Focused Initial Study- Hayward BART Transit Oriented Development

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1.0 INTRODUCTION

Transit Oriented Developments (TOD's) have become increasingly popular in the San Francisco Bay Area, and California. These developments have numerous benefits, including great accessibility to public transportation (namely Bay Area Rapid Transit (BART)), increased densities, a source of revenue for local municipalities, and the reduction of vehicular trips and Greenhouse Gas emissions, amongst others. The City of Hayward has expressed interest in a TOD near the Hayward BART Station, located just west of Downtown Hayward. A cooperative effort by the City of Hayward and City and Regional Planning students at Cal Poly, San Luis Obispo has led to the creation of the Hayward BART TOD Plan, developed in January, 2012.

The proposed Hayward BART Transit Oriented Development (TOD) Plan (herein referred to as the project) encompasses approximately 6.2 acres, generally situated south of A Street, west of Montgomery Avenue, east of Grand Street, with B Street crossing the site in an east-west direction; the project is located in the City of Hayward, California. The proposed project would allow for the development of mixed-use, commercial, residential, and open space/park land uses.

The proposed Hayward BART TOD Plan has been developed in response to the City's desires to revitalize the area surrounding the Hayward BART station, and facilitate economic growth and activity through mixed-use development, infill development, and development of commercial centers. Through a public outreach program and the Envision Downtown Hayward Plan, completed by City and Regional Planning students at California Polytechnic State University, San Luis Obispo, the City identified Hayward BART as an opportunity site for development within the downtown area.

Through extensive research and site analysis, the area surrounding the Hayward BART station was deemed a site subject to further study for future development. The proposed project includes development/redevelopment of six parcels surrounding the Hayward BART station.

1.1 PURPOSE AND SCOPE

Due to potential impacts to the City of Hayward and its surrounding environment, the Hayward BART TOD Plan is subject to the California Environmental Quality Act (CEQA). Specifically, the project's impacts will be assessed using CEQA's Environmental Checklist in the form of an Initial Study (IS) – a preliminary study of the project's potential environmental impacts. The Initial Study addresses the direct, indirect, and cumulative environmental effects associated with the proposed project. In correspondence with CEQA, this Focused Initial Study has been prepared to analyze the proposed project by the identification of any potentially significant impacts upon the environment that would result from construction and implementation of the project. The purpose of this Focused Initial Study is to inform the City of Hayward decision-makers, affected agencies, and the public of potential environmental impacts associated with construction and implementation of the proposed project. This Initial Study is deemed "Focused" because it addresses only four environmental areas: Aesthetics, Air Quality, Greenhouse Gases, and Hydrology/Water Quality.

1.2 STATUTORY AUTHORITY AND REQUIREMENTS

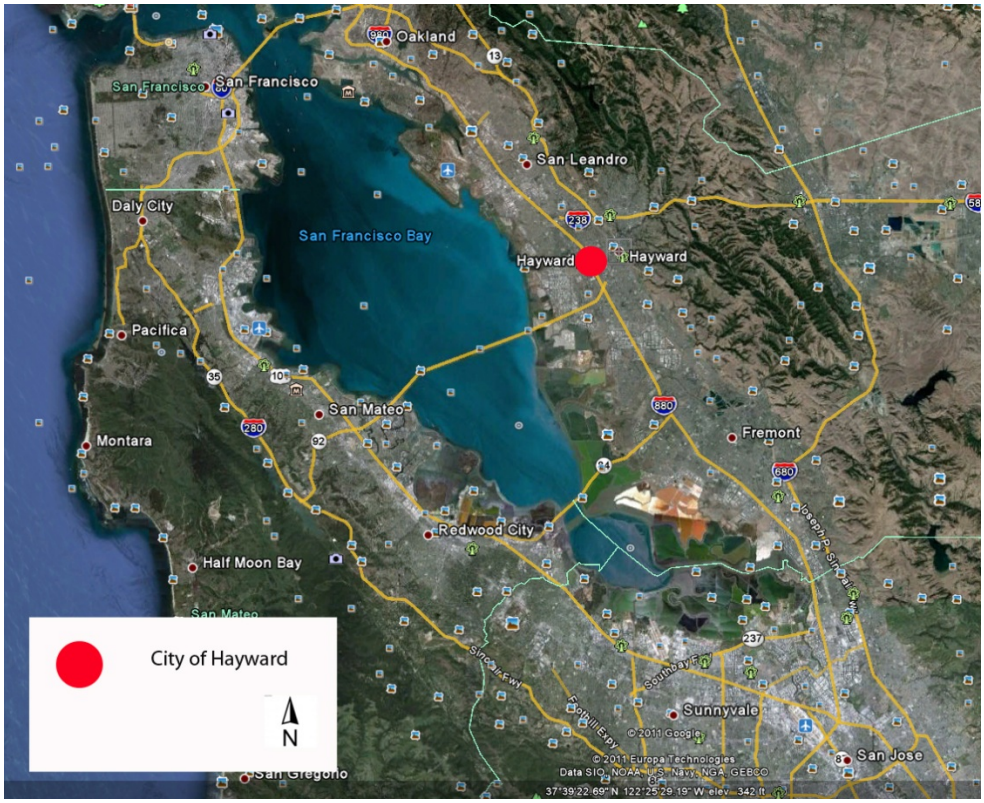
In accordance with Section 15063 of the CEQA Guidelines, this Focused Initial Study is a preliminary analysis prepared by the Lead Agency, the City of Hayward, in consultation with other jurisdictional agencies, to determine whether a Negative Declaration or Environmental Impact Report (EIR) would be required for the proposed Hayward BART Transit Oriented Development (TOD) Plan.

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed Hayward BART TOD Plan is located in the City of Hayward, California. The City of Hayward is located in central Alameda County, 25 miles southeast of San Francisco, 14 miles south of Oakland, 26 miles north of San Jose and 10 miles west of the valley communities surrounding Pleasanton. Interstate 880 is located west of Hayward, and Interstate 580 is positioned just north of the City; refer to Exhibit 1-1, Regional Location. The approximate 6.2-acre project site is adjacent (west) to the Hayward BART Station, north of B Street, south of A Street, east of Grand Street, west of Montgomery Street, and to the northwest of Hayward City Hall; refer to Exhibit 1-2, Site Vicinity. Vehicular access to the project site is available via A Street, B Street, and Grand Street.

Exhibit 1-1: City of Hayward's regional location in the Bay Area



Source: Google Earth, 2012

Exhibit 1-2: Hayward BART TOD Site Vicinity

Source: Google Earth, 2012

2.2 ENVIRONMENTAL SETTING

Existing On-Site Conditions

Area 1(See Exhibit 1-3)

This portion of the project site has been used as a surface parking lot for the Hayward BART Station (see Exhibit 1-2). The paved parking lot consists of approximately 200 parking spots, and an array of trees, bushes and shrubs. The pavement, trees, bushes and shrubs are kept in good shape, as there is no evidence of corrosion or disturbed areas of the site. This area of the project site slopes to the west, ranging in elevation from approximately 90 to 95 feet above mean sea level (msl).

Currently, the City's General Plan designates this area of the project site as Central City Commercial (CC-C) and Central Business (C-B). This area has a designated residential density of 30-65 dwelling units per net acre (du/net acre). Permitted activities include, but are not limited to, retail, office, service, lodging, entertainment, education, and multi-family residential uses.

Area 2 (See Exhibit 1-3)

This area of the project site currently consists of single-family and multi-family residential dwellings, as well as a supermarket and a surface parking lot. The residential units are located along B Street, and the supermarket/parking lot is located on the corner of A and Grand Street. A number of street trees parallel B Street near the residential units, as well as along the BART rail line just east of this area. This area of the project site slopes to the north and west, ranging in elevation from approximately 90 to 95 feet above mean sea level (msl).

Currently, the City's General Plan designates this area of the project site as Central City Commercial (CC-C) and Central Business (C-B). This area of the project site has two allotted residential densities—30-65 du/net acre in the northern portion along A Street where the supermarket is located, and 17 du/net acre in the southern portion along B Street where the residential units are located. Permitted activities include, but are not limited to, retail, office, service, lodging, entertainment, education, and multi-family residential uses.

Area 3 (See Exhibit 1-3)

This area of the project site is currently used as a parking facility/vehicular storage for the California Department of Transportation (CALTRANS). The area consists of approximately 137 paved parking spots, as well as a vacant dirt lot at the northern portion of the site adjacent to A Street. There are currently no trees, bushes, shrubs, or any other forms of natural vegetation in this area of the project site. This area of the project site slopes to the north, ranging in elevation from approximately 90 to 95 feet above mean sea level (msl).

Currently, the City's General Plan designates this area of the project site as Central City Commercial (CC-C) and Central Business (C-B). This area of the project site has two allowable residential densities--30-65 du/net acre in the northern portion along A Street where the vacant dirt lot is located, and 17 du/net acre in the southern portion along B Street where the paved parking lot is located. Permitted activities include, but are not limited to, retail, office, service, lodging, entertainment, education, and multi-family residential uses.

Exhibit 1-3: The three environmental study areas of the Hayward BART TOD Development project site

Source: Google Earth, 2012

Existing Surrounding Land Uses

Land uses adjacent to the project site include the following:

North: Single Family homes, a Church/Retirement Center, office space, and community commercial land uses are located to the north of the project site. Existing General Plan land use designations to the north are Single Family Residential, Medium Density Residential, Commercial, and Church/Clubhouse. The zoning to the north includes Medium Density Residential (RM), Central City Commercial (CC-C), and Central Business (CB).

East: A mix of retail/commercial space, offices, and residential units border the project site to the east. Existing General Plan land use designations to the east of the project site are Community Commercial, Office, Medium Density Residential, Single Family Residential, and City/County Administration (City Hall). The existing zoning includes Central City Commercial (CC-C), Central Business (CB), and Medium Density Residential (RM).

South: The City Centre Apartment Complex and BART Station are situated to the south of the project site. The City Centre Apartment Complex is designated by the General Plan as Medium Density Residential, with an allowable density of 65 du/net acre. According to the City's zoning code,

this area south of the project site is designated as Central City Commercial (CC-C), and Central Business (CB).

West: High Density Residential, Medium Density Residential, Retail/Office/Commercial, and vacant land uses are located directly west of the project site. The allowable densities for the residential uses are 30-65 du/net acre. The existing zoning includes Central City Commercial (CC-C), Central Business (CB), High Density Residential (RH), and Medium Density Residential (RM).

2.3 BACKGROUND

Hayward is 63.7 square miles centrally located in the San Francisco Bay Area. The Downtown encompasses 320 acres with a 102.4 core. Its origins date back to the 1850s, during the California Gold Rush, when people quickly began utilizing the rich soil, water, and climate of the area making it into a prosperous farming town.

Later, the opening of the Hayward–San Mateo Bridge in 1919 brought new prominence to the town with the increased regional connections. By 1941 the town had grown to 7,000 people and had a rich commercial district and downtown. The post-war boom of the 1950s and introduction of the Nimitz Freeway (I-880) created an enormous population growth to 72,000 by 1960; the small farming town had turned into a sprawling bedroom community seemingly overnight. Because of the central location and quick population growth, California State University Hayward (now California State University East Bay) was established in 1957 to better serve the educational needs of the region. During the 1960s and 1970s Hayward experienced a surge in industrial development that created numerous employment opportunities, balancing, to some extent, the housing that was developed earlier.

Population continued to grow slowly, but at a much slower rate. Because of Hayward's rich history and regional setting, it is the sixth largest city in the San Francisco Bay Area and is one of the most culturally diverse cities in California. Today, Hayward is mostly built out with little developable land available for new growth so focus has turned more to infill development.

Downtown Hayward is located in the Northern part of Hayward and was once a regional destination point for shopping and entertainment. Once malls were introduced in the 1960s and 1970s Downtown lost much of their businesses and has struggled with economic vitality ever since. Lately there has been an influx in eateries that prove to be extremely popular and resilient, especially through economic downturns (Envision Downtown Hayward, Cal Poly City and Regional Planning Department, 2012)

2.4 Planning/Guiding Principles

<u>Community Vision</u>

City Council's three main goals for Hayward in 2012 (Envision Downtown Hayward, Cal Poly City and Regional Planning Department, 2012):

- Safe: Promote safety in targeted areas, including the area surrounding the Hayward BART Station. Reduce gang violence in Hayward. Develop school partnerships. Improve disaster preparedness and disaster response in the organization and within the neighborhoods. Complete and adopt multi-jurisdictional Local Hazard Mitigation Plan.

- Clean: Strengthen code enforcement citywide. Implement Neighborhood Partnership Program beyond Phase One. Strengthen and expand KHGC Task Force into neighborhood organizations. Decrease litter in the city. Reduce and clean up homeless encampments and address related issues. Improve graffiti prevention through increased use of public art in retail and commercial areas. Prevention and rapid abatement of graffiti. Control public car sales in the public right-of-way (ROW). Decrease illegal dumping. Eliminate blight throughout the RDA.

- Green: Continue implementation of the Climate Action Plan. Increase Hayward's sustainability as a community. Fund and implement residential and commercial energy efficiency, photovoltaic, and hot water solar programs. Continue development of residential and commercial energy programs. Position Hayward and gain recognition as a 'Healthy City' under the national and state program. Increase use of clean and green energy such as solar photovoltaic and bio-gas to energy production at utility facilities. Increase use of recycled water.

To achieve the three specific goals set by the City Council, Implementation Policies and Actions for the Hayward BART TOD Plan are as follows (Envision Downtown Hayward, Cal Poly City and Regional Planning Department, 2012):

Policy: Enforce infill of site by requiring new developments to occur within existing urbanized areas.

Action: Update citywide development standards to require infill development before new growth.

Action: Provide resources to the public and developers about parcels inventory and map parcels that are vacant and provide information on the eligibility of parcels for funding programs.

Policy: Enforce sustainable principles by requiring low impact development and landscaping.

Action: Create database of allowable plant types and encourage porous surfaces to decrease water runoff.

Action: Require a pre-construction conference where planners and/or developers should consult to identify best management practices applicable to an individual project to lower impacts of the development including, but not limited to energy usage, water consumption, runoff absorption rates, and materials used.

Policy: Continue to implement the Hayward smart growth principles and policies.

Action: Require mixed use and medium to high density development adjacent to BART to create a Transit Oriented Development.

Action: require all buildings to exceed Title 24 development standards by a minimum of 10% to reduce the impact of buildings.

3.0 ENVIRONMENTAL ANALYSIS

3.1 AESTHETICS

Introduction:

Visual character plays a significant role in determining the environmental impact of a development. For a development to successfully make its way through CEQA and the permitting process, it is vital for the developer to stay consistent with a city's goals and objectives for aesthetic value. The City of Hayward takes great pride in maintaining its attractive character through a number of goals, policies, regulations and design guidelines.

Existing Conditions and Project Characteristics

From the project site, there are attractive views of City Hall, B Street, single-family homes, and the surrounding trees and other natural vegetation. The City of Hayward provides design guidelines for all new developments; these guidelines are the blueprint for preserving and enhancing the visual character of the surrounding elements near the Hayward BART TOD project site. The Hayward BART TOD Plan proposes a mix of office, commercial, and residential buildings ranging from one-to-four stories. These buildings could potentially have visually adverse effects on the existing environment surrounding the site and the city.

Significance Threshold and Regulatory Standards

The City of Hayward contains policies, guidelines, and regulations for new development in Downtown Hayward regarding visual harmony and consistency. The Downtown Hayward Design Requirements and Guidelines contain the following policy to establish a threshold of significance (City of Hayward, 1992):

All Buildings (Requirements)

> Exterior design and materials shall be harmonious for the building as a whole and blend harmoniously with materials and finishes of nearby buildings. Materials and finishes shall be of durable quality, intended for exterior application and applied in a professional manner.

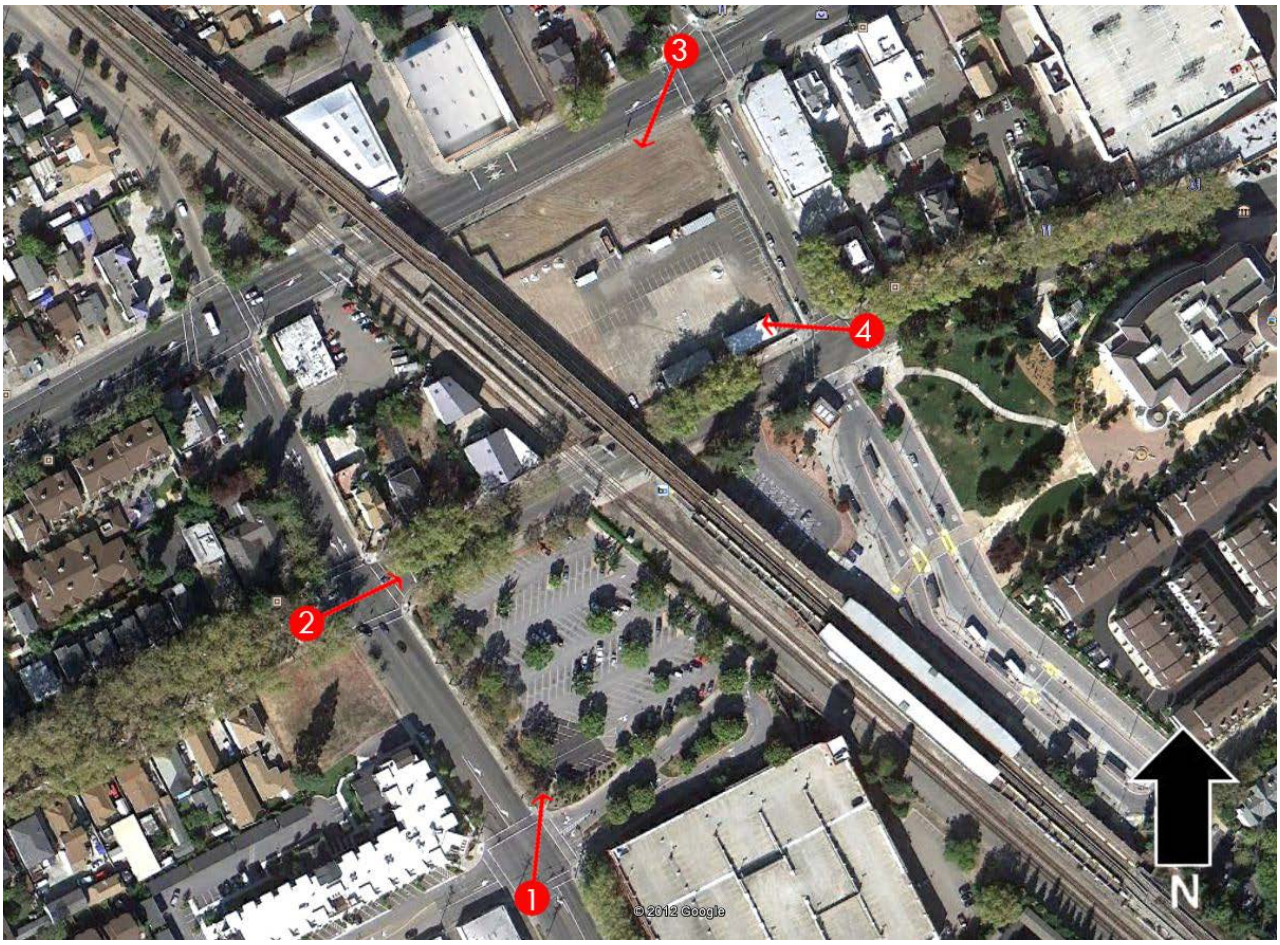
The City of Hayward Design Review Guidelines contains the following policies to establish a threshold of significance (City of Hayward, 1993):

> **Architectural Design: Façade/Elevation**
>
> Design development to be attractive from all visible sides by providing consistent architectural detail and landscaping and enclosure of unattractive elements like refuse containers
>
> **Architectural Design: Form**
>
> Connect new buildings visually with the form of existing structures. Use colors, materials and a scale that are harmonious with nearby development

Visual Impact Analysis:

To analyze the visual impacts of the Hayward BART TOD Plan, the existing views into the site have been compared to the post-development development views. Key Viewing Areas (KVA's) represent the most significant locations from which the project would be seen. KVA's are used to assess impacts on visual resources with various levels of sensitivity, in different landscape types and terrain, and from various vantage points (City of San Luis Obispo, 2002). KVA's for the Hayward BART TOD Development Plan have been established and can be seen below in Figure 3-1.

Figure 3-1: Aerial view of the Key Viewing Areas for the Hayward BART TOD Plan



Source: Google Earth, 2012

To adequately analyze the impact of the Hayward BART TOD Plan on the visual character of the city, two criteria have been used: Visual Impact Susceptibility, and Visual Impact Severity.

Visual Impact Susceptibility

Visual Impact Susceptibility is an assessment of the degree of visual degradation a project will have on the surrounding views. The impact of Visual Susceptibility is based on visual quality, viewer sensitivity, and viewer exposure (City of San Luis Obispo, 2002).

- *Visual quality* is a measure of the overall impression or appeal of an area as determined by the particular landscape characteristics (City of San Luis Obispo, 2002). For the assessment of the Hayward BART TOD Plan, the visual quality of the surrounding natural features (trees, vegetation, etc.), and neighboring buildings have been taken into account.

- *Viewer sensitivity* reflects the importance placed on a given landscape or urban area based on the human perceptions of the intrinsic beauty or aesthetic quality of the existing landforms and adjacent structures (City of San Luis Obispo, 2002).
- *Viewer Exposure* takes into account the residents and other users of the area whose daily views will be most affected by development.

Visual Impact Severity

Visual Impact Severity is a study of the degree of visual alteration of a development on the current environment and is based on visual contrast, project dominance, and view impairment.

- *Visual Contrast* is assessed based on how the project affects the current view of visual form, color, and texture in and around the Hayward BART TOD project site (City of San Luis Obispo, 2002). Existing trees, vegetation and landforms are also used to quantify the visual contrast created by the proposed project. In short, Visual Contrast evaluates how well a proposed project fits into the current environment.

- *Project Dominance* measures how much area a project takes up within a viewshed based on horizontal and vertical parameters, and analyzes to what extent the project blocks or obstructs existing buildings, landforms and other structures. Dominance can be classified as subordinate, co-dominant, or dominant.

- *Visual Impairment* refers to the extent by which lower quality elements visually impede higher quality elements (City of San Luis Obispo, 2002).

KVA 1

A: North view of existing Hayward BART parking lot from the Grand/C Street intersection (Google Earth, 2012)

B: Same view with the Hayward BART TOD building massing

KVA 2

A: Existing view of proposed Hayward BART TOD Development site looking east along B Street from west side of Grand Street (Google Earth, 2012)

B: Same view with Hayward BART TOD building massing

KVA 3

A: Existing southwest view of project site from the intersection of A Street and Montgomery Avenue (Google Earth, 2012)

B: Same view with Hayward BART TOD (back of Performing Arts Center) building massing

KVA 4

A: Existing northwest view of Hayward BART TOD project site from the northwest corner of the City Hall parcel (Google Earth, 2012)

B: Same view with the Hayward BART TOD Development building massing (Performing Arts Center)

For all of the above explained criteria elements and KVA's for Visual Impact Assessment, a rating of *low*, *medium*, or *high* have been assigned. The results of both Impact Susceptibility and Severity for the Visual Impact Assessment can be seen below:

Visual Impact Susceptibility Results:

KVA #	VISUAL QUALITY	VIEWER SENSITIVITY	VIEWER EXPOSURE	VISUAL IMPACT SUSCEPTIBILITY
1	Low	Low	Med	Low
2	Low	Med	Med	Med
3	Med	Low	Low	Low
4	Low	Low	Low	Low

Note:

Low= Two or more of the criteria elements are rated low

Medium= Two or more of the criteria elements are rated med

High= Two or more of the criteria elements are rated high

(City of San Luis Obispo, 2002)

Visual Impact Severity Results

KVA #	VISUAL CONTRAST	PROJECT DOMINANCE	VIEW IMPAIRMENT	VISUAL IMPACT SEVERITY
1	Low	Low	Low	Low
2	Med	High	Low	Med
3	Low	High	Low	Low
4	Low	Med	Low	Low

Note:

Low= Two or more of the criteria elements are rated low

Medium= Two or more of the criteria elements are rated med

High= Two or more of the criteria elements are rated high

(City of San Luis Obispo, 2002)

AESTHETICS IMPACT-1:

Based on the results above, the visual impact of the Hayward BART TOD Plan on the existing environment has been designated as ***Insignificant*** (using Copeland's EIR). Due to the insignificance of the project on the visual character of the surrounding environment and city, no mitigation measures are necessary. The level of visual significance the Hayward BART TOD Plan has on the existing environment was determined using the table in Figure 3-2.

Figure 3-2: Table used to assess the overall visual impact of the Hayward BART TOD Development Plan

Impact Significance by KVA Example

		Impact Severity		
		Low	Med	High
Impact Suscept.	Low	Insignificant	Insignificant	Adverse but less than significant
	Med	Insignificant	Adverse but not significant	Significant
	High	Insignificant	Adverse but less than significant	Significant

Issues, Discussion and Supporting Information Sources	Sources	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
1. AESTHETICS. Would the project:					
a) Have a substantial adverse effect on a scenic vista?					
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, open space, and historic buildings within a local or state scenic highway?					
c) Substantially degrade the existing visual character or quality of the site and its surroundings?					X
d) Create a new source of substantial light or glare which would adversely effect day or nighttime views in the area?					

3.2 AIR QUALITY/GREENHOUSE GAS EMISSIONS

Introduction:

To ensure and maintain the health of the people of the United States, the U.S. Clean Air Act was passed in 1970. The act was created to intend on protecting and enhancing the nation's air quality, while safeguarding the public health and welfare of American citizens. The CAA regulates both stationary and mobile sources of air pollution and is regulated by the Environmental Protection Agency (U.S. Environmental Protection Agency, 2011).

In California, a similar act, the California Clean Air Act was passed in 1988. This act is consistent with the U.S. CAA and enforces regulation standards for emission of air pollutants across the state. The state of California is made up of 35 Local Air Districts that oversee and regulate the six mandated Criteria Air Contaminants by the Environmental Protection Agency (California Air Resources Board, 2011). The six contaminants are: Ozone (O3), Particulate Matter (PM10, PM 2.5), Carbon Monoxide (CO), Sulfur Dioxide (SO2), Nitrogen Oxides (NOx), and Lead (Pb) (CARB, 2011). All areas of the nation are designated as "attainment" or "non-attainment" areas. "Attainment" areas are regions where National Ambient Air Quality Standards (NAAQs) set by the EPA have not been met. "Non-Attainment" regions are areas where the NAAQs are above the allotted emission standard (U.S. EPA, 2011). The Bay Area Air Quality Management District (BAAQMD) oversees the air quality of Alameda County, and has maximum air pollutant standards for new developments. The City of Hayward is in the Southwestern Alameda County subregion, and has the highest air pollution potential during the summer and fall months due to winds carrying pollutants from nearby cities.

Greenhouse Gases (GHG's) are gases that emit and trap heat in the earth's atmosphere. The trapped heat emitted by GHG's creates the "greenhouse effect," a major contributor to global warming and climate change (U.S. EPA, 2011). The main GHG's in the earth's atmosphere are water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), ozone (O3), hydrofluorocarbons (HCFs), perfluorocarbons (PFCs), and sulfur

hexafluoride (SF6) (U.S. EPA, 2011). GHG's are emitted by a number of stationary and mobile sources, including construction activities, area sources, and mobile (vehicle) sources.

In 2005, Governor Schwarzenegger established executive order S-3-05 to significantly reduce California's GHG emissions. The reduction targets go as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels (State of California, 2000).

Existing Conditions & Project Characteristics

The land on the Hayward BART TOD project site currently consists of three (3) parking lots, residential units, office space, and a corner market. The main emitters of criteria pollutants and GHG's currently come from the vehicles utilizing the area. However, increased densities, the addition of 150 residential units, added commercial space, and the growing demand for parking proposed in the Hayward BART TOD is expected to significantly escalate GHG and criteria pollutant emissions.

Significance Threshold & Regulatory Standards

The BAAQMD contains CEQA Guidelines and thresholds of significance for new projects in Alameda County relating to air pollutant and GHG emissions, seen below in Figure 3-3. National and State Ambient Air Quality Standards can be seen in Figure 3-4.

Figure 3-3: Bay Area Air Quality Management District's CEQA Thresholds of Significance

Table 1 – Proposed Air Quality CEQA Thresholds of Significance			
Pollutant	**Construction-Related**	**Operational-Related**	
Project-Level			
Criteria Air Pollutants and Precursors (Regional)	**Average Daily Emissions (lb/day)**	**Average Daily Emissions (lb/day)**	**Maximum Annual Emissions (tpy)**
ROG	54	54	10
NO_X	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
GHGs **Projects other than Stationary Sources**	None	Compliance with Qualified Climate Action Plan OR 1,100 MT of CO_2e/yr OR 4.6 MT CO_2e/SP/yr (residents + employees)	

Source: Bay Area Air Quality Management District, 2009

Figure 3-4: California and National Ambient Air Quality Standards

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)		53 ppb (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flouresence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[9]	—	
Lead[10,11]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: California Air Resources Board, 2011

CalEEMOD (California Emissions Estimator Model) Air Quality Model Analysis

Using CalEEMod, a statewide land use emissions computer model, the quantifiable effects of the Hayward BART TOD Development Plan on GHG emissions and criteria pollutants have been measured. To obtain results from the CalEEMod, the proposed land uses, total square footages, number of housing units, parking spaces, number of tenants, and business types of the Hayward BART TOD were all input into the model. For this analysis, Operational-Related and Construction-Related effects of the project were taken into account. The results of the model can be seen below:

Table 3.1 : Hayward BART TOD emissions pre-mitigation (operational and construction)

CRITERIA POLLUTANT	BAAQMD ALLOWABLE AVERAGE DAILY EMISSIONS (lbs/day)	HAYWARD BART TOD AVERAGE DAILY EMISSIONS (CALEEMOD RESULTS)
ROG	54	100.1
NOx	54	132.44
PM10	82	71.39
PM2.5	54	3.82
GHG's (CO_2e)	4.6 MT CO_2e/SP/yr (residents + employees)	14.42 MT CO_2e/SP/yr (residents + employees)

AQ Impact -1:

Since ROG and NOx emission levels are significantly over BAAQMD's allowable threshold standards, mitigation is required. Particulate Matter (PM10 and PM2.5) pollutants are well below threshold standards, and do not require mitigation measures.

GHG Impact -1:

Since the Hayward BART TOD has GHG emissions well above BAAQMD's allotted threshold standards, mitigation to the Hayward BART TOD Plan is required.

Mitigation Measures

The following mitigation measures were input into CalEEMOD to reduce the emissions of GHG's, ROG, and NOx:

TRAFFIC

- 50 Units Below Market Rate Housing (33%)
- Improve Pedestrian Network on-site and surrounding/connecting to site
- Provide Traffic Calming Measures
    - 25% Streets with improvement
    - 50% Intersections with improvement
- 12.5% reduction in # of parking spots
    - From 805 spots to 705
- School Bus Program
    - 30% of Family Using

AREA

- Use low Volatile Organic Compounds (VOC) paint in:
    - Residential Interior and Exterior
    - Commercial Interior and Exterior
- Increase the building energy rating by 20% above Title 24 requirements, effectively reducing GHG emissions by 15% for residential and non-residential buildings in Acacia Commons (CAPCOA, 2010).
- Utilize onsite renewable energy systems (solar, wind, geothermal, low-impact hydro, biomass and biogas).
- Utilize Energy Efficient Lighting
    - 20% Lighting Energy Reduction
- On-site renewable energy
    - 270 KWh generated from solar panels

WATER

- Low-flow toilets
    - 20% Reduction in flow

NOTE: All mitigation measures were implemented using the California Air Pollution Control Officers Association's Quantifying Greenhouse Gas Mitigation Measures, 2010.

CalEEMOD Results with Mitigations:

Table 3.2: Hayward BART TOD emissions with mitigations (operational and construction)

CRITERIA POLLUTANT	BAAQMD ALLOWABLE AVERAGE DAILY EMISSIONS (lbs/day)	HAYWARD BART TOD AVERAGE DAILY EMISSIONS (CALEEMOD RESULTS)
ROG	54	96.34
NOx	54	120.32
PM10	82	64
PM2.5	54	3.41
GHG's (CO2e)	4.6 MT CO2e/SP/yr (residents + employees)	12.8 MT CO2e/SP/yr (residents + employees)

NOTE: Since GHG, ROG, and NOx emissions are still above allowed threshold standards, an EIR for the Hayward BART TOD Plan is required.

Issues, Discussion and Supporting Information Sources	Sources	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
3. AIR QUALITY. Would the project:					
a) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X			
e) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed qualitative thresholds for ozone precursors)?		X			

Issues, Discussion and Supporting Information Sources	Sources	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. GREENHOUSE GAS EMISSIONS -- Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		X			
b) Conflict with any applicable plan, policy or regulation **of an agency** adopted for the purpose of reducing the emissions of greenhouse gases?					X

3.3 HYDROLOGY/WATER QUALITY

3.3.1 Flood Zone Analysis

Introduction

Flooding is often the result of heavy rainfall, when creeks and drainage channels overflow. Flooding also can occur in low-lying places with poor drainage, valleys, or basins. The severity of a flood can increase by impervious surfaces and structures placed in a flood zone. Flooding can substantially alter the natural riparian habitats around creeks and severely damage properties and their financial values. The City of Hayward recognizes the threat of flooding within community and has addressed flooding potential in its General Plan, Municipal Code, and Flood Plain Management Program.

Existing Conditions & Project Characteristics

Currently on nor adjacent to the Hayward BART TOD project site are creeks, rivers, or other waterways that pose potential flooding issues during a significant rainstorm. The project site is not currently located within a 100-year floodplain, and the Hayward BART TOD Development Plan does not propose its land uses to be within the floodplain. However, according to FEMA Flood Maps, part of the project site is located within Flood Zone X, a zone determined to be of low to moderate risk of flood and does not require flood insurance. Zone X is an area subject to a 0.2% annual flood chance (500-Year Floodplain), and a 1% annual chance flood with average depths of less than one foot or with drainage areas less than one square mile; FEMA Flood maps also show this area being protected by levees from 1% annual chance flood (See Figure 3-5).

Significance Threshold & Regulatory Standards

According to the City of Hayward, the purpose of the Flood Plain Management Program is to "...promote the health, safety, and general welfare of Hayward residents and property owners….Such flood losses are caused by uses which are inadequately elevated, flood-proofed or protected from flood damage…." (City of Hayward, 2011). In order to avoid potential significant damages to the property, health, and welfare of Hayward residents, the City has implemented the following regulations into its Municipal Code (City of Hayward, 2011):

(c) Elevation and Flood-Proofing

(1) Residential Construction structures. The lowest floor in any new or substantial improvement of any residential structure shall meet the requirements specified below. Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered professional civil engineer or licensed land surveyor, and verified by the community building inspector to be properly elevated.

(iii) All other FIRM Zones. In all other zones, the lowest floor shall be elevated to a height at or above the base flood elevation.

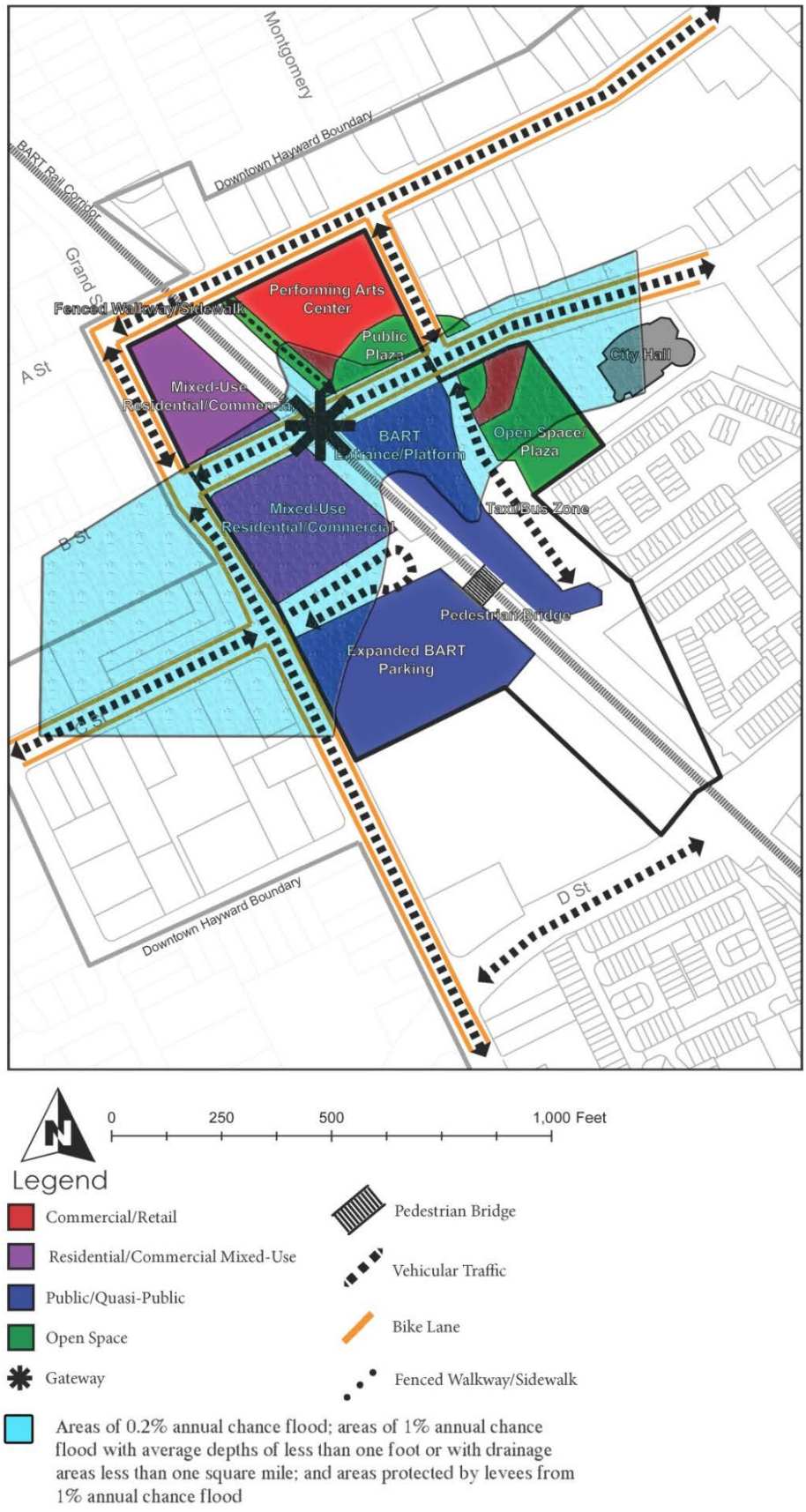
(2) Nonresidential structures

(i) The lowest floor of a nonresidential structure, including the basement, shall be floodproofed so that the structure's walls located below the base flood level are substantially impermeable to the passage of water; and
(ii) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

Impact Analysis

The Hayward BART TOD conceptual plan, with the associated FEMA Flood Zone X, can be seen below in Figure 3-5.

Figure 3-5: Hayward BART TOD Conceptual Diagram with FEMA Flood Zones



Source: Envision Downtown Hayward, Cal Poly, San Luis Obispo, 2012

HWQ Impact-1:

Since the proposed mixed-use building west of the Hayward BART Station is located within Flood Zone X, a zone with a low to moderate chance of substantial flooding, the construction of this building must comply with the City's regulations set out in the Municipal Code. Namely, the bottom floor of this building must be one foot above the projected flood line; therefore, the bottom floor must be two feet above ground level.

Issues, Discussion and Supporting Information Sources	Sources	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY. Would the project:					
f) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X	

3.3.2 Drainage Analysis

Introduction

The flooding of creeks and altered drainage patterns are often the result of increased storm water runoff caused by the development of impervious surfaces on a project site. Flooding can cause substantial property loss and greatly degrade the surrounding riparian habitats and bank stability. In California, flood management control measures must be taken to mitigate the increased amount of storm water runoff generated by construction sites (California Stormwater Quality Association 2003).

Existing Conditions & Project Characteristics

The Hayward BART TOD project site is approximately 6.2 acres and is currently made up of pavement and other impervious surfaces, as well as permeable surfaces. Impervious surfaces do not allow water penetration, while permeable surfaces allow liquid to pass through it. Permeable surfaces on site include vegetation such as bushes, trees, and native soil. Approximately 100% of the soils on the site are Danville Silty Clay Loam (NRCS, Web Soil Survey, 2010). This type of Clay Loam is a very deep, well-drained soil, with a very slow water intake rate and permeability.

The Hayward BART TOD project would convert approximately 2.2 acres of land to urban uses, including multi-family residential units, office space, retail space, and mixed-use development. Due to the development of such urban spaces and the required parking, the amount of impervious surfaces will greatly increase.

Significance Threshold & Regulatory Standards

The City of Hayward contains rules and regulations regarding new development and stormwater treatment design in its Municipal Code. The following thresholds of significance have been used to analyze the BART TOD Development Plan's impacts on the drainage of the project site and surrounding streets, sidewalks, and land uses (City of Hayward, 2011):

SEC. 11-5.38 STORMWATER TREATMENT MEASURES REQUIRED

b. All Significant Redevelopment Projects shall include Stormwater Treatment Measures to reduce water quality impacts of urban runoff for the life of the project.

(1) Significant Redevelopment Projects that result in an increase of, or replacement of, more than fifty (50) percent of the impervious surface of a previously existing development shall include Stormwater Treatment Measures sufficient to reduce water quality impacts of urban runoff from the entire site for the life of the project.

(2) Significant Redevelopment Projects that result in an increase of, or replacement of, fifty (50) percent or less of the impervious surface of a previously existing development shall include Stormwater Treatment Measures sufficient to reduce water quality impacts of urban runoff from the increased or replaced portion of the site for the life of the project.

Note: The regulations described in the City's Municipal Code directly reflect those of the California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit.

The City of Hayward's Design Guidelines also contain specifications for new development regarding site drainage, including the following (City of Hayward, 1993):

Use grading techniques to retain as much run-off on site as practical, allowing for percolation in detention basins, dry wells, and porous surfaces. Consider porous pavement materials, e.g., interlock pavers, porous asphalt mixes, decomposed granite, and turfblock as consistent with required load-bearing capacity.

The California Regional Water Quality Control Board, San Francisco Bay Region Municipal Regional Stormwater NPDES Permit also contains goals, regulations, and recommendations for new developments within its jurisdiction, including Alameda County and the City of Hayward. The goals and regulations set out in the NPDES Permit are applicable to the Hayward BART TOD Development Plan, seen below (California Regional Water Quality Control Board, San Francisco Bay Region, 2011):

C.3. New Development and Redevelopment

The goal of Provision C.3 is for the Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

C.3.a. New Development and Redevelopment Performance Standard Implementation

(7) For all new development and redevelopment projects that are subject to the Permittee's planning, building, development, or other comparable review, but not regulated by Provision C.3, encourage the inclusion of adequate source control measures to limit pollutant generation, discharge, and runoff. These source control measures should include:

- Landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, minimizes the use of pesticides and fertilizers, and incorporates appropriate sustainable landscaping practices and programs such as Bay-Friendly Landscaping.

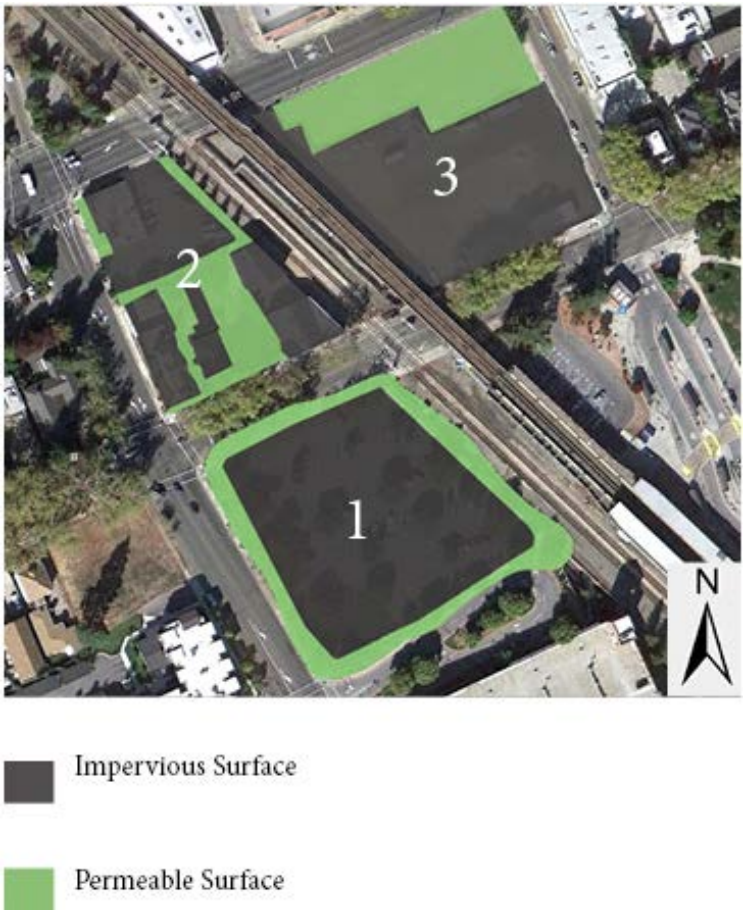
<u>Drainage Impact Analysis</u>

Due to significant changes to the project site via the Hayward BART TOD Plan, an increase in impervious surface area is expected. To quantify the amount of increased impervious surface on the project site, a drainage analysis and a before/after comparison of impervious and permeable surfaces on the project site has been conducted.

Impervious/Permeability Analysis

Using the proposed site plan in the Hayward BART TOD Development Plan and Google Earth, a before/after study of the surface coverage of both impervious and permeable surfaces from the TOD Development has been completed.

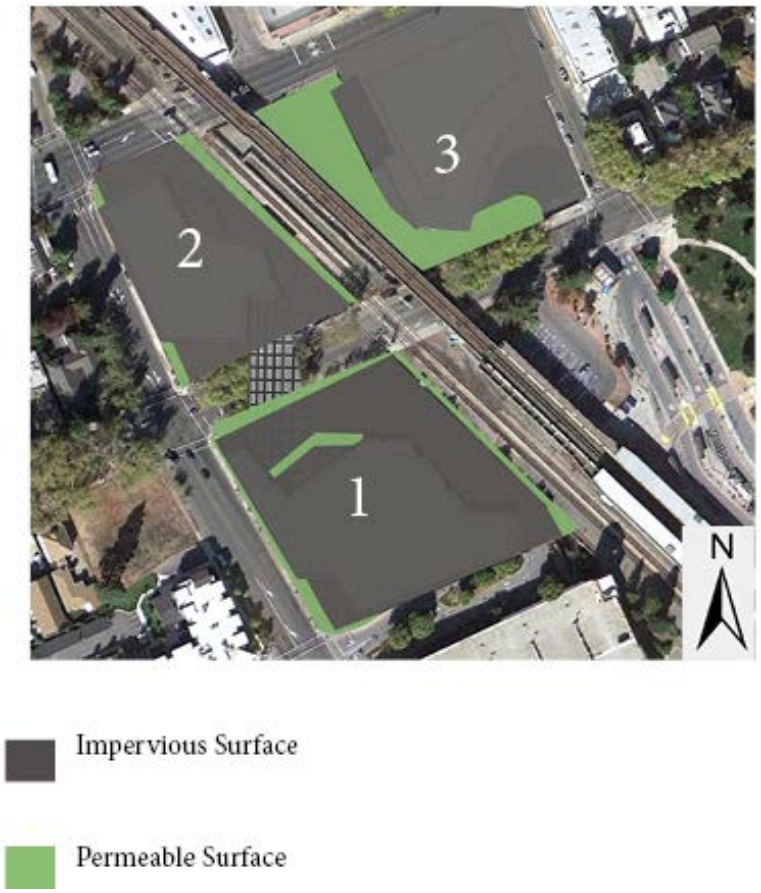
Figure 3-6: Pre-Development Impervious/Permeable Surfaces on Hayward BART TOD Project Site



Pre-Development Analysis

On Site 1 (BART Parking Lot), the amount of impervious surface area is approximately 85%, while the amount of permeable surface is approximately 15%. Site 2 has an approximate impervious surface area of 75%, and a permeable surface area of approximately 25%. On Site 3 (vacant CalTrans site), impervious surfaces make up 60% of the area, while 40% is permeable.

Figure 3-7: Post-Development Impervious/Permeable Surfaces on Hayward BART TOD Project Site



Post-Development Analysis

After the Hayward BART TOD Plan is implemented, there will be a great increase in impervious surfaces, and a decrease in permeable surface area. On Site 1 (BART Parking Lot), the amount of impervious surface area is approximately 93%, while the amount of permeable surface is approximately 7%. Site 2 has an approximate impervious surface area of 95%, and a permeable surface area of approximately 5%. On Site 3 (vacant CalTrans site), impervious surfaces make up 70% of the area, while 30% is permeable. The complete results for the before/after comparison of impervious and permeable surfaces can be seen below in Table 3.3.

Table 3.3: Results of Before/After Analysis for Permeable & Impervious surfaces on the Hayward BART TOD project site

PROJECT AREA	% Impervious Pre-Development	% Porous Pre-Development	% Impervious Post-Development	% Porous Post-Development	Impervious % Change	Porous % Change
1 (BART Parking Lot)	85	15	93	7	8	-8
2 (North of BART Parking Lot)	75	25	95	5	20	-20
3 (CalTrans Site)	60	40	70	30	10	-10

Local Drainage and Soil Analysis

With the project site generally sloping from 95 to 90 feet above mean seal level (source), and no creeks, rivers, or significant areas of inundation in or surrounding the project site, no major drainage or flooding issues are expected with the adoption of the Hayward BART TOD Plan.

Using the National Resources Conservation Service's (NRCS) Web Soil Survey, the soil types on the Hayward BART TOD project site have been identified. After doing a complete soil identification of the entire project site, it is evident that 100% of the soil on-site is composed of the Danville Silty Clay Loam. This soil drains well, with no frequent flooding or ponding, and has an approximate depth to the water table of 80 inches (NRCS Web Soil Survey, 2010).

HWQ Impact-1:

No significant impact to the drainage on site is expected through the implementation of the Hayward BART TOD. However, since the proposed Hayward BART TOD Development Plan changes less than 50% of the previous impervious surface area on site, the proposal must abide to the City's Municipal Code. According to Hayward's Municipal Code, the development "…shall include Stormwater Treatment Measures sufficient to reduce water quality impacts of urban runoff from the increased or replaced portion of the site for the life of the project" (City of Hayward Municipal Code, 2011).

HWQ Impact-2:

There is no expected significant impact to the local drainage system due to the project site's generally flat topography, well-drained soil, and distance from creeks, rivers, or significant areas of inundation or ponding.

LESS THAN SIGNIFICANT IMPACT!

Issues, Discussion and Supporting Information Sources	Sources	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY. Would the project:					
e) Substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial flooding onsite or offsite?				X	

4.0 CONCLUSION

Based on the proposed elements of the Hayward BART TOD Plan and the associated environmental impacts to the City and its surroundings, the project is deemed an adequate fit for the project site and the City. The site currently consists of vacant land, BART parking space, and underutilized space just north of the BART parking lot. The view impairment of the project is low, as there are few, if any, significant visual resources that the Hayward BART TOD Plan would inhibit. The only potential aesthetics issue associated with the project is the blocking of City Hall from the west and northwest portions of the project site, as the proposed implementation of the Performing Arts Center and mixed-use buildings could potentially impede a previously enjoyable view of the building. The architecture, landscaping, and other design elements of the Hayward BART TOD would have to comply with the City's municipal code, General Plan, and Design Guidelines in order to complement and enhance the character surrounding the Hayward BART Station and downtown.

Significant impacts to the City of Hayward's air quality are associated with the implementation of the Hayward BART TOD Plan. Increased levels of GHG's, ROG, and NOx are expected due to construction and operational activities, as well as an increase in the number of vehicular trips made to and from the project site. Due to the significance of increased criteria air pollutants and GHG emissions from the Hayward BART TOD project, an Environmental Impact Report is required.

The relatively flat topography of the project site and lack of significant watersheds in/surrounding the Hayward BART Station give the site a less than significant impact to the associated hydrology and water quality. However, a small portion of the project site (BART parking lot) is located in a 500-year floodplain, with an annual flood chance of 0.2%. Although a flood is not likely to occur, the mixed-use building in this area must comply with the City's Municipal Code's requirements of elevating the structure above the floodplain level. Increased impervious surface area is expected throughout the project site, and has potential to cause increased drainage on-site, and on the adjacent streets and sidewalks. Therefore, it is required by the City's Municipal Code and California Regional Water Quality Control Board, San Francisco Bay Region Municipal Regional Stormwater's NPDES Permit to: implement the project into the stormwater drainage plan, provide Low Impact Development (LID) techniques, and utilize "…landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, minimizes the use of pesticides and fertilizers, and incorporates appropriate sustainable landscaping" (California Regional Water Quality Control Board, San Francisco Bay Region, 2011).

The Hayward BART TOD project has great potential to be an asset to the City of Hayward. Using sustainable planning and development techniques, the Hayward BART TOD Plan can become the cornerstone of sustainable development in Hayward. Assessing the associated environmental impacts of the project is the first step in fabricating a successful development plan for the area surrounding the Hayward BART Station. Balancing the needs/goals of the City, its residents, and protecting/enhancing the natural environment of Hayward are of uttermost importance for future development in Hayward. The Focused Initial Study for the Hayward BART TOD Plan, is an example of such development techniques, and should provide the City with a better understanding of its associated impacts to the City and its environment.

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