



HAYWARD AREA PLANNING ASSOCIATION

College Heights

The Rebirth of the Walking Neighborhood Killed by the Car

Hayward Area Planning Association

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The Vision

A historic quarry, located in the Hayward foothills near Cal State East Bay, is the right place for this project: a walkable neighborhood. Hayward Area Planning Association (HAPA) proposes College Heights on the 29.6-acre site with creek habitat preservation, the Foothill Trail, 732 residential units in a walking area, a Village Center, and parking in a podium below the walking area. The Village Center that fosters community building would include a Village Square, Community Center, The Corner Store, The Café, e-bike parking, resident services, and Village Bus service to the University campus and downtown Hayward and BART.

We have six goals:

Affordability. Lower costs for housing, energy, and transportation.

Sustainability. Reduced greenhouse gases and pollution, less loss of farmland, habitat, resources, and water; advanced passive and active energy systems.

Mobility. Strong Transportation Demand Management supports greatly reduced car use with high mobility and living without car ownership.

Health and Safety. A cleaner, safer environment with more walking and recreational opportunities.

Good design. Attractive streetscapes and facades; a visually interesting architecture.

Community. The Homeowners Association has professional management and involves residents in governance and community activities while preserving privacy.

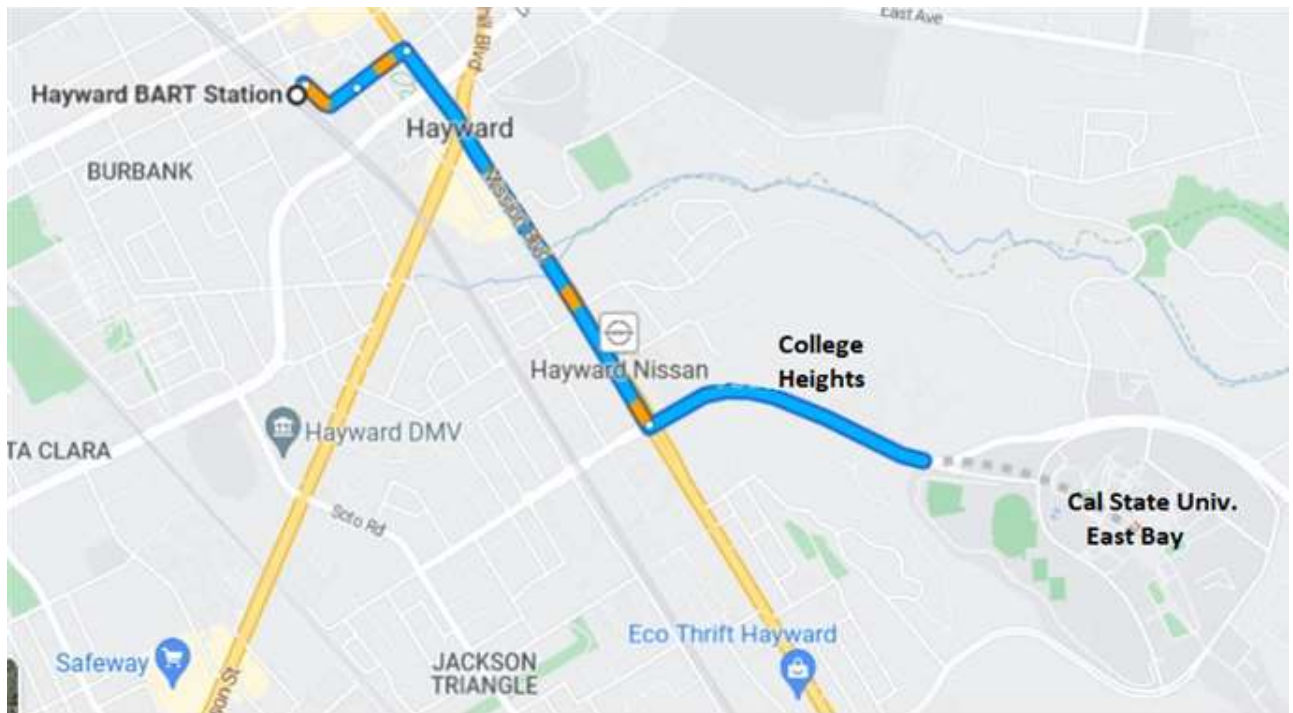
College Heights would have the look and feel of a traditional walkable neighborhood. The project pulls together proven but often isolated ideas into an integrated whole. College Heights would be a community, not just a housing project; it would be the walking neighborhood otherwise killed by the car.

“College Heights proposes that for the first time in Hayward's history, people be given a chance to live without being forced to own a car, to save money, and to live more sustainably.”

The Site

Location

The site is located about 1000 feet east and uphill from the intersection of Carlos Bee Boulevard (Bee) and Mission Boulevard in Hayward, California on the way to Cal State East Bay. The campus is half a mile further up Bee. The site is accessible by walking from the dead ends of Overlook Ave. and Palisade St. See Area map and Village Bus route in blue below. The property is owned by the City of Hayward with one very large parcel and one very small parcel. The City intends to sell the land for development.



Property Ownership				
Parcel number	Location	sq ft	acres	Zoning
445-0180-001-00	"Overlook Ave" North Palisade St.	1,281,505	29.42	Sustainable Mixed Use
445-0170-020-06	1175 Overlook, lot at Palisade St.	8,652	0.20	Sustainable Mixed Use
	TOTAL	1,290,157		

Planning Tools

R&R Surveying did an aerial survey with contour lines at two foot intervals, property lines, and dozens of other layers of information we used in Design CAD research. TERRASEARCH (now AGS) prepared a Preliminary Geologic Hazards Evaluation and added layers to our aerial survey.

We downloaded parcel (APN) maps from the Alameda county assessor's office.

We consulted with Lea & Braze Civil Engineering, particularly Jim Toby, a partner in the firm. They prepared many analyses for us: an AutoCAD cut and fill volumes analysis, phasing of site development, site development costs, wet and dry utilities cross sections and specifications, fire and disability compliance, storm water regulation compliance for the State Water Board with underground storage and metered release into the creek and storm drains, slope and drainage, City of Hayward right-of-way requirements like maximum slope and minimum width, utilities, and general feasibility, culminating in an Engineer's Report. Lee & Braze determined a precise grading limit for the buildable area. The limit is particularly important on the north and west, where a steep slope starts down to Crevice Creek and Redstone Place. The top of the grading starts just short of the steep slope and descends south to Palisade Street.

We used Design CAD and Excel to design floor plans and the site plan. The spreadsheet "CH parameters.xlsx" has tabs with

- A proposal by Dave Jacobson (Encore) for a rentals project with unit types, rents, NRSF (net rentable square feet), and ROI (return on investment)
- Unit types, unit counts, and unit sizes, unit dimensions, stories, the increments in square feet among the building types
- Estimate of units based on walkway lengths, frontage used by each unit type, and depth of lot needed by each unit type
- Table with Unit type, unit area, unit count, % of units, total area, bedrooms, and total beds
- Various site dimensions
- Existing Conditions
- Site Areas
- Floor Plans
- Parking Podium Dimensions

Existing Conditions

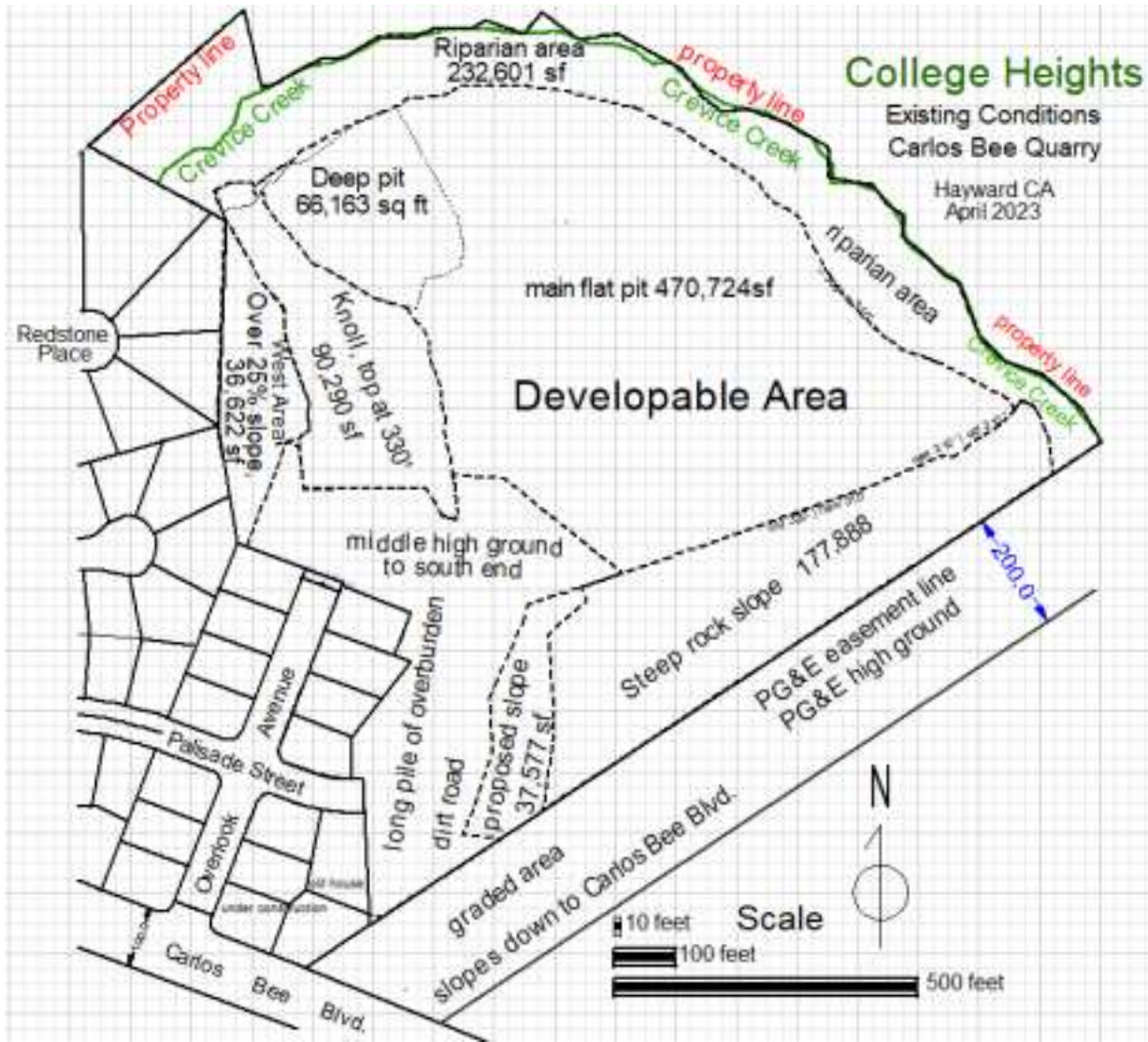
The original project name was Quarry Village, and the name still has its partisans. The ultimate name is to be decided by what sells the best. The site has 29.63 acres and features steeply-sloped open space perimeters around most of the developable area, giving the project strong geographical separation from adjacent land uses. The north side of the site has a long arc of a heavily-wooded deep ravine with "Crevice Creek," an unnamed drainage on USGS 7.5 minute maps. The creek starts in the old Highlands by Dobbel Avenue, is buried under a Cal State East Bay parking lot, comes out into the open on the west side of Campus Drive, goes on the north side of City View Apartments and the quarry and down to Mission Bl. Near Mission Bl. It goes underground and drains into Ward Creek, also underground. North of the creek is a single-family neighborhood along Highland Boulevard

Existing Conditions	sq ft	acres	percent
Undevelopable Area			
Crevice Creek Riparian Corridor. Ravine, creek on north side	230,000	5.28	17.8%
Steep Cut Slope on east side, existing	176,940	4.06	13.7%
Steep Rock Slope on east side, proposed	36,500	0.84	2.8%
West Area. steep drop off and slope over 25%	35,930	0.82	2.8%
Undevelopable	479,370	11.00	37.2%
Developable area			
main flat pit	470,724	10.81	36.5%
deep pit, northwest corner	66,163	1.52	5.1%
Knoll	90,290	2.07	7.0%
from middle high ground to south end	183,610	4.22	14.2%
total developable area	810,787	18.61	62.8%
Total property	1,290,157	29.62	100.0%

On the east side of the site is a steep rock slope left by quarrying, a part of which will be recontoured. Further east is a PG&E utility corridor 200 feet wide and then comes the existing City View Apartments. The site narrows down to the south, stopping short of Bee. On the west side, the site connects to Palisade Street and then drops down steeply to the single-family neighborhood on Redstone Place well below the site.

The limited access and geographic buffering would make College Heights a community with its own distinct identity and ambiance.

The developable area within the site is 18.61 acres. The large flat rock floor of the old quarry dominates the site. The narrower south side has higher ground and a long pile of overburden left over from quarrying. On the west side is a knoll with views of the Bay and the quarry floor.



The Site Plan

The Site Plan Land Uses are the undevelopable area and the buildable area. The undevelopable area, already shown above under Existing Conditions, consists of a large riparian area on the North, a rocky slope on the East side, and steep land on the West side. The developable area consists of housing, walkways, pocket parks, the Village Center, and a large regional and recreational trail, The Foothill Trail. The walkable areas are on top of a podium, with private parking underneath. The podium is a parking structure one level high with a roof on which the project is built.

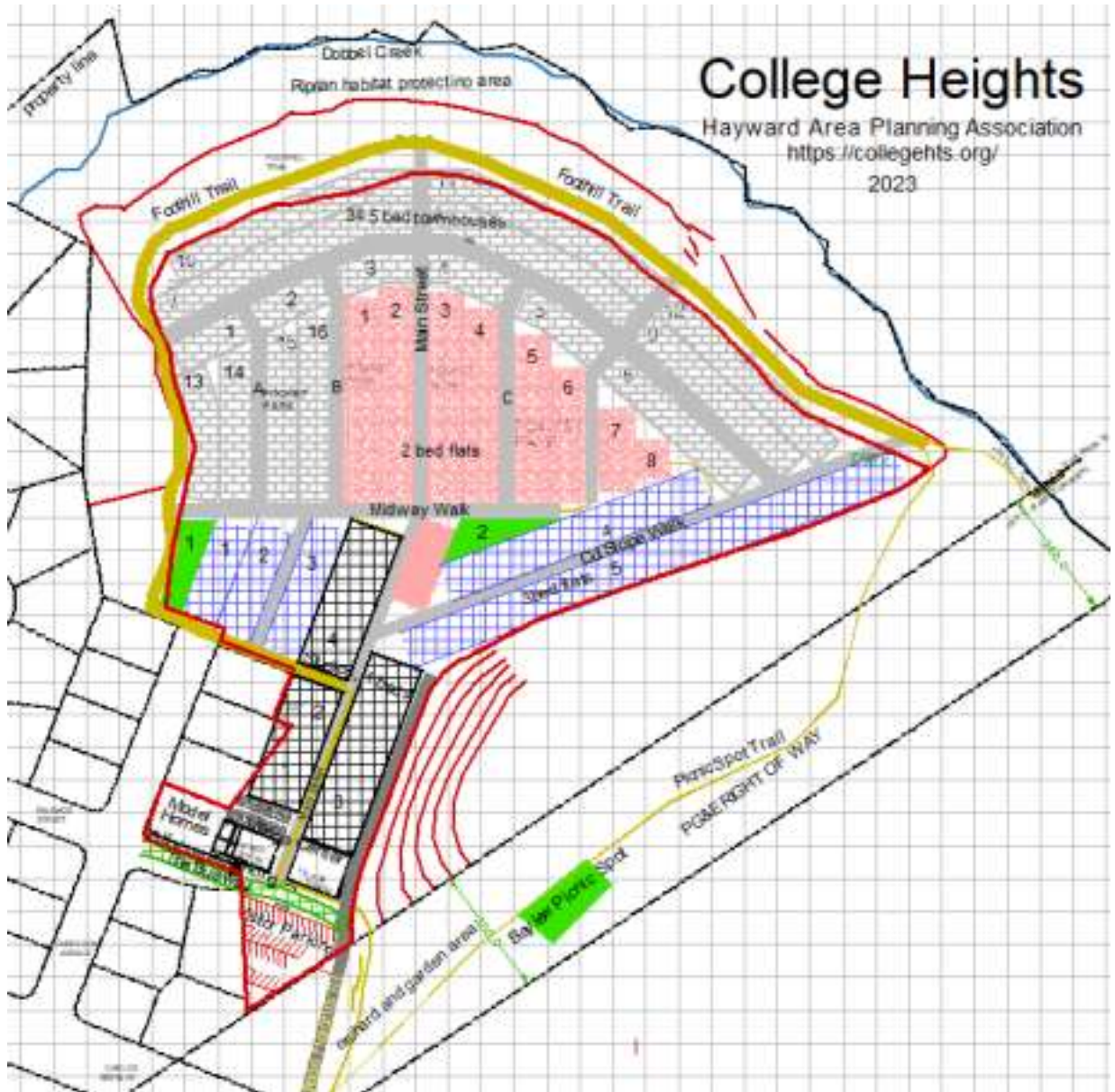
There is a need for public parking, but it needs to be kept out of the walking area. We are planning a small public parking lot south of Palisade St. where it is close to the Village Center without interfering with walking. There is also a need for public car parking. Public cars are car share, car rental, taxi, and ride share (Uber, Lyft), and can be used for the same purposes as private cars. Public cars could use the bus lane and 10 parking spaces by the Community Center.

The PG&E corridor on the East side would have an access road to the parking, CH Avenue. Palisade St. would extend to the avenue as a busway. The PG&E corridor near Bee would also have a community orchard and garden and would compost organic waste from the project.

College Heights would have a new “T” intersection with traffic signals on Bee. A new street, College Heights Avenue, would cross the PGE right-of-way (ROW) to reach the parking. The intersection would accommodate all turning movements. For eventual design of the podium, it would be rotated and elevated to optimize for replacing cut and fill. It would have the same 2% slope as the surrounding fill to reduce costs of hard rock grading.

Project area acreage

Project Area Acreage	sq ft	acres	percent
Foothill Trail	127,730	2.93	16%
Model Homes	8,652	0.20	1%
Residential lots	474,579	10.89	59%
4 pocket parks	11,872	0.27	1%
Walkways	122,344	2.81	15%
Village Center	20,566	0.47	3%
Center parking	13,807	0.32	2%
Busway	6,720	0.15	1%
Landscaping	7,717	0.18	1%
College Heights Avenue	16,800	0.39	2%
Total	810,787	18.61	100.0%



S. Lewis and A. Weinberg, 2023

The PG&E right-of-way

PG&E property has an easement for a road from Bee to the property. The PG&E property is a power line right-of-way 200 feet wide. We would also work with PG&E to get a small area for a community orchard and garden, and for the Foothill Trail at the north and the south ends.

PG&E areas	sq ft	Acres
busway on PG&E	6,720	0.15
return to grade graded area from new rock slope	5,790	0.13
Community garden and orchard	20,000	0.46
Foothill Trail easements, north and south ends	3,354	0.08

Floor Plans

One philosophy of College Heights has been to plan for people in general—all kinds of households, renters, owners, all ages, all incomes, all ethnicities, and all kinds of families. Large houses that upper income people tend to want are not included, so that the largest unit is 2,112 sq ft. Rentals and condominiums tend to be small, but we wanted to also serve the for-sale market, so we included larger units typical of single family detached houses. The unit sizes mostly increase in roughly equal increments. We anticipate that the major demand will be for two bedroom flats, so we propose a smaller flat with one bath and larger one with two. We also created a three bedroom town house with the third bedroom being over-sized and on the ground floor with flexible uses, such as an auxiliary unit, home office, work room, family room, rec room, playroom, study, guest room, storage, or even as a bedroom.

We made estimates for eight unit types: studios, one-beds, small 2-bed, large 2-bed, 3-bed flat, and three-, four-, and five-bed townhouses. The floor areas of each type were based on a spreadsheet supplied by Encore and on previous research on townhouses. Floor areas are gross outside dimensions, not inside livable area that excludes walls and reduce area by about 5 to 8 percent. Floor plans of the same type all have same depth, 32' for studios and one beds, 38' for 2 beds, and 32' for townhouses.

The floorplans would accommodate bicycle parking in or by the units and provide drop box deliveries.

Studios and One Beds

For the two smaller units, the studio and the one bed, the depth is 21 feet.

Main rooms need sunlight and so cannot be too deep. There are a limited number of rooms that do not need sunlight— stairways, hallways, closets, kitchens bathrooms, washer/dryer/linen. The studios and one beds are the only types small enough to have just one window wall.

The logical layout was to use hallway buildings with units left and right along the hallway, with the same efficiencies of rectangles for more units per length of hallway. The studios and one-beds have the same depth of 32 feet. The studios are 16 feet wide with 512 square feet, and the one-beds are 22 feet wide with 704 square feet.

Small and Large Two Beds

The 2-beds are laid out as a sixplex with three stacked flats on either side of a staircase serving both sides. The overall cross section for the 2-beds has 15 feet of backyard, 38 feet of building, and two feet of setback from the walkway, for a total of 55 feet.



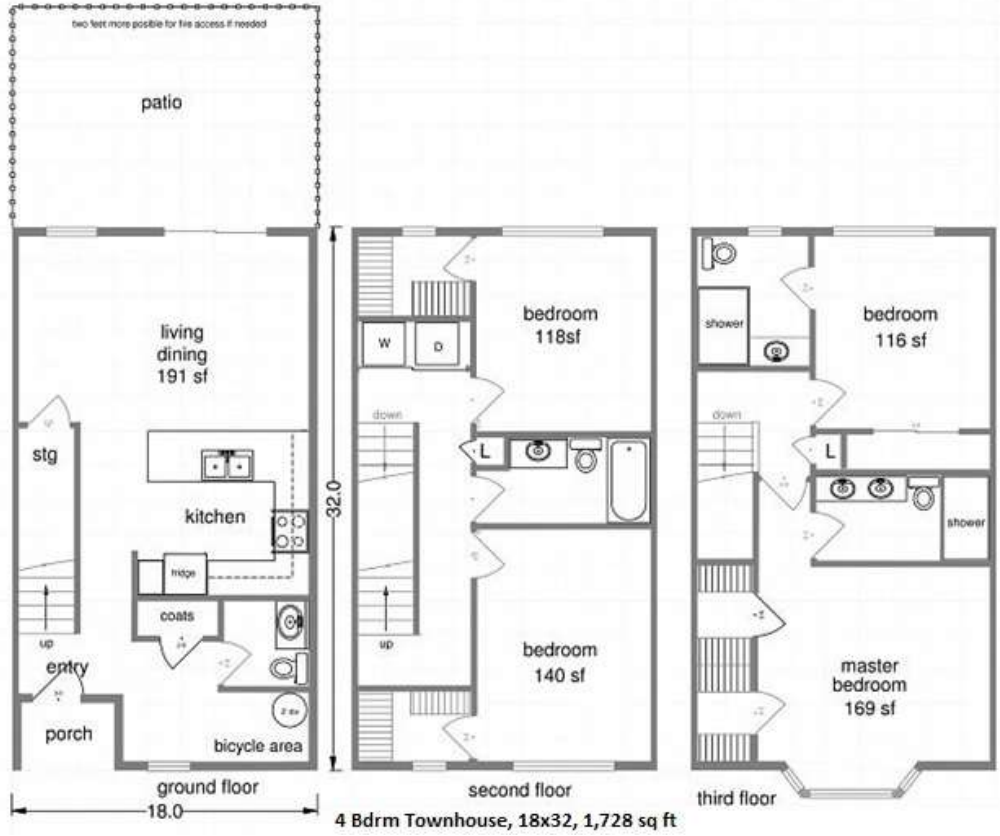
Three-bedroom: Flats and Home-Work Townhouses

The townhouses are big enough to go to three stories within the unit. The three bed townhouse is 16 feet by 32 feet for an area of 1,536 square feet. The living-dining-kitchen area is on the second floor, allowing the first floor to have a room that is very large and can be considered a flex-space for non-bedroom uses, like a home office or workshop.



Four and five Bed Townhouses

The four-bed townhouse is 20 by 32 feet for an area of 1,728 square feet. The five-bed townhouse is 24 by 32 feet with 2,112 square feet, which is typical for a detached house but large for a townhouse. It could be revised to 22 feet wide without changing the overall conclusions.



Floor Plan Type Dimensions

The unit type increments are roughly equal. We anticipate the demand for two beds will be the biggest, so we have two types: a larger and a smaller, with a size difference of about one room. Also, the three bed townhouse is significantly larger than the three bed flat because it has a large flex room as the third bedroom.

Unit types	width	depth	floors	sq ft/unit	sq ft increments
Studios	16	32	1	512	base
1 bed	22	32	1	704	192
2 bed small	26	36	1	936	232
2 bed large	30	36	1	1080	144
3 bed flats	34	40	1	1360	280
3 bed THs	16	32	3	1536	176
4 bed THs	18	32	3	1728	192
5 bed THs	22	32	3	2112	384

Site Plan Density and Unit Count

The unit count was estimated based on the depth and width of the lots containing the units.

The studio and one bed units are in hallway buildings and have narrow widths, which provide the most access for the least amount of linear walkway and hallway distance. The depth of the studios and one beds is shown in the table below.

Studios and One Beds Depth	Feet
back setback	10
depth of front units	32
hallway	4
depth of rear units	32
Front setback	2
total	80

The depth for the six-plex 2-bedroom units is two feet of setback, 38 feet of building, and 15 feet of backyard, for a total of 55 feet.

The depth for the 3 bed flats is 2 feet of setback, 40 feet of building, and 15 feet of backyard, for a total of 57 feet.

The depth for the townhouses is 2 feet of setback, 32 feet of building, and 15 feet of backyard for a total of 49 feet.

These four depths of lot were implemented as double lines along the walkways.

Next we considered the width of the lots and divided the width into the length of the double line. For example, if a unit type were one unit per 18 feet, and the walkway length was 180 feet, we estimated the number of units at 10. We had 35 walkway lengths yielding an estimated unit count of 732. The estimate included a reduction to accommodate four pocket parks at 56 feet each in the six-plex area.

Units Overview						
Unit type	unit area	unit count	% of units	total area	bedrooms	total beds
Studios	512	24	3%	12,288	1	24
1 bed	704	181	25%	127,104	1	181
2 bed small	936	97	13%	90,819	2	194
2 bed large	1080	97	13%	104,791	2	194
3 bed flats	1360	110	15%	150,195	3	331
3 bed THs	1536	80	11%	123,072	3	240
4 bed THs	1728	108	15%	186,432	4	432
5 bed THs	2112	35	5%	74,496	5	176
Total/average /per cent	1,187	732	100%	869,196		1,772

The density is based on the buildable area, which includes the Village Center, but not the Foothill Trail. While the density is high by US standards, it is actually a middle-level density. The population density of 114 per acre is more than enough to achieve walk-in purchasing power to support a small store and café and the Village Bus.

Density	developed area sq ft	acres	number	density per acre
unit density	674,405	15.5	732	47
population density	674,405	15.5	1,772	114

Village Center

The Village Center would be located on the north side of the Palisade St. extension at an elevation that provides easy access to the units. The Village Center consists of a Village Square, a Community Center, The Corner Store, Café, the busway and bus stops, e-bike parking, and public parking for visitors, trail users, and café patrons.

The Village Center would have:

The Community Center

The Community Center would have four floors:

Fourth floor: manager apartments, HOA office.

Third floor: The Village Café with a balcony overlooks the Bay Area, meeting room/fitness center small kitchen, small locker room. **The Café** has sweeping views of the Bay, Mount Tam, downtown San Francisco, and down the peninsula to



San Jose. Ideally, it could somehow be a combination of coffee shop, bakery, pastry shop, café, ice cream parlor, restaurant, pub, takeout, and delivery.

The **second floor** is level with the walking area. It has a lobby, ATM, restrooms, HOA service desk, small library quiet room.

First floor: childcare, bicycle rental and repair shop, minivan and electrocart parking.

The first floor is not a full floor because it is on a slope with half underground. The entrance is from the downhill side on Palisade Street.

The Corner Store. The size of the project based on our early research was too small to support a grocery store, but we believe now that it is large enough to support a “Corner Store,” because it would have a very high “capture rate” of the people living in the community because of the extra time it would take to reach a competing store off site. (See travel time budgets below.) It would be about 44 feet by 34 feet and 1500 square feet. We put it on the corner of the Village Square and Main Walk.

E-bike parking is located above the Community Center.

The Busway: See The Village Bus.

South Parking is located south of the busway with access from CH Ave.



The Village Square would be a place to meet friends and visitors or relax in warm weather. It would have sitting benches, flowers, and native trees (redwood, live oak, laurel, sycamore, buckeye) in the corners. A small circular fountain in the center would be shallow and use recycled water in summer and be dry in winter. A fountain with a small spillway would have a water shooting device (smaller than the Bellagio) used in hot weather.

Open Space and Trails

The unbuildable area includes three open spaces: The Crevice Creek Riparian Corridor on the north, the rocky slope from the old quarrying on the east, and the steep slopes with a small old quarry cliff above Redstone Place on the west. Within the buildable area are the Foothill Trail and the pocket parks. In addition, the south facing slope of the PG&E right of way would have a kitchen garden, orchard, and community garden.

The Crevice Creek Riparian Corridor

By far the major area of open space with 10.6 acres is the riparian corridor that arcs over the north part of the property. It is natural and wooded with very steep slopes going down to Crevice Creek. It would be protected by a Geological Hazard Abatement District (GHAD), a state entity with localized districts with the function of owning, managing and maintaining open space. The GHAD would own the area with responsibility for conservation and maintenance and have an assured source of funding.

The riparian corridor would be annexed into the Hayward GHAD, which would protect the habitat from public intrusion. The GHAD would remove trash from the creek bed and slopes and restore the area. Information on the existing Hayward GHAD can be found at <http://haywardghad.org/>

The Regional Foothill Trail

The Regional Foothill Trail is planned to be five miles long and run from Foothill Blvd near I-580 in Castro Valley down to Industrial Blvd by Mission Blvd in South Hayward. It follows the route of the old State Route 238 Bypass proposal, now abandoned, resulting in surplus right of way, including the quarry site. The trail crosses the Ward Creek Greenbelt and its trail from the municipal swimming pool and band shell up into the high hills. The Foothill Trail then crosses Highland Blvd, just west of the traffic barrier, crosses the creek and College Heights, and goes south to Garin Dry Creek Park and Industrial Parkway.

The Crevice Creek Crossing

The trail crosses Crevice Creek from Highland Blvd to College Heights on PG&E property. The riparian corridor is **extremely steep** and requires a bridge to cross. The trail and bridge would be very narrow to minimize the impact on habitat and to enhance the feeling of closeness to nature. The bridge would span about 160 feet. The tread would be a foot wide, similar to the trail on the Cal State East Bay Research Foundation property on the south side of the campus, shown in the pictures above.

The creek crossing needs security gates on Highland Blvd and at the entrance to College Heights. The area is remote and difficult to monitor. There is a need to protect against threats to sensitive habitat and to the security of residents of the Community. The crossing would be closed at night with gates that allow exit and with wireless CCTVs monitored by the HOA in coordination with the GHAD, HARD and PG&E.

There would be a trailhead on Highland Blvd where there is room for ample new parking for trail access. The trail would go down a slope to the Crevice Creek bridge.

PG&E, the GHAD, and the Hayward Area Recreation and Park District (HARD) would agree on how to manage this section of trail.

The College Heights Foothill Trail

The Foothill Trail would cross through the site and, at an average 20 foot width, have room for many recreational features. It would be an asset for residents and a way for new people to learn about the project. It would accommodate a parcourse, a picnic area, outdoor games, bocce ball, pickle ball, seating overlooking the Bay, planting buffers, and native trees and plants. The trail narrows as it comes through the project and the Village Center, making it easy to drop into the café.

College Heights would build the Foothill Trail in compliance with the City's plan in the SD-7 Overlay Zoning and the HARD Trail Plan.

The HOA would manage the trail based on a trail-use easement and an agreement with the City and HARD to meet specific requirements for public use during daylight hours. HOA management would save taxpayer money. Residents and trail users would have access to onsite HOA managers to deal with problems quickly. HOA management would provide security for residents and trail users. A single management avoids needing to coordinate between the HOA and HARD and allows the HOA to manage the trail and adjacent landscaping at the same time. The HOA has an incentive for good management as part of the value of the property.

The trail would be wide enough to serve as a fire access road. This fire access road would connect into Overlook Ave and would tie into the walkways, meeting fire department requirements.

The Picnic Trail

In addition, within the project site, the project would build the Picnic Trail, climbing up from the Village Center up to a picnic spot high enough to have a spectacular three-bridge

view of the Bay Area. The trail then gradually descends to the north to come into the Foothill Trail.

Pocket Parks

College Heights would have four pocket parks within the residential area with play areas, tot lots, BBQ grills, and fire terraces. The landscaping would include flower boxes on windows along the main walkway, and an entry monument. The project would use pleasant street lighting on the ground for walking without glare. There would be small decorative statuary (think library lion) and the city logo.

Six Goals



Affordability

Cost of Land

Reduced area for ROW and efficient lot and building design combine to increase the number of units on the same land area, reducing the land cost per unit.

Cost of Right-of-Way (ROW)

Suburban ROW runs from 40 to 56 feet wide. The City of Hayward put out a Request for Qualifications that stipulated an even wider ROW, showing a Roadway Typical Section of 50 feet. CH ROW is all walkways 20 feet wide, reducing land needs from 50 feet by 60 percent.

Cost of parking

Parking and the streets to reach it take up land area and are costly to build.

Of particular interest is the high cost of parking if built within the unit (“parking under”), which gets parking off the street and into the house. HAPA’s analysis quantified these issues, testing various street, surface parking, and parking under concepts. We compared a Cars Plan with narrow streets (36 feet wide; 8-foot parking lanes; 10-foot travel lanes) to a Walkway Plan with walkways 20 feet wide. The areas for parks, setbacks, floorplans, building height and so on were otherwise kept the same. We also considered a plan with parking underneath

with one space per unit for 2-bedroom condos and with two spaces underneath spaces for townhouses. Streets with parking and parking underneath caused a 36 percent reduction in the number of units possible—732 for walkways and 468 for cars.

Construction cost per square foot for parking under is higher than for living space, raising the cost of living space and reducing its area. An analysis of building costs using BuildingCost.net for 2019 found that parking underneath increased costs for a three-bedroom townhouse for the same living space. The unit cost went up from \$460,800 to \$653,400, a 42 percent increase.

CH solves the parking problem with podium parking. First, no land area is taken away from the housing and other direct social uses. Second, stairways down to the parking create a number of access points that are more convenient than a single parking structure. Third, the volume of the parking structure reduced the amount of cut-fill needed. Fourth, residents pay the cost of parking through leases, reducing the cost of living space.

Cost of Lot and building

Linear infrastructure, number of lots and units

Wider lots typical of suburbia increase linear ROW and utility costs per unit. CH lots have row housing with abutting walls or common walls and no side yards and narrow lots, increasing the number of units per mile of ROW and reducing costs per unit for ROW and street utilities.

Double loading

CH has units on both sides of a walkway, reducing linear costs per unit, compared with building on only one side.

Cost of Building construction

Three-story construction is not only efficient for energy but also for construction. Wood frame construction up to five or six stories is less expensive than other technologies as well as being strong, fast, and versatile. Wood frame from three stories up has an optimal cost for amount of living area covered by a roof. CH uses three stories because it is more aesthetically acceptable than higher buildings and avoids the need for elevators. Three story townhouses have become acceptable in the Hayward American market.

Computer-aided design (CAD) will be used to increase efficiencies in construction and reduce waste of lumber and other building materials.

Common chases for co-locating plumbing, electrical, and HVAC.

Common walls of row houses, unlike the exterior walls, can be thinner, using less expensive 2x4 stud framing with no loss of insulation.

Four-square foundations reduces costs compared to building extra corners.

Stairways of some floor plans have turns that deliver people to a central hallway midway between the outside rooms, avoiding the extra space needed by a straight “shotgun” stairway that delivers people to one end and require a long hallway to bring people back the other end.

Two-foot dimensions reduces waste of eight-foot studs.

Simple floor plans minimize the footprint of interior walls within the gross floor area, getting more living space than more complex floor plans with extra walls. The wall area is kept to about five percent of the gross floor area.

These features shown above save about 20 percent on housing construction costs.

Cost of Energy

The passive and active energy systems have high capital costs, but low operating costs with significant life cycle savings, and benefits for the environment. The cost of energy in CH would be lower than typical PG&E energy costs.

More income qualifies for mortgage

The “Location-efficient mortgage” lowers the income needed to qualify for a loan by recognizing that lower mobility costs free up income to pay the mortgage if the lender gives credit for the reduced costs.

The project pro forma

All the costs go into the project The pro forma, the financial analysis of the project.

The tabs of the spreadsheet are:

Overview

Phasing of construction

Absorption rates

Inputs

Summary

Cash Flow

Revenues

HOA Assets

Energy

Residential units

Building fees

Building team consultants

Site improvements

Podium

Project fees

Project team consultants

Land acquisition

Timing Excel functions

The project pro forma is frequently used to test assumptions and to keep up with the best available information on prices. The purchase price for market housing is usually based on comparables. For this project, however, there are no comparables the price was set on achieving an internal rate of return of 20%.

<i>College Heights</i>	total units =	732		
Summary	Project-Wide			
Category - Item	Subtotal	Total		source tab
REVENUE				
Unit sales	\$500,440,285			Revenues
Energy sales	\$22,470,219			Revenues
Subtotal: Revenues		\$522,910,504		
COSTS				
Land Acquisition	\$18,485,769			Land
Project Team	\$3,862,800			Project Team
Project Fees	\$763,562			Project Fees
Podium	\$9,351,803			HOA assets

	Site Improvements	\$15,926,014			Site Improvements
	Land Development		\$48,389,948	9.9%	
	Building Team	\$1,501,416			Bldg Team
	Building Fees	\$23,752,602			Bldg Fees
	Residential Units	\$357,457,346			Res Bldgs
	Energy	\$16,050,157			Energy
	Building		\$398,761,521	81.6%	
	Community Center	\$6,920,000			HOA assets
	Store, van, electrocart	\$100,000			HOA assets
	Village Bus	\$2,300,000			HOA assets
	HOA Assets		\$9,320,000	1.9%	
	Advertising, 16 quarters	\$200,000			Summary
	Model Homes	\$4,581,816			Residential buildings
	Sales Incentives	\$366,000			Summary. \$500/unit
	Sales Commissions	\$9,412,389			Summary. 1.8% price
	Broker Coop Fees	\$5,229,105			Inputs. 1% unit price
	Sellers Closing Costs	\$2,091,642			Summary. .4% price
	Selling Expenses		\$21,880,952	4.5%	
	Property Taxes	\$526,204			Cash Flow. 1.5% value
	Insurance	\$3,660,374			Summary .007% price
	Developer Overhead	\$1,000,000			\$50,000/qtr, 20 qtrs
	Warranty Reserve	\$5,229,105			.01% of unit revenue
	Other Expenses		\$10,415,682	2.1%	
				100.0%	
	HARD COSTS	\$440,378,155	\$488,768,103	100.0%	
	Loan Interest	5.0%	\$4,289,420		Cash Flow

Financial Highlights

Gross costs	\$493,057,523
Net operating income	\$ 29,852,980
Net operating margin	6.1%
Equity investment	\$21,213,747
Maximum Debt Exposure	\$ 45,249,344
Asset cost: Equity plus loan	\$66,463,091
Gross Margin: revenues over asset cost	44.9%
Leverage (LTV)	68%
Equity IRR, (goal seek)	21.3%
Asset IRR	15.2%
First Payout to equity	Yr. 6 Qtr 4
Last Payout to equity	Yr. 7 Qtr 4
Positive Cash Flow starts	Yr. 4 Qtr 1
years of sales	4
weeks of sales	208
Sales per week	3.5

Unit characteristics and prices									
Building ID #	B1	B2	B3	B4	B5	B6	B7	B8	Total
Unit Type	studio	1 bed	2 Bed 1 bath	2 Bed 2 bath	3 Bed Flat	3 Bed TH	4 Bed TH	5 Bed TH	Total
# Units by Type	24	181	97	97	110	80	108	35	732
sq ft	512	704	936	1080	1360	1536	1728	2112	
Total sq ft	\$ 12,288	\$ 127,424	\$ 90,792	\$ 104,760	\$ 149,600	\$ 122,880	\$ 186,624	\$ 73,920	
Unit									
Unit	\$ 330,831	\$ 443,520	\$ 571,410	\$ 646,235	\$ 781,738	\$ 860,160	\$ 939,766	\$ 1,080,369	\$ 683,662
Total unit	\$ 7,939,938	\$ 80,277,120	\$ 55,426,770	\$ 62,684,758	\$ 85,991,231	\$ 68,812,800	\$ 101,494,745	\$ 37,812,923	\$ 500,440,285
Energy									
Energy	\$ 20,950	\$ 21,457	\$ 24,979	\$ 25,436	\$ 31,996	\$ 35,370	\$ 47,596	\$ 48,686	\$ 30,697
Energy total	\$ 502,808	\$ 3,883,658	\$ 2,422,974	\$ 2,467,281	\$ 3,519,506	\$ 2,829,621	\$ 5,140,370	\$ 1,704,000	\$ 22,470,219
Unit plus energy									
Both	\$ 351,781	\$ 464,977	\$ 596,389	\$ 671,670	\$ 813,734	\$ 895,530	\$ 987,362	\$ 1,129,055	\$ 714,359
Total both	\$ 8,442,746	\$ 84,160,778	\$ 57,849,744	\$ 65,152,038	\$ 89,510,737	\$ 71,642,421	\$ 106,635,115	\$ 39,516,923	\$ 522,910,504

The HOA pro forma

The pro forma for monthly HOA dues uses a spreadsheet required by the California Department of Real Estate. It includes income from parking leases that pay for the podium and income from short-term parking charges. There may be income from the café, store, and meeting room. This income reduces the dues and offsets the increase in the cost of the project to pay for building the parking podium. Dues are higher by about \$100 per month because of the cost of the Transportation Demand Management (TDM). Dues to the HOA would run from \$156 to \$204 per month.

There are, however, some complications discussed below under Leases.

Affordability and comparables

We looked at 13 comparable units for sale in Hayward with 2023 prices, the same as in our analysis. We had a sample ranging from 1B to 4B units and we could not find any pattern. The comparables came out above and below our prices with a wide variation of sizes, for example, we found a 4B at \$1,026,000, well above our price, but also one at \$849,000, about the same as our price. We had four comparables for 2B2B that ranged from \$590,000 to \$700,000, with our price high within the range.

Defining comparison, however, is complicated because College Heights provides more amenities and services (spelled

out below) than a typical house, is new construction, and does not provide a parking space by the front door.

Affordability for moderate incomes

Affordability is determined by an analysis following HUD guidelines. The income limit for moderate incomes is 120% of the median income in Alameda County. The guidelines define housing costs as mortgage, property taxes, insurance, and HOA dues. The mortgage assumes 10 percent down, 30 years, and 7.61 percent interest.

The City of Hayward Affordable Housing Ordinance requires that 15 percent of units be affordable to moderate income households.

We found that only studios qualified for moderate income buyers.

We looked into what a lower interest rate could do for affordability. We calculated the housing prices based on 5% mortgage interest rate and discovered that all the units from studios to four bedroom qualified for moderate incomes. Obviously, the interest rates make a huge difference for affordability and vary more than the price of the house, the insurance, or the property tax.

There are also many amenities and services compared with single family ownership. The HOA provides maintenance that a homeowner would otherwise have to do but may not want to do, or be able to do, or would prefer to save the time and expense. Sinking funds cover repainting and reroofing. (Sinking funds are created by some of the dues being accumulated to cover future capital costs.) The HOA takes care of landscaping, litter pick-up, and other day-to-day maintenance. One of the most important advantages of CH is that residents can walk out the door and go on a trip with no need to arrange for anyone to watch the house or take care of the yard.

College Heights and HUD limits						
Moderate income limit is 120% of median income						
unit type	Monthly Mortgage	All Three Monthly	CH Housing cost	H'd size	income limit	qualifies
studio	\$2,104	\$613	\$2,717	1	\$3,437	yes
1 bed	\$2,821	\$774	\$3,595	2	\$3,927	yes
2 bed 1 bath	\$3,635	\$958	\$4,592	3	\$4,417	no
2 bed 2 bath	\$4,111	\$1,065	\$5,176	3	\$4,907	no
3 bed flat	\$4,973	\$1,260	\$6,233	4	\$5,300	no
3 bed TH	\$5,471	\$1,374	\$6,845	4	\$5,692	no
4 bed TH	\$5,978	\$1,489	\$7,467	5	\$6,086	no
5 bed TH	\$6,872	\$1,695	\$8,567	6	\$6,477	no

The table is based on unit type, household size, price, price after 10% down, the current fixed interest rate over 30 years, the resulting mortgage amortization, HOA dues, property taxes, homeowners insurance, total living expenses, the income limit for moderate income. Cost of private car ownership

The discussion above assumes the resident owns a car and leases a space. College Heights is designed to have ample mobility without a private car, encouraging walking, bicycling, transit, and public cars. The project makes it easy to live without a car. If a resident can use the TDM for their mobility and does not own a car, the savings are substantially greater from not having to pay for a car and from not paying to lease a parking space. The average cost of a

car per month is about \$800 but with wide variation. Using the College Heights project pro forma and the College Heights HOA pro forma, I estimated the monthly parking lease at \$60, for combined cost of \$860.

<i>Monthly savings from not leasing one parking space</i>	\$89
<i>monthly cost of car ownership</i>	\$900
<i>\$200 for 8 to 10 local rides per month for public cars</i>	Minus \$200
<i>Net monthly benefit</i>	\$719
<i>Yearly benefit</i>	\$8,639

The cost of public cars would be much lower than the cost of car ownership. If public cars cost a resident \$200 per month, they could save a net of up to \$660 per month. Residents also receive vouchers for health car rides and guaranteed rides home, reducing public car costs.

Combining lease savings and avoiding car costs reveals the full incentive:

The upshot of this is that the lease rate is not a big deterrent to car ownership, but the cost of a car is. For many young urbanities, it's too expensive, unnecessary, and even inconvenient. A large number of people in the central Bay Area rely on walk, bikes, and transit. In short, College Heights has a cost of mobility below that of suburbia, but provides comparable access.

In a larger context, less car ownership has benefits for society: reduced car infrastructure costs and reduced external costs.

College Heights would provide 732 affordable units. The project accomplishes this from dramatic cost reductions in design, from moving parking costs out of housing costs, and from green energy. These savings are much greater than the increased costs of enriched TDMs.

Sustainability

College Heights achieves high sustainability in its buildings, energy systems, landscaping, water use, open space and habitat protection, and reduced fossil fuel use for both transportation and housing. The project would be the most sustainable development built in California to date, reaching the equivalent of a platinum rating by LEED (Leadership in Energy and Environmental Design), which is the highest standard for sustainability in buildings and neighborhoods. The project would also score very high with the Green Building Rating System.

Energy

Energy efficiency results from a combination of passive energy built into the house and active energy for creating thermal energy and electricity. The system supports taking no net electricity off the grid in the course of a year, "net zero," with electrical use in winter balanced by extra electrical generation in summer.

Passive Energy

Heat retention is built into the building envelope. Passive energy design reduces the cost of active energy. It keeps warm air inside in cold weather and hot air outside in hot weather.

Three-story cross section. Three story row townhouses have the best cross section of depth and height for energy conservation. The **depth** of a building is influenced by how far sunlight can penetrate into a room, which, in a row house, is from the windows in front to those in back. Rooms not needing light, like bathrooms, closets, laundry rooms, hallways, and stairways, can be in the center, while living, dining, and bedrooms which need light from the

outside. Room depths in the project range from 12 to 16 feet, with building depths of about 32 feet.

The **height** of all units is three stories and 32 feet high, creating a square cross-section of depth to height. A square building is more energy conserving than a taller rectangular building which loses more heat off the sides, and shorter rectangular buildings lose more heat through the roof.

Solar roof area and living space. The roof area used for solar energy can serve about three floors of living space below. One and two story units have surplus roof area and higher buildings do not have enough.

Insulation. Abutting side walls provide insulation from side-by-side construction. Thicker walls and ceilings can have more insulation. The building code allows 2x6 inch studs on two-foot centers. Radiant barrier roof sheathing can reflect heat both ways, keeping heat inside in winter and reflecting heat outward in summer. The total result of these measures is high insulation, R-30 or higher, depending on cost effectiveness.

Windows and doors. High-efficiency windows avoid major heat-loss or gain. They are high-quality, double-paned, sound-rated windows with Low-E coatings and fiberglass frames.

Tight construction seals leaks and stops warm air from escaping. Tight construction of the building envelope is tested with a blower door based on the amount of resistance to the air pressure.

Heat Recovery Ventilators. Tight construction results in stagnant air and excess humidity, requiring Heat Recovery Ventilators to bring in fresh air. Then, to recover heat, the ventilators have baffles for heat exchange. Recovering heat from the out-going air reduces the ventilation energy requirement by up to 80%. The ventilators also filter dust out of the indoor air.

South windows. Large windows face south with thermal mass on the floor inside to absorb heat from the sun. Sun panels outside increase shade in summer while letting the lower winter sun come in.

Active energy

The underpricing of fossil fuels until recently put solar energy at a disadvantage, but over the last few years improvements in technology, declining prices, new systems made viable by declining prices, concern for climate change, more expensive fossil fuels, and tax breaks have made solar so competitive that there are now supply chain problems.

College Heights does not use natural gas. Electricity for air conditioning, hot water, and cooking is usually more expensive than natural gas, but the system is much more efficient. There is so much efficiency in the overall system that the project is likely to consume 30% less electricity compared to comparable developments.

PV = photovoltaic, conversion of sunlight into electricity. The modules produce direct current (DC), which is converted to alternating current (AC) by an inverter. The modules on the roof would be oriented south and at an optimal angle for sun exposure.

Module = flat panel equipment installed on a roof for PV and thermal energy, also called a panel, collector, or array.

Active energy: thermal

The active energy system divides between thermal-electrical and electrical only. The thermal components are: 1. PV thermal modules, 2. central thermal plant, 3. heat pumps, 4. central thermal storage, 5. distribution pipes, 6. domestic hot water, 7. unit hydronic air conditioning, 8. heated towel racks.

1. PV thermal Modules

PV thermal provides electricity from the top and heat from the bottom. PV thermal is installed on the roof to get heat from the roof as well as the topside.

PV thermal works by day and by year.

By day, PV thermal provides electricity topside and heats water in pipes on the backside and by night in summer it provides needed cooler water.

2. Central thermal plant

The density of the development makes it cost effective to have a central thermal plant using heat pumps and distribution pipes to circulate water among the components of the system. With project wide HVAC (heating, ventilation, air conditioning) for all the units means that the units do not need their own HVAC equipment, saving space. Maintenance of hundreds of unit HVACs is reduced to maintenance of a few heat pumps at the central thermal plant.

3. Heat pumps

Large water source heat pumps using electricity to heat cool water as it moves among thermal storage, PV thermal panels, and the unit. This approach is more cost effective than small heat pumps in each unit and a major reason for the central thermal plant. Air-source heat pumps can heat water by cooling air and cool water by heating air.

4. Central thermal storage

The central thermal storage uses water, which has a high specific heat, that is, it holds a lot of heat relative to its volume. It uses Borehole Thermal Energy Storage, the most cost-effective technology for storing thermal energy. A number of boreholes would be drilled into the granite below the project. Granite is a good conductor of heat and is relatively easy to drill into. A cylindrical design stores new heat first in the center, creating a thermocline toward cooler peripheral temperatures on the periphery of the borehole. Extracted heat is taken first from the periphery, allowing 100% of the injected heat to be recovered. For summer, it works in reverse, with a cold periphery by the end of winter, which is ideal for summer cooling.

5. Distribution pipes

An insulated 4 pipe district distribution system would connect all the thermal components in a closed loop of almost constantly circulating water.

6. Domestic hot water

Domestic hot water uses a small thermal storage tank in each unit to reduce the amount of central thermal storage, heat pumps, and piping needed. The tank meets short term spikes in load e.g. for showers. The tank is about $\frac{1}{4}$ the size of a conventional hot water tank. It uses a "phase change material (PCM)" (consult Wikipedia) that holds and releases heat (from latent heat to actual heat) as it changes phases between solid and liquid. When heated it absorbs heat and melts, and when cooler, it becomes solid and releases heat. They store a lot more heat than water and take up little space. One example is Sunamp's Thermino.

7. Unit hydronic air conditioning

Each room has a small "fan coil" air conditioner. For space heating, a hot water pipe from the heat pumps and heats fins on the pipe. A fan blows air across the pipe. Cooler water returns to the system. For cooling, it works in reverse with cooler water comes in and cools room air and returns warmer water to the system. The system reduces the size of the main distribution pipes and reduces the power needed from the heat pumps.

Air ducts are not needed. See video on fan coil units:
https://youtu.be/6UWEVui1_84

8. Heated towel racks

Towel racks with hot water dry towels and heat bathrooms.

Summer-winter balance

PV thermal provides heat in summer to recharge (reheat) thermal storage for winter, then the cooled storage provides air conditioning in summer. The seasonal cycle starts in spring with thermal storage cooled due to providing warmth in winter. The summer sun heats the water, but, as the modules get hotter, even up to 140°, they get seriously less efficient. As it turns out, cold water significantly increases efficiency by cooling the backside of the module.



The modules yield nearly double the annual electrical energy if operated at a temperature of 41° Fahrenheit. Data based on the Dualsun PV/thermal module reveals that the cooler module produces 911 kWh per module compared to 574 kWh at 50°. The results are especially dramatic during the summer. In July, for example, a module produces 112 kWh at 41° compared to only 74 at 50°. To get the water that cold requires additional cooling of stored water by the heat pumps.

Also, on summer nights the backside cools water, which if needed can be used for air conditioning or for cooling the water for the modules the next day. Hot water goes to central storage until late summer, when the heat pumps kick in as needed to boost the temperature of water going to thermal storage for winter.

In short, the need to increase the temperature of storage water for winter coincides with the ability of the cooler water coming into the PV thermal module to make much more efficient for generating electricity for the purpose.

Sometimes electricity from the grid may be needed, but heating central storage can be put off until off-peak hours when electrical rates are lower.

Active energy: electricity

Cost of PV electricity.

The need for electricity is measured in annual kWh, ranging from 6,000 for studios to 14,000 for 5 bed townhouses. The need in the project is less, based on efficient LED lighting, induction cooktops, and other appliances.

In solar modules, kWp means kilowatt peak, which is the maximum amount of electricity produced during the noon hour, if it is sunny. An installed kWp of one in Hayward produces on average 1,679 kWh (kilowatt hours) per year. Module electrical production is calculated as a percentage below that.

Solar radiation is measured in Watts per square meter. Hayward receives 2,163 Watts per square meter per year, allowing a good estimate of how solar PV energy would work in the project.

PV modules produce direct current, kW_{DC}, shown in the table as kWp and kWh. An inverter converts DC to alternating current, AC, for use in the home.

The average cost of rooftop solar PV for single residential customers in California is \$2.97 per Watt. The current investment tax credit would reduce the cost to \$2.20 per Watt.

The cost for a larger project would be even lower.¹ We estimate for our pro forma it would be \$1.89 per Watt, far less than for smaller projects.

Electrical costs		\$1.89 per watt				
Unit types	sq ft/unit	annual kWh	cost per unit	# of units	kWh all units	cost all units
Studios	512	6,000	\$11,340	24	144,000	\$272,160
1 bed	704	6,000	\$11,340	145	868,909	\$1,642,238
2 bed small	936	7,000	\$13,230	97	679,199	\$1,283,686
2 bed large	1080	7,000	\$13,230	97	679,199	\$1,283,686
3 bed flats	1360	9,000	\$17,010	110	993,938	\$1,878,542
3 bed THs	1536	10,000	\$18,900	80	801,250	\$1,514,363
4 bed THs	1728	14,000	\$26,460	108	1,510,444	\$2,854,740
5 bed THs	2112	14,000	\$26,460	35	493,818	\$933,316
					6,170,757	\$11,662,731
James Bererton estimate of April 2023 average cost for CH \$1.89/W.						

The need for electricity is measured in annual kWh, ranging from 6,000 for studios to 14,000 for 5-bed townhouses. It is based on less electricity needed for efficient LED lighting, induction cooktops, and other appliances.

The electrical only components are 1. Bifacial PV modules, 2. LED lighting with occupancy sensors, 3. Induction cooktops.

1. Bifacial PV modules

Bifacial PV modules provide electricity for appliances, lighting, plugs, and electronics. Solar cells are combined into solar modules of various sizes.

SunPower, a major manufacturer, has modules that are 61.3 inches by 41.2 inches, with PV cells on top.

The project, however, would use bifacial PV modules, which have PV cells on both sides. The bottom of the module is glass and the module gets reflected and diffused light, with an increase in annual energy collection of up to 20%.

These modules don't lie on the roof; but are tilted up by metal frame mounting racks. Import tariffs do not apply to bi-facial modules, lowering their cost. One such module is the LONGi LR5-72HBD-565M 565W Bifacial module.

An annual energy need of 6.17 million kWh would require 4,555 LONGi modules needing a module-only area of 11,617 m² or 125,000 sf.

2. LED Lighting with occupancy sensors.

LED lighting will be standard. Daylight sensors in rooms will require adequate darkness to turn on the lights. Motion sensors or Passive Infrared (PIR) sensors will turn off lights if a room is unoccupied for too long. These sensors can even differentiate pets from people, supporting different control settings when unoccupied by humans.

3. Induction Cooktops

Induction cooktops are the most energy efficient cooking option and have even faster heating than natural gas, and with better controls. Induction cooktops use much less

¹ National Renewable Energy Lab (NREL), <https://www.energysage.com/local-data/solar-module-cost/ca/>.

electricity than electric resistance cooktops. New induction cooktops² can be specified which include batteries which reduce the connected load requirements while providing high power rapid heating capabilities.³ Electric resistance cooktops are about 65% efficient whereas induction cooktops are around 85% efficient. Children in homes with gas ranges are 42% more likely to develop childhood asthma. (reference required).

Designing and managing the energy system

The components of designing and managing are: 1. Design, 2. Continuous commissioning, 3. Submetering, and 4. Smart thermostats.

1. Design

Solar data for Hayward:

The components of the system have to be sized to balance with each other to achieve the goal of net zero and life cycle cost-effectiveness. Computer modeling using a Balanced Design Approach would be used to get there.

PV thermal vs. bifacial PV. PV thermal PV modules are more needed than the bifacial PV modules. Thermal storage is sized for winter warmth demand, which is much greater than the demand for unit electricity or for coolth in summer. In Hayward over the past three years there were an average of 2920 Heating Degree Days (under 65° Fahrenheit) and only 536 Cooling Degree Days. The need for hot water adds to the total heating demand. Bifacial PV modules are then added to meet the remaining annual electricity demand.

All the components are sized to meet the peak demand.

2. Continuous commissioning

The HOA management coordinates central thermal storage, Bifacial modules, PV thermal modules, and residential needs. The HOA manages heating and cooling loads of the system using “continuous commissioning” to solve operating problems and to optimize energy use. The HOA can see each residence’s energy use and help them manage their systems. Continuous commissioning saves 15 to 45 percent by improving resident awareness, identifying improvements in operations and management, and continuing attention.

3. Submetering

California’s Title 24 law to promote electrical conservation requires electrical submetering. CH would have submeters on every unit and one main meter for the whole project. Individual users would pay PG&E based on the submeter. District HVAC within the project also would use submetering for use of thermal energy. Submetering reports energy and thermal use to computers in each unit, allowing residents to manage their energy use. Residents are responsible for their own energy consumption.

4. Smart Thermostats

A Smart thermostat with occupancy sensors combined with submeters enable residents to save money with efficient energy use. “Geofenced” occupancy sensors can detect when the home is unoccupied and reduce energy use. When the geofencing detects that residents are near to returning home, the thermostat automatically increases energy use back to occupied mode in advance of their arrival. (more detail on occupancy sensors below.)

The cost of active energy is included in two different ways. The table on cost of electricity above covers the cost of project-wide components of the energy system as well as the cost of electricity running the components shown in the table below.

² <https://www.impulselabs.com/>

³ <https://www.channingcopper.com/>

The cost of other components of the active energy system are shown in the table below. The costs run from \$14,106 for a studio to \$31,120 for a 5 bedroom townhouse.

Active Energy

Building (B)	B1	B2	B3	B4	B5	B6	B7	B8
Unit Type	studio	1 bed	2 Bd 1 bth	2 Bd 2 bth	3 Bed Flat	3 Bed TH	4 Bed TH	5 Bed TH
# by Type	24	181	97	97	110	80	108	35
sq ft	512	704	936	1,080	1,360	1,536	1,728	2,112
Thermal 1: PV thermal modules								
	\$8,505	\$8,505	\$9,923	\$9,923	\$12,758	\$14,175	\$19,845	\$19,845
Thermal: 2. Central plant, 3. Heat pumps, 4. Central thermal storage, 5. Distribution pipes: in electrical cost								
Thermal 2: Parking for Central Power Plant								
	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35
Thermal 6: Domestic hot water								
	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Thermal 7: Unit hydronic air conditioning								
	\$38	\$290	\$155	\$155	\$176	\$128	\$173	\$56
Thermal 8: Heated towel racks								
	\$50	\$50	\$50	\$100	\$100	\$100	\$150	\$200
PV 1: Bifacial PV modules arrays unit electricity								
	\$2,835	\$2,835	\$3,308	\$3,308	\$4,253	\$4,725	\$6,615	\$6,615
PV 2: LED lighting with occupancy sensors								
	\$30	\$52	\$78	\$94	\$125	\$145	\$167	\$210
PV 3: Induction cooktops with battery backup								
	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Managing: 1. Design and 2. Continuous commissioning are included in cost of electricity.								
Managing 3: Submetering								
	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60
Managing 4: Smart thermostats								
	\$70	\$70	\$70	\$70	\$70	\$70	\$70	\$70
Cost/unit	\$12,823	\$13,096	\$14,878	\$14,944	\$18,776	\$20,638	\$28,315	\$28,291
Contingency	\$1,282	\$1,310	\$1,488	\$1,494	\$1,878	\$2,064	\$2,831	\$2,829
Cost/unit	\$14,106	\$14,406	\$16,366	\$16,439	\$20,654	\$22,702	\$31,146	\$31,120

Domestic Water Consumption

The project would have low domestic water consumption. It would use EPA WaterSense certified fixtures, e.g., dual flush toilets using 1.6 gallons per big flush, showerheads restricted to two gallons per minute, and washing machines using 14 gallons per load.

Landscaping irrigation and storm water

Using native plants and water conservation, there would be no need for water from off-site for irrigation. There would be no private use of water outside, no over-watering of the yard, hosing off sidewalks, or washing cars. Landscaping is all native drought resistant plants and trees. Irrigation of landscaping will be entirely by storm water and greywater. No potable water would be used.

Storm water is retained on site. The storm water system would meet "C.3" requirements for on-site "bioretention" for a hundred-year storm. Storm water would be stored in retention pipes running under walkways. Water is slowly trickled out through one-inch outlet pipes to percolate to landscaping. If an extremely severe storm occurs, there will be some

metered release into Crevice Creek consistent with historic runoff, or into storm drains. This system is less costly than using buildable land for surface ponds.

Grasscrete. Walkways would have permeable grasscrete, which is porous paving that allows rainfall to come through for irrigation.

Greywater. Rain barrels would retain rain from roofs for irrigation. Sink water would go to toilet tanks. Washing machine water would go to landscaping.

Grey water recovery and treatment is more economical when applied to multi-unit residential applications. A centralized collection system may be designed to gather light grey water from showers, bathroom sinks, and laundry. This water can then be filtered and treated in a central location for re-use in toilet fixtures and for irrigation needs. This can save up to 40% of water and wastewater needs.

Low flow fixtures and low water consumption appliances will also be specified to further reduce the total water needs of the site. This provides an economic benefit to the city as there is a lower per unit requirement to provide water and treat wastewater.

These green water policies greatly reduce sewage volumes.

Transportation

CH reduces drive alone vehicle trips, vehicle miles traveled, vehicle hours of travel, and congestion compared to the suburban alternative.

Heat island effect.

There is less paved area relative to the amount of housing. Less paving and more trees reduce the heat island effect from asphalt.

Greenhouse gases, air and water pollution

Transportation and water systems in CH greatly reduce pollution, fossil fuel consumption, and GHG. College Heights would have no natural gas. Building materials would not have off-gassing formaldehyde. Paints would have low or no Volatile Organic Compounds (VOC).

Resource conservation

As discussed, the housing construction methods minimize waste. Building materials would be sustainable, such as FSC Certified Lumber, which comes from sustainably managed forests and helps to protect old growth forests.

Land conservation, and biodiversity

The plan protects five acres of existing habitat in the Crevice Creek Corridor. The barren quarry floor is replaced with trees and other landscaping, creating new habitat for birds.

College Heights saves agricultural and natural land. It greatly reduces land used per person compared to suburbia, considering not only the lot but also roads, parking, and local commerce. Suburban density ranges from a half person per acre to 12 per acre. College Heights achieves 113 persons per acre, including lots, right-of-way, and local commerce.

Mobility

College Heights is large enough to achieve economies of scale that support mobility without car ownership for its major markets. A number of policies combine to make this possible: short walking distances based on compact development and mixed use (café, store, parks, community center); a fast, frequent Village Bus free for residents, the Village Van, e-bikes, and public cars; unbundling, and parking charges.

Travel Time Budgets

A travel time budget is the time people expect to spend for various trip purposes, broadly divided between short trips for frequently needed goods, services, meals out, and other; longer times for commuting; and longer trips for high-end goods, professional and governmental services, dining out, and special events. Short trips take about 10 minutes median and 15 minutes average and can be walking trips. Anchor trips like commutes run about 25 to 30 minutes on average, and typically use transit and car modes. Longer trips over 30 minutes usually use cars. Cost is usually not important. Each person has their own travel time budget but statistics on large numbers of people can be used for planning.

People decide where to live considering how long it will take to make the most important trips they make frequently. They may not take a job too far away if they like where they are living. They debate the cost of places to live vs. the travel times of those places and optimize among many factors. They may make the decision to move if some travel time becomes too big of a persistent aggravation.

Travel time budgets are more important than mode of travel, distance, or speed. A short, ten-minute slow walk can beat out a long, 15 minute fast drive.

CH is designed for major markets that have travel time budgets met by the project. The project as a whole and its TDMs make sustainable modes faster and more attractive than the car.

Our research on how dozens of different kinds of trips would be made in the project finds them consistent with common travel time budgets.⁴ Travel times for all destinations, from getting to work, shopping, or a cup of coffee, would be comparable to, or better than, those of suburbia.

An important issue is, then, at what point a person can benefit from not owning a private car. The research shows that the major markets living in CH with no car would have travel times comparable to suburbia. They would have all the mobility they need, with economic and environmental benefits.

This is not just theory. At the Vidanta resort at Puerto Nuevo, Mexico, rich people park their cars outside and exclusively walk and ride buses inside. In Back Bay in Boston, European city centers, and many other places show that affluent people are willing to walk a lot.

Transportation Demand Management (TDM)

TDMs are policies that make sustainable modes faster than cars for many trips. They make it possible, even easy, to live without a car. For CH we propose the most effective TDM ever built in California. TDM is usually an anemic add-on that does not work to get more than 5% mode shift away from cars. We believe our TDM strategy can achieve a mode share for sustainable modes of 60% or more. TDM in College Heights includes many features discussed below.

Walkways and walking

The walkways are designed for convenient walkability and fire access. They make it more difficult to reach a car compared to the usual pattern of a car by the front door. These walkways would use a green paving system, grasscrete, to maintain the aesthetic of the Village and absorb water for landscaping.

⁴ Lewis et al., The Mismeasurement of Mobility in Walkable Neighborhoods, Mineta Transportation Institute, November 2000, transweb.sjsu.edu/research/2060.

The walkways are all 20 feet wide with an additional two feet of setback to the buildings for a façade distance of 24 feet. The walkway funnels pedestrians south to the Village Center a short walk away. Stairways on the walkways provide access to the podium. No private cars are allowed on the walkways, only public safety vehicles, moving vans, sanitation, and HOA (Homeowners Association) workers as needed.

In the project, proximity, density, and design make walking a major form of transportation. Walking increases when supported by design, the critical features of which are density, safety, aesthetics, and direct routes which support short walking distances. College Heights tries to balance the need to get people to walk more with their varying reluctance to do so. Five minutes at three miles an hour is a widely acceptable walk time and goes a distance of 1,320 feet. The maximum walk distance from the most remote front door to the Village Center is 1,400 feet. The majority of residents would have walk times under three minutes.

Walking also provides access to the trails, local parks, and the nearby Hidden Hills Health & Racquet Club with a swimming pool above the City View Apartments. The University campus has sports fields and tennis courts which can often be used.

Parking for private vehicles

Residential parking

Amount of parking

College Heights residential parking is limited by Sustainable Mixed-Use (SMU) zoning to a maximum of 1.3 spaces for studios and one bed and 1.5 spaces for two beds and larger, with 1,035 spaces allowed for 732 units. We are planning for less parking, one space per unit, or 732 spaces. The parking area would also have space for stairwells and maintenance.

The Podium

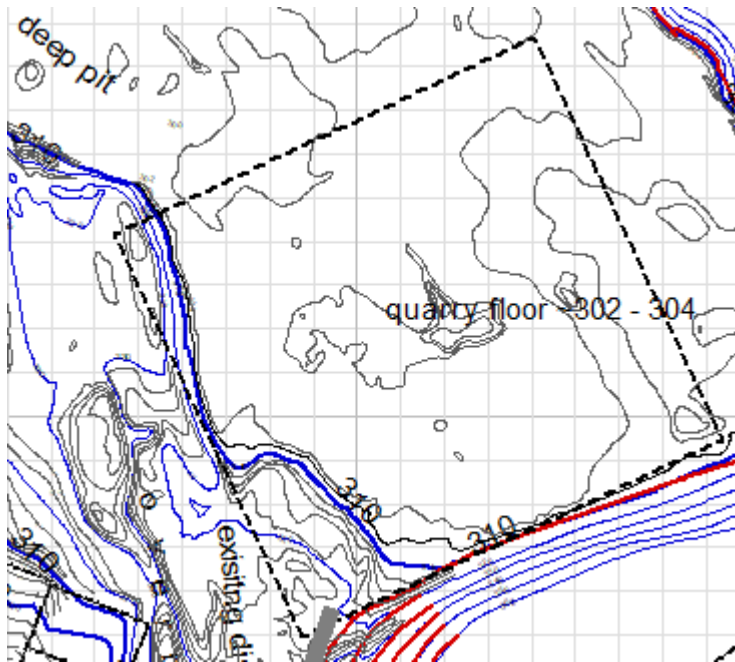
Unit parking will be in a podium accessed from Bee. Parking spaces are 9 feet wide and 18 feet deep for head-in parking. The aisle for access needs to be 20 feet wide. An access aisle with parking on either side is 56 feet wide for two spaces. At a width of 9 feet and a cross section of 56, two spaces take up 504 square feet.

In our analysis, we looked at three ways to provide parking: on the surface, in a parking garage, or in an underground parking podium. We rejected surface parking close to the units because travel lanes 20 feet wide reaching all of the units with parking 18 feet deep plus two more feet on either side for setbacks would take up 261,000 square feet, preempting space needed for housing and putting traffic onto the site.

We rejected a conventional parking structure. A parking structure three tiers high would be expensive to build, preempt 87,000 square feet needed for housing, have inconvenient access for drivers on the second and third tiers, would put drivers at a greater distance from their units, and would be unsightly.

A parking podium was the best solution to maximize living space and provide the most convenient access to the units. The parking podium is shown above in a dotted outline. It has a single level with stairways to access the surface. The podium would be less expensive than a surface structure with three tiers and replaces the need for cut and fill equal to the volume of the podium. It can be located where it best reduces the need for cut and fill.

The quarry floor is gabbro, a kind of granite, which is very expensive to excavate, so the parking structure saves considerable volume of excavation. The podium would be surrounded by fill to the top of the podium.



In a related matter, the overburden of topsoil is valuable and should be preserved on the PG&E corridor for use as topsoil on the podium and surrounding fill.

The podium and its surrounding fill would create a level walkable site that can be developed with no vehicles, no parking, no traffic, and no streets. The buildable area would slope with a 2% grade for drainage with the high elevation on the north and the low elevation on the south. The quarry floor has an average elevation of about 304 feet, and the podium would be 10 feet high with an eight-foot-high

ceiling and two feet of topsoil and foundations. It would have a volume of about 82,000 cubic yards. A civil engineering estimate based on AutoCAD for the College Heights proposal of several years ago required about 115,000 cubic yards of cut, so the podium avoids a need for about two-thirds of the hard rock excavation otherwise needed.

The podium would need about 276,000 square feet of quarry floor. At a cost of \$45 per square foot it would cost about \$12,500,000.

Unbundling

American culture hides the cost of parking, so people do not know what it is. Typically, for-sale housing bundles the cost of parking into the cost of the house, so that homeowners have to buy, and want to buy, the parking with no way to know a separate price. Rentals bundle the parking with the living space. Many renters have to pay for parking whether they need it or not. It is then a sunk cost reducing the marginal cost per car trip, increasing driving, and reinforcing car dependency. It is anti-environmental and anti-economic.

Unbundling separates the cost of housing from the cost of parking so that, added together, they equal the bundled cost. In College Heights, residents would have a choice few can make - not to pay for parking. Notice that it is our car culture habit of language that "not pay for parking" means "free parking." In this case, however, it means not pay, and not park. Unbundling is a great incentive to not own a car and live more sustainably and affordably.

There are four ways to unbundle: full cost, economic cost, market price, and green scamming.

Full cost unbundling includes the costs of greenhouse gases, pollution, accidents, and other costs not paid for in dollars.

Economic cost includes the capital cost of construction and management (lighting, cleaning, maintenance, and security), and managing the underground parking podium.

Market price is what people are willing to pay for a space based on demand or some kind of bidding for leases.

Green scamming occurs when a developer claims to have unbundling but charges so little that it does not cover the economic cost and, as result, the living space cost subsidizes the parking.

Leases

Residents would be able to lease one space and to sublease it to others within the term of the lease. They could also give up the lease with no penalty. Podium spaces would be leased at the economic rate. Our latest estimate is \$89 per month. The spaces will have EV chargers, which would be paid for separately from leases.

Parking pro forma for unit leases			
leases (732 spaces) and central thermal plant (2 spaces) pay for podium			
per space	capital cost	monthly lease	
Capital cost (CH pro forma)	\$12,776	\$90	
Operating cost		\$5	
Economic lease rate		\$95	
operating costs (lighting, cleaning, maintenance, and other			
HOA Revenue from leased parking			
Assume 30 % of owners unbundle 30% of assigned spaces			
After initial lease out, HOA may manage lease rate through bidding			
	monthly		
total unit spaces	732		
70% of spaces =	512		
revenue per month to HOA	\$48,829		
	Spaces	Total Cost	Cost per Unit
Lost revenue at 70% occupancy:	220	\$20,926.50	\$29

Complications

College Heights owners, in effect, have invested in a parking business where they are also the primary customers. As a result, the HOA may eventually get considerable income from parking leases. In fact, it seems likely that the demand for spaces would be too much due to having a parking ratio far below the usual amount.

If there is too much demand at the economic rate, the HOA could lease newly available spaces based on a market rate determined by bidding. Too much demand would mean a willingness to pay a market rate greater than the economic rate. There would need to be a bidding process managed by the HOA. When spaces have no vacancies and leases expire, residents would bid on them. Leases above the economic rate would lower the HOA dues.

On the other hand, if the parking is not leased at the economic rate as planned, the expected revenue will not be there, increasing the HOA dues to cover the shortfall. The HOA may want to lower the lease rate based on achieving 80% or so occupancy. To be fair, it would also have to lower the rate for those paying more. The HOA may also find a market for using the spaces for storage, for non-residents, or other purposes to achieve revenue. The more unbundling works, the less revenue, so it is important for buyers to understand the trade-offs. If, for example, 30 percent of spaces were not leased, the shortfall would impact dues by \$27 per month.

Short-term public parking

There would be public parking off CH Ave. on a triangular lot with about 39 spaces for the café, trail users, visitors, and guests. The HOA would charge a market rate for parking using a modern system like SFPark. The charge could start at \$1 per day. If parking occupancy rose above 80 percent, the charge would increase in 50 cent increments. However, the rate should not fall below the economic rate.

Off-site private parking

The project should try to provide some off-site parking. One area is within walking distance on the south side of Bee on sloped land in the Alquist-Priolo Earthquake zone. Another area would be by arrangement with a car business along Mission Blvd. close to Bee. Some people have a cheap old car they like to use for vacations or weekend trips. They would be able to store a car at market cost and reach it by walking or Village Bus.

Spillover parking

Spillover parking might need to be regulated. It might occur nearby on Palisade St. and Overlook Ave. Spillover parking would occupy spaces needed by fronting homeowners.

Hayward already has several successful neighborhood parking permit programs. Signs warn outsiders that they need a parking permit or cannot stay longer than two hours at risk of towing. Signage for The project would also include information about how they can get access to the project.

The Village Bus

Instead of buying living space bundled with parking space, CH residents buy a home with a small bus system, the Village Bus. The cost of the Bus is shared by everyone through home purchase for capital cost and condo fees for operating expenses. It is a very small system serving a short distance with two small buses and so has a low cost.

The HOA owns and manages the system. The HOA would contract with an operator, a system which is widely used, including by Cal State East Bay. The campus has a shuttle service which is very slow by modern standards. AC Transit buses are oversized, too slow, too expensive, and too infrequent to support travel time budgets. Providing cost-ineffective transit that few ride is not really supporting transit. It is symbolic transit appealing to a naïve public.

Downtown Hayward and the campus are major destinations and activity centers. Many people need to go there but the downtown-campus connection is very poor. Downtown Hayward has City Hall, eateries like Buffalo Bills, Buon Appetito, Acqua E Farina, and The Bistro, the Dirty Bird Lounge, a multi-plex cinema, banks, a big new library, a post office, Books on B, Lucky Grocery Store, liquor store, CVS drugstore, cleaners, the Odd Fellows, a pawn shop, the Historical Society, churches, furniture, and more. B St. is often closed for community events and is there is a Farmers Market every Saturday. The BART station provides access to downtowns in San Francisco, Oakland, and Berkeley about as fast as by car, and with no tolls or parking problems.

The route. The route connects Cal State East Bay to BART via the busway. Going from campus to BART, the route starts from a stop between the Music Building and Robinson Hall. It goes down Bee and turns right onto the new CH Avenue, left onto the busway and left down Overlook back to Bee. It then goes right on Mission, left on Fletcher, right on Watkins, left on B St., and into BART. If the Loop is reformed, it would go up Mission and left on B.

Going from BART to campus, the bus exits BART on C St., then right on Mission. There should be a left-turn from Bee onto Overlook coordinated with the signal at Bee and CH Ave. just a few feet up Bee.

The stops. Bus would make 5 stops along the way. It would have bus stops on the busway at the Village Square. Any alternative stop on Bee would be further away and require climbing a hill. Traffic on the busway would be limited to the Village Bus and public cars. It would have very little traffic. The busway combines the shortest possible route from campus to BART with the greatest convenience for pedestrian access from CH. The stops give access to businesses on Mission Blvd. and downtown Hayward, and support transit-oriented development along the route.

To compete with the car, the Bus would be fast, frequent, and free.

Fast

The bus would take two minutes from inside the Cal State East Bay campus (0.70 miles away) to the busway, and six minutes from there to reach the entrance to Hayward BART (1.53 miles away). These short distances and times support ten minute headways and would integrate BART, downtown Hayward, College Heights, and the campus.

The buses would use numerous rapid bus technologies to make it fast. It would be small (30 feet) for nimbleness in traffic. A 30 foot bus can accommodate up to 30 passengers. They would be electric vehicles, with electric motor torque for climbing Bee at 40 mph and fast acceleration in traffic. They recover energy when braking, especially when going down Bee. The system could use two Movitas electric buses (28'x8') for no emissions, regenerative braking, hill-climbing speed, low fuel costs, and low maintenance costs.

The buses would have traffic signal priority preemption and right-lane queue jumping at Highland Blvd. and Sycamore Street. Queue jumping means that all the lights turn red for about five seconds and the bus uses the right turn lane to go straight through and get ahead of traffic.

The Bus would have wide doors, a low floor, a raised sidewalk at door level for fast, no-step boarding, guided docking to get very close to the stop, and no fare collection. Fare enforcement would be by "proof of purchase," where an inspector checks tickets on a random basis, as is done in Europe. The driver does not collect fares, fares would be paid via cell-phone app or other electronic method. These features speed up dwell time to one or two seconds.

Frequent

The buses would run every ten minutes most of the day.

Free

The HOA would provide an Ecopass for all residents paid by HOA dues. Ecopasses could be purchased by others. The bus would serve not only residents but provide transit access for guests, visitors, trail users, café patrons, and the campus. Occasional riders would ride free; frequent riders would be encouraged and eventually required to purchase an Ecopass.

A Bus bridge

The village bus would coordinate with a campus-sponsored bus, the Beeline Bus. There would then be a bus every five minutes creating a bus bridge between BART and the campus. The campus would provide a class pass for students and other Cal State people, paid for by parking fees, parking funds, and privately. Our research shows that Cal State East Bay can support a two-bus system with 10-minute headways, and development along Mission Blvd.

can support one more, with all three, The project, campus, and Mission, providing service every four minutes—a bus bridge supporting non-car mobility.

Other TDMs

The Café and Corner Store

The Café and Corner Store within easy walking distance are land uses that act as TDM by walk traffic replacing car traffic to competing venues that take longer to reach. They would be easily reachable by about 1,800 residents --typically a five-minute walk. The Foothill Trail comes by the café, inviting trail users. Early walkers could start their day with a coffee and a Danish. Patronage would also come from nearby neighbors, bus access, and public parking.

Wheelchairs, Deliveries, etc.

Some disabilities need a single level unit and no step entry to accommodate a wheelchair. One-third of the studios, 1-beds, and 2-beds have this. Some disabled people in suburbia have to use a wheelchair to reach a car while in CH the wheelchair can make the whole trip. Wheelchairs and similar devices would be part of CH mobility with the advantage of reaching more destinations in a shorter distance. The other devices include bicycles, tricycles, skateboards, Segways, motorized scooters, roller skates, shopping carts, two-wheel carts, and mail carrier carts. There would be a 5 MPH speed limit, as is common in mobile home parks. Most units would have space for a bicycle and personal shopping carts just inside the front door. Bicycles could have baskets and be European style, far more convenient and easy for most people.

The density of the project supports efficient deliveries direct to the units. The units would have lock boxes that allow secure delivery of, for example, groceries and prescription drugs to inside the unit. The HOA would arrange with package delivery and meal delivery services for using the walkways without vehicles.

E-bikes

The area is too hilly for most biking, but e-bikes to the campus would work well. There would be parking for them at the Village Center, and a bike rental and repair service on the first floor of the Community Center, off Palisade Street. There would be a segregated bike path up to the campus on the south side of Bee.

Village Van

The HOA would own and manage a Village Van for 8 to 12 people. It would be prioritized to take children of residents to and from school and after-school activities. The local schools are Stonebrae Elementary School, Bret Harte Middle School, and Hayward High School. The van would be used for HOA-sponsored special trips: to sports and other events, theater performances, restaurants, , museums, downtowns, shopping (Costco, Trader Joe's, Walmart, and similar places), education, parks, outings for families, etc.

Electrocart

An electrocart like a golf cart but designed to carry freight would be kept at the Community Center and used to carry heavy objects to the units and avoid any need for trucks on walkways. It would also be used for maintenance by the HOA.

Public cars and vouchers

College Heights supports public cars so that residents can have a car when they want one. The HOA would have arrangements with service providers for easy pick-ups and arrangements for use. The small number of trips needing a public car make not owning a car easier.

Our research indicates that sometimes a car is the most feasible way to make a trip. Two important trip purposes could be subsidized with vouchers. "Guaranteed ride home" is a voucher for a ride home when bus transit has stopped and BART is still running. The current cost of Lyft between BART and CH is about \$8. For health care, residents would get a few vouchers per month for trips within Union City (e.g., Kaiser), Hayward (Sleepy Hollow Kaiser, St. Rose Hospital), Castro Valley (e.g., Eden Hospital), and San Leandro (e.g., Kaiser).

The HOA dues would finance vouchers and the HOA would manage them. The HOA would develop policy to avoid going over budget or benefiting too few people. The vouchers could be accumulated to some extent.

The HOA

The HOA managers will provide mobility assistance to help people learn new ways of getting around and learn how the CH cell phone app works. It will look for unanticipated problems and create innovative solutions. They would be the extra glue needed to hold things together; the real person who answers the phone.

Longer Trips

The issue here is how to compare travel time in suburbia with a walkable system for longer trips. Longer trips have a different character from the shorter trips considered above. They are infrequent, go long distances, take more time, and lack travel time budgets, that is, they are so infrequent that travel time has little or no influence on the decision to make the trip. They are *sui generis*; so hugely varied they are hard to analyze.

There seems to be no difference between the two systems. An example of a longer trip is to the airport as part of a longer trip. Residents in the project would have about the same travel time to the Oakland Airport as people in the surrounding suburbia. They could take a public car or take the Village Bus, BART, and the BART airport shuttle. Similarly, they could reach the Hayward Amtrak station and the major Amtrak station in Oakland's Jack London Square in similar travel times.

Sum-up

Sustainable mobility in Seattle. An example of success comes from Seattle, in the dense Capitol Hills neighborhood. It had local shopping and had residents with nearby destinations, but it lacked the transit needed to make it all work. The *Seattle Times*, March 7, 2021, Gene Balk: "Seattle area's most-changed neighborhoods of the decade," pp. C1-C3, "In the census tract in the heart of Seattle's Capitol Hills, the number of cars dropped from a rate of 577 per 1,000 residents to 399. That's a 31% decline, the largest of any census tract. This area includes the Capitol Hills light-rail station that opened in 2016. It shows that when people live in walkable neighborhoods with good transit and car-sharing options--and when owning a car becomes a big enough expense and hassle--many are willing to go carless." They may have no private car, but they are still using a car with car share. With no car costs and comparable mobility, residents save money. The cost of sustainable mobility is less than the car. It is not one thing, but all combined in a system of density over area, walkability, design features making the density attractive to live in, mixed use, and transit access to the Seattle city center.

I estimate that TDM would reduce private car traffic by about 60 percent. Residents would have the same or better mobility than a car-oriented project and with less cost. There could be more trip reduction over time as the system improves and residents learn how to use it and give up their cars. Mobility in CH is far more sustainable than the suburban model.

Health and Safety

Major health problems of a sedentary car-dependent lifestyle are less walking, poor aerobic health, over-weight, and heart disease.

More walking and exercise.

To say the CH encourages walking would be an understatement. Three story buildings without elevators encourage stair climbing and are acceptable in American culture. When needed, the walking impaired will have many ground floor units available. Three story construction has been successful in many town house developments in recent years and is common in large houses.

The design encourages walking outside: walking to the Village Center, a pleasant walking environment, close-by parks, a fitness center, cars parked further away. The nearby City View Apartments has a sports club with tennis courts and a swimming pool.

Pollution.

With little traffic there would be less **air pollution** from ozone and particulates. The project supports EVs (electric vehicles). Buildings would be designed for health. Building materials would not contain formaldehyde to prevent off-gassing and interior air pollution. Floor coverings would be from sustainable sources, such as natural-fibers like wool, cotton, or hemp, with minimal stain repellants, and installed with tacks instead of adhesives. Wall paneling would avoid plywood and particle board which use formaldehyde-based glues and resins. Paints, adhesives, and sealants would be low in volatile organic compounds (VOCs) and be Green Seal certified.

Noise pollution. Noise within buildings will be prevented by soundproofing between units, which is not expensive for new construction. Without cars there would be no traffic noise. Given the closeness of the units, the HOA will have to have clear rules about noise and enforce them.

Security

With more people walking, the project must offer higher security than suburbia and it has features that make that possible. College Heights would have a European level of security that creates a feeling of personal safety for walking at night. It would have the functionality of a gated community without obvious gates or guards.

The project would have security following best CPTED practices (Crime Prevention Through Environmental Design). Public areas, parking access and walkways would have CCTV (closed circuit television) surveillance and monitoring from the Community Center. The HOA would manage a soft closing of the trail at dusk, both the trailhead on the north and the entrances into the residential area on the south. The podium would have a gate opened by a Bluetooth device or cell phone used by residents with parking leases. For the most part, it would be invisible, but would catch and deal with problems right away.

Security measures along the walkways include “defensible space” (strategic fencing, good sight lines, windows on the walkways, lighting, no hiding places). The on-duty manager would be available by cell phone and would walk around the site on an unpredictable schedule. A cell phone app for all residents would make it easy to call.

As in most places, the primary source of security would be social networking and community ties –neighbors looking out for one another, catching things small and early.

Safety

Without cars, safety would be improved; “walking streets” are inherently safe. Cars are used in many crimes, and no cars makes casing a target and getting away more difficult. With

less car use, the project would reduce vehicle accidents.

Design

Good Design: The project would have appealing design for the Village Center, streetscapes, building façades, and open spaces. The design would not be for an architect to make a statement, but for residents to feel comfortable and lifted up. The design would create a perception of spaciousness and visual interest in such a high-density neighborhood: “not how dense to build it, but how to build it dense” (and not look dense).

Façade separation

With two-foot setback and 20-foot ROWs, the building facades are 24 feet apart, which is a result of optimizing density with attractive design. It is the problem we are dealing with. Ten more feet of separation would be aesthetically better, at the cost of units and the walk-in demand needed to support the Café and Corner Store. By the same token, going to four stories, 24 feet apart would create a tunnel aesthetic if over a large area. Should back yards be ten feet deep instead of the planned 15 feet? Good question, which moves the issue from the street to the back yards, but provides a walkway width of 32 feet, aesthetically more open. At the moment the back yards win as they will get more social use.

Attractive façades

The need for affordability requires simple boxy buildings with possibly large flat walls. The problem is solved with balconies, pushouts, bay windows, insets, decorative features like, color, window flower boxes, stylish streetlamp columns, and the Hayward City logo “H” here and there. The façades would be pleasant and interesting to look at, “a gift to the walkway.”

A snip from Integral with solar roofs added:



The Integral design shown above gives an idea of three-story row housings which is acceptable but not appealing. The façades are typical of recent trends, pastel bland blah slabs.



Hail, Britannia! I have done extensive research on Victorian design (Italianate and Queen Anne above) and would like to see it considered.

(<https://www.dropbox.com/sh/sj33cj18mw3quv7/AAB4Yk11C15hPsKCLZuaLpmEa?dl=0>).

Here is a long list of Victorian design elements: lapped siding, roof cornices, transoms, slanted and square bay windows; balustrades, porches and porticos; decorative elements on walls, window hoods, nine-light windows, window shields, and other window trim; cornices and gables, quoins, finials, bargeboards, spindle work, and sawn decoratives; decorative sticks and shingles; rosettes, buttons, bullets, and sunbursts; dentils and beading; brackets; pilasters, columns, and colonnettes with caps and capitals; friezes and panels with wreaths, rinceaux or garlands, balusters, and newel posts.

College Heights could use Victorian colors, probably sets of three-color palettes consisting of a light toned main color, a stronger contrasting trim color, and a flashy highlighting color used with restraint.

More ideas about façades in high-quality multiple-unit projects are in the College Heights archive.

Streetscapes

The streetscape is the view down the street. For walking, visibility of destination is helpful at least up to a point. The design has mid-length views, with a bend at Midway Walk. It also has magnificent, graceful curves along Crescent Walk and Foothill Trail. Other streetscapes look into parks and the Foothill Trail, at buildings at various angles, and short views. A few units will have views of the Bay to the west.

Landscaping

Trees and greenery on the walkways would add visual appeal. Trees would be spaced to avoid too many trees that could darken the street, hide the buildings, and overpower the rest of the design. At intersections, the project could have statuary lions on short brick pillars opposite old-fashioned streetlights to create entry ways. Widths between the walkways and building fronts would be planted and maintained by the HOA. The main walkway would have two small plazas.

Community

Social ambiance

In spread-out **suburbia**, people pass each other in cars behind windshields. Seniors often have few close neighbors and may feel isolated from social interaction. Others may have empty nests and are tired of rattling around in an empty house. CH would support a strong **sense of community** among residents. People would be running into each other instead of driving past each other.

College Heights would be a quiet oasis where walking makes it easy to get to know people, with contact along walkways, in parks, and in the Village Center, which would be a veritable hotbed of social interaction. The design invites people outside in good weather to visit, walk, jog, or sit on the porch. Also, those who want privacy will have it.

Pets are a boon to community and would be allowed within limits. College Heights would allow two per unit maximum, with cats inside and an HOA-managed cat box service. Dogs would be leashed except in a fenced dog run along the Foothill Trail.

HOA Assets

Residents are homeowners and project asset owners. Their common assets include the walkways, the Community Center, the Corner Store, the café, the Village Square, Village Bus, Village Van, electrocarts, podium parking, sort-term parking, security system, and landscaping including the pocket parks and Foothill Trail.

HOA governance

College Heights takes what we have learned about **condominium owner associations** and improves on it. Their reputation based on past problems is no longer deserved, as reforms have made dues adequate to cover on-going needs and professional association management firms have become more effective.

Condominium bylaws would implement best practices and innovation in HOA governance to foster community. The Board would be elected and have over-lapping terms plus some seats for unelected owners to participate if they wish. These seats would be rotated among residents for training, leadership development, and involving shy residents, so every few years a resident could become involved and get to know their neighbors and the issues. The Board would balance the need for institutional memory, turnover, and competence from experience with new voices.

With about 1,800 residents, College Heights would be large enough to need professional management. The HOA Board would retain a **professional HOA management firm** and on-site managers. The Manager could be paid \$100,000 per year and the Assistant Manager, \$75,000, in both cases including the value of their apartments. The Board would work with HOA managers on personal conflicts, which are difficult for a volunteer board.

Management responsibilities

Managing bad neighbors

The project will inevitably have behavior problems from time to time. The HOA would have clear “good neighbor” rules for common nuisances. The HOA management will have power to manage problems caused by absentee owners, renters, and for that matter, occupying owners. Some problems can be prevented in advance. The management would have an explicit responsibility to know everybody informally and manage problems before they escalate. Some problems can be solved by conflict resolution procedures.

Other problems may require more serious actions by the HOA. Concerning absentee owners and renters, the HOA management will have some of the powers of a rental agent. The management will have an ability to veto prospective tenants with bad records and, with consent of the Board, to evict tenants for bad behavior. There have in the past been condos with problems attributed to renters, but the vast majority of renters are responsible and should not get an automatic bad rap.

The HOA management will have the power to deal with all problems to maintain the value of the project. As with noise issues, there are some aspects of a dense neighborhood that need more careful management than single houses scattered along a street. It's not about renting or owning, low or high income; it's about behavior.

Conflict resolution procedures would be clear to prevent conflict and manage it with explicit and known procedures. New residents would have a conversation, not just read a check-off list, with the HOA manager and a Board member so they know what they are getting into.

Managing the businesses

The management would manage five businesses: the café, the Corner Store, the Village Bus, leased parking, and short-term parking. Ownership by the residents provides a strong incentive for good management to get income that lowers the HOA dues.

Managing other responsibilities

The management would sponsor four holiday-related community events per year, probably on MLK, Fourth of July, Labor Day, and Thanksgiving with music, movies, and cookouts.

Support for Board meetings and administration

Accounts and HOA dues collection

Security and safety

Public car trip vouchers

Maintenance of open space, landscaping, and the outsides of buildings

Answer the phone and email

Manage the meeting room for meetings, banquets, performance, parties, clubs, movies, and other events and for fitness.

Risk reduction

The absorption rate is particularly difficult to predict. Four risk reduction strategies are proposed: market research, reservations, phasing, and a fallback plan.

Market Research

The kind of market research that conventional investors usually want cannot be done for this project because it is too different from what the marketplace usually offers. Conventional market research looks at the past and at the auto-based, detached single-family market, not at smaller, latent markets.

Market research to date by the Hayward Area Planning Association has involved a website, surveys, and buyer profiles. Our research produced a long list of enthusiastic people hoping to live in College Heights. HAPA launched a website in December of 2006 for several purposes: (1) to build an interest list of potential buyers, (2) to test the market to verify interest in the concept, and (3) to identify market segments that a developer should target. The website provided detailed information about the project, including early versions of the site plan, floor plans, description of benefits, and preliminary pricing. An email address was provided for submitting requests to be put on an interest list or for further inquiries. The

project was on Craig's List for about two years and publicized in other ways. Respondents were contacted and wrote profiles explaining their interest, or profiles were written by the Hayward Area Planning Association based on the survey answers and approved by the respondents.

Response from some people has been passionate. For example, a San Diego urban planner said he would move to the Bay Area just to embrace the pedestrian lifestyle. He said, "I am very excited to be part of this. Keep me informed!" We found about 125 people interested in living in College Heights, but this research did not have the credibility needed with developers and investors. See also the box with comments from Ben below.

Emails from Ben, ben wordsforben@gmail.com, October 2018, commenting on documents sent about College Heights. Edited for brevity.

I have a lot of feelings on car-free living. I'm still so baffled how the US can't really shake their attachment/obsession with them. Even reading this article, https://en.wikipedia.org/wiki/List_of_car-free_places, I find myself so embarrassed how few opportunities we have to get a break from it all. The areas that do go on a car-diet or eliminate them always end up thriving, so it's really sad to see how many communities and leaders continue to resist that way of life.

Thanks for sharing all of those documents. It's nice to know that more effort has been put in. If it comes to fruition, I'd want a property as far away from the parking lot as possible. Like one of the townhomes that back up to the green space on the outer limits.

I'm eager to get way from traffic and everything that comes with it. A few years ago, I was walking around the streets of Brussels and I couldn't stop thinking "HOW HARD IS THIS?!" Small low/no traffic streets work. Businesses thrive. People are safer. Public areas are peaceful.

Anyway, I'm pretty excited about what you've conjured up. The location is an 18 min bike ride / 45 min walk to my partner's relatives house. We are also big fans of the frequency of the shuttle bus that would take folks to the BART, market, etc. I totally support implementing solutions that discourage car-ownership. Make walking/biking/transit the more attractive/affordable/convenient/less stressful option for everyone.

I've spent the last 10-15 years keeping my eyes peeled on various car-free communities (realized and proposed). I've always said that it's probably the only thing that could convince me to ever get a mortgage. The standard noise/chaos/lifestyle of car-centric neighborhoods is just something I would never sink six figures into.

I feel like communities are so much more vibrant when people aren't always hiding inside of big metal cages all of the time.

Please know there are people that appreciate that the concept even being discussed. It's nice to know other people would like to someday find the same thing. I've lived and traveled all over the globe. I love the weather and the job opportunities out here, but I don't want to spend my life stuck in traffic, commuting hours each day, staring at all of the trash on the side of 10 lane highways, and surrounded by other angry and stressed out people.

New market research would be based on a proposal by InterQ, an innovative San Francisco market research firm (<https://interq-research.com/>). The market research would use travel diaries, interviews, and focus groups composed of the specific markets. For example, Cal State East Bay people could be recruited by email and meet on campus. The

groups would discuss the concept in general. They would also comment on floor plans and facades based on a few design choices using style sheets. Group comments on what has the most market appeal would be eventually offered to buyers. Focus groups would comment on the viability of the plan. The research would find ways to improve marketability and to educate people about the project.

Reservations

After project entitlement, buyers can put money down to reserve specific units. Developers obtain a Subdivision Public Report Application Guide (SPRAG) Preliminary Public Report from the state Department of Real Estate. The report allows reservations which allows buyers to make a deposit to guarantee being able to buy a unit. The City could cooperate on expedited entitlement and getting a Preliminary Public Report. Reservations would indicate a strong intent to buy. A target for reservations could be stipulated before significant investment in site improvements. Falling short on reservations would alleviate the developer's obligation to build the project. A possible target would be 100 reservations within six months.

Phasing

Phasing site improvements can delay costs while sales bring in revenues, getting income closer to outgo. The first sales do not generate enough cash flow for all the HOA expenses, some of which may have to be delayed. Scaling up HOA expenses with sales needs to be carefully planned for the bus and the community center, which are expensive.

Fallback plan

If absorption falls short of a three-year target starting from first occupancy, and if lack of parking were the problem, a fallback plan would allow shifting to more suburban parking. For example, a reduced unit count with suburban parking could be planned off of Overlook Ave.

The Market

College Heights challenges developers to consider the viability of smaller markets. College Heights would primarily sell to four main markets: Cal State East Bay, retirees and seniors; BART users and downtown workers; and people who work at home.

Developers also consider housing growth rates and competing supply. City reports for economic development, employment, commerce, and the Housing Element indicate steady growth ahead for the City. The updated Housing Element for 2022 is at <https://www.hayward-ca.gov/sites/default/files/City%20of%20Hayward%20Draft%202023-2031%20Housing%20Element%20%286th%20Cycle%29.pdf>. A number of three to five story apartment buildings have been built on Mission Blvd. in recent years. Any NIMBY problem for CH is reduced by the unusual isolation of the location and by keeping traffic off Palisade St.

Cal State East Bay

Campus faculty, staff, students, and administrators would have a two-minute ride on the bus or could walk to the campus. Residents of nearby City View Apartments and International House routinely walk to the campus.

CH will have segregated bike lane to the campus for e-bikes. People come to the campus for many reasons—classes, events, a large library, bookstore and eating places; it is a major cultural center.

Affordable rentals for students are a major market. We did two market surveys of Cal State East Bay students. The first survey had 81 respondents and found about 22 percent of students would probably rent in the project, similar to what they already do at City View just

above the project. Probable movers had positive attitudes, wanted to save on rent, and could get where they needed to go without routine use of a car. The estimated student market alone showed enough demand to fill the project. The students would be able to reach the campus quickly and do daily shopping in an acceptable travel time. Rent savings were the most important reason, followed by improving personal health and benefits to the environment and national security.

Retirees and seniors

About 26% of Alameda County population is 55 and older. For retirees and seniors, life in College Heights would be free of house and yard maintenance, which makes travel easy—lock the front door and you're on your way. Retired people do not need a car for commuting. If driving skills are declining, College Heights offers alternative mobility. College Heights provides a peaceful and safe environment with opportunities for social and recreational activities.

College Heights could have some features of a "Continuing Care Retirement Community," independent living without higher levels of care, i.e., assisted living and nursing home care. Some private arrangements for assisted living would not be obtrusive.

BART users and downtown workers

Residents can reach Hayward BART, regional buses, downtown Hayward, and other local employment in the Mission corridor. The Village Bus reaches BART in six minutes with an estimated total travel time including walk from home to wait on BART platform of 15 minutes. The time is comparable to many driving times, which take time to hunt for parking, park and walk in. The BART station is also an AC Transit hub and has a special express bus to San Mateo with stops in Foster City and the Oracle worksite, but it is slow, 45 minutes.

People who work at home.

Over the years from 2021 to 2022, the pandemic led to a large increase in the number of people working at home, which was already increasing because of long commutes, congested freeways, and improved telecommunications. There is likely to be a continuing increase in this kind of work and very little has been built outside of San Francisco for this market.

College Heights has a unit designed especially for work at home, a three-bed townhouse with a ground floor room specially designed as a flex space. It has 340 square feet with a patio and space for many kinds of uses, such as home office, den, study, shop, telecommuting, workshop, and small living unit with a kitchen.

Other Markets

There are also related markets that reinforce the main markets: moderate income households, families, people with disabilities, environmentalists, health seekers, and community seekers.

Moderate income households

For its target markets, College Heights substantially lowers the cost of living for housing, energy and transportation. Some people are willing to make changes in their lifestyles in order to live affordably in a high-quality home. Some buyers will seek protection from energy costs. You don't have to be a survivalist to see gas prices ratcheting up.

Families

Experience from car-free projects elsewhere shows that safe walkways are a magnet for families. The HOA staff will have support for families as a high priority. It is fundamental to

serve all kinds of families and all ages. College Heights can meet typical family needs. For example, the three-bed townhouse flex space is big enough to work as an auxiliary unit, a home-within-a-home. College Heights has four tot lots and small parks. A few seniors might want to do some babysitting. Traveling with a baby on site in a baby carrier in your shopping cart is easier than in suburbia with a car using a car seat and stroller. Ground floor units allow the shopping cart to roll into the kitchen counter. Traveling offsite would not be more difficult than using a car. The Village Van would chauffeur children to schools and children's activities.

People with Disabilities

Wheel-chair users, those with impaired vision, and those restricted from driving will benefit from no car traffic and no curbs. Walkways are easy for wheelchair use. Ground entries have no steps. The Bus will have no-step entry with wide doors.

Environmentalists

Many people are willing to make changes in their lifestyles to be more sustainable. Environmentalists are a growing market in the Bay Area. College Heights is super-green, the greenest possible development in the United States. College Heights achieves goals for greenhouse gases, passive solar, net zero solar energy reduced vehicle emissions, and habitat enrichment. For example, my wife and I want a five-bedroom townhouse at the top of the project, and we can afford it. In College Heights, environmentalists can not only find a personal lifestyle to live their values, but also demonstrate to the larger development world that an alternative system can be profitable.

Health Seekers

Health seekers, fitness enthusiasts, recreationists, bird watchers, dieters, and people under doctor's orders to reduce stress will have low pollution and free access to a fitness center, parks, hiking trails, and nearby swimming pool and tennis courts at Hidden Hills Health and Racquet Club, and playing fields at Cal State East Bay. Some people want an environment where they walk more for health.

Community-seekers

Community-seekers value the kind of easy sociability College Heights provides along walkways, in little parks, and at the Village Centers, while in suburbia people pass each other in cars and may have few neighbors. Co-housing groups are a manifestation of a desire for community. Such groups of a small number of families live in one contiguous area, either multi-family or small-lot singles, but also have a common space for common meals and shared work assignments. The major problem for co-housing is the lack of land for groups who are ready to invest. College Heights could accommodate one or more co-op groups.

Marketing

The project allows the sale of units with parking to the general market, some of whom may find the parking sufficiently convenient to live a near-suburban lifestyle. The focus of marketing, however, is major markets willing, even eager, to live more sustainably and affordably using the TDM and possibly not owning a car.

The Affordability Incentive

Most owners would probably buy for practical reasons, mainly affordability and good enough mobility. The affordability incentive is the far lower price than anything else on the market. It is a hook to get their attention. College Heights gives them a choice not now available in the market for a more affordable and environmentally sustainable lifestyle. but

the odd parking could be a problem. Each buyer would have to figure out if a parking lease works for them.

“College Heights provides a market choice now denied to homebuyers.”

The great affordability incentive to live without owning a car could also inspire more thinking by potential buyers previously unaware of the possibility. One estimate of savings was about \$660 per month. People with moderate incomes who can't qualify at market prices could qualify in College Heights.

Interest list, then reservations

As soon as there is funding, we would publicize the project and the affordability incentive, and invite interested people to sign up on an “interest list” submitted over the web or sent by email. As soon as possible, we would sell reservations.

Model Homes

Model homes will be crucial for selling homes in advance of construction. The City owns a finished lot at the corner of Overlook and Palisade St. which is separate from the main residential area and where model homes should be built almost upon entitlement and concurrently with site development. There is hardly any sitework needed; they are finished lots with utilities in the street. These homes and on-going construction would make the project real and allow buyers to see what the units would really look like. A sales office in one of them would clarify wait times before units are available for occupancy and all the details of a complex proposal.

Buyer education

The affordability incentive leads buyers to want to know what the catch is, and that leads to buyer education. In addition to educational materials, salespersons would suggest that buyers keep a two-week travel diary to see how trips would work in the project. Buyers may actually discover travel time advantages considering all the TCMs. They may even see a path to go car free. The salesperson would help the buyer figure out, how those trips would be made in College Heights, how TDMs work, how visitors get access, and other features of College Heights.

Salespersons need to explain how parking is paid by a lease.

They need to present how buying a unit is much more than just buying a unit; it is buying into a neighborhood, a very special neighborhood.

Buyers need to know how the active energy is paid for separately from the units. The active energy is either purchased or leased. If purchased, the buyer can buy it outright or get an energy mortgage to buy it over time. Alternatively, the active energy will be owned by an investor and paid for by the owner. In any case, the cost is comparable or less than a PG&E bill.

Marketing: Paying for active energy. Green energy would be marketed in a particular way, to separate the cost from that of the house and to have comparability with a PG&E bill. Buyers would have a choice of how to pay for the capital cost of the active energy system by paying all at once, leasing the system, or taking out an energy mortgage. The salesperson would explain how the passive solar lowers energy costs over the long run and makes the solar energy more affordable, and how the amortized cost is similar to what the PG&E bill

would be. They would explain how PG&E will bill for electricity used and pay, but at a lower rate, for energy supplied to the grid.

Options

The project would offer buyers various options. The plan could allow changing the planned distribution of unit types. For example, the townhouses have the same lot and floorplan depths, so the less popular could be replaced by the big sellers. The four and five bed townhouses are big enough to allow certain floor plan changes within the outside walls. The five bed, especially, could be six. Also possible are changes for walk-in closets, bathrooms, separate toilet rooms, bigger shower stalls, kitchen islands, and closet-bath combos.

More conventional options include a built-in Wii or a big TV screen for the living room, or nooks for a computer or a dog. They include choices for cabinets, countertops, flooring, lighting, plumbing fixtures, garbage disposal, and appliances (magnetic induction stove top; bigger fridge). There can be some choice of color schemes and exterior ornamentation. For more affluent buyers, sales may ultimately be clinched based on an emotional desire. I want a sunburst painted in gold on my façade.

Renting

While College Heights has been planned as a for-sale project, it could also have rentals. As discussed above, the HOA management will have some powers as a rental agent. It would serve as an agent for owners who want it. Such owners could be the owner of a single unit, a for-profit investor owning several units, or an affordable housing agency. The agency would own some of the units and manage based on an arrangement with the HOA. Such agencies can bring credibility to the project as a whole because of their project management experience and their ability to serve low-income people.

Rent to own is like buying without a down payment. Rent to own, also called an option to purchase, could be available to renters whose profile supported buying. Their profile would include a desire to live there long-term, support for the broad concepts of the project, and travel patterns that worked in the College Heights context. Part of their rent, the rent credit, would go into an interest-earning down-payment fund. The option consideration (essentially a down payment), security deposit, sale price and rent are agreed to at the outset, so the rent does not rise even if the rental market does. The renter is responsible for maintenance and repairs as if it were their own house. The renter is building equity comparable to amortization of a mortgage loan. The qualification requirements are lower than for a mortgage, but higher than for renting.

The potential renter-buyer can see if living in College Heights works for them. They could practice less driving and ditch one or both cars.

If the renter leaves or opts out, they get back the down-payment fund. The incentives favor would-be buyers who need to build up their credit and have a savings program. Given the challenge of selling a new kind of mobility, rent to own could help absorption by reducing the cost and risk of outright purchase in College Heights.

Issues of culture, politics, policy, and process

The external costs of suburbia and auto-dependency. External costs are those not paid for in money. They are not part of the money economy but have to be included to measure the real economy. The external costs mainly consist of high fossil energy consumption, greenhouse gases, air, water, noise, solid waste, and other pollution, high resource

consumption, high living costs, accidents, subsidies, sprawl, loss of farmland and habitat, traffic, congestion, parking problems, deaths on the highways, too little walking and biking, obesity, poor health, high living costs, socio-economic segregation, loss of community, and a distorted economy.

Excluding external costs makes market prices too low, causing auto-dependency, which is a reliance on private cars for more than 60 percent of trips.

General problems of urban planning in America

It is too easy to go along with our culture of global warming, auto-dependency, misleading prices, and money economy.

Unlike in Europe, American cities do not really plan. They process applications from investors who have the funds to prepare the many application documents and to pay the fees that cities require. The investors build for the market that is there, the car-house system.

The cities themselves are enmeshed in an economy that rewards car-dependent development. A project that would be sustainable is surrounded by a fabric of car dependency. Old centers and corridors that could inch toward sustainability are not pushed along in that direction due to a lack of understanding by cities and society in general.

City staff does not have the competency or the assignment to prepare meaningful choices for the public or the Council. Unbundling, less parking, and real TDM are not required.

Cities do not seek out the ideas and the system behind College Heights, in part because they do not have funds or mandates to do otherwise. They depend on developers to propose such projects. The City of Hayward in general is no different, yet it has in fact taken a step in the right direction with its Sustainable Mixed Use land use designation and a limit on parking.

Unfortunately, the now-fashionable "transit-oriented development" and "smart growth" pay homage to the car by subsidizing large amounts of expensive but underpriced parking.

College Heights is a Walkable Neighborhood System, to replace suburbia over time. Walkable Neighborhood Systems (WNS) are inherently more efficient economically considering both money and the environment. They have significantly lower living costs. Such neighborhoods are not just walkable, but have the density needed within a walkable area to support local commerce to meet daily needs. College Heights would demonstrate the viability of the Walkable Neighborhood Systems concept for application in older, centrally located centers and corridors.

Forces for change. Policies for global warming are likely to become stronger and support this kind of project with its very low use of personal vehicles. Reducing greenhouse gases is mandated by California laws AB 35 and SB 375. The regional planning process in the Bay Area, cap and trade policies, and higher gasoline prices will improve the market for the project.

HAPA

The Hayward Area Planning Association is a local citizen led non-profit group doing research, education, advocacy, and litigation on planning issues in Hayward since 1978. For decades, Caltrans owned the abandoned quarry north of Bee in order to build the Bypass freeway across many neighborhoods and open space. In 2001, I explored the properties owned by Caltrans for a report to an Alameda County Supervisor on how much housing could be lost to pavement. My estimate was 3,023 homes. We stopped the freeway and saved the land.

As I was exploring, I found a large abandoned quarry and I began to think about a walking-oriented development of a village of a few hundred homes that would minimize the need for a car. I have spent the last 22 years working on the idea, College Heights.

The first proposal starting in 2004 was called Quarry Village. Starting in 2007 we had an aerial survey done, got preliminary seismic geology reports, and worked with Lea and Braze Civil Engineering on a comprehensive proposal.

Investors

In 2019 and 2020, HAPA informed investors about the “opportunity.” We got contact information on many investors from Prequin. We sent emails to Lennar, Integral Communities, and 38 other homebuilders. We sent emails and brochures to Real Estate Consulting firms, environmental interest groups, various agencies of the State of California and legislators, building trades unions, housing trusts, affordable housing agencies, LLCs, engineering firms, mega-billionaire new tech giants, and non-profit housing advocacy agencies and more. Our database had categories for Academia, Bank, Billionaires, Broker, Builder, 3 story THs, Business, Civil Organizations, Climate, Consultant, Faith, Foundations, Funds, High rise, Housing agency, Investor, Media, Multifamily Businesses, Private bank, Raters, Real Estate Fund Bay Area, Real Estate Investment Services, Retire, Social Equity, and Solar—hundreds of messages.

No one would touch it—it was too innovative for them. Encore and other investors in Culdesac in Phoenix, were also not interested.

The State of California could supply some of the funding if a major developer is committed to funding most of the project. Interested state agencies are the Strategic Growth Council, the Tax Credit Allocation Committee, the Office of Planning and Research, the California Air Resources Board, and the State Department of Housing.

The City should plan for sustainability, affordability, and choice for a more sustainable lifestyle.

Cal State East Bay

College Heights would help the university provide affordable housing very close to the campus. The Cal State East Bay Climate Action Plan, May 2018, states, “Seeking out and supporting affordable nearby housing opportunities for faculty”; “Investigate potential for building low-cost faculty housing on or near campus. Co-benefit of attracting qualified faculty on state salary given prohibitive Bay Area housing prices”; “Housing for faculty has a co-benefit of attracting qualified faculty on a state salary in an area that has a high cost of living.” (May 2018, pp., 67, 85, 86)

I have submitted these ideas many times over the years to administrators and faculty and never received any useful response. Mostly, phone calls were not returned and emails went unanswered.

The City of Hayward

The City of Hayward has supported the project.

2009: From Pavement to Plan

In 2009, after the ill-fated Foothill Freeway bit the dust, about 300 acres of land needed plan designations and zonings. Initially, three options were proposed for the quarry. HAPA proposed its ideas and the City responded. In 2009 the City adopted a Program Environmental Impact Report and Sustainable Mixed Use (SMU) General Plan land use

designation and applied it to the quarry, allowing the project. The primary use under the zoning is 25 to 55 multi-family units per net acre and parking is limited. The SMU zoning is at [https://bayviewvillage.us/policies/Ordinance%20Sustainable%20Mixed%20Use%20District%20\(SMU\)%20City%20Zoning.pdf](https://bayviewvillage.us/policies/Ordinance%20Sustainable%20Mixed%20Use%20District%20(SMU)%20City%20Zoning.pdf).

The Program EIR means that any project conforming to the program EIR does not need an additional EIR, removing what is a major hurdle for many other projects. The City is likely to want a traffic study, which would reveal even less traffic than could be possible under the SMU zoning. College Heights would still need a full set of City approvals: Site Plan, a tentative map, and a final map prior to vesting and design. The site plan area within the property appears to be free of any protected plant and animal species, in as much as it is a former quarry site and currently consists mostly of bare granite devoid of any vegetation. The six houses on Overlook affected by access traffic are likely to object but not prevail.

On July 28, 2009, the City adopted a related plan, the Climate Action Plan to make the City more environmentally sustainable.

2014: Approval of College Heights concepts

City Manager Fran David proposed and on May 6, 2014, the City Council adopted Resolution No. 14-057 endorsing College Heights concepts as a transit- and walking-oriented village with minimum vehicle use and low greenhouse gas emissions. It furthered the City's Climate Action Plan. City Council found that the College Heights concepts would promote affordable housing, sustainable communities, clean transportation, energy efficiency, natural resources, and waste diversion.

2016: The City buys the farm.

From 2009 onward, Caltrans began selling off the now surplus right-of-way and, for the most part, it was not controversial. The City, however, under City Manager Fran David, wanted more control over development of the larger parcels. A larger parcel had been sold to a developer, and the City found that it had to approve any proposal conforming to City requirements, which was not enough. In October 2016, the City bought the ten remaining larger parcels from Caltrans on a contingency basis. The quarry is Parcel Group 6.

2019: PG6 Quarry Master Development Plan

In September 2019, the City held community meetings about what to do with the quarry. In November 2019, the City adopted a Master Development Plan, including facilitating transit-oriented development, less auto use, neighborhood-serving retail uses to reduce car trips, affordable housing, walkability, preservation of Dobbel Creek habitat, and the Foothill Trail. (See City of Hayward Land Use and Zoning.pdf for information on general plan, zoning and overlay.) The plan cast a broad net for proposals, referred to College Heights as a specific way to achieve the plan goals, and asked developers to comment on it in any application.

2020: RFP and RFQ

The City issued a Request For Proposals with these requirements:

Development Submittal Requirements (RFP)

1. Foothill Trail and Parkland Dedication Requirements. Developers will need to construct the 16-foot-wide multi use trail throughout their proposed development.
2. Affordable Housing Requirements. Developers will only have the option to develop on-site affordable units in accordance with the Affordable Housing Ordinance requirements.

3. Green Development. Developers must incorporate green building and landscaping elements that reduce use of energy, water, and natural resources. Includes making each home solar powered to meet new CA Building Standard Commission's requirement. No gas utilities.
4. Transportation Demand Management (TDM). Developers must propose and implement a robust TDM program that details strategies on how the development will promote walking, biking, and taking transit to reduce trips in single occupied vehicles. A minimum of 10% trip reduction is required for this development. TDM Plans must include transit access to Downtown Hayward/BART; Car share; Electric Bike Share; Strict on street parking regulations and enforcement.
5. Hayward Resident Priority Preference Plan. Developers will need to include a plan which grants a priority preference for Hayward residents to purchase or lease market rate units in instances where all other financial considerations are equal, if possible. Must be pursuant to applicable state and federal Fair Housing laws. Developers must state any impact of this program on purchase price.
6. HAPA College Heights Project Understanding. Developers will need to submit a project understanding and impact statement regarding the feasibility of developing the College Heights concept as presented in a separate College Heights Proposal document prepared by HAPA. Developers will address overall impressions, opportunities, constraints, and financial feasibility of the College Heights concept.

The city got no acceptable response. In May 2020, the City rejected the results as unsatisfactory and issued a Request for Qualifications. In September 2020, Integral Communities signed an Exclusive Negotiating Agreement with the City.

2021: the Integral plan

Integral did not comment on College Heights. HAPA had many severe criticisms of their proposal and we proposed College Heights as an alternative.

2022: Back to Square One

In January 2022, Integral withdrew from negotiations with no explanation. The City's purchase agreement with Caltrans has been extended once and expires in 2024.

The City has made big steps in the right direction, but has always hoped a developer would make it work. No developers have responded.

Yet. Hope springs eternal in the human breast. HAPA will seek funding from sources of new wealth in the Bay Area that have expressed an interest in affordable housing and sustainability.

Next Steps

Initial Conversations. A developer who buys the land from the City would control the project. The developer could be an ad hoc LLC formed by investors which retains a management team. It could be a development firm with investors and a management team already in one company. HAPA's involvement is up to the developer, but we would like to continue working collaboratively without compensation on any development.

Letter of Intent. The developer would negotiate a letter of intent (LOI) with the city that is included in a Purchase and Sale Agreement (PSA). The LOI would have technical components

which the developers must agree to.⁵ The developer would then prepare an application with everything except expensive technical documents that do not relate to policy issues.

Near-Entitlement. The Council would then approve the application at a near-entitlement level. Near-entitlement greatly reduces the cost and risk of an application. If approved the applicant would finish the site-plan application and go to the next major phase, design.

Email me for access to the College Heights files, and articles on Walkable Neighborhood Systems and others on transportation and land use issues.

⁵ An LOI includes Buyer, Seller, Property Description, Exclusive Dealings, Intended Use Sole Source Basis, Escrow Company, Release of Due Diligence Information, Right of Entry, Deposits and Feasibility, Close of Escrow, Extensions to the Close of Escrow, Escrow Fees and Closing Costs, Real Estate Brokers.

Email me for access to the College Heights files, and articles on Walkable Neighborhood Systems and others on transportation and land use issues.