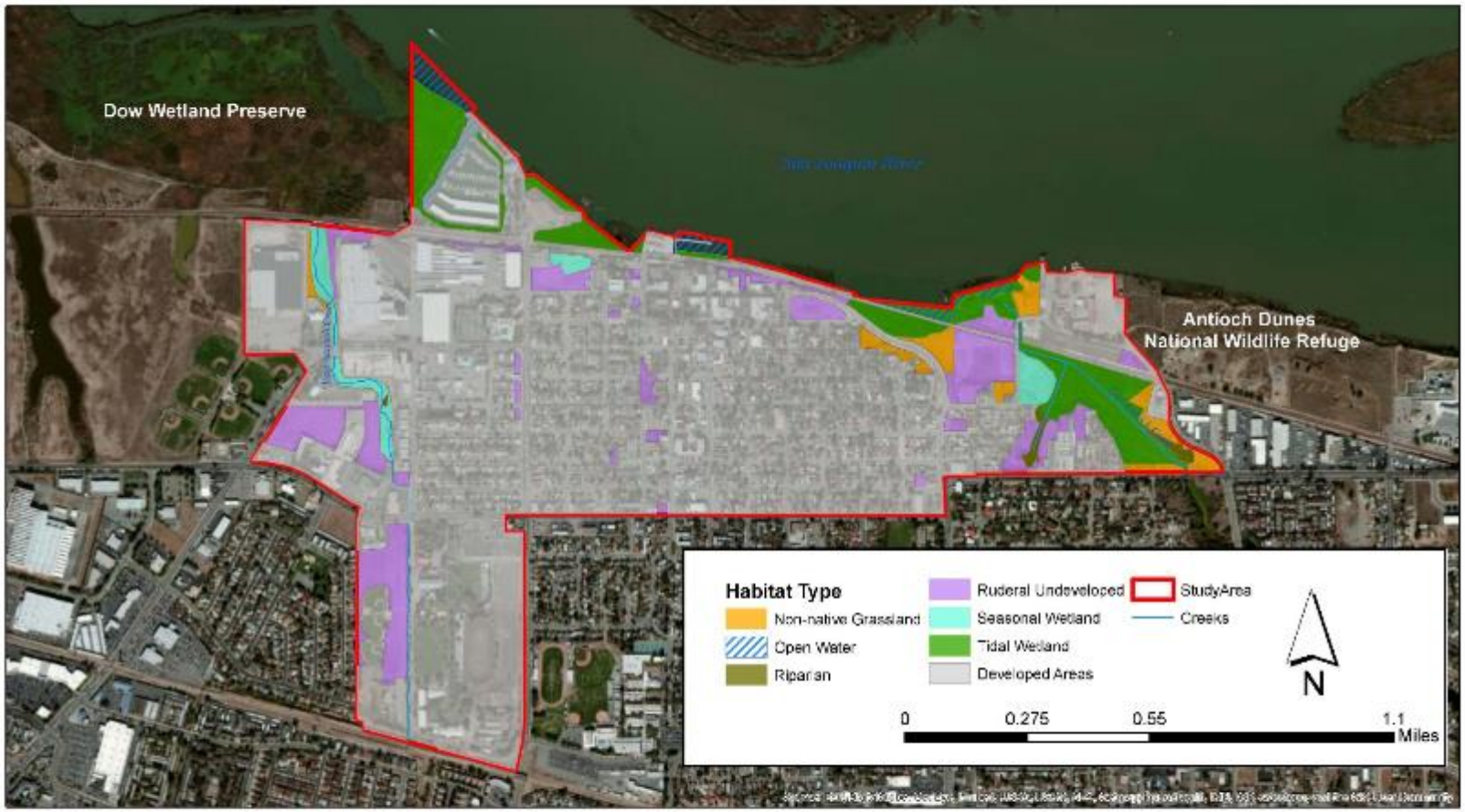
Antioch is part of a regional biological resource environment in which continuing urbanization, including infill development, continues to affect the range, population and overall health of many special status plants and animals. New development and reuse of previously urbanized properties in the Downtown Area may have an impact of biological resources, depending on the location and scale of improvements, and the manner in which improvements are planned. This chapter provides an outline of the key biological resources present within the Downtown Area, and identifies the relative risks associated with potential future development and site improvements. Background on biological resources located outside of the Downtown Area were reviewed as part of the 2003 update to the Antioch General Plan, and will be further addressed in the EIR for the current Land Use Element Update.

2.8.2 Biological Resource Habitats.

The Downtown Area is directly adjacent to 3 biologically sensitive areas: (1) San Joaquin River; (2) Antioch Dunes National Wildlife Refuge; and (3) Dow Wetland Preserve. These resources support a diversity of plant, animal and bird species surrounding the Downtown Area. In general, the developed areas shown on the habitat map in Figure 2.8.1 are considered to contain low biological sensitivity. Areas mapped as Non-native Grassland and Ruderal as well as Undeveloped Areas adjacent to highly sensitive habitats, are considered to be of moderate sensitivity. A high level of sensitivity is associated with the remaining habitat types, including Open Water, Riparian, Seasonal Wetland, Tidal Wetland and Creek habitats. The Opportunity Sites identified in Chapter 2.3 are located within areas of low to moderate sensitivity. However, site-specific conditions within these properties will need to be further evaluated as part of the planning and development review process.

2.10.3 Special Status Resources.

Figure 2.8.2 identifies the known occurrence and range of several special status animals identified in the California Natural Diversity Database (CNDDB) which may be present within or directly adjoining portions of the Downtown Area, including the California tiger salamander, Delta smelt, Lange's metalmark butterfly, longfin smelt, salt-marsh harvest mouse, steelhead – Central Valley DPS, western pond turtle and western red bat. Figure 2.8.3 identifies those listed CNDDB bird species likely to be nesting and/or foraging within the Downtown Area, including the song sparrow. Shoreline areas are known to contain a higher number of special-status species including fish, plants and terrestrial wildlife due to the interface of multiple habitat types. Riparian and wetlands habitat types are also biologically diverse with numerous special-status species occurrences. Butterfly, bat and avian species are mobile and are therefore generally identified on the CNDDB maps rather than specific locations. Specific habitat types must be present for their occurrence. While not identified on the map, special-status fish species such as steelhead may utilize portions of the two creek channels. A number of CNDDB listed special status plants are known to occur within or adjoining the Downtown Area, and are shown are in Figure 2.8.4 The Dune and Shoreline areas are known to contain a higher number of special-status plant species due to the interface of multiple habitat types. These special-status plants are normally associated with non-disturbed native habitat types.



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Antioch Downtown Specific Plan
Habitat Map
Contra Costa County, California

Figure 2.8.1: Downtown Antioch Habitats

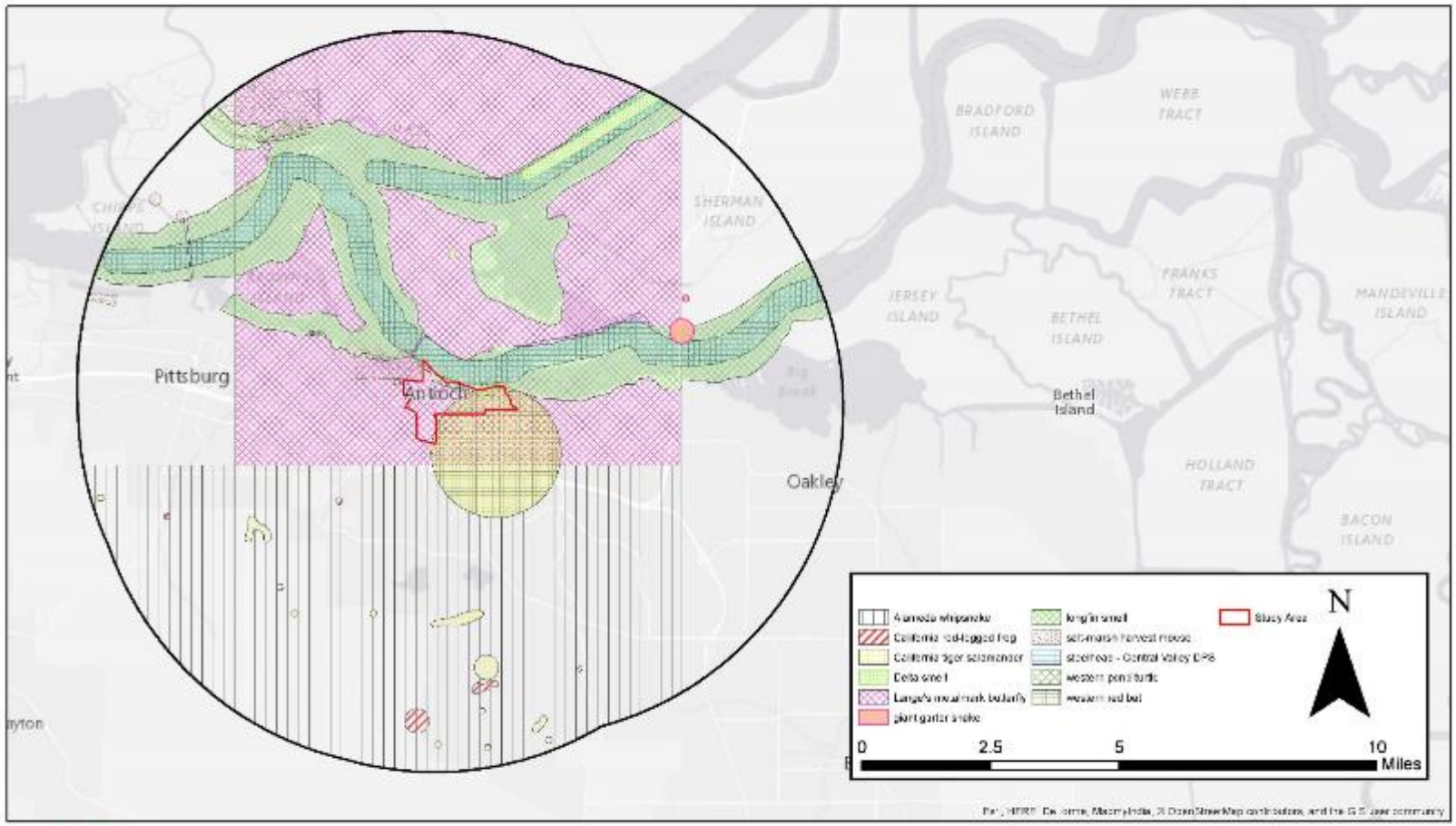
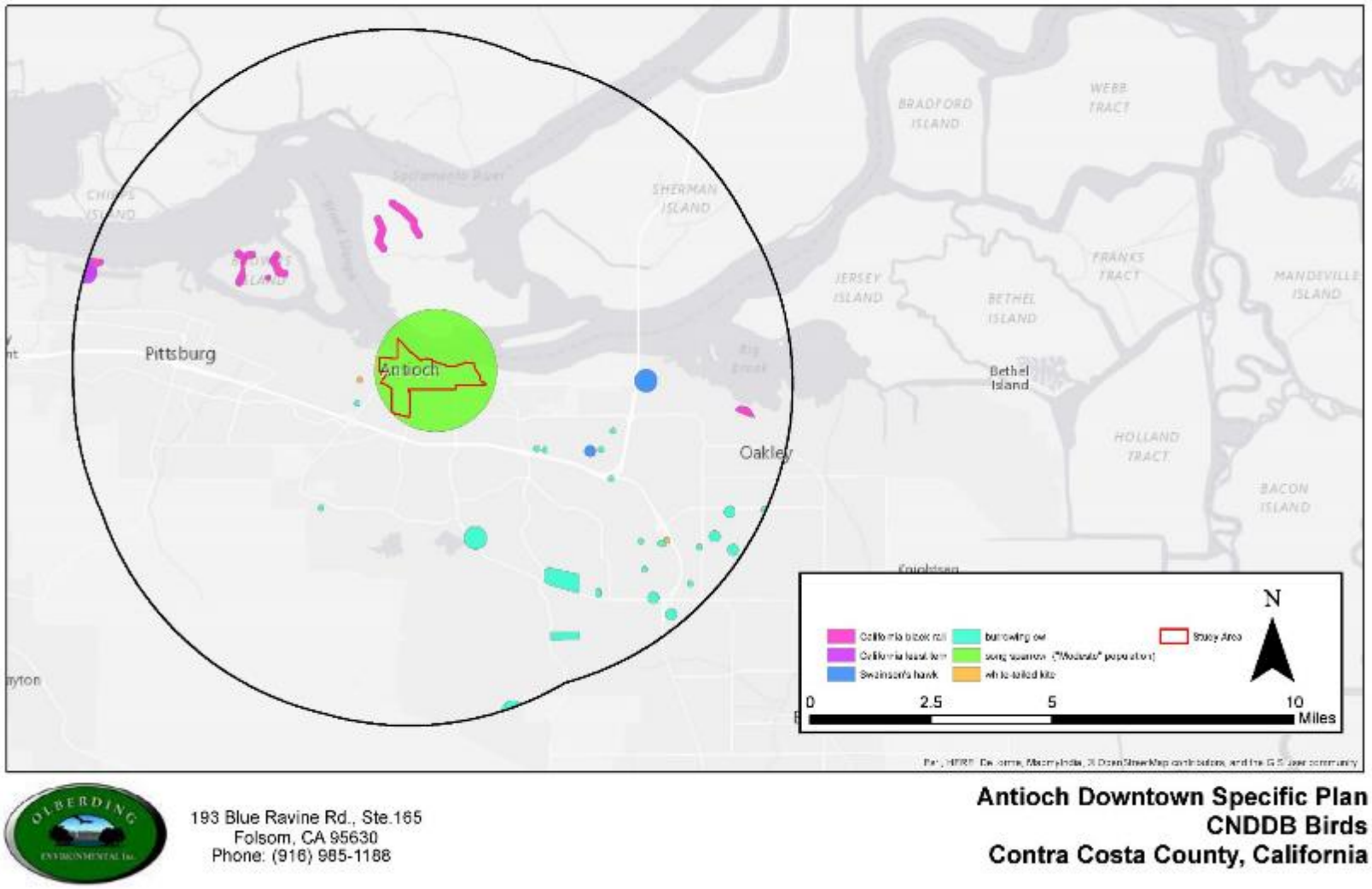


Figure 2.8.2: Special Status Animals in Vicinity of Downtown Area



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Antioch Downtown Specific Plan
CNDDB Birds
Contra Costa County, California

Figure 2.8.3: Special Status Birds in Vicinity of Downtown Area

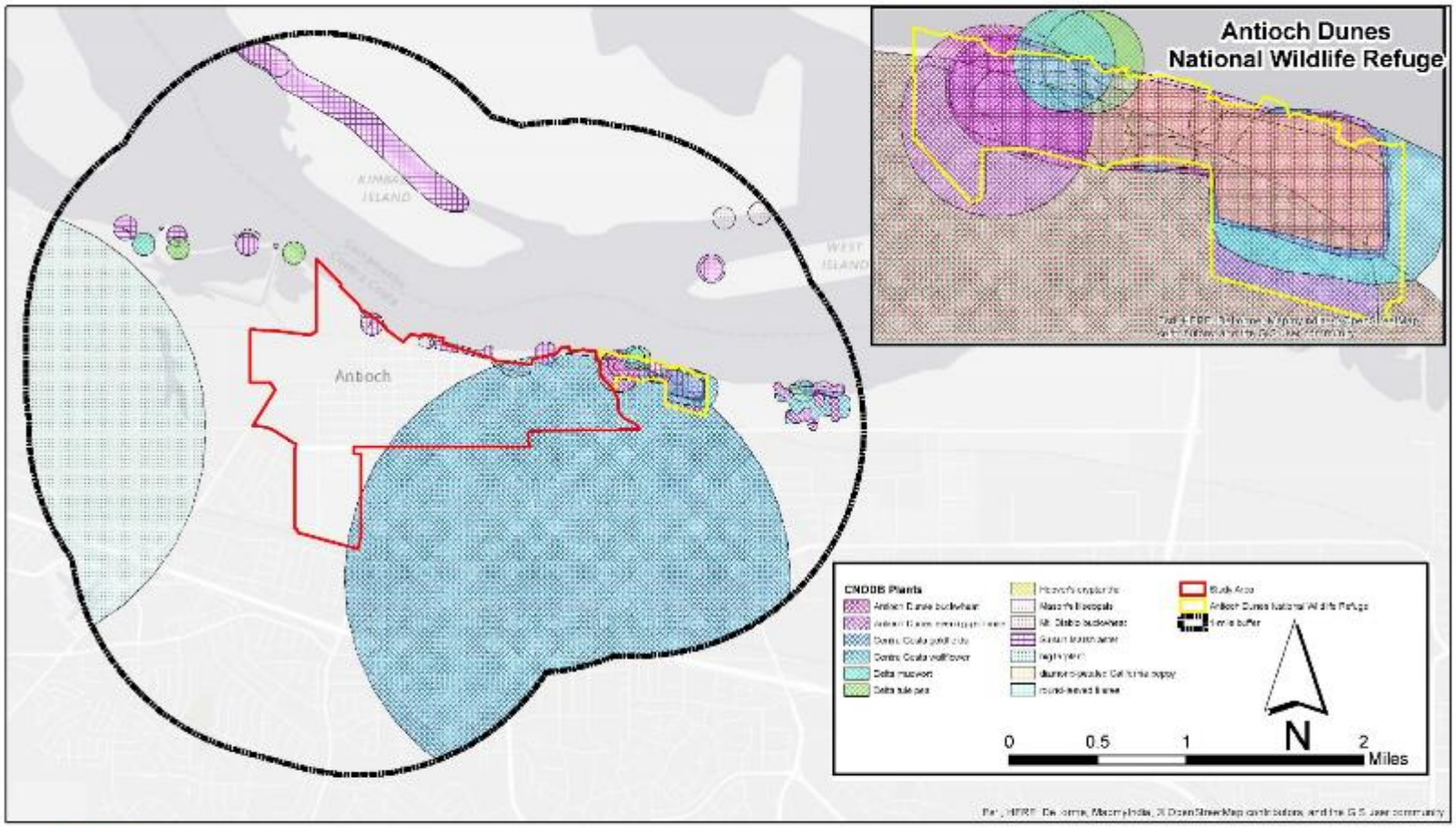


Figure 2.8.4: Special Status Plants in Vicinity of Downtown Area

2.8.4 Biological Constraints.

Figure 2.8.5 provides an overall summary of biological constraints which affect future development and use of properties within and adjoining the Downtown Area. The classifications of Low, Medium and High levels of potential constraints are based on the following factors:

- Low – Assumes existing development is present.
    - Minimal or no biological sensitivity.
    - Primary biological concerns include potential presence of bat species in buildings and nesting avian species in vegetation.
    - Assumes that no resource agency permitting would be required.

- Medium – Assumes no development but may include managed (disked) lands or areas which have experienced minor grading in the past.
    - Includes moderately sensitive habitat.
    - Biological concerns would include potential for special-status plants and wildlife species typical of grassland communities including burrowing owls, California tiger salamander, Lange's metalmark butterfly, and various avian species.
    - Resource agency permits may be needed depending on presence/absence of listed plant and wildlife species.
    - Species mitigation may be required.

- High – Assumes presence of native habitat or areas which have experienced little or no disturbance. Would also include shoreline areas and those areas adjacent to creeks or containing wetlands.
    - Includes highly sensitive biological habitats.
    - Biological concerns would include high probability for occurrence of federally and state listed plants and wildlife species typical associated with dune, creek, wetland and shoreline communities.
    - Resource agency permits would be needed for activities in these areas.
    - Habitat and species mitigation would be required.

As previously noted, the Downtown Area Opportunity Sites identified in Chapter 2.3 are generally classified as being subject to Low to Medium biological constraints. However, as shown in Figure 2.8.5, several of the key sites either contain or directly adjoin areas of High constraint sensitivity, indicating the need for further analysis and documentation of avoidance or mitigation of the specific potential constraints as discussed below.

Figure 2.8.5: Summary of Downtown Antioch Biological Constraints

Building Demolition. Any abandoned structures that plan on being demolished have the potential to house bats and other cavity nesting bird species. A bat habitat assessment shall be conducted by a qualified bat biologist during seasonal periods of bat activity (mid–February through mid–October – ca. Feb. 15 – Apr. 15, and Aug. 15 – October 30), to determine suitability of each existing structure as bat roost habitat. Bat and bird surveys would need to take place before any demolition activities began.

- Special-status bats with the potential to occur in the Downtown Area are western red bat (*Lasiurus blossevillii*) and pallid bat (*Antrozous pallidus*) which are California species of special concern. They are likely to occur primarily within buildings. Bats seek buildings with warm roosting areas characterized by the roof crevices of buildings.

Tree Removal. Any tree removal taking place during bird breeding season (February-August) would require a breeding bird survey to take place before any tree removal took place. If nesting birds are observed a buffer would be established around the nesting area to prevent disturbance.

- Raptors and other nesting birds are protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Wildlife Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that Downtown Area-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (February 1 – August 31, annually). Disturbance that causes nest abandonment, loss of reproductive effort (e.g., killing or abandonment of eggs or young) and/or the loss of habitat upon which the birds depend is considered "taking" and is potentially punishable by fines and/or imprisonment.

Dock ("In Water") Structure Repairs. Any repair of structures residing in the water would need a streambed alteration agreement. Turbidity, fluid leaks, noise/vibrations could adversely affect special status aquatic species such as delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*) green sturgeon (*Acipenser medirostris)* and steelhead (*Oncorhynchus mykiss irideus*).

Development Generally. Developing on Downtown Area properties may be subject to the following constraints:

- *Undeveloped Ruderal:* Constraints to development are minimal within these areas. Constraints are centered around what a given site is currently lacking and its battling history. Any grading, disking or building activities on grassland habitats must be precluded with burrowing owl surveys. Numerous historical and current burrowing owl nest locations are located within five miles of the Downtown Area.

    - Flat ruderal undeveloped habitats have the potential to house burrowing owls, a California species of concern. Burrowing owls generally require open annual grassland habitats in which to nest, but can be found on abandoned lots, roads, airports, and other urban areas. Burrowing owls generally use abandoned ground squirrel holes for their nesting burrow, but are also known to use pipes or other debris for nesting purposes. The breeding season for burrowing owls occurs from February through

September. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers. Contaminants in soil may be a constraint to any ground disturbing activity or conservation activity.

- Historic human use of undeveloped Ruderal properties will have inertia and can be a major constraint. Human disturbance may occur on any above ground development or plantings.
- Conservation activities on these properties may be limited by human disturbance, access to irrigation water, resources for maintenance, etc. If human disturbance is minimized, and there is both good access to irrigation water and good maintenance resources, then these areas may be good for habitat restoration or enhancement.
- These properties present the best opportunity for infill development (buildings) or park (walking trails, play structure) development.
- Undeveloped Ruderal properties also provide good opportunities for conservation activities such as enhancement or restoration.
- Good opportunity for non-native invasive plant control generally exist on undeveloped ruderal properties, depending on which species and amount of coverage. This habitat is probably dominated by non-natives in its existing state.

- *Non-native Grassland:* Constraints are similar to those identified for undeveloped ruderal habitat. Minimal constraints to development are anticipated.
  - Habitat restoration potential is good if individual properties are directly adjacent to a more pristine habitat such as tidal wetlands, the dunes, riparian habitat, seasonal wetlands, and creeks.
  - Good opportunities also exist for non-native invasive plant control depending on which species and amount of coverage.

- *Seasonal Wetland/Riverine/Shoreline Habitat Areas:* Major constraints to development should be expected on properties with this habitat type. If construction is to occur around any wetland or water source a jurisdictional delineation (JD) must take place prior to any activities. Permits, identification of potential containments, sediment analysis and mitigations may be required depending on what type of activities will be taking place. In addition to the JD presence/absence surveys for federally threatened California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*) should be completed in seasonal wetland and riverine areas.
  - Special-status species impacts must be avoided if the potential to occur has been identified.
  - Numerous permits are necessary to do anything besides enhancement with conservation plantings.
  - Good opportunities exist for habitat preservation, with minimal opportunities for restoration or enhancement, depending on the specific characteristic of the wetland in question.
  - Good opportunity exists for non-native invasive plant control depending on which species and amount of coverage.
  - Jurisdictional wetlands and waters are potentially regulated under the authority of the Army Corps of

Engineering (Corps), the RWQCB, and the CDFW; these habitats are known to be present on a number of properties within the Downtown Area. Fill of these regulated features may require authorization under Sections 404 and 401 of the Clean Water Act (CWA) and authorization under Section 1600 of the Fish and Wildlife Code. A Corps wetland delineation should be prepared to document the actual extent of jurisdictional features if any construction activity could result in impacts to wetlands/waters. If the wetlands/waters are deemed jurisdictional and construction activities are proposed that could impact these features, permits must be obtained prior to construction. Setbacks from the wetlands/water features may be required to protect habitat quality and to protect water quality. Permitting to allow impacts to wetlands/waters features may also require mitigation.

- Identification of possible containments such as creosote could be present on properties located within the Downtown Area. If creosote is present remediation or removal of contaminated soils may be needed. Creosote that is in the environment has usually been released from industries that preserve wood. Creosote can be released into soil and water and can then move through the soil to groundwater. Groundwater is water found underground in cracks and spaces in soil, sand, and rocks. After creosote gets into groundwater, it may take many years to break down.
- Copious amounts of known habitat locations for both California red-legged frog (CRLF)and California tiger salamanders (CTS)are located within the Downtown Area, or within 3 miles of the Downtown Area. The CRLF is found in lowlands, foothill woodland and grasslands, near marshes, lakes, ponds or other water sources. These amphibians require dense shrubby or emergent vegetation closely associated with deep still or slow moving water. Generally these frogs favor intermittent streams with water at least two and a half feet deep and where the shoreline has relatively intact emergent or shoreline vegetation. CRLF is known from streams with relatively low gradients and those waters where introduced fish and bullfrogs are absent. CRLF are known to take refuge upland in small mammal burrows during periods of high water flow. Adult California tiger salamanders (CTS) inhabit rolling grassland and oak savannah. Adults spend most of the year in subterranean retreats such as rodent burrows, but may be found on the surface during dispersal to and from breeding sites. The preferred breeding sites are vernal pools and other temporary ponds. However, CTS may use permanent manmade ponds as breeding habitat. CTS adults begin migrating to ponds after the first heavy rains of fall and can be found in or around the breeding ponds during and after winter rainstorm event.

- *Tidal/Wetland Habitat Area:* Major constraints are generally expected to be encountered with any non-preservation use of properties containing tidal and/or wetland habitats. Any disturbance near wetland areas will require surveys for the salt marsh harvest mouse and California clapper rail as well as installation of erosion and runoff control to ensure no harm to terrestrial and aquatic organisms that live within the area.
  - Special-status species impacts within this habitat type must be completely avoided.
  - Habitats are expected to be highly protected, and many permits will be necessary to build or do anything other than preservation.

- Properties containing this habitat type present the best opportunity for habitat preservation.
- Some opportunity for non-native invasive plant control exists, depending on which species and amount of coverage, and how the activity would be conducted (i.e. how would the control activity impact the wetlands).
- This habitat type potentially provides habitat for the federally endangered California clapper rail (*Rallus longirostris obsoletus*) and salt marsh harvest mouse (*Reithrodontomys raviventris*). Both species prefer pickleweed plant, and although no pickleweed was found during the reconnaissance survey, there is a potential for it to occur in the vicinity of the Downtown Area. Although pickleweed itself is not threatened, tidal marsh habitat is both ecologically valuable and naturally rare in California, yet has been disproportionately impacted by human activities. Thus, tidal marshes, including most pickleweed marshes, are protected habitats. Numerous sightings of the salt marsh harvest mouse have been recorded in the CNDDB database have been located within the Downtown Area or within five miles of the Downtown Area.
- Grading and excavation activities within tidal and wetland habitat areas could expose soil to increased rates of erosion during construction periods. During construction, runoff from the development of properties within the Downtown Area could adversely affect aquatic life within the adjacent water features. Surface water runoff could remove particles of fill or excavated soil from properties containing this habitat type, or could erode soil down-gradient, if the flow were not controlled. Deposition of eroded material in adjacent water features could increase turbidity, thereby endangering aquatic life, and reducing wildlife habitat. Implementation of appropriate mitigation measures would ensure that impacts to aquatic organisms would be avoided or minimized. Mitigation measures may include Best Management Practices (BMP's) such as hay bales, silt fencing, placement of straw mulch and hydro seeding of exposed soils after construction as identified in the Storm Water Pollution Prevention Plan (SWPPP).

- *Riparian Habitat Area:* Major constraints to development are expected for properties containing this habitat type. Minimal constraints are likely to occur in connection with preservation or enhancement activities. Any disturbances to riparian habitat areas on properties in the Downtown Area would require breeding bird, CRLF and CTS surveys. Any tree removal or work near or within the creek area (see above tree constraints) would involve the following:
  - Impacts to special-status species would need to be avoided.
  - Multiple permits would be necessary to do anything besides enhancement with conservation plantings.
  - Any activities in the creeks or their floodways would need to be examined in order to avoid alteration of regional hydrology patterns, and to prevent excessive erosion or sedimentation and the possibility ofunanticipated flooding.
  - Good opportunities exist for habitat enhancement or restoration if room is identified on the banks for plantings.
  - Constraints to habitat enhancement or restoration include human disturbance patterns, maintenance regimes, etc.

- Increased shading from bankside trees and shrubs would improve water quality and wildlife habitat.
- Special-status species impacts must be avoided if site-specific studies indicate a potential to occur.
- Good opportunities exist for habitat preservation. Minimal opportunities are expected for restoration or enhancement depending on the specific characteristic of the wetland in question.
- Increasing woody coverage may improve air and water quality, habitat usage by wildlife, native plant diversity and coverage. Site specific opportunities should be examined.
- Good opportunities exist for non-native invasive plant control depending on which species and amount of coverage. Follow-up invasive species removal with revegetation with natives.

- *Dune Habitat Area:* This area is within the Antioch Dunes National Wildlife Refuge. No construction activities should take place near the dune area. The refuge provides protection for three endangered species: Lange's Metalmark butterfly, Antioch Dunes evening primrose and Contra Costa wallflower. The refuge and a few acres of surrounding lands contain most of the remaining habitat for these three species and are all that remain of a nine kilometer stretch of sand dunes formed during glaciation periods. Due to the sensitivity of the habitats and the endangered species, any disturbance to this area would be detrimental to the survival and restoration efforts to these species. Reduced land usage possibilities due to special status species documented at the dunes.

- *Species Critical Habitat Area:* Two critical habitat areas have been identified adjacent to the Downtown Area.
  - The federally endangered delta smelt has been identified as having designated critical habitat adjacent to the Downtown Area and has the potential to use the adjacent waters to the Antioch shoreline.
  - The Alameda whipsnake has been identified as having designated critical habitat near the Downtown Area however the Downtown Area has been isolated by residential and commercial areas creating a physical barrier that the whipsnake would not be able to cross. The Alameda whipsnake is presumed absent from the Downtown Area.

2.8.5 Biological Resource Opportunities

Avoidance, minimization and mitigation of potential impacts to important biological resources are a necessary component of any development or site improvement program. Nevertheless, some unique opportunities for resource protection, and even enhancement, are available within the Downtown Area. These opportunities include the following:

- Wetland mitigations
  - Restoration of tidal marsh and emergent wetland areas to support endangered and threatened species such as the salt marsh harvest mouse.
- Enhancement
  - Eradication of non-native species. Water Hyacinth (*Eichhornia crassipes*) is an extremely prolific aquatic invasive plant that can double in size every ten days in hot weather and can quickly become a dense floating mat of vegetation up to six feet thick. The mats can travel with river currents and with tidal movement. Mats can also attach to structures in the water, limiting access to boats and reducing swimming areas. The species is too well established in the Delta region, eradication is impossible. There is no known eradication method in the world for water hyacinth. Therefore, control programs are implemented as opposed to an eradication program.

- Flood Zone Enhancement
- Riparian Mitigation
- ESA Mitigation
- Shoreline Enhancement
- Removal of Potential Contaminants, including: (a) Nonnative Species Eradication; (b) Natural Habitat Restoration; and (c) Abandoned Boat Removal.

2.9. Market Opportunities & Constraints

2.9.1 Introduction.

Residential and commercial market conditions in Antioch are influenced by the City's position within the larger East Bay, as well as Antioch's own market strengths and weaknesses. The Market Analysis presented in this report has evaluated these factors in detail and identified key drivers, variables, and issues which have bearing on Antioch's competitive position in the region and the City's ability to leverage key strengths and address key barriers in regard to their ability to spur economic activity. The analysis considers statistical data and research, socio-economic characteristics, and regional economic and employment trends, as well as other qualitative inputs such as quality of life, distinctive amenities, and insights offered by real estate professionals, residents, and business owners active in Antioch.

The Market Analysis serves to inform the City's General Plan Land Use Element and Zoning Ordinance Update and Downtown Specific Plan, by ensuring that these documents are prepared in consideration of the realities of the marketplace. Key questions that this analysis addresses include:

- What are the demographic and economic characteristics that inform Antioch's role in the region?
- What are the current and likely future residential market conditions in Antioch, and do they support higher-density housing products for Downtown Antioch? If so, what type of products? If not, why not, and what strategies (if any) may be employed to improve these prospects?
- What types of near-term opportunities might exist for Antioch to strengthen its industrial, office, and retail base?
- What are the opportunities and constraints toward future economic development in Antioch and the revitalization of the City's Downtown?

2.9.2 Overall Findings & Recommendations.

The findings below encapsulate the key observations pertaining to market conditions in Antioch as the local and regional economy continues to improve. These findings are broken out into several categories, including Market Setting, Residential, Commercial and Industrial, Downtown Fiscal Assessment, and Case Study findings. Following these findings is a discussion of key opportunities and constraints for Antioch.

Market Setting Findings.

Finding 1. *Multiple industry sectors are anticipated to contribute to East Bay's economic growth; these industries present opportunities for Antioch to pursue focused economic development efforts.* Key industries and prospects for future job growth include Professional, Scientific and Technical Services, Construction, and Advanced Manufacturing. The East Bay's current industry specializations include Construction, Health Care, Education, Retail, and Food Services, the first two are also anticipated to become increasingly important sources of job growth in Antioch.

Finding 2. *Antioch is a bedroom community for the East Bay and larger Bay Area.* Only approximately 10 percent of Antioch's employed residents work within the City of Antioch. The remainder travel to their place of employment in other areas throughout the Bay Area. The most popular destinations for Antioch's workers include San Francisco, Concord, Oakland, and several other locales within the inner East Bay.

Finding 3. *Since 2000, Antioch has grown and evolved to be a more racially and ethnically diverse community with many distinguishing characteristics.* Compared to the East Bay as a whole, Antioch's residents are younger, live in relatively large households, and enjoy a higher share of homeownership (despite declines since 2000). Antioch contains a relatively large concentration of Hispanic/Latino residents, as well as African-American, multiracial, and Other Race (though not Asian) residents. Antioch also has a slightly greater share of families below the poverty line, and household incomes in Antioch are $5,000-$17,000 lower than East Bay incomes. Finally, Antioch has a smaller proportion of high-density housing (11.6%) compared to the East Bay as a whole (22.9%).

Finding 4. *Downtown Antioch's character varies from citywide traits in a number of ways.* Downtown, which accounts for only four percent of the city's population, is characterized by its relative concentration of high-density housing and renters, as well as a lack of Asian and White residents. Downtown also has smaller households, lower incomes, a slightly smaller share of seniors (ages 55+), and nearly double the share of families below poverty. Many of these trends have become more pronounced since 2000.

Finding 5. *Seventy-five percent of the City's population resides south of Highway 4; the demographics of this area are generally similar to those of Antioch as a whole*. Some exceptions to this include a higher concentration of Asian residents and lower concentration of Hispanic residents; also, household incomes are $6,000 - $8,000 higher than citywide incomes.

Finding 6. *Crime patterns in Antioch demonstrate that the instance of crime is more than a mere perception*. Among the four East Contra Costa County cities, Antioch's crime rates are higher than its neighbors on a per-capita basis. Violent crime rates are currently higher than those observed in the adjoining (and smaller) communities of Brentwood, Oakley, or Pittsburg. The perception and reality of high crime are a major inhibitor to economic development, as the businesses owners, workers, and residents interviewed are wary of investing in Antioch.

Finding 7. *The Association of Bay Area Governments (ABAG) projects relatively modest housing and employment growth for Antioch, nearly all of which is forecasted to occur within infill areas.* Between 2010 and 2040, Antioch is expected to add an average of less than 200 units annually, or 7 percent of the County's total annual growth. Within Antioch, ABAG projects housing growth to occur mostly within the Hillcrest eBART Station Area by 2,290 units, or 14 percent growth. Antioch's projected job growth rate of 34 percent (6,420 jobs) is similar to the County, although the total amount only accounts for 7 percent of the County's job growth. The ABAG projections do not appear to include any additional greenfield growth.

Residential Findings.

Finding 8. *Antioch's role in the East Bay is that of a bedroom community that provides a range of relatively low-cost housing for workers that are employed throughout the Bay Area*. Antioch and its closest competitors in the East Contra Costa County (which consist of Brentwood, Oakley, and Pittsburg) each possess varying attributes and pricing options, but are generally much more affordable than cities in the inner East Bay. Antioch's home values are highly competitive with Pittsburg and Oakley, and present an affordable alternative to Brentwood, whose values are approximately 25% to 35% higher. These four cities are closely tied by pricing dynamics; price increases or declines tend to be experienced fairly uniformly.

Finding 9. *East Contra Costa County has historically played the role of a growth hub for the East Bay, experiencing rapid population expansion for the past several decades. However, growth in Antioch has slowed in recent years and projected growth rates are modest through 2040.* While other communities continued to experience growth during and after the recession, Antioch's growth has slowed. In addition, Antioch's projected future growth rate is modest, as other locations closer to the inner East Bay have become more promising locations for infill growth, and newer cities with a more appealing set of amenities are poised to capture a large degree of suburban growth. Nonetheless, Antioch does have room to accommodate regional demand for additional low-density housing over the long-term.

Finding 10. *The market for residential real estate in Antioch is bifurcated by State Route 4 into two distinct geographic areas consisting of the southern and northern portions of the City.* The older part of the City, which is primarily north of State Route 4, was built mostly prior to the 1950's, and is characterized by a lower rate of homeownership and a larger degree of multi-family development. The newer part of the City, located south of State Route 4, was built mostly in the 1980's, 1990's, and early 2000's and is characterized by a larger share of single-family detached units, larger household sizes, higher rates of homeownership, and higher home prices. The southern portion also contains a large quantity of

City's undeveloped land and substantial additional growth similar to what has been built nearby may occur.

Finding 11. *In keeping with broader national and regional trends, the East Bay's housing market is improving after the Great Recession; however, Antioch's home values and market-rate rents remain relatively soft compared to many other East Bay communities*. Antioch's current home values represent approximately 60 percent of the values that were registered during the "peak" of the housing "boom" in 2006. Nonetheless, home values have been steadily rising since 2011, and the prospects for future price appreciation are favorable.

Finding 12. *Antioch is stigmatized by the perception of high-crime, below average socio-economic conditions, low-performing schools, and a lack of many of the experiential shopping, dining, and recreational amenities that today's homebuyers have come to expect.* In order for Antioch to position itself more competitively for new urban and suburban housing, these issues—perceived or real—must improve.

Finding 13. *The residential real estate market in Downtown Antioch is unique, as the character, quality, and values of homes in the downtown are different from the remainder of the City*. Overall, Downtown homes are smaller, older, and price-per-square foot figures are approximately 10% lower than the remainder of the City, on average. While some underutilized and run-down sections exist, the historic character of Downtown provides a certain charm, and homes that are maintained and/or upgraded can provide a significant value to buyers.

Finding 14. *There is a substantial amount of residential development planned for Antioch and the surrounding area that can satisfy growth pressures for many decades to come but may compete with any planned or desired development Downtown*. There are well over 3,000 residential units within approved or proposed planning areas in Antioch, and another 11,000 within the nearby cities of Pittsburg, Oakley, and Brentwood. Since "greenfield" projects tend to be less costly on a per-unit basis to develop, the sale prices can remain low and still be profitable for a developer, and new units will continue to be produced in outlying areas, which can provide a low-cost and appealing alternative to Downtown housing. The Hillcrest Station Area Specific Plan provides another element of competition for residential development Downtown, and yet is likely to achieve the strongest opportunity for higher-density housing in Antioch because of its proximity to the planned eBART station.

Finding 15. *In areas across the nation, higher-density housing is becoming a more commonly accepted product type for a variety of demographic cohorts, including millennials, empty-nesters, and young families. Demand for a variety of housing types at densities generally above 20 units per acre within the East Bay is fairly strong overall; however, acceptance of this type of development in East Contra Costa has been tepid, and Antioch's likely ability to capture high-density housing in the near-term is weak*. These product types have become increasingly common in downtown areas and around transit hubs, even in typically "suburban" locations of the Bay Area, but Antioch does yet not appear to be equipped to participate in this trend as real estate values remain prohibitively low, and Antioch does not currently offer the amenities that are conducive to higher-density development

in outlying locations, such as nightlife, shopping, access to transit, etc.

Finding 16. *Higher-density housing is not likely to be financially feasible in downtown Antioch in the short-term, as the potential revenues generated will not exceed development costs*. Residential prototypes such as townhomes or condominiums (of 15 to 40 units per acre) are not financially feasible given Antioch's current real estate values and would need to increase by 100% to 125% percent for these types of development to approach the realm of feasibility. However, there may be certain opportunities for select small-scale developments of a more modest and less intensive-nature in Downtown Antioch. For instance, higher-density small-lot detached residential (up to 12 units per acre) exhibits much stronger financial prospects, although a project of this nature is still unlikely to be feasible in today's marketplace, and values would need to increase by approximately 5% to 10% percent in order to be feasible. While Downtown may appear to be a logical location to support higher density housing given the general scale of development and the potential to add urban amenities, other areas (most prominently the Hillcrest Station Area) may present stronger prospects.

Finding 17. *While it is possible to improve the financial feasibility prospects of higher-density Downtown housing through direct subsidy or various means of cost reduction, the scale of subsidy that would be required is likely too high for the City to bear at the present time.* For a 1-acre project, subsidies in the range of $1.5 million on the low end to $12.0 million on the high end will be difficult to obtain in today's financial climate. Alternatively, reductions in construction cost rates would also serve to increase financial feasibility of residential development, but are not likely to be achievable given prevailing construction cost dynamics.
The City's consultants are continuing to evaluate the feasibility of for-sale senior housing within a range of densities. The findings of this analysis will be included in the next phase of work for the Downtown Specific Plan.

Commercial and Industrial Findings.

Finding 18. *Going forward, the East Bay is expected to continue to excel in multiple industries. Antioch is highly specialized in at least two of these industries: Health Care & Social Assistance and Construction.* Jobs in these industries are likely to support ongoing demand for medical-related office as well as service industrial space.

Finding 19. *Permanent structural changes in the national economy are expected to result in more modest demand for traditional types of retail and office, and are also forcing dramatic changes to industrial development.* These changes are the result of an increasingly versatile internet as well as technological improvements, both of which are changing the way people shop, work, and live. Many of these changes are consequently, redirecting the location, scale, and design of new commercial and industrial development.

Finding 20. *Perceptions of high crime and poor-performing public schools are hindering the ability to fill commercial vacancies, recruit new businesses, and retain existing businesses.* Concern regarding the perceived and/or real safety of customers, employees, and property was uniformly expressed by business owners, real estate professionals, local residents interviewed during the preparation of this analysis. These concerns are leading potential users to look outside Antioch

to locate new businesses, resulting in difficulties for existing businesses to recruit new employees, and are causing some existing business owners to relocate outside Antioch.

Finding 21. *Antioch's industrial space is used to produce, manufacture, and distribute products that are critical to the broader economy and consumer base.* Antioch's industrial businesses make power, building products, machinery, tools, furniture, packaging materials, and a variety of other items. Local businesses also repair and/or store autos, boats, and RV's. This manufacturing and service role is critical to building the broader economy and could present a branding opportunity for the City's economic development efforts going forward.

Finding 22. *Antioch's industrial inventory is becoming increasingly dated, a trend that is increasing the local vacancy rate and indirectly affecting the market for new industrial development in the city.* The industrial market has been improving overall and Antioch was an important center for leasing and sales activity in 2013. However, other submarkets have continued to improve while, according to local real estate professionals, Antioch struggles to fill remaining vacancies. These struggles appear to be associated with slow truck traffic created by State Route 4 construction and the City's aging warehouse and manufacturing space. Increased special-use permit flexibility previously obtained in other cities like Richmond could help some of these buildings find new users.

Finding 23. *There appears to be ongoing demand in the East Bay for service industrial space with yard space; although the industrial market in Antioch is depressed, service industrial with yard space presents an opportunity for the city to expand its business and job base.* Service industrial users typically occupy a single-story building with industrial or flex space and a small office component, accompanied by a substantial yard space for equipment, storage, and/or manufacturing. Many of these uses are already found in Antioch; given the demographic composition of Antioch and its propensity to produce and/or repair items, additional service industrial is a use that Antioch could continue to support.

Finding 24. *Antioch's office market is not an established node within the larger North Market.* Antioch's office market is part of the larger I-680 Corridor market, which consists of a North Market and a Tri-Valley Market. Antioch is part of the North Market, which also includes Walnut Creek, Pleasant Hill, Concord, Martinez, Pittsburg, and Lamorinda. Antioch's leasable office inventory comprises only 1% of the North Market, in contrast to major office nodes in the inner East Bay. Antioch's largest employers tend to be institutional and do not occupy traditional office space. New office users tend to be local residents and/or existing Antioch business owners.

Finding 25. *Antioch is experiencing difficulties in leasing space in older buildings, which are located throughout the City.* With two hospital anchors, Antioch's office market is partially supported by spin-off medical users that require current accessibility standards. Spaces within older office buildings, particularly second floors without elevator access, appear to be experiencing prolonged vacancies. Until this space is occupied, developers are reluctant to introduce new office product into the market.

Finding 26. *In the near-term, there appears to be growing interest by local residents and business owners in occupying ground-*

floor spaces for office-oriented businesses in Downtown Antioch. Although the City would prefer that these spaces be occupied by retail businesses, office users could provide a short-term means to increase occupancy rates, increase pedestrian traffic and daytime job counts Downtown, and facilitate additional reinvestment in upper floors.

Finding 27. *In the medium-long term, the Hillcrest Station Area Specific Plan presents an opportunity for larger, Class A private office space that may be utilized to provide Antioch with a more sizeable inventory of modern office space.* The Specific Plan identified the area along the SR 4 Bypass would be the most appropriate location for higher-end office development for corporate, professional, and general administrative businesses. Office developments may include low-rise garden office arrangements or mid-rise structures.

Finding 28. *Antioch's retail inventory primarily serves local residents and national retailers are predominantly located South of State Route 4, while commercial areas north of State Route 4 tend to comprise local and regional retailers.* With the exception of the Somersville Towne Center, the array of existing retail can be characterized as neighborhood, community, and power retail centers. While most national retailers limit their locations to centers south of State Route 4, discount grocers and pharmacy anchors are located throughout the City. North of State Route 4, retailers include ethnic restaurants and groceries, personal and retail services (e.g. salons, insurance), and auto parts/service/ repair.

Finding 29. *A snapshot of Antioch's taxable sales volumes in 2014 indicates that the City is capturing significant retail sales within department stores, new auto sales, and auto parts/repair. While in equilibrium in six other categories, Antioch is experiencing substantial leakage in a variety of other categories, including apparel, restaurants, and furniture, among others.* While taxable sales levels should be monitored for long-term trends, it is important to caveat that retail dynamics are constantly evolving as a result of changes in household spending patterns and increasing reliance on the internet. The most recent trends suggest that "experiential" shopping, particularly eating out, is becoming increasingly important. Identifying local or chain restaurant opportunities that match Antioch's demographic profile present an opportunity for the City to stem some of the existing leakage.

Finding 30. *Antioch's demographic profile supports the current inventory of primarily local-serving retail, but there could be opportunities to support artisan retailers.* Two or three decades ago, Antioch would have been characterized as a "blue collar" town. Today, this workforce segment is characterized as high-value manufacturing workers, artisans, and craftsmen. There could be an opportunity to support entrepreneurial efforts within this community, to nurture start-up artisan and craftsmen products in the Downtown area. These products could be showcased in conjunction with evening music events at the El Campanile Theatre and/or other festivals and could present a branding opportunity for other new and established uses that emphasize evening and weekend retail activities. Potential uses could include Delta-based recreational retail (e.g. fishing boat and equipment rental by the hour), additional eateries, etc. Initially these users would occupy existing spaces (and help fill vacant spaces, perhaps even in upstairs spaces).

Finding 31. *A boutique lodging concept for Downtown could present a unique amenity for Antioch.* Assuming that the City

can effectively improve upon crime perceptions, the level of evening and weekend retail and restaurant options, and noise issues, a small lodging facility with river views would join a relatively small inventory of other existing accommodations embracing the Delta's waterfront.

Case Study Findings. Although current market conditions in Antioch appear to be unfavorable for high-density development in the near-term, there are a number of actions the City may be able to take to help accelerate development. Five case study evaluations of other East Bay downtowns offer insights on how revitalization efforts have evolved over time and potential tools or approaches for Antioch's consideration. The five case study downtowns include Benicia, Brentwood, Lafayette, Livermore, and Pittsburg. Figure 2.9.1, below, contains a summary of key metrics for Antioch compared to the case study downtowns.

Downtown Case Studies - Demographic Attributes (2014)

	Population		Renter-Occupied Units		Avg HH Size		Median HH Income [1]	
Item	0.5-Mile	3-Mile	0.5-Mile	3-Mile	0.5-Mile	3-Mile	0.5-Mile	3-Mile
Livermore	4,802	76,560	63%	31%	2.51	2.75	$68,700	$95,400
Benicia	2,913	33,873	45%	35%	1.93	2.42	$64,500	$79,100
Brentwood	5,949	59,874	38%	24%	3.11	3.21	$59,800	$79,300
Lafayette	2,994	54,283	60%	28%	2.20	2.28	$104,400	$91,300
Pittsburg	4,330	63,539	45%	43%	2.92	3.18	$45,000	$51,500
Antioch	4,176	67,235	72%	44%	2.79	2.94	$40,700	$55,700

Prepared by New Economics & Advisory.
[1] Rounded to the nearest 100 dollars.
Source: Nielsen custom report, accessed October 2014.

Figure 2.9.1: Demography Summary of Downtown Case Study Areas

Finding 32. *The five case study downtowns generally exhibit similar metrics evaluated as part of the analysis.* Within a one-half mile radius, there exists a core housing concentration of 1,300-1,500 units, 40-65% renter-occupied

households, smaller household sizes compared to the larger surrounding area, and median household incomes ranging from $60,000-$100,000.

Finding 33. *Antioch's metrics within a one-half mile radius are similar on some fronts but noticeably different on others.* While Antioch's 1,500 housing unit base and 5% smaller household size is comparable to the case study downtowns, renter-occupied households comprise over 70% of total units and the median household incomes is dramatically lower at $41,000—nearly $20,000 lower than the low end of the range for the case study downtowns. An increase in the number of residential units within one-half mile of Downtown and/or visitors to Downtown could help augment total spending power.

Nearly all the case study downtowns have active downtown associations that help coordinate and fund events, improvements, and/or maintenance. The structure of these groups varies, including business improvement districts, merchants associations, and/or non-profit organizations; regardless of entity structure, one or more groups is actively involved in promoting the downtown area as a destination and expends time and financial resources to support these efforts.

Finding 34. *The Downtown Benicia Case Study provides a good example of a long-term, incremental revitalization process and shares many physical similarities with Antioch.* Challenged by a lack of traffic, abundant vacant land, and an oversupply of commercial space, Downtown Benicia embraced its waterfront, and historic and small-town character to create an ambience that would appeal both to local residents and tourists. As areas in and around Downtown Benicia began to experience interest from private developers to create high-density development, the City of Benicia focused its resources on a branding campaign and a waterfront park; today, Downtown Benicia businesses generate nearly 70% of the City's taxable sales and Benicia is a popular day trip destination for residents of Contra Costa County, San Francisco, and the South Bay.

Finding 35. *The Downtown Brentwood case study revealed an aggressive public infusion of funds to improve existing conditions in response to rapid residential and commercial growth occurring away from the core.* The City of Brentwood invested 60 million dollars in infrastructure improvements, including a new City Hall, park, streetscape improvements, public art, and utility upgrades. Constant construction posed some difficulties for local businesses, but the City of Brentwood feels poised for success going forward. In addition, a downtown merchant/property owner association coordinates promotions, events, and networking opportunities.

Finding 36. *The Downtown Lafayette case study offers an example of a planning effort with an unusual level of community involvement.* In contrast to the other case study cities, the latest Specific Plan effort was conducted over a six-year period by City of Lafayette staff and local residents. The Downtown Specific Plan sought to ensure that Downtown could provide all the goods and services needed for Lafayette's residential base by creating a series of districts, each of which has a fairly unique set of permitted, conditional, and prohibited uses. The City of Lafayette, in following, spent significant redevelopment funds to partially fund at least six major projects, including building

rehabilitations, new mixed-use development, public buildings, and infrastructure improvements. Also, one private developer played a key role, transforming an older asset into the current mall. Interestingly, Downtown Lafayette is the only case study city that does not appear to have a separate private business or community association dedicated to promotions or improvements.

Finding 37. *The Downtown Livermore case study provides a good example of a previously run down and underutilized downtown in an outlying suburban location that underwent a long, arduous, but ultimately successful process to become a vibrant draw for local residents and visitors by offering unique shopping, dining, entertainment, and cultural experiences.* Livermore was able to accomplish this transformation by undertaking a variety of key initiatives, including creating a specific plan with a set of aggressive strategies and policies meant to guide future development, completing a realignment of the state highway and creating a more pedestrian-friendly atmosphere, and engaging in public/ private partnerships to enhance the financial feasibility of key catalytic projects.

Finding 38. *The Downtown Pittsburg case study serves an example of an ambitious revitalization program still underway.* The City leveraged over $100 million in redevelopment funds to create entirely new city blocks containing multistory mixed-use buildings. New development is characterized by ground floor retail, offices on upper floors, and residential units tucked behind commercial space and/or facing side streets. Construction continues to occur closer to the marina. In addition to the new building stock, the City of Pittsburg has implemented strict regulation regarding the type of retail uses permitted in ground-floor spaces; to date, many retailers have been turned away and the City of Pittsburg appears to be holding firm on its use standards. Much of the new residential development, originally envisioned as market-rate condominiums, ended up being developed as a mix of affordable and market-rate rental and for-sale units. In the next 2-3 years, the success of Downtown Pittsburg will, in many ways, provide an indication of market acceptance for this type of development in East Contra Costa County.

2.9.3 Key Opportunities and Constraints.

Findings from the market assessment and case studies serve to help inform the ultimate identification of opportunity sites citywide and within the Downtown that have the greatest potential for near-term, catalytic development. For Downtown Antioch, there are three basic avenues to creating additional economic activity: 1) increasing the number of residents; 2) increasing the number of jobs; and 3) increasing the number of visitors/tourists. Below is a list of specific, "low-hanging fruit" opportunity sites and/or activities that appear to support some combination of these three avenues in the near-term.

Residential Opportunities Downtown. Although market and financial feasibility analysis suggests that high-density residential development is not likely to occur in the near-term within the Downtown Area, a number of sites present possibilities for future development in the long-term. In general, a number of attributes should be met for a site to have the best chance of developing as higher-density housing in Antioch. These attributes include:

Opportunity 1. *Ample Size*. The property should be large enough to provide the scale required for a high-density project to pencil out. Parcels of 1.0 to 2.0 acres or more would present the best opportunities for high-density residential development.

Opportunity 2. *Vacant*. Vacant parcels are preferred, since the demolition of existing buildings would pose an additional cost.

Opportunity 3. *"Clean" parcel*. Any environmental remediation requirements could present significant additional costs and should be avoided.

Opportunity 4. *Adequate Infrastructure*. Parcels served by adequate roadways and utilities, and that don't require any upsizing to current infrastructure, are ideal.

Opportunity 5. *Access to urban amenities*. Provide amenities such as shopping, dining, recreation, and entertainment.

Opportunity 6. *Views*. While views of the river aren't a "requirement" for residential development, a property with an appealing view will present a unique opportunity that many competing downtowns cannot or do not offer. View properties will represent the "prime" opportunities for development because they will command higher sales values.

Opportunity 7. *City ownership*. The extent to which land can be donated or discounted as part of a public/ private partnership, may help reduce upfront costs.

Opportunity 8. *Access to transit*. There are various nodes in Antioch where transit is currently or soon will be served. Downtown includes the Amtrak Capital Corridor line, which serves various areas of the Bay Area and Sacramento region. In addition, a passenger ferry system is in the planning stages and is expected to have a station in Downtown Antioch. Finally, the Hillcrest eBART Station is currently under construction and anticipated to be operational in 2017.

Opportunity 9. While market for high-density housing remains soft in Antioch and the financial feasibility prospects are poor, there are a number of sites in or near Downtown that could present strong opportunities for future high-density development to occur over the long-term. Assuming that real estate values continue to increase and that Downtown shows progress as a more appealing place to live, some of the more compelling Opportunity Sites for higher-density housing in Antioch could include relatively large, vacant sites that have the potential to provide waterfront views; these include Sites #1, 6, 10, 11, 12, 14, and 15; each of these sites is located within a ½ mile of the Downtown Core and would help to activate a 24/7 presence. They are also proximate to transit (rail). In the medium term, Site #16 could also present an interesting residential development opportunity for additional single-family or townhouse development.

Residential Opportunities Citywide.

Opportunity 10. *With the addition of the e-BART station (planned for 2017), the Hillcrest Station Area Specific Plan area will provide a good opportunity for transit-oriented development including higher-density housing that caters to commuters and touts the convenience of commuting by rail.* This type of development is a growing trend in the Bay Area, as consumers are increasingly finding value in low-cost, low-maintenance, and easy access to various destinations. A key to the success of this type of development will be to include a mix of uses, especially shopping, dining, and personal services for residents of the area to enjoy. However, in order for these types of products to pencil out in the marketplace, real estate values will need to appreciate considerably.

Opportunity 11. *The County Fairgrounds property could provide another long-term opportunity for housing*, as it is a sizable, well-located parcel in the heart of the City, and has good access to a variety of transportation options and key nodes of the City (including the Downtown, the Antioch Marina, freeway, and shopping destinations). Given the size of this parcel, lower density development, consistent with the adjacent neighborhoods, may be the best fit and could provide additional affordable homeownership opportunities. The potential for redevelopment of part or all of this property is, however, complicated by State ownership.

Office Opportunities Citywide.

Opportunity 12. *Antioch's specialization in health care will likely support ongoing demand for medical-related office as well as service industrial space.* Medical users will likely demand Class A and/or Class B space with a full complement of accessibility and will gravitate first to existing retail space, first floor office space, and/or upper floor space with adequate accessibility. Once viable existing vacancies have been mostly filled, additional demand could be met through newly developed space. Proximity to the hospitals and major transportation corridors present the most logical locations for health care users, which would include opportunity sites along Lone Tree Way.

Opportunity 13. *In the medium-term, the Hillcrest Station Area Specific Plan presents an opportunity for larger, Class A private office space that may be utilized to provide Antioch with a more sizeable inventory of modern office space.* The Specific Plan identified the area along the SR 4 Bypass for higher-end office development that could accommodate corporate, professional, and general administrative businesses.

Office Opportunities Downtown.

Opportunity 14. *Should the City be successful in attracting more small office users to fill existing vacancies in Downtown buildings, the momentum could help attract a larger office user over time.* To the extent that any existing buildings are owned by the City and could be upgraded to entice a large office user, there could be an opportunity to leverage an existing asset. However, the City may have to be very aggressive with its marketing and willing to participate in remodeling costs.

Retail Opportunities & Constraints Citywide.

Opportunity 15. *Given the scale of Antioch's current retail inventory, existing vacancy rates, and permanent changes in the retail landscape going forward, it is unlikely that any new retail center development will occur in the near-term. At some point, there is an opportunity for very large individual retailers to decide to open new, stand-alone locations (e.g. Bass Pro).* However, it is difficult to predict what type of retailers might be seeking to expand, although Antioch could be well-suited for water and recreation-related retail.

Retail Opportunities Downtown.

Opportunity 16. *Because Antioch's residential base has such a high concentration of commuters, in the near-term businesses open in the evenings and weekends have the best chance for success Downtown.* Activity at the relatively new restaurant, Scends Deux, for example, appears to support this notion.

Opportunity 17. *The most recent trends suggest that "experiential" shopping, particularly eating out, is becoming increasingly important.* Identifying local or chain restaurant opportunities that match Antioch's demographic profile present an opportunity for the City to stem some of the existing leakage and reduce retail vacancies.

Opportunity 18. *Support for artisan retailers would be an appropriate fit for Antioch.* Two or three decades ago, Antioch would have been characterized as "blue collar" town. Today, this segment is characterized as high-value manufacturing workers, artisans, and craftsmen. Public and/or private support for entrepreneurial efforts within this community, including nurturing start-up artisan and craftsmen products in the Downtown area, could be combined with showcases in conjunction with evening music events at the El Campanile Theatre and/or other festivals. This type of ingenuity could also present a spin-off opportunity for other new or established uses that emphasize evening and weekend retail activities. Potential uses could include Delta-based recreational retail (e.g. fishing boat and equipment rental by the hour), additional eateries, etc. In the near-term these users would occupy existing spaces (and help fill vacant spaces, perhaps even in upstairs spaces).

Opportunity 19. *In the medium or long-term, a small lodging concept for Downtown could present a unique amenity for*

Antioch. Assuming that the City can effectively improve upon crime perceptions, the level of evening and weekend retail and restaurant options, and noise issues, a small lodging facility with river views would join a relatively small inventory of other existing accommodations embracing the Delta's waterfront.

Industrial Opportunities Citywide.

Opportunity 20. *Antioch's specialization in construction is likely to support ongoing demand for service industrial space.* Multiple real estate professionals indicated a presence of a regional demand for service industrial that includes yard space for equipment storage. Antioch has many of these types of users already. Going forward, the City's Eastern Waterfront Employment Focus Area, located along Wilbur Avenue, presents the City with a potential opportunity to add service industrial development; this area has an interior location that abuts other existing industrial uses and also provides quick access to State Route 160 via East Eighteenth Street. Within this Focus Area, land uses designated as Business Park can include automotive uses, light manufacturing and assembly, research and development, and light storage. However, this designation does not permit building contractor's offices and yards or general manufacturing and assembly, both of which allow for substantial yard activities. Reconsideration of these uses, in light of the demand for service industrial space, may present an opportunity for Antioch to activate additional industrial land.

Industrial Opportunities Downtown.

Opportunity 21. *The concentration of industrial space near Downtown may present some short-term opportunities for recreation-related industrial uses; however, in the long term it may be in the City's best interest to encourage relocation of some industrial users to Wilbur Avenue.* The recent departure of Stonyfield Yogurt, from the west side of Downtown to another state, provides an opportunity for the City to consider the merits of short-term uses versus longer-term interests. In the long run, however, to the extent that Downtown's residential and retail uses begin to absorb vacant land, it may become more favorable for the City to relocate industrial users unrelated to the Delta or to manufacturing of retail products that could be sold Downtown to Wilbur Avenue.

2.9.4 Market Setting.

Context. Antioch is located in East Contra Costa County along State Route 4, between the cities of Pittsburg, Oakley, and Brentwood, and bordered by the San Joaquin River to the north. Antioch is approximately 52 miles away from the City of San Francisco, 35 miles from Oakland, and 80 miles from Sacramento. The last major market assessment of conditions Downtown (and citywide to some extent) was the Antioch Rivertown Waterfront Development Study, prepared in 2006. This study evaluated market trends and conditions and identified numerous potential commercial economic opportunities for Antioch, and Downtown Antioch. The major conclusions from this study, (summarized in Figure 2.9.2), draw upon upward employment and development trends occurring at that time. The Great Recession, which started in 2007, however, negatively impacted economic activities throughout the United States and East Contra Costa County. This analysis provides an updated review of economic conditions and their impact on demand for housing and commercial development in the near term.

Regional Economic Development Trends. A number of regional entities are continually shaping goals and policies related to employment growth and associated land use development. Efforts engaged in by these entities also directly or indirectly influence Antioch's opportunities for citywide and Downtown growth. Some of these key efforts are synthesized below. The mission of the East Bay Economic Development Alliance (EDA) is to establish the East Bay region (Alameda and Contra Costa Counties) as a world-recognized location to grow business, attract capital, and create quality jobs. Recent studies commissioned by the East Bay EDA indicate a series of important regional economic trends that could affect Antioch's economic evolution:

- There has been an increase in demographic segments that have historically possessed low rates of college graduation and attendance. The Hispanic population alone has increased from 19 percent to 24 percent in the last decade, with only 60 percent obtaining a high school diploma.

- There is an expected skill shortage for middle-skill jobs – Those that require less than a four-year degree, but more than a high school diploma. In 2009, jobs requiring science, technology, engineering and math skills (STEM) were the biggest share of California jobs at 47 percent. However, it is estimated that only 38 percent of the statewide workforce will possess the relevant skills for these occupations in California.

- Manufacturing and office nodes are shifting in different ways. The East Bay's labor market is deeply connected with the larger Bay Area, with workers migrating in (26 percent) and out (31 percent) of the region every day. However, areas in the East Bay with older infrastructure have seen persistent declines in employment, specifically older wholesale trade and manufacturing districts. In addition, highway construction and suburbanization opened the outer East Bay (defined as cities that reside on the eastern side of Contra Costa and Alameda counties - Antioch, Pittsburg, Martinez, Concord, Walnut Creek, Danville, San Ramon, Dublin, Pleasanton and Livermore) to rapid development. More than one-fourth of the East Bay region's jobs are currently located near high-capacity transit. But the share of the region's jobs located near transit has actually declined from 34 percent in

1995 to 29 percent in 2009, suggesting that even more jobs are located in areas that are not adequately served by transit.

- Identified industry clusters are expected to account for a significant share of future growth. Professional, scientific and technical services, along with advanced manufacturing make up the top two regional growth clusters. Four other industries (health care, retail, education and food services) make up half of the region's jobs. Health care and education services are also expected to have an upward trajectory, consistent with national and statewide trends, and exceeding growth in the larger Bay Area. These industries are discussed more in Chapter 2.12.

Summary of Rivertown Waterfront Study Findings (2006)

Antioch as a Whole	Downtown Opportunities and Constraints
Residential Market Findings	
· East Contra Costa County is an established yet growing area that offers affordable homeownership.	· The downtown's waterfront location provides opportunity for a variety of types of development and investment
· Home prices appreciated considerable from 2001 to 2005, showing Antioch's strength as a residential market	· Unique historic character of downtown makes it a desirable area.
· There are approximately 24,000 residential units in the planning stages in East County (including proposed,	· Given demographic and growth trends, downtown Antioch is well-positioned to capture future growth
· The demographics of Antioch and the surrounding area include several demographic cohorts that support high density housing, including 1) young professionals and singles, 2) young families looking to purchase their first home, 3) empty nesters and new starts, and 4) seniors and low-income households.	
· Condo development in East Contra County County has been slow to occur, but price appreciation at condominium developments indicate support for this product type.	
· Rising rental rates and falling occupancy rates in Antioch indicate strength for rental residential product.	
Retail Market Findings	
· 10% eixsting leakage.	· No existing neighborhood centers.
· Significant number of new retail centers proposed.	· Not competitively positioned for conventional retail.
· Potential for oversupply of retail.	· New retail needs to emphasize lively shopping experience.
	· Current residential base supports less retail than exists.
	· Current residential base insufficient to support traditional grocery store but could perhaps support small-scale grocery.
Office Market Findings	
· Antioch/Pittsburg office submarket is satellite sub-market; acts as follower instead of leader within larger region.	· Tenant opportunities will likely be local-serving, professional services. May be attracted to Downtown location.
Resort Hotel Market Findings	
· Antioch had 324 motel rooms in 4 national brand motels and 2 independent lodging facilities.	· Any resort hotel would occur in the long term, after redevelopment advances on several other fronts.
· Eastern CC County not a major tourist destination, lacks supporting tourist amenities, and faces significant competition from other Bay Area resort hotel communities.	
· Delta visitors do not seek resort facilities.	

Prepared by New Economics & Advisory.
Source: Antioch Rivertown Waterfront Development Initial Study, prepared in 2006, by ARCADIS.

Figure 2.9.2: 2006 Rivertown Waterfront Study Findings (ARCADIS)

Demographic Profile: Commute Patterns. To demonstrate Antioch's role as a bedroom community whose residents travel to employment destinations in other areas of the Bay Area, Figure 2.9.3 shows the portion of Antioch's employed residents who work in Antioch, as opposed to those who work in other areas. As shown, in 2011, 90% of Antioch's employed residents traveled to other areas of the Bay Area, which was up from 86% in 2002. These residents travel to various areas throughout the Bay Area. The most popular destinations include San Francisco, Concord, Oakland, and various other locations within the Bay Area. Of note, workers who possess jobs in Antioch are also a highly-mobile group, as 76% of these workers travel in to Antioch from other areas. This percentage is up from 63% in 2002.

Antioch Commute Patterns, 2002 and 2011

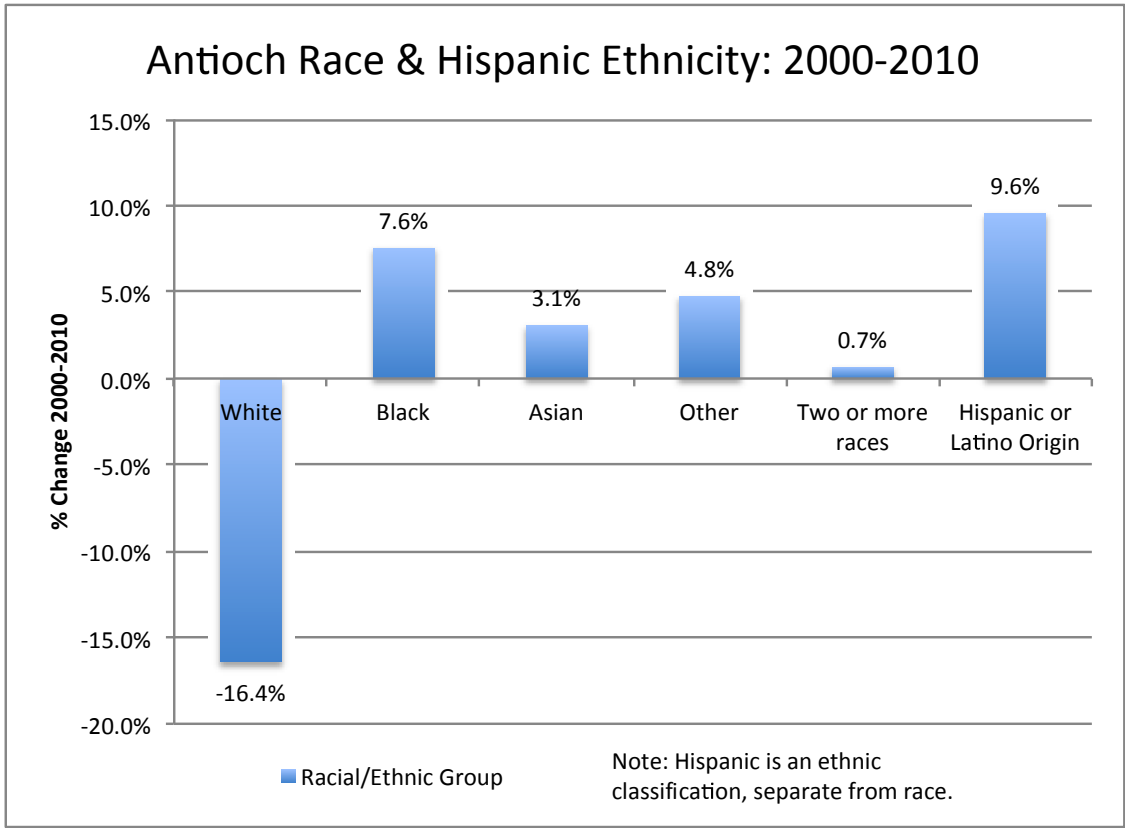
Item	2002	2011
Employed Residents in Antioch		
Residents Working Outside Antioch	86%	90%
Residents Living and Working in Antioch	14%	10%
Workers Employed in Antioch		
Employed in Antioch but Live Outside	63%	76%
Employed in Antioch and Live in Antioch	37%	24%

Prepared by New Economics & Advisory.
Source: US Census Bureau LED/ LEHD On the Map Application.

Figure 2.9.3: Antioch Commute Patterns 2002 and 2011

Demographic Profile: Citywide Demographic Trends. Between 2000 and 2010, Antioch experienced overall growth, became more racially and ethnically diverse, continued to accommodate relatively large households, exhibited income differences between renters and homeowners, and experienced a decline in homeownership (although homeownership rates continue to exceed the statewide rate). Appendix A Tables A-1 through A-4 contain detailed demographic statistics supporting these conclusions.

Between 2000 and 2010, Antioch became increasingly diverse. As illustrated in Figure 2.9.4, 16 percent of the white population (6,000 individuals) in 2000 left the city by 2010; new Black, Asian, Other, and Multiracial residents made up for this loss *and* contributed to the City's overall growth by 2010. In addition, the portion of Asian residents in Antioch mirrored statewide growth at a rate of about 3 percent. Moreover, Hispanic population growth occurred twice as quickly in Antioch (10%) compared to California as a whole (5%). As of 2010, compared to California, Antioch's population is less White and Asian, but more Black, Other, and Multiracial.



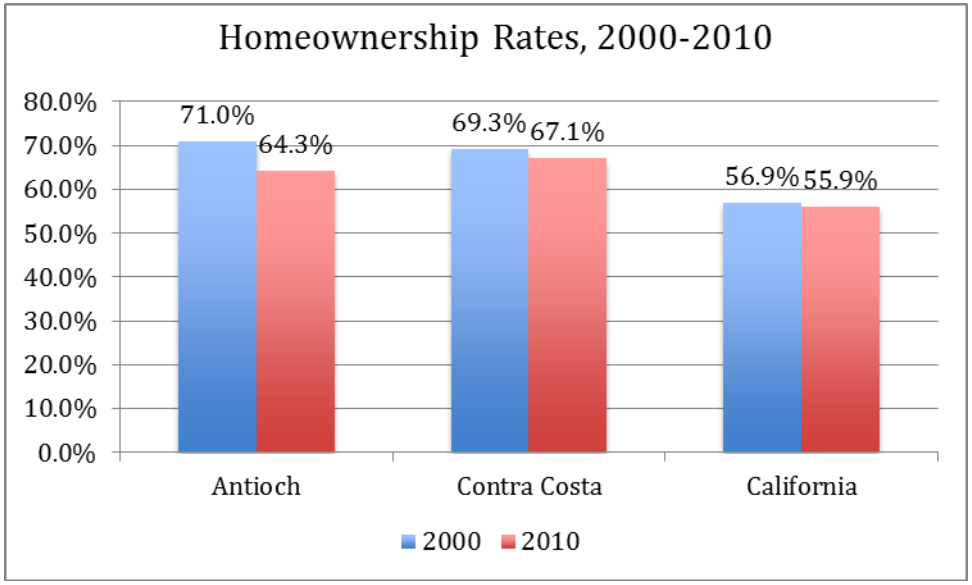
Prepared by New Economics & Advisory. Source: US Census

Figure 2.9.4: Antioch Race & Hispanic Ethnicity 2000-2010

Historically, Antioch has had relatively large households, a trend that is projected to continue in the future; Antioch's average household size was 3.15 in 2010 compared to 2.90 in Contra Costa and 2.90 statewide. By 2040, this figure is projected to grow to 3.22 for Antioch, while Contra Costa and the State are projected to remain below an average of 3.00 persons per household.

Between 2000 and 2010, Antioch and Contra Costa County continued to experience higher homeownership rates than California as a whole. Antioch's ownership rate declined noticeably between 2000 and 2010 but remains well above the statewide rate. Figure 2.9.5, below, illustrates the change in homeownership rates between 2000 and 2010.

Antioch's median household income was $12,000 less than Contra Costa County between 2010 and 2012. Renters in Antioch earn a median household income of $38,000-$42,000 less than the County, while Antioch's homeowner median household income is $4,500 - $6,000 more than Contra Costa County. Finally, Antioch has a higher percentage of families below the poverty level, (11 percent), compared to the East Bay (nearly 9%). Appendix 4.5 contains the statistical data supporting these conclusions.



Prepared by New Economics & Advisory. Source: US Census

Figure 2.9.5: Homeownership Rates 2000-2010

Demographic Trends in the Downtown Specific Plan (DSP).

Downtown Antioch, which stretches from Tenth Street to the waterfront and from L Street to A Street, contains only four percent of the City's population and housing units. Compared to the City as a whole, the DSP contains a greater proportion of higher density housing and renters; smaller households, lower incomes, and higher poverty rates; and, a different racial and age makeup (Figure 2.9.6). Downtown is more White and also more Hispanic but less Asian than Antioch as a whole. Also, contrary to anecdotal suggestions that Downtown has a high concentration of seniors, the data indicates that in fact Downtown has a slightly smaller concentration than Antioch as a whole.

Downtown Specific Plan Demographic Highlights

Demographic Category	Antioch	DSP
Structures with 5+ units	12%	35%
Renters	36%	76%
Median HH Income	$66,145	$41,017
Families Below Poverty	11%	28%
% White	45%	52%
% Asian	11%	2%
% Hispanic Origin	34%	45%
Seniors (55+)	22%	19%

Prepared by New Economics & Advisory.
Source: Nielsen Data, October 2014.

Figure 2.9.6: Downtown Area Demographic Highlights

Crime Patterns. The abundance of crime in Antioch has been consistently noted by those employers, developers and real estate professionals interviewed as a major detractor to the overall desirability of and economic development opportunities in Antioch. While some have argued that this issue is simply "sensationalized" by media outlets, available crime statistics show that Antioch does indeed display crime rates that are higher than its neighbors, both in terms of violent crime and property crime. As shown in Figure 2.9.7 below, Antioch's total reported crimes are significantly higher than those in the smaller adjoining communities of Brentwood, Oakley, and Pittsburg. Violent crime rates indicate a disparity, as the number of violent crimes per 1,000 residents is approximately five times higher in Antioch than in neighboring communities.

East Contra Costa County Crime Statistics (2014)

Description	Antioch	Brentwood	Oakley	Pittsburg
Annual Crimes (per 1,000 residents)				
Violent	10.2	1.9	2.3	2.3
Property	45.3	22.4	13.1	32.5
Total	**55.5**	**24.3**	**15.5**	**34.8**
Chances of Becoming a Victim of a Violent Crime	1 in 98	1 in 533	1 in 428	1 in 427
Chances of Becoming a Victim of a Property Crime	1 in 22	1 in 45	1 in 76	1 in 31
Crime Index [1]	6	35	58	19

Prepared by New Economics & Advisory.
[1] Crime Index is 1 out of 100 (a score of 100 is safest).
Source: Location, Inc., information gathered October 2014.

Figure 2.9.7: East Contra Costa Crime Statistics

School Performance Trends. According to several stakeholder interviews, the stigma of a low-performing school district has been an impediment to the attraction of families with young children to Antioch. Figure 2.9.8 shows the Academic Performance Index (API) scores in 2003 and 2013 for the Antioch Unified School District and surrounding school districts in Brentwood, Pittsburg, and Oakley. As shown, in 2013 Antioch and Pittsburg districts reported scores of 743 and 734, respectively, which is considerably below the statewide average, while Brentwood and Oakley both performed much better, at 862 and 800 respectively. Households with school-aged children certainly consider the quality of an area's school district as a major factor in purchasing a home, and the low test scores in Antioch limit its appeal as a housing destination for families that can afford to purchase in higher-performing districts elsewhere. All school districts (including the statewide averages) showed improvement over the past ten years, however, Brentwood's and Pittsburg showed more pronounced improvement than Antioch and Oakley.

Academic Performance Index Scores

School District	2003	2013	Change 2003 - 2013
Antioch Unified	695	743	48
Brentwood Union	743	862	119
Oakley Unified	722	800	78
Pittsburg Union	617	734	117
California Average [1]	709	790	81

Prepared by New Economics & Advisory.
[1] California scores are from 2005, since 2003 data were unavailable.
Source: California Department of Education

Figure 2.9.8: Academic Performance Index Scores 2013

Growth Projections. The Association of Bay Area Governments (ABAG) is the regional planning agency and Council of Governments for the nine-county San Francisco Bay Area. ABAG regularly produces a growth forecast that describes estimated changes in households, housing units, and jobs within the region through 2040. This growth is summarized in Figure 2.9.9.

Contra Costa County is projected to experience growth of approximately 80,000 units, or an average of 2,600 housing units annually between 2010 and 2040. Most of this growth is anticipated to occur in Hercules, Oakley, Concord and Pittsburg. Within this timeframe, Antioch is expected to add an average of less than 200 units annually, or 7 percent of the County's total annual growth. Within Antioch, ABAG projects housing unit growth to occur mostly within the Hillcrest Station Area.

Jobs in Contra Costa County are expected to grow by 37 percent (around 122,080 jobs) by 2040; this growth is anticipated to occur mostly in Concord, San Ramon, Walnut Creek and Richmond.

Antioch's projected 34 percent growth (6,420 jobs) is similar to the County, although the total amount only accounts for 7 percent of the County's job base growth.

Plan Bay Area is a long-range integrated transportation and land-use/housing strategy for the San Francisco Bay Area. The final Plan Bay Area, approved in 2013, advances initiatives to expand housing and transportation choices, create healthier communities, and build a stronger regional economy. The City of Antioch has identified two Priority Development Areas[11] (PDA's): the Hillcrest Station Area and the Rivertown Waterfront Area are intended to accommodate residential and employment in a pedestrian-friendly environment served by transit. While the timeframe for development of these areas is uncertain, they represent important opportunities for Antioch's housing and employment balance to more closely reflect the East Bay as a whole.

[11] Areas of at least 100 acres identified by the community as possible areas for growth. Each PDA is nominated by the city or town council via resolution.

Growth Summary (2010-2040)

Jurisdiction	2010 [2]	2040 [2]	Change (2010-2040) Amount	% of Jurisdiction	% of Countywide Growth
Housing Units					
Antioch					
Suburban Center	160	2,450	2,290	1431%	3%
Transit Town Center	1,600	3,420	1,830	114%	2%
Remaining City	33,090	34,450	1,350	4%	2%
Total Antioch	**34,850**	**40,320**	**5,470**	**16%**	**7%**
Brentwood	17,520	18,370	850	5%	1%
Pittsburg	21,130	28,510	7,380	35%	9%
Oakley	11,480	17,010	5,530	48%	7%
Remaining Contra Costa	319,510	382,900	60,900	19%	76%
Total Contra Costa County	**369,640**	**446,790**	**80,130**	**22%**	**100%**
Jobs					
Antioch					
Suburban Center	20	3,260	3,240	16200%	3%
Transit Town Center	4,030	4,520	490	12%	0%
Remaining City	15,020	18,010	2,690	18%	2%
Subtotal	**19,070**	**25,790**	**6,420**	**34%**	**5%**
Brentwood	8,650	11,280	2,620	30%	2%
Pittsburg	14,130	19,740	5,610	40%	5%
Oakley	3,740	6,670	2,930	78%	2%
Remaining Contra Costa	302,520	408,690	104,500	35%	86%
Total Contra Costa County	**329,040**	**446,380**	**122,080**	**37%**	**100%**

Prepared by New Economics & Advisory.

[1] State of California, Department of Finance, E-8 Historical Population and Housing Estimates for Cities, Counties and State, 2000-2010.

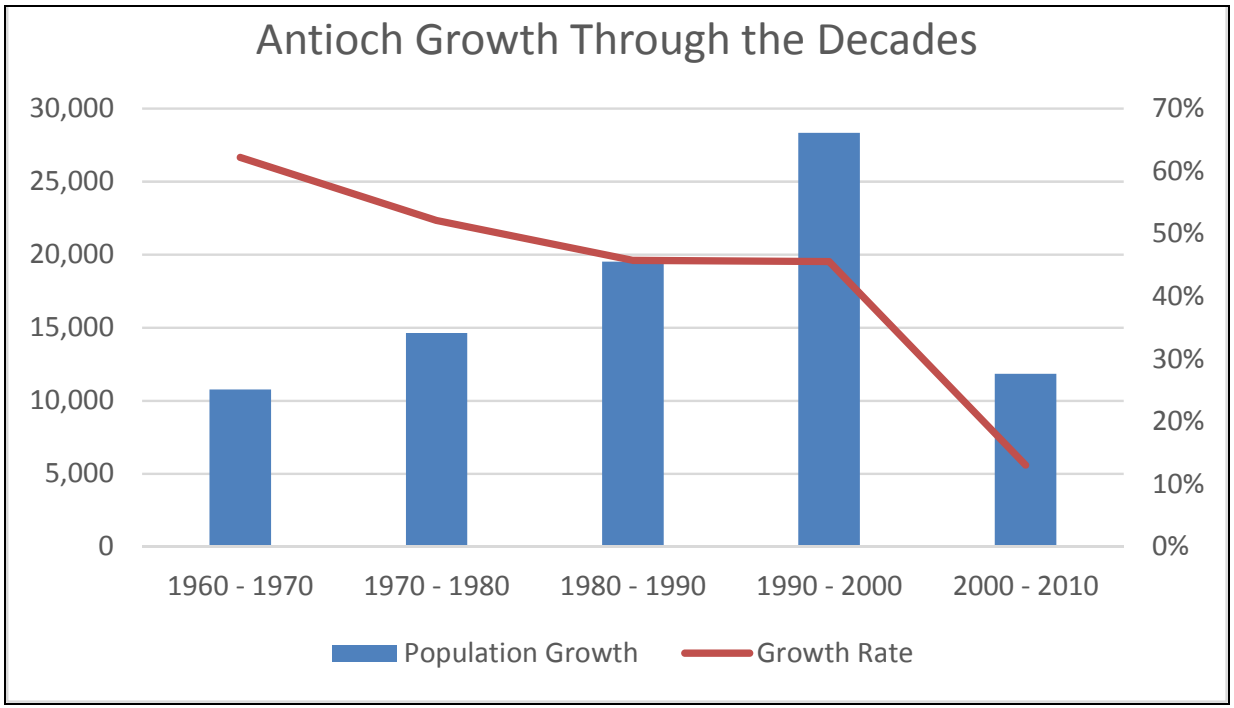
[2] Association of Bay Area Governments (ABAG) Growth Forecast, May 2012.

Figure 2.9.9: Antioch Growth Summary 2010-2040

2.10. The Housing Market in Antioch & Downtown

2.10.1 Population and Housing Growth.

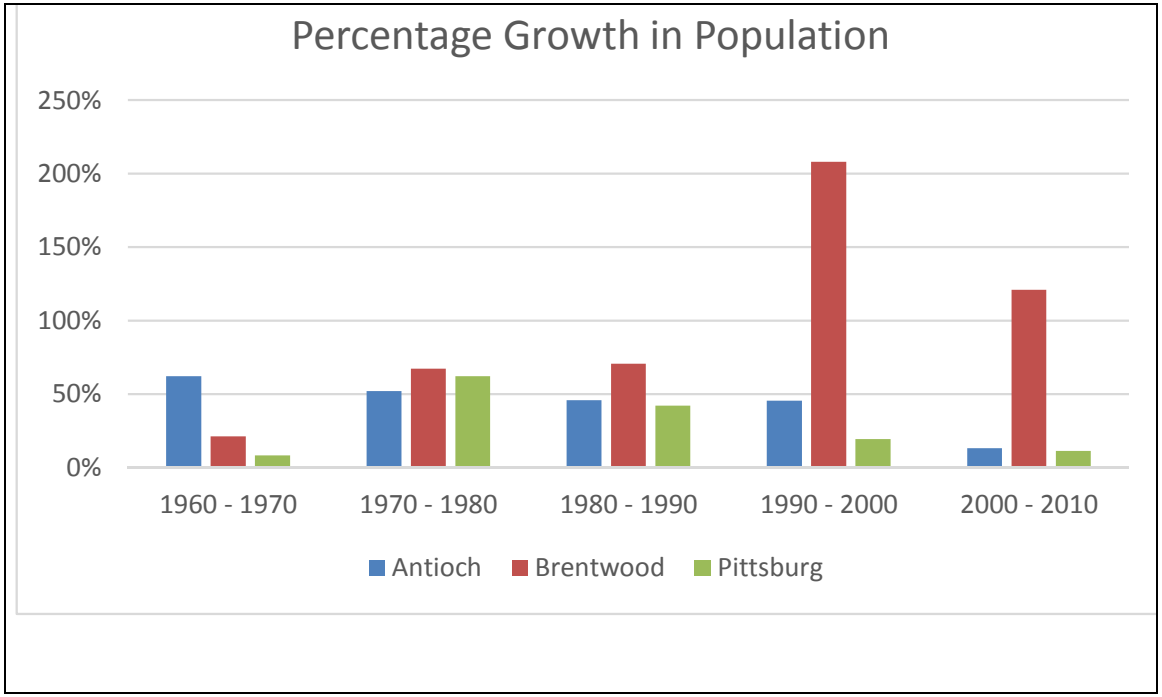
The City of Antioch has experienced substantive population growth since the 1960's, doubling in population every 15 to 20 years from 1960 to 2000. This rate of growth slowed considerably in the 2000's, as the City added just 12,000 residents during this decade. Figure 2.10.1 shows the amount of population growth in each decade since 1960, showing that Antioch displayed a growth at a rate of just 13 percent from 2000 to 2010, as compared to 52 percent, 46 percent, and 46 percent in the 1970's, 1980's, and 1990's, respectively.



Prepared by New Economics & Advisory. Source: California Department of Finance Demographic Research Unit

Figure 2.10.1: Antioch Growth through the Decades

While Antioch's growth has slowed, some of its nearby competitors have continued to expand at high rates, indicating Antioch's declining market share as a growth node. For instance, while Antioch grew at a rate of 13 percent from 2000 to 2010, the nearby city of Brentwood exhibited a growth rate of 121 percent (as shown in Figure 2.10.2 below).



Prepared by New Economics & Advisory. Source: California Department of Finance Demographic Research Unit
(NOTE: Oakley is not shown in Figure 2.10.2, since it only recently incorporated in 1999 and comparable data is not readily available)

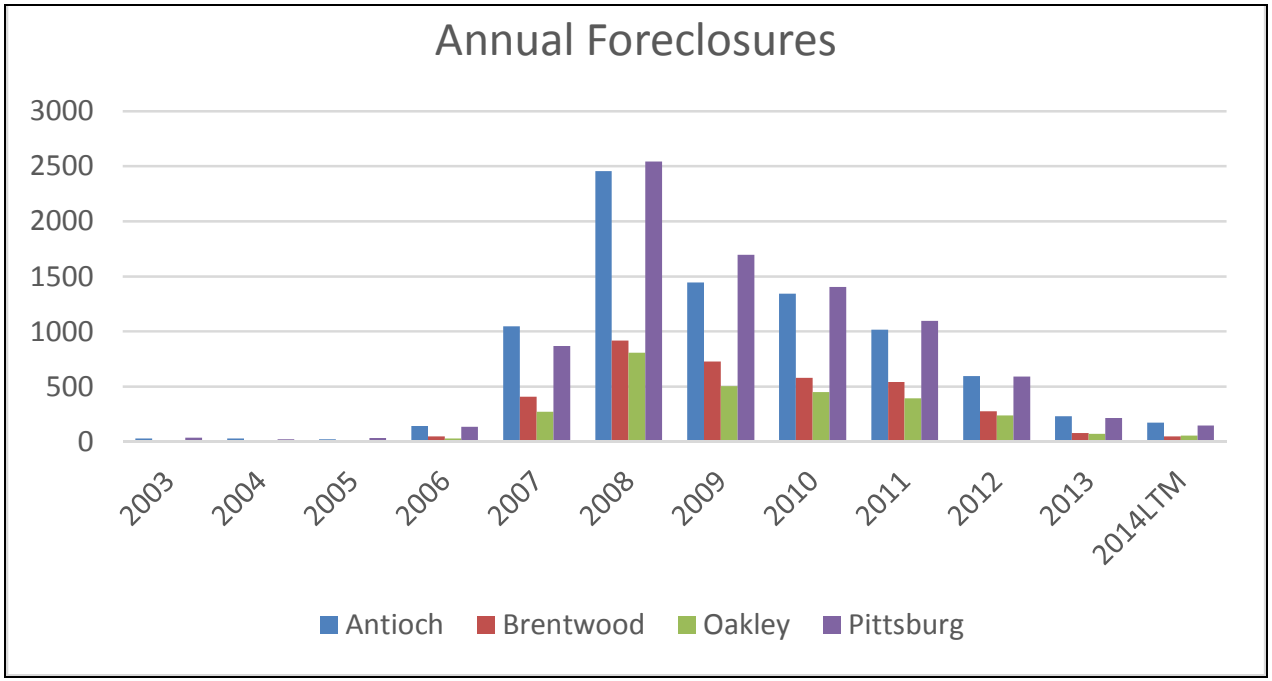
Figure 2.10.2: Percentage Growth in Population

While Antioch's slowdown can be largely attributed to the Great Recession, which limited growth in many areas during the second half of the 2000's, its future growth prospects appear to be similarly muted as compared to the growth rates seen in previous decades. As described in Chapter 2.9.4, Market Setting, ABAG has estimated that Antioch will add approximately 5,500 housing units between 2010 and 2040, an average increase of slightly less than 200 units per year. As a comparison, Antioch added approximately 700 units per year in the 1990's, and approximately 500 per year in the 2000's (a large portion of which occurred during a dismal housing market).

2.10.2 Pricing Trends and the Great Recession.

The housing market has undergone significant changes over the past decade, not only in the East Bay, but throughout California and beyond. Most prominently, the massive and far-reaching Great Recession had dramatic effects on home values and new home sales activity, which slowed substantially during this period.

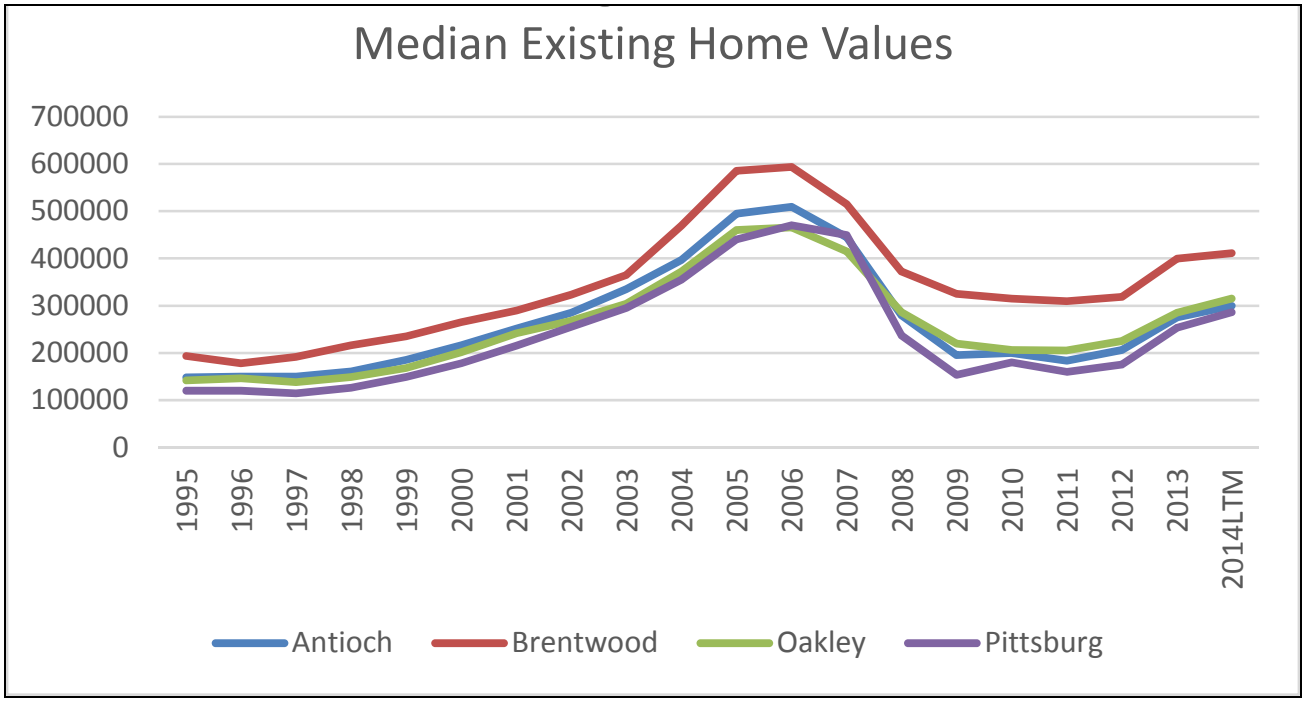
Distressed real estate activity was a central element of the recession, and many homeowners found their homes underwater and/or unable to keep up with debt service payments, and foreclosure rates skyrocketed. Antioch's foreclosure rates spiked dramatically during this period, as did the rates in other East Contra Costa County cities. Figure 2.10.3 shows foreclosure activity in East Contra Costa County, and demonstrates that although foreclosures were abundant from 2007 through 2012, this activity has tapered off significantly and is now entering levels that would be considered "typical" in a healthy housing market.



Prepared by New Economics & Advisory. Source: Meyers Research, LLC

Figure 2.10.3: Annual Foreclosures

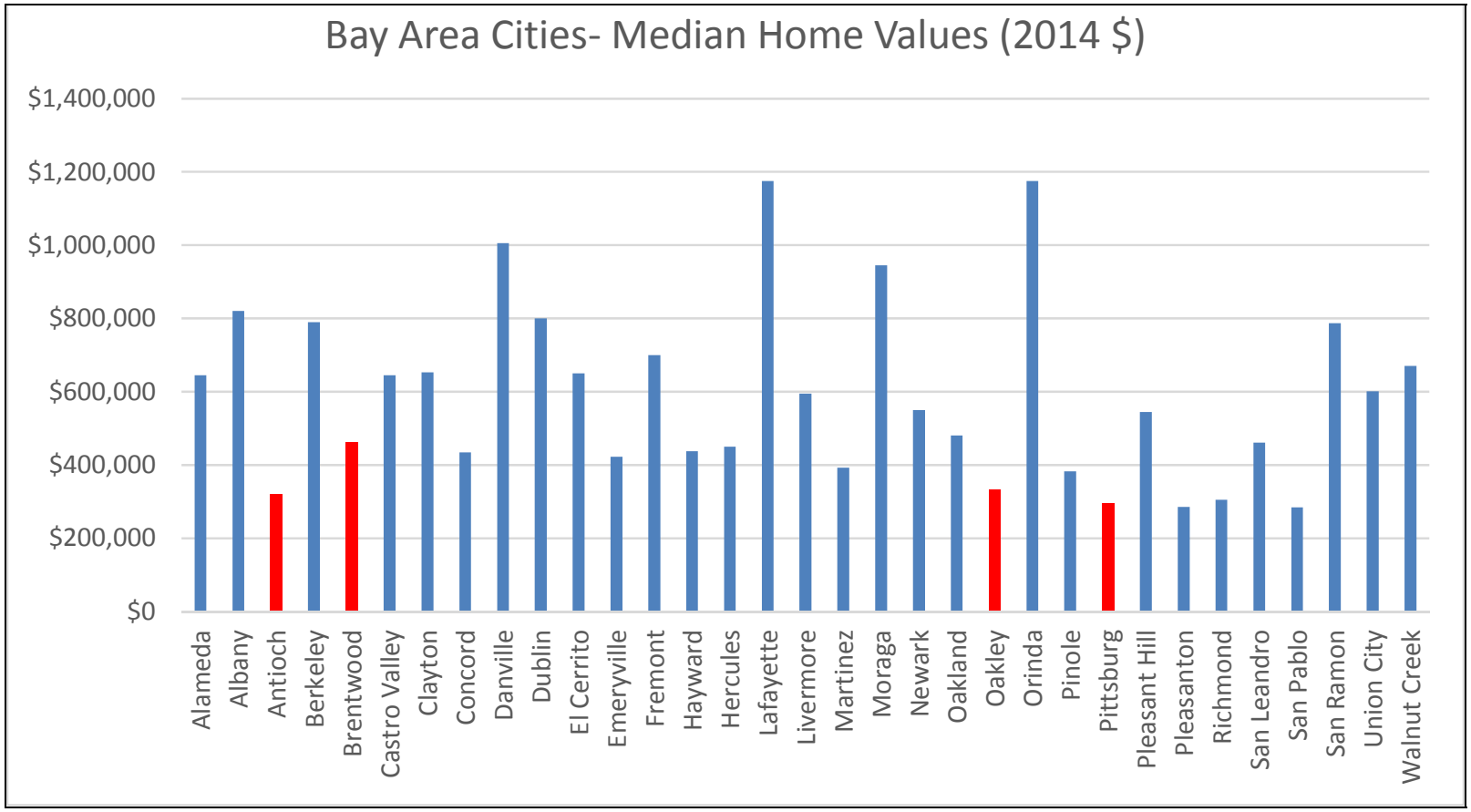
As foreclosure activity had a dramatic negative effect on the housing market, the City and surrounding region experienced precipitous declines in home price from 2006 to 2009, immediately following a period of significant annual increases in prior years. After this decline, home values remained relatively stagnant for several years, and have only recently begun to show signs of stabilization and improvement over the past few years. Figure 2.10.4 shows median values for existing homes in Antioch, Brentwood, Oakley, and Pittsburg. It is notable that these four cities perform in "lockstep" with each other, mirroring any positive and negative changes, and further underscoring their relationship as an interconnected regional market. While median home values in East Contra Costa County remain considerably below the "peak" values reached in 2006, price gains over the past several years have recaptured a significant portion of the loss. However, of the four East Contra Costa County cities, Antioch has recovered most slowly, with current median home value at 59 percent of "peak" values, while Brentwood, Oakley, and Pittsburg are currently at 69 percent, 67 percent, and 61 percent, respectively.



Prepared by New Economics & Advisory. Source: Meyers Research, LLC

Figure 2.10.4: Median Existing Home Values

While home prices in Eastern Contra Costa County continue to recover, they are substantially lower than other locations in the East Bay. Median home values in Antioch, Brentwood, Oakley, and Pittsburg range from around $300,000 to $400,000, while other inner East Bay cities demonstrate much higher values that in some cases are above $1,000,000, as shown in Figure 2.10.5 below (East Contra Costa County cities are denoted in red).



Prepared by New Economics & Advisory. Source: DQ News

Figure 2.10.5: Median Home Values in Bay Area Cities, 2014

2.10.3 Active For-Sale Residential Projects

This analysis includes an assessment of the current market for new homes in Antioch and the surrounding market area, and Table A-5 in Appendix 4.5 shows detailed information for actively-selling residential projects in the surrounding Eastern Contra Costa area. Figure 2.10.7 summarizes this information, and shows that Antioch currently has three active projects, which are all single-family detached communities with home sizes between 2,000 and 3,000 square feet. These homes sell for between $450,000 and $550,000, and the average sales rate is 2.98 per month. These projects are not unlike other new home communities within the Market Area, although Oakley projects tend to be lower-priced than those in Antioch, and Brentwood projects tend to be higher-priced than those in Antioch. Antioch's sales rates are slightly lower than those demonstrated by the three other cities.

Summary of Active Residential Developments

Area	Active Projects	Unit Size (sqft)	Price Range	Median Price	Average Sales Rate
Antioch	3	2,019 - 3605	$415,000 - $559,000	$442,171	2.98
Brentwood	10	1,356 - 4,400	$339,990 - $821,999	$541,858	4.72
Oakley	3	1,458 - 3,439	$372,950 - $499,950	$389,909	7.95
Pittsburg	3	1,538 - 3,810	$369,990 - $630,000	$460,590	4.30

Prepared by New Economics & Advisory.
Source: Meyers Research, LLC

Figure 2.10.7: Summary of Active Residential Developments

2.10.4 Future Projects in Antioch and the Surrounding Region.

Figure 2.10.8 lists the proposed and approved development projects in the cities of Antioch, Brentwood, Oakley, and Pittsburg. As shown, over 14,000 units of planned residential development exist in these cities, which is likely to be enough to satisfy growth pressures for many years to come.

Summary of Proposed and Approved Residential Supply

Project Name	Units Planned
Antioch	2,849
Brentwood	3,042
Oakley	4,727
Pittsburg	3,597
Total Planned Development	**14,215**

Prepared by New Economics & Advisory
Sources: Individual city planning departments and New Economics & Advisory

Figure 2.10.8: Summary of Proposed and Approved Residential Supply

Note that the table above does not include long-term growth areas that have not been categorized as proposed or approved "projects" in the City's documents but that represent genuine planned development that is likely to occur over the long-term. For instance, in Antioch alone the Hillcrest Station Area Specific Plan, East Lone Tree Specific Plan, Sand Creek Focus Area, and Ginochio Focus Area account for nearly 8,000 residential units of additional potential development. There are other similar growth areas identified in the other cities as well, signifying that there will be ample supply of housing stock available to the market for many decades to come.

Most of the planned, proposed, and approved residential development stock is of similar quality and character as the recent growth that has occurred in the southern portion of the City, which primarily consists of low-density single-family homes on large lots. However, there are some higher-density residential projects that have been intended for Antioch and the nearby cities. The Hillcrest Station Area Specific Plan is the most prominent of these higher-density projects in Antioch, and is envisioned to include up to 2,500 residential units and substantial community-oriented commercial space. The Hillcrest Station Area Specific Plan is positioned to tap into some of the key changes in consumer preference described above, namely denser, mixed-use development with access to amenities and mass transit. Once the Hillcrest eBART station is operational, the surrounding area will likely present a compelling development opportunity for residential and commercial uses in Antioch.

2.10.5 Notable Changes to the Housing Market.

Concurrent with the period of housing market distress associated with the Great Recession, the U.S. and California also experienced a shift in consumer preferences. Demand for housing had been pent-up for several years, and a new wave of homebuyers has recently begun to emerge from the aftermath of the Great Recession. These new buyers include inter-generational families, Generation Y (or "millennials"), retirement-age baby boomers seeking to downsize or relocate, first-time homebuyers previously priced out of home-ownership, and others who lost their homes to foreclosures or other means and have begun to re-enter the buyer's market. These demographic cohorts have a propensity for new and different residential prototypes than those in the recent past and place great value on attributes such as walkability, easy access to a variety of shopping, restaurants, services, and cultural destinations, and proximity to employment and/ or public transit.[12]

The types of "compact" development that meet these preferences are becoming increasingly common in what would typically be considered "suburban" settings, and several examples can be found throughout the Bay Area. Within the East Bay, the cities of Livermore, Walnut Creek, Concord, and several others have seen higher-density housing occur, especially within their respective downtowns. These projects include an assortment of different product types, from small-lot detached homes, to townhomes, to higher-density condominiums and apartment developments. The density of these developments can range from approximately 15 to 40 units per acre. These projects are varied in their scale, intensity, parking options, and amenities such as clubhouses, pools, fitness centers, business services, etc. The images below depict some of the successful projects that have been developed in select suburban East Bay locations in recent years.

Station Square in Livermore

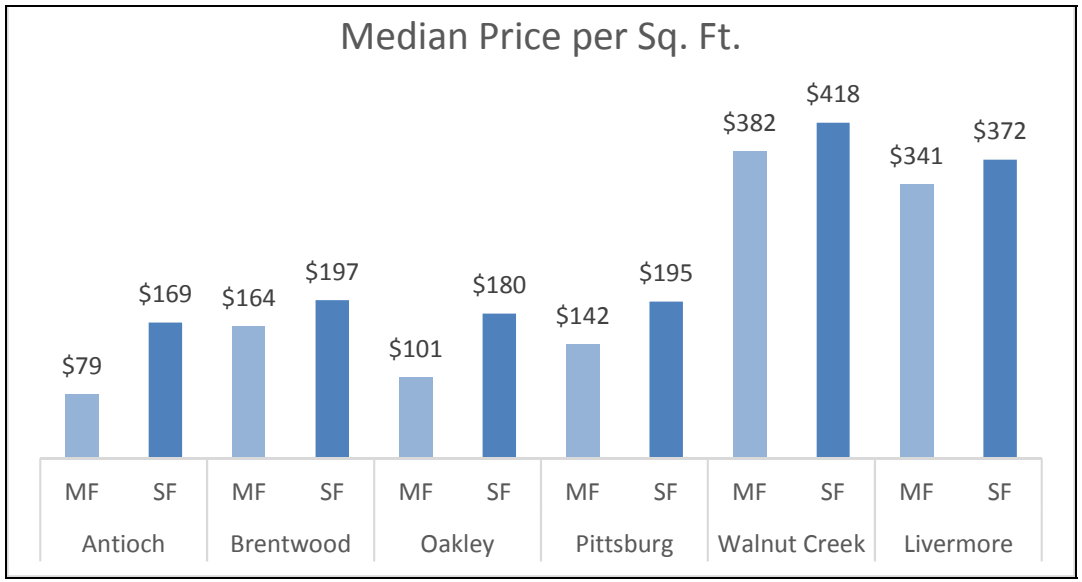
Brighton in Livermore

Ironhorse Lofts in Walnut Creek

[12] From "Residential Futures: thought-Provoking Ideas on What's Next for Master Planned Communities," the Urban Land Institute, 2012.

2.10.6 High-Density Residential Performance Indicators.

This study includes an analysis of the regional market for residential development of various high-density typologies by assessing pertinent indicators that measure supply and demand. Figure 2.10.9 shows pricing dynamics for single family and multi-family homes sold in the past two years in various East Bay communities. The figure echoes the general pricing dynamics illustrated in Figures 2.10.10 and 2.10.11, and shows that among East Contra Costa County jurisdictions, Antioch is fairly similar in price to Oakley and Pittsburg, while Brentwood tends to command substantially higher prices, and each of these cities has prices that are substantially lower than most other East Bay communities. In regard to the pricing differential between single family and multi-family residential, Figure 2.10.12 shows that among the "stronger" markets for higher-density real estate (such as in Walnut Creek, Livermore, and Brentwood, to some degree), not only are the home values substantially higher in general, but the differential between single-family and multi-family is less pronounced. As shown, Antioch suffers from having the lowest of all cities included in the chart, and also displays the largest "gap" between the values of single-family and multi-family values.



Prepared by New Economics & Advisory. Source: Zillow

Figure 2.10.9: Median Price Per Sq. Ft. in East Bay Communities

Recent High Density Projects in East Contra Costa County.

Some newer high-density residential product has been constructed in East Contra Costa County recent years, specifically in the cities of Brentwood and Pittsburg. The pricing of these projects can shed light on the likely pricing potential for new high-density residential product in Antioch. (The financial feasibility aspects of this are discussed in detail in the Pro Forma Financial Feasibility Assessment chapter below.)

Pittsburg's 3-story Vidrio condominium project was constructed in 2010. Recent transactions (within the past 2-3 years) have achieved sales between $110 and $180 per square foot, with an average of $140 per square foot.

Brentwood has two higher density projects built in recent years: the Coppergate and Trilogy projects. Trilogy is an active adult community constructed in 2006 (when the residential market was much stronger), located in a master-planned golf course community. A handful of sales in recent years have demonstrated an average sale price of approximately $150 per square foot. The Coppergate project is a slightly older townhome development (constructed in 2005), located in a newer development area outside Downtown Brentwood. Very few recent transactions have occurred at Coppergate, but one recent listing in 2014 achieved a price point of $190 per square foot.

For-Rent Residential. For-rent residential product such as apartments demonstrate a similar trend, wherein Antioch and the nearby cities exhibit rental rates that are significantly lower than those found in other East Bay areas closer to major job centers. As shown in Figure 2.10.10, Antioch's median monthly apartment rent is approximately $1,200, which is the lowest of all areas analyzed. This price differential may be partially explained by the fact that Antioch apartments are significantly smaller in size than other nearby cities, and anecdotal evidence indicates that available apartment units in Antioch are generally of older vintage, lower quality, and lower-intensity than its neighbors.

Summary of Apartment Performance in East Contra Costa County

Project Name	Average Rent (per unit/ month)	Average Unit Size (sqft)	Average Rent/ Sqft
Antioch	$1,201	815	$1.47
Brentwood	$1,715	1,137	$1.51
Pittsburg	$1,394	840	$1.66
Contra Costa County	$1,659	826	$2.01

Source: Realfacts

Figure 2.10.10: Summary of Apartment Performance is East Contra Costa County

2.10.7 Residential Market in Downtown Antioch.

This chapter describes a focused assessment of the market for residential real estate in Downtown Antioch, and evaluates the ability for housing with higher densities to be supported Downtown. Figure 2.10.11 shows active residential listings in the downtown area for October, 2014. As shown, there were only 5 active home listings in the downtown area—and all single-family units-- ranging in size from 850 square feet to 1900 square feet, constructed between 1908 and 1959, located on lots between 4,500 and 5,000 square feet, and exhibiting an average listing price of approximately $222,000 (or $171 per square foot).

Summary of Downtown Listing and Sales (SFD)

Address	Beds/ Baths	Building Sqft	Lot Size	Year Built	Asking Price	Price Per Sqft
Current Downtown Listings [1]						
817 W. 11th Street	1/1	857	4,356	1943	$189,000	$221
1023 W. 5th Street	3/1	1,096	4,999	1908	$150,000	$137
1022 W. 8th Street	2/1	1,885	5,000	1959	$259,000	$137
106 E. 7th Street	3/2	1,511	4,699	1938	$200,000	$132
319 W. 3rd Street	4/4	1,371	4,999		$315,000	$230
Average		**1,344**	**4,811**	**1,937**	**$222,600**	**$171**
Avg. Downtown Sales 2014 YTD		**1,358**	**5,127**	**1,931**	**$191,680**	**$153**

Prepared by New Economics & Advisory.
[1] Current listings as of October 28, 2014.
Source: Zillow.com.

Figure 2.10.11: Summary of Downtown Listing and Sales (SFD)

Home values Downtown are generally lower than those in the remainder of the City, a dynamic resulting largely from the fact that homes Downtown are smaller on average. At approximately $150 per square foot (for sales in 2014), Downtown homes are just slightly less valuable on a per-square-foot basis than sales in the City overall, which are approximately $170 per square foot.[13]

Anecdotally, Downtown has received mixed reviews in terms of the quality of its housing stock. On one side, some observers view downtown as being a second- or third-tier housing market, with an older and in some cases neglected building stock, a preponderance of homelessness and crime, and no extraordinary appeal as a residential development opportunity. On the other hand, Downtown's historical character, its walkability, its proximity to the waterfront, and its character and charm are attributes that have attracted many of the area's current residents and could present an important opportunity for future residential development. However, the depth of the new housing market remains untested in this area and will likely require some vision, improvement in market and financial conditions, and considerable effort to accomplish a variety of neighborhood enhancements.

Many cities in the U.S. have contended with this very issue, as downtowns have often been overlooked as they became more crowded destinations for commerce, and as the emphasis for family living shifted to suburban locations in the second half of the 20th Century. However, as consumer preferences are now shifting back toward more urban environments, many downtown areas have undergone transformations and are able to re-capture the energy that downtowns can provide and become destinations for and housing of various types and intensities. The "Case Studies" sub-chapter in this analysis provides information regarding some notable examples of proximate downtown revitalization efforts.

[13] Figures are from Zillow in October, 2014 for the previous twelve months.

2.11 Financial Feasibility of Downtown Housing

2.11.1 Introduction.

To inform the evaluation of the potential for development of housing of higher density in Antioch, a financial analysis was performed to assess whether a number of residential prototypes could be financially feasible in today's real estate marketplace. It should be noted that this financial analysis is intended to demonstrate an overall "order of magnitude" assessment of financial feasibility of a range of plausible densities. A more exact and definitive calculation would require detailed cost estimates prepared by trade experts, and is beyond the scope of this analysis. However, this analysis has attempted to use realistic yet "high-level" cost and revenue assumptions to reach reliable overall conclusions.

2.11.2 Key Assumptions.

There are several assumptions inherent within the analysis that can be reviewed in the detailed backup calculations presented in Tables A-6 through A-10 in Appendix 4.5. Some of the key driving assumptions utilized in this analysis are described in more detail below.

2.11.3 Residential Prototypes.

The following range of potential development prototypes were selected for study in this analysis, which comprise a relatively wide assortment of possible densities:

- Prototype 1: Small-lot single family detached (12 units per acre).
- Prototype 2: Attached townhomes (15 units per acre).
- Prototype 3: Medium-density condominiums with podium parking (25 units per acre) with tuck-under podium parking.
- Prototype 4: High-density condominiums with podium parking (40 units per acre) with tuck-under podium parking.[14]
- An additional Prototype 3A -- medium density "senior" condominiums (20 units per acre) with surface parking --- is also being evaluated. However, owing to the specialized nature of assumptions regarding senior housing, the results of this prototype will be presented in a subsequent analysis.

[14] A high-density condominium project could include ground floor retail or other uses; however, local developers reported that retail is not likely to substantively improve the financial prospects of any near-term projects, and is, therefore, not modeled in this assessment.

2.11.4 Revenues.

Revenues for each prototype come from the sale of residential units. This analysis incorporates fairly aggressive sale prices of approximately $200 to $215 per square foot, which are based on a review of recent sales from similar products in Antioch and in East Contra Costa County. Given that the sale prices are admittedly aggressive, they assume that at the time of construction, Downtown Antioch is well on its way to revitalization.

2.11.5 Costs.

This analysis includes a number of assumptions pertaining to the various categories of cost, as described below.

Soft costs (or indirect costs) assume 27.5% of direct construction costs, and include items such as architecture/ engineering, permits/ fees, taxes/ insurance, builder profit, overhead, and contingency. In reality, the actual soft costs in each sub-category can range significantly from project to project, but in general these costs amount to between 25% and 30% of direct construction costs.

Direct construction costs of $100 to $160 are based on a review of available cost data, and assumptions used in other similar analyses prepared in recent years for similar projects in the outer East Bay and surrounding vicinity.

Land costs of $5 per land square foot are based on a review of recent comparable land sales in Antioch and broker insights gathered during the development of the Antioch Property Management Plan in 2013-2014.

2.11.6 Financial Return.

The pro forma feasibility analysis conducts a "static" analysis of financial return, which quantifies all measurable costs and revenues attributed to the project to determine whether a positive financial result is reached. Typically, a developer would require a minimum of 10 to 15 percent return-on-cost, although this threshold can vary significantly, as each investor will possess a unique appetite for risk and will weigh the attributes of each project accordingly. Given the high risk often associated with development projects, a required profit margin of 15 to 40 percent or higher is not uncommon.

2.11.7 Pro Forma Feasibility Analysis Results and Implications.

Given key pricing and cost assumptions described above and shown in Tables A-6 through A-10 in Appendix 4.5, the prospects for more dense development in downtown Antioch are not favorable at the current time. Figure 2.11.1 shows the return-on-cost that each prototype is estimated to generate. As shown, in each case, a negative return on investment would occur in each prototype except for Prototype 1, rendering each infeasible under current market conditions. It is worth noting that the single family detached product is a significantly better-performing prototype, and actually achieves a positive result yet does not meet standard return requirements for most investors. This product-type may be the most promising opportunity to achieve housing in the downtown, at least initially as the area undergoes its long-term revitalization process.

Summary of Pro Forma Financial Feasibility Analysis

Prototype	Description	Density (units/ acre)	Estimated Return on Cost	Profit/ Loss per 1-Acre Project	Necessary Subsidy per Acre to Achieve 15% ROC
Prototype 1	Small-Lot Detached	12	11.9%	$459,000	$144,000
Prototype 2	Townhomes	15	-33.1%	($1,621,000)	$2,400,000
Prototype 3	Medium-Density Condo	25	-48.6%	($6,976,000)	$9,200,000
Prototype 4	High-Density Condo	40	-48.0%	($9,076,000)	$12,000,000

Prepared by New Economics & Advisory.

Figure 2.11.1: Summary of Downtown Residential Pro Forma Financial Feasibility Analysis

In order for the above results to be improved and for higher density-housing to be considered "feasible" (especially prototypes 2 through 4), Antioch would need to see an increase in residential values, a reduction in costs, or (preferably) both. For example, the "Medium-Density Condominiums" prototype (Prototype 3) assumes an average sales price of $200 per square foot, as described above. In order for a project to achieve revenues that are high enough to offset costs (and provide an adequate level of return for the developer), sales price of these units would need to reach a level near $425 to $450 per square foot (assuming all other variables are held constant).

In addition to an increase in real estate values, a reduction in cost could also improve financial feasibility prospects. There are some measures that the City could undertake to improve feasibility results, such as donating land to a prospective development project, contributing any available grant funding, waiving development fees, or other measures. However, given the magnitude of costs would need to be reduced, these actions are unlikely to have a large impact on the financial feasibility results without a simultaneous rise in home prices. While the magnitude of the cost reduction (or subsidy) required to achieve an acceptable return varies by product type, in general terms an injection of $145,000 (for small-lot detached homes) to $12.0 million per acre (for high-density condos) would be required.

A "sensitivity analysis" has been conducted in order to test the impact of changes in construction costs on the overall results of the analysis, since the shell construction cost is such an important factor (comprising 50 to 60 percent of total development costs), and since in reality construction costs can vary significantly from one project to the next depending upon the finishes, amenities, labor requirements (whether "prevailing wage" labor is used), etc. If a project constructed in downtown Antioch is able to achieve lower construction cost rates than those that have been assumed in this analysis, financial feasibility prospects can be correspondingly improved. The "base" financial feasibility analysis assumes shell construction costs between $100 and $160 per square foot (as shown in Tables A-6 through A-10 in Appendix A), depending upon the prototype under consideration. If these costs were adjusted downward by 15% across the board, the estimated return on cost for each prototype would improve by 9 to 12 percentage points, which is significant but still not sufficient alone to render the high-density prototypes feasible.

Construction Cost Sensitivity Analysis

2.12. The Commercial Market in Antioch & Downtown

2.12.1 Regional & City Employment Trends 2007 – Present.

During the Great Recession, between 2007 and 2011, the East Bay as a whole experienced a ten percent reduction in jobs. These job losses were most highly concentrated in construction, finance and real estate, government, and retail trade[15].

Despite these losses, as of 2011 the East Bay remained highly specialized in professional, scientific & technical services as well as construction. Figure 2.12.1 highlights select industries, grouped into clusters by the East Bay Economic Development Alliance, expected to contribute to growth in the East Bay's economy in the near-term. Rapid growth is expected in both health care and educational services, in contrast to modest growth for retail trade, accommodations and food services, transportation and warehousing, and wholesale trade.

New Economics compared the East Bay job base to Antioch's job base to identify potential long-term business attraction opportunities. This analysis, contained in Appendix 4.5, Tables A-11 and A-12, illustrates the following dynamics:

- The East Bay is highly specialized in six industries: management of companies & enterprises; financial activities; construction; health care & social assistance; professional, scientific & technical services; and, transportation, warehousing & utilities.
- Antioch is highly specialized in two of the East Bay's specialization industries: health care & social assistance and construction. In addition, Antioch is highly specialized in retail trade and accommodation and food services.
- Antioch's employment base is commensurate with statewide employment concentrations in five other sectors: financial activities; transportation; warehousing & utilities; other services; and, arts, entertainment & recreation.
- Antioch appears to be severely under specialized in employment related to management of companies and enterprises.

Antioch's ten largest employers provide 140 to 2,200 jobs each, and comprise institutions (e.g. hospitals, government) and retailers (department stores and auto mall). In comparison, the county's major employers provide 500-10,000+ jobs each; the larger employers also comprise institutions, although a limited set of private-sector businesses related oil and laboratories also serve as major employers.

[15] Table A-11 in Appendix 4.5 contains supporting technical data.

Select East Bay Industry Sectors (1995-2017)

Sector	East Bay Compared to U.S. Location Quotient (2007) [1]	East Bay Compared to U.S. Wage Index	Avg Annual Growth Rate (1995-2007)	Projected Growth Rate (2008-2018)
Innovation Sectors				
Professional, Scientific & Technical Services	1.53	1.90	3.8%	3.0%
Information	0.78	1.10	-1.1%	0.4%
Manufacturing	0.89	0.83	-0.5%	-0.9%
Construction	1.25	1.22	4.2%	1.7%
Regional-Serving Industries				
Health Care & Social Assistance	0.95	1.21	2.9%	2.3%
Retail Trade	0.99	0.34	0.5%	0.4%
Education Services	1.06	0.85	3.7%	2.4%
Accommodation & Food Services	0.92	0.83	2.0%	0.7%
Government				
Local	1.00	1.20	N/A	N/A
State	0.90	1.20	N/A	N/A
Federal	0.60	1.40	N/A	N/A
Transportation & Warehousing, Wholesale Trade				
Transportation and Warehousing	0.88	1.49	0.3%	0.9%
Wholesale Trade	1.10	0.71	1.2%	0.4%

Prepared by New Economics & Advisory.

Source: "Building on Our Assets: Economic Development & Job Creation in the East Bay," East Bay Economic Development Alliance, October 2011.

[1] Location quotient measures employment concentrations relative to the concentration nationwide (usually compares statewide). A concentration level of 1.20 or greater generally indicates "specialization" in that particular sector, a level of 0.80-1.19 suggests that the East Bay or Antioch's is commensurate with the statewide average for that sector, and a level less than 0.80 suggests insufficient job levels in the sector.

Figure 2.12.1: Select East Bay Industry Sectors (1995-2018)

2.12.2 Commercial Space Utilization Trends

Industry experts have documented a number of permanent market changes since the Great Recession that impact land use planning going forward. These trends include:

- Retail Anchors Are Shrinking. Prolonged increases in market share by e-commerce businesses, (e.g. Amazon, Staples.com) have caused a reduction of footprint for major retail anchors that sell comparison goods. This trend has been accompanied by the propensity for large-format department stores to venture into the grocery market. Increased competition for grocery (as well as prepared foods) has resulted in both smaller-format traditional grocery stores as well as new, small-format grocery versions of department stores.

- Retail is Increasingly "Experiential." Because shoppers can buy more things on-line that can be delivered in a very short time, shopping is evolving to emphasize an experience, beyond the instant gratification offered by a traditional commercial transaction. For example, these experiences can include outlet/thrift shopping, (finding a unique item for a "steal"), services combined with retail (a bike repair shop with a coffee counter), or a restaurant with exceptional community views.

- Office and Service Commercial Space Face Competition from Retail Centers. The decline of retail anchors has forced retail centers to expand their tenanting options, and now tend to include service providers (massage, insurance, small appliance repair) as well as medical uses (physical rehabilitation, radiology/dialysis centers). Retail centers typically have ample parking and ADA accessibility, and these uses generate significant foot traffic that can benefit other retail uses. This trend is placing additional pressure on traditional office and service commercial uses[16].

- Retail Centers are Becoming More Aggressive in Considering Options to Expand Revenues. In addition to competing for office and service users, large retail centers, particularly aging malls, are seeking a wide variety of opportunities to diversify revenues. One trend has been to add restaurant pads close to frontage roads, to boost mall revenues and increase traffic to the mall. Another trend that appears to be starting is the addition of residential development to create a 24-hour presence and add to the rooftops in close proximity to the mall. However, the extent that these new mixed–use nodes will compete with other mixed-use developments, such as transit-oriented development and downtowns, remains unclear.

- Office Space Ratios are Decreasing Dramatically. Whereas traditional, suburban office planning has historically assumed 300-350 square feet per employee, this ratio has decreased to about 150-225 square feet per employee for a variety of reasons. Some of these include improved vehicle technology, job sharing, telecommuting, home-based businesses, digital information storage, mobile technology improvements, and the use of "third places," (e.g. coffee shops). In addition, firms are increasingly changing the overall role of office space from one that emphasizes size or location for one that supports collaboration, communication and connection among colleagues; this evolution favors smaller individual workspaces and small group spaces, closer proximity for younger workers, and these use video and

[16] "Shopping Center Shift" by Rich Rosfelder; CCIM Institute, published May/June 2013.

audio technology instead of large group meetings for "distributed" teams[17]. Some of these same factors also contribute to more compact public-sector office usage patterns.

- Global Changes and Technological Improvements are Accelerating the Life Cycle of Existing Industrial Stock. The manufacturing industry has become much more technologically complex, and domestic jobs tend to focus increasingly on medical devices, pharmaceuticals, clean energy technologies. There is also more rapid feedback between research and development and manufacturing, and a need for a more educated workforce that can operate sophisticated machinery[18]. The effect of these changes on demand for industrial space has played out on various fronts; newly constructed manufacturing space tends to absorb more quickly to the extent that it has robust access to technology (e.g. T-1 lines) and has the capability of accommodating various industrial activities, including R&D, manufacturing, and office functions.

Figure 2.12.2 summarizes major commercial and industrial projects under construction, approved (but not yet built), and proposed in Antioch. These projects provide an indication of the scale and type of development that the private sector is engaged in locally.

[17] How Emerging Work Strategies Are Changing the Workplace; published by Steelcase, June 2009.

[18] Manufacturing Growth; Advanced Manufacturing and the Future of the American Economy. By Devon Swezey and Ryan McConaghy, The Schwarz Initiative on American Economic Policy, October 2011.

Recently Constructed and Under Construction Major Projects

Description	Applicant	Location	Acres	Bldg. Sq. Ft.	Status
Under Construction					
Kaiser Medical Center	Kaiser Foundation Hospitals	6200 Deer Valley Road			Under Construction
Retail Center	John Tomasello	Lone Tree Way at Hillcrest		81,690	Under Construction
Office/Retail Center	Reynolds & Brown	Buchanan Road at Somersville		122,856	Under Construction
Office/Retail	Reynold's and Brown	Northwest corner of Lone Tree Way and Golf Course Road		950,000	Under Construction
Approved (Not Yet Built)					
WalMart Expansion	Robert A. Karn & Associates	4893 Lone Tree Way		33,575	Approved (Not Yet Built)
Bank and Car Wash	Richard Miller	Lone Tree Way at Country Hills	2.400		Approved (Not Yet Built)
Multi-Tenant Building	MS Walker & Assoc.	SW Deer Valley at Country Hills	6.00		Approved (Not Yet Built)
Retail	Bedrock Ventures Inc.	Hillcrest Avenue and E Tregallas	5.000		Approved (Not Yet Built)
Card Room	Anthony Keslinke	408 O Street	0.52		Approved (Not Yet Built)
Proposed					
Bingo Hall	Tricia Simmons	2317 Buchanan Road # A	0.530		Proposed
Shopping Center	Matt Nohr	Somersville Rd and Buchanan Road	13.50		Proposed
Fitness Center	Fitness International	Lone Tree Way & Hillcrest; Lone Tree Landing	3.833		Proposed
Retail Building	Burk Properties	2100 L Street	0.77		Proposed
In Progress					
Retail	Jamie Abhari	4851 Lone Tree Way	1.234		In Progress
AutoZone	Stantec Architecture	Northeast corner of Lone Tree Way and Fairside Way	0.56		In Progress

Prepared by New Economics & Advisory.

Source: City of Antioch Project Pipeline, Residential Projects 9/25/14.

Figure 2.12.2: Recently Constructed and Under Construction Major Projects

2.12.3 Office Landscape.

As discussed earlier, Antioch's office market is part of the North Market component of the larger I-680 Corridor market. Antioch is part of the North Market, which also includes Walnut Creek, Pleasant Hill, Concord, Martinez, Pittsburg, and Lamorinda. As documented in Figure 2.12.3 and Appendix 4.5, Tables A-13 through A-15, Antioch's inventory accounts for only 1 percent of total leasable space in the North Market, whereas other submarkets clearly constitute office nodes, including Walnut Creek (41%), Pleasant Hill (17%), and Concord (30%).

Office Market Indicators (2014)

	2014 (Q1)			
Submarket	Antioch	Walnut Creek	Concord	Region
Inventory	1%	26%	30%	100%
Vacancy Rate	12%	12%	19%	13%
Rental Rate	[1]			
Class A	$2.50	$1.80-$3.00	$2.05	$2.51
Class B	$1.14-$2.17	$1.65-$2.25	$1.65	$1.89
Class C	$1.30-$1.75	$1.55-$2.00	$1.55	$1.63
R&D	$0.70-$1.30	N/A	$1.60	$1.78

Prepared by New Economics & Advisory.

[1] Based on current LoopNet listings, researched on October 2014.

Source: CBRE I-680 Marketview Report Q1, 2014.

Figure 2.12.3: Office Market Indicators (2014)

Interviews with local real estate professionals, observations made during site visits, and data research indicated that office inventory in Antioch consists mostly of small spaces in single-story or two-story buildings ranging from 10,000 to 35,000 square feet. Office product has been added to the market in multiple waves, including the 1960's, 1980's, 1990's, and early 2000's, and includes traditional office buildings, warehouse/flex office space, and commercial space. In addition, some commercial centers originally designed for retail are now including an increasing share of office users. Office inventory is concentrated Downtown, immediately south of State Route 4, and along Lone Tree Way adjacent to existing retail centers. Space generally rents for $1.00-$1.40 per square foot in most areas, although Downtown office space has a much higher range, from $0.82 to $2.50 per square foot. Much of the available space is being marketed as medical office, which is experiencing relatively rapid growth statewide. Office buildings currently for sale have list prices of roughly $5.00 to $15.00 per building square foot.

Antioch's largest employers include institutional users—medical centers, public employers, and anchor retailers. None of these employers utilize private-sector office space, although some of them create indirect demand for spin-off uses that require office space. For example, interviews revealed that many doctors rent private office space to see clients outside of medical procedures occurring at the hospital. Appendix 4.5, Table A-16 contains a list of the City's and County's largest employers. Interviews with local real estate professionals active in the office market offered the following observations about office activity in Antioch:

- Concern for personal safety is an impediment to filling vacancies in Antioch. However, brokers based in Antioch believe that this is an issue of perception.
- There has been very little demand for larger spaces.
- Older office buildings are experiencing prolonged vacancies because many lack ADA access, which prevents medical users as well as some other businesses.
- Users are relocating from Antioch to Brentwood, including Downtown Brentwood.
- Potential users tend to already be invested in Antioch (as residents and/or current business owners).
- Some Downtown building owners are not actively looking to reinvest but rather holding onto properties for speculative reasons.
- There is interest from office users to occupy ground-floor spaces Downtown; however, a requirement for conditional use permit for non-retail uses is making it difficult for these users to execute leases in a timely manner. Second floor spaces are less desirable because most do not have ADA access.

2.12.4 Industrial Landscape.

As summarized in Figure 2.12.4 and Appendix 4.5, Tables A-17 and A-18, Antioch's industrial space comprises about 20 percent of the Walnut Creek North I-680 industrial inventory; the Antioch submarket appears to be contributing to the recovery and stabilization of the Region's industrial market and in 2013 experienced improvements in vacancy rates, net absorption, leasing activity, and sales activity[19].

[19] Colliers Research & Forecast Report, Q4 2013 Industrial.

Industrial Market Indicators (2014)

Category	Amount (Q2, 2014) Antioch	Concord	Pittsburg	Region
	Inventory			
Industrial	49%	88%	79%	100%
Warehouse	49%	4%	21%	100%
R&D	3%	9%	N/A	100%
Total	24%	50%	27%	100%
	Vacancy Rate			
Industrial	5.6%	5.3%	5.5%	5.2%
Warehouse	15.3%	3.7%	15.2%	13.5%
R&D	0.0%	4.2%	N/A	4.3%
Total	10.2%	5.1%	7.5%	6.5%
	Rental Rate			
Industrial	$0.91	$0.84	$0.59	$0.82
Warehouse	$0.50	$0.85	$0.30	$0.39
R&D	$1.00	$1.25	N/A	$1.05
Total	$0.61	$0.87	$0.41	$0.65

Prepared by New Economics & Advisory.
Source: CBRE I-680 Marketview Report Q1, 2014.

Figure 2.12.4: Industrial Market Indicators (2014)

Antioch's major industrial nodes are located along the waterfront both east and west of Downtown. On the east side of the City on both sides of Wilbur Avenue, major industrial businesses are concentrated along the waterfront as well as within the Antioch Distribution Center, a large manufacturing facility with over 650,000 square feet of space with access to rail, heavy power, and yard space. Businesses in this area currently include precast/prestressed concrete product manufacturing, welding supplies, cement, sand and dirt pits, RV storage, concrete pipe manufacturing, multiple power generation stations, metal food container manufacturing, and commercial fueling; according to City staff, these types of businesses tend to have intense water requirements, a need that Antioch's historic water rights is well-positioned to accommodate. Further south, the East Eighteenth Street corridor contains single-use industrial and one-story flex space with roll-up doors. Flex space users include a gymnastics academy, security systems, vehicle wrap and graphics,

etc., and single-use properties include landscaping supplies, portable sanitation products, sporting goods, automotive repair, cement contracting, a moving company, etc.

Within the Downtown Specific Plan area, there is an industrial node on the west side, along Fourth Street. The Marina Business Park includes approximately 300,000 square feet of space and includes yard and parking space. Uses in this business park include industrial machinery for the woodworking industry, grocery distribution. Next door, at 1400 West Fourth Street, a boat and RV storage facility partially occupies a warehouse facility comprising roughly 220,000 sq. ft. of space. Finally, Bond Manufacturing, a lawn, garden, and outdoor living manufacturer, occupies roughly 300,000 square feet at 1700 West Fourth Street; this firm also recently expanded within Antioch by leasing 117,000 square feet of space at the Antioch Distribution Center in Eastern Antioch.

In the western half of the City, along West Tenth Streets, the Delta Business Park has approximately 170,000 square feet of space that can be utilized for light industrial, wholesale, assembly, research and development, back offices, manufacturing, and distribution. Anchor users include Costco and a carpet company. Center spaces are generally small, including mostly attached 1,500 sq. ft. spaces, some attached 4,000 sq. ft. spaces and/or 8,000 sq. ft. buildings, and a few 20,000 sq. ft. buildings. Few of the spaces have a yard space and tenure includes both owned (condos) and leased spaces.

Interviews with real estate professionals active in Antioch indicated that Antioch serves as an overflow valve for industrial activity occurring in other more urban nodes in the East Bay. They also observed that much of the City's warehousing space and some of the flex space have become relatively dated, making Antioch less competitive than other submarkets. These insights are not supported by brokerage house data, which suggests that Antioch's industrial performance is similar to Pittsburg and Pleasant Hill; these submarkets have relatively high warehouse vacancy rates despite low rental rates (30-50 cents versus 85 cents per square foot in Concord). One potential reason for this discrepancy is that many of the smaller office spaces, represented by local brokers, may not be large enough to be included in the regional office inventory counts. Anecdotal discussions with industrial brokers reveal that traffic congestion for State Route 4 is a deterrent for larger companies that require close proximity to larger corridors. Brokers indicated that Antioch is ideal for smaller "mom and pop" manufacturing and distribution businesses. They also suggested that the City be more flexible with requirements and special use permits to attract larger businesses that may be substantially different from what is currently allowed through existing zoning. Brokers cited other cities that have been able to accommodate new large users through increased special use permit flexibility. Although industrial buildings are dated in Richmond, for example, there have been successful businesses that have purchased the dated property and have either expanded or repurposed for functional and successful business use.

2.12.5 Retail Landscape.

Retail Inventory. Antioch has a variety of neighborhood, community, and regional retail offerings. South of State Route 4, retail centers tend to include a mix of national retailers, local retailers, and service retailers. These centers appear to have a significant level of vacant spaces. Figure 2.12.5 identifies the City's major retail centers, available vacant space, and rental rates. Appendix 4.5, Table A-19 contains additional data regarding available space.

Major Retail Centers in Antioch (October 2014)

Shopping Center	Total Square Feet	Major Tenants	Vacant Sq. Ft.	Monthly Rental Rate	Location/Cross Streets
North of Highway 4					
Eastwood Plaza/Antioch Square	60,800	Grocery Outlet	8,260	$1.00-$1.50	E 18th Street & A Street
Sycamore Square	38,202	Pizza Guys, Quick Stop	3,600	$1.25	Sycamore Dr & Peppertree Way (near L Street)
Bridgehead Plaza	104,076	Kmart	N/A	N/A	NE corner of East 18th & Drive-In Way
Lowe's Shopping Center	137,208	Lowe's	N/A	N/A	Sycamore Drive & Auto Center Drive
South of Highway 4					
Contra Loma Plaza	74,616	Save Mart Supermarket	13,870	N/A	Contra Loma Blvd; Longview Rd & Putman St
Deer Valley Square	35,185	Walgreens	37,306	$1.75-$2.00	SW Corner of Deer Valley Rd & Davison Dr
Delta Fair Shopping Center	157,000	Dollar Tree	81,207	N/A	Delta Fair Blvd; Buchanan Rd & San Jose Dr
Delta Square	52,680	Hardy Nix Jewelers	N/A	N/A	3600 - 3698 Delta Fair Blvd
East County Shopping Center	21,638	O'Reilly Auto Parts	4,053	$1.00-$1.50	2635 - 2669 Somersville Rd
Orchard Square Shopping Center	80,567	N/A	12,321	N/A	Buchanan Rd; Delta Fair Blvd & Somersville Rd
Raley's Center	123,735	Raley's Supermarket	24,742	N/A	Lone Tree Way; Clearbrook & Davison Dr
Slatten Ranch Shopping Center	430,000	Target, Sports Chalet	5,928	N/A	Corner of Slatten Ranch Rd & Lone Tree Way
Somersville Towne Center (Mall)	388,318	Macy's, Fallas, Sears, 24 Hr. Fitness	107,480	$1.08	Sommersville Rd; Fairview Dr & Delta Fair Blvd
The Crossing Shopping Center	130,463	Rite Aid Pharmacy, Safeway	16,956	N/A	Deer Valley Rd; Hillcrest Ave & Wildflower Dr
The Terrace Shopping Center	46,000	Sylvia's Country Kitchen	45,650	N/A	Lone Tree Way at West Tregallas Road
Williamson Ranch Plaza	259,619	Wal-Mart, Staples, Big 5 Sports	3,500	$1.25	Off Lone Tree Way & Hillcrest Ave
Total Major Retail Centers	**1,799,821**		**353,013**		
Percent			***20%***		

Prepared by New Economics & Advisory.
Sources: Loopnet, internet research, City staff.

Figure 2.12.5: Major Retail Centers in Antioch (October 2014)

North of State Route 4, there are only a handful of anchor retailers--discount grocery stores and pharmacies are found both in stand-alone venues and small retail centers. In addition to these anchor retailers, two commercial corridors and Downtown Antioch accommodate the largest concentration of retail activity: Tenth Street and Eighteenth Street. Both of these corridors are characterized by their local retail and service offerings, including bars, ethnic restaurants and grocery markets; barbershops and beauty salons; laundry facilities; auto parts, service, and repair stores; and motels. Eighteenth Street appears to also have banking, insurance, fitness, and other professional services.

Similar to the commercial corridors, Downtown Antioch has a variety of local-serving retailers. Current business types include eateries, furniture and second-hand stores, a local theatre/concert hall, professional services, beauty-related stores, music-related stores, and other miscellaneous stores. Interviews with these stores revealed that the customer base draws almost exclusively from Antioch residents and customer activity is generally quiet during the day but increases substantially after 4pm. Certain businesses, such as the El Campanile Theatre are also much busier during the weekends.

Retail Performance. The City tracks taxable retail sales volumes and benchmarks actual taxable sales generated by Antioch businesses compared to potential sales based on buying patterns in the Bay Area and California as a whole, which has allowed New Economics to identify categories of retail sales leakage. Data from the second quarter of 2014 suggests that compared to Bay Area spending patterns, Antioch is a sales hub for department stores, new auto sales and auto parts/repair, capturing sales from well beyond Antioch. In a number of other business categories, Antioch stores achieve taxable sales levels commensurate with statewide and Bay Area spending patterns, such as service stations, liquor stores, and food markets. However, Antioch is experience leakage in several remaining retail categories, including drug stores, restaurants, business to business, furniture, and used autos. It is important to caveat that these performance indicators merely present a snapshot. Going forward, the City should monitor these indicators over a long timeframe; because retail trends evolve much more quickly than office or industrial activities, there tends to be much higher turnover with smaller and medium-size stores.

Real estate professionals active in the Antioch and/or larger regional retail market offered the following observations regarding Antioch's retail landscape:

- The perception of crime is a deterrent for filling existing vacancies at retail centers throughout the city. Potential users have expressed serious concerns about employee safety and the lack of customer traffic resulting from a perceived lack of safety. Existing businesses also appeared to support this perception, citing difficulty with employment recruitment owing to safety concerns.
- Downtown Antioch buildings appear to be dilapidated compared to some other retail centers (particularly those south of State Route 4).
- Downtown does not currently provide an array of retail goods and services that would be needed to become a "destination" for locals or visitors.
- Vacancy rates Downtown, not officially tracked by brokerage firms, appear to be decreasing. There also appears to be demand for ground-floor retail sites by office and service providers (e.g. insurance, real estate, etc.); these users tend to be local residents and/or long-time Antioch business owners.

2.12.6: Motel/Boutique Hotel Prospects.

The Rivertown Study, prepared in 2006, evaluated the potential for Downtown Antioch to develop a resort hotel. That study concludes that East Contra Costa County is not a major tourist destination, lacks supporting tourist amenities, and faces significant competition from other Bay Area resort hotel communities (e.g. Napa); the study also concludes that Delta visitors predominantly constitute business travelers or families visiting relatives.

At the request of the City, the current analysis provides a high-level assessment of a smaller, boutique-lodging concept in Downtown Antioch. This concept would provide a scenic lodging option in the heart of the City and potentially capitalize upon both Delta and Downtown activities. A cursory review of Antioch's existing lodging facilities suggest that the City's hotels and motels are relatively affordable and are located throughout the City, with no hotels located in Downtown Antioch (Figure 2.12.6). Owing to data restrictions, occupancy patterns were not available for Antioch hotels. Anecdotal information from telephone interviews, however, suggested that visitors are characterized primarily as business travelers associated with commercial activity on the Bay and people visiting relatives during holiday periods.

Downtown Antioch's expansive waterfront presents a potential opportunity for a unique lodging concept that capitalizes upon Delta views and the Downtown atmosphere. While a feasibility analysis for hotel development was beyond the scope of this analysis, research yielded an overview of select lodging throughout the Delta with waterfront locations; as Figure 2.12.6 indicates, nine lodging facilities were identified. Telephone interviews with representatives of many of these facilities suggested that for the larger motels proximity to the waterfront is more a function of convenience than an amenity in and of itself. The remaining facilities, which do embrace the waterfront, are relatively small and have a wide range of prices.

The initial ability for Downtown Antioch to attract a small, boutique, riverfront motel or lodging facility will be driven by numerous factors:

- Perceived safety of Downtown
- Increased level of Downtown business and retail activity during the day and evening
- Reduction in noise levels

While a financial feasibility assessment for such a facility is beyond the scope of this assignment, the performance of boutique inns in Benicia could serve as a model and indicator for both scale and rates for a similar lodging facility in Downtown Antioch.

Select Hotels and Motels (2014)

Name	Address	# of Rooms	Nightly Rates	Busy Season	Amenities
Antioch Existing Lodging					
Holiday Lodge	1500 W 10th St	48	$72		TV, wifi, coffee, juice, microwave, fridge
Executive Inn	515 E 18th St	32	$49-$55	June - July	Microwave, fridge, TV (boxed), wifi
Ramada Antioch	2436 Mahogany Way	116	$75-$100+		Wifi, breakfast, TV, coffee, fridge
Days Inn Antioch	1605 Auto Center Dr	45	$80-$90		Microwave, fridge, TV (LCD)
Riverview Motel	3120 E 18th Street	23	$60	Summer	Cable, TV
Select Waterfront Lodging (Along the Delta)					
Delta King	Sacramento, CA	44	$136-$220	Summer & Weekends	TV (flat screen), wifi, non-smoking, breakfast at Pilot House Restaurant
Best Western Plus Heritage Inn	Benicia, CA	96	$130-$190		Microwave, fridge, full breakfast, internet, exercise facility
The Inn at Benicia Bay	Benicia, CA	9	$139-$200	Summer	Wifi, TV (flat screen), cable, coffee, bottled water, Jacuzzi tubs, breakfast
The Shorelight Inn	Benicia, CA	5	$139-$169	N/A	TV (flat screen), cable, wifi, microwave, mini-fridge, coffee maker, complimentary continental breakfast.
Budget Inn Vallejo	Vallejo, CA	15	$65	N/A	Cable TV, microwave, fridge, wifi, kitchenette, non-smoking
Motel 6	Vallejo, CA	148	$64	Weekends	Wifi, TV, coffee
Gables Motel	Pinole, CA	26	$69-$88	Summer	TV, wifi, no coffee
Motel 6	Pinole, CA	101	$74	Fall & Holidays	TV - very basic
Rio Sands Lodge	Rio Vista, CA	20	$73 - $82	Summer	Fridge, coffee maker, microwave, wifi

Prepared by New Economics & Advisory.

Source: STR and New Economics research, telephone interviews, and internet research, October 2014.

Figure 2.12.6: Select Hotels and Motels (2014)

2.13. Buildings at Risk Due to Earthquakes

The City of Antioch has identified 57 properties located north of State Route 4 which contain structures which are potentially unsafe during major seismic events. All except one of these properties is situated within the Downtown Area (Sub-Area 1). The buildings on these properties are reported to have been built with unreinforced masonry structural walls. The City has sent letters to the owners of all properties shown in Figure 2.13.1 (and individually listed in Appendix 4.6), to notify the owners that their buildings are potentially unsafe in a seismic event. Many of these identified structures do not comply with State Law requiring placard noticing. These properties represent both an opportunity to redevelop the existing structures with earthquake safe buildings, and a constraint to private redevelopment (and safety risk), due to the additional cost associated with redeveloping a property as opposed to simple reuse of the existing structure.

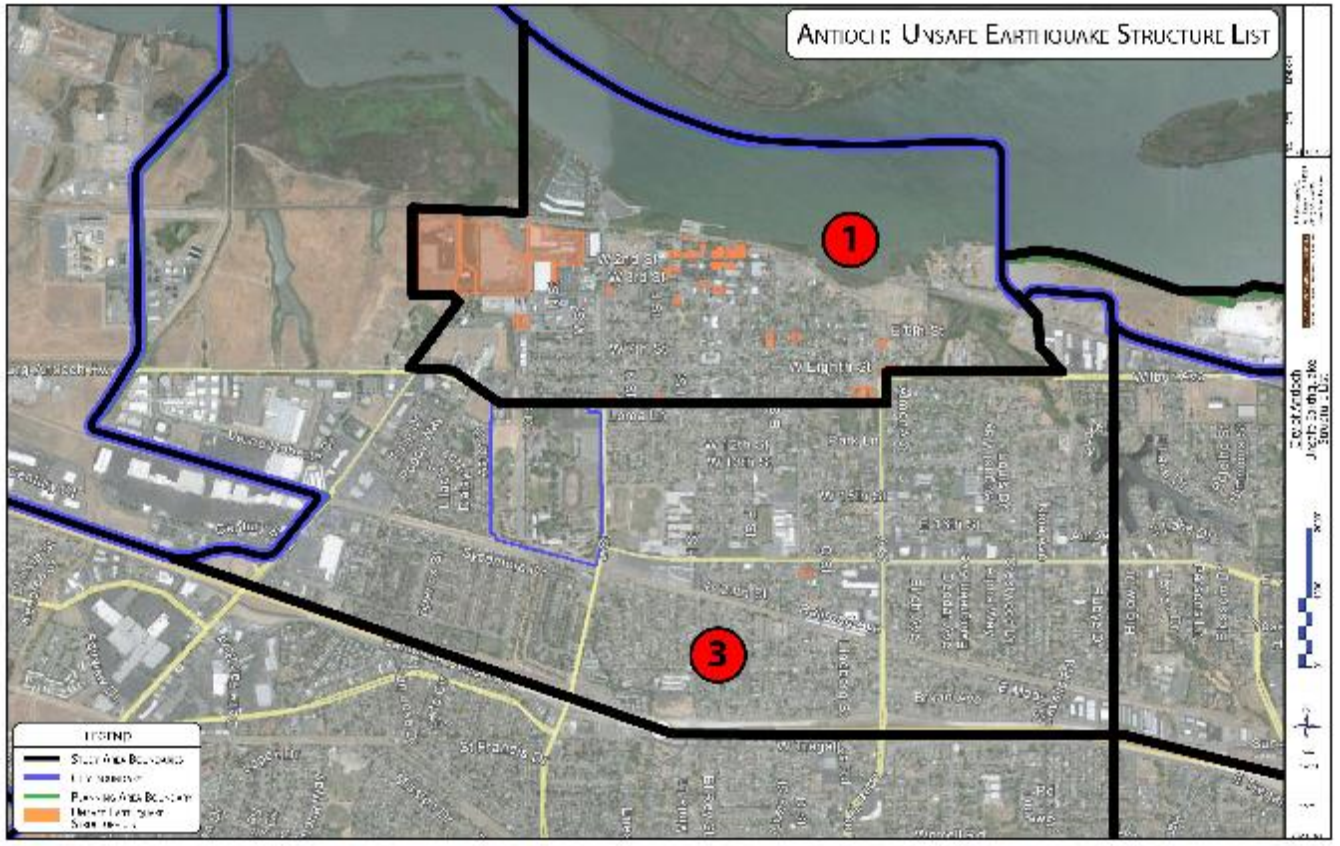


Figure 2.13.1: Structures Potentially Unsafe in a Major Earthquake

2.14. Zoning Process and Standards

2.14.1 Introduction

The Antioch Zoning Ordinance prescribes the process and standards by which all land uses and development are reviewed and entitled within the City's boundaries. The Zoning Ordinance is the principle mechanism by which the goals and policies of the Antioch General Plan and its various specific plans are implemented. This Chapter briefly outlines the procedures and standards outlined in the Zoning Ordinance, and identifies several issues to be further addressed in the General Plan Land Use Element and Zoning Ordinance Update and Downtown Specific Plan program.

2.14.2 Summary of Standards and Issues

The Zoning Ordinance is codified in Chapter 9-5 of the City Code. The regulations in the text of the ordinance are accompanied by an adopted Zoning Map which establishes the procedures applicable to approval and continued operation of all land uses and development within the City. These regulations are further refined by "districts" and are accompanied by an official Zoning Map which geographically prescribes the boundaries of the various districts. The procedure for establishment of specific plans, such that for the Downtown Area, as well as the standards for already approved specific plans, are also found in the Zoning Ordinance.

Throughout the stakeholder interview process (see Chapter 2.13 below), suggestions were made for a wide range of improvements to the current procedures and standards contained in the Zoning Ordinance. In particular, several specific recommendations were made for both streamlining current entitlement procedures, and for adding flexibility to the standards in place affecting the retrofitting of existing office and commercial buildings and developing new residential, commercial and industrial projects. In addition, the Market Analysis (Chapter 2.9 through 2.11) has identified anticipated market demand for various types of higher density residential, as well as certain commercial and industrial facilities, which are not efficiently accommodated under the current procedures and standards.

As part of the review of opportunities and constraints to accommodation of economic development and improvement in the quality of life in Antioch and its Downtown, a number of specific issues have arisen. It may be possible to efficiently address several of these issues through refinements to the Zoning Ordinance and Land Use Element. If found appropriate (based on location and land use compatibility), in combination with review of the Land Use Element and Zoning Ordinance Updates and the new specific plan for the Downtown Area, these may include: (1) Revised procedures and standards for accommodation of office uses within the Downtown Area zoning districts; (2) A range of options for improving the efficiency of Zoning Ordinance administration (permit streamlining) in order to incentivize new development and property improvements while concurrently reducing demands on City staff and the various boards and commissions; (3) Flexibility on lot size and building standards for compact housing products designed to meet the needs

of seniors, younger buyers and others seeking reduced maintenance and greater amenities; (4) Strategies for increased participation by residents in the maintenance and management of residential properties (greater homeownership, use of home owners associations, property management standards, etc.); and (5) Improved ease of access to updated online zoning information.

Table 2.14.1 provides an outline of additional issues to be evaluated as part of the Zoning Ordinance update (and related Code Chapters).

Code Section	Current Process	Opportunity
Title 9, Chapter 3: Fees		
9-3 - Development Impact Fees	DIF fees in master fee schedule	• Consider exemptions and credits for downtown uses • Consider credits for public improvements in the Downtown Area which are transferable to other projects at an incentivized ratio applicable to impact fees • Consider credits for privately funded flood remediation improvements which provide benefits beyond boundaries of individual projects • Consider incentivizing amenities through fee reductions or other mechanisms
Title 9, Chapter 4: Subdivisions		
9-4.1701 – EIRs	EIR required for all VTM	• Consider preparation of a Master EIR for all Downtown Area properties to provide analysis for future projects to rely upon • Consider clarifying Zoning text to encourage streamlined use of tiered environmental documents and greater reliance on existing documentation
Title 9, Section 5: Zoning		
9-5.3601/3701 - Zoning Map	Current Map Updated 12/13/05 by Ordinance #1063-C-S	• Provide Map online in non-GIS format for more convenient use by public • Update Map to reflect current zoning district boundaries, and to more accurately follow current parcel lines • Revise Zoning Map as necessary to provide for consistency with General Plan
9-5.3803 – Land Use Table	Numerous Issues	• Analyze list for revisions which may be warranted • Consider accommodation of office uses on the 1st floor of buildings. • Consider replacing/eliminating out of date uses, and make code more user friendly
9-5.27 – Use Permits	Time / Complexity Concerns	• Create clear process for Zoning Administrator review of use permits subject to appeal
9-5.23 – PD	Large Portion of Antioch is PD PD doesn't provide guidance PD doesn't provide standards	• Provide greater flexibility in standards within existing zoning designations to reduce need for lengthy PD applications; consider flexible range of new standards to select from in "cafeteria style" • Provide optional PD Overlay District tied to inclusion of greater amenities
9-5.32 – Development Agreements	Public hearing before PC & CC	• Consider mechanisms to streamline and shorten process for protecting capital investment in large-scale projects with important public benefits
9-5.33 – Specific Plans	Several current plans in place	• Consider new specific plan for the Downtown Area
9-5.3820 MF Housing in Downtown	1st floor must be 100% commercial	• Change standards to allow office and/or other uses
9-5.3837 – Exclusive Parking District	Parking only district	• Consider changes related to land use strategy

Table 2.14.1: Summary of Zoning and Related Code Modifications to be Examined

2.15 Stakeholder Interview Findings

2.15.1 Introduction.

As part of the public outreach and information gathering process, planners and economists from the City's consultant team conducted separate interviews with a total of 25 key individuals actively involved in the City of Antioch and the Downtown Area, including property owners, residential and commercial real estate professionals, developers, property managers, major employers, the public school system, the local transit agency, and community service groups. The interviews which took place in October and November 2014 and ran in duration from 45 minutes to over one hour each. The purpose of the stakeholder interviews was to gather direct information and opinions on a wide range of issues affecting economic development and the quality of life throughout Antioch and the Downtown Area. This information will be used to inform the planning process for preparation of both a specific plan for the Downtown Area and the General Plan Land Use Element / Zoning Ordinance Update program. Stakeholders were selected on the basis of their working knowledge of the Antioch market, investments in current and/or planned development projects, role in providing services to the community, and history of community involvement with respect to issues affecting the Downtown Area. During the interviews, stakeholders were provided with copies of maps identifying the boundaries of the Downtown Area and the City of Antioch, and were encouraged to identify specific properties, transportation corridors, and other features of interest.

2.15.2 Interview Constraint Findings for Economic Development and the Quality of Life.

Figure 2.15.1 below provides a ranked listing of constraints to economic development and the quality of life, as identified by stakeholders. Following are several important findings developed from the information and opinions provided by stakeholders:

- *Crime is a leading constraint in Antioch:* Of the 19 major categories of constraints identified, the level of crime (both within the Downtown and City-wide) topped the list with 20 of the 25 stakeholders listing this as a major, if not the most significant, concern. It is noteworthy that while stakeholders generally made a clear distinction between actual crime and the public perception of crime risk, both issues were emphasized as substantial obstacles to investment in Antioch, and were perceived as contributing directly to a reduced quality of life. Several real estate professionals recalled experiences in which prospective homebuyers, office tenants and retail business owners instructed the agent's search parameters to exclude Antioch on the basis of concerns over the rate of crime. Additional detailed information on crime statistics for Antioch and nearby communities is presented in Chapter 2.11.

- *The Downtown districts in adjoining communities are perceived as a more desirable place to shop and live:* The relative quality of other downtown shopping venues and neighborhoods within the East Bay Area, including those of Antioch's immediate neighbors, were identified by many (13 stakeholders) as superior to those in

Downtown Antioch. The superior amenities, relative absence of crime, and superior physical condition of properties were referenced as some of the reasons people prefer to live and shop in other downtown areas compared to Antioch's.

- *Antioch's continued higher rate of foreclosures and higher vacancy rates are significant constraints to investment and retention of existing businesses in the Downtown:* As reported in Chapter 2.9, Antioch continues to recover slowly from the Great Recession with fewer foreclosures and improving real estate values. Nevertheless, continued high commercial vacancies and remaining residential foreclosures (improving but noticeably higher than in adjoining communities) are perceived to send a very negative message to prospective Downtown Area employers, merchants and home purchasers. In addition, there is a perceived high visibility of homeless and disadvantaged individuals present in the Downtown Area, which is thought to be compounded by a concentration of publically supported shelters, half-way houses and treatment facilities.

- *The concentration of subsidized housing in the Downtown is perceived to adversely affect real estate values and business:* Many people believe that the concentration of subsidized housing, coupled with locally low levels of homeownership, keep Downtown property values well below those in other neighborhoods, while doing little to support Downtown economic activity. Additional owner-occupied housing in the Downtown was frequently mentioned as a possible solution to improving discretionary purchasing and stimulating improved property maintenance.

- *The relatively weak performance of public schools in Antioch is perceived to be a disincentive for families with children who can afford to live elsewhere:* The perception is that families with the economic means to purchase a home within one of the better performing school districts (with higher API Scopes – see Figure 2.9.8 in Chapter 2.9 for details), will bypass Antioch when it comes time to making a locational decision. Employers and real estate professionals agree that higher salaried employees who have or are planning families will look to gain access to better performing schools.

- *Lack of amenities in the Downtown perceived as significant constraint to quality of life and real estate values:* A number of people blamed the lack of uses which draw people together (such as restaurants and coffee shops), and a substantial decline in themed activities to draw people into the Downtown Area (parades, farmers markets, specialty events, etc.) as the primary cause for a weak business environment, poor real estate values and diminished quality of life Downtown.

- *Other infrastructure and physical constraints in the Downtown:* Several property owners and real estate professionals also emphasized infrastructure deficiencies and physical deterioration of facilities as a leading constraint to economic investment in the Downtown. These problems include lack of cell phone coverage within the Downtown, localized flooding (West Antioch Creek and the City storm drain outfalls), and the BNSF railroad alignment and associated very high levels of noise.

- *Other City-wide service and tax-related constraints, and regulatory controls:* Business leaders, real estate professionals and developers repeatedly referenced a series of governmental service issues as continuing to constrain economic development both City-wide and in the Downtown Area. The issues most frequently referenced include: (a) Zoning regulations effectively

discourage the occupancy of empty ground floor commercial space in the Downtown by professional and administrative office uses; (b) The level of congestion on State Route 4 seriously constrains Antioch as a place to locate any business which is dependent on roadway access to markets outside the City; (c) The financial obligations of Mello-Roos districts, newly proposed license taxes, and fear over new impact fees are perceived to disadvantage Antioch in comparison to other communities as a place to buy a home or operate a business; and (d) The partial closure of City services to the business community on Fridays (with shortened hours throughout the week), along with the conspicuous absence of a full economic development function, is perceived as frustrating and confusing for those in need of permit assistance/guidance, and serves as a disincentive to consider Antioch as a place to do business.

Figure 2.15.1 below presents a ranked summary of the most frequently articulated constraints to economic investment and quality of life issues in Antioch. The complete notes from all 25 individual interviews are included in Appendix 4.1.

What Are the Leading Constraints to Economic Development in Antioch?

- (20) Crime / Media Related to Crime Deters Businesses and Residents
- (13) Downtown Less Desirable than Southeast Antioch (and Brentwood / Pittsburg)
- (10) Foreclosures / Vacancies / Undesirable Uses
- (8) Section 8 / Subsidized Housing / More Ownership Housing Needed / More Executive Housing
- (8) Poor Schools
- (8) Lack of Staff Support / 4 Day Week
- (7) Lack of Public Funding for Infrastructure / Wants DA's
- (6) Access / State Route 4 Congestion
- (5) Blighted Areas / Maintenance
- (5) Homeless Population in Downtown
- (3) More Businesses Not Housing
- (3) Railroad / Noise / Existing Pipelines in Federal ROW
- (3) Entitlement Process is not efficient & uncertain / RDA Process limiting permits
- (2) City Leadership / Focus
- (2) Multiple Ownership of Retail Centers
- (2) Mello-Roos Financing
- (2) Local Opposition to Housing
- (2) No people in downtown on weekends / No restaurants or arts
- (1) Flooding
- (1) Measure "O" New Business Tax
- (1) Federal Charter affecting shuttles
- (1) Cell Coverage / No T1 Internet
- (1) Prevailing Wage Controls imposed by City

Note: Number in parenthesis indicates number of stakeholders who identified the same issue during interviews.

Figure 2.15.1: Summary of Stakeholder Interview Constraint Responses

2.15.3 Interview Opportunity Findings for Economic Development and Improving the Quality of Life.

Figure 2.15.2 below presents a ranked summary of those opportunities most frequently articulated as potentially helping to strengthen economic investment and the quality of life in Antioch. The complete notes from all 25 individual interviews are included in Appendix 4.1. Following are several important opportunity findings developed from the information and opinions provided by stakeholders:

- *Accommodation of office uses within the Downtown Area:* It is believed that elimination of the current requirement for obtaining a use permit in order to establish an office use on the ground floor within the Downtown retail area would have an immediate effect on filling vacancies. Many real estate professionals also believe this change would stimulate higher occupancy of upper floors, renovation of buildings and greater business traffic in general.

- *Permit Streamlining:* Many of those interviewed believe that additional businesses could be encouraged to locate throughout Antioch, and initiation of new residential and non-residential construction could be stimulated if streamlining were made an immediate priority, including for example: (1) Establish an expanded range of discretional land use permits for determination by a staff-level official (such as a zoning administrator), thereby eliminating the time consuming and costly process involving the Planning Commission (retain an appeal process to the Commission, however); (2) Simplify the Design Review process through greater use of published standards which could be administered at the staff level, thereby providing greater guidance and avoidance of discretionary review before or Planning Commission; (3) Hire an experienced economic development director (and provide support to planning staff as needed) to expedite processing of applications and permits by taking on more of a facilitation role, (this is perceived to be critical for inexperienced applicants who are often overwhelmed by the unanticipated time and cost of the permit process); (4) Authorize a more "standardized" and efficient process for entering into development agreements for projects involving long-term capital investment; and (5) Supplementing the Zoning Ordinance and development review process with a broader and more flexible set of standards to be used to facilitate a wider range of housing types, including compact single-family ownership housing (the focus here is in part the current PD regulations which are vague and require extensive legislative work for each new project).

- *Police Presence:* Increase the visibility of police in the Downtown Area (and within parking areas especially), increase enforcement of all crimes throughout the City (consider targeted enforcement of graffiti and other visible crime), and provide resources to enable improved responsiveness to City-wide calls for assistance related to burglaries and robberies.

- *Provide support for and accommodate additional Downtown events:* Many believe that bringing a greater number of recurring, themed outdoor events to the Downtown will stimulate business activity, strengthen community identity, and encourage more people to spend time in the Downtown as a focal point for the entire Antioch community. Specific suggestions offered to stimulate the frequency and diversity of Downtown events include: (1) Eliminate fees currently charged for various permits; (2) Provide police and fire support for event planners/organizers to make more efficient use of public spaces for activities; (3)

Facilitate the temporary closure of public streets for recurring events; (4) Provide a permanent high-profile venue for festivals and activities (the 1.3 acres owned by the City on 2nd Street at E Street was suggested by several people for this purpose); (5) Provide assistance to secure and make improved equipment and facilities available for recurring use (stage equipment, portable toilets, audio equipment, etc.); and (6) Provide a free public shuttle service from outside parking areas for larger events.

- *Downtown housing:* Strengthen Downtown business activity and property values by both attracting new ownership housing and stimulating renovation of existing housing stock within the Downtown.

- *Take advantage of the expansive Downtown waterfront:* It is universally noted that in all of Eastern Contra Costa, Antioch's Downtown has by far the most expansive and attractive water views; however people observe that this amenity is not currently utilized to its highest potential. Suggestions were made to: (1) Modify existing Downtown buildings to have pedestrian storefronts which face the water; (2) Develop higher density housing uses within proximity of the water to take advantage of the view amenity and proximity to public walkways along the water's edge; (3) Mitigate the noise impact of trains by working with the California Public Utilities Commission to make Downtown Antioch a "Quiet Zone" (where train horns are not sounded – see discussion in Chapter 2.8 on Noise); (4) Expand and improve the public plazas and walkways along the waterfront throughout the Downtown (portions are unsafe, inaccessible and unattractive); and (4) Incentivize the opportunity to renovate the two existing waterfront restaurants and find new destination-oriented uses to be established on sites with views of the water.

- *Counteract Negative Media Headlines:* Coordinate among the various City, school, business, development and neighborhood interests to work with various media sources to counteract negative stories about Antioch. Establish a program to launch positive, recurring media messages and public events associated with new business openings (and decisions on future openings), planned Downtown events, successes within Antioch schools; new and enhanced City programs to promote business and improve public safety, etc.

- *Target efforts to bring key business uses to the City:* The uses most frequently cited as having a strong potential for success locally include: (1) Medical, dental and optical offices and laboratory uses throughout the City (based on demand and proximity to major hospitals); (2) Additional restaurant and specialty food uses within the Downtown Area; (3) Consider reuse of existing facilities and new development to accommodate a multi-jurisdictional civic center within the Downtown which could accommodate City services, AUSD administration, police, fire, courts and other service agencies; and (4) Provide better accommodation for commercial and industrial service and support businesses needed in the market.

- *Consider industries whose needs uniquely align with Antioch's business resources:* These may include: (1) A higher educational institution (such as a Cal State University extension campus or private university) within the Downtown, focusing on Delta resource protection/marine biology, medical-dental technician and related training and other specialties in demand locally or related to Antioch's unique environment; (2) Those industries which have the unique resources and need to utilize Antioch's water rights (this could include bottling operations with the technology and resources to purify San Joaquin River water);

and (3) The Hillcrest Station Area is often referenced as a significant regional opportunity for Antioch to attract new business and higher density housing in a transit-oriented village setting, provided that assistance can be provided to overcome current infrastructure and circulation obstacles.

- *Eliminate key constraints to new development and reuse of existing buildings:* Most frequently voiced are the opportunities to: (1) Accommodate new development on the west side of the Downtown by making improvements to prevent flooding of West Antioch Creek; (2) Provide assistance in the form of grants and low interest loans to retrofit older office buildings with handicapped access to both the ground and upper floors (including elevators); and (3) Improve cell phone coverage within the Downtown.

What Are the Leading Opportunities for Economic Development in Antioch?

- (20) Permit Streamlining in Downtown / Avoidance of DRB & PC Process / Need Econ Dev. Dir.
- (19) Facilitate Business Expansion and Reuse of Existing Facilities / New of Different Uses Needed
- (12) Increased Police / Parking Safety
- (11) Downtown Events / Public Venue Space
- (10) Waterfront Views / Enhancement / Marina Privatization
- (10) Market is Affordable / Values Improving
- (9) BART & eBART / Shuttles / Electric Vehicle Charging
- (9) More Zoning Choices to Replace PD / More Flexibility on FAR's / Reduce Fees / Offices on 1st story / Replace RDA Process
- (8) Attract High Profile Tenants
- (7) Delta Protection / Enhancement / Bottling & Desalination Opportunities
- (7) Advertising / Marketing / Economic Development Director needed
- (6) Enhance Positive Elements in Downtown
- (5) Medical / Dental / Professional Office / Higher Education
- (4) Housing within walking distance of Downtown (and Somersville Mall)
- (4) Police Enforcement Action in Crime Areas / Alarm Responsiveness
- (4) Add Contract Planners or more Staff to Speed Process
- (3) Market is Not Affordable / Values Not Improving
- (3) Grants for Infrastructure Money / Public Program Money
- (2) ADA Compliance / Improvements needed for old buildings

Note: Number in parenthesis indicates number of stakeholders who identified the same issue during interviews.

Figure 2.15.2: Summary of Stakeholder Interview Opportunity Responses

2.16 Festivals and Activities in the Downtown Area

As reviewed in preceding Chapter 2.15, Downtown residents, civic groups and real estate professionals repeatedly cited the decline of themed festivals and public events within the Downtown Area as a contributor to the decline in business activity and quality of life in the community as a whole. Table 2.16.1 provides a current inventory of publicized activities and themed events in Downtown Antioch, portions of Antioch south of State Route 4 and the adjoining Cities of Pittsburg and Brentwood.

Activity / Festival	Location	Dates / Times
Antioch – North of SR4		
Summer Music Series	Waldie Plaza Second Street & I Street	Weekly / Aug – Sept.
Various	CCC Fairgrounds	Ongoing
Antioch – South of SR4		
Kaiser Antioch Farmers Market	4501 Sand Creek Road	May to October 10am-2pm
Somersville Farmers Market	2556 Somersville Road	CLOSED 2014*
Music by the Green	4800 Golf Course Road	Weekly / 6pm-9pm
Neighborhood Cleanup	Marsh Elementary School - 2304 G Street	Monthly 9am-11am
Pittsburg		
Seafood & Music Festival	Pittsburg Marina	Sept 6 & 7 / 10am-7pm
Farmers Market	Oldtown Plaza, Railroad Ave. at 6th Street	Weekly May – October / 9am-1pm
Pittsburg Car Shows	Railroad Ave 4th to 6th St	Ongoing Weekly
Pittsburg Spooktacular	Century Plaza	October 25
Culinary Crawl in Old Town	Old Town	Ongoing Bi-Weekly
Old Town Historic District Website	Old Town Historic District	Various / Ongoing / Dedicated Website
Brentwood		
Corn Festival	Technology Way / Sand Creek Blvd	July 12-14 10am-11pm
Brentwood Farmers' Market	First Street, between Chestnut and Oak Streets	Weekly 8am,-12pm March 15 until Nov 22
Harvest Time Festival	City Park & Com. Center	July 12/13 11am-6pm
Cherry Picking	Farms throughout	Ongoing
Starry Nights in Brentwood, Summer Concert Series	City Park	Weekly 7pm-9pm/ June 13 – August 22
Ice Cream Social	Senior Activity Center	Aug 27 2pm-330pm
2014 Brentwood Art Wine & Jazz Festival	Street of Brentwood - 2565 Sand Creek Road	August 30/31
Downtown Oktoberfest	First and Oak Streets	October 4
IDOL Competition	First Street	September 6

*https://www.facebook.com/AntiochFarmersMarket - Posting on February 17, 2014: *"We're very sad to announce that after 4 years, we won't be reopening this market. Depending where you live, the Brentwood Farmers' Market or the Pittsburg Farmers' Market might be convenient for you."*

Table 2.16.1: Event & Festival Opportunity Comparison August 2014

2.17 Case Studies Analysis

This chapter provides an overview of case study research performed on five downtown areas in cities throughout Northern California. While each downtown is unique, and no other downtown area will match the attributes of Downtown Antioch exactly, these studies can be useful for understanding key issues and initiatives (both successful and unsuccessful), which can then be applied to the case of Antioch. Case study areas were selected based on having similar qualities to Antioch in terms of size, scale, character, location, and other attributes. The specific case study downtowns selected include Benicia, Brentwood, Lafayette, Livermore, and Pittsburg.

Demographic and socio-economic information was collected for each selected case study area in order to see how each one compares in regard to a number of general statistics. Since collecting this data for the boundaries of each downtown is impractical considering the scope of this assignment (since these downtowns possess unique geographic boundaries, and since some downtowns are not clearly defined), we have collected this information for radii surrounding the center of each downtown, at 0.5 mile, 1.0 mile, and 3.0 mile intervals.

The five case study downtowns generally exhibit similar characteristics among a number of metrics. Within a one-half mile radius, these five downtown case studies have:

- 1,300-1,500 housing units
- 38 to 63% renter-occupied households
- household sizes which are between 3% and 20% smaller than area within a 3-mile radius
- median household incomes ranging from $60,000 to $105,000

Antioch's metrics within a one-half mile radius are similar on some fronts but noticeably different on others. For instance, while Antioch's 1,500 housing unit base (and 5% smaller household size) is comparable to the five downtown case studies, renter-occupied households comprise over 70% of total units. Furthermore, the median household incomes are dramatically lower at $41,000 (nearly $20,000 lower than the low end of the range for the five downtown case studies). The remainder of this chapter provides an overview of each case study and offers lessons learned by City staff as well as recommendations for consideration by Antioch going forward.

2.17.1 Case Study: Benicia

Downtown Benicia is located at the waterfront of the Carquinez Straight, south of Highway 780, and centered along 1st Street. Downtown Benicia is generally bounded by West Second Street to the west, C Street to the south, East Second Street to the east, and K Street to the north. The project area comprises approximately 88 acres. The majority of the project area is contained within the Downtown Historic District.

Downtown Benicia was originally developed as the State Capitol in the mid-1800's, and development was laid out in a gridded block system. A second wave of development occurred in the late 1800's, when railroad and ferry service were added. By the 1940's, Downtown Benicia began experiencing a decline, a trend that continued in the mid-1950's when Highway 780 was constructed and development became increasingly freeway-oriented and the city was bifurcated by the new freeway.

By the start of the 21st century, Downtown Benicia faced a number of challenges: lack of through traffic, lack of direct freeway connections, an oversupply of commercial space, use of ground floor space by office users, a lack of high-quality public space, and a perception of a lack of parking[20]. In contrast, Benicia identified a number of key opportunities, including numerous historic buildings with special significance, some private investment, a regional trail that was under construction, unusually wide streets, and ample parking. Benicia's downtown revitalization efforts have exhibited these primary goals: implementing a mixed-use vision, preserving and adaptively reusing historic buildings, increasing taxable sales, and focusing on business activities that appeal to local residents.

As shown in Figure 2..17.1 below, Downtown Benicia (defined here as the one half-mile area surrounding 1st Street and G Street) currently contains nearly 3,000 residents and approximately 1,500 households. This population exhibits lower rates of home-ownership, smaller household sizes, and lower median incomes than the larger surrounding areas. While average household incomes within a 3-mile radius are substantially higher than in the defined Downtown Benicia area. The reduced average incomes within a 5-mile distance are decline because the this metric geographically includes a portion of the City of Martinez on the south side of the Carquinez Straight.

[20] Downtown Mixed Use Master Plan, prepared in 2007.

Benicia - Demographic Attributes (2014)

	Radius Around Downtown Benicia					
	0.5-Mile		3-Mile		5-Mile	
Item	Amount	%	Amount	%	Amount	%
Population	2,913		33,873		91,129	
Housing Units	1,509		13,680		35,193	
Owner-Occupied	826	55%	8,951	65%	22,876	65%
Renter-Occupied	682	45%	4,730	35%	12,317	35%
Average Household Size	1.93		2.42		2.55	
Median Household Income	$64,522		$79,109		$68,852	

Prepared by New Economics & Advisory.
Source: Nielsen custom report, accessed October 2014.

Figure 2.17.1 – Benicia Demographic Attributes

Description of Revitalization Efforts

Downtown Benicia's revitalization efforts have occurred in an incremental process dating back at least to the late 1980's. A 1990 Downtown Historic Conservation Plan embraces buildings with architecture from the mid-19th century to the 20th century, and strives to ensure that future design improvements preserve these qualities. The 1999 Benicia General Plan encourages mixed-use development and a combination of upgrades to existing buildings and new, compatible development. A third effort, which began in 2002, resulted in the preparation of several other documents to support revitalization efforts, including a Downtown Streetscape Design Plan, Downtown Benicia Parking Study, Market Study, and Historic Conservation Plan. Around 2005, private investors also began to undertake new commercial projects. In 2007, the city produced a Downtown Mixed Use Master Plan, which sought to provide an implementation framework for the General Plan vision. The Master Plan utilizes form-based codes as the primary design standards called for in the General Plan.

The uses planned for Downtown emphasize ground-floor retail along First Street, pushing office and residential uses to the second and third stories of buildings; connections to the new Bay Trail, which is currently under construction; encouragement to build around identified "nodes" throughout Downtown; façade and landscaping renovations of key buildings to reestablish their historic character; and the creation of small open spaces/plazas in identified vacant spaces. The plan also recommends a new set of parking principals that maximizes turnover and productivity along First Street and other

parking management techniques; and studying the expansion of ferry routes. Another key aspect of the Master Plan is the use of Form-Based Code, which focuses heavily on the visual aspects of development and encourages different types and mixes of uses in each zone.

Following the Master Plan, the city retained a public relations firm to undertake a branding campaign for Benicia as a day-trip destination within the larger region, in the hopes of increasing the scale of visitors to support Downtown activities. The campaign, (which cost the city nearly $300,000 in General Fund resources), utilized radio and print ads to brand Benicia as a "Great Day by the Bay" with both historic character and charm. A website was created (www.visitbenicia.org) which also provides information on upcoming events and other visitor information. The city also reinvested in the First Street Green, a park along the waterfront at the base of 1st Street, funded through a Coastal Conservancy grant.

Benicia's revitalization efforts have been considered successful; city staff reports that the current mix of 267 businesses Downtown has been greatly improved to include a variety of restaurants, art galleries, and gift shops in addition to the more standard combination of antique stores and business and personal services. The customer base focuses on Benicia residents, but is supplemented by day visitors from throughout Contra Costa County, the South Bay, and the Sacramento Region. The city also contends that 67 percent of the city's sales tax revenues are generated by Downtown businesses and that there is little/no vacancy for commercial spaces Downtown.

Today, there are two economic development entities specifically focused on Downtown Benicia in addition to the city. Benicia Main Street is a non-profit, volunteer organization that focuses on historic preservation and coordinates community events and retail promotions. The Downtown Business Alliance is a business improvement district started in 2012 that includes all businesses fronting First Street between Military and the Carquinez Strait as well as select businesses on other surrounding streets Downtown. Businesses pay $60-$192 annually to support marketing and sales promotion efforts as well as street light installation and maintenance, an amount that covers about half of the cost of streetlight installation.

Key Conclusions and Lessons Learned

- Benicia's revitalization has occurred in numerous waves over a period of about 25 years. Planning and investment were incremental and leveraged a catalytic period of private reinvestment, during the first decade of the 21st century to make significant progress on implementing a vision established several years before.

- The city highly values its investment in the branding campaign and feels that it was the most expensive cash outlay and also the "best" decision it made. Staff members at the City of Benicia did indicate some ongoing challenges, including a desire to be more prescriptive about the types of retail uses that can locate Downtown.

- The City of Benicia embraced its waterfront orientation.

- In addition to General Fund resources, Benicia was able to leverage a grant from the Coastal Conservancy. Antioch may be able to tap into similar grant sources.

2.17.2 Case Study: Brentwood

Downtown Brentwood is located in the heart of the city, an outer East Bay community adjacent to Antioch and Oakley. The Downtown Core is generally bounded by Brentwood Boulevard, Maple Street, Third Street, and Chestnut Street. As shown in Figure 2.17.2 below, Downtown Brentwood (defined as the one half-mile area surrounding 1st Street and Oak Street) currently contains nearly 6,000 residents and approximately 1,900 housing units. This population exhibits lower rates of home-ownership, smaller household sizes, and lower median incomes than the larger surrounding areas.

Brentwood - Demographic Attributes (2014)

	Radius Around Downtown Brentwood					
	0.5-Mile		3-Mile		5-Mile	
Item	Amount	%	Amount	%	Amount	%
Population	5,949		59,874		118,941	
Housing Units	1,910		18,588		35,680	
Owner-Occupied	1,192	62%	14,136	76%	27,286	76%
Renter-Occupied	718	38%	4,451	24%	8,394	24%
Average Household Size	3.11		3.21		3.32	
Median Household Income	$59,750		$79,301		$80,458	

Prepared by New Economics & Advisory.
Source: Nielsen custom report, accessed October 2014.

Figure 2.17.2 Brentwood Demographic Attributes

Description of Revitalization Efforts

Until the mid-1990's Downtown community remained the city center; however, by the end of that decade there was notable concern about Downtown's ability to preserve its central civic and destination commercial status. The city completed a Downtown Specific Plan in 2005, (which was subsequently amended in 2014). The land use diagram in Figure 2.17.3 below provides an illustration of the area evaluated in the Specific Plan.

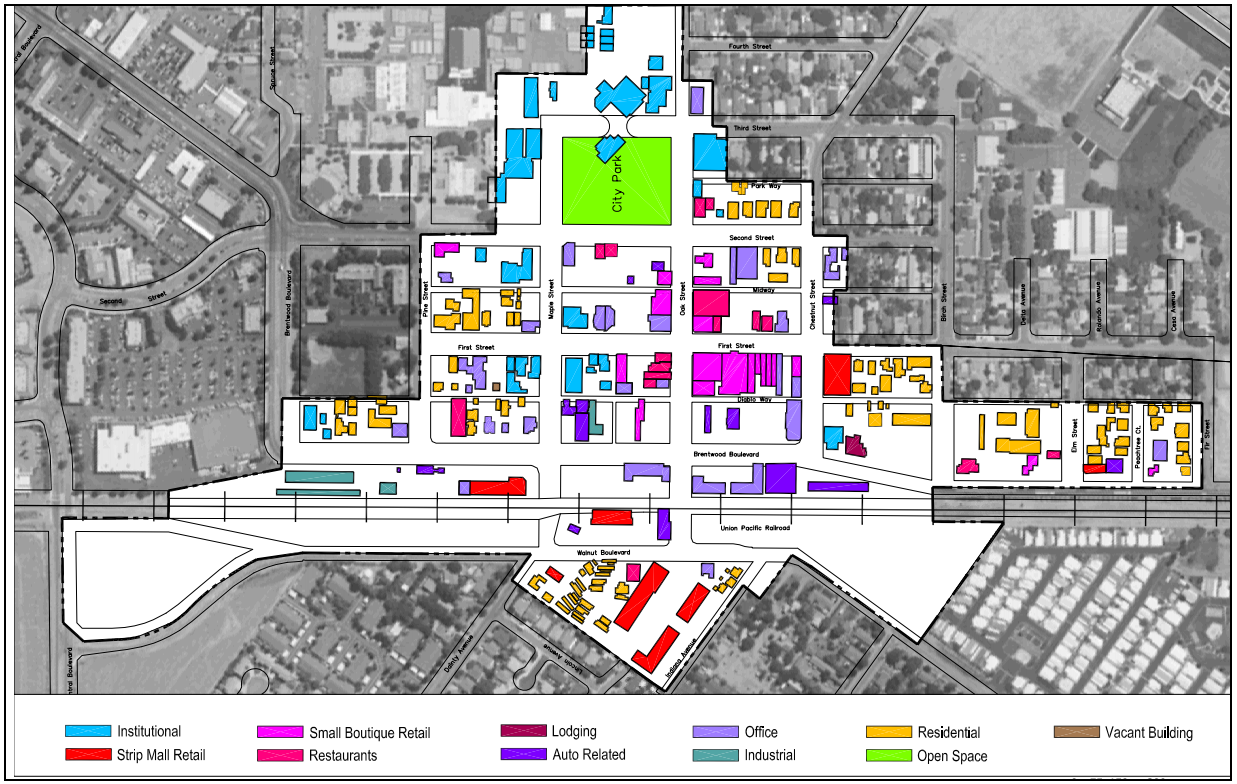


Figure 2.17.3 City of Brentwood Downtown Specific Plan

Source: City of Brentwood Downtown Specific Plan, 2005.

The Specific Plan identifies a number of key opportunity sites, including significant vacant parcels across from the City Park, city-owned properties along Second Street and Oak Street, and select larger parcels along the railroad line. Following approval of the Specific Plan, the city undertook $60 million in improvement projects; these projects included a new City Hall, new park, streetscape improvements, public art, and utility upgrades. The city also created two additional programs: an outdoor furniture grant program (up to $2,500 per business) and a façade improvement program (up to $20,000 per building). These programs were utilized, although the city appears to have stopped funding them.

Another active economic development entity is the Downtown Brentwood Coalition, an association of Downtown merchants and property owners who pay a flat annual fee of $55. The coalition (www.brentwooddowntown.com) coordinates promotions, events, and networking opportunities.

Having recently completed major construction improvements, Brentwood is ready to accommodate significant levels of business activity; however, because this effort is so recent, measurable results have not yet occurred or been tracked.

Key Conclusions and Lessons Learned

- Brentwood made a significant investment ($60 million) in public improvements to facilitate the functionality and appearance of Downtown.
- The planning department indicated that the scale of improvement projects undertaken by the city resulted in a virtual state of constant construction for about two years. This activity was, at times, difficult on local businesses.
- An ongoing challenge identified by city staff includes inconsistent store hours, particularly for long-standing, family-owned businesses.
- Downtown Brentwood is also supported by ongoing event planning by the local Chamber of Commerce and a downtown merchant/property owner association.

2.17.3 Case Study: Lafayette

Downtown Lafayette can be characterized as a linear downtown, located along Mount Diablo Boulevard, which runs parallel to Highway 24, from Risa Road (west) to Pleasant Hill Road (east).

The Downtown area comprises nearly 300 acres and includes four commercial districts and three multifamily districts, as shown in Figure 2.17.4 below.

Figure 2.17.4 City of Lafayette Specific Plan

Source: 2012 Specific Plan

Lafayette was originally settled in the mid-1850's and in the early 1900's train service to Oakland and Sacramento was added. More population growth occurred in the 1940's, when vehicular access was improved to serve access between Oakland, Berkeley, and Contra Costa County, but the community grew even more during the 1950's and 1960's. The BART station site was chosen in 1965. As Lafayette grew, so did concerns about traffic management, environmental and land use considerations, and signage[21]. The city's current specific plan identifies a series of objectives for Downtown that include improvement to multimodal circulation, preservation of natural resources, diversification of housing choices, enhancement of local amenities, and a sustainable business community serving all needs of the local community.

[21] City of Downtown Lafayette Specific Plan, 2012.

As shown in Figure 2.17.5 below, Downtown Lafayette (defined as the one half-mile area surrounding 1st Street and Mt. Diablo Boulevard), currently contains nearly 3,000 residents and approximately 1,300 households. This population exhibits lower rates of home-ownership, moderately smaller household sizes, and *higher* median incomes than the larger surrounding areas. It is important to note that household income at the 5-mile radius may include a portion of the City of Walnut Creek, Moraga and/or Orinda.

Description of Revitalization Efforts

Concern about the utility of Downtown was expressed as early as the 1950's, during which time the locally led Lafayette Design Project envisioned whole scale changes to the ambience of Mt. Diablo Boulevard. Since then, the city has undertaken several other planning efforts, including specific plans for the BART station, Plaza Park, and La Fiesta Center as well as a Downtown Street Improvement Master Plan in the late 1980's; a redevelopment area in the mid-1990's; and, zoning and public art ordinances[22]. Recent planning efforts have included the city's 2002 General Plan, which called for higher-density development within Downtown, and the 2012 Downtown Specific Plan.

Redevelopment provided a critical source of funding toward the revitalization of Downtown Lafayette; redevelopment funds were used to partially fund at least 6 major projects, including building rehabilitations, new mixed-use development, public buildings, and infrastructure improvements. Private developers also played a key role; one entity transformed the family's bowling alley into the current mall and continues to own that property[23]. The districts identified in the current Specific Plan each have a different proposed character that accounts for differences in adjacent neighborhoods. For each district, there are distinct uses that are prohibited as well as those that are allowed, whether by right or with a discretionary permit. This approach has been effective for the city, and staff stated that there continue to be proposed projects consistent with district parameters. For example, in many of the districts auto services/sales are prohibited, but the East End district allows this use by right. In this manner, the city is attempting to ensure that a full variety of uses are encouraged is actively controlling the location and scale of these uses.

Key Conclusions and Lessons Learned

- As a city whose growth has mirrored an auto-centric layout, Lafayette has undergone multiple waves of Downtown planning efforts. Its proximity to Walnut Creek and multiple other higher-income communities allows the Downtown to benefit from a more affluent customer base.
- City staff also reported that much of the Downtown's successful planning efforts were shaped by highly-educated citizen volunteers who poured their energy and time into a multiyear planning effort.

[22] Ibid.
[23] "Developers Stake Out Prime Positions", Contra Costa Times, August 1, 2007. Accessed 10/29/2014.

Lafayette - Demographic Attributes (2014)

Item	Radius Around Downtown Lafayette					
	0.5-Mile		3-Mile		5-Mile	
	Amount	%	Amount	%	Amount	%
Population	2,994		54,283		154,212	
Housing Units	1,344		23,506		66,823	
Owner-Occupied	541	40%	17,004	72%	45,784	69%
Renter-Occupied	803	60%	6,502	28%	21,039	31%
Average Household Size	2.2		2.28		2.26	
Median Household Income	$104,407		$91,274		$88,128	

Prepared by New Economics & Advisory.

Source: Nielsen custom report, accessed October 2014.

Figure 2.17.5 Lafayette Demographic Attributes

2.17.4 Case Study: Livermore

Downtown Livermore is located generally south of Railroad Avenue and stretching for several blocks to the east and west. Downtown historically served as a shopping, culture, and transportation hub, an economic outgrowth of the adjacent railroad tracks. However, in recent years, Downtown had become neglected and largely abandoned in favor of newer, more "suburban-style" employment, residential, and shopping destinations constructed in the 1970's, 1980's, and 1990's. Further limiting its appeal was a five-lane state highway, (State Route 84), which caused traffic congestion, inhibited pedestrian access, and generally contributed to a noisy, hectic, and unappealing atmosphere. Even so, city leaders recognized the potential of Downtown Livermore as a community gathering place and "heart" of the city and surrounding area. In order to improve the appeal and functionality of Downtown, the city and other stakeholders embarked upon a coordinated effort to enhance Downtown and make it the core of the city's cultural, recreational, and community fabric.

As shown in Figure 2.17.5, Downtown Livermore (defined as the area within a one-half mile radius of the "center" of Downtown, contains approximately 4,800 residents and 1,900 households. This population exhibits lower rates of homeownership, smaller household sizes, and lower median incomes than the remainder of the city.

Description of Revitalization Efforts

Beginning in 2001, the city initiated a formal revitalization effort with a series of visioning workshops meant to create a guide for the future of Downtown. The vision emphasized a vibrant and visually-appealing area that included a focus on public spaces, community gathering areas, pedestrian-oriented spaces, as well as a variety of shopping, dining, office, residential, and cultural amenities.

The city was a primary driver of this effort, led by its Redevelopment Agency whose charge it was to improve blighted and underutilized areas. The city led the creation of a Specific Plan, which helped to set the vision, describe key strategies, and generally guide the redevelopment process. The Specific Plan incorporated a number of tools to accomplish the goals and stated vision, including zoning, transportation network changes, and design standards that helped maintain the integrity of Downtown.

Uses planned for Downtown emphasized activity-generating uses, including retail, restaurants, entertainment, galleries, and personal and business services. Residential development was also encouraged, which led to the creation of several new residential projects, (including townhomes, apartments, and small-lot single family development).

Other important policies from the Specific Plan included the following:

- Limit the development of uses that compete with Downtown outside of the Specific Plan.
- Create business relocation programs to encourage businesses to move to Downtown.
- Develop business recruitment programs.
- Support existing Downtown businesses.
- Market Downtown as the "place to be."
- Focus on highly-visible capital improvements Downtown.
- Maximize connections with other important community nodes.
- Encourage redevelopment of aging and underutilized retail centers outside Downtown.
- Encourage pedestrian-friendly adjustments, such as re-routing Highway 84 and enlarging sidewalks.
- Focus on catalytic projects, including a conference/cultural complex, a mixed-use project on an aging supermarket parcel, and catalyst retail/restaurant anchor including 2nd story office space.
- Promote Downtown Livermore as an arts destination.

In addition to the Specific Plan, a Redevelopment Area was created to allow the area to qualify for the use of tax increment financing, a critical funding tool utilized to facilitate catalytic projects.

The city's revitalization efforts have been deemed a tremendous success, and have become an award-winning model for other communities to emulate. Several new businesses have been attracted to existing buildings, and new development and redevelopment projects have provided a new location for businesses and other uses, including a new multi-screen movie theater, a new mixed-use block that comprises a mixture of office and ground floor retail, and more, in addition to the residential development mentioned above.

Other key outcomes included positive economic impacts on Downtown. Livermore has reported that commercial vacancy rates, which were previously hovering above 26% in Downtown prior to its revitalization, are now below 10% percent and continuing to decline

resulting from both improving macroeconomic conditions as well as an increasingly vibrant, appealing, and business-friendly Downtown.

Key Conclusions and Lessons Learned

The Specific Plan and redevelopment efforts, and the policies created therein, were critical components of Downtown Livermore's revival and many of aspects of the plan should be reviewed and possibly incorporated into planning efforts in Antioch.

Also, the encouragement and financial participation in initial catalytic projects helped to "kick-start" development and reinvestment Downtown by the private sector. Unfortunately, one of the key tools used to achieve success-- tax increment financing-- was eliminated with the abolishment of California Redevelopment in 2012. While redevelopment authority (and its associated tax increment financing) is no longer available as a public agency resource, Antioch should consider use of other financing mechanisms and incentives in order to help stimulate reinvestment in the Downtown Area. Antioch should seek to position itself to take advantage of new financing tools as they are conceptualized to take the place of Redevelopment. The specific plan for the Downtown Area will explore the applicability of such alternative mechanisms.

Staff members at the City of Livermore did indicate some ongoing implementation that could also be difficult for other cities to overcome. For example, dealing with non-conforming uses has become a troubling and time-consuming effort, as "legacy" uses and businesses no longer conforming with the Specific Plan must be addressed. Secondly, the hurdle of creating new housing Downtown has proven to be difficult; although Livermore was able to accomplish its goals of attracting new housing development, the scale and quantity has been less than originally conceived. Livermore staff noted that housing is a key component to achieve their ideal to create a vibrant, 24-hour community with people and activity. However, political obstacles and market realities in which high-density housing is difficult to "pencil out" make this a difficult endeavor to accomplish.

2.17.5 Case Study: Pittsburg

Downtown Pittsburg, as described in the city's General Plan, extends from the Burlington Northern and Santa Fe (BNSF) railroad tracks to the south to the Sacramento River Delta waterfront to the north. The eastern and western boundaries of Downtown, generally defined by Harbor and Beacon streets, are less distinctive. Downtown stretches about ¾-mile in either direction from Railroad Avenue, encompassing an area of approximately 350 acres.

The city of Pittsburg originally developed around the railroad line that connected the Black Diamond coal mine on Mount Diablo to Pittsburg's docks, where the coal was loaded onto barges. In the mid-20th Century, Pittsburg leveraged its adjacency to waterways, and the fishing industry rose to prominence, and later the city became the principal jumping off point and welcoming home center for U.S. Army soldiers headed to and from World War II's Pacific Theater and the Korean War.

After World War II, Downtown Pittsburg slowly began to languish as development and activity moved toward the outlying areas, and Pittsburg and its East Contra Costa County neighbors became bastions of low-intensity and affordable residential development.

As shown in Figure 2.17.6, Downtown Pittsburg (which is defined in this table as the area within a one-half mile radius of the "center" of Downtown) contains approximately 4,300 residents. This population exhibits approximately the same rates of homeownership as the remainder of the area, but household sizes are slightly smaller, and median incomes are slightly lower.

Pittsburg - Demographic Attributes (2014)

	Radius Around Downtown Pittsburg					
	0.5-Mile		3-Mile		5-Mile	
Item	Amount	%	Amount	%	Amount	%
Population	4,330		63,539		129,815	
Housing Units	1,475		19,893		41,006	
Owner-Occupied	811	55%	11,288	57%	22,578	55%
Renter-Occupied	664	45%	8,605	43%	18,428	45%
Average Household Size	2.92		3.18		3.15	
Median Household Income	$45,005		$51,453		$52,626	

Prepared by New Economics & Advisory.
Source: Nielsen custom report, accessed October 2014.

Figure 2.17.6 Pittsburg Demographic Attributes

Description of Revitalization Efforts

Efforts to improve Downtown Pittsburg began as early as the 1970's, but activities ramped up significantly in the early 2000's as the city's Redevelopment Agency initiated a series of efforts aimed at downtown revitalization. Like Antioch, Pittsburg has a downtown that is characterized by proximity to the waterfront, a mix of uses, historic character, pedestrian scale in its design, and an urban grid pattern.

An overriding tenet of this effort was to create entertainment space and activities, including restaurants, ground floor retail, entertainment options, boating, and other activity-generating uses, to bring people to the downtown core. To facilitate these uses, the city has helped organize a variety of events, such as car shows, a "culinary crawl," parades, and a farmers market. There are about 35-50 events each year, mostly geared toward families.

In addition to facilitating events and activities in the downtown, Pittsburg aimed to reinvigorate Downtown by undertaking an aggressive program of redevelopment projects, partially funded by available tax-increment financing. The Redevelopment Agency led a fairly aggressive redevelopment campaign, leveraging $100 million in tax increment financing be spent on infrastructure enhancements and public/private development projects meant to catalyze Downtown Pittsburg and induce additional development. This process was not without difficulties, as market conditions deteriorated at the onset of the Great Recession, which, unfortunately coincided with the early stages of a key redevelopment project. This initial redevelopment project was stalled mid-construction, only to be re-started years later with a new developer and as an affordable housing community. The projects that were able to get "off the ground" in later years did fare better, but the non-residential portions of the buildings have had difficulty filling vacancies, and the "vibrancy" and energy that the projects were meant to bring to Downtown have not yet fully lived up to expectations.

Today, Downtown Pittsburg is home to about 30 retail businesses (in addition to office users), including restaurants, barbershops, salons, a pharmacy, a bookstore, boutique, bike shop, bakery and a yogurt shop.

A variety of other tools were used to implement the city's revitalization process, including the creation of a business improvement district (BID) to fund shared operating and maintenance expenses (to ensure the aesthetic appeal of downtown) and also offer skills training and other services to local businesses. The city also provided loans to businesses, which ranged from $150,000 to $200,000, targeted for desired business types (such as restaurants), and gave additional incentives, such as low interest rates or even loan forgiveness, as long as the business remained in operation.

Along with these redevelopment projects, other initiatives were undertaken to enhance the appeal of Downtown. One tool was the creation of a separate element focused on the Downtown in the city's General Plan. The "Downtown Element" of the General Plan was used as a means to create and document goals, policies, and strategies to guide the redevelopment of Downtown. A Downtown Business Association was also established, which helps to market the area, and a branding effort to raise awareness of the "Old Town and Marina District," (as it is referred to). The city has also implemented strict design standards and regulations regarding the type of retail uses permitted in ground-floor spaces. To date, many retailers have been turned away and the city appears to be holding firm on its standards, which has led to increased vacancies in the short-term, with the hope that this strategy will pay off over the long-term as tenants that fit the profile and vision for Downtown eventually arrive.

Key Conclusions and Lessons Learned

- The City of Pittsburg's aggressive redevelopment campaign has resulted in an attractive streetscape and urban setting, some key projects going vertical, and a drastic overhaul of the character of Downtown. However, the overall program has come at a substantial cost (using tax increment financing, which is no longer available), and some of the planned redevelopment projects have not lived up to expectations, nor have they been accepted by the marketplace to the degree that original planners may have intended.
- Pittsburg was especially harmed by the loss of Redevelopment and tax increment financing in California. These programs were a central element of the city's downtown revitalization program, and when Redevelopment was removed, finding funding and interest to implement key projects and initiatives became extremely difficult.
- Pittsburg economic activities should be monitored closely, and Antioch should seek to incorporate successful strategies and avoid those that have been unsuccessful, while also working to differentiate itself and ensure that these two neighboring cities provide their own unique and compelling uses and attractions.

3.0 Next Steps

3.1 Review of Community Feedback

This preliminary assessment of existing conditions, opportunities and constraints is intended to be shared with interview stakeholders and the community at large, and subsequently reviewed with the City's Economic Development and Planning Commissions. Further comments and direction from the two commissions will then be used to help shape the direction of planning, engineering and environmental analysis efforts, as part of the Land Use Element and Zoning Ordinance Updates and Downtown Specific Plan program.

3.2 Incorporation of Information from Other Successful Downtown Plans

As part of the planning evaluation phase of work for the Land Use Element and Zoning Ordinance Updates and Downtown Specific Plan, the case study research performed on five selected downtown areas in cities within the East Bay Area (as summarized in Chapter 2.17) will be incorporated. While each downtown is unique, and no other downtown area will match the attributes or desired qualities of Downtown Antioch exactly, these studies can be useful for understanding key issues and initiatives applied by these communities to improve their downtowns, and why they have been successful or unsuccessful. Lessons learned through review of these nearby downtown programs will be tested for potential application to the case of Antioch to determine their effectiveness and appropriateness as implementation tools.

3.3 Economic Benefits of Downtown Housing

Chapter 2.11 above provides a preliminary pro forma analysis of four different prototypical housing products designed to test the economic feasibility of higher density housing in the Downtown Area. Chapters 2.4 through 2.8 explore those physical opportunities and constraints to development of housing and other uses within the Downtown Area. Assuming market feasibility, the capacity of infrastructure and services to support Downtown housing, and the ability to mitigate other physical constraints, further analysis will be performed to determine what benefits such higher density housing may have on the vitality, livability and overall economic health of the Downtown. The analysis of economic benefits from Downtown housing will be explored concurrently with the testing of comparable downtown case studies methodologies discussed in Chapters 2.7 and 3.2 above.

3.4 Development of Plan Alternatives

This combined program calls for concurrent development of a specific plan for the Downtown Area and updating the Land Use Element and Zoning Ordinance on a City-wide basis. Consistent with the program objectives outlined in Chapter 1.1, a set of alternatives will be developed to mitigate existing constraints to economic development within the Downtown and throughout the community. A set of three distinct plan alternatives will be developed for the Downtown Area, responsive to community input, as well as the constraints analysis and market studies. These alternatives will represent a range of potentially feasible land use scenarios focusing on development of the Opportunity Sites identified in Chapter 2.4, as well as potential reuse of existing buildings and conservation of existing housing stock throughout the Downtown Area. The Downtown Specific Plan alternatives will also explore opportunities for supporting use and patronage of a ferry terminal as part of an overall strategy for improved circulation.

At least Tthree separate alternatives will also be developed for evaluation and testing of changes to the General Plan Land Use Element, again responding to stakeholder input and building on market-based research presented in Chapters 2.9 through 2.12. These alternatives will be designed to explore and test the ability to facilitate job production which balances with the Downtown Specific Plan alternatives. To support these alternatives, further analysis of the Opportunity Sites identified in Chapter 2.4 will be conducted, and information from the 2003 General Plan Update and the 2010 Housing Element Update (including the respective environmental documents) will be compared with the current market information presented in this report. A set of draft amendments to the Land Use Element (and other Elements as may be appropriate), along with the Land Use Map will be prepared based on the foregoing work. These revisions will be accompanied by a matrix of potentially affected inventory sites and uses potentially accommodated.

Alternatives for revisions to the Land Use Element (and other related General Plan Elements) and the Downtown Specific Plan will be correlated with a set of alternative strategies for updating of the Zoning Ordinance. The City's recently updated land use policies and zoning standards for the Hillcrest Station Area and Northeast Antioch Annexation Area will be reviewed and considered as part of this process. These Zoning Ordinance Update alternatives will be designed to mitigate the constraints and maximize the potential to take full advantage of the opportunities identified in this report.

3.5 Selection of Preferred Alternative

Based on direction from the Commission and Council, the consultant team will work closely with City staff to confirm and refine a set of appropriately correlated program alternatives for the Downtown Specific Plan, the Land Use Element Update and the Zoning Ordinance Update. The selected plan alternatives will be used to develop a detailed Project Description for use in conducting environmental review and further feasibility testing.

3.6 Environmental Review Process

The City's consultant team will prepare a formal Project Description based on preliminary identification of the preferred Downtown Specific Plan and Land Use Element and Zoning Ordinance Updates components. An Initial Study will then be prepared using the Project Description, consistent with the California Environmental Quality Act (CEQA) and CEQA Guidelines to serve as a screening tool to evaluate the potential for significant environmental effects, and to screen out those effects of the Project which will not have a significant effect on the environment. A focused EIR will then be prepared in draft and final form to address those remaining potentially significant effects of the proposed Project, develop feasible mitigation measures to reduce impacts, and identify reasonable alternatives which may reduce and/or avoid such impacts. The analysis will be prepared at a programmatic level for the Land Use Element and Zoning Ordinance Updates component, and at a project level for the Downtown Specific Plan component. The completed environmental documents will be circulated for public review in accordance with CEQA, and will be provided to decision makers for consideration before taking action on any of the program (Project) components.

3.7 Website Updates

A special website is being developed for use in presenting up to date background information, schedules, and draft documents for public review in connection with the Downtown Specific Plan and updates to the Land Use Element and Zoning Ordinance. Information on the website will be continually updated, and will include contact information for informal input on any aspect of the program. This new website is linked to the City of Antioch website at: www.ci.antioch.ca.us.

3.8 Program Schedule

The overall anticipated schedule for the General Plan Land Use Element and Zoning Ordinance Updates and Downtown Specific Plan program is shown in Figure 3.8.1. Work on the Opportunities and Constraints analysis commenced in September 2014, and is Project is expected to be completed over a period of approximately 18 months. A draft set of program proposals for the Land Use Element and Zoning Ordinance Updates and Downtown Specific Plan will be reviewed by the Planning Commission and City Council in early Summer 2015, and a set of final documents, including the environmental analysis are to be completed for final consideration in early 2016.

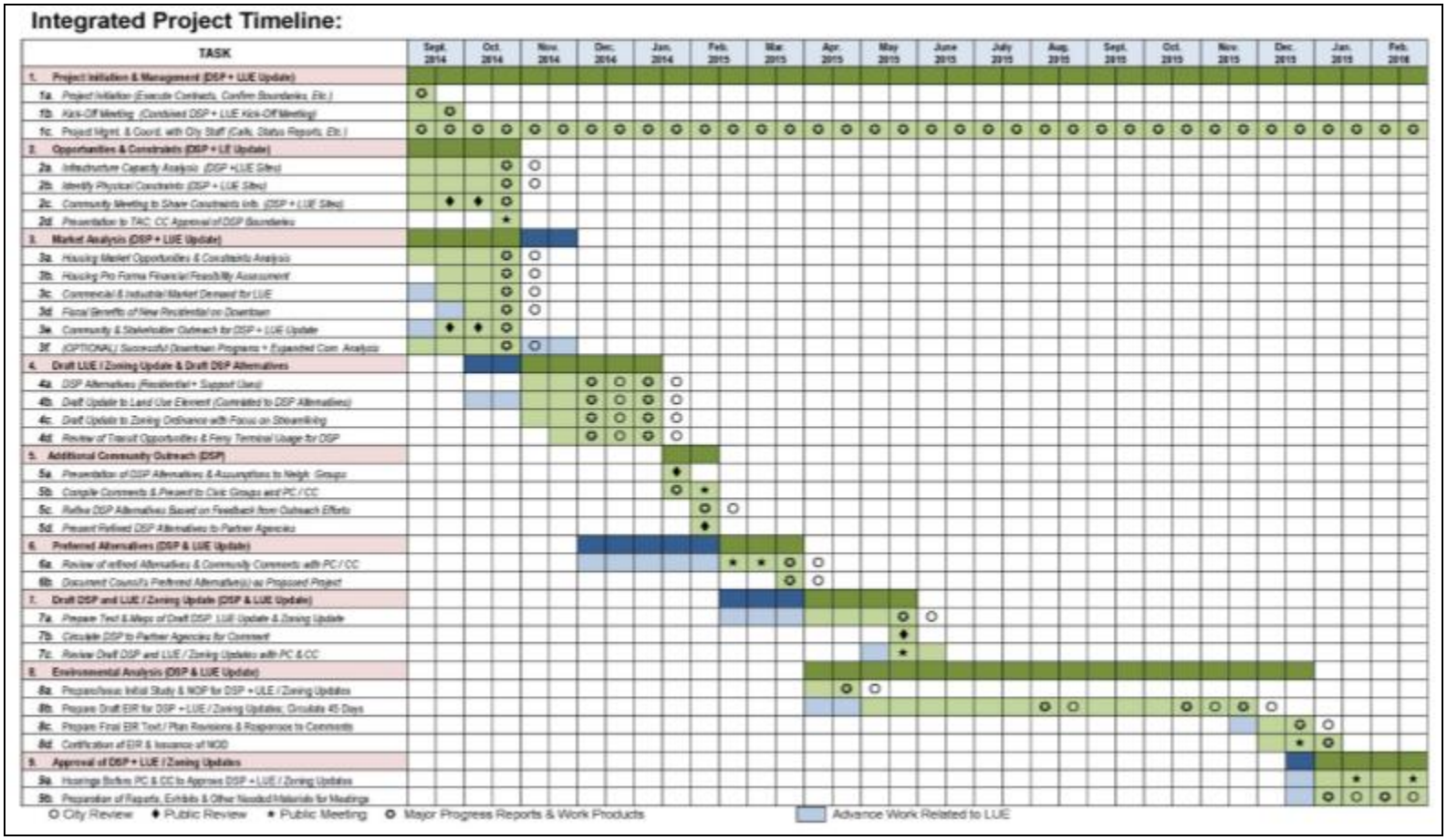


Figure 3.8.1 Program Schedule

3.9 Continuing Community Involvement

Residents, business, service providers and others interested in this program will have many opportunities over the next 16 months to review draft program work products and to provide additional input following this initial opportunities and constraints analysis. Formal opportunities for review and comment are identified in Figure 3.8.1.

In addition, interested parties are directed to the City's special website link (see Chapter 3.7) where information and schedules will be continually updated, and where contact information is available for informal input on a continuing basis. Continuing public involvement is strongly encouraged.