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CE 290

# Effects of the Hayward Cannery Area Design Plan

Hayward's Cannery Area Design Concept plan, proposed in 2000, was designed to create transit-oriented development in the formerly industrial area between the BART and Amtrak stations. Transit-oriented development (TOD) is characterized by high residential and/or employment densities, pedestrian-friendly streets, a wide variety of land uses, and close proximity to public transportation (Kamruzzaman, Shatu, Hine, & Turrell, 2015). If the Cannery Area was successfully developed as a TOD, one would expect to see an increase in the use of transit in the area and a decrease in driving alone. However, the implementation of the Cannery Area Design Plan seemed to have little impact on the area's transportation patterns, as shown by data from the United States Census.

## Background on the Cannery Area

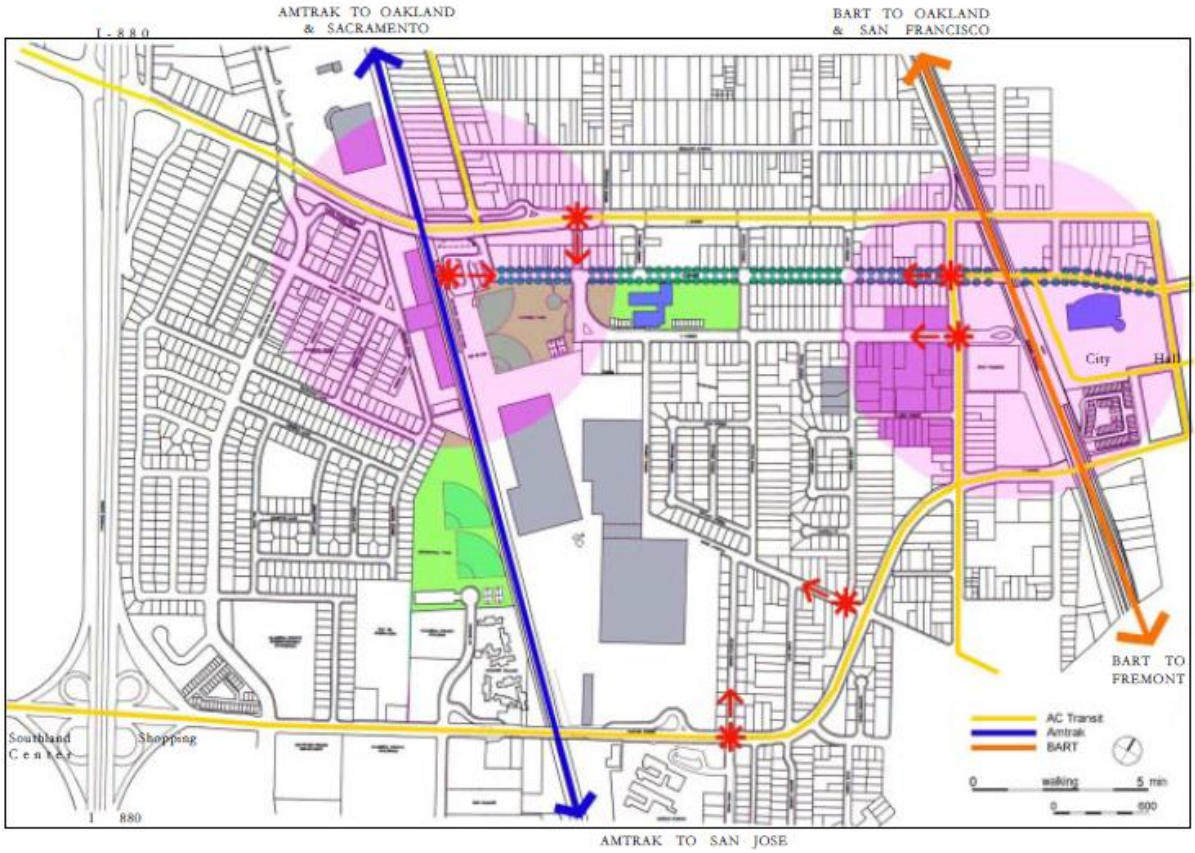
Hayward's Cannery Area was once the center of the city's economy and a major manufacturing hub. By the end of the 20$^{th}$ century, however, the cannery and most other industries had closed, leaving behind acres of empty warehouses. The land was ideally situated just outside of the city's downtown and between the Hayward BART station and the Hayward Amtrak station, "imbedded in an established residential neighborhood that [was] increasingly desirable as a place to live as the regional economy [prospered]" (Solomon E.T.C. Architecture & Urban Design).To take advantage of this desire for development, the city began working in June 2000 to create the Cannery Area Design Concept Plan to convert the formerly industrial

land into a dense residential area with some commercial development. As shown below in Figure 1, the land was divided into three sub-areas.

**Figure 1: Map of the Cannery Area in 2001**


The transportation linkages of the Cannery Area are shown in Figure 2. The yellow, blue, and orange lines represent the routes of AC Transit, Amtrak, and BART, respectively. The pink circles show the area that is within a quarter mile, or a five minute walk, of each station. Despite the claims that the land was proximate to transportation, most of the vacant land lays outside of the quarter mile radius. Only Sub-area 3 falls completely within one of the circles.

**Figure 2: Cannery Area Transportation Linkages**




## Description of the Cannery Area Design Plan

In July 2001, the Cannery Area Design Plan was submitted to and approved by the Hayward City Council. It called for the development of between 805 and 962 dwelling units of various types, including detached single-family homes, townhouses, apartments, and live-work units, with densities between 10 and 30 units per net acre.

**Figure 3: Land Use Plan for Cannery Area**

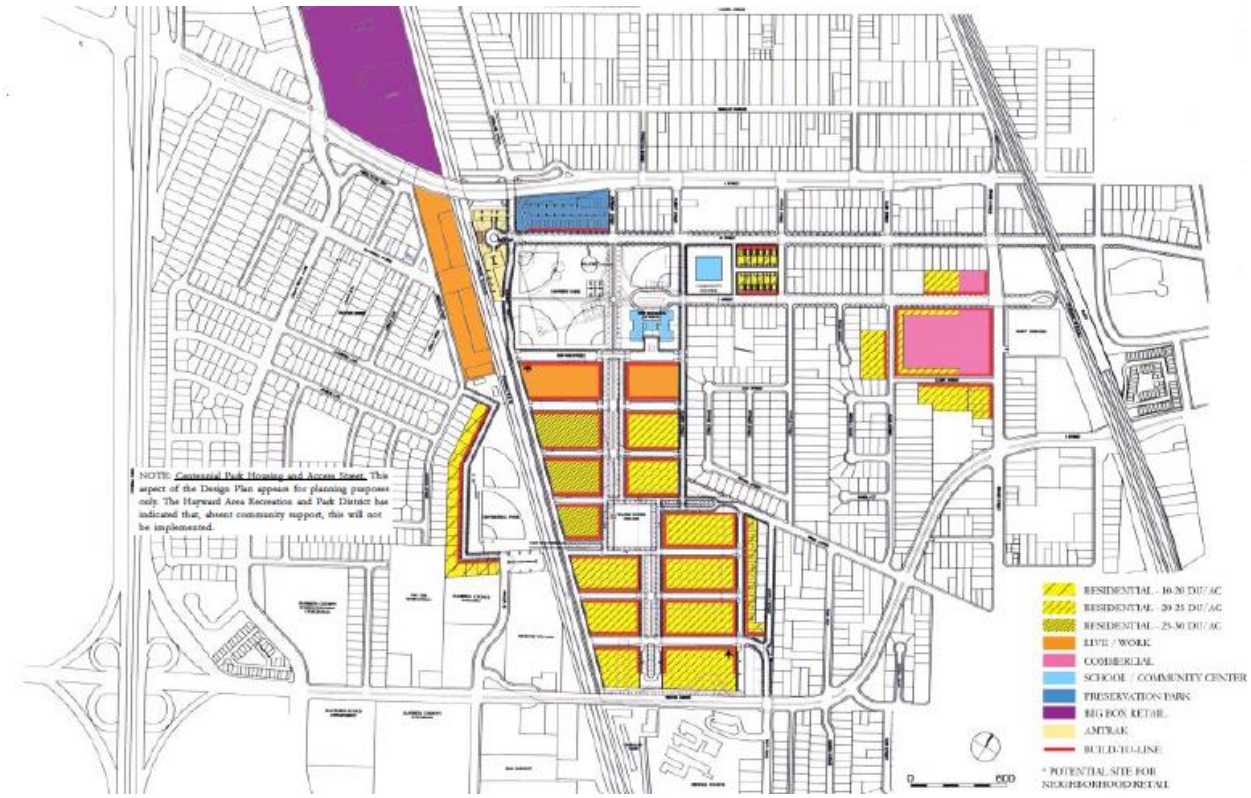



Figure 3 shows the land uses proposed in the Cannery Area Design Plan. Sub-area 1 is entirely zoned for big box retail, which is surprising for a development that is attempting to be transit-oriented (see Figure 4). With their expansive parking lots, big box retail areas are most suited for automobile users, not transit riders or pedestrians.

**Figure 4: Conceptual Design for Sub-area 1**

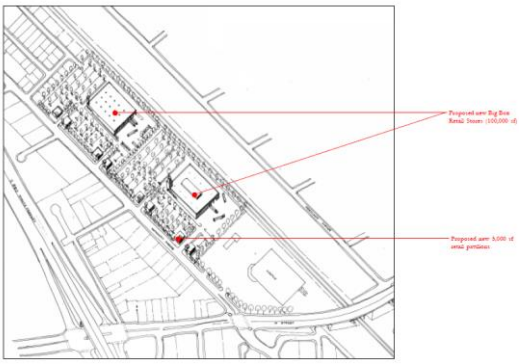
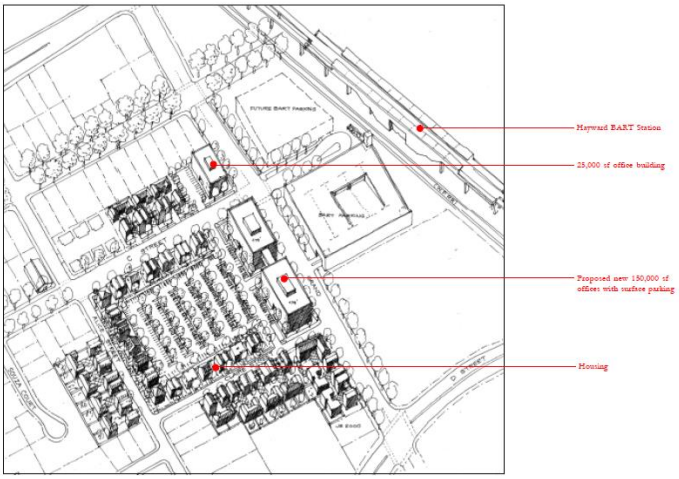


Figure 5: Concept Design for Sub-Area 2


Sub-area 2 was zoned for a combination of Live/work buildings (shown in orange) and residential (shown in yellow). Only Sub-area 3 was zoned for exclusive commercial (shown in pink). While there was some mixing of land uses, most of the Cannery Area was designed to be exclusively residential.

In addition to the big box stores and the somewhat segregated land uses, the plan called for a lot of space for parking in the residential areas. The live/work buildings were planned to accommodate 4 cars per thousand square feet and the residential dwellings were required to have 2 parking spaces for every dwelling (Solomon E.T.C. Architecture & Urban Design). The provision of this much parking is problematic in a TOD because it does not discourage the use of personal vehicles.

Figure 6: Concept Design for Sub-area 3




As of December 2016, the Cannery Area Design Plan has been partially implemented, with most of the development taking place in Sub-area 2. Sub-areas 1 and 3 have not changed substantially since 2001. Although Sub-area 3 had the highest potential for TOD, it still consists largely of industrial lots and single-family

housing. In Sub-area 2, private developers began construction of 628 units of housing in the southern portion of the sub-area in 2007 but the economic recession of 2008 forced the construction to halt until market conditions improved in 2011. While the housing development is now mostly finished, the lots zoned for retail development remain vacant (Blasky, 2016).

**Impacts of the Plan**

According to many researchers, transit-oriented development increase public transportation use and decreases VMT. Noland has found that "those living closer to transit stations were more frequent walkers and transit users while also being less frequent drivers, compared to those living more distantly" (Noland, Ozbay, DiPetrillo, & Iyer, 2014). Similarly, Downs states, "One way to increase use of public transit commuting would be to cluster relatively high-density housing near suburban transit stops, especially those served by fixed-rail systems" (Downs, 2004). However, Ditmar argues that TOD requires more than just proximity to transit to be successful. He describes TOD as development that "results in places and regions that meet the demand for location-efficient mixed-use neighborhoods, supports regional economic growth strategies, and increases housing affordability and choice" (Dittmar & Poticha, 2004). Only one of these criteria, location efficiency, involves proximity to transit. Furthermore, location efficiency involves the frequency of transit service and the pedestrian friendliness of the development (Dittmar & Poticha, 2004). Because most of the Cannery Area development is located near the infrequently-served Amtrak station, it does not qualify as TOD under Ditmar's criteria.

To analyze the effect that the implementation of the Cannery Area Design Plan actually had on the transportation patterns of the area, I looked at data from ACS and the 2000 Census.

In addition to analyzing Hayward City as a whole, I analyzed the three census tracts that contained the Cannery Area separately. Boarnet argues that there are places within cities "where the impact of land use on vehicle miles of travel…might be larger or smaller than the metropolitan average" and I wanted to see if the Cannery Area was one of these places due to its location near transit and downtown (Boarnet, Houston, Ferguson, & Spears, 2011). However, the three census tracts that I used to represent the Cannery Area also included land that was not zoned as part of the special district. Additionally, the margin of error in the census data for the Cannery Area tracts was very high compared to the estimated figures. For example, the 2010 ACS estimated that in the three Cannery Area tracts, 260 people used public transportation to commute to work, with a margin of error of 208. This large margin of error could obscure small but important changes to the transportation patterns due to the plan's implementation.

**Figure 5: Hayward City Mode Choice**

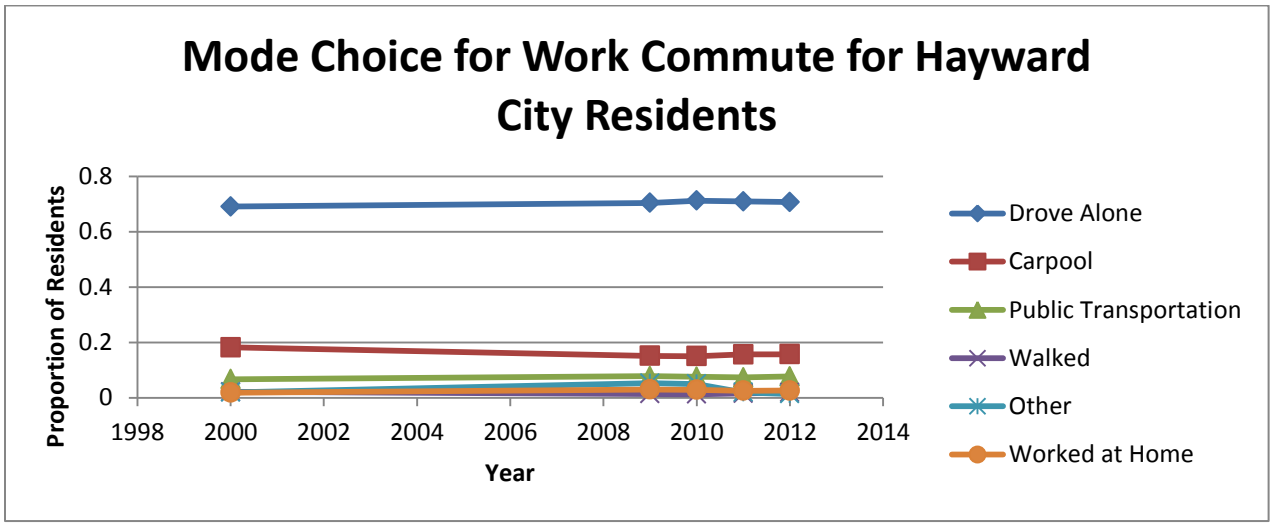
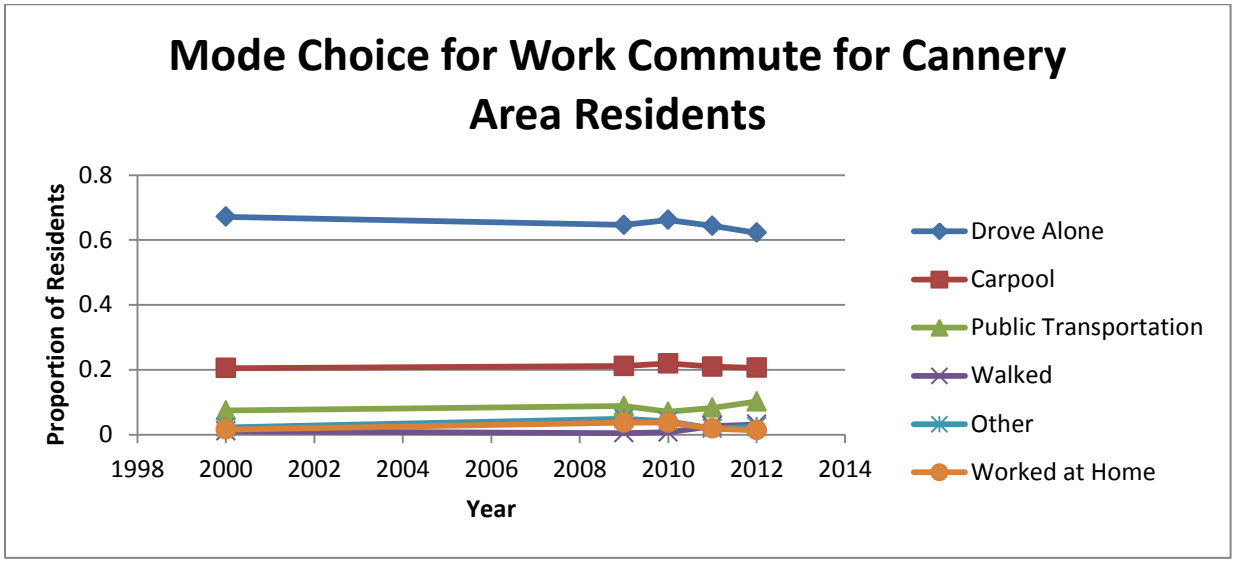


Figure 6: Cannery Area Mode Choice




Figures 7 and 8 show the mode that residents of Hayward City and the Cannery Area use to commute to work. The 2000 data comes from the Decennial Census while the rest comes from the ACS. The data that I do have indicates that the proportion of residents using each mode has remained stable in Hayward City. In the Cannery Area, the proportion of residents driving alone to work dropped slightly, from 66 percent in 2010 to 62 percent in 2012. During the same time period, the proportion of residents using public transportation to commute rose from 7 percent to 10 percent.

**Conclusion**

The implementation of the Cannery Area Design Plan had only a small measurable effect on the mode choice of its residents commute, decreasing driving alone by 4 percent and increasing public transportation use by 3 percent. It is possible that the margin of error in the census data has distorted the effect of the development, especially because there are only five data points available since the plan's adoption. However, there are other reasons why the Cannery Area Plan did not have a strong effect on the travel patterns of residents. First, the

development was not clustered around a high frequency transit station; the Amtrak station is only served by one route and it has headways of an hour or more even during peak times. Additionally, the Cannery Area Design Plan was mostly focused on increasing residential density and the areas that have been zoned for commercial use are mostly still vacant. According to Boarnet, "land use policies aimed at reducing VMT should focus on employment accessibility as opposed to neighborhood population density" (Boarnet, Houston, Ferguson, & Spears, 2011). The Cannery Area plan did not improve residents' access to employment because it did not create any significant commercial areas near the new dwellings and it did not cluster them close to a frequently-served transit station that could give them easy access to the jobs downtown. Finally, the Cannery Area plan did nothing to increase the network load density of the area by making it more difficult to drive. Chatman states that "without increasing the time price of auto use… [transit-oriented development] may increase alternative mode use only slightly, if at all" (Chatman, 2008). This is what happened in the Cannery Area, where the developers maintained the status-quo by providing amply parking and wide streets to drive on. Therefore, from a transportation perspective, the Cannery Area Design Plan was not a success.

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