

South Bay Cities Council of Governments

# HOUSING ROADMAP

## Redevelopment of Commercial to Sustainable Housing

September 2023



SOUTH BAY CITIES  
COUNCIL OF GOVERNMENTS

DUDEK



# Acknowledgments

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01

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# Introduction

**1** BACKGROUND

**2** PURPOSE OF THIS STUDY



# About the Study

## Background

Cities across Southern California are grappling with a unique set of issues when it comes to housing. State mandates, such as the Regional Housing Needs Allocation (RHNA) targets, require cities to plan for more housing production - with an emphasis on affordable housing units - to combat an ongoing housing crisis.

Most cities, especially those within the South Bay, are largely 'built' out for residential uses and challenged to identify enough suitable sites that can support new housing.

Meanwhile, broader market and lifestyle trends have created shifts in some non-residential uses, such as increasing vacancies in brick-and-mortar retail due to competition from e-commerce and the COVID-19 Pandemic, leaving many commercial sites and corridors within the South Bay underutilized. Commercial sites are also typically located along walkable and destination and amenity-rich areas making them well-suited locations for housing.

Recent State legislation is now focused on these underutilized commercial sites to address State housing needs, including Senate Bill (SB) 6 and Assembly Bill (AB) 2011. SB 6 and AB 2011 both allow residential uses in areas designated for office, retail, or parking without General Plan amendments, zoning code updates or California Environmental Quality Act (CEQA) analyses. Both bills go into effect on July 1, 2023, with the intent to give jurisdictions time to develop implementation strategies.



*Example infill mixed-use development on the Pacific Coast Highway commercial corridor in Redondo Beach with ground floor community-serving retail and a combination of condos and townhomes.*

Source: LoopNet

## Purpose of this Study

To assist cities in the South Bay subregion to develop context sensitive strategies to enable residential housing in commercial areas, and explore effective ways to rethink housing development and housing placement as well as increase housing supply, the South Bay Cities Council of Governments (SBCCOG) obtained a California Department of Housing and Community Development (HCD) Regional Early Action Planning (REAP) 1.0 grant. This study analyzes the potential conversion of underperforming and underutilized commercial sites along corridors as opportunities for infill housing.

This Accelerating Redevelopment of Commercial Parcels into Sustainable Housing Study builds on prior studies conducted by SCAG as part of the 'Other-to-Residential Toolkit' also funded by a REAP 1.0 grant.

The study includes the following objectives in exploring the conversion of commercial sites to housing:

- Leverage the South Bay's unique, suburban development patterns which are rich with commercial corridors, strip malls, and big box retail to identify sites for context-appropriate infill housing development. Preserve existing City tax revenue by keeping profitable retail and community-valued businesses along corridors and on key sites.
- Promote principles of sustainable housing and the creation of complete neighborhoods by highlighting opportunities to locate new housing in neighborhood business districts, destination and amenity-rich areas and adjacent to South Bay infrastructure, such as the Local Travel Network (LTN) and South Bay Fiber Network (SBFN) to promote walking, biking and the use of zero-emission, slow speed vehicles such as neighborhood electric vehicles (NEVs).



*Example of a destination and amenity-rich South Bay corridor with a diversity of commercial uses in the City of Hawthorne. Hawthorne Boulevard is well-suited opportunity for sustainable housing, where infill housing can be placed on vacant or underutilized parcels.*

Source: Google Earth



- Assess potential housing types and the viability of site redevelopment scenarios from a financial and real estate perspective to see how housing development in general, and affordable housing, can be implemented and successful in the South Bay

To achieve these objectives, the study included a multi-step site identification and selection process, site planning and capacity studies to identify appropriate uses and layouts for the sites, and iterative testing of infill housing possibilities along with pro forma analyses to study financial feasibility.

**While this study focuses on six cities within the South Bay subregion – Carson, El Segundo, Hawthorne, Hermosa Beach, Manhattan Beach, and Redondo Beach – the key insights and takeaways are applicable to the rest of the subregion.**

**This study was highly focused on the replicability of approaches and strategies for the integration of infill housing along key corridors, and explores redevelopment scenarios for sites of various sizes, development scales, and housing typologies.**

**02**

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# **Key Findings and Takeaways for South Bay Cities**





## Conversion of underutilized commercial building sites to housing could physically accommodate many housing units in the South Bay to meet RHNA requirements.

These existing underutilized and oversupplied commercial sites present some of the best locations for additional housing near destinations, amenities and employment opportunities.

### So What?

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In mostly built-out South Bay cities, the incremental introduction of new housing on commercial corridor sites can provide an opportunity for meeting regional housing goals, although individual site characteristics such as site size and shape affect the feasibility of development to a great extent.

### Now What?

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Current and future changes to retail consumption and office usage create a rationale for the viability of incremental commercial replacement. Cities should acknowledge the imperative to keep arterial streets vibrant despite retail and commercial disruptions and allow new mixed-use and residential development. To create more sustainable housing that supports zero-emission mobility, cities should prioritize this new development near existing neighborhood business districts that have a clustering of businesses, services, restaurants, cafes, and small offices for nearby residents, and compact, amenity-rich areas with concentrations of destinations close to local travel networks. As part of this strategy, cities can rezone their commercial corridors to mixed-use to allow for residential uses. Cities can also create or update development standards for residential development in commercial zones. Regardless of the implementation strategy, cities should review existing development standards or create new ones to ensure that new housing development is responsive to the surrounding context, scale and character of the corridor.



## Incremental conversion of surface parking lots to housing presents an economically viable way of adding housing in the South Bay.

Adding residential units on existing commercial sites by building atop parking lots while retaining portions of or all existing commercial buildings, is often an economically feasible strategy. This incremental infill strategy helps to integrate housing while also maintaining existing destinations, thus adding economic and pedestrian activity to a neighborhood center or corridor. Site specific strategies would need to be developed to address concerns about disrupting ongoing commercial activities in any specific scenario. In addition, replacement as well as new residential parking needs would be provided in more efficient structures in below-grade configurations.

### So What?

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Given overriding concerns about maintaining community character, incremental residential infill on commercial sites may allow a more thoughtful approach to additional housing that minimally changes existing neighborhood character while keeping community businesses, destinations, and a significant portion of a city's commercial tax base in place.

### Now What?

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To make housing infill on parking lots a viable opportunity for housing development, cities should prioritize shared parking strategies and lower automobile parking ratios, as well as explore district parking solutions. Supporting sustainable mobility options, such as walking, biking and neighborhood electric vehicles (NEVs) as safe and convenient travel modes for people to reach their destinations could make traditional land uses less dependent on parking and potentially less parking intensive. While public opinion typically opposes reduced parking provisions, enabling a variety of parking options provides flexibility for developers. These strategies can also lead to reduced car trips and better environmental outcomes, which are important priorities for South Bay residents. Further, recent State legislation AB 2097 precludes local governments from requiring minimum parking for certain projects including residential if within ½ mile of a major transit stop. State legislation AB 2097 precludes local governments from requiring minimum parking for certain projects including residential if within ½ mile of a major transit stop.



## Economics is a significant factor in limiting housing development, and allowing higher-density projects alone may not lead to increased production.

Given high land and construction costs, higher-density development may not by itself lead to more market viability. Infill development within the South Bay is often financially challenging as even older and underdeveloped properties can have sufficient economic utility that drives elevated land values. Increasing the size and height of a mixed-use or residential project increases its costs proportionally as building code requirements increase with building height, and parking costs go up in denser projects due to sub-grade and structured solutions.

Further, in areas with lower land values, market rents are often only sufficient to support projects with modest density. In such markets, minimum required development densities can actually impair the delivery of housing.

### So What?

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In many cases these costs cannot be supported despite elevated rents and sales values in many of the South Bay markets. However, in some areas, lower- to mid-scale (3 – 4 stories) for-sale residential products such as townhomes and residential flats, may lead to viable redevelopment opportunities in the current economic environment. Ultimately the financial feasibility of redevelopment is heavily dependent on the cost of acquiring land for a given project. Smaller unit sizes and alternative living formats such as shared housing tend to yield higher revenues that could drive financial feasibility.

Regardless, density increases and development in residential areas where not previously allowed may serve to increase the supply of market rate housing, however has minimal capacity to address funding the affordable housing requirements. Streamlining the development process and adjusting other development standards such as parking minimums and open space requirements may marginally incentivize additional housing more than up-zoning in many cities.

### Now What?

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Other factors besides land and construction cost that limit housing production in some South Bay cities include entitlement timelines, parking minimums, and open space requirements. Given the reliance on automobiles as the dominant form of transportation in the South Bay, it's understandable why cities mandate parking minimums. Further, given the reliance on automobiles, the market is thought to demand ample parking for a development to be of interest to occupants, regardless of a given city's code. Mobility strategies, such as SBCCOG's Local Travel Network which is focused on zero-emission, slow speed vehicles and local micromobility and a greater reliance on shared parking strategies, could help cities make better land use decisions by lowering minimum parking standards. Also, given the open space assets in many South Bay cities, lowering on-site and private open space standards can help make new infill development on commercial sites marginally more attainable.



## The market alone will not be able to reach RHNA's affordable housing targets.

Our studies indicate that even when new infill housing development is viable, there is typically not enough excess profit to support the inclusion of affordable housing units without third-party funding (e.g. local housing trusts). Of the 22 hypothetical proforma evaluated herein<sup>1</sup>, seven appeared to yield enough excess profit to support the development of low income housing as part of the development program for the hypothetical redevelopment scenario. Of those seven, two for lease, and two for sale development programs yielded sufficient revenue to set aside approximately 2-4% of a given development's units for low income households. Of those same seven, three for sale hypothetical redevelopment scenarios located in Hermosa Beach and Manhattan Beach, which are strong markets, could optimistically have the financial capacity to restrict approximately 11-20% of a development's units to low income households.

The potential benefits of California Density Bonus law on the financial performance of the various hypothetical redevelopment scenarios was also evaluated. Density Bonus incentives appeared to support the addition of approximately 5% of housing units for very low income households in two of the larger housing development programs evaluated. Two of the smaller hypothetical redevelopment scenarios evaluated appeared to support the addition of one very low income unit given some of the technical elements of the law.

While some of these results are positive, the market is currently adjusting to substantial reductions in multifamily housing property values due to recent increases in interest rates, ultimately driving increases in required rates of returns on investment. These shifts are rendering many development projects financially infeasible for the foreseeable future. Absent significant increases in rents or home values, reductions in land costs, and/or construction costs, there is typically not sufficient excess profit to support substantial ratios of affordable units as part of a given development.

### So What?

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Given the realistic amount of excess value that could be created in new development, inclusionary housing requirements alone are not a feasible way to achieve the 21,000 RHNA target for affordable housing units set for South Bay cities. The six participating cities in this study have 11,666 RHNA allocated units, of which 3,808 are market rate units, and 7,858 are income restricted to very low, low and moderate income households. The very low, low, and moderate RHNA allocations for the six cities evaluated herein is estimated to require on the order of \$2-3 billion to support development costs (net of revenues generated under a for rent program and based on potentially low development costs)<sup>1</sup>. Conceptually, this financial gap for the six cities studied is roughly equal to the leveraged funding capacity of California's entire competitive tax credit allocation for two years. For reference, the six cities in this Study only represent less than 1/1,000th of the State's population, and the RHNA allocations

<sup>1</sup> Assumes \$600 per net residential square foot in development costs. LIHTC applications awarded in 2023 regularly exceeded this amount.

would only be satisfied for the current RHNA cycle through 2029. Additionally funding on a massive scale is required if the goal is to see the delivery of the total number of housing units allocated by RHNA. Alternatively, if this cost were only to be borne by incremental market rate units developed, each market rate unit would need to support two affordable units - an untenable scenario.

## Now What?

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Taking into account Low Income Housing Tax Credit (LIHTC) financing, vouchers and other funding sources for affordable housing, the required subsidies are significant and vastly exceed funding currently available. New funding sources aligned with the affordable housing targets set by RHNA need to be established. This may require more collaboration with cities, non-profits, and developers to secure necessary funding. **But more realistically given the number required, substantial new funding sources are required at the State level.**



## Existing city infrastructure, such as water and sewer capacity, is not necessarily a barrier for new housing development.

Through the high-level infrastructure analysis on existing sewer, water and trash for the six participating cities, it was determined that 2 of the 11 hypothetical redevelopment scenarios would have a significant impact on existing city sewer capacity. While existing sewer capacity could be a factor to accommodate additional housing development along corridors or sites, no updates to public water infrastructure would be needed for any of the hypothetical redevelopment scenarios. Additionally, the hypothetical redevelopment scenario sites would also have access to other existing city services, like trash services contracted by their respective cities.

### So What?

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For one hypothetical redevelopment scenario in the City of Carson, our studies found that some infrastructure upgrades, such as an increase in sewer capacity may be required to accommodate additional housing development. However, further flow monitoring of sewer capacity for the sewer main is typically required if increases in the sewer flow exceed 50% capacity of the overall capacity of the existing sewer. The further monitoring would confirm the capacity of the sewer main and/or determine if any infrastructure upgrades would be needed to increase the sewer capacity to accommodate new development.

For one hypothetical redevelopment scenario in the City of Redondo Beach, our studies found that the existing sewer capacity was deemed already above its 50% capacity threshold without adding any new housing on the corridor and would require further monitoring to potential upgrades to accommodate new housing. Based on the RHNA units required, cities should monitor existing sewer flow to determine if there is existing sewer capacity (under 50% of capacity threshold) to accommodate additional housing. Depending on the size and scale of new housing development, upgrades to city infrastructure may be required. Development impact fees or in-lieu fees, or special funding mechanisms may be potential solutions to fund infrastructure upgrades for targeted areas. Incremental or phased approaches to development could also be considered for larger sites. Overall, cities can assess existing infrastructure capacity along commercial corridors that are suitable for infill housing to target locations for infrastructure updates.

### Now What?

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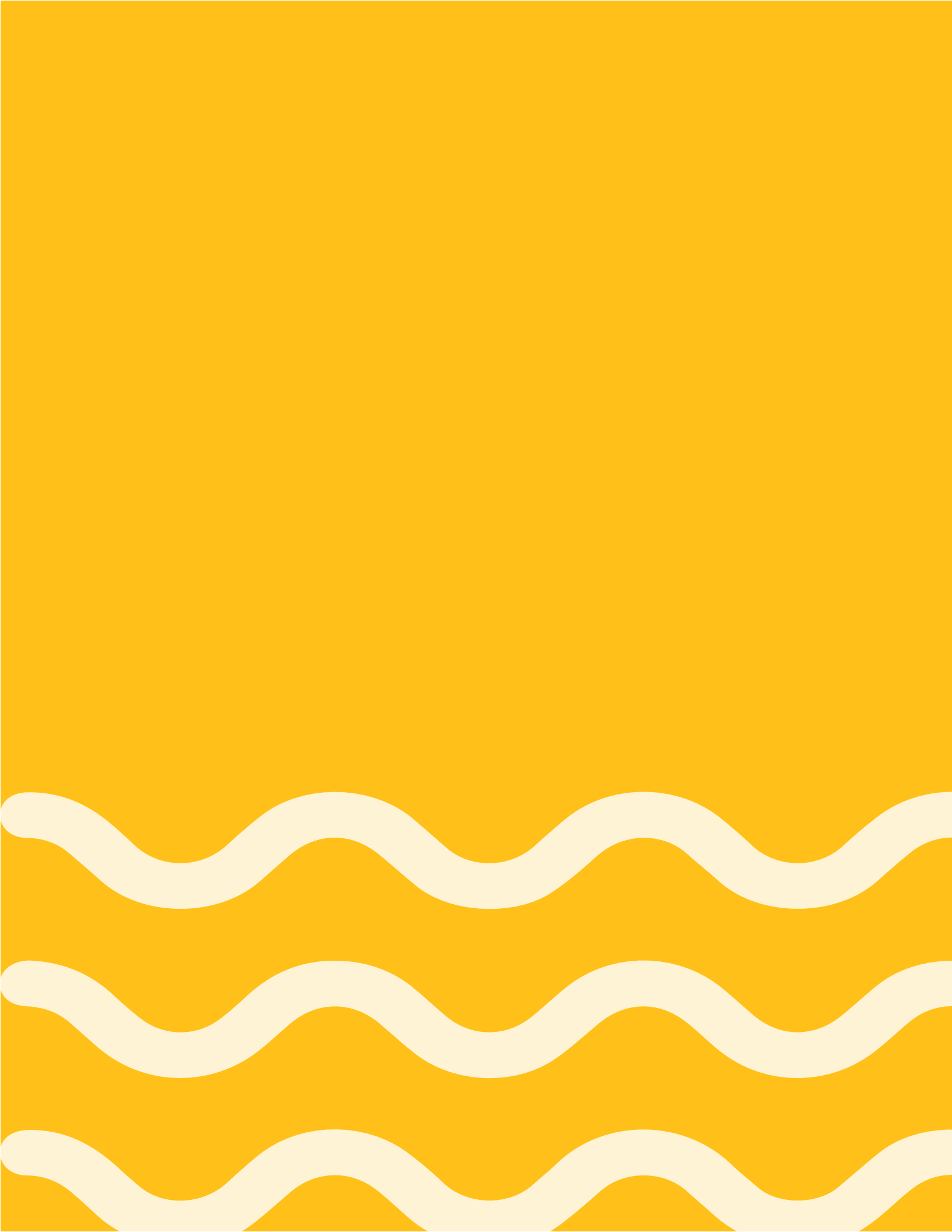
Depending on the size and scale of new housing development, upgrades to city infrastructure may be required to accommodate additional housing units. Development impact fees or in-lieu fees, or special funding mechanisms may be potential solutions to fund infrastructure upgrades for targeted areas. Incremental or phased approaches to development could also be considered for larger sites. Overall, cities can assess existing infrastructure capacity along commercial corridors that are suitable for infill housing to target locations for infrastructure updates.



## Conclusion

Although challenges remain, if cities consolidated political will and policy they could create additional housing opportunities by allowing the private sector to redevelop corridor commercial sites. Changes to shopping and office uses require new development paradigms and associated regulations. Thoughtful zoning that places development near destinations, coupled with streetscape designs and policies that support zero-emission mobility, will allow cities to grow while addressing critical climate action goals smartly. However, given high land values and housing affordability requirements, developers value flexibility with development requirements to bring housing projects to fruition.

**Moving the needle on increasing much-needed affordable housing to meet RHNA goals will require greater funding mechanisms than currently available and demands more creative regional solutions.**



**03**

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# Study Overview

- 1** SUSTAINABLE HOUSING METHODOLOGY
- 2** SOUTH BAY SPECIFIC CONDITIONS



# Sustainable Housing Methodology

The selection of sites to study the potential for context-appropriate housing included a multi-step process using Sustainable Housing feasibility criteria to identify two redevelopment study areas within each city. The redevelopment study areas were shared with staff of each participating city during working sessions. A more fine-grained and place-based analysis identified a suitable site within each study area for a hypothetical redevelopment scenario, and these sites were shared with each participating city for review. Redevelopment scenarios for the selected sites were then created to respond to the specific site conditions using common construction typologies for housing and were further refined through financial analysis and development feasibility. Details on the stepped process to select redevelopment study areas and sites are described on the following pages.

## Step 1:

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A high-level citywide analysis of commercial parcels was performed based on Sustainable Housing feasibility criteria to bring actionable data into discussions with each participating city, to select two redevelopment study areas for further analysis. The two-tiered feasibility criteria were structured on SBCCOG's sustainable housing principles to:

- Support infill development to address climate requirements and regional growth that can support VMT/GHG emissions reduction.
- Place housing in locations that create or facilitate walkable communities with patterns of development that reduce VMT/GHG emissions. This promotes the increased rate of walking, biking, and other forms of micromobility to/from adjacent destinations where there is a diversity of destinations to capture local trips.
- Locate new housing in amenity and destination-rich areas to create complete neighborhoods, requiring proximity to a current or possible neighborhood business district. This includes resources for adjacent small businesses, "maker" opportunities, and telecommuter and home-based business resources.


The first tier of feasibility criteria was broad and universal and used Los Angeles County Assessor data to screen commercial parcels within each participating city to identify corridors or areas of interest. The screening focused on:


- Concentrations of commercial land uses (e.g., retail, medical, restaurant, grocery, food, and institutional uses)
- Areas on or proximate to major corridors
- Areas exhibiting business density and variety (e.g., high NAICS code variety and business count / density)
- Areas with elevated employment density
- Areas near public amenities

**FEASIBILITY CRITERIA SCORECARD**

*Broad & Universal*

 Sustainable Housing

 Complete Neighborhoods/  
Neighborhood Business District

 Equitable Housing

*Place-Based & Fine-Grained*

 Site Features

 Additional Factors

Under Built



Building Age



Existing Leases



Existing Uses



Size of Sites



Parcel Ownership



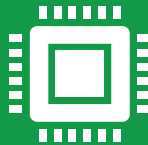
Low Improvement Ratio



Environmental Justice Areas



Neighborhood Mobility Areas



SBCCOG Local Travel Network



Outside Environmentally Sensitive Areas



SB 535 Disadvantaged Community Areas



TCAC/HCD Resource Areas



Ground Truthing



Land Use Mix



SBCCOG Broadband Network



Destinations



City-specific Data



The second tier was more fine-grained and placed based, and applied additional criteria and factors aligned with the Sustainable Housing principles, as well as screening tools, such as the SCAG HELPR tool to contribute to the first-tier analysis. The additional criteria included:

- Opportunity sites for housing to achieve RHNA targets for each participating city in the 6th RHNA cycle
- SBCCOG's Local Travel Network or Neighborhood Mobility Areas and South Bay Fiber Network of existing and proposed slow-speed mobility and fiber infrastructure
- Properties with buildings and structures built before 1960 and 1970
- Properties without buildings and vacant parcels and underbuilt parcels (FAR below 0.50 and 0.25) or parcels without buildings as opportunities for strategic intensification and infill development
- Properties with current total assessed values of less than \$25 and \$100 per square foot of building area (given California's Prop 13, often indicative of an older property, a property that has not been sold recently, and/or a property whose owner has a low-cost basis)

Other criteria included:

- Environmental justice areas
- Outside environmentally sensitive areas
- SB 535 Disadvantaged community areas
- CAC/HCD resource areas
- Ongoing planning efforts shared by each of the cities during the city working sessions

Multiple potential study areas identified through the Step 1 analysis were shared with city staff during working sessions. Potential study areas were discussed and compared using the Feasibility Score Card, as well as ongoing planning efforts that may impact or add to the study. Cities also focused on the common conditions found within study areas, so they could be applicable to other corridors or commercial clusters within their city. Two study areas were selected by each city for further study and analysis.

## Step 2:

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A deeper analysis of each study area discovered opportunities for potential site redevelopment based on physical site conditions, available infrastructure, parcel ownership and existing leases, sales tax revenue, identified RHNA sites and existing or proposed zoning, and potential impacts to community-serving and legacy businesses.

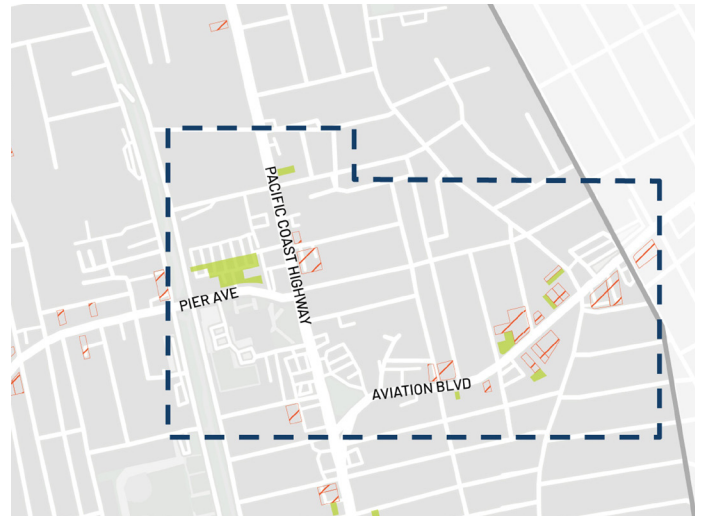
**With a focus on the replicability of this work for other corridors with similar conditions in each participating city, as well as within the SBCCOG subregion, sites were selected for test fits with a focus on diversity in size, development scale, strategy to integrate housing, and potential housing typology.**

Sites were also considered for hypothetical redevelopment scenarios to explore the application of a specific housing typology like mixed-use development.

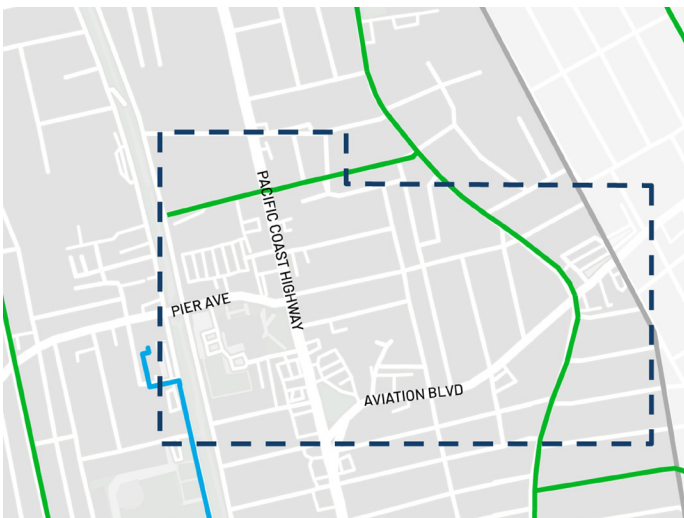
Sites with common challenges for housing development such as small lots with limited depth, small deep lots, sites with existing successful retail, legacy business, or historic structures were also considered in the selection of one site within each study area for a hypothetical redevelopment scenario.



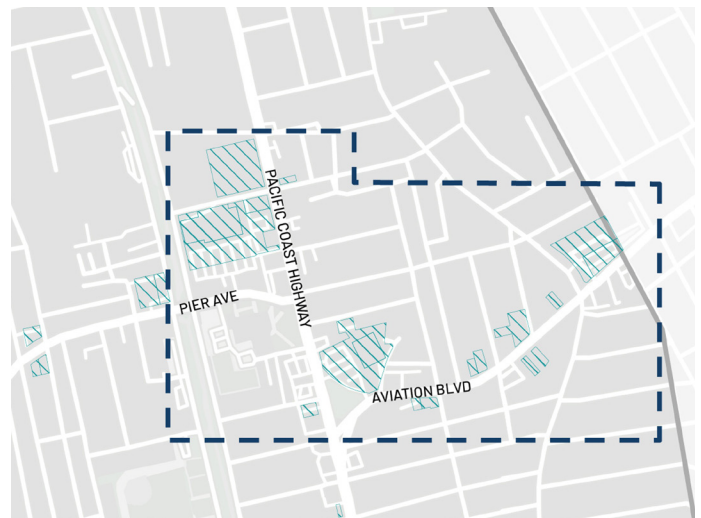
**Example map showing parcels with commercial land uses and locations of employment density.**



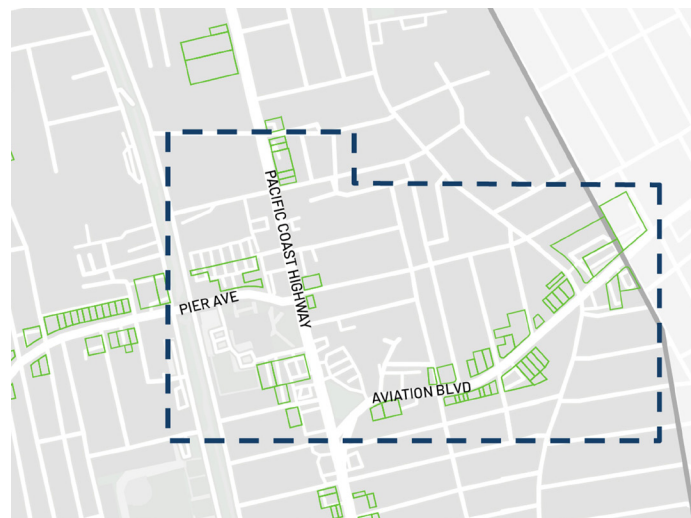
**Example map showing under built parcels as defined by FAR of less than 0.50 and parcels without buildings.**



**Example map showing locations for SBCCOG broadband infrastructure and the Local Travel Network.**



**Example map showing parcels with a low improvement ratio of less than \$100 per square foot.**



**Example map showing parcels with structures built before 1970.**



### Step 3:

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Redevelopment “test fits” were created for each opportunity site selected through Step 2 in each participating city. The test fits or hypothetical redevelopment scenarios incorporated common multifamily housing product types successful in the South Bay including townhomes, apartments, and flats. Since the selected opportunity sites were mostly all zoned for commercial uses with limited or no housing permitted in current regulations, the hypothetical redevelopment scenarios were created to reflect a density and scale of development that would be appropriate in the surrounding neighborhood context.

The scenarios also included approaches to preserve existing retail and community-valued businesses, as well as integrate new community uses and amenities, parking, and mobility options to leverage the existing LTN, transit and active transportation infrastructure. Design considerations were mindful of phaseability and creating a granular scale for development that responded to site conditions and adjacent site context. Where possible, the scenarios also included larger units to accommodate various housing needs, a variety of housing typologies on larger sites, and integrated accessible open space and new destinations and uses.

Paired with each hypothetical redevelopment scenario was a financial pro forma for each site, evaluating the potential feasibility of market for-sale and market for-lease options, and the potential financial capacity to integrate affordable housing units. General cost and revenue assumptions in each pro forma were established based on a review of the specific local site conditions. Assumptions were based on market conditions in the first half of 2023. It should be noted that both the for-sale and for-lease markets continue to react to notable recent increases in interest rates and borrowing costs. Ultimately the feasibility of a given project may change over time as fundamental economic inputs change.

The pro forma analysis also included a high-level evaluation of the potential impact of a given site development program on general fund revenues for the respective city. Each of the hypothetical redevelopment scenarios and pro forma analyses were developed in an iterative process to test and understand how a variety of factors contributed to the financial feasibility of redevelopment of commercial sites to housing. Where initial test fit programs were found to be marginally viable or infeasible from a financial standpoint, further iterations of the program and pro forma were tested by exploring additional height and density bonus provisions, utilizing a denser housing product, limited redevelopment to underutilized vacant land such as parking lots etc. to promote financial feasibility.

High level infrastructure analysis was conducted for sewer, water, and trash services to determine the potential impact of the hypothetical redevelopment scenario on existing city services. Summaries of the infrastructure analysis are provided for each hypothetical redevelopment scenario and Step 4 of the Methodology, with more detailed findings in the Appendix of this Study.

Travel impacts from converting commercial uses to residential were not studied and were outside of the scope of work for this Study. Given the varied modeling analysis methods and selected baselines that each city uses, any hypothetical redevelopment development scenario must be analyzed on a case-by-case basis.

## Step 4:

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Key insights and takeaways from the iterative test fit and pro forma process were then distilled to highlight some common themes of development and financing of market-rate and affordable housing that were starting to emerge. The observations included:

1. Adding new housing as either infill or reuse is challenging in the South Bay, and often hard to implement due to high cost of land and economic utility of existing site improvements.
2. Redevelopment feasibility is unique to each site and depends heavily on site-acquisition costs and local market fundamentals. Even on similar sites in different areas, the same development program might not work due to unique local conditions.
3. However, there are a few common strategies for site redevelopment that could be viable and considered depending upon the characteristics of an opportunity site:
  - **Site redevelopment: Low density.** This involves full-scale redevelopment (removing most or all existing improvements) to generate a density and scale similar to the surrounding urbanism and existing context of the South Bay cities studied.
  - **Site redevelopment: Moderate density.** This involves full-scale redevelopment (removing most or all existing improvements) with a moderate or compact density development that is generally higher in scale and/or density than the surrounding urban fabric. Design measures to create context-appropriate massing and graceful integration into the surrounding context are important.
  - **Site redevelopment: Incremental infill.** This involves an incremental or phased approach that retains existing improvements and adds housing density on underutilized portions of the site (typically parking areas), to intensify the usage of the site. This is especially viable for large commercial sites with expansive parking lots.
4. Some infrastructure upgrades, such as an increase in sewer capacity, may be required to accommodate additional housing units. Further flow monitoring of sewer capacity is typically required if increases in sewer flow exceed 50% capacity of the existing sewer. At this point, further monitoring would determine to confirm the capacity of the sewer main and/or determine if upgrades would be needed to increase the sewer capacity to accommodate new development.

For example, the high-level infrastructure studies conducted indicated that two of the hypothetical redevelopment scenarios would have a significant impact on existing sewer capacity, while others had negligible impacts on existing sewer capacity and any increases in sewer flow would be within the capacity of the existing sewer infrastructure.

The Carson Site #2 Carson Plaza Office Park hypothetical redevelopment scenario would cause a 42% increase in sewer flow which is significant and would fall outside of the capacity of the existing sewer infrastructure, requiring further monitoring or potential upgrades to sewer capacity to accommodate the hypothetical redevelopment scenario. The existing sewer capacity for Redondo Beach Site #1 1770 Pacific Coast Highway was deemed already above its sewer capacity and would require further monitoring or upgrades to increase sewer capacity to accommodate the hypothetical redevelopment scenario and potentially new development as well.

Available sewer infrastructure capacity may change the potential development approaches on these sites with more of a focus on incremental development or development phasing for larger sites, and/or infrastructure upgrades may be required to accommodate new development.

5. In all the above cases, financial feasibility will also be enhanced with creative strategies for enabling mobility. Reducing/sharing parking and encouraging other strategies including mode share with walking/biking and NEVs, increasing destination density to support these modes and promoting their use could help reduce parking demand. Additionally, there are other modes that could accommodate people's parking needs using less space. This could help reduce development costs associated with parking, and/or enhancing site fit options by requiring less parking on a given site.
6. Pro forma evaluations considered the feasibility of market rate developments, and if feasible, the potential capacity to support some income restricted units. The conclusion is that in a best case there is limited financial capacity in the hypothetical redevelopment scenarios to support affordable housing. Development of a substantial quantity of affordable housing in alignment with RHNA allocations will require substantial direct funding through subsidies, grants or other similar capital sources.
7. The study then explored the gap between the required RHNA targets, both market and affordable units for each of the participating cities. RHNA requirements were evaluated in the context of existing housing inventory and general market conditions in each city to evaluate the order of magnitude estimate of: (i) the difference between market values and affordable values, and (ii) the potential cost of constructing affordable units versus affordable values.

## Step 5:

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Outreach was conducted to for-profit developers with experience developing housing projects in the South Bay cities and/or experience with housing typologies and projects at a similar size and scale to the hypothetical redevelopment scenarios in this Study. The goal of the outreach and developer discussions was to get market-based feedback on the hypothetical redevelopment scenarios evaluated. The proforma and analysis in the Study integrates input from developers garnered through these discussions.

The developers provided feedback on select hypothetical redevelopment scenarios for Carson Site #2, Hawthorne Site #1, and Manhattan Beach Site #1, all of which were large sites, and agreed with the hypothetical redevelopment scenario development approaches, including the housing typologies for the sites.

The hypothetical redevelopment scenarios incorporated amenities to support multi-modal trips, such as a micro-transit station, micromobility node, and neighborhood electric vehicle parking, allowing for a reduced vehicle parking ratio that is aligned with sustainable housing principles. However, the developers stated that the existing market typically desires a parking ratio of 1 space per bedroom and would prefer more flexibility for parking provisions.

An additional takeaway from developer interviews found that often the highest and best use for several sites is to keep the site as is, because of the high land costs and housing affordability requirements. Our study also found that redevelopment feasibility was also impacted by the cost of the land and the existing improvements on the land. Two of the hypothetical redevelopment scenarios had to be reworked with a tactical infill approach to preserve existing uses and development on sites, and strategically target the underutilized portions of a site for redevelopment to make the scenario feasible from a market standpoint.



## South Bay Specific Conditions

Pursuant to the 6th Cycle Housing Element Update Regional Housing, each city is assigned a Regional Housing Needs Allocation (RHNA) target by the State of California and must plan for and allocate housing units at a variety of income levels within their jurisdictions. The most recent RHNA allocations for each participating city as part of their respective 6th Cycle Housing Elements are provided below.

### Study Cities 6th Cycle Housing Element RHNA Allocation (2021 - 2029)

	Very Low*	Low	Moderate	Above Moderate	Total
<b>Carson</b>	1,770	913	875	2,060	<b>5,618</b>
<b>El Segundo</b>	189	88	84	131	<b>492</b>
<b>Hawthorne</b>	445	204	249	836	<b>1,734</b>
<b>Hermosa Beach</b>	232	127	106	93	<b>558</b>
<b>Manhattan Beach</b>	322	165	155	132	<b>774</b>
<b>Redondo Beach</b>	936	508	490	556	<b>2,490</b>
<b>Total</b>	<b>3,894</b>	<b>2,005</b>	<b>1,959</b>	<b>3,808</b>	<b>11,666</b>

Source: SCAG 6th Cycle Final RHNA Allocation Plan

\*Pursuant to Government Code §65583(a)(1) it is assumed in the balance of this analysis that the need for extremely low-income units comprises half of the very low-income units.

For reference and scale, these RHNA allocations represent ambitious planning to accommodate target housing growth ranging based on existing housing units, from approximately 5 percent for cities like Manhattan Beach and Hawthorne to 20 percent for the City of Carson.

### Existing Housing Units vs. RHNA Allocation

	Existing Housing Units	RHNA Target	Growth
<b>Carson</b>	27,699	5,618	<b>20%</b>
<b>El Segundo</b>	7,500	492	<b>7%</b>
<b>Hawthorne</b>	31,578	1,734	<b>5%</b>
<b>Hermosa Beach</b>	10,038	558	<b>6%</b>
<b>Manhattan Beach</b>	14,994	774	<b>5%</b>
<b>Redondo Beach</b>	30,999	2,490	<b>8%</b>
<b>Total</b>	<b>122,808</b>	<b>11,666</b>	<b>9%</b>

Source: California Department of Finance Table E-5 4/1/2020, SCAG 6th Cycle Final RHNA Allocation Plan

At the same time, most South Bay cities consider themselves to be “built out” for residential uses and require a creative approach to accommodate more housing. The South Bay’s unique context and post-war suburban development patterns have created robust commercial corridors, retail clusters and strip center retail. Due to broader market and lifestyle trends, such as declining retail sales and demand due to e-commerce and the COVID-19 pandemic, clusters and sites within corridors have become vacant and/or underutilized. This recent condition presents an opportunity for cities to rethink these vacant and/or underutilized commercial sites as potential for infill housing that is appropriate for the character and scale of the existing neighborhood or corridors, and reflective of the surrounding context (built

environment, height, density, etc.).

Targeting commercial corridors for additional infill housing development creates opportunities for cities to meet their RHNA targets by providing possible sites and locations for new housing. At the same time, this approach also provides an opportunity to preserve the existing, successful commercial and community beneficial uses while integrating housing, which in turn helps create viable economic places. Locating housing on commercial corridors also aligns with sustainable housing principles by ensuring that any new housing is placed in destination and amenity-rich areas to promote more walking and biking.

Given that the existing built environment differs across commercial corridors throughout South Bay cities and potential sites for housing come in a variety of shapes and sizes, this Housing Roadmap explores a diversity of site sizes, typologies, scales, and housing products. Across each of the participating cities, specific sites were selected to develop potential redevelopment scenarios that together help to show the variation in infill housing development. While specific sites were selected for each the redevelopment scenarios, the findings from each scenario can be applied to other sites across the South Bay and beyond.

- Size of Site: small (less than 1 acre), medium (1-6 acres), large (6 acres or more)
- Scale of Development: low rise (2 stories), low to mid rise (3-4 stories), mid-rise (5-7) stories
- Housing Infill Strategy/Typology: new build or rebuild, tactical infill with tenant preservation
- Housing Product: townhomes, live/work, and mixed-use

Each of the six participating cities selected two study areas or corridors for potential infill housing based on the Step 1 and Step 2 analysis. The participating cities also helped to identify one site within each study area for the hypothetical redevelopment scenario.

### Hypothetical Redevelopment Scenarios for the Six Participating Cities

City	Size of Site in Study Area			Typology		Scale			Potential Housing Product		
	Small	Medium	Large	New Build or Rebuild	Tactical Infill w/ Tenant Preservation	Low Rise	Low to Mid-Rise	Mid-Rise	Town-homes	Live/Work	Mixed-Use
<b>Carson</b>											
<b>El Segundo</b>											
<b>Hawthorne</b>											
<b>Hermosa Beach</b>											
<b>Manhattan Beach</b>											
<b>Redondo Beach</b>											






**04**

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# City Profiles

- 1** CITY OF CARSON
  - 2** CITY OF EL SEGUNDO
  - 3** CITY OF HAWTHORNE
  - 4** CITY OF HERMOSA BEACH
  - 5** CITY OF MANHATTAN BEACH
  - 6** CITY OF REDONDO BEACH
- 

1

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# City of Carson

**Study Area 1:** Main St./Carson St.

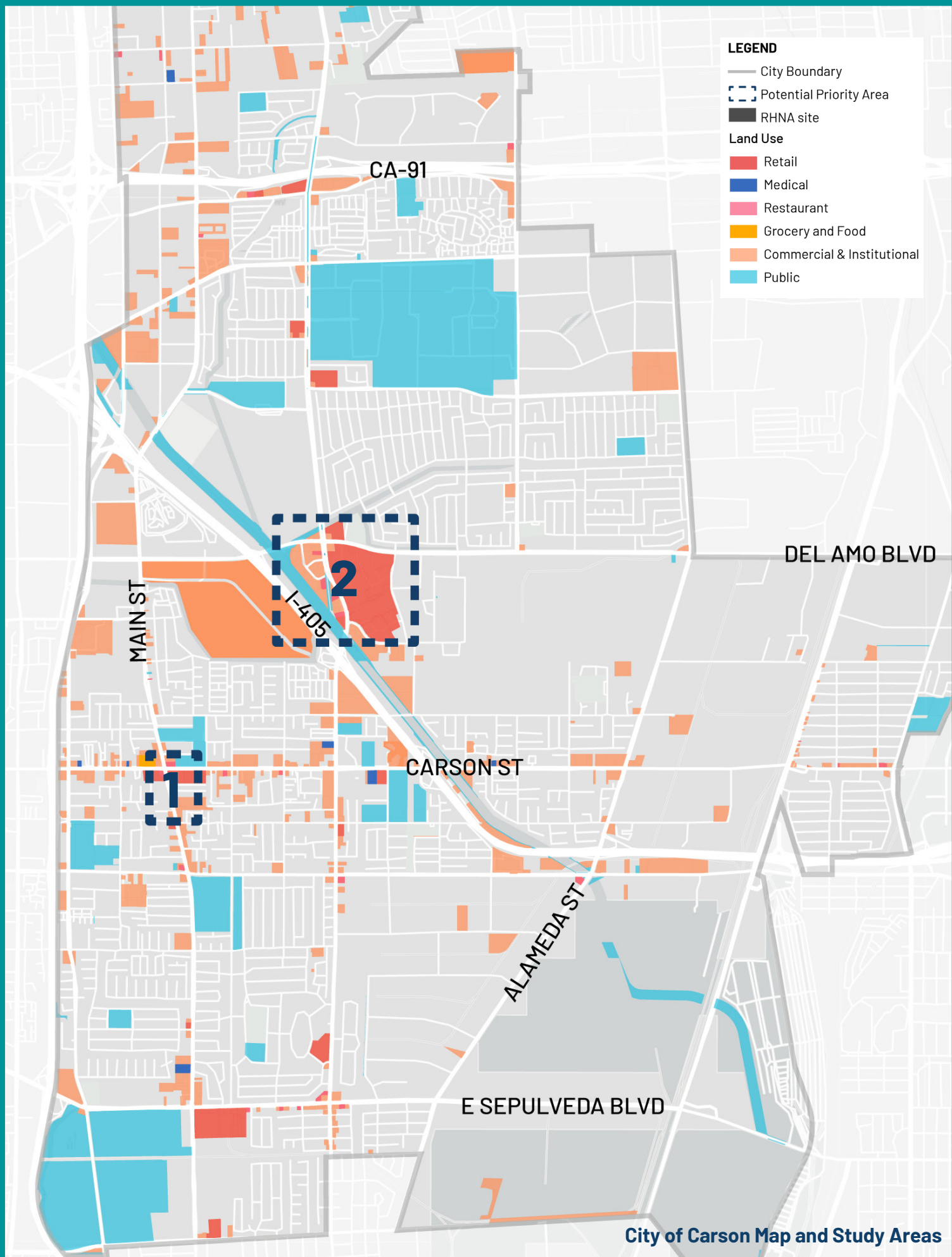
**Study Area 2:** Del Amo Blvd. and Avalon Blvd.

**LEGEND**

- City Boundary
- - - Potential Priority Area
- RHNA site

**Land Use**

- Retail
- Medical
- Restaurant
- Grocery and Food
- Commercial & Institutional
- Public



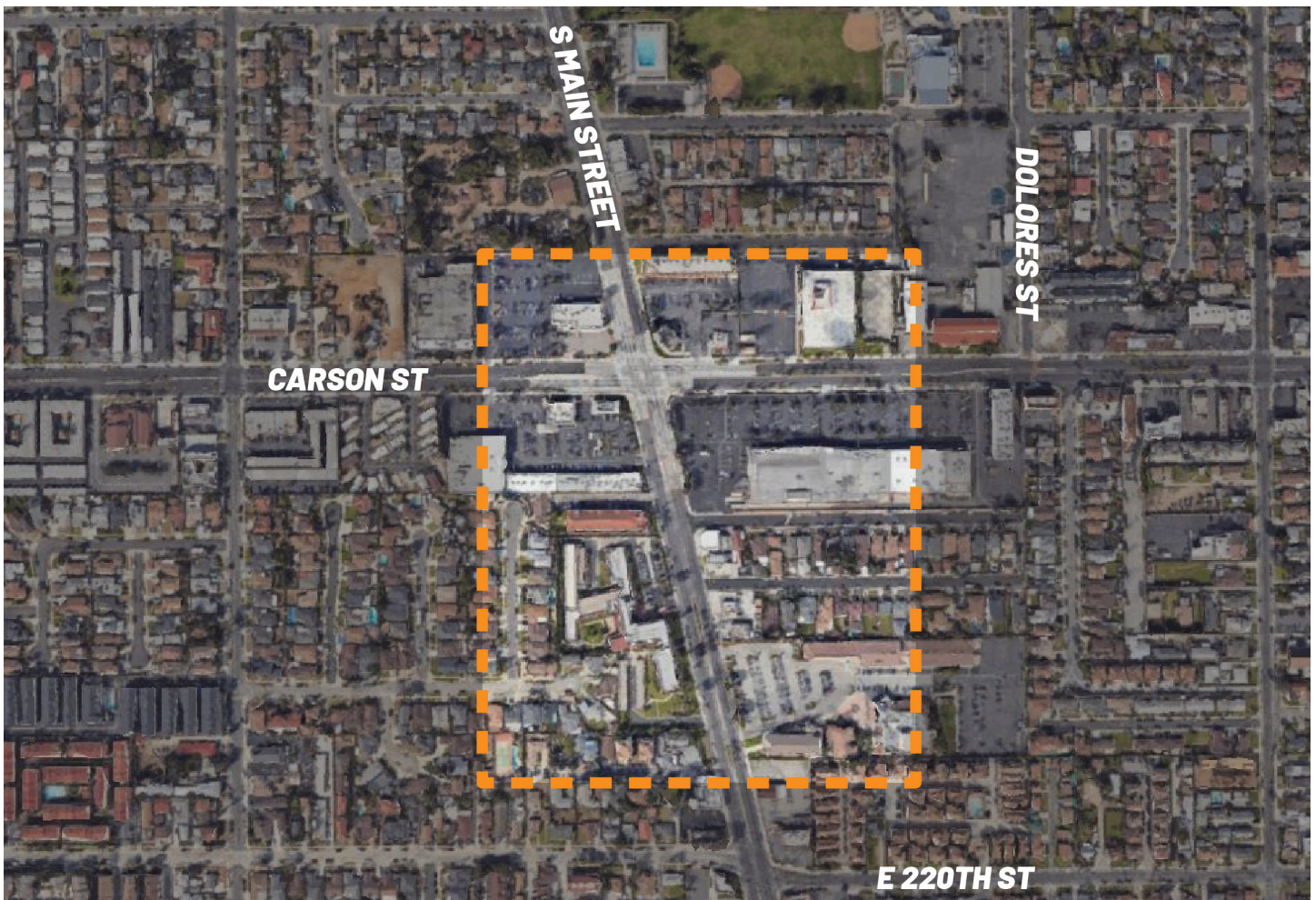
City of Carson Map and Study Areas

## Study Area 1:

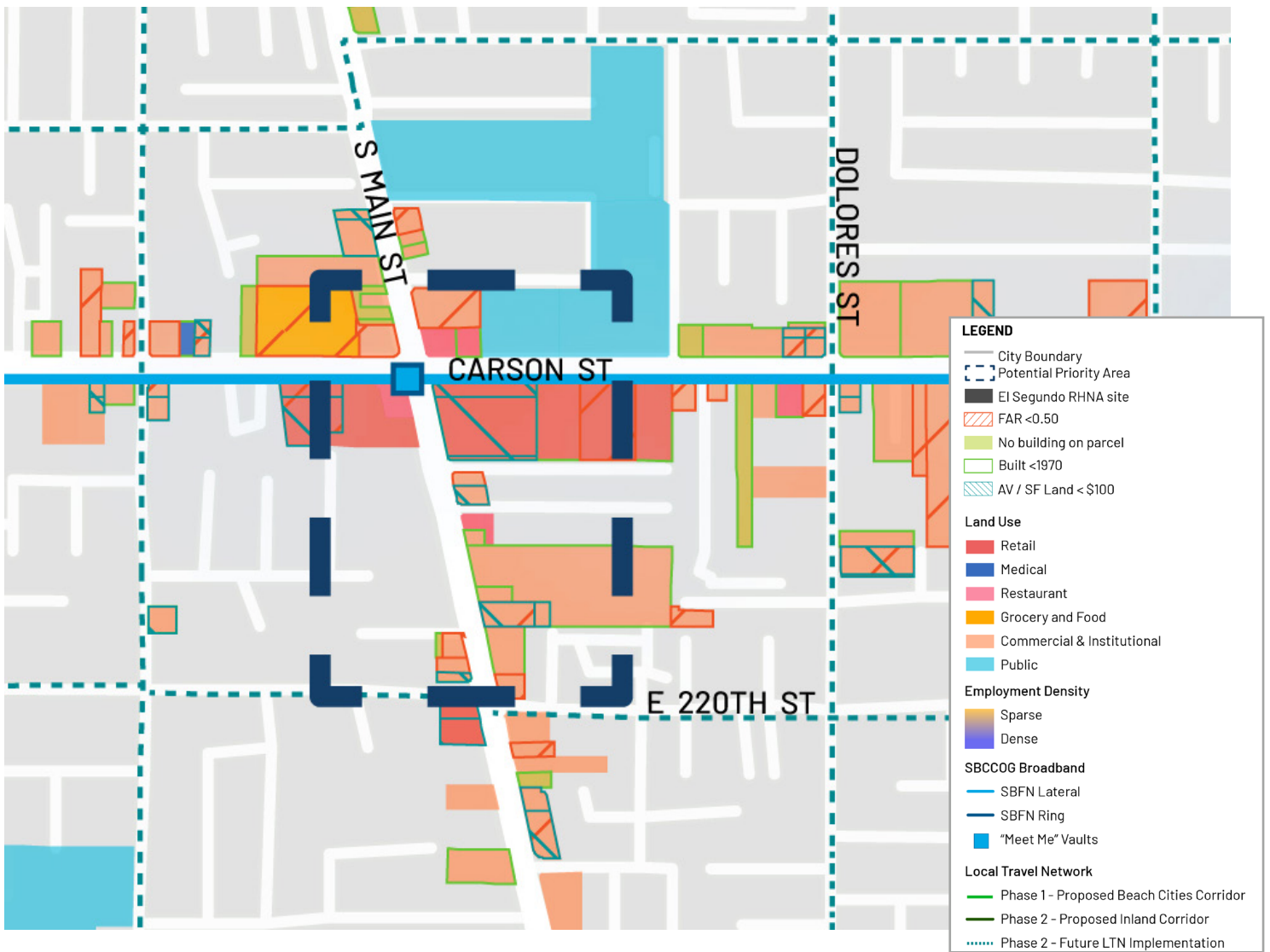
# Main St./Carson St.

The City of Carson is in the process of updating their General Plan. The General Plan Update will retain a handful of commercial sites for commercial uses and rezone the remaining commercial properties for mixed-use. It also includes an incentive for commercial uses to remain on sites, allowing for more flexibility for redevelopment. The General Plan Update designates commercial uses within Study Area 1 – Main Street and Carson Street for mixed-use and allows residential of up to 40 du/ac. In addition, SBCCOG’s South Bay Fiber Network provides the Study Area with high-speed internet to support economic development and a strong concentration of destinations. SBCCOG’s Local Travel Network serves the southern portion of the Study Area creating safer multi-modal connections to destinations with a slow-speed network.

Study Area 1 is destination-rich with a diversity of commercial uses and amenities along Carson Street and fronting Main Street; some of destinations within this Study Area such as a grocery store and Goldilocks Bakeshop and Restaurant recently underwent renovations. Properties on the northside of Carson Street have been difficult for property owners to renovate due to existing land leases. Properties on the eastside of Main Street have a low improvement ratio, aging structures (built before 1970), or are underbuilt (FAR of less than 0.50), and are adjacent to single-family residential creating opportunities for redevelopment of these commercial sites for infill housing.



Aerial view of Main St./Carson St.



## Scorecard Summary



## Site 1: 21800 Main St.



Site #1 21800 Main Street presents a similar condition to properties fronting Main Street. It is within walking distance to existing transit and the LTN, as well as to existing destinations and adjacent to single-family residential. Existing businesses, such as pet grooming and kitchen flooring businesses located within the site, create a unique opportunity to preserve locally serving retail and legacy businesses while also integrating housing. A three-story townhome product for smaller sites along the eastside of Main Street, like Site #1, creates homeownership opportunities in destination-rich areas.

The Site #1 hypothetical redevelopment scenario retains approximately 3,000 square feet of the existing retail, creating an active corner on Main Street and includes five, three-story for-sale townhome products with ground-level garages, as well as four additional surface parking spaces to serve retail customers and provide guest parking. By introducing the horizontal mix of uses on the site while retaining some existing retail uses, the hypothetical redevelopment scenario tests the potential to create pockets of new housing even on smaller corridor sites to incrementally provide opportunities for additional units and greater home ownership. The scale of the development also aligns with the surrounding residential character.

To achieve this scenario in Site #1 with only 4 retail surface parking spots, strategies to reduce retail parking minimums would be necessary. To balance options for mobility, the scenario study integrates options for a mobility hub that can provide amenities for alternate mobility.

The pro forma analysis for the hypothetical redevelopment scenario also explores eight for-sale three-story townhomes and removes the existing retail on site. While the scenario reusing the existing commercial improvements provided slightly superior economic returns, both redevelopment approaches of for-sale three-story townhomes for Site #1 are considered marginally feasible.

The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure.

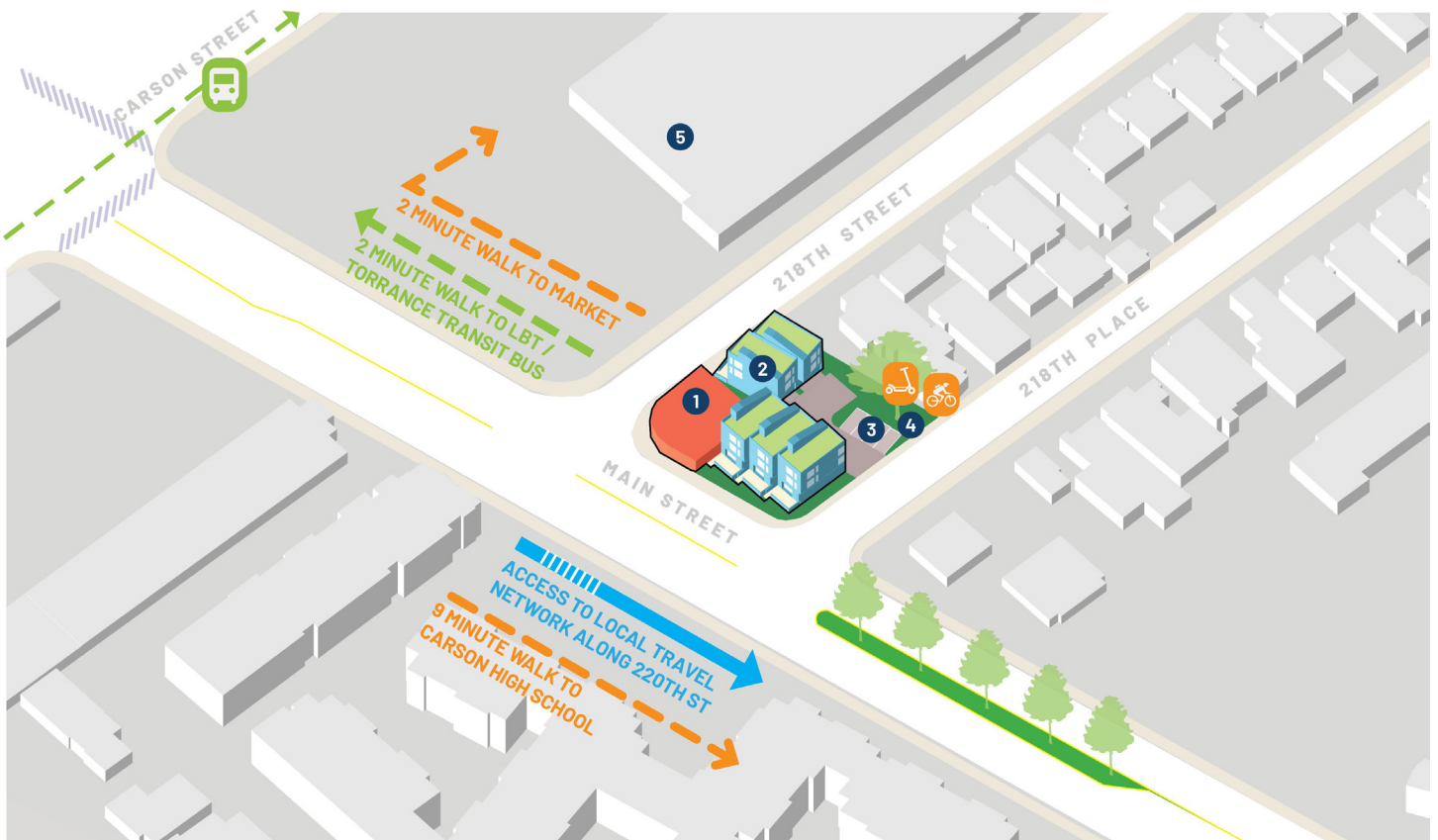


# Hypothetical Redevelopment Scenario

- Sustainable Housing Along a Commercial Corridor
- Support Creation of a Walkable District
- One Block Away from Transit & Shopping

## KEY

- 1** 3,000 SF Existing Retail to Remain
- 2** Five 3-Story Townhome Units with Ground Level Garages
- 3** 4 Surface Parking Stalls
- 4** Micromobility Node
- 5** Existing Neighborhood Serving Retail Center



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	0.40	Land Cost / Land SF	\$85	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	3,000	Parking Cost / Net SF	-	Potential Capacity	\$0	Best Case % of Units	~13-20% / 1 Unit
Net Residential SF	10,250	Development Cost / Net SF	311	Equivalent Low Units	0	Impact to Return	0%
Parking / Bedroom	0.7	Total Cost / Net SF	436				
Total Bedrooms	15			<b>For Sale</b>			
Dwelling Units	5	Return on Cost if For Lease	-0.2%	Potential Capacity	\$0		
DU / Acre	12.5	Return on Cost if For Sale	10.4%	Equivalent Low Units	0		

The hypothetical redevelopment scenario at 21822 Main St. requires domestic water, fire water and sanitary sewer services, and is currently served by an existing water main and an 8-inch sewer in Main Street. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The proposed water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure would be required for the hypothetical redevelopment of this site. In addition, the hypothetical redevelopment scenario would increase the sewer flow of approximately 1%, which is negligible and within the capacity of the existing sewer infrastructure.





## Study Area 2:

# Del Amo Blvd./Avalon Blvd.

Del Amo Boulevard and Avalon Boulevard is an amenity-rich area with a variety of neighborhood serving destinations, such as the South Bay Pavilion Mall, big box retail stores and strip commercial on large parcels with expansive parking lots, and office buildings. SBCCOG's South Bay Fiber Network broadband infrastructure along Del Amo Boulevard provides high-speed internet to benefit existing and future businesses within the area. Many of the commercial sites are underbuilt (FAR of less than 0.50) and have a low improvement ratio, creating opportunities for redevelopment. The City of Carson has designated commercial uses Study Area 2 for mixed-use with a maximum FAR of 1.75 and allows for residential of up to 65 du/ac.

Potential housing opportunities for Study Area 2 can connect to the proposed LA County pocket park along Dominguez Channel through enhanced pedestrian connections. Existing residential to the northeast of Study Area 2 will be served by Phase 2 of SBCCOG's Local Travel Network to facilitate safer pedestrian connections and more multi-modal trips.



**Aerial view of Del Amo Blvd./Avalon Blvd.**



## Scorecard Summary



## Site 2: Carson Plaza Office Park



Site #2 Carson Plaza Office Park is a RHNA site, designated for 60 du/ac with 108 low-income housing units identified. Site conditions such as overhead high-voltage transmission lines and existing office buildings create unique opportunities for the strategic infill of housing on underutilized portions of the site. Additionally, the site's proximity to large retail and employment destinations across Avalon Boulevard, as well as access to the Dominguez Channel pocket park allows pedestrians to walk through the site and access destinations, creating interesting pedestrian connections.



The hypothetical redevelopment scenario initially explored a bold and full-scale transformation of the large site by integrating multiple new uses and destinations, including different types of retail and residential units, office space, and the reclamation of community open space and trails. The full-scale transformation of the site provides opportunities to create not just added housing density but destination density directly on site and within a close proximity of the housing. The scenario studies the potential for added housing and community amenities, as well as some ground floor retail in mixed-use buildings. An important consideration with regards to site planning for this Study site was the existing overhead high voltage power lines running through the site. Appropriate setbacks and buffering from this infrastructure for any new residential development would be essential to take into consideration.

The accompanying pro forma analysis for this preliminary for-lease hypothetical redevelopment scenario was not financially feasible despite reasonable redevelopment revenue. The residual land value under the for-lease hypothetical redevelopment scenario did not overcome the existing improvement value given the recent redevelopment of several parcels along Avalon Boulevard. An updated hypothetical redevelopment scenario for Site #2 focused only on the transformation of the western portion of the site which had lower values for existing improvements.

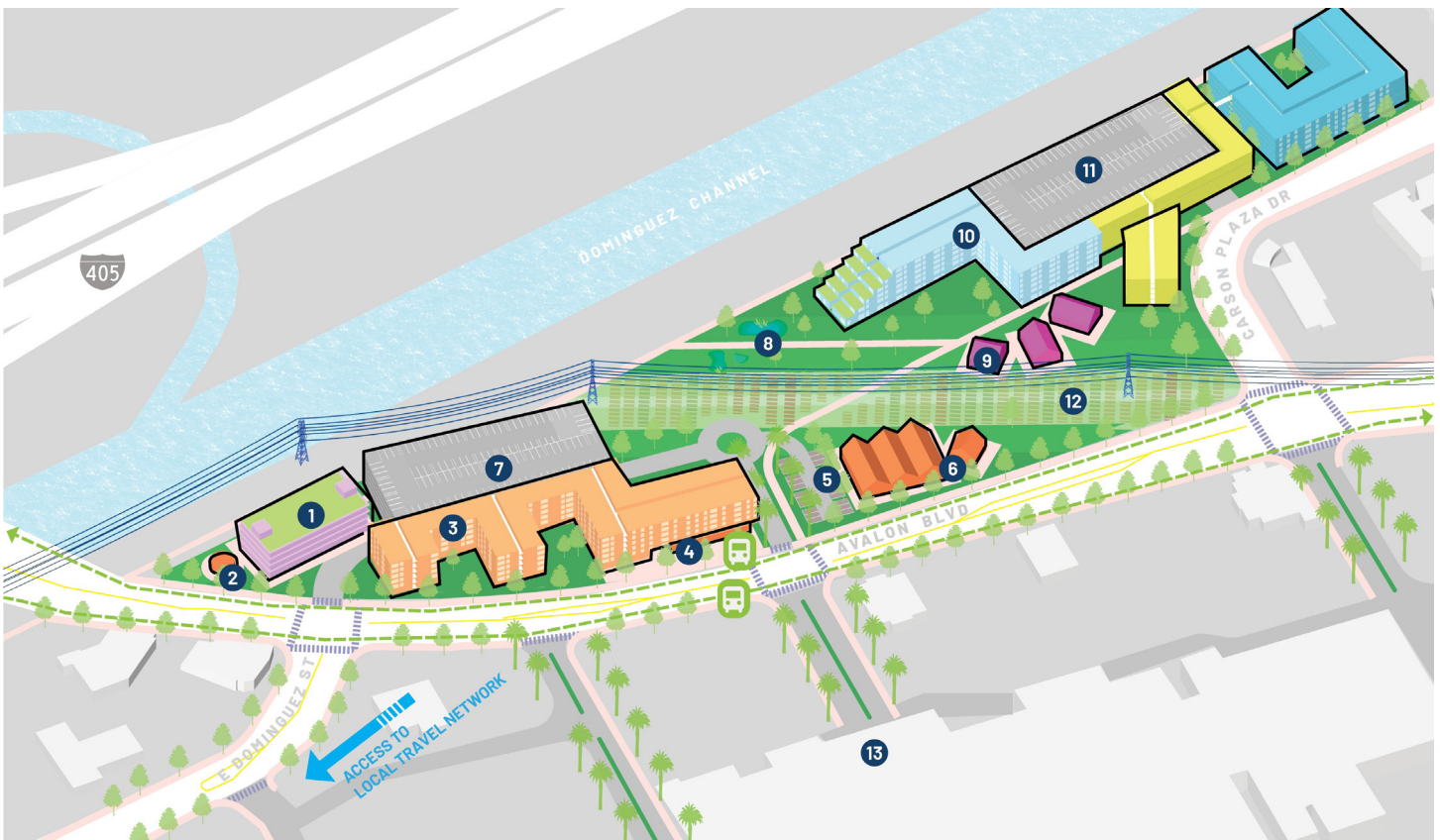
The updated hypothetical redevelopment scenario takes advantage of the underutilized western portion of the site at Carson Plaza Drive and includes a mix of studios, one and two bedrooms for a total of 244 for-lease residential units creating a mixed-income project, as well as 318 parking

# Preliminary Hypothetical Redevelopment Scenario

- Proximity to Large Retail Destination
- Responds to Challenges of High Voltage Lines
- Reclamation of Community Open Space
- Incorporation of Multiple Uses
- Creation of New Destinations On-Site

## KEY

- |  |   |
|--|---|
| <b>1</b> 43,000 SF Office Space        | <b>8</b> Community Open Space & Trails                |
| <b>2</b> Plaza & 800 SF Retail Kiosk   | <b>9</b> 5,800 SF Community Buildings                 |
| <b>3</b> 229 Residential Units         | <b>10</b> 402 Residential Units                       |
| <b>4</b> 7,000 SF Ground Floor Retail  | <b>11</b> 644 Structured Parking Stalls               |
| <b>5</b> 24 Surface Parking Stalls     | <b>12</b> Retain Existing Nursery Beneath Power Lines |
| <b>6</b> 10,000 SF Retail Pads         | <b>13</b> South Bay Pavilion Mall                     |
| <b>7</b> 644 Structured Parking Stalls |   |



spaces in a parking garage. Green and open space integrated into the courtyards provides accessible community space for residents. Parking for the housing is provided at one stall per unit for studios and one-bedroom units, and two stalls per unit for two-bedroom units. These ratios are slightly lower than the current code requirement for multifamily residential in Carson. In addition, the current code has requirements for height limits and private open space per unit that would need to be relaxed to achieve the proposed density.

Overall, the scenario yielded a density of 83 du/ac, while 60 du/ac is permitted. The redevelopment approach for the for-lease residential units for Site #2 is considered feasible and could potentially yield some excess value sufficient to support a limited number of income restricted units.

The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 20755 Avalon Blvd. would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing water main and an 8" sewer main in Avalon Blvd. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The potential water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure would be required.

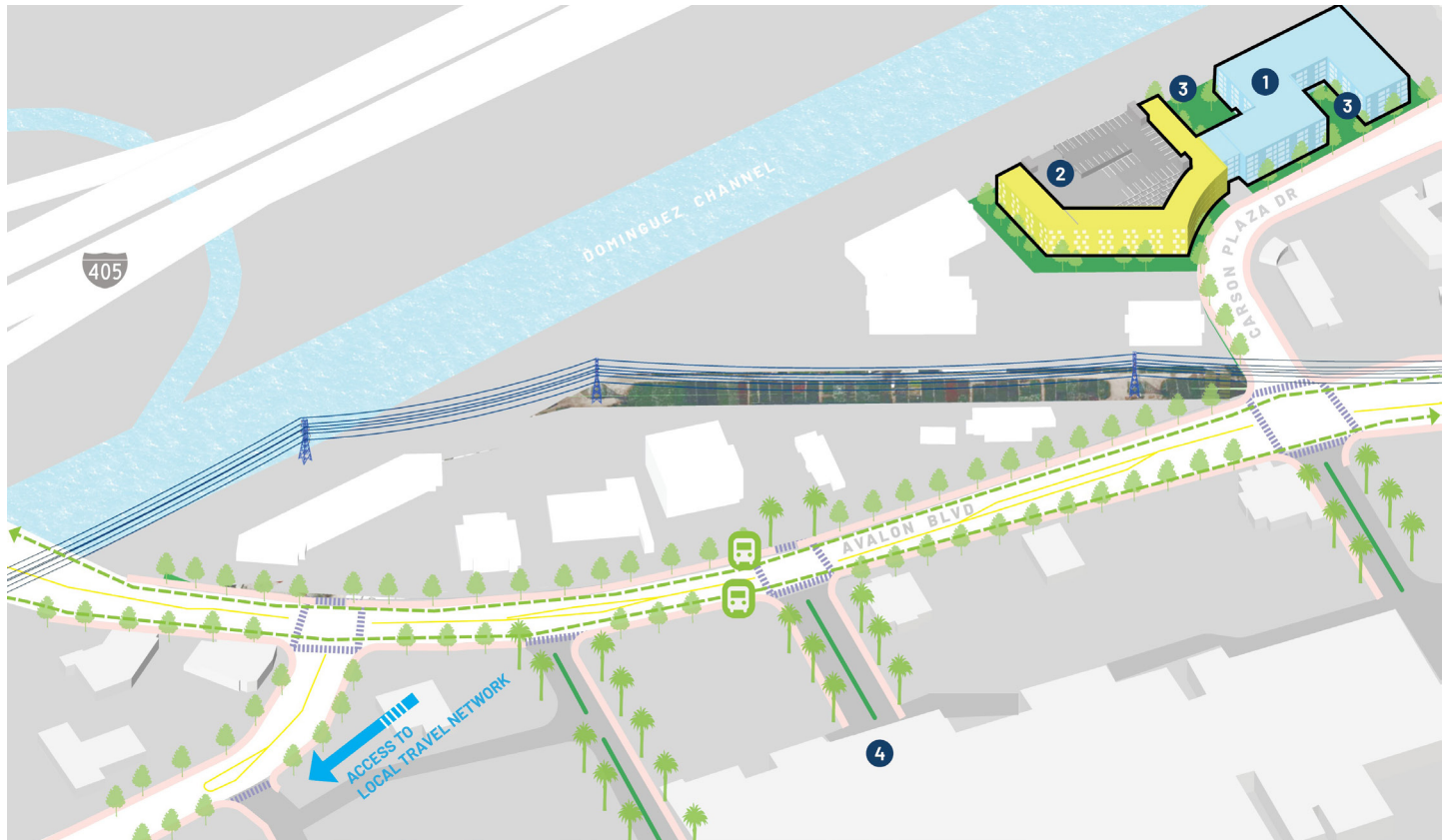
The hypothetical redevelopment scenario would cause an increase in sewer flow of approximately 42%, which is significant and would fall outside of the capacity of the existing sewer infrastructure. Further flow monitoring may be required to confirm the capacity of the sewer main or if upgrades would be required to increase the sewer capacity.

# Updated Hypothetical Redevelopment Scenario

- Proximity to Large Retail Destination
- Takes Advantage of Underutilized Site
- Proximity to Metro & Long Beach Transit Bus Lines

## KEY

- 1 244 Residential Units
- 2 318 Structured Parking Stalls
- 3 Courtyard Open Space
- 4 South Bay Pavilion Mall



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	2.9	Land Cost / Land SF	\$175	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	-	Parking Cost / Net SF	58	Potential Capacity	~\$3 MM	Best Case % of Units	-5% / 13 Units
Net Residential SF	207,380	Development Cost / Net SF	493	Equivalent Low Units	-7	Impact to Return	-2%
Parking / Bedroom	1.0	Total Cost / Net SF	613				
Total Bedrooms	317			<b>For Sale</b>			
Dwelling Units	244	Return on Cost if For Lease	5.9%	Potential Capacity	\$0		
DU / Acre	83.1	Return on Cost if For Sale	-12.7%	Equivalent Low Units	0		

2

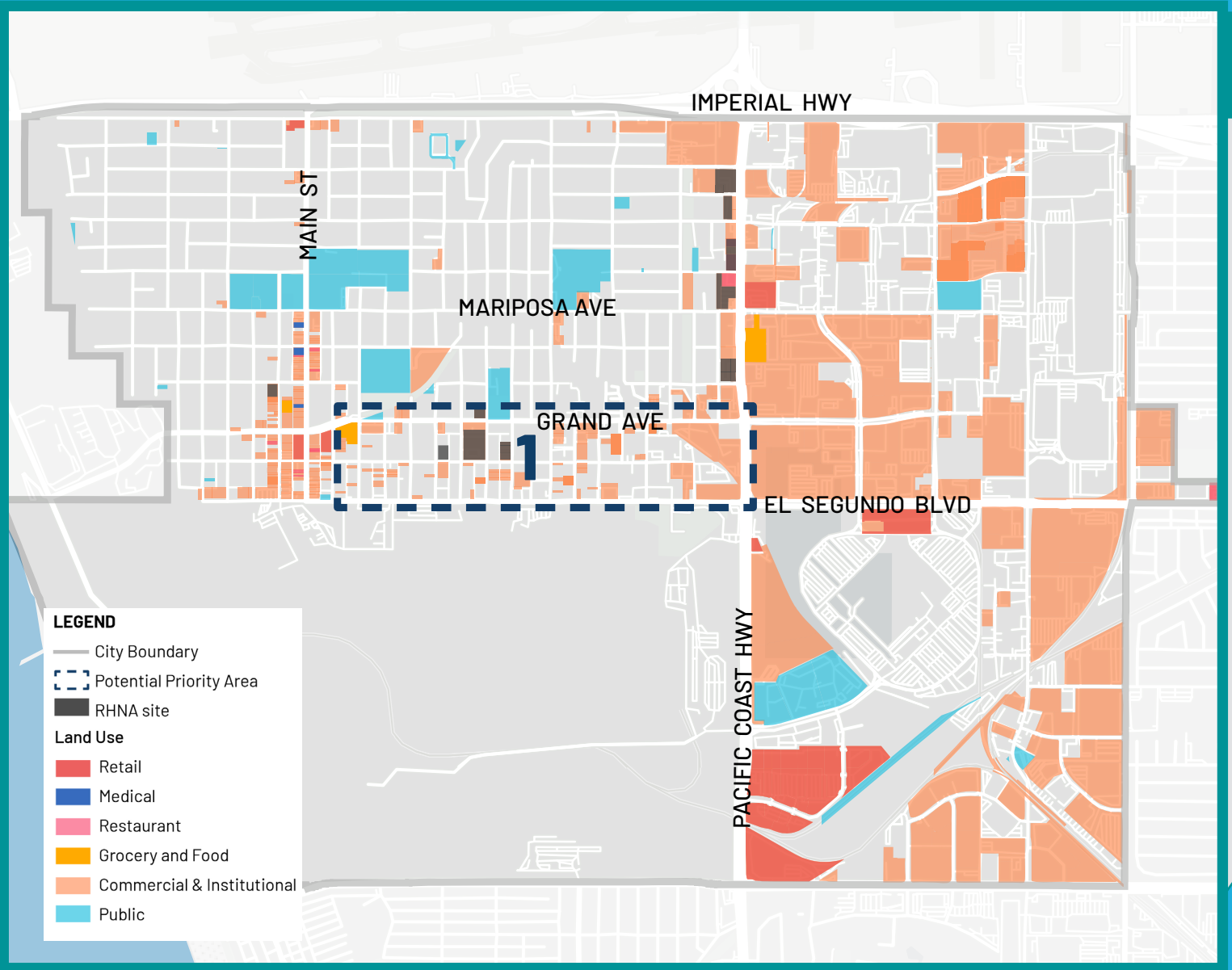
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# City of El Segundo

**Study Area 1: Smoky Hollow**

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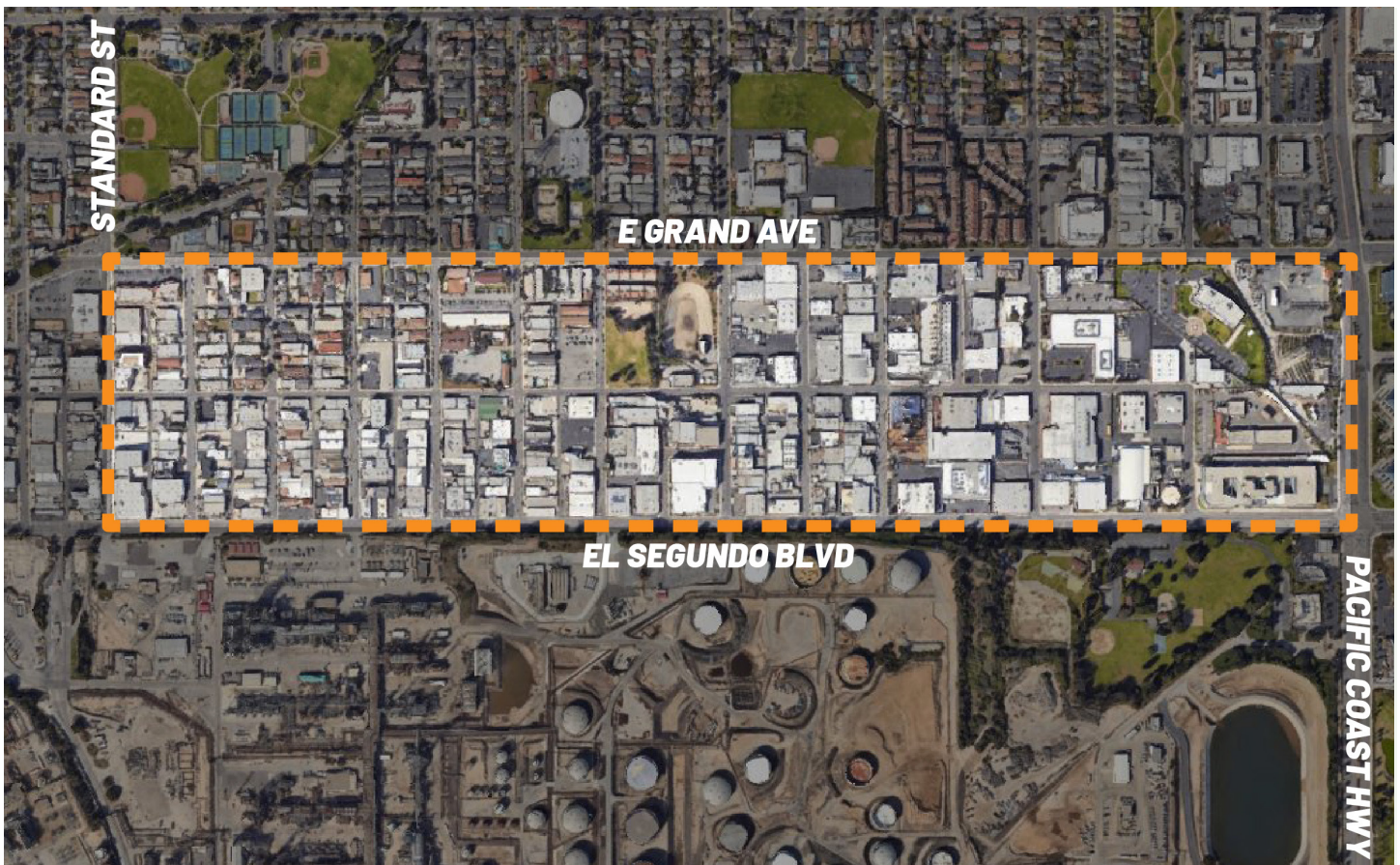
## Study Area 1:

# Smoky Hollow

Smoky Hollow is a quasi-industrial district within walking distance to Downtown El Segundo that includes light industrial uses and warehouses. Select properties have been transitioned over time into creative offices for tech and research and development, as well as large studio spaces due to the district's reputation as the center for creativity and innovation. The district is also rich with mid-century brick buildings with artwork and community-serving amenities and destinations, such as breweries and coffee shops.

The City of El Segundo is in the process of amending the Smoky Hollow Specific Plan adopted in 2018 to expand housing opportunities for the district creating some unit opportunities for adaptive reuse of warehouses and other underutilized sites (FAR of less than 0.5 and built before 1970) into lofts and live/work units. A few RHNA sites in Smoky Hollow have been identified by the City. As of now, residential is only permitted as caretaker units.

SBCCOG's LTN along Grand Avenue in the north of the Study Area provides a safe and slow speed connection from Smoky Hollow to downtown El Segundo. SBCCOG will be expanding the LTN through the district in future phases as public realm and other streetscape improvements are put in place. SBCCOG's broadband South Bay Fiber Network also serves the district, providing high-quality internet and the potential for Wi-Fi hotspots to serve the existing concentration of businesses.



Aerial view



## Scorecard Summary



## Site 1: Franklin Ave. and Maryland St.



Site #1 located at the corner of Franklin Avenue and Maryland Street, includes parcels under common ownership to create a medium sized (2.90 acres) development opportunity for housing in Smoky Hollow while adaptively reusing the existing warehouse for creative office space; ownership may also include the park located across Franklin Avenue, which can serve as a community amenity for existing businesses and new residential in the area. Site #1 presents a unique opportunity to utilize the topography of the site to integrate density and height in a manner that is unobtrusive, as well as add on to existing structures to accommodate different housing typologies, a variety of unit sizes, and community amenities.



The Site #1 hypothetical redevelopment scenario has a total of 110 units including ten live/work lofts, some of which are added atop an existing structure onsite, 20 three-story townhomes with ground level garages, and 80 residential flats. The townhomes and two-story live/work units front Franklin Avenue creating a pedestrian scale development while the residential flats are stepped back. Parking for the redevelopment scenario includes a structured garage with 110 parking stalls and a podium-level courtyard above, connecting and serving as an amenity for the residential flats. In addition, five surface parking stalls are provided for the 18,300 square foot existing office space.

The current zoning for the site under the Smoky Hollow Specific Plan has a maximum building of 30' - 50' which would need to be relaxed for the new units built on top of the existing structure. Parking provided for these units in the study is also limited to one per dwelling unit which is lower than the current requirement in the Specific Plan, while parking for the townhomes is closer to meeting the code requirement.

The pro forma analysis found that was financially feasible, and yielded some capacity to support the inclusion of some income restricted units. Based on the infrastructure capacity studies for the hypothetical redevelopment scenario, the overall sewer generation will be increased fractionally with the hypothetical redevelopment scenario for Site #1.

The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical

# Hypothetical Redevelopment Scenario

- Adaptive Reuse for Creative Office Space
- Variety of Housing Typologies Adjacent to LTN & Walking Distance to Bus Route

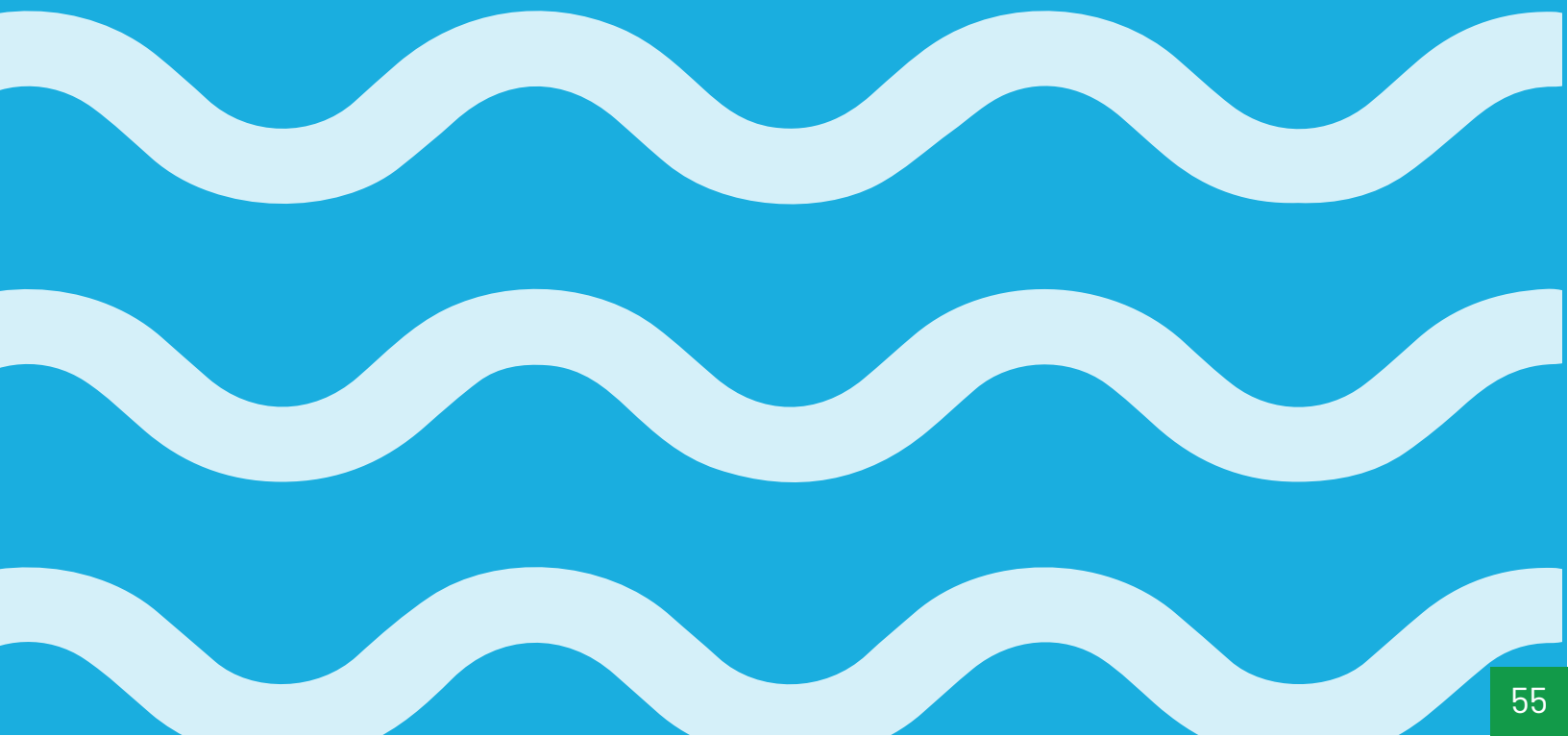
## KEY

- 1 18,300 SF Existing Office Space
- 2 3 Live-Work Lofts Addition to Existing Structure
- 3 Podium-Level Courtyard Above 110 Structured Parking Stalls (Access from Bungalow Dr.)
- 4 80 Residential Flats
- 5 7 2-Story Live-Work Units
- 6 20 3-Story Live-Work Units
- 7 5 Surface Parking Stalls



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	2.9	Land Cost / Land SF	\$250	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	18,300	Parking Cost / Net SF	30	Potential Capacity	\$0	Best Case % of Units	~5% / 6 Units
Net Residential SF	124,330	Development Cost / Net SF	484	Equivalent Low Units	~0	Impact to Return	+1%
Parking / Bedroom	0.7	Total Cost / Net SF	729				
Total Bedrooms	187			<b>For Sale</b>			
Dwelling Units	113	Return on Cost if For Lease	-12.1%	Potential Capacity	~\$5 MM		
DU / Acre	39.0	Return on Cost if For Sale	14.8%	Equivalent Low Units	~5		

redevelopment scenario at Franklin and Maryland would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing 8" water main and an 8" sewer main in Maryland St. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The potential water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure are required. The hypothetical redevelopment scenario would cause an increase in sewer flow of approximately 3%, which is negligible and within the capacity of the existing sewer infrastructure.



3

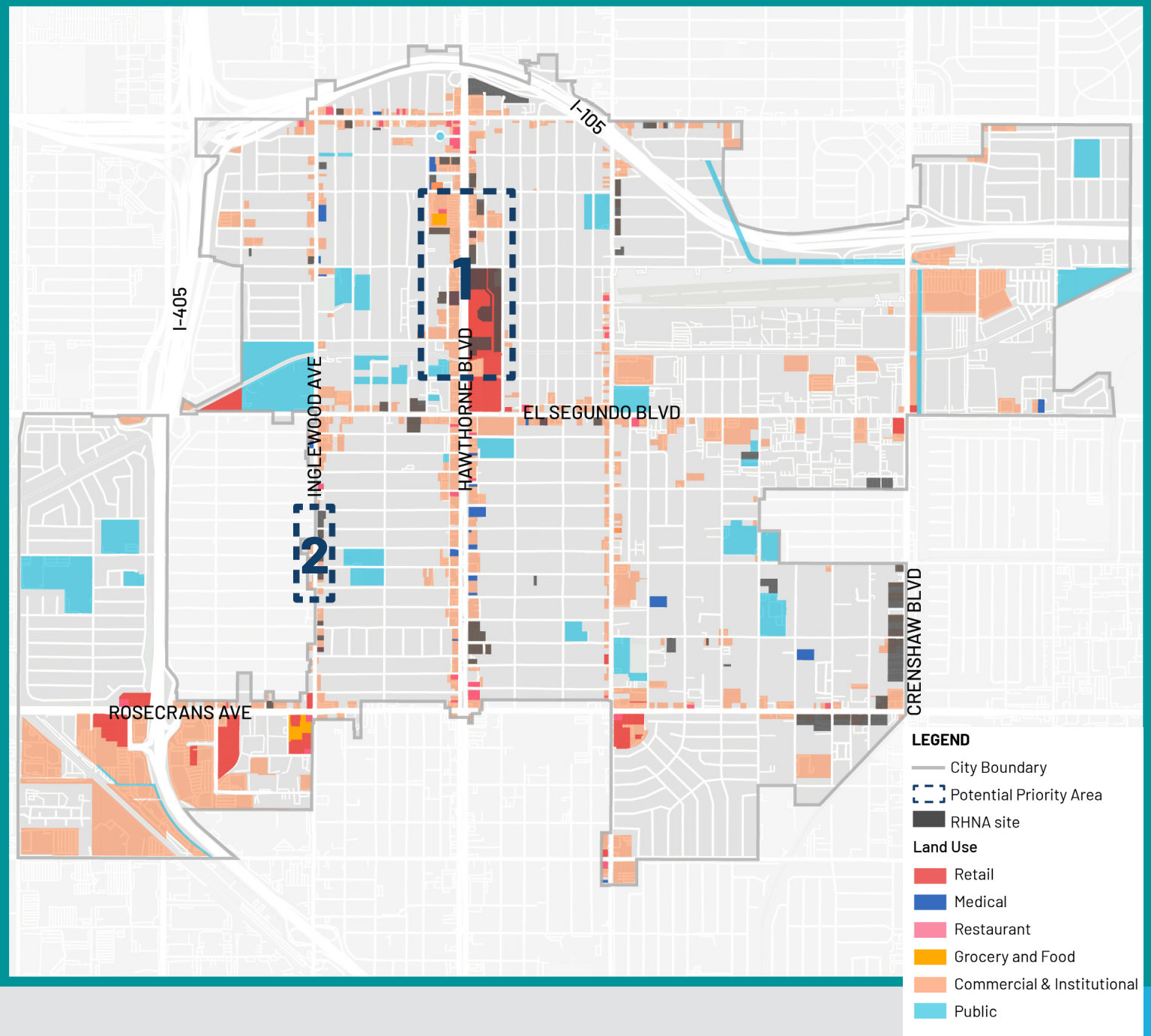
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# City of Hawthorne

**Potential Study Area 1: 118th St./Hawthorne Blvd**

**Potential Study Area 2: 135th St./Inglewood Ave.**



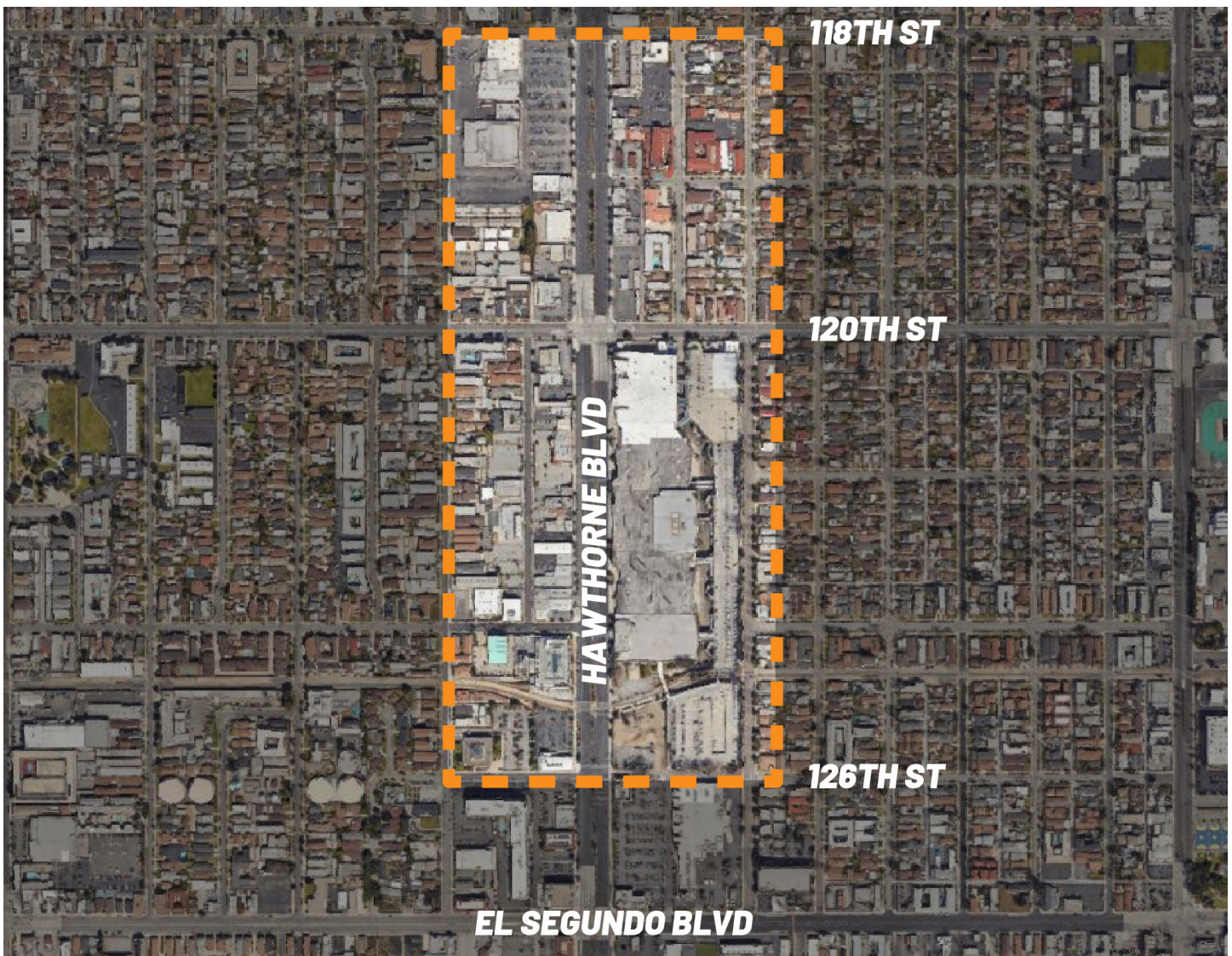


## Study Area 1:

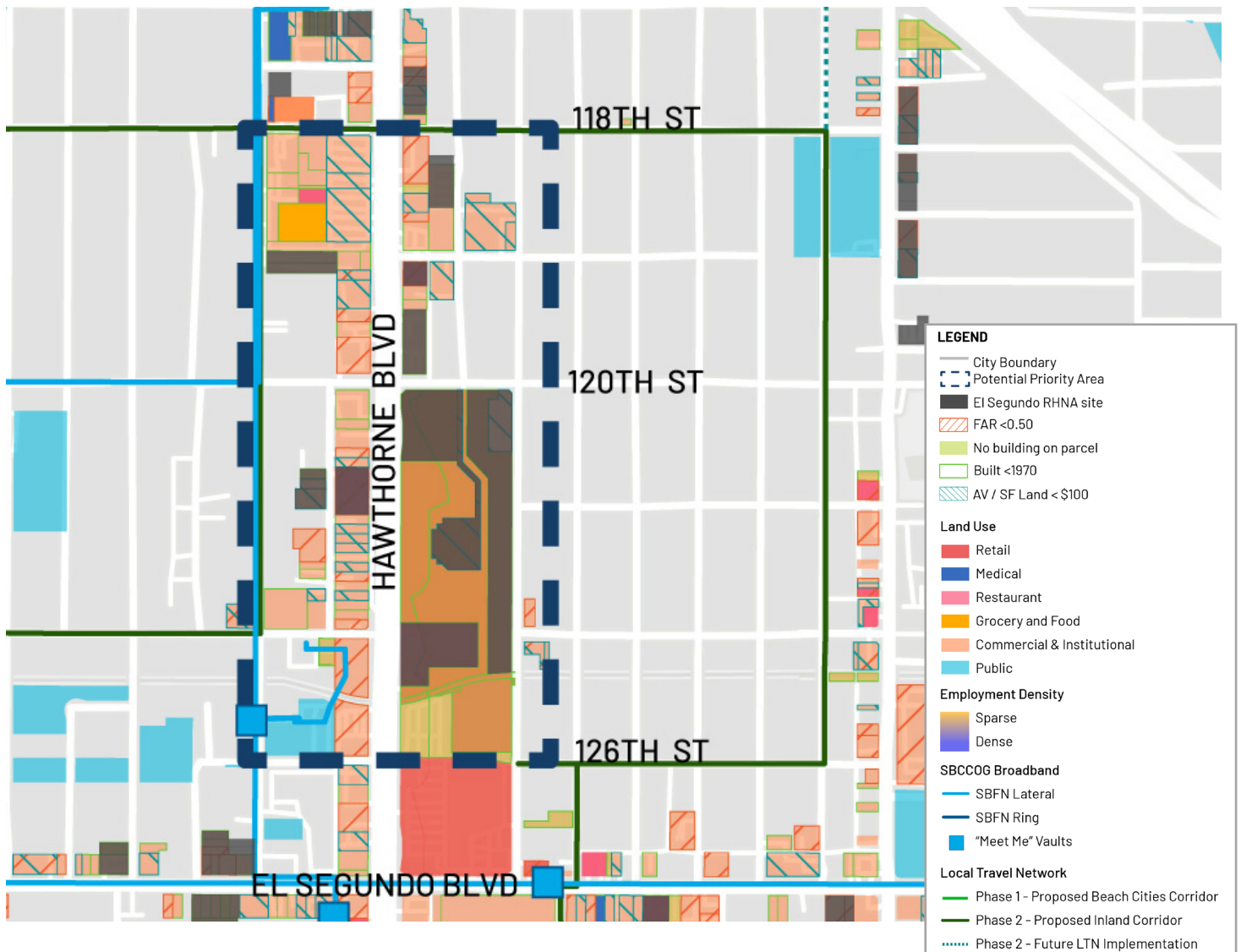
# 118th St./Hawthorne Blvd.

Located in the Downtown Hawthorne Specific Plan area, Study Area #1 includes a variety of commercial uses, such as a grocery store, multiple restaurants, and the Hawthorne Plaza shopping mall, which has been identified by the City of Hawthorne as a RHNA site. A significant majority of properties along Hawthorne Boulevard are underbuilt (FAR of less than 0.50), have aging structures (built before 1970), and, some cases, both. Larger sites present on the east side of Hawthorne Boulevard between 120th and 126th Streets serve as optimal opportunities for redevelopment to housing, especially given that multiple RHNA sites have already been identified, whereas smaller commercial lots on the western side of Hawthorne could be suitable for housing but may require site assembly or lot consolidation.

The Study Area is unique in that it is highly accessible via transit with local bus routes and the Metro C Line. Additionally, the Study Area will be directly served by two SBCCOG initiatives that will provide potential residents with access to a safe network of routes for non-motorized users via the Local Travel Network's (LTN) proposed "Inland Corridor" and high-speed internet via the South Bay Fiber Network (SBFN).



Aerial view



## Scorecard Summary

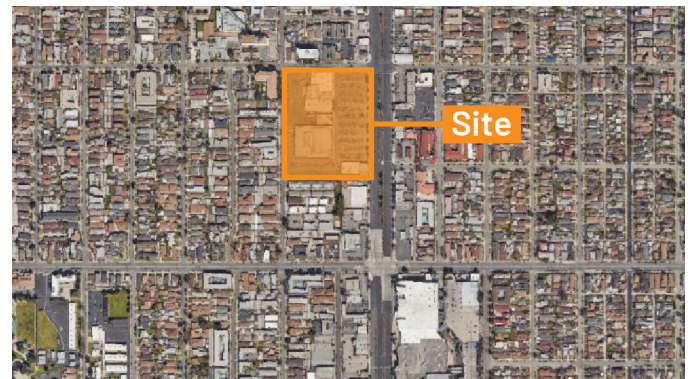


\* West of Hawthorne Blvd only

## Site 1: 11811 Hawthorne Blvd



Site #1 explores the hypothetical redevelopment of the neighborhood shopping center with large surface parking lots at the southwest corner of Hawthorne Boulevard and 118th Street. Relative to other parcels within the Study Area, Site #1 is not considered underutilized due to the existing and successful community serving retail and grocery store, though this does not apply to the shopping center's large surface parking lot. The Site is directly adjacent to a transit stop and the proposed LTN "Inland Corridor," making it ideal for transit-oriented development.



Housing integration would further build on the efficient land utility through both vertical and horizontal mixed-use opportunities that would preserve the important destinations on-site that currently serve residents and the community, while also allowing for the transitioning of portions of the Site to housing over time through a phased development approach.

The hypothetical redevelopment scenario for Site #1 is a wholesale transformation of the site that prioritizes tenant preservation by reimagining the surface parking lots into a phased, mid-rise, mixed-use development while maintaining community amenities, such as the neighborhood serving 38,000 square foot grocery and 18,000 square feet of retail. This flexibility is granted by the Site's generous lot size of 9.1 acres, and size and scale of proposed development that still appears granular and phaseable. New streets and circulation pathways were introduced within the site between individual smaller development parcels, in order to extend and continue the street grid and provide greater options for pedestrian and bike connectivity.

The hypothetical redevelopment scenario integrates a variety of residential units and typologies, including 513 for-lease residential flats, that are studios, one and two bedrooms, and 12 three story townhomes with ground level garages. 826 parking spaces are provided via multiple structures, in addition to an on-site micromobility node that would provide users with more opportunities to utilize the proposed LTN "Inland Corridor."

The pro forma analysis indicated that the hypothetical program was likely infeasible under either a for-lease or for-sale scenario. An alternative hypothetical redevelopment scenario for sites such as these would be to adopt the incremental infill approach tested in later versions of the Hermosa Big Lots site that would retain the existing commercial uses, and provide new development density

# Hypothetical Redevelopment Scenario

- Phase-ability & Granular Scale
- Affordable Housing Component
- Neighborhood-Serving Grocer & Retail
- Proximity to Variety of Transit Options

## KEY

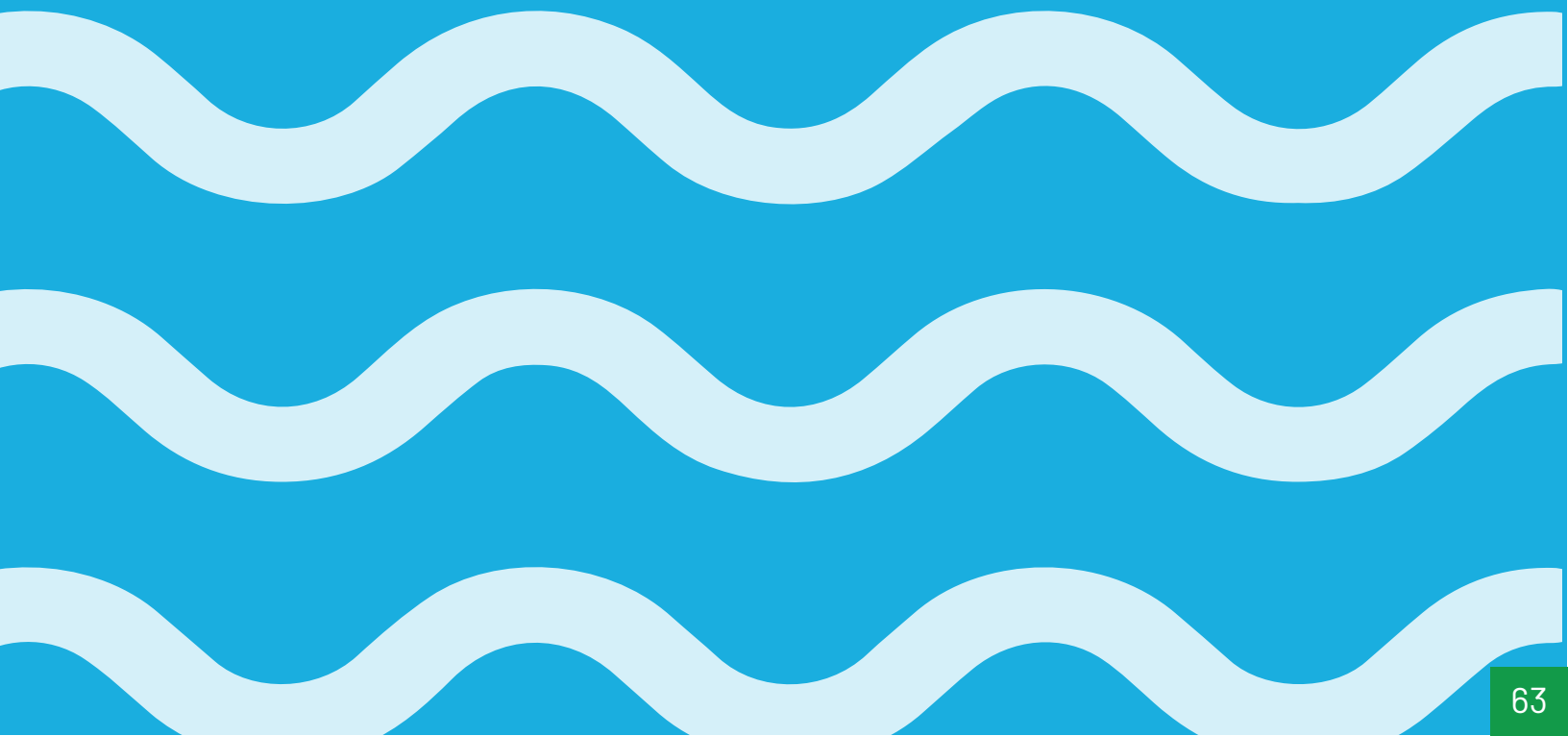
- |   |  |    |                               |
|---|--|----|-------------------------------|
| 1 | 38,000 SF Grocery Store                            | 9  | Greenbelt                     |
| 2 | 98 Rooftop Parking Stalls                          | 10 | 138 Residential Flats         |
| 3 | 6,000 SF In-Line Retail                            | 11 | 12,000 SF Ground Level Retail |
| 4 | 207 Residential Flats                              | 12 | 124 Structured Parking Stalls |
| 5 | 290 Structured Parking Stalls                      | 13 | Micromobility Node            |
| 6 | 168 Residential Flats                              | 14 | 40 Diagonal Parking Stalls    |
| 7 | 290 Structured Parking Stalls                      | 15 | 63 Parallel Parking Stalls    |
| 8 | 12 3-Story Townhome Unit with Ground Level Garages |    |                               |



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	9.1	Land Cost / Land SF	\$100	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	56,000	Parking Cost / Net SF	58	Potential Capacity	\$0	Best Case % of Units	-5% / 27 Units
Net Residential SF	461,960	Development Cost / Net SF	495	Equivalent Low Units	-0	Impact to Return	-3%
Parking / Bedroom	1.0	Total Cost / Net SF	579				
Total Bedrooms	703			<b>For Sale</b>			
Dwelling Units	525	Return on Cost if For Lease	1.2%	Potential Capacity	\$0		
DU / Acre	57.7	Return on Cost if For Sale	-12.1%	Equivalent Low Units	0		

through tactical infill of surrounding underutilized parking lots. Depending upon specifics of land- and improvement- value and local market conditions, some sites may require that alternate development pathway to be financially viable.

The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 11811 Hawthorne Blvd. would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing 6" water main and an 8" sewer main in Hawthorne Blvd. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The proposed water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure are required. The hypothetical redevelopment scenario would cause an increase in sewer flow of approximately 21%, which is significant but falls within the capacity of the existing sewer infrastructure.

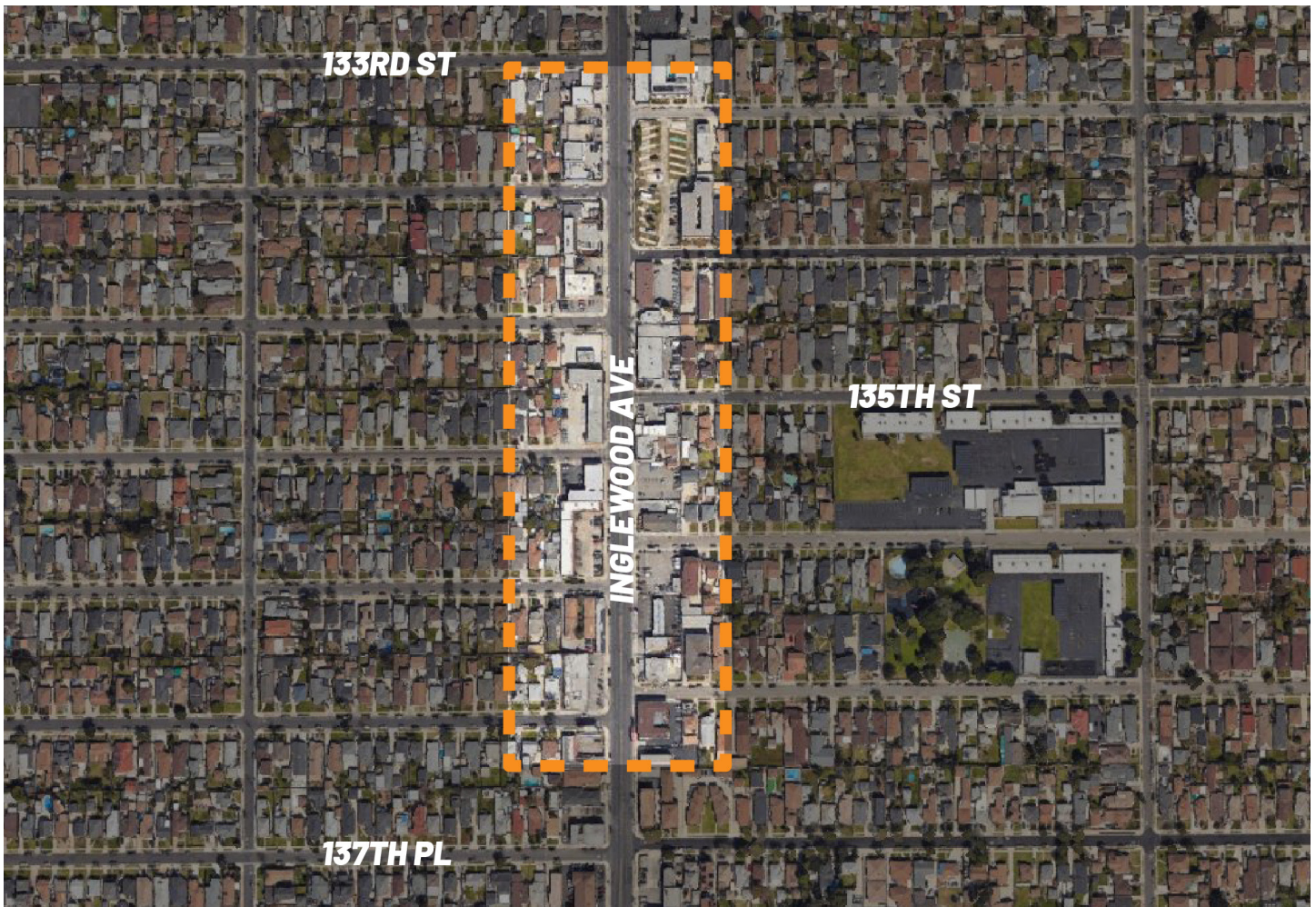


## Study Area 2:

# 135th St./Inglewood Ave.

Located along Inglewood Avenue, Study Area #2 diverse community-serving uses on smaller parcels with a limited depth, including an Italian bakery and a laundromat. Many of the commercial businesses fronting Inglewood Avenue serve automobile users, resulting in many vehicle trips to and from an area that is already impacted by traffic flows due to the street's arterial nature. The City of Hawthorne was interested in Study Area #2 as the area contains smaller parcels with limited depth and compact development patterns that mirror other corridors within the City, such as Imperial Highway. Several properties within Study Area 2 were built before 1970, especially those on the east side of the street, and a majority are underutilized (FAR less than 0.50), providing ample opportunities to reimagine the aging structures as residential units.

The City of Hawthorne has identified several RHNA sites on the east side of Inglewood Avenue that are also part of a CTCAC/HCD opportunity area and an Environmental Justice Area, making this an ideal area of focus for investment and development. Due to existing single-family housing that abuts Inglewood Avenue, new residential development must be built with this context and scale in mind to avoid potential opposition from the surrounding neighborhood. The Study Area also includes a public park and school, providing existing, providing prospective residents with access to a diverse range of amenities that can be accessed via the SBCCOG's LTN "Inland Corridor".



Aerial view





## Scorecard Summary

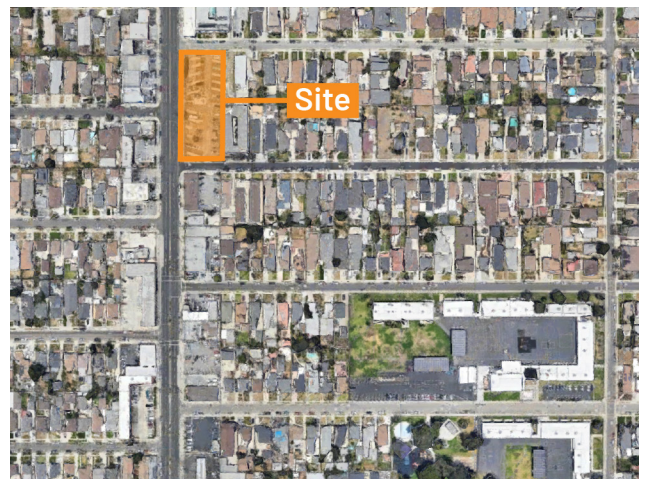


## Site 2:

### 13324 West 133rd St.



Site #2 13324 West 133rd Street is located on the northwestern edge of the Study Area. The smaller lot of 0.4 acres with limited depth shares common characteristics with a significant number of other parcels along this corridor and demonstrates the opportunity for infill housing on shallow lots. The size of the Site and adjacent context of single-family residential make a three-story townhome product most appropriate and would allow for the integration of community amenities like a neighborhood park along Inglewood Avenue, and a micromobility node to provide residents with more zero-emission mobility options, like e-bikes, bicycles, and scooters utilized to move around the neighborhood and along SBCCOG's future Local Travel Network Inland Corridor.



With this in mind, the hypothetical redevelopment scenario for Site #2 envisions 14 for-sale, three-story townhome units, each with their own ground level garage. Creating an appropriate density of 35 du/ac, this scenario is compatible with the scale and character with the surrounding neighborhood fabric. The hypothetical redevelopment scenario transforms the existing shallow lot through the addition of a small neighborhood park that would add needed neighborhood green space along a segment of Inglewood Avenue that is dominated by auto-serving retail. Smaller private courtyards between the townhomes that are oriented to maximize the shallow depth of the site, provide some additional opportunities for greening.

The pro forma analysis found the development of 14 for-sale townhomes to be feasible and with some limited capacity to fund income restricted housing.

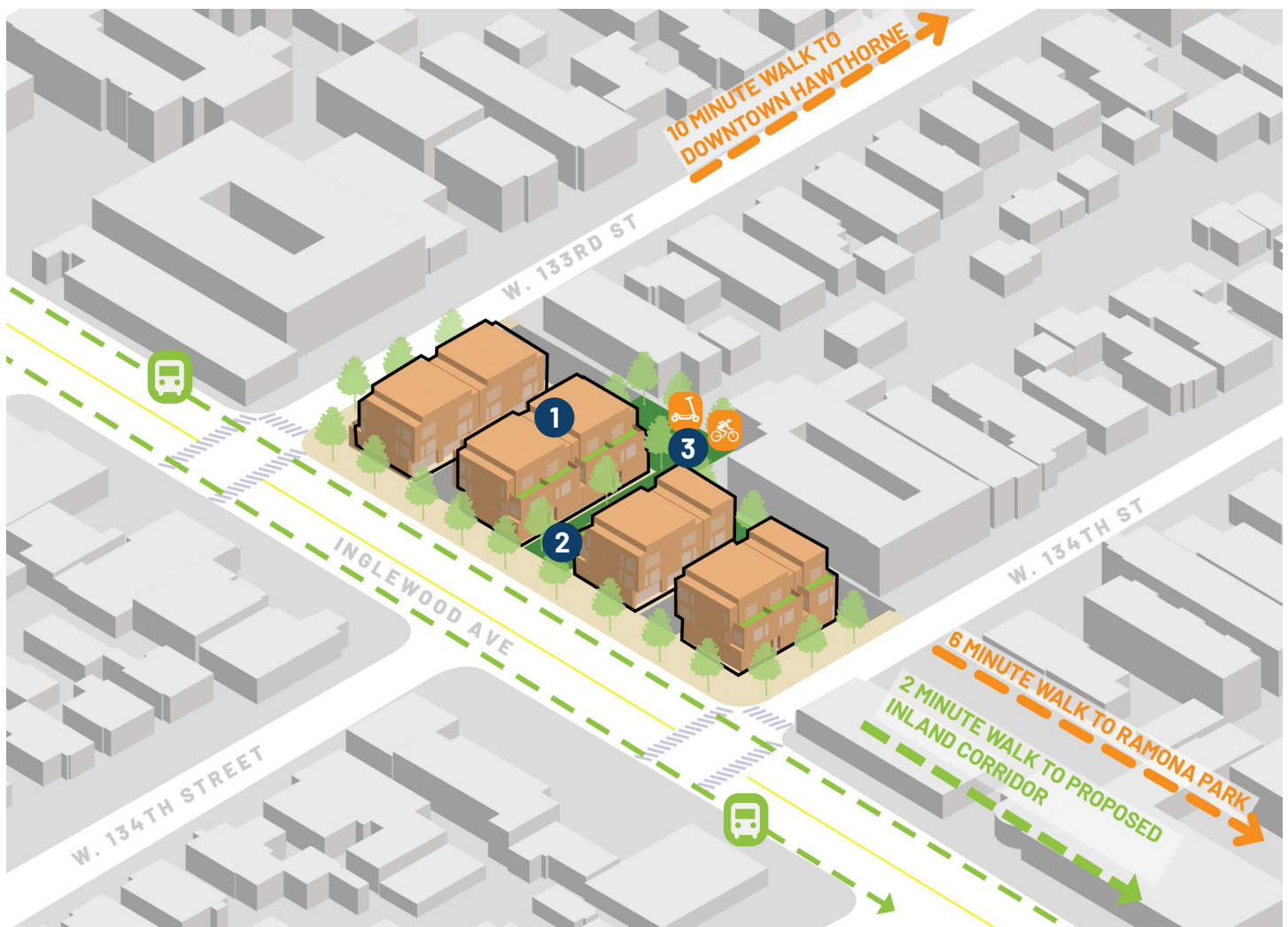
The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 13324 W 133rd St. would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing water main and an 8" sewer main in Hawthorne Blvd. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The potential water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure are required. The hypothetical redevelopment scenario would cause an increase in sewer flow of approximately 2.1%, which would fall within the capacity of the existing sewer infrastructure.

# Hypothetical Redevelopment Scenario

- Proximity to Walkable Retail Destinations
- Infill of Shallow Lots
- New Neighborhood Green Space

## KEY

- 1** 14 3-Story Townhome Units with Ground Level Garages
- 2** Neighborhood Park
- 3** Micromobility Node



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	0.40	Land Cost / Land SF	\$125	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	-	Parking Cost / Net SF	-	Potential Capacity	\$0	Best Case % of Units	~6-7% / 1Unit
Net Residential SF	29,890	Development Cost / Net SF	336	Equivalent Low Units	~0	Impact to Return	-3%
Parking / Bedroom	0.7	Total Cost / Net SF	416	<b>For Sale</b>			
Total Bedrooms	42			Potential Capacity	\$0		
Dwelling Units	14	Return on Cost if For Lease	1.0%	Equivalent Low Units	0		
DU / Acre	35.0	Return on Cost if For Sale	9.6%				

4

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# City of Hermosa Beach

**Potential Study Area 1:** Aviation Blvd./Prospect Ave.

**Potential Study Area 2:** Pier Ave./PCH/Aviation Blvd.



ARTESIA BLVD

PACIFIC COAST HIGHWAY

PROSPECT AVE

PIER AVE

AVIATION BLVD

HERMOSA AVE

HERONDO ST

## Study Area 1:

# Aviation Blvd./Prospect Ave.

Aviation Boulevard and Prospect Avenue serves as a northern gateway for the City of Hermosa Beach. It is a destination rich area of strip center retail to allow for big box stores, like Big Lots on larger parcels fronting Aviation Boulevard and accommodate smaller commercial uses such as restaurants and community-serving businesses on both sides of the street. Most of the properties along Aviation Boulevard have buildings that were built before 1970, and many of those properties are also underbuilt FAR of less than 0.50 and have low improvement ratios (AV/SF Building <\$100). The Study Area is surrounded by single and multi-family residential and includes SBCCOG Local Travel Network's "Beach Cities Corridor" along Prospect Avenue to facilitate safe connections for residents to access the destinations and amenities.



Aerial view



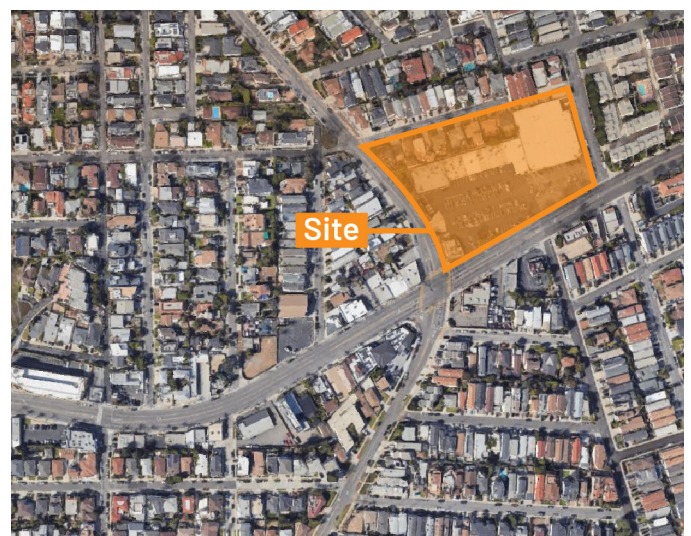
## Scorecard Summary



## Site 1: 1103 Aviation Boulevard



Site 1 – 1103 Aviation Boulevard, often referred to as the Big Lots Site because of the big-box retail store present, is a medium sized (two-acres) redevelopment opportunity for the strategic infill of housing. It is important to note that a hypothetical redevelopment scenario would only explore development on the portion of the Site that is within the City of Hermosa Beach; the Big Lots store is within the City of Redondo Beach. A hypothetical redevelopment scenario for the strip mall portion within the City of Hermosa Beach should target infill housing on the large surface parking lot on the southwest portion of the Site that are currently underutilized. Any future development should be an appropriate scale for the surrounding neighborhood to the north and west of the Site by stepping back the height/scale from Aviation Boulevard to the back of the Site where there is existing residential.



This site is a good example of the typical retail condition in strip malls across the South Bay and provides an example of the ways housing could be integrated into underutilized portions of such sites. The hypothetical redevelopment scenario originally explored the removal of existing retail at the back of the Site for 35 two- and three-story residential walk-up units that could better integrate with neighborhood character and scale toward the back of the site. A mixed-use building with community-serving uses was tested at the corner of Aviation Boulevard and Prospect Avenue with 12,000 square feet of ground floor retail and 36 residential flats above. In addition, the hypothetical redevelopment scenario included retaining 38 surface parking spaces and adding 54 spaces in a structured parking garage. A micromobility node in front of the mixed-use building would provide residents with zero-emission modes for SBCCOG's Local Travel Network on Prospect Avenue. Neighborhood Electric Vehicle (NEV) parking was also included in the hypothetical redevelopment scenario. Design approaches for the hypothetical redevelopment of the Site considered low and moderate density by removing most or all existing improvements on-site.

The pro forma analysis found this redevelopment approach to be financially viable under the for-sale preliminary hypothetical redevelopment scenario, but not for a for-lease scenario. The for-sale scenario also yielded sufficient revenues to support a limited number of income restricted units.

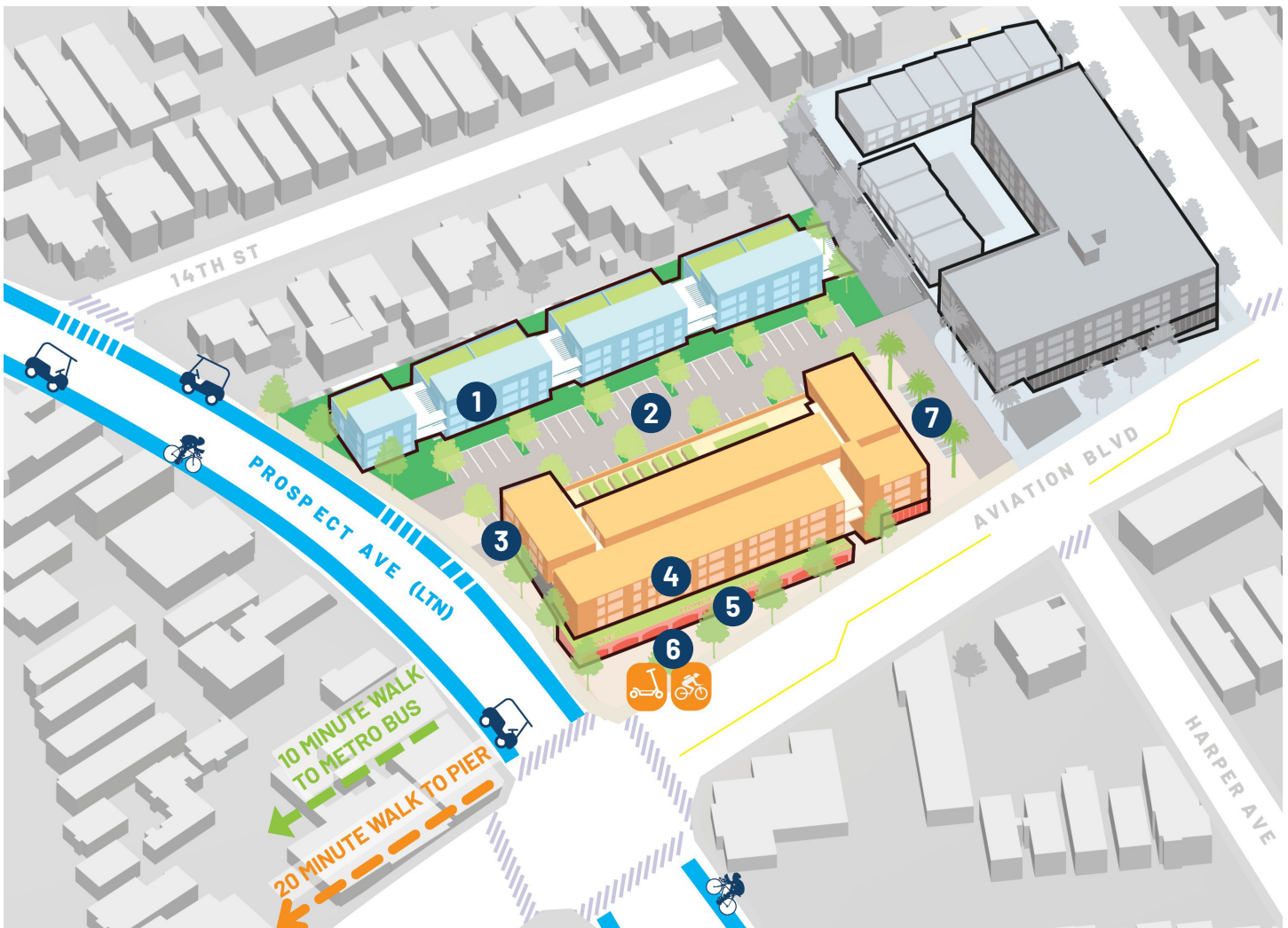


# Preliminary Hypothetical Redevelopment Scenario

- Appropriate Scale for Neighborhood
- Phase-ability, Scalability
- Adjacent & Connected to Local Travel Network
- Mixed Residential and Community Serving Uses
- Variety of Sustainable Housing Typologies

## KEY

- 1** 35 Residential Walk-Up Units, 2- and 3-Story
- 2** 48 Surface Parking Stalls
- 3** 54 Structured Parking Spaces
- 4** 35 Residential Flats
- 5** 12,000 SF New Retail
- 6** Micromobility Node
- 7** Neighborhood Electric Vehicle (NEV) Parking



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	2.0	Land Cost / Land SF	\$180	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	12,000	Parking Cost / Net SF	25	Potential Capacity	\$0	Best Case % of Units	~5% / 4 Units
Net Residential SF	62,000	Development Cost / Net SF	534	Equivalent Low Units	~0	Impact to Return	-1%
Parking / Bedroom	0.6	Total Cost / Net SF	766				
Total Bedrooms	94			<b>For Sale</b>			
Dwelling Units	70	Return on Cost if For Lease	-1.1%	Potential Capacity	~\$6MM		
DU / Acre	35.6	Return on Cost if For Sale	20.6%	Equivalent Low Units	~8		

An updated hypothetical redevelopment scenario was created with the incremental infill approach by preserving the existing 22,000 square feet of retail to the back of the Site, and targeting the redevelopment of the parking lot at the corner of Aviation Boulevard and Prospect Avenue alone. A mixed-use building could include 3,000 square feet of new retail fronting on Aviation Boulevard with 49 studios, one- and two-bedroom residential flats with a rooftop deck. This hypothetical redevelopment scenario includes 66 surface parking stalls and 22 tuck under parking spaces and 36 basement parking spaces as part of the mixed-use development.

The pro forma analysis found the Partial Site Alternative 1 approach to have superior financial returns under a for-sale scenario, and was also viable under a for-lease scenario. The for-sale scenario yielded sufficient revenues to support some income restricted units. A Partial Site Alternative 2 was also considered for a smaller and more scaled back development of 24 studios, one- and two-bedroom residential flats; and the development was found to be financially feasible under a for-sale scenario, but not a for-lease scenario. Each of the for-sale scenarios also demonstrated some capacity to support income restricted units.

The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 1151 Aviation Blvd would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing water main and an 8" sewer main in Aviation Blvd. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The potential water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure are required. The hypothetical redevelopment scenario would cause an increase in sewer flow of approximately 7%, which is negligible and within the capacity of the existing sewer infrastructure.

# Updated Hypothetical Redevelopment Scenario

- Appropriate Scale for Neighborhood
- Site Intensification
- Adjacent & Connected to Local Travel Network
- Mixed Residential and Community Serving Uses

**KEY**

<b>1</b> 22,000 SF Existing Retail to Remain	<b>5</b> 49 Residential Flats
<b>2</b> 3,000 SF New Retail	<b>6</b> Roof Deck Open Space
<b>3</b> 66 Surface Parking Stalls	<b>7</b> Micromobility Node
<b>4</b> 22 Tuck-Under Parking Spaces & 36 Basement Parking Spaces	<b>8</b> Neighborhood Electric Vehicle (NEV) Parking



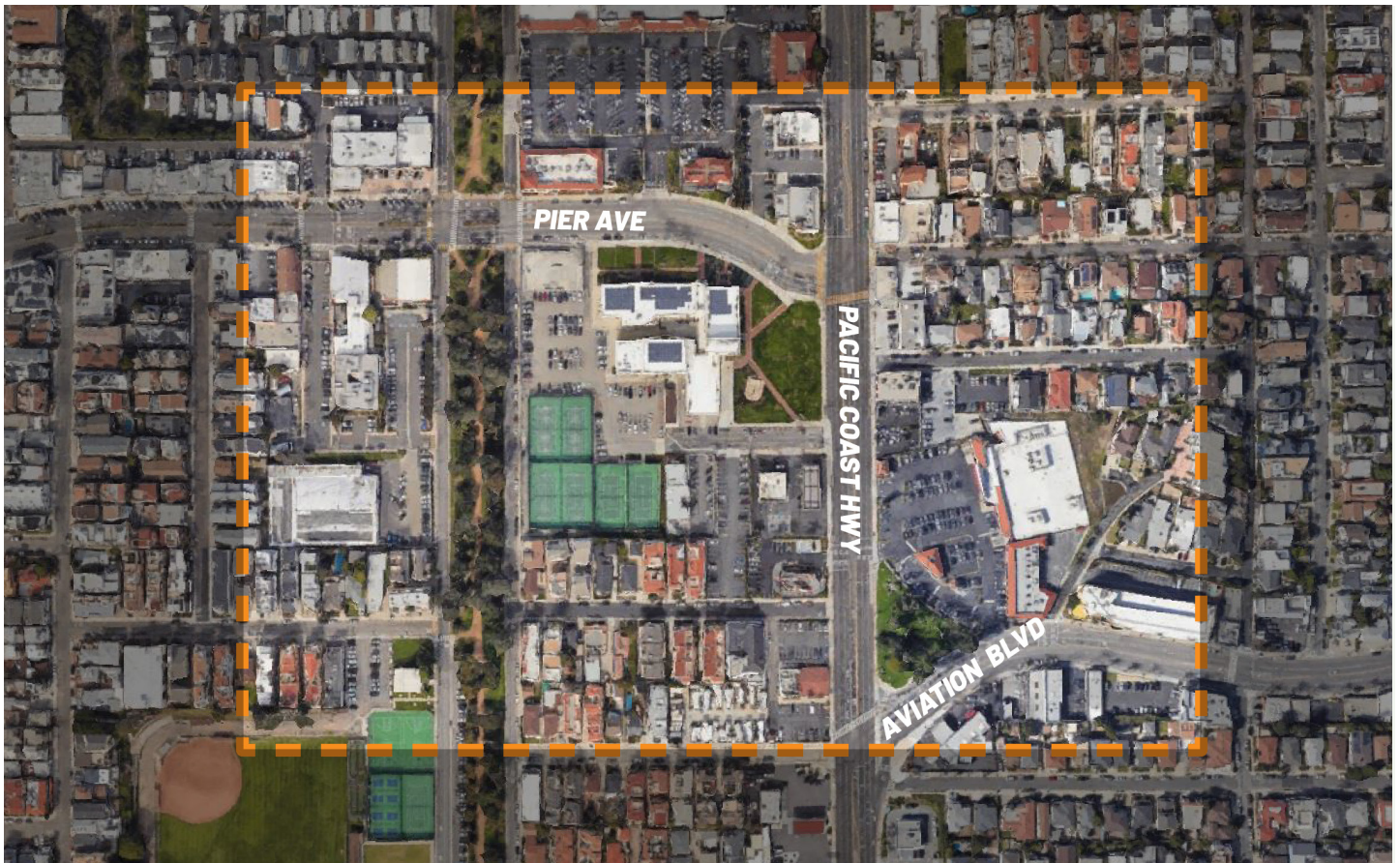
Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	0.6	Land Cost / Land SF	\$200	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	-	Parking Cost / Net SF	68	Potential Capacity	\$0	Best Case % of Units	~6% / 3 Units
Net Residential SF	3,000	Development Cost / Net SF	587	Equivalent Low Units	~0	Impact to Return	-3%
Parking / Bedroom	0.9	Total Cost / Net SF	710				
Total Bedrooms	64			<b>For Sale</b>			
Dwelling Units	49	Return on Cost if For Lease	9.9%	Potential Capacity	~\$8 MM		
DU / Acre	85.4	Return on Cost if For Sale	36.1%	Equivalent Low Units	~10		

## Study Area 2:

# Pier Ave./PCH

Study Area 2 – Pier Avenue south of Pacific Coast Highway is a highly walkable and destination- and amenity-rich area that is part of Downtown Hermosa Beach. The Study Area has a diversity of commercial uses including grocery stores, Vons and Trader Joes grocery stores, strip center retail, legacy businesses and offices, restaurants, as well as the Hermosa Beach Community Center, City Hall, a community skatepark and tennis courts, and open spaces, such as the Hermosa Valley Greenbelt frequented by the community. In addition to the existing destinations, SBCCOG's Local Travel Network "Beach Cities Corridor" is proposed along Monterey Blvd and nearby at 16th Street and Prospect Avenue. The SBCCOG's broadband South Bay Fiber Network infrastructure is planned within the Study Area along Valley Drive and Hermosa Beach City Hall, further increasing broadband quality for future residents and businesses.

Pier Avenue presents an interesting opportunity to introduce housing and mixed-use development west of Pacific Coast Highway to create a walkable, neighborhood-oriented district as there are many sites with older structures (built before 1970) and a few sites with a low improvement ratio (AV/SF Building <\$100). The smaller sites to the west of the Study Area may require site assembly and lot consolidation to create viable developments or may be appropriate for townhomes and other smaller more tactical infill development. There are currently height restrictions in place, requiring a public vote to increase the allowable height of development; however, development with an appropriate scale and stepping back of height could blend in with the surrounding context. The City of Hermosa Beach has also identified numerous RHNA sites within Study Area 2 as opportunities for infill housing.



Aerial view



## Scorecard Summary



## Site 2: 552 11th Place



The City of Hermosa Beach owns several sites along Pacific Coast Highway including the Public Storage at 552 11th Place that is currently on a ground lease. Site 2 is 1.3 acres and surrounded by residential (R-3) and presents an opportunity for infill housing through the joint development of the Site through a public-private partnership. The City intends to change the General Plan Zoning designation of the Public Storage Site from Light Industrial (M-1) to Public Facility to allow for residential of up to 34-50 du/ac and 50 senior affordable housing units. Future development on this Site could tie into existing community amenities and open space such as the Hermosa Valley Greenbelt.



The hypothetical redevelopment scenario is 100% affordable and includes 59 residential units with roof-deck and courtyard open space. This redevelopment includes 52 surface parking stalls, in addition to a micromobility node.

The hypothetical redevelopment scenario is a traditional affordable housing product typically funded through Low Income Housing Tax Credits (LIHTC). Financial feasibility of the hypothetical redevelopment scenario is ultimately a function of the competitive allocation of LIHTC's; however, the hypothetical redevelopment scenario of this 100% affordable housing product is expected to be competitive given the surrounding and accessible community amenities, and potential for City participating in a joint development effort.

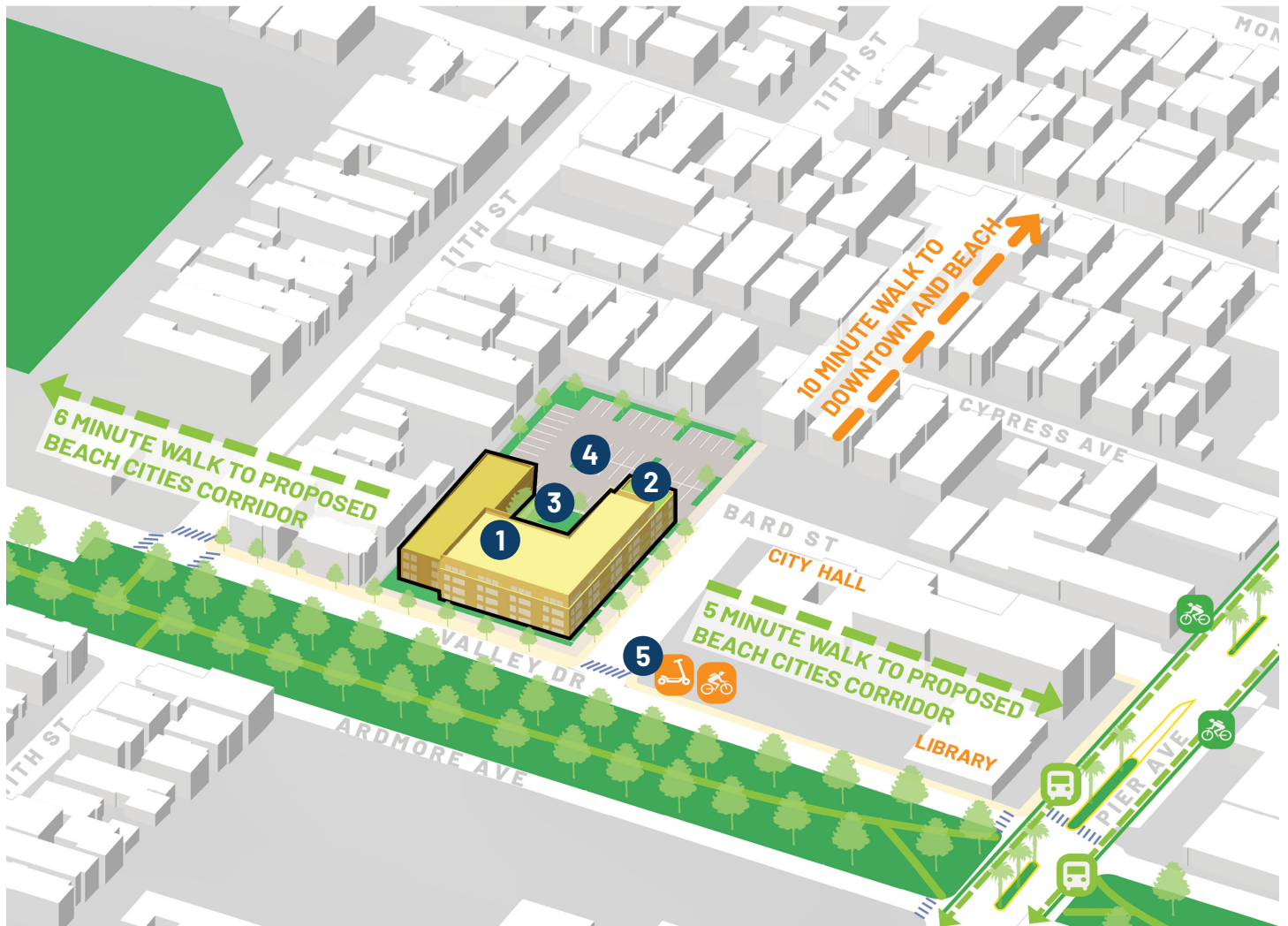
The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 552 11th Place would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing water main and a sewer main in Valley Drive. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The potential water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure are required.

# Hypothetical Redevelopment Scenario

- 100% Affordable Housing
- Close Proximity to Recreational Open Spaces
- Adjacent to Civic Center & Mass Transit

## KEY

- 1 59 Residential Units
- 2 Roof Deck Open Space
- 3 Courtyard Open Space
- 4 52 Surface Parking Stalls
- 5 Micromobility Node



5

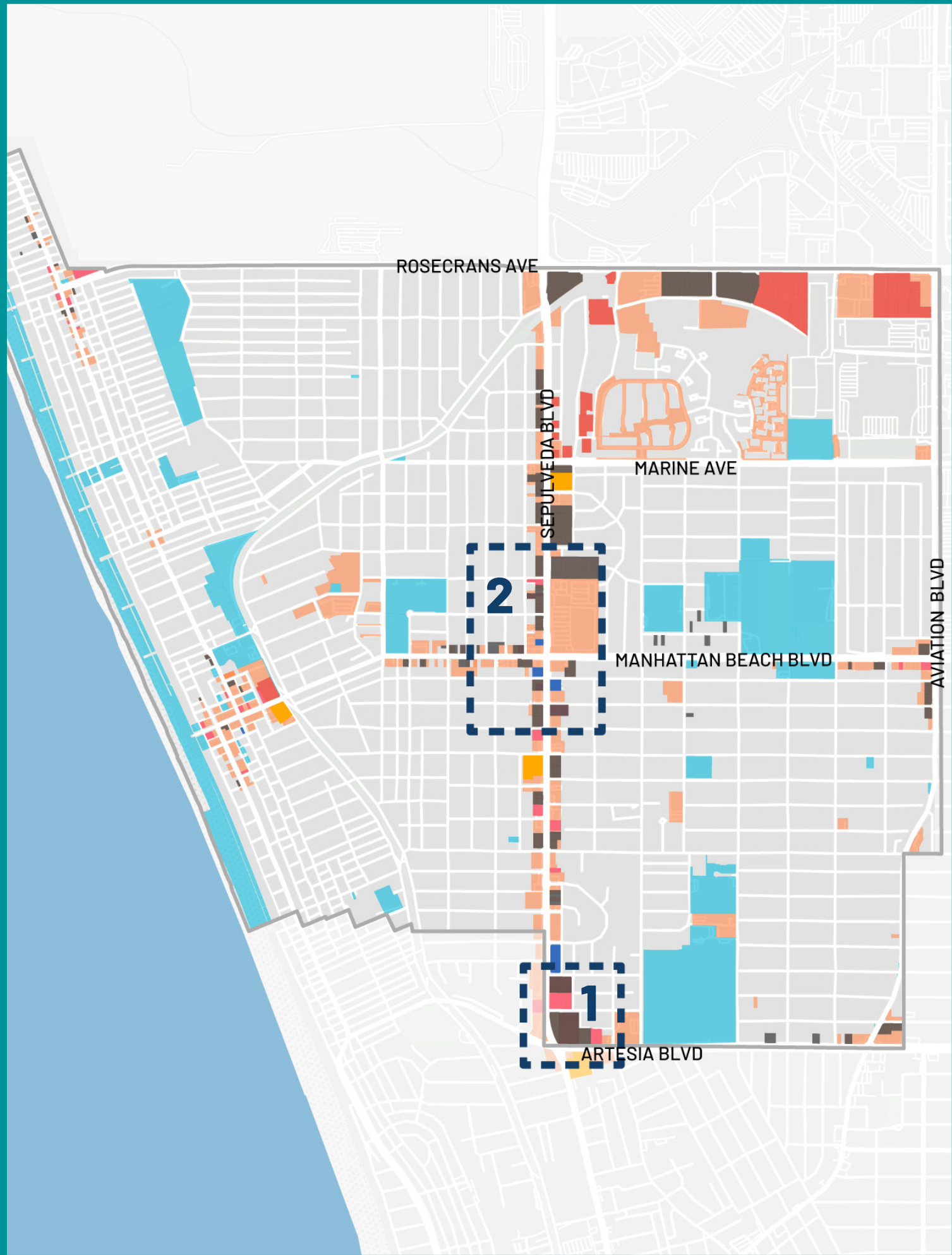
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# City of Manhattan Beach

**Potential Study Area 1:** Artesia Blvd./Sepulveda Blvd.

**Potential Study Area 2:** Manhattan Beach Blvd./  
Sepulveda Blvd.





ROSECRANS AVE

SEPULVEDA BLVD

MARINE AVE

2

MANHATTAN BEACH BLVD

AVIATION BLVD

1

ARTESIA BLVD

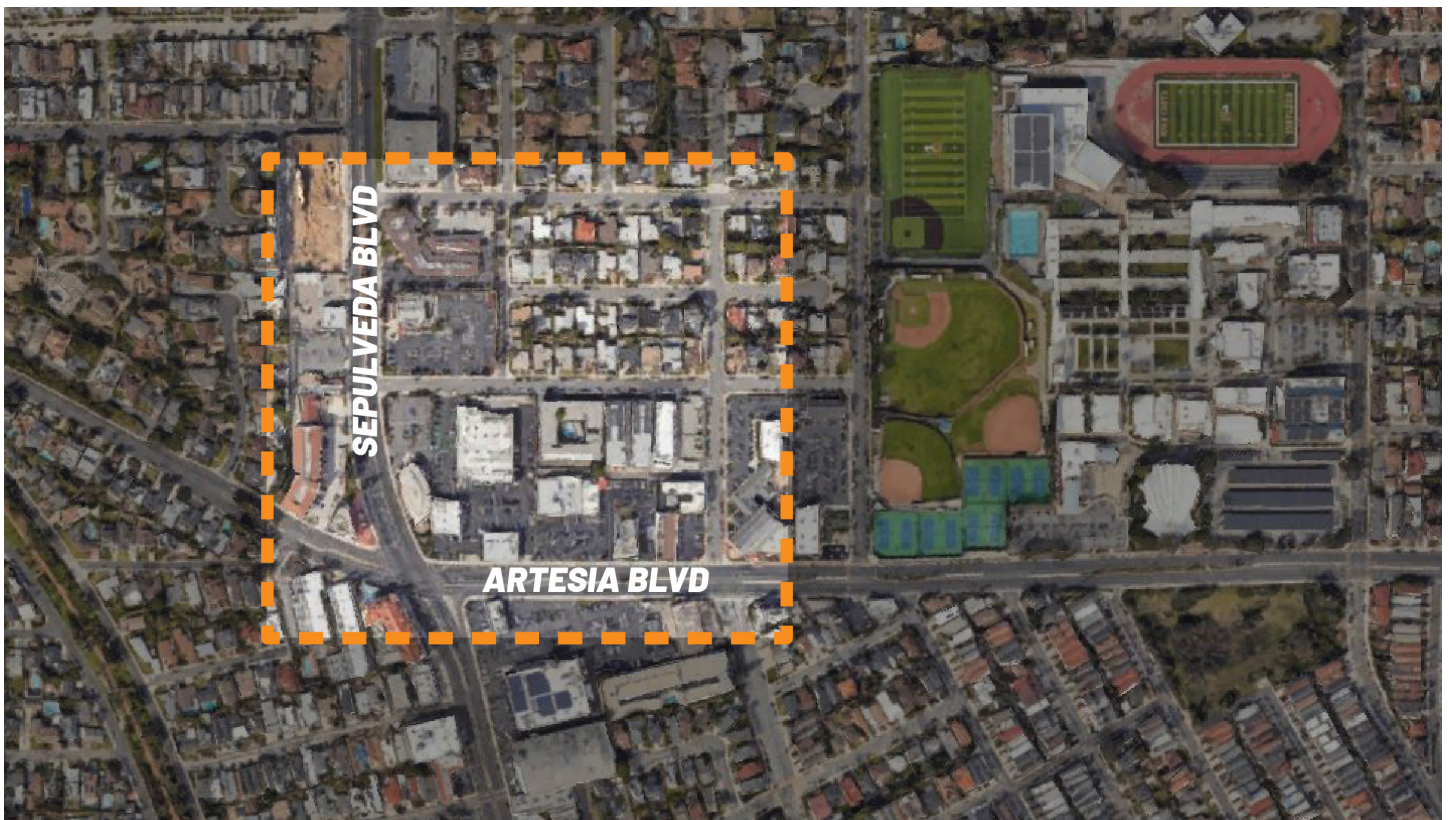
## Study Area 1:

# Artesia Blvd./Sepulveda Blvd.

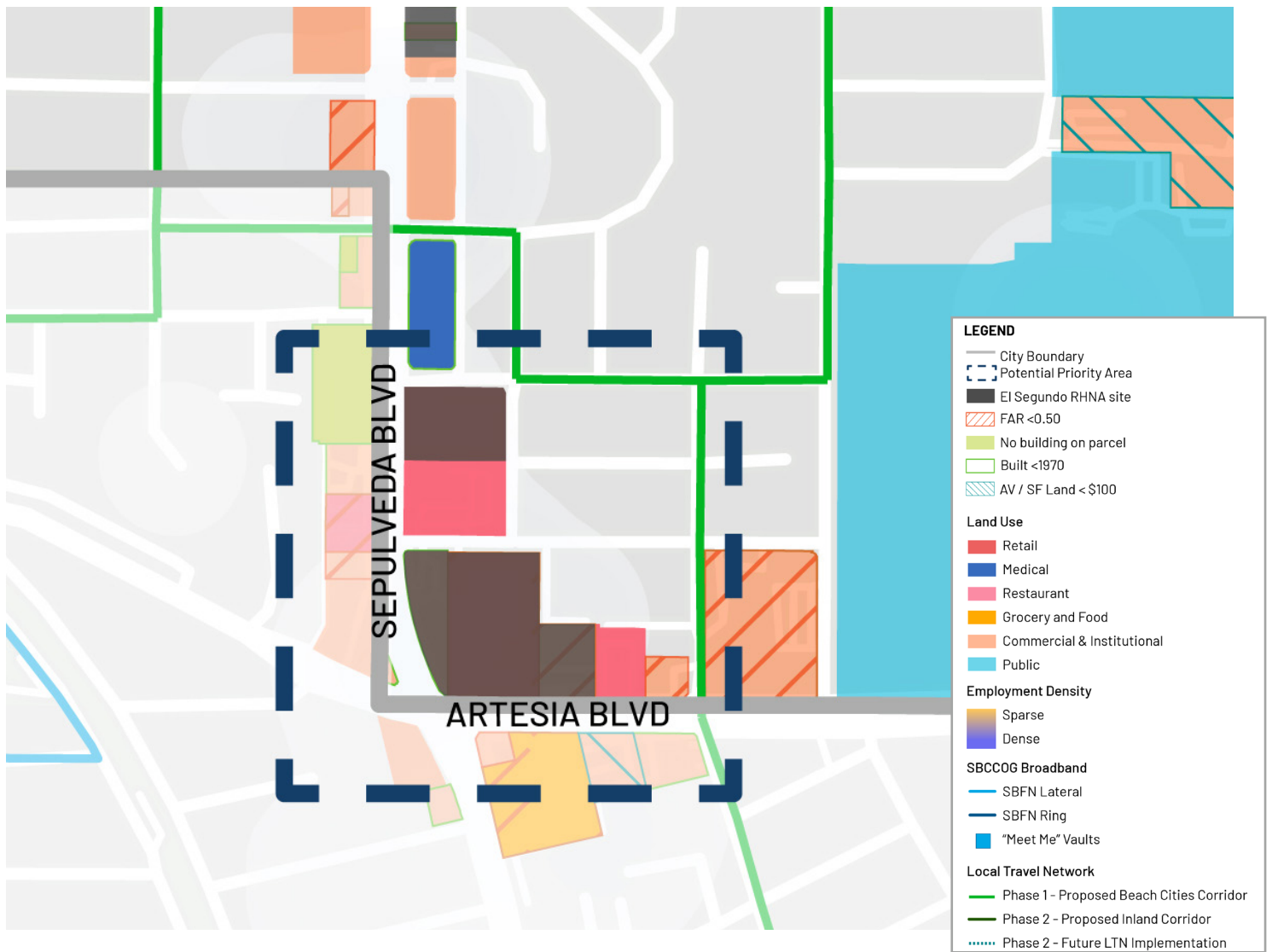
Study Area 1 – Artesia Boulevard and Sepulveda Boulevard is located at the border of Hermosa Beach and Manhattan Beach. It is one of Manhattan Beach’s southern nodes and highest resourced areas due to its abundance of destinations, including community-serving retail and dining establishments, proximity to major employers, schools and existing residential. A few of the existing sites within the Study Area have aging structures that were built prior to 1970 that may present an opportunity for redevelopment to housing. Redevelopment of sites within this Study Area to housing should consider the prevalence of strip malls in the City and the preservation of mom-and-pop businesses, as well as the preservation of any historic or community-value structures that exist.

The City of Manhattan Beach is supportive of local and small business preservation and open to development strategies for subsidizing business relocation to more destination and amenity rich areas that are walkable like to Downtown Manhattan Beach, if applicable. In addition, the City is creating ordinances to support local and small businesses that would provide developers with options for incorporating the local business into the new mixed-use development.

The City of Manhattan Beach has identified many RHNA sites for housing east of Sepulveda Boulevard within the Study Area. This is an area of transition given future development activity with the development of Skechers headquarters and proposed hotel on the former El Torito property. In addition, the Study Area is accessible to local and regional bus routes, the Hermosa Valley Greenbelt and the LTN’s proposed Beach Cities Corridor, providing safe non-motorized options to other Beach Cities and the greater South Bay region, respectively.



Aerial view



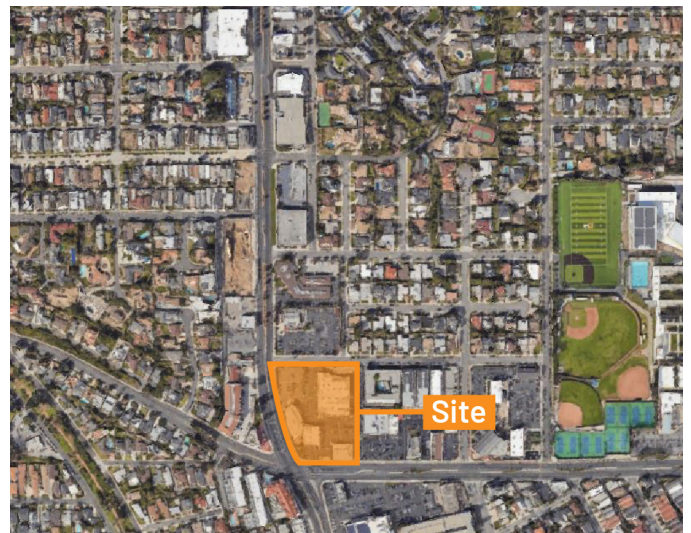
## Scorecard Summary



## Site 1: 700 S. Sepulveda Blvd



The hypothetical redevelopment of Site #1 700 S. Sepulveda Boulevard would provide housing in a highly resourced area that is only expected to increase with the development of 162-key hotel on the neighboring site where El Torito once stood. Additionally, 700 Sepulveda Boulevard is a medium sized site (3.6 acres) identified as a RHNA site making it ideal for housing development. Apart from the architecturally significant structure where the Chase bank business is located, the rest of the Site could be reimagined to address housing needs and completely transform the area to better serve visitors and both existing and future residents. Redevelopment strategies for the Site could demonstrate the adaptive reuse of the historic structure to provide community-serving amenities on site while integrating various housing typologies through a tactical infill approach at a midrise scale to breathe new life into this key node.



The hypothetical redevelopment scenario preserves the community-valued historic structure by retaining the 7,364 square feet of retail. A new mixed-use building with 22,750 square feet of ground-level retail spaces provides opportunities for local business retention, in addition to adding new amenities and destinations as part of the development. 181 for-lease residential flats, including studios, one and two bedrooms would sit atop the new retail. There are 15 for-sale three story townhomes on the northwest corner of the Site with ground level garages. A mix of surface parking and structured parking totaling 308 spaces are also available on the site. The hypothetical redevelopment scenario aims to take full advantage of its proximity to transit and active transportation routes with a corner plaza and micromobility node that will incentivize individuals to use different travel methods.

The pro forma analysis found that both the for-sale and the for-lease scenario were financially feasible and would support the inclusion of some income restricted units.

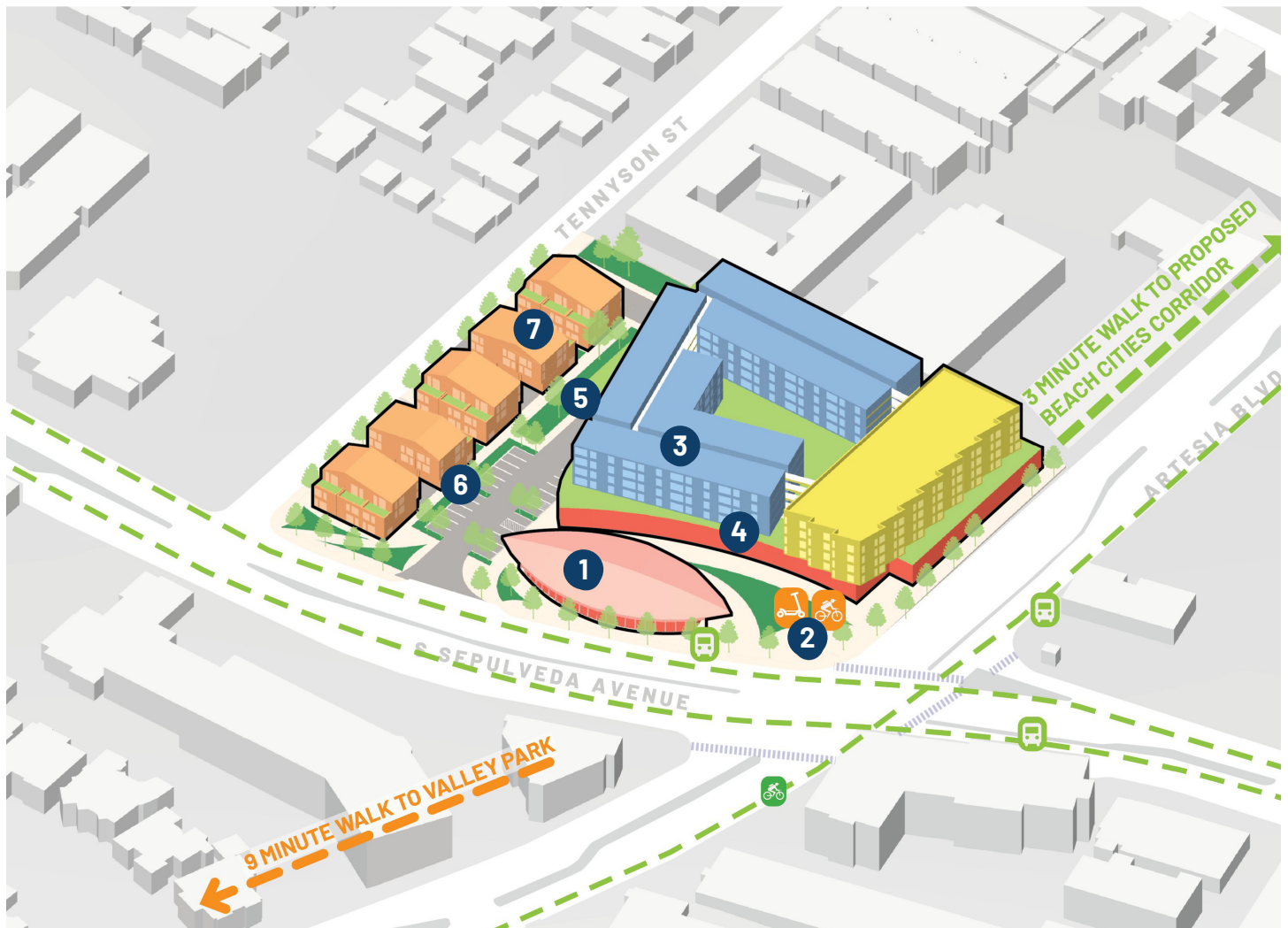
The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical

# Hypothetical Redevelopment Scenario

- Adaptive Retail Reuse of Iconic Structure
- Variety of Housing Typologies
- New Public Open Space

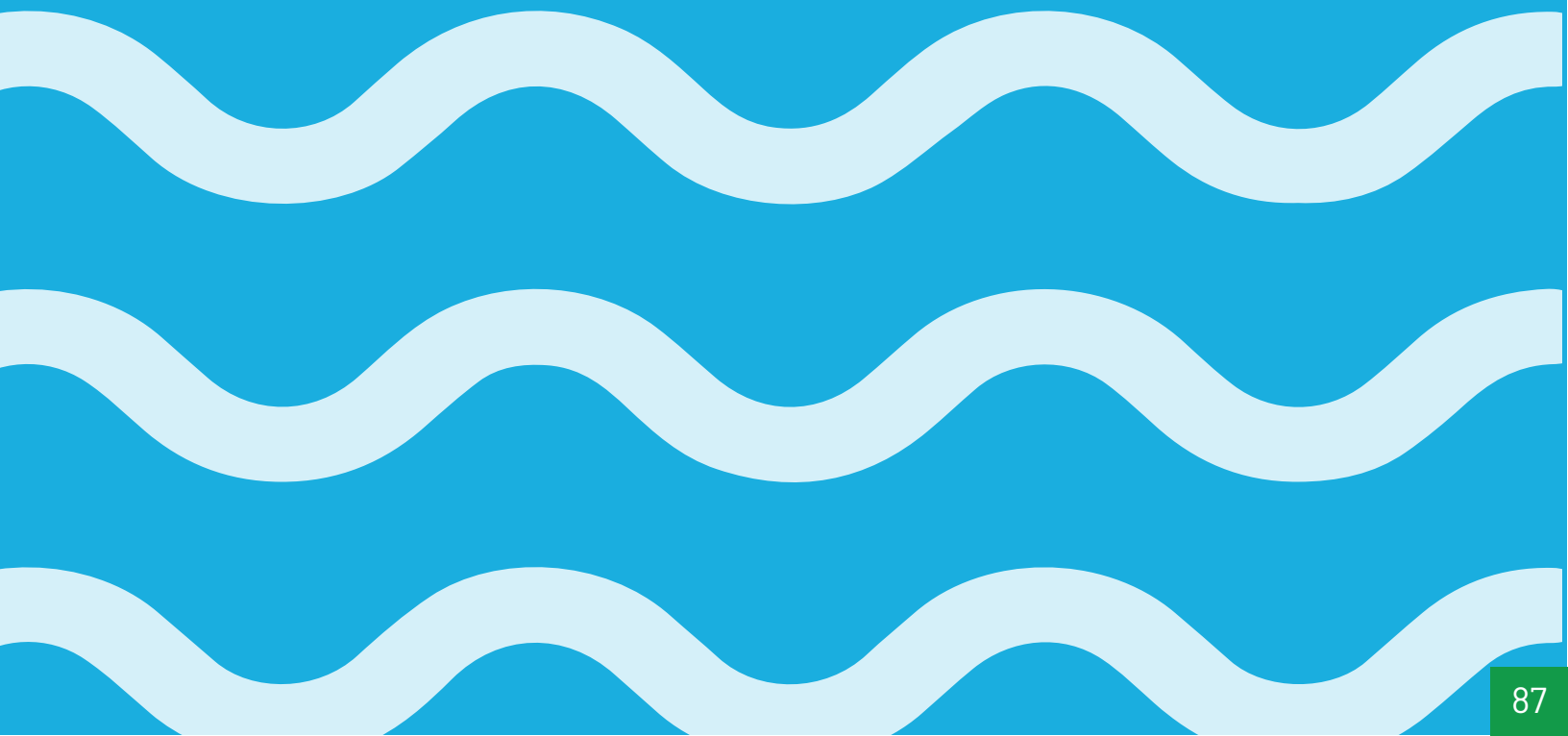
## KEY

- 1 7,364 SF Existing Retail to Remain
- 2 Corner Plaza & Micromobility Node
- 3 181 Residential Flats
- 4 Fifteen 3-Story Townhome Units With Ground Level Garages
- 5 22,750 SF New Retail
- 6 256 Structured Parking Stalls
- 7 22 Surface Parking Stalls



Program	Costs & Revenue	Affordable Housing	Density Bonus Feasibility
Site Acres	3.5	Land Cost / Land SF	\$275
Net Commercial SF	30,114	Parking Cost / Net SF	45
Net Residential SF	185,865	Development Cost / Net SF	524
Parking / Bedroom	0.9	Total Cost / Net SF	743
Total Bedrooms	280		
Dwelling Units	196	Return on Cost if For Lease	8.5%
DU / Acre	55.7	Return on Cost if For Sale	25.7%
		For Lease	
		Potential Capacity	~\$3 MM
		Equivalent Low Units	~4
		For Sale	
		Potential Capacity	~\$25 MM
		Equivalent Low Units	~25
		Best Case Affordability	Very Low
		Best Case % of Units	~5% / 10 Units
		Impact to Return	0%

redevelopment scenario at 700 S Sepulveda Blvd. would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing 10" water main and an 8" sewer main in Sepulveda Blvd. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The potential water demand is based on a fire flow requirement, which will remain the same as the existing condition. Therefore, no upgrades to the public water infrastructure are required. The hypothetical redevelopment scenario would cause an increase in sewer flow of approximately 10%, which is significant but falls within the capacity of the existing sewer infrastructure.



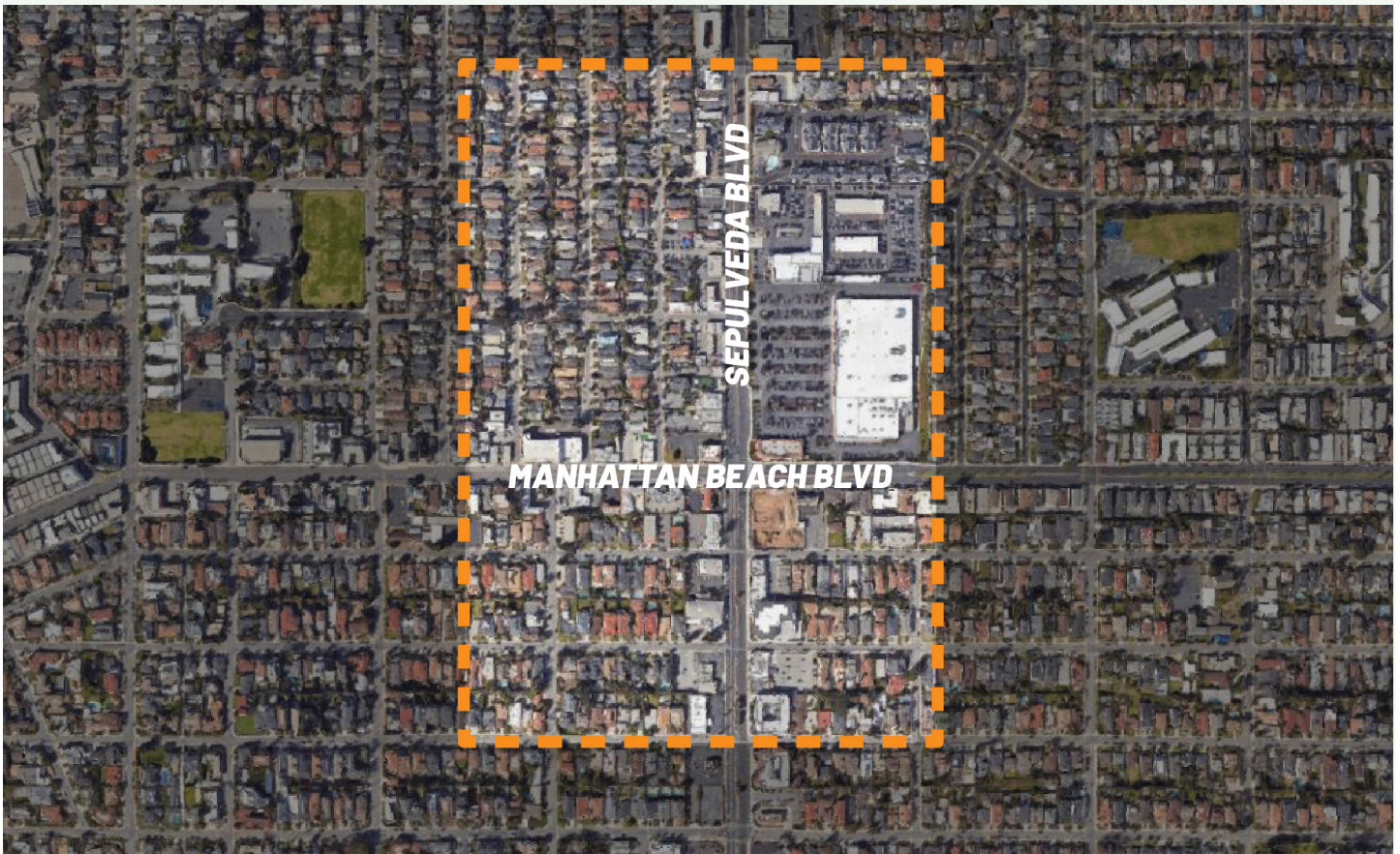
## Study Area 2:

# Manhattan Beach Blvd./ Sepulveda Blvd.

Study Area #2 includes one of the City's most amenity-rich areas and is intersected by two major corridors, Manhattan Beach Boulevard and Sepulveda Boulevard, the latter of which is part of the scenic Pacific Coast Highway. Commercial uses, such as big-box and chain retail on large sites are located east of Sepulveda Boulevard, while community-serving uses on smaller sites such as medical offices and non-formula retail are on the west of Sepulveda Boulevard and along Manhattan Beach Boulevard. Most buildings on sites within the Study Area were built before 1970, and many properties are either underbuilt (FAR <0.50), have aging structures, or both.

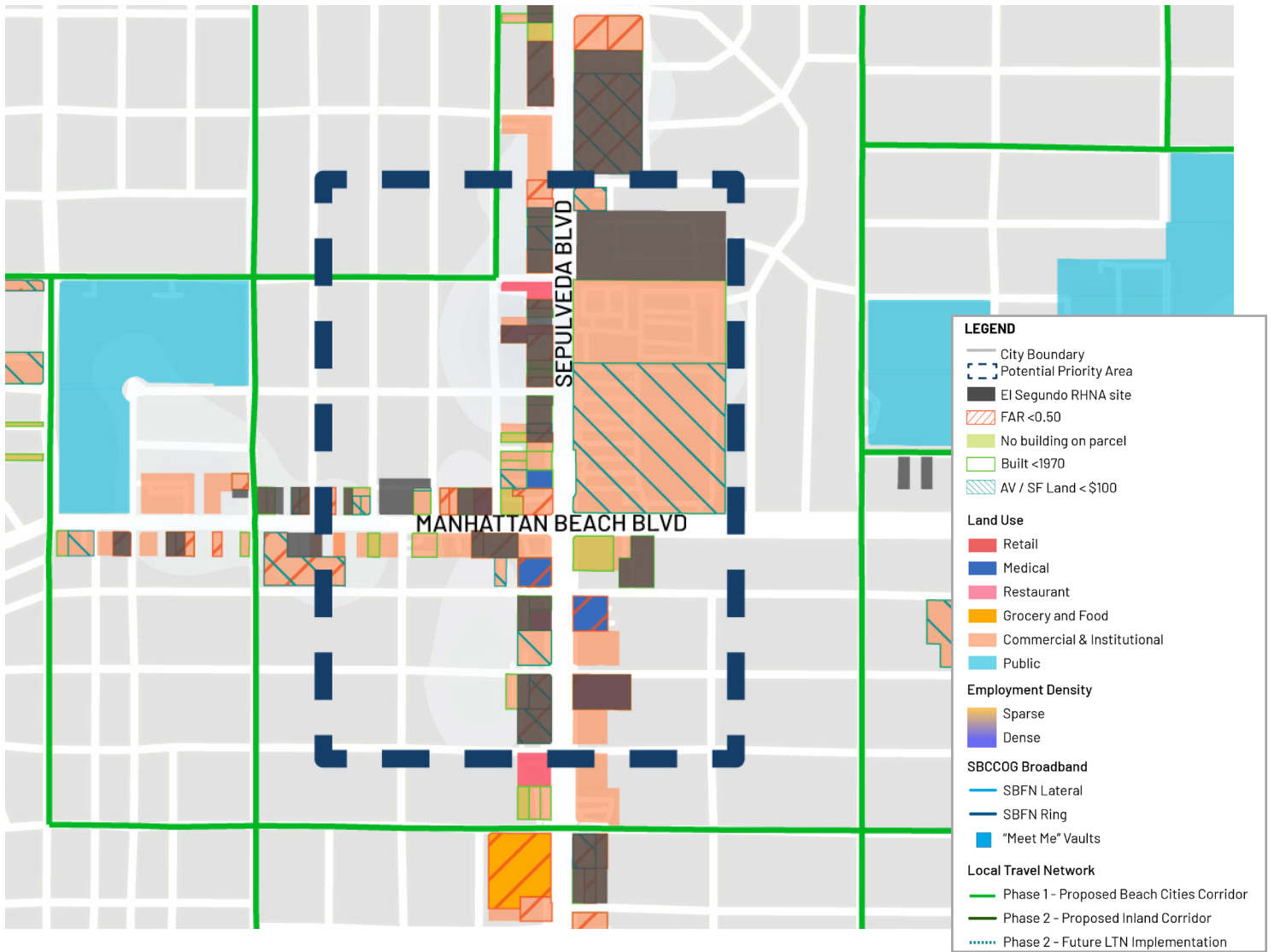
The City of Manhattan Beach has identified multiple properties of varying sizes as RHNA sites and opportunities for infill housing. The Study Area's proximity to Downtown Manhattan Beach makes those sites highly sought after from a redevelopment standpoint.

The SBCCOG's LTN proposed Beach Cities Corridor at the north will expand safe access throughout the South Bay for non-motorized users via low-stress streets away from the busy thoroughfares of Manhattan Beach Boulevard and Sepulveda Boulevard.



Aerial view





## Scorecard Summary



## Site 2:

### 1011 Manhattan Beach Blvd.



Like other parcels within the Study Area, Site #2 (1011 Manhattan Beach Boulevard) is a very small 0.2-acre lot. A hypothetical redevelopment scenario on Site 2 would demonstrate the opportunity for residential infill on smaller parcels with site constraints, and how to integrate new housing and density that is compatible with adjacent residential uses along a corridor with community-serving uses like offices. A viable redevelopment scenario for a site with these limitations can be transferable to other parts of the City such as Aviation Boulevard, where similar site conditions exist.



The redevelopment scenario for Site #2 provides residents with convenient access to all the amenities and destinations within the Study Area's commercial corridor and is within walking distance to Downtown Manhattan Beach. The hypothetical redevelopment scenario integrates housing density at an appropriate neighborhood scale with five for-sale, two-level residential units and larger spaces catered to the needs of families and those living with roommates. The housing would also have open spaces accessible from the top floor of each unit. Nine on-site, sub-level parking stalls are also included in the design's provisions, making it possible for residents to use their vehicles without having to worry about finding a convenient space on a congested corridor.

The pro forma analysis found the hypothetical redevelopment scenario to be feasible from a for-sale standpoint and yielded some marginal capacity to support the funding of affordable housing (likely through an in-lieu / fee payment).

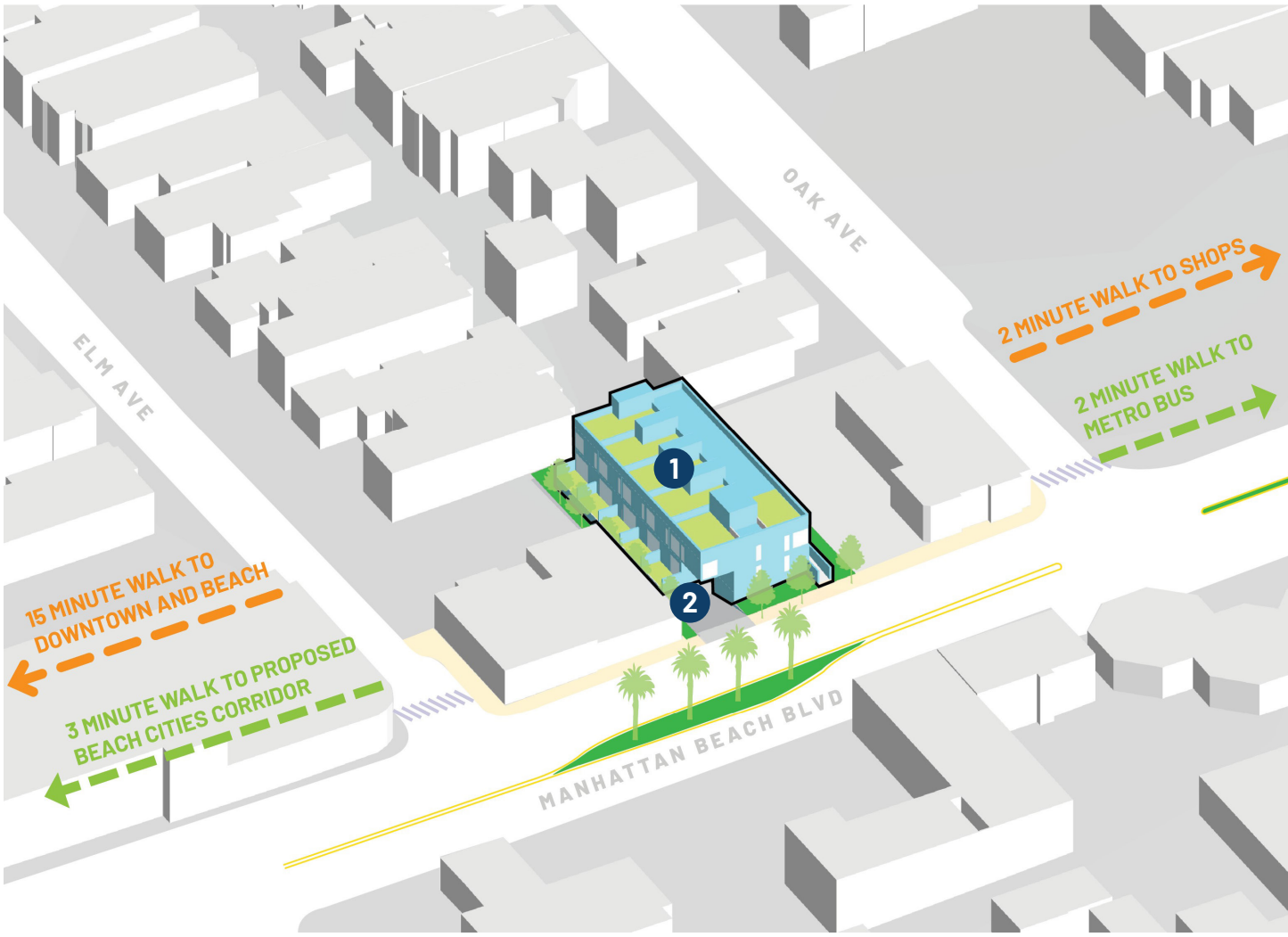
The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 1011 Manhattan Beach Blvd. would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing 20" water main and an 8" sewer main in Hawthorne Blvd. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The potential water demand is based on a fire flow requirement, which will remain the same as the existing condition. Therefore, no upgrades to the public water infrastructure are required.

# Hypothetical Redevelopment Scenario

- Small Infill Project on Commercial Corridor
- Larger Units for Families / Roommates
- Density at an Appropriate Neighborhood Scale

**KEY**

- 1 Five 2-Level Units
- 2 Partial Sub-T Stalls



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	0.19	Land Cost / Land SF	\$425	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	-	Parking Cost / Net SF	31	Potential Capacity	\$0	Best Case % of Units	~13-20% / 1 Unit
Net Residential SF	8,120	Development Cost / Net SF	346	Equivalent Low Units	0	Impact to Return	+11%
Parking / Bedroom	0.7	Total Cost / Net SF	845				
Total Bedrooms	15			<b>For Sale</b>			
Dwelling Units	5	Return on Cost if For Lease	-15.4%	Potential Capacity	-\$1 MM		
DU / Acre	26.2	Return on Cost if For Sale	25.0%	Equivalent Low Units	0		

6

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# City of Redondo Beach

**Potential Study Area 1:** PCH/Palos Verdes Blvd.

**Potential Study Area 2:** 190th St. from Meyer Ln. to  
Inglewood Ave.

MANHATTAN BEACH BLVD

I-405

ARTESIA BLVD

RIPLEY AVE

2

190TH ST

PACIFIC COAST HIGHWAY

1

**LEGEND**

— City Boundary

▭ Potential Priority Area

■ RHNA site

Land Use

■ Retail

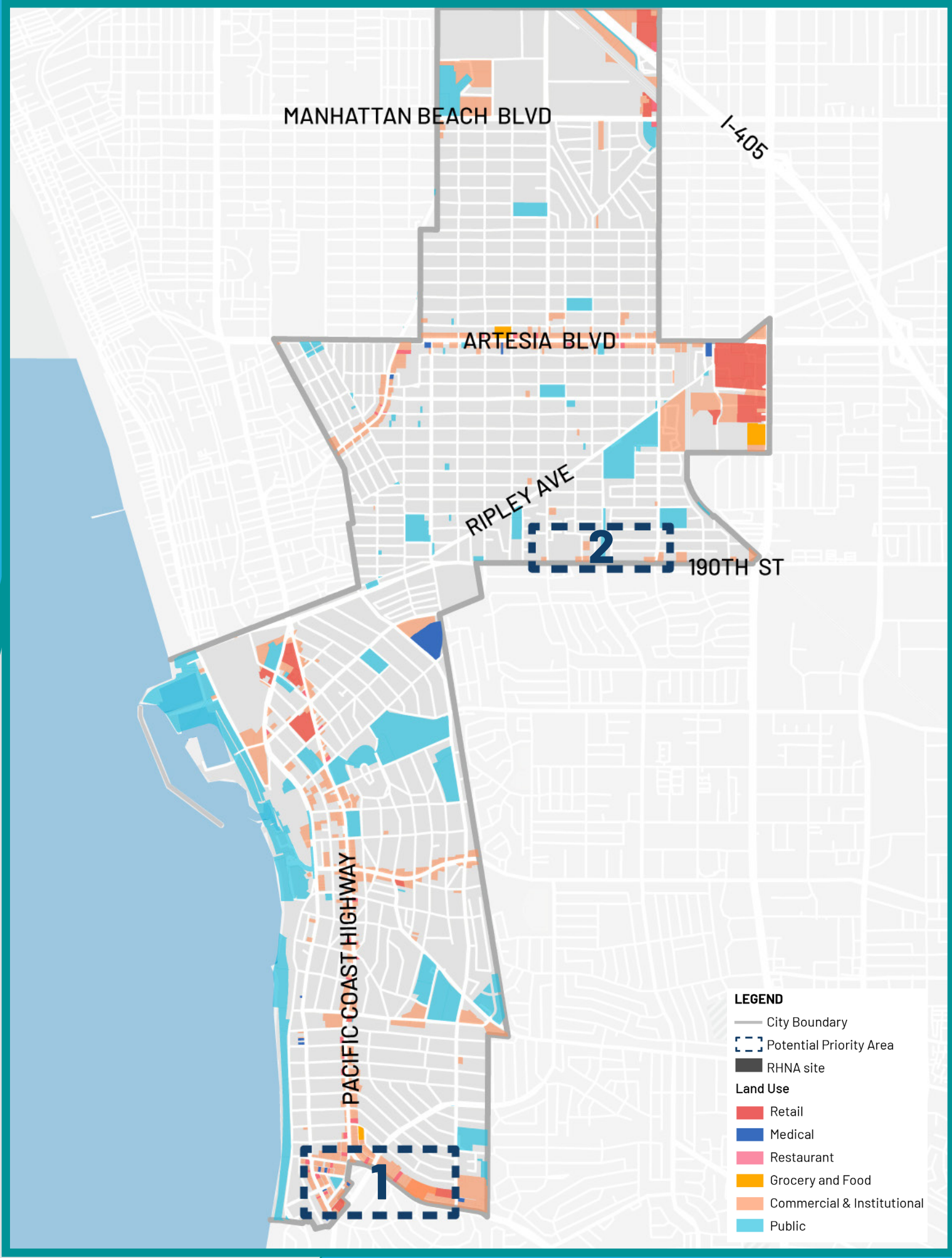
■ Medical

■ Restaurant

■ Grocery and Food

■ Commercial & Institutional

■ Public

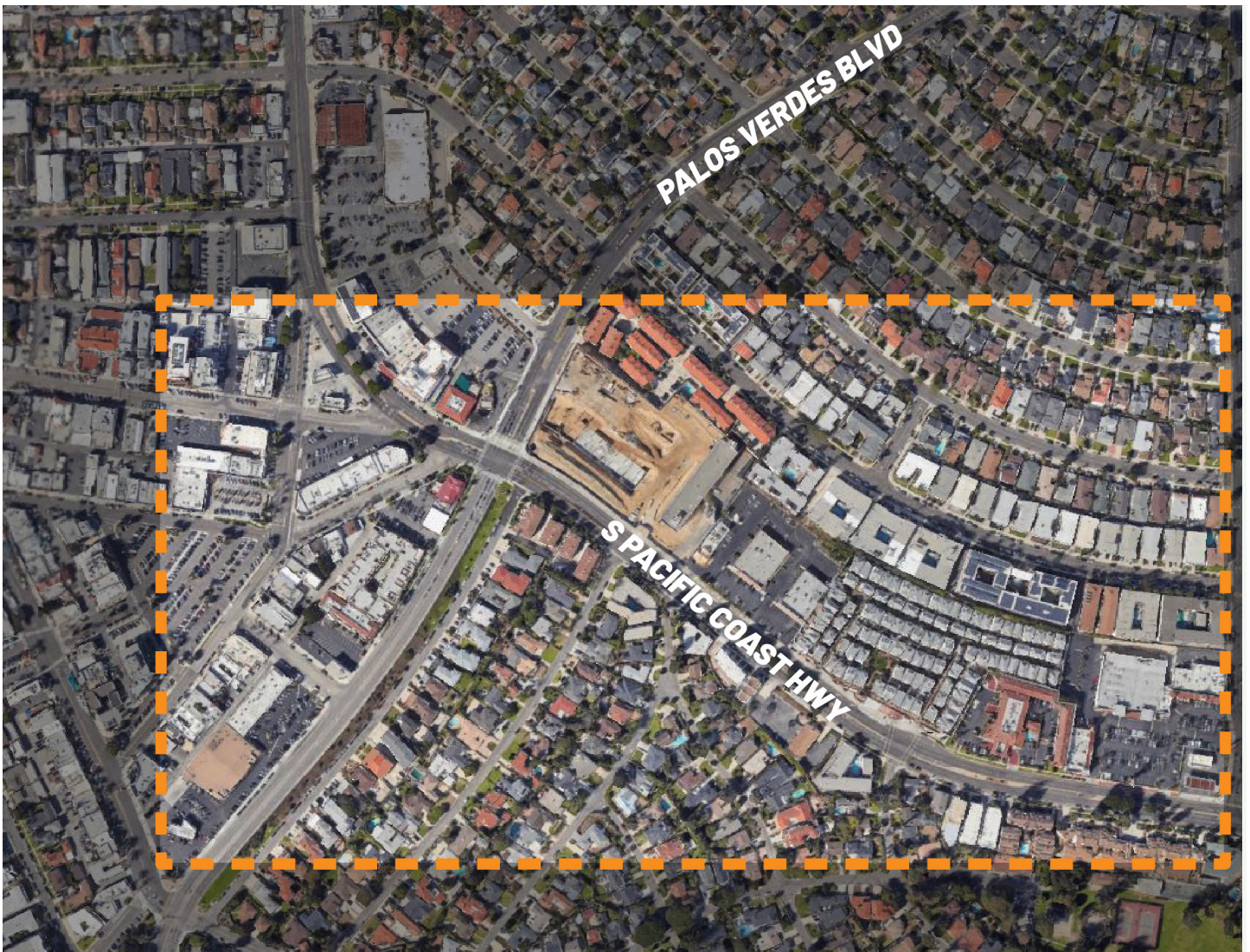


## Study Area 1:

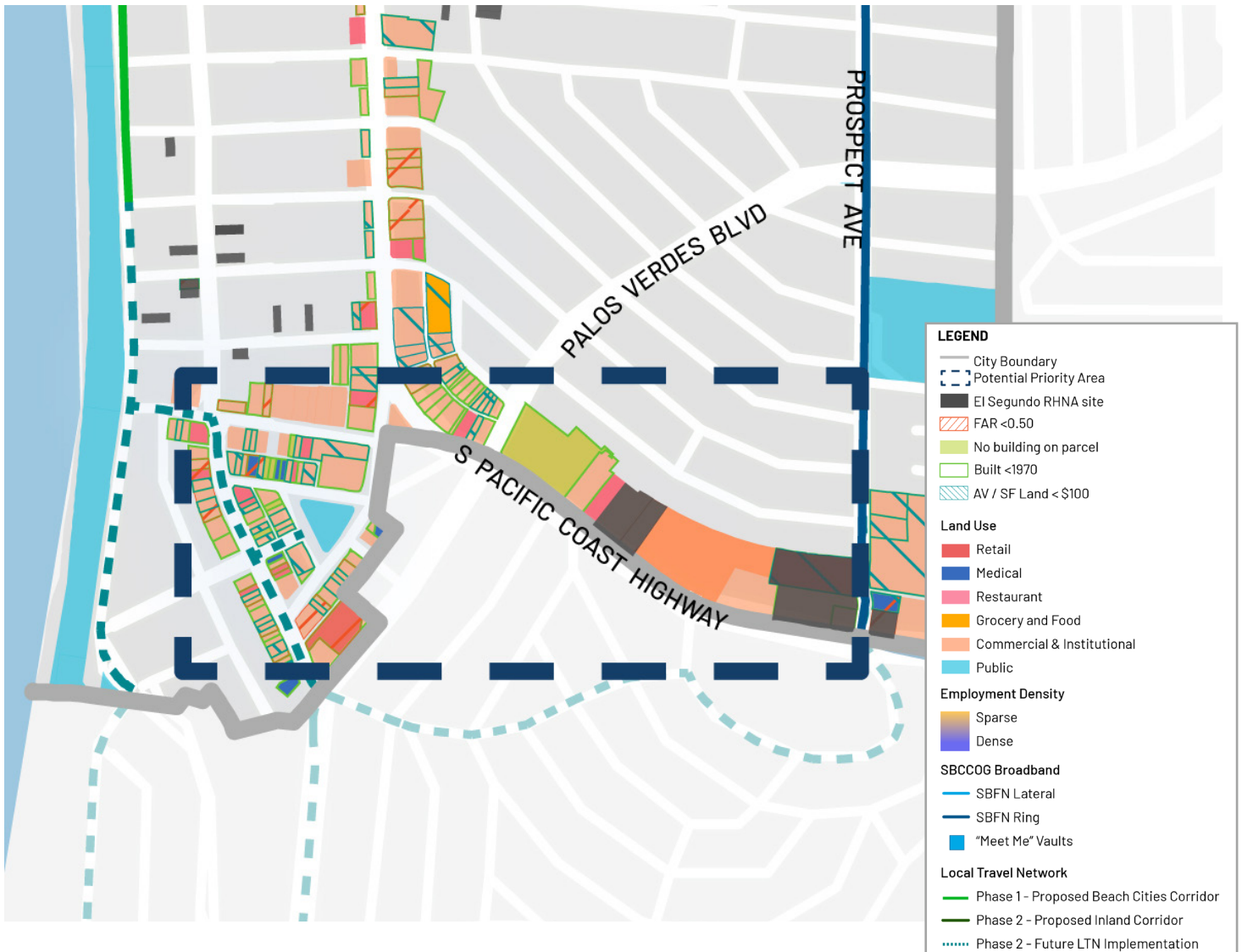
# PCH/Palos Verdes Blvd.

The City of Redondo Beach recently updated their General Plan and Housing Element and identified select commercial properties along Pacific Coast Highway within Study Area 1 – Pacific Coast Highway and Palos Verdes Boulevard as RHNA sites with a residential overlay of 55 du/ac to accommodate mixed-use development and housing. This Study Area includes an incredibly diverse mix of concentrated commercial uses, including restaurants, retail stores, a Trader Joes grocery, and community-serving retail.

These commercial parcels are part of Rivera Village and many have older structures (built before 1970), in addition to some properties along Pacific Coast Highway. Properties to the southeast of the Study Area include some strip malls with commercial uses, and existing or under construction mixed-use development along Pacific Coast Highway. SBCCOG's LTN is proposed along Catalina Avenue in the west of the Study Area, and will provide increased access and safe connections to Rivera Village.



**Aerial view**



## Scorecard Summary



## Site 1: 1770 Pacific Coast Highway



Site #1 1770 East Pacific Coast Highway, referred to as the FedEx property, has been identified as a RHNA site with a residential overlay to accommodate future housing, permitting up to 55 du/ac. This is a common corridor site type in several South Bay cities with a small frontage and a deep footprint. Site #1 is also surrounded by single and multi-family residential to the north in Redondo Beach and south in Torrance. Many properties along Pacific Coast Highway adjacent to Site #1 are mid-rise, mixed-use developments with housing above and community-serving uses, such as restaurants, coffee shops, drugstores, etc. on the ground floor, creating an opportunity for future housing developments to continue the active street wall with community-serving retail. Site #1 addresses a common condition for how to integrate housing at a fine-grained scale on small, deep site (less than one acre) while still creating an active street frontage with community amenities along Pacific Coast Highway.



The Site #1 hypothetical redevelopment scenario includes 30 for-sale, residential flats with private roof decks and 64 tuck under parking spaces. The residential flats are designed to be large, three-bedroom units to accommodate families, and have the potential for modular prefab construction. The hypothetical redevelopment scenario also integrates essential open space and new amenities with 2,000 square feet of community-serving retail or a business center, and a resident bike kitchen for bike repair and tune ups along Pacific Coast Highway. This scenario marginally falls short of the residential parking requirements. Some incentives to reduce the minimum parking stalls per unit requirement would be required to realize this model.

The pro forma analysis for this hypothetical redevelopment scenario explores up to 40 for-sale three-story residential flats by adding an additional story, density bonus provisions, and reduced/sharing parking strategies. All three hypothetical redevelopment approaches for the market for-sale residential flats are feasible and demonstrated some capacity to support income restricted units. A market-for-lease scenario was not financially feasible under any of the configurations evaluated.

The following high-level infrastructure assessment of current conditions and capacities explores the



# Hypothetical Redevelopment Scenario

- Larger Units for Roommates / Families
- Housing with a Fine Grain Scale
- Potential for Modular Prefab Construction
- Meaningful Open Space on a Tight Lot
- Proximity to Walkable Destinations

## KEY

- 1 30 Residential Flats
- 2 64 Tuck-Under Parking Stalls (22 Tandem)
- 3 2,000 SF New Retail / Local Business Center
- 4 Micromobility Node
- 5 Private Roof Decks



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	0.7	Land Cost / Land SF	\$210	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	-	Parking Cost / Net SF	90	Potential Capacity	\$0	Best Case % of Units	~6% / 2 Units
Net Residential SF	32,640	Development Cost / Net SF	600	Equivalent Low Units	0	Impact to Return	-2%
Parking / Bedroom	0.6	Total Cost / Net SF	813	<b>For Sale</b>			
Total Bedrooms	90			Potential Capacity	~\$1 MM		
Dwelling Units	30	Return on Cost if For Lease	-16.4%	Equivalent Low Units	~1		
DU / Acre	43.2	Return on Cost if For Sale	12.2%				

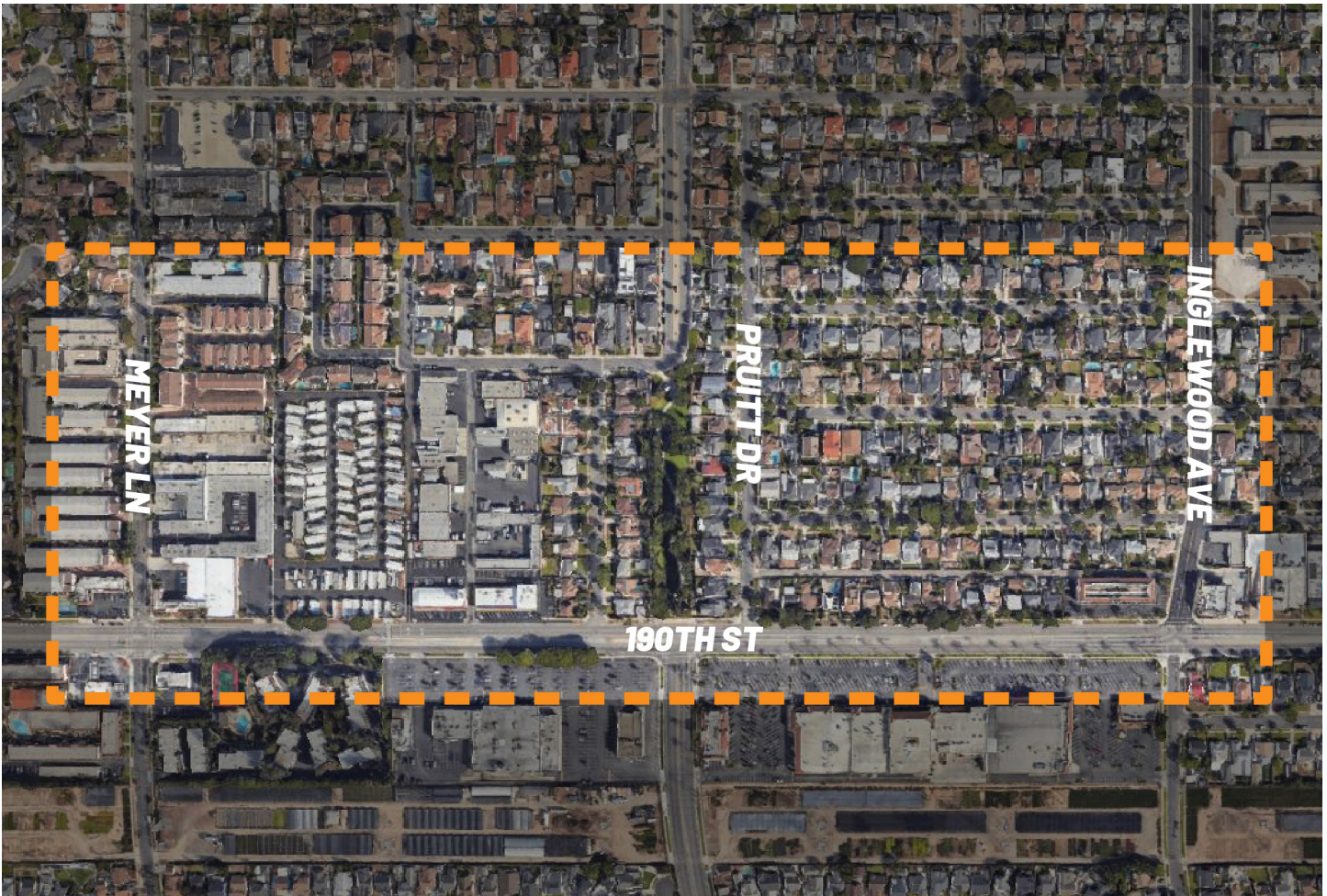
impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 1770 E PCH would require domestic water, fire water and sanitary sewer services. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The proposed water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure are required. The existing sewer network is currently overcapacity. Flow monitoring may be required to confirm the capacity of the sewer main or if upgrades would be required for any future housing development at this site.



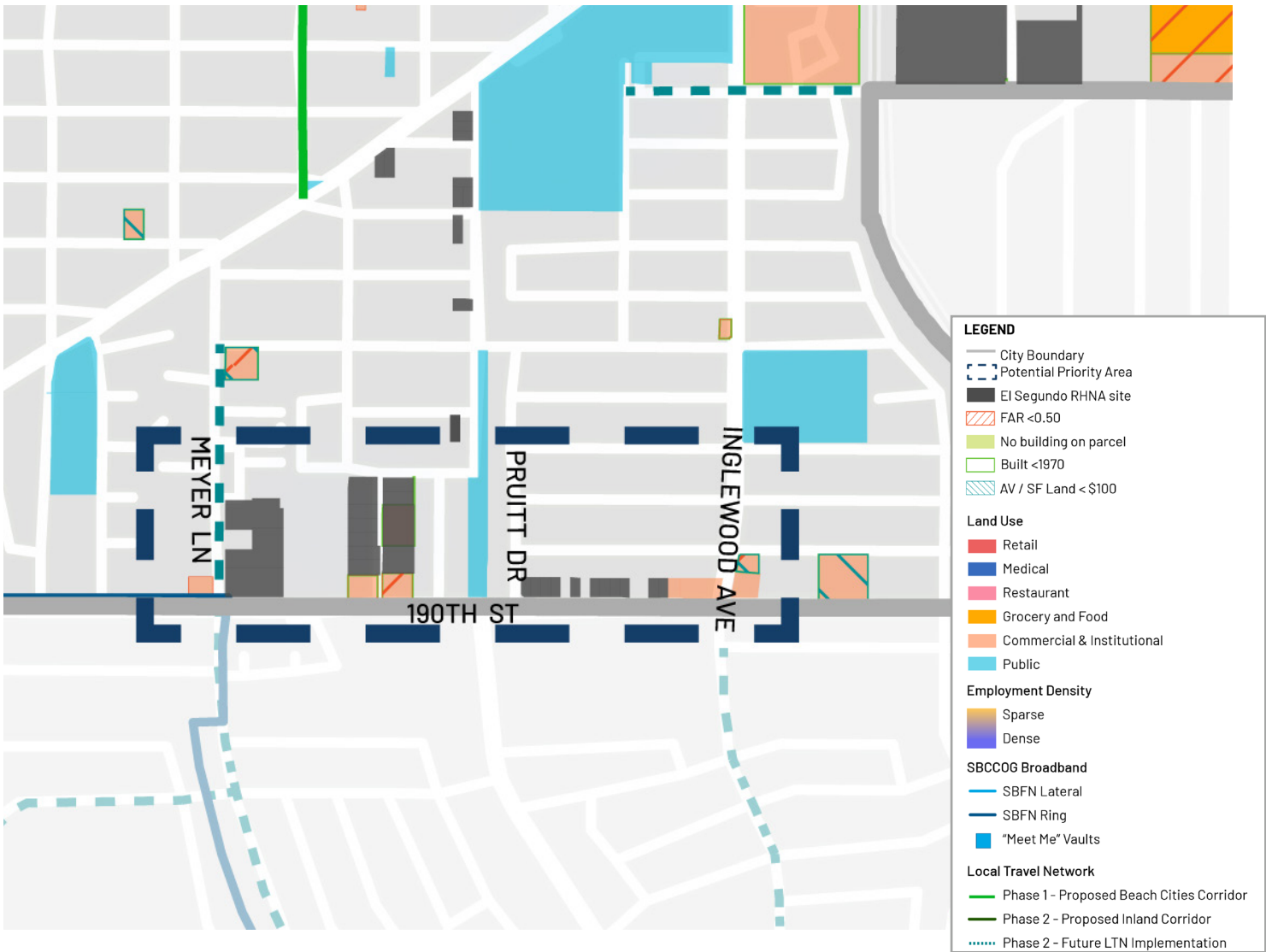
## Study Area 2:

# 190th St./Inglewood Ave.

Study Area #2 – 190th Street and Inglewood Avenue includes successful strip center retail on both sides of 190th Street. The northern portion of 190th Street presents a common condition with community-serving retail and businesses on small lots with a limited depth, and surface parking lots fronting the street. Multi-family residential, restaurants, and big-box retail are on the southern portion of 190th Street within the City of Torrance. Lilienthal Park, a linear park with walking trails, provides an amenity for existing and future residents. SBCCOG's LTN is proposed along Meyer Lane within the Study Area creating a safe connection across 190th Street to destinations. In addition, SBCCOG's broadband network is planned along 190th Street at the western border of the Study Area, further increasing high-quality internet for future residents and businesses. The City of Redondo Beach has identified numerous RHNA sites for infill housing within Study Area #2 on relatively small sites.



Aerial view



### Scorecard Summary

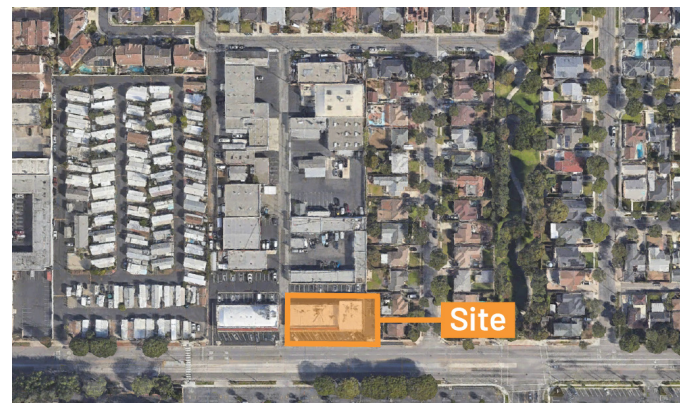


## Site 2:

# 2421 to 2433 190th Street



Site #2 includes two adjacent parcels, 2421 to 2433 190th Street, that were identified together as opportunities to explore housing on smaller lots of an acre or less, a typical condition along the arterial. Both sites currently have successful businesses and destinations and can be transitioned to housing through a phased development approach. These two adjacent parcels share one property owner, presenting an opportunity for lot consolidation and a phaseable development that preserves community-valued businesses. Typologies for infill housing on smaller sites along 190th Street can be a bit limiting if there is limited opportunity for site assembly due to different ownership. Housing typologies of up to three stories, such as townhomes, can maintain an active frontage along 190th Street integrating seamlessly with existing commercial uses, and respond to the surrounding context and scale of the street and the residential to the north.



The Site #2 hypothetical redevelopment scenario includes seven for-sale, three-story townhomes that are self-parked with ground-level garages, and 14 surface parking stalls behind the development to create an active frontage along the arterial and an improved pedestrian character with continuous sidewalks. With the private garages for the units, this scenario would meet the parking requirement for the townhomes, while still preserving sufficient surface parking that services the reduced retail footprint. A micromobility node amenity facilitates zero-emission trips along the corridor and local travel network. The existing community-serving businesses (6,500 square feet) are retained on the other site to demonstrate the opportunity for phaseable and incremental infill of housing.

The pro forma analysis explores the feasibility of the seven market for-sale townhomes on either the east or west site while retaining some existing retail on the other site, creating a feasible development opportunity. This scenario appeared to be financially feasible under a for-sale scenario, though without sufficient revenues to support income restricted units.

The pro forma analysis also explored a feasible development opportunity converting the existing offices on the west site into five for-rent two-bedroom units. This approach retains the existing commercial on both sites, targeting only the underutilized portion of the site for incremental infill. This scenario appeared to be financially feasible under a for-lease scenario, preserved the existing

# Hypothetical Redevelopment Scenario

- Incremental Infill of Smaller Corridor Parcels
- Typical Arterial Condition
- Phase-able Infill Opportunity
- Appropriate Neighborhood Scale Housing Product

## KEY

- 1** Retain 6,500 SF Existing Retail
- 2** 22 Surface Parking Stalls
- 3** 7 3-Story Townhomes with Ground Level Garages
- 4** 16 Surface Parking Stalls
- 5** Micromobility Node



Program		Costs & Revenue		Affordable Housing		Density Bonus Feasibility	
Site Acres	0.52	Land Cost / Land SF	\$180	<b>For Lease</b>		Best Case Affordability	Very Low
Net Commercial SF	-	Parking Cost / Net SF	-	Potential Capacity	\$0	Best Case % of Units	~14% / 1 Unit
Net Residential SF	15.162	Development Cost / Net SF	350	Equivalent Low Units	0	Impact to Return	+7%
Parking / Bedroom	0.0	Total Cost / Net SF	649				
Total Bedrooms	21			<b>For Sale</b>			
Dwelling Units	7	Return on Cost if For Lease	-15.9%	Potential Capacity	~\$1 MM		
DU / Acre	13.6	Return on Cost if For Sale	10.9%	Equivalent Low Units	~1		

retail, delivered residential units at a lower price point than alternatives evaluated, and yielded some marginal capacity to support the funding of affordable housing (likely through an in-lieu / fee payment).

The following high-level infrastructure assessment of current conditions and capacities explores the impact of the hypothetical redevelopment scenario on existing city infrastructure. The hypothetical redevelopment scenario at 2421-2433 190th Street would require domestic water, fire water and sanitary sewer services. The site is currently served by an existing water main and an 8" sewer main in 190th Street. The water main currently provides sufficient water for the property and the fire hydrants within the vicinity of the site. The proposed water demand is based on a fire flow requirement, which will remain the same as the existing condition. No upgrades to the public water infrastructure are required. The hypothetical redevelopment scenario would cause an increase in sewer flow of approximately 1%, which is negligible and within the capacity of the existing sewer infrastructure.



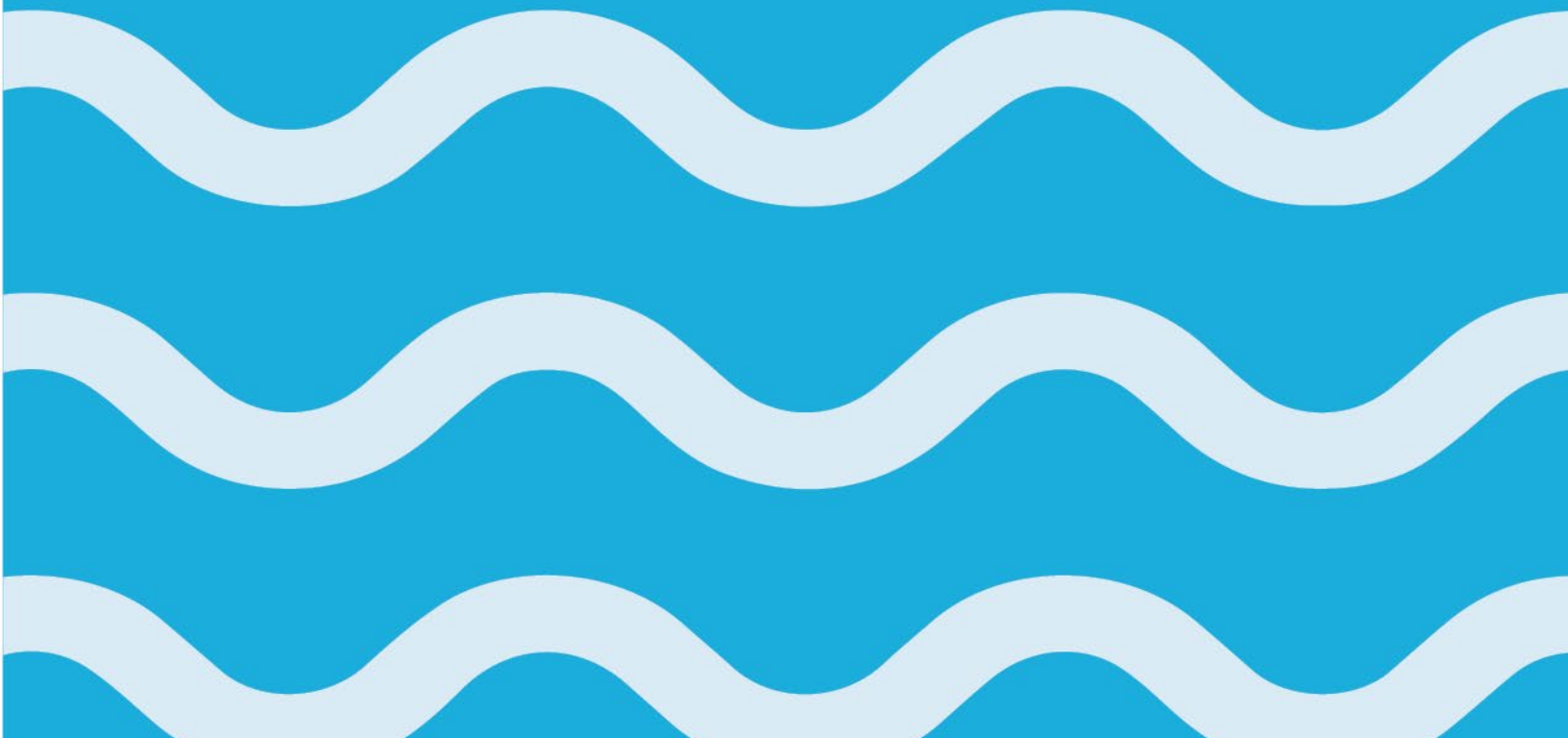
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# Appendix

- 1 BUSINESS AMENITIES & DENSITY
- 2 UTILITY OF DENSITY BONUS LAW
- 3 RHNA ALLOCATION & ECONOMIC GAP
- 4 INFRASTRUCTURE STUDIES

# Business Amenities & Density



## Business Amenities & Density

One of the screening criteria for priority areas was locations with a density of destinations / amenities within walkable or low speed travel distances. As part of this evaluation consumer-based services and business amenities were identified based on two-digit Standard Industrial Classification (“SIC”) codes. A list of the codes identified, and count of businesses within ¼-mile, ½-mile, and 1-mile radius for each site evaluated follows below.

### Business Amenity / Density for Carson & El Segundo Sites

Two Digit SIC Code / Segment	Carson						El Segundo		
	Site 1			Site 2			Site 1		
	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile
<b>52 Building Materials &amp; Gardening Supplies</b>	2	2	5	3	5	6	3	5	8
<b>53 General Merchandise Stores</b>	2	2	5	5	5	7		1	3
<b>54 Food Stores</b>	10	12	19	3	5	9	3	4	12
<b>55 Automotive Dealers &amp; Service Stations</b>		5	14	2	5	14	1	3	10
<b>56 Apparel &amp; Accessory Stores</b>		1	2	2	3	6	1	2	9
<b>57 Furniture &amp; Homefurnishings Stores</b>		2	8	1	2	7	3	5	19
<b>58 Eating &amp; Drinking Places</b>	16	28	59	19	31	57	4	12	72
<b>59 Miscellaneous Retail</b>	5	10	22	5	9	26	4	16	42
<b>60 Depository Institutions</b>	5	6	9		2	4		1	7
<b>70 Hotels &amp; Other Lodging Places</b>		1	1		1	2	1	1	14
<b>72 Personal Services</b>	11	27	54	9	19	38	1	8	46
<b>73 Business Services</b>			1		1	2			2
<b>74 Animal Hospitals &amp; Veterinarians</b>			1				1	1	2
<b>75 Auto Repair, Services, &amp; Parking</b>	2	9	28	3	5	24	10	19	27
<b>76 Miscellaneous Repair Services</b>	2	5	8			4	1	3	8
<b>79 Amusement &amp; Recreation Services</b>	4	6	12	1	3	17	3	12	29
<b>80 Health Services</b>	18	35	69	27	32	75	1	8	84
<b>81 Legal Services</b>	1	2	2	3	3	4	1	4	36
<b>82 Educational Services</b>	6	9	18	3	5	12	2	3	15
<b>83 Social Services</b>	3	7	14	5	5	13	3	8	32
<b>84 Museums, Botanical, Zoological Gardens</b>			2			1			1
<b>86 Membership Organizations</b>	4	9	26	6	8	19	3	7	30
<b>Total</b>	<b>91</b>	<b>178</b>	<b>379</b>	<b>97</b>	<b>149</b>	<b>347</b>	<b>46</b>	<b>123</b>	<b>508</b>

Source: DataAxleUSA, Kosmont, 2023

**Business Amenity / Density for Hawthorne & Hermosa Beach Sites**

Two Digit SIC Code / Segment	Hawthorne						Hermosa Beach					
	Site 1			Site 2			Site 1			Site 2		
	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile
<b>52 Building Materials &amp; Gardening Supplies</b>	3	3	7	1	4	8	2	9	14		4	14
<b>53 General Merchandise Stores</b>	1	1	6	1	5	10	1	1	3		1	2
<b>54 Food Stores</b>	3	7	20	1	4	21	2	7	26	8	13	27
<b>55 Automotive Dealers &amp; Service Stations</b>	5	7	18	1	9	22	1	8	15	4	10	15
<b>56 Apparel &amp; Accessory Stores</b>	2	3	5			5		2	11	4	8	10
<b>57 Furniture &amp; Homefurnishings Stores</b>			4		1	8	6	10	17	4	8	15
<b>58 Eating &amp; Drinking Places</b>	7	12	39	4	11	70	9	20	104	22	56	100
<b>59 Miscellaneous Retail</b>	8	9	21	2	7	32	7	20	60	12	30	60
<b>60 Depository Institutions</b>		2	9		1	7		4	18	4	10	17
<b>70 Hotels &amp; Other Lodging Places</b>		4	10		1	9		2	12	1	8	12
<b>72 Personal Services</b>	6	16	39	6	13	59	7	34	104	28	58	93
<b>73 Business Services</b>	1	1	3		1	3		1	4	1	1	3
<b>74 Animal Hospitals &amp; Veterinarians</b>						1		3	4		2	4
<b>75 Auto Repair, Services, &amp; Parking</b>	1	6	33	17	20	58	8	17	40	5	22	37
<b>76 Miscellaneous Repair Services</b>		1	5			6		3	17	1	6	14
<b>79 Amusement &amp; Recreation Services</b>		1	7		3	13	9	20	58	11	25	52
<b>80 Health Services</b>	43	53	80	3	21	70	4	42	168	20	39	130
<b>81 Legal Services</b>						2	3	4	23	6	8	25
<b>82 Educational Services</b>	2	5	12		3	18	4	10	33	2	6	25
<b>83 Social Services</b>	1	6	16	1	3	20	3	14	84	5	13	74
<b>84 Museums, Botanical, Zoological Gardens</b>							1	2	2	1	2	2
<b>86 Membership Organizations</b>	1	4	19	2	9	27	1	4	28	3	8	23
<b>Total</b>	<b>84</b>	<b>141</b>	<b>353</b>	<b>39</b>	<b>116</b>	<b>469</b>	<b>68</b>	<b>237</b>	<b>845</b>	<b>142</b>	<b>338</b>	<b>754</b>

Source: DataAxleUSA, Kosmont, 2023

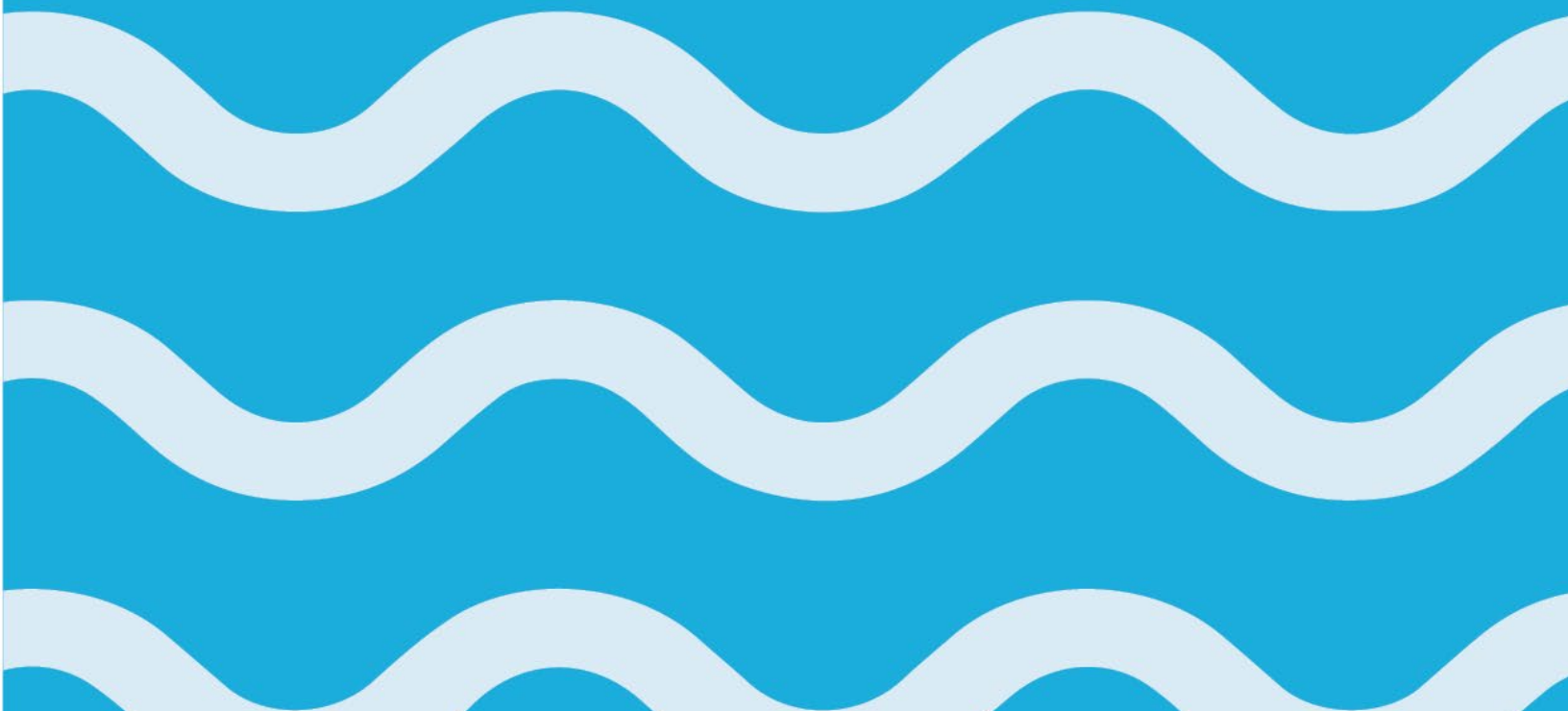
### Business Amenity / Density for Manhattan Beach & Redondo Beach Sites

Two Digit SIC Code / Segment	Manhattan Beach						Redondo Beach					
	Site 1			Site 2			Site 1			Site 2*		
	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile	1/4 Mile	1/2 Mile	1 Mile
<b>52 Building Materials &amp; Gardening Supplies</b>	1	1	12	2	3	4	1	2	6	1	1	3
<b>53 General Merchandise Stores</b>		1	2	1	1	5	1	2	3			3
<b>54 Food Stores</b>	2	2	20	1	5	14		7	8	2	3	8
<b>55 Automotive Dealers &amp; Service Stations</b>			12	3	3	6	2	3	3		1	4
<b>56 Apparel &amp; Accessory Stores</b>	1	1	11	3	6	47		14	15			3
<b>57 Furniture &amp; Homefurnishings Stores</b>		1	16	1	5	11		1	3	1	2	8
<b>58 Eating &amp; Drinking Places</b>	10	10	92	12	22	92	12	66	77	3	4	16
<b>59 Miscellaneous Retail</b>	5	9	54	7	15	45	5	23	30	3	6	17
<b>60 Depository Institutions</b>	5	6	22	3	7	19	1	7	7			1
<b>70 Hotels &amp; Other Lodging Places</b>	1	3	16	3	5	12	1	1	6			
<b>72 Personal Services</b>	5	14	103	15	30	83	10	71	84	1	5	22
<b>73 Business Services</b>	1	1	2	1	1	2		2	2			
<b>74 Animal Hospitals &amp; Veterinarians</b>			2	1	2	3		1	2			
<b>75 Auto Repair, Services, &amp; Parking</b>	1	7	33	9	15	26		6	10	5	8	11
<b>76 Miscellaneous Repair Services</b>	2	2	14	3	3	12		1	1	1	1	5
<b>79 Amusement &amp; Recreation Services</b>	5	7	45	4	14	34	3	13	23		1	7
<b>80 Health Services</b>	52	65	156	28	60	151	5	71	93			58
<b>81 Legal Services</b>	5	11	31	7	16	68	3	18	20		1	6
<b>82 Educational Services</b>	5	9	26	2	6	22	2	7	11		2	10
<b>83 Social Services</b>	43	55	77	9	21	58	1	37	44	1	2	21
<b>84 Museums, Botanical, Zoological Gardens</b>			3	1	1	1		1	1			1
<b>86 Membership Organizations</b>	7	12	28	3	7	22	2	8	20	2	7	10
<b>Total</b>	<b>151</b>	<b>217</b>	<b>777</b>	<b>119</b>	<b>248</b>	<b>737</b>	<b>49</b>	<b>362</b>	<b>469</b>	<b>20</b>	<b>44</b>	<b>214</b>

Source: DataAxleUSA, Kosmont, 2023

\*Substantial portions of the 1/4-mile, 1/2-mile, and 1-mile radius of this site are outside of the City of Redondo Beach / are instead in the City of Torrance, for which business destination data was not obtained. Thus, these figures are underreported for this site.

# Utility of Density Bonus Laws



## Utility of Density Bonus Laws

In each of the various test fits evaluated, the potential economic benefit of utilizing California Density Bonus laws were evaluated. Additionally, sensitivity modeling was also conducted to evaluate general conditions that support the utilization of Density Bonus law. In general, Density Bonus law allows developers to build a greater number of units, as well as receive additional “incentives” or “concessions” such as reduced parking requirements, and/or waivers of development standards such as height limitations, setback requirements, open space requirements, etc. The number of additional units permitted and concessions is based on the number and level of affordable units provided.

The modeling and sensitivity testing evaluated the potential return on development costs, return on equity, and total profit for projects with and without the use of Density Bonus provisions. The modeling did not evaluate the potential benefits of incentives or concessions. The results of this analysis suggested limited circumstances wherein use of density bonus law would yield a greater profitability from a return on cost and/or return on equity perspective. However, the sensitivity analysis suggested many circumstances where the use of Density Bonus provisions would yield a project with slightly inferior return on cost and return on equity yields, but with a higher total profit (in dollars / not a percent). In many cases, the reduction in rates of return was marginal enough that incentives or concessions could conceptually provide an overall benefit to a given project. In general, the analysis suggested the use of Density provisions tended worked best from a profitability perspective given:

- The inclusion of very low income units (versus low or moderate units)
- Markets with lower rents / sales values that reduced the difference between market revenue and affordable revenue
- Smaller unit sizes (both on a square foot basis and bedroom count)
- Higher fixed costs that could be amortized over a greater number of units (e.g., land cost)

Again, the additional benefit of incentives and concessions provided under Density Bonus law were not considered in the modeling, and can be of substantial benefit and enhance the feasibility of a given development. Further, in some circumstances the ability to increase the overall number of units itself can provide an ongoing operational benefit by providing a critical mass of units over which to amortize fixed components of operating costs. Finally, in jurisdictions with inclusionary housing requirements, the use of Density Bonus law can sometimes be useful as a way to counter the economic implications of inclusionary housing requirements.

A table summarizing the density bonus provided for a given percentage of affordable units follows. This can be read as restricting 10% of units to very low income households permits a density bonus of 33%, or 20% if the affordable units are restricted to low income households, or 5% if the affordable units are restricted to moderate income households. As an example, if a 100-unit development restricted 10% or 10-units to very low income households, the developer could build an additional 33 units, or a total of 133 units (and 10 of the 133 units would be income restricted to very low income households).

## Density Bonus Equivalency

Percent of Affordable Units	Very Low Income Density Bonus	Low Income Density Bonus	Moderate Income Density Bonus
<b>5%</b>	20%	0%	0%
<b>6%</b>	23%	0%	0%
<b>7%</b>	25%	0%	0%
<b>8%</b>	28%	0%	0%
<b>9%</b>	30%	0%	0%
<b>10%</b>	33%	20%	5%
<b>11%</b>	35%	22%	6%
<b>12%</b>	39%	23%	7%
<b>13%</b>	43%	25%	8%
<b>14%</b>	46%	26%	9%
<b>15%</b>	50%	28%	10%
<b>16%</b>	50%	29%	11%
<b>17%</b>	50%	31%	12%
<b>18%</b>	50%	32%	13%
<b>19%</b>	50%	34%	14%
<b>20%</b>	50%	35%	15%
<b>21%</b>	50%	39%	16%
<b>22%</b>	50%	43%	17%
<b>23%</b>	50%	46%	18%
<b>24%</b>	50%	50%	19%
<b>25%</b>	50%	50%	20%
<b>26%</b>	50%	50%	21%
<b>27%</b>	50%	50%	22%
<b>28%</b>	50%	50%	23%
<b>29%</b>	50%	50%	24%
<b>30%</b>	50%	50%	25%
<b>31%</b>	50%	50%	26%
<b>32%</b>	50%	50%	27%
<b>33%</b>	50%	50%	28%
<b>34%</b>	50%	50%	29%
<b>35%</b>	50%	50%	30%
<b>36%</b>	50%	50%	31%
<b>37%</b>	50%	50%	32%
<b>38%</b>	50%	50%	33%
<b>39%</b>	50%	50%	34%
<b>40%</b>	50%	50%	35%
<b>41%</b>	50%	50%	39%
<b>42%</b>	50%	50%	43%
<b>43%</b>	50%	50%	46%
<b>44%</b>	50%	50%	50%
<b>100%</b>	80%	80%	80%

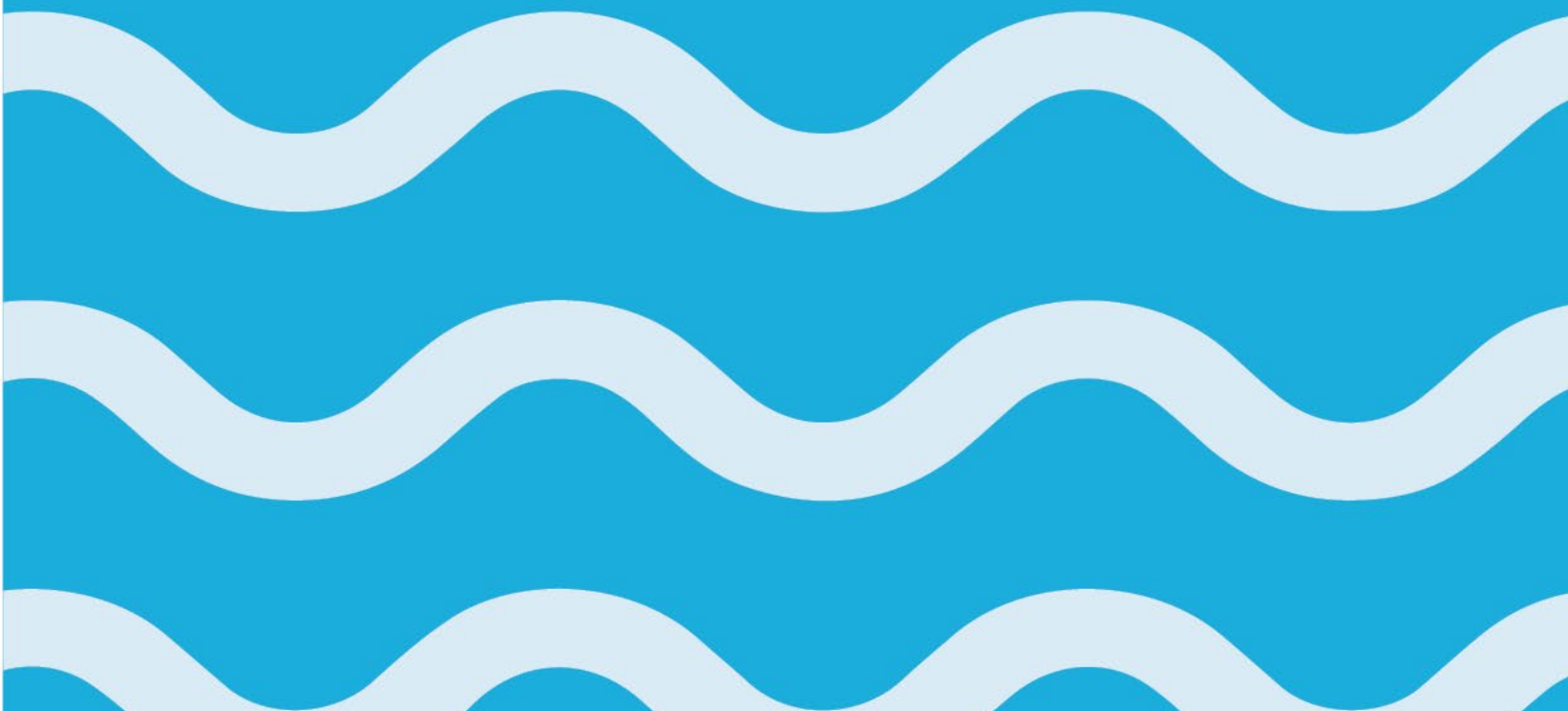
Source: Jon Goetz & Tom Sakai, *Guide to the California Density Bonus Law, 2023*



**RHNA**

**Allocation &**

**Economic Gap**



## RHNA Allocation & Economic Gap

In this section, the scale of funding that may be required to support affordable housing as planned for under RHNA is evaluated. The scale of funding required is evaluated from two perspectives herein. The first perspective evaluates the potential value of housing units supportable at affordable income levels versus the market value of the same housing units. The second perspective evaluates the potential value of housing units supportable at affordable income levels versus the potential cost of constructing the housing units. Generally, the evaluation herein contemplates multifamily housing values and costs (e.g., apartments, condominiums, townhomes). However, given data sources, the analysis of for sale units includes a comparison against market values influenced by the value of single family homes in a given market.

For both perspectives, the quantity of affordable housing evaluated is based on the RHNA allocations for each of the six cities in this Study. The RHNA allocation is a part of California Housing Element Law that determines how many new dwelling units, and the affordability of those dwelling units, that a given City or County must plan for in its Housing Element. In March of 2021 the Southern California Association of Governments (“SCAG”) adopted its 6<sup>th</sup> cycle RHNA allocation plan which covers the planning period from October 2021 through October 2029. Under this plan, the six cities in this Study were allocated units to plan for as follows:

### Study Cities 6<sup>th</sup> Cycle RHNA Allocation (2021 - 2029)

	Very Low*	Low	Moderate	Above Moderate	Total
<b>Carson</b>	1,770	913	875	2,060	<b>5,618</b>
<b>El Segundo</b>	189	88	84	131	<b>492</b>
<b>Hawthorne</b>	445	204	249	836	<b>1,734</b>
<b>Hermosa Beach</b>	232	127	106	93	<b>558</b>
<b>Manhattan Beach</b>	322	165	155	132	<b>774</b>
<b>Redondo Beach</b>	936	508	490	556	<b>2,490</b>
<b>Total</b>	<b>3,894</b>	<b>2,005</b>	<b>1,959</b>	<b>3,808</b>	<b>11,666</b>

*Source: SCAG 6<sup>th</sup> Cycle Final RHNA Allocation Plan*

*\*Pursuant to Government Code §65583(a)(1) it is assumed in the balance of this analysis that the need for extremely low income units comprises half of the very low income units.*

For reference and scale, these allocations represent planning for growth ranging from approximately 5 – 20% of existing housing units for a given city as shown in the table below.

## Existing Housing Units vs. RHNA Allocation

<b>Existing Housing</b>			
	<b>Units</b>	<b>RHNA Target</b>	<b>Growth</b>
<b>Carson</b>	27,699	5,618	<b>20%</b>
<b>El Segundo</b>	7,500	492	<b>7%</b>
<b>Hawthorne</b>	31,578	1,734	<b>5%</b>
<b>Hermosa Beach</b>	10,038	558	<b>6%</b>
<b>Manhattan Beach</b>	14,994	774	<b>5%</b>
<b>Redondo Beach</b>	30,999	2,490	<b>8%</b>
<b>Total</b>	<b>122,808</b>	<b>11,666</b>	<b>9%</b>

*Source: California Department of Finance Table E-5 4/1/2020, SCAG 6<sup>th</sup> Cycle Final RHNA Allocation Plan*

## Supportable Housing Cost

To evaluate the potential scale of funding needed to support affordable housing within the cities studied, the economic capacity of affordable households was first evaluated. California Health & Safety Code §50052.5 for owner occupied housing, and California Health & Safety Code §50053 for rental units, provide guidance on the maximum monthly housing cost (inclusive of rent, utilities, insurance, etc.) for each level of affordability. This amount is expressed as a percent of Area Median Income (“AMI”) to establish the annual income for a given depth of affordability, and a percent of that annual income as a maximum share for housing expenditures.

For Los Angeles County, the AMI for 2023 is \$98,200 for a four-person household, and is then adjusted for smaller or larger households as 70% of this amount for a one-person household, 80% for a two-person household, 90% for a three-person household, and 108% for a five-person household. The allowable maximum housing expenditure for the various thresholds of affordability are then calculated based on the following factors:

### Maximum Housing Expenditure Factors for Affordable Housing

	<b>For Rent</b>		<b>For Sale</b>	
	<b>Housing</b>		<b>Housing</b>	
	<b>% of AMI</b>	<b>Cost %</b>	<b>% of AMI</b>	<b>Cost %</b>
<b>Extremely Low</b>	30%	30%	30%	30%
<b>Very Low</b>	50%	30%	50%	30%
<b>Low</b>	60%	30%	70%	30%
<b>Moderate</b>	110%	30%	110%	35%

*Source: California Health & Safety Code §50052.5 for owner occupied housing, and California Health & Safety Code §50053 for rental housing*

Based on the AMI and affordability thresholds, the maximum annual income for the purposes of calculating maximum housing expenditures is as follows:

**Maximum Annual Income For Rental Housing Expenditure Calculations**

	<b>Household Size (People)</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Extremely Low</b>	\$ 20,622	\$ 23,568	\$ 26,514	\$ 29,460	\$ 31,817
<b>Very Low</b>	34,370	39,280	44,190	49,100	53,028
<b>Low</b>	41,244	47,136	53,028	58,920	63,634
<b>Moderate</b>	75,614	86,416	97,218	108,020	116,662

*Source: Kosmont, 2023*

**Maximum Annual Income For Owner Occupied Housing Expenditure Calculations**

	<b>Household Size (People)</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Extremely Low</b>	\$ 20,622	\$ 23,568	\$ 26,514	\$ 29,460	\$ 31,817
<b>Very Low</b>	34,370	39,280	44,190	49,100	53,028
<b>Low</b>	48,118	54,992	61,866	68,740	74,239
<b>Moderate</b>	75,614	86,416	97,218	108,020	116,662

*Source: Kosmont, 2023*

Based on the maximum annual income thresholds and maximum expenditure ratios identified above, the maximum monthly housing expenditures for rental, and separately, owner occupied housing is as follows:

**Maximum Monthly Rental Housing Expenditures**

	<b>Household Size (People)</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Extremely Low</b>	\$ 516	\$ 589	\$ 663	\$ 737	\$ 795
<b>Very Low</b>	859	982	1,105	1,228	1,326
<b>Low</b>	1,031	1,178	1,326	1,473	1,591
<b>Moderate</b>	1,890	2,160	2,430	2,701	2,917

*Source: Kosmont, 2023*

**Maximum Monthly Owner Occupied Housing Expenditures (2023)**

	Household Size (People)				
	1	2	3	4	5
<b>Extremely Low</b>	\$ 516	\$ 589	\$ 663	\$ 737	\$ 795
<b>Very Low</b>	859	982	1,105	1,228	1,326
<b>Low</b>	1,203	1,375	1,547	1,719	1,856
<b>Moderate</b>	2,205	2,520	2,836	3,151	3,403

*Source: Kosmont, 2023*

In order to calculate the maximum monthly affordable rent for rental housing, an allowance for utilities is deducted from the maximum housing expenditures identified above. For the purposes of estimates herein, utility allowances published by the Los Angeles County Development Authority (“LACDA”) were utilized. The 2023 utility allowances for all electric service (electric heat, water heating, cooking, etc.) and a tenant supplied refrigerator in a multifamily building is as follows:

**LACDA Utility Allowance (2023)**

	Unit Bedrooms				
	Studio	1	2	3	4
<b>Allowance</b>	\$ 193	\$ 227	\$ 262	\$ 309	\$ 366

*Source: LACDA, 2023*

As illustrated in the table above, utility allowances are calculated based on unit size, while the maximum household income amounts are calculated based on the number of people in a household. While the number of people allocated to a given size unit can vary based on a particular affordable housing program or funding source, for the purposes of the analysis herein, unit sizing was based on California Health & Safety Code §50052.5 as follows:

**Conversion of Household Size to Unit Size**

	Household Size (People)				
	1	2	3	4	5
<b>Unit Bedrooms</b>	Studio	1	2	3	4

*Source: California Health & Safety Code §50052.5, Kosmont*

Given the above utility allowances and respective household and unit sizes, the net maximum monthly rent for the various affordability levels and unit sizes is as follows:

<b>Maximum Monthly Rent (Excluding Utilities)</b>					
<b>Unit Bedrooms</b>					
	<b>Studio</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Extremely Low</b>	\$ 323	\$ 362	\$ 401	\$ 428	\$ 429
<b>Very Low</b>	666	755	843	919	960
<b>Low</b>	838	951	1,064	1,164	1,225
<b>Moderate</b>	1,697	1,933	2,168	2,392	2,551

*Source: Kosmont, 2023*

In order to calculate the maximum monthly mortgage payment for owner occupied housing, an allowance for utilities, homeowner’s insurance, and maintenance is deducted from the maximum housing expenditures identified above. The 2023 utility allowances published by LACDA for all electric service (heat, water heating, cooking, etc.) and an owner supplied refrigerator in a multifamily building was utilized. Additionally, an allowance of \$50 – 70 for homeowner’s insurance and an allowance \$100 – 200 a maintenance allowance of were also deducted. The assumed allowances for owner occupied housing is as follows:

**Utility, Insurance & Maintenance Allowances for Owner Occupied Housing**

<b>Unit Bedrooms</b>					
	<b>Studio</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Utilities</b>	\$ 193	\$ 227	\$ 262	\$ 309	\$ 366
<b>Insurance</b>	50	55	60	65	70
<b>Maintenance</b>	100	125	150	175	200

*Source: LACDA, Kosmont, 2023*

It should be noted that these allowances likely underestimate actual monthly housing expenses as multifamily properties such as condominiums and townhomes considered herein typically require homeowner association / HOA assessments that exceed the \$100 – \$200 maintenance allowance. To the extent these monthly housing expenses are underestimated it would overstate the supportable mortgage, and therefore overstate the purchase price supportable at a given affordable threshold.

In addition to the allowances identified above, an allowance for property taxes was estimated based on the supportable affordable housing purchase price and a placeholder property tax rate of 0.0110% of property value (per year). For reference, based on a cursory survey of Tax Rate Areas (“TRAs”) within the six cities in the Study, annual property tax rates generally ranged from 0.0106% to 0.0115%. The placeholder rate of 0.0110% also excludes any direct assessments such as sewer and trash collection if billed on property tax statements, as well as flood control, mosquito abatement, and

other similar assessments. To the extent the property tax bill including additional assessments is underestimated it would overstate the supportable mortgage, and therefore overstate the purchase price supportable at a given affordable threshold. The placeholder property tax allowances based on a 0.0110% are as follows:

**Property Tax Allowance for Owner Occupied Housing**

	<b>Unit Bedrooms</b>				
	<b>Studio</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Extremely Low</b>	\$ 22	\$ 23	\$ 24	\$ 24	\$ 20
<b>Very Low</b>	65	73	80	86	87
<b>Low</b>	109	123	136	148	155
<b>Moderate</b>	236	268	299	330	350

*Source: Kosmont*

Given the above utility, insurance, maintenance, and property tax allowances, a 7.0% mortgage interest rate (30 year fully amortizing loan), a 5% down payment, and respective household and unit sizes, the net maximum purchase price at the various affordability levels and unit sizes is estimated as follows:

<b>Maximum Purchase Price for Owner Occupied Housing</b>					
	<b>Unit Bedrooms</b>				
	<b>Studio</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Extremely Low</b>	\$ 23,843	\$ 25,176	\$ 26,371	\$ 25,908	\$ 22,028
<b>Very Low</b>	71,334	79,452	87,432	93,754	95,301
<b>Low</b>	118,826	133,729	148,493	161,599	168,574
<b>Moderate</b>	257,344	292,035	326,587	359,482	382,287

*Source: Kosmont, 2023*

For reference, should the assumed mortgage interest rate be reduced from 7.0% to 6.0%, the supportable purchase price would increase by approximately 10%. Separately, at a 7.0% interest rate, every \$100 increase in housing costs (e.g., for HOA dues) reduces the supportable purchase price by approximately \$14,000.

## **Supportable Affordable Housing Cost vs. Market Value**

The first perspective evaluated herein compares the potential value of housing units supportable at affordable income levels versus the market value of the same. In this section affordable rents are compared to market rents, and affordable owner occupied sales prices are compared to market sales prices in the six cities in the Study.

With respect to rental housing, market rents were estimated based on a review of CoStar data for multifamily properties in each of the six cities in the Study. For reference, there was limited information for four-bedroom units, and therefore such units were not included in this portion of the analysis. Further, four-bedroom units are not frequently included as part of typical for rent affordable housing developments. The estimated rents and assumed unit square footages for studios, one, two, and three-bedroom units follow below. For reference the rents below are hypothetical rents thought to be achievable given newer, higher quality housing product.

### **Unit Square Footage & Estimated Market Rent Per Square Foot Per Month**

		<b>Unit Bedrooms / Square Feet</b>			
		<b>Studio</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Unit SF</b>		500	700	950	1,150
<b>Carson</b>	\$	4.50	\$ 3.75	\$ 3.50	\$ 3.25
<b>El Segundo</b>		4.75	4.25	3.75	3.50
<b>Hawthorne</b>		4.00	3.50	3.25	3.00
<b>Hermosa Beach</b>		5.00	4.75	4.50	4.25
<b>Manhattan Beach</b>		5.50	5.25	5.00	4.75
<b>Redondo Beach</b>		4.75	4.50	4.00	3.75

*Source: CoStar, Kosmont, 2023*

### **Estimated Market Rent Per Month**

		<b>Unit Bedrooms</b>			
		<b>Studio</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Carson</b>	\$	2,250	\$ 2,625	\$ 3,325	\$ 3,738
<b>El Segundo</b>		2,375	2,975	3,563	4,025
<b>Hawthorne</b>		2,000	2,450	3,088	3,450
<b>Hermosa Beach</b>		2,500	3,325	4,275	4,888
<b>Manhattan Beach</b>		2,750	3,675	4,750	5,463
<b>Redondo Beach</b>		2,375	3,150	3,800	4,313

*Source: CoStar, Kosmont, 2023*

In the next table the difference between market rents and the maximum affordable rents are illustrated. While RHNA does not dictate minimum unit bedroom counts, a “blended” difference is



also provided to illustrate a simplified hypothetical example. The blended amount is calculated based on an assumed unit mix of 15% studios, 50% one-bedroom, 30% two-bedroom, and 5% three-bedroom units. As an example, and as illustrated in the table below, the difference between market rents and maximum affordable rent for extremely low income households in Carson would average \$2,463 per month given this blended unit ratio.

**Difference Between Market & Affordable Rents - Per Unit Per Month**

		Unit Bedrooms				Blended*
		Studio	1	2	3	
Carson	Extremely Low	\$ 1,927	\$ 2,263	\$ 2,924	\$ 3,310	\$ 2,463
	Very Low	1,584	1,870	2,482	2,819	2,058
	Low	1,412	1,674	2,261	2,574	1,856
	Moderate	553	692	1,157	1,346	843
El Segundo	Extremely Low	\$ 2,052	\$ 2,613	\$ 3,162	\$ 3,598	\$ 2,743
	Very Low	1,709	2,220	2,720	3,107	2,338
	Low	1,537	2,024	2,499	2,861	2,135
	Moderate	678	1,042	1,394	1,634	1,122
Hawthorne	Extremely Low	\$ 1,677	\$ 2,088	\$ 2,687	\$ 3,023	\$ 2,253
	Very Low	1,334	1,695	2,245	2,532	1,848
	Low	1,162	1,499	2,024	2,286	1,645
	Moderate	303	517	919	1,059	632
Hermosa Beach	Extremely Low	\$ 2,177	\$ 2,963	\$ 3,874	\$ 4,460	\$ 3,193
	Very Low	1,834	2,570	3,432	3,969	2,788
	Low	1,662	2,374	3,211	3,724	2,586
	Moderate	803	1,392	2,107	2,496	1,573
Manhattan Beach	Extremely Low	\$ 2,427	\$ 3,313	\$ 4,349	\$ 5,035	\$ 3,577
	Very Low	2,084	2,920	3,907	4,544	3,172
	Low	1,912	2,724	3,686	4,299	2,969
	Moderate	1,053	1,742	2,582	3,071	1,957
Redondo Beach	Extremely Low	\$ 2,052	\$ 2,788	\$ 3,399	\$ 3,885	\$ 2,916
	Very Low	1,709	2,395	2,957	3,394	2,511
	Low	1,537	2,199	2,736	3,149	2,308
	Moderate	678	1,217	1,632	1,921	1,295

Source: Kosmont, 2023

\*Based on a unit mix of 15% studios, 50% one-bedroom, 30% two-bedroom, and 5% three-bedroom units

In the next table the differences between market and affordable rent are annualized and then capitalized at a 4.5% capitalization rate to illustrate the value gap between market and affordable units to a potential property owner / operator. This value is then multiplied by the number of units each City has been allocated under the 6<sup>th</sup> RHNA cycle.

As an example, and as illustrated in the table below, given these assumptions, the difference between the market value and value of extremely low units as allocated to the City of Carson is estimated to be approximately \$455 million if all units were delivered as studio units, or approximately \$581 million if delivered at the blended ratio previously discussed. Further, the value differential between estimated market value and the value of affordable units as allocated under the 6<sup>th</sup> RHNA cycle if delivered as rental units is estimated to be approximately \$4.3 billion across the six cities in the Study. It should be noted that this is a simplified analysis, is only intended to provide an order of magnitude estimate, and does not take into consideration some potential variable factors such as the potential for reductions in property taxes for affordable units, limitations on rent growth, the likely timing of the sunset of affordability provisions, etc.

**Total Difference Between Market Value & Affordable Value of RHNA Allocation – For Rent Housing**

		Unit Bedrooms				
		Studio	1	2	3	Blended*
Carson	Extremely Low	\$ 455,000,000	\$ 534,000,000	\$ 690,000,000	\$ 781,000,000	\$ 581,000,000
	Very Low	374,000,000	441,000,000	586,000,000	665,000,000	486,000,000
	Low	344,000,000	407,000,000	551,000,000	627,000,000	452,000,000
	Moderate	129,000,000	161,000,000	270,000,000	314,000,000	197,000,000
<b>Total</b>		<b>\$ 1,302,000,000</b>	<b>\$ 1,543,000,000</b>	<b>\$ 2,097,000,000</b>	<b>\$ 2,387,000,000</b>	<b>\$ 1,716,000,000</b>
El Segundo	Extremely Low	\$ 52,000,000	\$ 66,000,000	\$ 80,000,000	\$ 91,000,000	\$ 69,000,000
	Very Low	43,000,000	56,000,000	69,000,000	78,000,000	59,000,000
	Low	36,000,000	47,000,000	59,000,000	67,000,000	50,000,000
	Moderate	15,000,000	23,000,000	31,000,000	37,000,000	25,000,000
<b>Total</b>		<b>\$ 146,000,000</b>	<b>\$ 192,000,000</b>	<b>\$ 239,000,000</b>	<b>\$ 273,000,000</b>	<b>\$ 203,000,000</b>
Hawthorne	Extremely Low	\$ 100,000,000	\$ 124,000,000	\$ 159,000,000	\$ 179,000,000	\$ 134,000,000
	Very Low	79,000,000	101,000,000	133,000,000	150,000,000	110,000,000
	Low	63,000,000	82,000,000	110,000,000	124,000,000	90,000,000
	Moderate	20,000,000	34,000,000	61,000,000	70,000,000	42,000,000
<b>Total</b>		<b>\$ 262,000,000</b>	<b>\$ 341,000,000</b>	<b>\$ 463,000,000</b>	<b>\$ 523,000,000</b>	<b>\$ 376,000,000</b>
Hermosa Beach	Extremely Low	\$ 67,000,000	\$ 92,000,000	\$ 120,000,000	\$ 138,000,000	\$ 99,000,000
	Very Low	57,000,000	79,000,000	106,000,000	123,000,000	86,000,000
	Low	56,000,000	80,000,000	109,000,000	126,000,000	87,000,000
	Moderate	23,000,000	39,000,000	60,000,000	71,000,000	45,000,000
<b>Total</b>		<b>\$ 203,000,000</b>	<b>\$ 290,000,000</b>	<b>\$ 395,000,000</b>	<b>\$ 458,000,000</b>	<b>\$ 317,000,000</b>
Manhattan Beach	Extremely Low	\$ 104,000,000	\$ 142,000,000	\$ 187,000,000	\$ 216,000,000	\$ 154,000,000
	Very Low	89,000,000	125,000,000	168,000,000	195,000,000	136,000,000
	Low	84,000,000	120,000,000	162,000,000	189,000,000	131,000,000
	Moderate	44,000,000	72,000,000	107,000,000	127,000,000	81,000,000
<b>Total</b>		<b>\$ 321,000,000</b>	<b>\$ 459,000,000</b>	<b>\$ 624,000,000</b>	<b>\$ 727,000,000</b>	<b>\$ 502,000,000</b>
Redondo Beach	Extremely Low	\$ 256,000,000	\$ 348,000,000	\$ 424,000,000	\$ 485,000,000	\$ 364,000,000
	Very Low	213,000,000	299,000,000	369,000,000	424,000,000	313,000,000
	Low	208,000,000	298,000,000	371,000,000	427,000,000	313,000,000
	Moderate	89,000,000	159,000,000	213,000,000	251,000,000	169,000,000
<b>Total</b>		<b>\$ 766,000,000</b>	<b>\$ 1,104,000,000</b>	<b>\$ 1,377,000,000</b>	<b>\$ 1,587,000,000</b>	<b>\$ 1,159,000,000</b>
<b>Total All Cities</b>		<b>\$ 3,000,000,000</b>	<b>\$ 3,929,000,000</b>	<b>\$ 5,195,000,000</b>	<b>\$ 5,955,000,000</b>	<b>\$ 4,273,000,000</b>

Source: Kosmont, 2023

\*Based on a unit mix of 15% studios, 50% one-bedroom, 30% two-bedroom, and 5% three-bedroom units

The next component of the analysis looked at the value differential between the maximum owner occupied affordable housing value and market owner occupied housing values. Market data herein is based on the Zillow Home Value Index (ZHVI) for different size units (from one to four bedrooms per unit) for each City. Comparable information on studio units was not available, and therefore not

evaluated. Further, for sale affordable projects evaluated tended to have higher bedroom counts per unit than for rent projects.

The ZHVI data includes information on both single family and condominium units, and does not consider the square footage of a given unit, but rather only the bedroom count. Generally, the utilization of these values provides an analysis of the value differential between the maximum supportable affordable purchase price previously calculated and the average value of existing owner occupied units in a given city. The market values based on ZHVI data is as follows:

**Market Value of Owner Occupied Units**

	<b>Unit Bedrooms</b>			
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Carson</b>	\$ 385,446	\$ 559,520	\$ 705,436	\$ 781,077
<b>El Segundo</b>	782,666	1,043,555	1,521,609	1,937,891
<b>Hawthorne</b>	600,628	749,818	835,747	946,759
<b>Hermosa Beach</b>	1,076,420	1,524,139	2,083,270	2,861,162
<b>Manhattan Beach</b>	1,857,107	1,911,686	2,461,044	3,297,563
<b>Redondo Beach</b>	742,950	1,036,651	1,332,430	1,623,999

Source: Zillow, 2023

Note: Zillow did not have data on one-bedroom units for El Segundo. Based on a review of conditions in area markets a value of 75% of the two-bedroom value was utilized.

Given the supportable affordable owner occupied purchase price previously calculated, the estimated difference between the market value and supportable affordable purchase price is illustrated below for the various affordability thresholds. For reference, under the for sale scenario the blended ratio was based on a unit mix of 15% one-bedroom, 50% two-bedroom, 30% three-bedroom, and 5% four-bedroom units for all cities.

## Difference Between Market & Affordable Purchase Price – For Sale Housing

		Unit Bedrooms				
		1	2	3	4	Blended*
<b>Carson</b>	<b>Extremely Low</b>	\$ 361,603	\$ 534,344	\$ 679,065	\$ 755,169	\$ 562,890
	<b>Very Low</b>	314,112	480,068	618,004	687,323	506,918
	<b>Low</b>	266,620	425,791	556,943	619,478	450,945
	<b>Moderate</b>	128,102	267,485	378,849	421,595	287,692
<b>El Segundo</b>	<b>Extremely Low</b>	\$ 758,824	\$ 1,018,379	\$ 1,495,238	\$ 1,911,983	\$ 1,167,183
	<b>Very Low</b>	711,332	964,103	1,434,177	1,844,137	1,111,211
	<b>Low</b>	663,840	909,826	1,373,116	1,776,292	1,055,239
	<b>Moderate</b>	525,322	751,520	1,195,022	1,578,409	891,986
<b>Hawthorne</b>	<b>Extremely Low</b>	\$ 576,785	\$ 724,642	\$ 809,376	\$ 920,851	\$ 737,694
	<b>Very Low</b>	529,294	670,366	748,315	853,005	681,722
	<b>Low</b>	481,802	616,089	687,254	785,160	625,749
	<b>Moderate</b>	343,284	457,783	509,160	587,277	462,496
<b>Hermosa Beach</b>	<b>Extremely Low</b>	\$ 1,052,577	\$ 1,498,963	\$ 2,056,899	\$ 2,835,254	\$ 1,666,200
	<b>Very Low</b>	1,005,086	1,444,687	1,995,838	2,767,408	1,610,228
	<b>Low</b>	957,594	1,390,410	1,934,777	2,699,563	1,554,255
	<b>Moderate</b>	819,076	1,232,104	1,756,683	2,501,680	1,391,002
<b>Manhattan Beach</b>	<b>Extremely Low</b>	\$ 1,833,264	\$ 1,886,510	\$ 2,434,673	\$ 3,271,655	\$ 2,112,229
	<b>Very Low</b>	1,785,733	1,832,234	2,373,612	3,203,809	2,056,257
	<b>Low</b>	1,738,281	1,777,957	2,312,551	3,135,964	2,000,284
	<b>Moderate</b>	1,599,763	1,619,651	2,134,457	2,938,081	1,837,031
<b>Redondo Beach</b>	<b>Extremely Low</b>	\$ 719,107	\$ 1,011,475	\$ 1,306,059	\$ 1,598,091	\$ 1,085,326
	<b>Very Low</b>	671,616	957,199	1,244,998	1,530,245	1,029,353
	<b>Low</b>	624,124	902,922	1,183,937	1,462,400	973,381
	<b>Moderate</b>	485,606	744,616	1,005,843	1,264,517	810,128

Source: Kosmont, 2023

\*Based on a unit mix of 15% one-bedroom, 50% two-bedroom, 30% three-bedroom, and 5% four-bedroom units for all cities.

The value differential illustrated above was then multiplied the number of units each City was allocated under the 6<sup>th</sup> RHNA cycle. As an example, and as illustrated in the table below, given these assumptions, the difference between the market value and value of extremely low units as allocated to the City of Carson is estimated to be approximately \$320 million if all units were delivered as one-bedroom units, or approximately \$498 million if delivered given a blended ratio. Further, the value differential between estimated market value and the value of affordable units as allocated under the 6<sup>th</sup> RHNA cycle if delivered as for sale / owner occupied units is estimated to be approximately \$6.4 billion across the six cities in the Study.

**Total Difference Between Market Value & Affordable Value of RHNA Allocation – For Sale Housing**

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Blended*</b>
<b>Carson</b>	<b>Extremely Low</b>	\$ 320,000,000	\$ 473,000,000	\$ 601,000,000	\$ 668,000,000	\$ 498,000,000
	<b>Very Low</b>	278,000,000	425,000,000	547,000,000	608,000,000	449,000,000
	<b>Low</b>	243,000,000	389,000,000	508,000,000	566,000,000	412,000,000
	<b>Moderate</b>	112,000,000	234,000,000	331,000,000	369,000,000	252,000,000
	<b>Total</b>	<b>\$ 953,000,000</b>	<b>\$ 1,521,000,000</b>	<b>\$ 1,987,000,000</b>	<b>\$ 2,211,000,000</b>	<b>\$ 1,611,000,000</b>
<b>El Segundo</b>	<b>Extremely Low</b>	\$ 72,000,000	\$ 96,000,000	\$ 141,000,000	\$ 181,000,000	\$ 110,000,000
	<b>Very Low</b>	67,000,000	91,000,000	136,000,000	174,000,000	105,000,000
	<b>Low</b>	58,000,000	80,000,000	121,000,000	156,000,000	93,000,000
	<b>Moderate</b>	44,000,000	63,000,000	100,000,000	133,000,000	75,000,000
	<b>Total</b>	<b>\$ 241,000,000</b>	<b>\$ 330,000,000</b>	<b>\$ 498,000,000</b>	<b>\$ 644,000,000</b>	<b>\$ 383,000,000</b>
<b>Hawthorne</b>	<b>Extremely Low</b>	\$ 128,000,000	\$ 161,000,000	\$ 180,000,000	\$ 205,000,000	\$ 164,000,000
	<b>Very Low</b>	118,000,000	149,000,000	167,000,000	190,000,000	152,000,000
	<b>Low</b>	98,000,000	126,000,000	140,000,000	160,000,000	128,000,000
	<b>Moderate</b>	85,000,000	114,000,000	127,000,000	146,000,000	115,000,000
	<b>Total</b>	<b>\$ 429,000,000</b>	<b>\$ 550,000,000</b>	<b>\$ 614,000,000</b>	<b>\$ 701,000,000</b>	<b>\$ 559,000,000</b>
<b>Hermosa Beach</b>	<b>Extremely Low</b>	\$ 122,000,000	\$ 174,000,000	\$ 239,000,000	\$ 329,000,000	\$ 193,000,000
	<b>Very Low</b>	117,000,000	168,000,000	233,000,000	321,000,000	187,000,000
	<b>Low</b>	122,000,000	177,000,000	246,000,000	343,000,000	198,000,000
	<b>Moderate</b>	87,000,000	131,000,000	186,000,000	265,000,000	148,000,000
	<b>Total</b>	<b>\$ 448,000,000</b>	<b>\$ 650,000,000</b>	<b>\$ 903,000,000</b>	<b>\$ 1,258,000,000</b>	<b>\$ 726,000,000</b>
<b>Manhattan Beach</b>	<b>Extremely Low</b>	\$ 295,000,000	\$ 304,000,000	\$ 392,000,000	\$ 527,000,000	\$ 340,000,000
	<b>Very Low</b>	288,000,000	295,000,000	382,000,000	516,000,000	331,000,000
	<b>Low</b>	287,000,000	293,000,000	382,000,000	517,000,000	330,000,000
	<b>Moderate</b>	248,000,000	251,000,000	331,000,000	455,000,000	285,000,000
	<b>Total</b>	<b>\$ 1,118,000,000</b>	<b>\$ 1,143,000,000</b>	<b>\$ 1,487,000,000</b>	<b>\$ 2,015,000,000</b>	<b>\$ 1,286,000,000</b>
<b>Redondo Beach</b>	<b>Extremely Low</b>	\$ 337,000,000	\$ 473,000,000	\$ 611,000,000	\$ 748,000,000	\$ 508,000,000
	<b>Very Low</b>	314,000,000	448,000,000	583,000,000	716,000,000	482,000,000
	<b>Low</b>	317,000,000	459,000,000	601,000,000	743,000,000	495,000,000
	<b>Moderate</b>	238,000,000	365,000,000	493,000,000	620,000,000	397,000,000
	<b>Total</b>	<b>\$ 1,206,000,000</b>	<b>\$ 1,745,000,000</b>	<b>\$ 2,288,000,000</b>	<b>\$ 2,827,000,000</b>	<b>\$ 1,882,000,000</b>
<b>Total All Cities</b>		<b>\$ 4,395,000,000</b>	<b>\$ 5,939,000,000</b>	<b>\$ 7,770,000,000</b>	<b>\$ 9,656,000,000</b>	<b>\$ 6,447,000,000</b>

Source: Kosmont, 2023

\*Based on a unit mix of 15% one-bedroom, 50% two-bedroom, 30% three-bedroom, and 5% four-bedroom units for all cities.

## Supportable Affordable Housing Cost vs. Development Cost

The second perspective evaluated herein estimates the potential cost of housing units supportable at affordable income levels versus the potential cost of constructing housing units. To develop this estimate under a for rent scenario, the maximum rental amounts calculated above were reduced by an allowance for operations and maintenance. The assumed unit square footage, and allowance for operating expenses for a given unit is as follows:

### Square Footage & Allowance for Operating Expenses – For Rent

	Unit Bedrooms / Square Feet			
	Studio	1	2	3
<b>Unit SF</b>	500	700	950	1,150
<b>Operating Expense / Yr</b>	\$ 5,000	\$ 6,300	\$ 7,600	\$ 8,050

Source: Novogradac *2022 Multifamily Rental Housing Operating Expense & Income Report*, Kosmont, 2023

Given the allowances for operating expenses identified above, and the maximum allowable rents, the net income to an owner / operator is estimated as follows:

### Net Operating Income Per Rental Unit Per Month

	Unit Bedrooms			
	Studio	1	2	3
<b>Extremely Low</b>	\$ (94)	\$ (163)	\$ (232)	\$ (243)
<b>Very Low</b>	250	230	209	248
<b>Low</b>	421	426	430	493
<b>Moderate</b>	1,281	1,408	1,535	1,721

Source: Kosmont, 2023

Note: Figures for extremely low income units are negative as operating and maintenance expenses are estimated to exceed affordable rental income.

The monthly amounts above were then annualized and capitalized at a 4.5% capitalization rate. The resulting values / amount available to fund development costs is as follows:

### Capitalized Value of Affordable Rental Units

	Unit Bedrooms			
	Studio	1	2	3
<b>Extremely Low</b>	\$ (25,098)	\$ (43,413)	\$ (61,996)	\$ (64,889)
<b>Very Low</b>	66,556	61,333	55,844	66,044
<b>Low</b>	112,382	113,707	114,764	131,511
<b>Moderate</b>	341,516	375,573	409,364	458,844

Source: Kosmont, 2023

These values were then compared to the potential development costs of affordable housing units. For the purposes of the analysis herein, an assumed cost of \$600 per net rentable square foot was utilized, and conceptually would need to cover the cost of land, design, construction, and financing. This is considered a potentially low estimate given current market conditions and likely construction density / type required to support the required unit counts. For reference, Kosmont also reviewed a set of recent Low Income Housing Tax Credit (“LIHTC”) applications for affordable housing projects in the region, and found development costs in excess of \$1,000 per net rentable square foot to be common. A sensitivity table illustrating the total cost per unit given different development costs per square foot follows below.

### Hypothetical Development Costs

	Unit Bedrooms			
	Studio	1	2	3
<b>\$ 400</b>	\$ 200,000	\$ 280,000	\$ 380,000	\$ 460,000
<b>500</b>	250,000	350,000	475,000	575,000
<b>600</b>	300,000	420,000	570,000	690,000
<b>700</b>	350,000	490,000	665,000	805,000
<b>800</b>	400,000	560,000	760,000	920,000
<b>900</b>	450,000	630,000	855,000	1,035,000
<b>1,000</b>	500,000	700,000	950,000	1,150,000

Source: Kosmont, 2023

These development costs were then compared to the estimated capitalized value of the units as calculated above. The resulting gap (or surplus / excess value) between capitalized value and development costs (at \$600 per square foot) are as follows:



**Difference Between Hypothetical Development Costs & Affordable Unit Values – If For Rent**

	<b>Unit Bedrooms</b>				<b>Blended*</b>
	<b>Studio</b>	<b>1</b>	<b>2</b>	<b>3</b>	
<b>Extremely Low</b>	\$ 325,098	\$ 463,413	\$ 631,996	\$ 754,889	\$ 507,814
<b>Very Low</b>	233,444	358,667	514,156	623,956	399,794
<b>Low</b>	187,618	306,293	455,236	558,489	345,784
<b>Moderate</b>	(41,516)	44,427	160,636	231,156	75,734

Source: Kosmont, 2023

*\*Based on a unit mix of 15% studios, 50% one-bedroom, 30% two-bedroom, and 5% three-bedroom units*

The value differential illustrated above was then multiplied the number of units each City was allocated under the 6<sup>th</sup> RHNA cycle. As an example, and as illustrated in the table below, given these assumptions, the difference between development costs and the value of extremely low units as allocated to the City of Carson is estimated to be approximately \$288 million if all units were delivered as studio units, or approximately \$449 million if delivered given a blended ratio. Further, the value differential between the hypothetical development cost and the value of affordable units as allocated under the 6<sup>th</sup> RHNA cycle if delivered as rental units is estimated to be approximately \$2.6 billion across the six cities in the Study.

**Total Difference Between Development Cost & Affordable Value of RHNA Allocation – For Rent Housing**

		Unit Bedrooms				Blended*
		Studio	1	2	3	
Carson	Extremely Low	\$ 288,000,000	\$ 410,000,000	\$ 559,000,000	\$ 668,000,000	\$ 449,000,000
	Very Low	207,000,000	317,000,000	455,000,000	552,000,000	354,000,000
	Low	171,000,000	280,000,000	416,000,000	510,000,000	316,000,000
	Moderate	(36,000,000)	39,000,000	141,000,000	202,000,000	67,000,000
	<b>Total</b>	<b>\$ 630,000,000</b>	<b>\$ 1,046,000,000</b>	<b>\$ 1,571,000,000</b>	<b>\$ 1,932,000,000</b>	<b>\$ 1,186,000,000</b>
El Segundo	Extremely Low	\$ 31,000,000	\$ 44,000,000	\$ 60,000,000	\$ 71,000,000	\$ 48,000,000
	Very Low	22,000,000	34,000,000	49,000,000	59,000,000	38,000,000
	Low	17,000,000	27,000,000	40,000,000	49,000,000	31,000,000
	Moderate	(3,000,000)	4,000,000	13,000,000	19,000,000	6,000,000
	<b>Total</b>	<b>\$ 67,000,000</b>	<b>\$ 109,000,000</b>	<b>\$ 162,000,000</b>	<b>\$ 198,000,000</b>	<b>\$ 123,000,000</b>
Hawthorne	Extremely Low	\$ 72,000,000	\$ 103,000,000	\$ 141,000,000	\$ 168,000,000	\$ 113,000,000
	Very Low	52,000,000	80,000,000	114,000,000	139,000,000	89,000,000
	Low	38,000,000	62,000,000	93,000,000	114,000,000	70,000,000
	Moderate	(10,000,000)	11,000,000	40,000,000	58,000,000	19,000,000
	<b>Total</b>	<b>\$ 152,000,000</b>	<b>\$ 256,000,000</b>	<b>\$ 388,000,000</b>	<b>\$ 479,000,000</b>	<b>\$ 291,000,000</b>
Hermosa Beach	Extremely Low	\$ 38,000,000	\$ 54,000,000	\$ 73,000,000	\$ 88,000,000	\$ 59,000,000
	Very Low	27,000,000	42,000,000	60,000,000	72,000,000	47,000,000
	Low	24,000,000	39,000,000	58,000,000	71,000,000	44,000,000
	Moderate	(4,000,000)	5,000,000	17,000,000	25,000,000	8,000,000
	<b>Total</b>	<b>\$ 85,000,000</b>	<b>\$ 140,000,000</b>	<b>\$ 208,000,000</b>	<b>\$ 256,000,000</b>	<b>\$ 158,000,000</b>
Manhattan Beach	Extremely Low	\$ 52,000,000	\$ 75,000,000	\$ 102,000,000	\$ 122,000,000	\$ 82,000,000
	Very Low	38,000,000	58,000,000	83,000,000	100,000,000	65,000,000
	Low	31,000,000	51,000,000	75,000,000	92,000,000	57,000,000
	Moderate	(6,000,000)	7,000,000	25,000,000	36,000,000	12,000,000
	<b>Total</b>	<b>\$ 115,000,000</b>	<b>\$ 191,000,000</b>	<b>\$ 285,000,000</b>	<b>\$ 350,000,000</b>	<b>\$ 216,000,000</b>
Redondo Beach	Extremely Low	\$ 152,000,000	\$ 217,000,000	\$ 296,000,000	\$ 353,000,000	\$ 238,000,000
	Very Low	109,000,000	168,000,000	241,000,000	292,000,000	187,000,000
	Low	95,000,000	156,000,000	231,000,000	284,000,000	176,000,000
	Moderate	(20,000,000)	22,000,000	79,000,000	113,000,000	37,000,000
	<b>Total</b>	<b>\$ 336,000,000</b>	<b>\$ 563,000,000</b>	<b>\$ 847,000,000</b>	<b>\$ 1,042,000,000</b>	<b>\$ 638,000,000</b>
<b>Total All Cities</b>		<b>\$ 1,385,000,000</b>	<b>\$ 2,305,000,000</b>	<b>\$ 3,461,000,000</b>	<b>\$ 4,257,000,000</b>	<b>\$ 2,612,000,000</b>

Source: Kosmont, 2023

\*Based on a unit mix of 15% studios, 50% one-bedroom, 30% two-bedroom, and 5% three-bedroom units

To evaluate the order of magnitude of the funding gap under a for sale scenario, the difference between the hypothetical development costs and maximum supportable purchase prices previously calculated was also evaluated. Under the for sale scenario one to four-bedroom units were

evaluated, and it was assumed that the four bedroom units would be 1,400 square feet. The gap per unit on a for sale basis is as follows:

**Difference Between Affordable Unit Values & Development Costs – If For Sale**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Blended*</b>
<b>Extremely Low</b>	\$ 396,157	\$ 544,824	\$ 663,629	\$ 814,092	\$ 571,629
<b>Very Low</b>	348,666	490,548	602,568	746,246	515,656
<b>Low</b>	301,174	436,271	541,507	678,401	459,684
<b>Moderate</b>	162,656	277,965	363,413	480,518	296,431

*Source: Kosmont, 2023*

*\*Based on a unit mix of 15% one-bedroom, 50% two-bedroom, 30% three-bedroom, and 5% four-bedroom units*

The value differential illustrated above was then multiplied the number of units each City was allocated under the 6<sup>th</sup> RHNA cycle. As an example, and as illustrated in the table below, given these assumptions, the difference between development costs and the value of extremely low units as allocated to the City of Carson is estimated to be approximately \$351 million if all units were delivered as one-bedroom units, or approximately \$506 million if delivered given a blended ratio. Further, the value differential between the hypothetical development cost and the value of affordable units as allocated under the 6<sup>th</sup> RHNA cycle if delivered as for sale / owner occupied units is estimated to be approximately \$3.6 billion across the six cities in the Study.

**Total Difference Between Development Cost & Affordable Value of RHNA Allocation – For Sale Housing**

		Unit Bedrooms				
		1	2	3	4	Blended*
<b>Carson</b>	<b>Extremely Low</b>	\$ 363,000,000	\$ 494,000,000	\$ 600,000,000	\$ 733,000,000	\$ 518,000,000
	<b>Very Low</b>	321,000,000	446,000,000	546,000,000	673,000,000	469,000,000
	<b>Low</b>	288,000,000	411,000,000	507,000,000	632,000,000	432,000,000
	<b>Moderate</b>	154,000,000	255,000,000	330,000,000	433,000,000	271,000,000
	<b>Total</b>	<b>\$ 1,126,000,000</b>	<b>\$ 1,606,000,000</b>	<b>\$ 1,983,000,000</b>	<b>\$ 2,471,000,000</b>	<b>\$ 1,690,000,000</b>
<b>El Segundo</b>	<b>Extremely Low</b>	\$ 39,000,000	\$ 53,000,000	\$ 64,000,000	\$ 78,000,000	\$ 55,000,000
	<b>Very Low</b>	34,000,000	48,000,000	58,000,000	72,000,000	50,000,000
	<b>Low</b>	28,000,000	40,000,000	49,000,000	61,000,000	42,000,000
	<b>Moderate</b>	15,000,000	25,000,000	32,000,000	42,000,000	26,000,000
	<b>Total</b>	<b>\$ 116,000,000</b>	<b>\$ 166,000,000</b>	<b>\$ 203,000,000</b>	<b>\$ 253,000,000</b>	<b>\$ 173,000,000</b>
<b>Hawthorne</b>	<b>Extremely Low</b>	\$ 91,000,000	\$ 124,000,000	\$ 151,000,000	\$ 184,000,000	\$ 130,000,000
	<b>Very Low</b>	81,000,000	112,000,000	137,000,000	169,000,000	118,000,000
	<b>Low</b>	64,000,000	92,000,000	113,000,000	141,000,000	97,000,000
	<b>Moderate</b>	44,000,000	73,000,000	94,000,000	123,000,000	77,000,000
	<b>Total</b>	<b>\$ 280,000,000</b>	<b>\$ 401,000,000</b>	<b>\$ 495,000,000</b>	<b>\$ 617,000,000</b>	<b>\$ 422,000,000</b>
<b>Hermosa Beach</b>	<b>Extremely Low</b>	\$ 48,000,000	\$ 65,000,000	\$ 79,000,000	\$ 96,000,000	\$ 68,000,000
	<b>Very Low</b>	42,000,000	59,000,000	72,000,000	88,000,000	62,000,000
	<b>Low</b>	40,000,000	57,000,000	71,000,000	88,000,000	60,000,000
	<b>Moderate</b>	19,000,000	31,000,000	40,000,000	52,000,000	33,000,000
	<b>Total</b>	<b>\$ 149,000,000</b>	<b>\$ 212,000,000</b>	<b>\$ 262,000,000</b>	<b>\$ 324,000,000</b>	<b>\$ 223,000,000</b>
<b>Manhattan Beach</b>	<b>Extremely Low</b>	\$ 66,000,000	\$ 90,000,000	\$ 109,000,000	\$ 133,000,000	\$ 94,000,000
	<b>Very Low</b>	58,000,000	81,000,000	99,000,000	122,000,000	85,000,000
	<b>Low</b>	52,000,000	74,000,000	92,000,000	114,000,000	78,000,000
	<b>Moderate</b>	27,000,000	45,000,000	58,000,000	77,000,000	48,000,000
	<b>Total</b>	<b>\$ 203,000,000</b>	<b>\$ 290,000,000</b>	<b>\$ 358,000,000</b>	<b>\$ 446,000,000</b>	<b>\$ 305,000,000</b>
<b>Redondo Beach</b>	<b>Extremely Low</b>	\$ 192,000,000	\$ 261,000,000	\$ 317,000,000	\$ 387,000,000	\$ 274,000,000
	<b>Very Low</b>	170,000,000	236,000,000	288,000,000	356,000,000	248,000,000
	<b>Low</b>	160,000,000	229,000,000	282,000,000	352,000,000	241,000,000
	<b>Moderate</b>	86,000,000	143,000,000	185,000,000	242,000,000	152,000,000
	<b>Total</b>	<b>\$ 608,000,000</b>	<b>\$ 869,000,000</b>	<b>\$ 1,072,000,000</b>	<b>\$ 1,337,000,000</b>	<b>\$ 915,000,000</b>
<b>Total All Cities</b>	<b>\$ 2,482,000,000</b>	<b>\$ 3,544,000,000</b>	<b>\$ 4,373,000,000</b>	<b>\$ 5,448,000,000</b>	<b>\$ 3,728,000,000</b>	

Source: Kosmont, 2023

\*Based on a unit mix of 15% one-bedroom, 50% two-bedroom, 30% three-bedroom, and 5% four-bedroom units

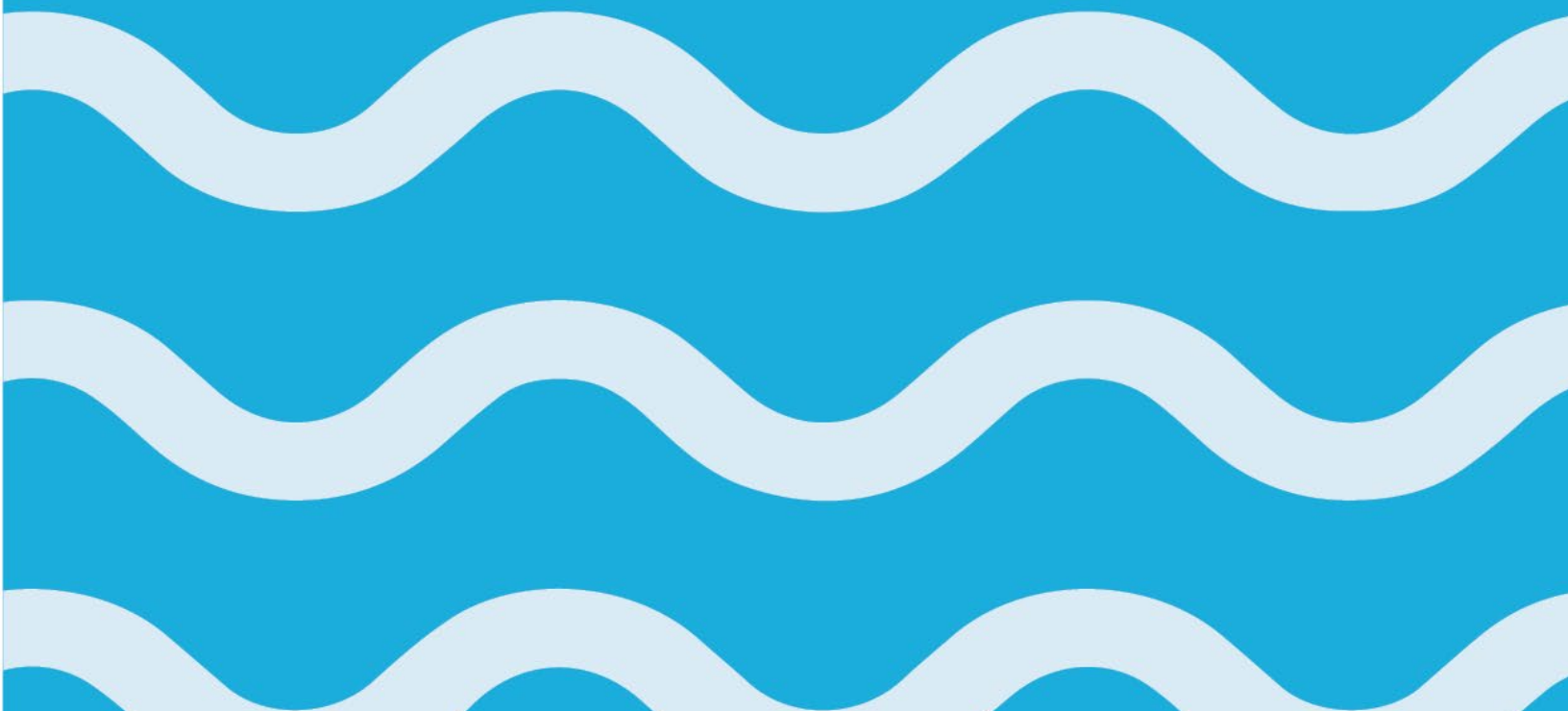
## **Conclusions**

Based on the estimates and calculations herein the 6<sup>th</sup> Cycle RHNA allocations of extremely low, very low, low, and moderate income units for 2021 – 2029 potentially represent on the order of a \$4 – 5 billion differential from market value under a for rent scenario, and \$6 – 7 billion under a for sale scenario. This value differential is extremely unlikely to be supportable by private market activity alone, even in consideration of the potential for utilization of Density Bonus law, and/or potential inclusionary housing requirements. Further, the estimated supportable value of the allocated affordable units versus the potential development cost of the same is potentially on the order of \$2 – 3 billion on a for rent basis, or \$3 – 4 billion on a for sale basis, each assuming relatively low development costs.

The bulk of the cost in each of these order of magnitude estimates is attributable to the cost of providing extremely low, very low, and low income housing, and only a small component is attributable to supporting moderate income housing. Conceptually, the delivery of some of the 6<sup>th</sup> cycle RHNA moderate income unit allocation may be attainable through the use of density bonus provisions, and/or in conjunction with the addition of inclusionary housing provisions. The balance of the extremely low, very low, and low income units would conceptually be financeable through the use of traditional LIHTC's. However, there is a substantial disparity between the RHNA allocations for these affordability levels, and available funding.

The RHNA allocation of, and estimated development costs for the extremely low, very low, and low income units for the six cities in the Study is roughly equal to the leveraged funding capacity of the entire allocation of Federal 9% LIHTC's for the State of California for two years. For reference, the six Cities in the Study represent less than 1% (1/100<sup>th</sup>) of the State's population, and the RHNA allocations would only be satisfied for the current RHNA cycle through 2029. Additional funding on a massive scale is required if the goal is to actually see the delivery of the 6<sup>th</sup> cycle RHNA unit allocations.

# Infrastructure Studies



**UTILITY INFRASTRUCTURE TECHNICAL REPORT  
FOR SEWER AND WATER  
FOR  
SOUTH BAY CITIES**

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## 1.0 1770 E Pacific Coast Hwy, Redondo Beach, CA 90277:

Trash Services: Trash collection is currently provided by Athens, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by California Water Service Company through a water main in PCH, the current water pressure in the water main is between 34 psi and 46 psi. There is an existing public fire hydrant at about 15' of the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 1770 E PCH. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage and the pressure meets the minimum 20 psi requirement for pipe flow at a building, it is assumed that the site will be able to be served by the water main in PCH. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: There is an existing 8" main in PCH which is maintained by the City of Redondo Beach. The sewer main connects to various city mains before connecting to a 18" LA county trunk main in Avenue G.

Based on the infrastructure capacity studies for the redevelopment scenario, the existing sewer network was deemed at capacity and would require infrastructure upgrades to expand sewer capacity before and/or flow monitoring Site #1 is redeveloped.

See Appendix A for Sewer Analysis for project site & Fire flow test for adjacent property for Site 1

## 2.0 2421-2433 190th Street, Redondo Beach, CA 90278:

Trash Services: Trash collection is currently provided by Waste Resources, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by California Water Service Company through a water main in 190<sup>th</sup> Street, There is an existing public fire hydrant at about 11' of the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 2421-2433 190<sup>th</sup> Street. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage it is assumed that the site will be able to be served by the water main in 190<sup>th</sup> Street. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: There is an existing 8" main in Aviation Blvd which is maintained by the City of Redondo Beach. The sewer main connects to various city mains before connecting to a pump station and then to a 12" LA county trunk main in Inglewood Ave.

The introduction of the proposed development into the existing sewer network will lead to an increase of 0.7% in sewer flow capacity compared to the existing flow rate. This increase brings the flow in the existing main to 30% d/D, the maximum allowable is 50% for any pipe less than 15" in diameter. This allowance is determined by the 8" pipe size, which allows a maximum d/D of up to 50% of the design flow capacity for any pipes under 15" capacity. Therefore, no upgrades will be required.

See Appendix B for Sewer Analysis for Site 2

### 3.0 1151 Aviation Blvd, Hermosa Beach, CA 90254

Trash Services: Trash collection is currently provided by Athens, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by California Water Service Company through a water main in Aviation Blvd, there are existing public fire hydrants at about 10' of the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 1151 Aviation Blvd. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage, it is assumed that the site will be able to be served by the water main in Aviation Blvd. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: There is an existing 8" main in Aviation Blvd which is maintained by the City of Redondo Beach. The sewer main connects to various city mains before connecting to 15" LA county trunk main in Mackay Lane.

The introduction of the proposed development into the existing sewer network will lead to an increase of around 7% in sewer flow capacity compared to the existing flow rate in the 8" main. This increase brings the flow in the existing main to 28.25% d/D. This allowance is determined by the 8" pipe size, which allows a maximum d/D of up to 50% of the design flow capacity for any pipes under 15" capacity. Therefore, no upgrades will be required. However further studies or flow monitoring may be required since the project is downstream of single-family residential buildings which might lead to the existing sewer being out of capacity. The data is presented based on all sewer connections being sent off to Redondo Beach since Hermosa Beach has not provided us with information on the size/ slope/inverts of the pipe to perform the analysis. However, there are existing sewer mains in the vicinity that the project can potentially connect to.

See Appendix C for Sewer Analysis for Site 3

#### **4.0 552, 11<sup>th</sup> Place, Hermosa Beach, CA 90254**

Trash Services: Trash collection is currently provided by Athens, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by California Water Service Company through a water main in Valley Drive, there is an existing public fire hydrant at about 165' of the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 552 11<sup>th</sup> Place. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage, it is assumed that the site will be able to be served by the water main in Valley Dr. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: There is an existing sewer main on Valley Dr. which serves the area. However, There is no data available from the city in respect to the sewer sizes/ slope to perform the analysis on the project site. Flow monitoring may be required for further analysis of the project site.

Appendix D – Sewer map for the project site.

## 5.0 21800-21822 S Main St, Carson, CA 90745

Trash Services: Trash collection is currently provided by Waster Resources, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by California Water Service Company through a water main in Main Street, there is an existing public fire hydrants at about 100' of the property which provide fire water coverage for the area including this site.

The proposed water infrastructure for 21822 S Main St. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage, it is assumed that the site will be able to be served by the water main in Main St. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: Sewer for the property is currently served by an 8" main in 218<sup>th</sup> Place. This main connects with other LA County sewer mains and eventually discharges into the 15" LA County Trunk Main in Main St.

The introduction of the proposed development into the existing sewer network will lead to an increase of around 1% in sewer flow capacity compared to the existing flow rate in the 8" main. This increase brings the flow in the existing main to 6.63% d/D, while the maximum allowable is 50% for any pipe less than 15" in diameter. This allowance is determined by the 8" pipe size, which allows a maximum d/D of up to 50% of the design flow capacity for any pipes under 15" capacity. Therefore, no upgrades will be required.

See Appendix E for Sewer Analysis for Site 5

## 6.0 21755 Avalon Blvd, Carson CA 90746

Trash Services: Trash collection is currently provided by Waster Resources, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by California Water Service Company through a water main in Avalon Blvd. the current water pressure in the water main is between 80 psi and 96 psi. There are existing public fire hydrants at about 140' of the property which provide fire water coverage for the area including this site.

The proposed water infrastructure for 20715 Avalon Blvd. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage and the pressure meets the minimum 20 psi requirement for pipe flow at a building, it is assumed that the site will be able to be served by the water main in Avalon Blvd. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: Sewer for the property is currently served by an 8" main in Avalon Blvd. This main connects with other LA County sewer mains and eventually discharges into the 27" LA County Trunk Main in Del Amo Blvd.

The introduction of the proposed development into the existing sewer network will lead to an increase of around 42% in sewer flow capacity compared to the existing flow rate in the 8" main. This increase brings the flow in the existing main to 71% d/D, while the maximum allowable is 50% for any pipe less than 15" in diameter. Due to this being over capacity, flow monitoring may be required during design to confirm if any upgrades are required to this sewer main.

See Appendix F for Sewer Analysis for project site & Fire flow test for adjacent property for Site 6

## **7.0 700 S Sepulveda Blvd, Manhattan Beach, CA 90266**

Trash Services: Trash collection is currently provided by Waste Management, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by City of Manhattan Beach through a water main in Sepulveda Blvd. the current water pressure in the water main is between 70 psi and 96 psi. There are existing public fire hydrants at about 12' away from the property which provide fire water coverage for the area including this site.

The proposed water infrastructure for 700 S Sepulveda Blvd. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage and the pressure meets the minimum 20 psi requirement for pipe flow at a building, it is assumed that the site will be able to be served by the water main in Sepulveda Blvd. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study:

Sewer for this property is served by an 8" main in Sepulveda Blvd. This main connects with other city mains before reaching the pump station which eventually discharges to a 30" LA County trunk main on Marine Avenue.

The introduction of the proposed development into the existing sewer network will lead to an increase of around 10% in sewer flow capacity compared to the existing flow rate in the 8" main. This increase brings the flow in the existing main between segments 13-14 of the 8" main to 60% d/D, while the maximum allowable is 50% for any pipe less than 15" in diameter. Due to this being over capacity, flow monitoring may be required during design to confirm if any upgrades are required to this sewer main.

See Appendix G for Sewer Analysis for project site & Fire flow test for adjacent property for Site 7

## 8.0 1011 Manhattan Beach Blvd, Manhattan Beach, CA 90266

Trash Services: Trash collection is currently provided by Waste Management, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: Water for the property is served by the City of Manhattan Beach through a water main in Manhattan Beach Blvd. there is an existing public fire hydrant about 2' away from the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 1011 Manhattan Beach Blvd. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage, it is assumed that the site will be able to be served by the water main in Manhattan Beach Blvd. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: There is an existing 8" sewer main in Manhattan beach Blvd which serves the existing property. This main connects with other city mains before reaching the pump station which eventually discharges to a 30" LA County trunk main on Marine Avenue.

The introduction of the proposed development into the existing sewer network will lead to an increase of 1.5% in sewer flow capacity compared to the existing flow rate. This increase brings the flow in the existing 8" main to 5.5% d/D, while the maximum allowable is 50% for any pipe less than 15" in diameter. This allowance is determined by the 8" pipe size, which allows a maximum d/D of up to 50% of the design flow capacity for any pipes under 15" capacity. Therefore, no upgrades will be required.

See Appendix H for Sewer Analysis for Site 8



## 9.0 11811-11909 Hawthorne Blvd, Hawthorne, CA 90250

Trash Services: Trash collection is currently provided by Allied Waste and Republic Services, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: There is an existing 8" water main maintained by Cal Water on Hawthorne Blvd which serves the property, the existing pressure in the water main in the street ranges between 42 and 55psi. There are existing public fire hydrants between 11' and 50' away from the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 11811 Hawthorne Blvd. will consist of new water meters and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage and the pressure meets the minimum 20 psi requirement for pipe flow at a building, it is assumed that the site will be able to be served by the water main in Hawthorne Blvd. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: There is an 8" sewer main in Hawthorne Blvd which is maintained by the city, which serves the project site. The sewer main connects to the 30" LA County trunk main on Hawthorne Blvd.

The introduction of the proposed development into the existing sewer network will lead to an increase of 21% in sewer flow capacity compared to the existing flow rate. This increase brings the flow in the existing main to 48.1% d/D, and the maximum allowable is 50% for any pipe less than 15" in diameter. This allowance is determined by the 8" pipe size, which allows a maximum d/D of up to 50% of the design flow capacity for any pipes under 15" capacity. Therefore, no upgrades would be required.

See Appendix I for Sewer Analysis for project site & Fire flow test for adjacent property for Site 9

## **10.0 13324 W 133<sup>rd</sup> St, Hawthorne, CA 90250**

Trash Services: Trash collection is currently provided by Allied Waste and Republic Services, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: There is an existing 6" water main maintained by Cal Water on Inglewood Blvd which serves the property, the existing pressure in the water main in the street ranges between 37 and 55psi. There is an existing public fire hydrant 10' away from the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 13324 W 133<sup>rd</sup> St. will consist of new water meters and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage and the pressure meets the minimum 20 psi requirement for pipe flow at a building, it is assumed that the site will be able to be served by the water main in Inglewood Blvd. Additional flow testing will be required for design within 12 months of construction to confirm as flows/pressures in existing mains may change.

Sewer Study: There is an 8" sewer main in 134<sup>th</sup> Street which is maintained by the city, which serves the project site. This main connects with other city mains before connecting to the 10" LA County trunk main on 133<sup>rd</sup> street.

The introduction of the proposed development into the existing sewer network will lead to an increase of around 2.1% in sewer flow capacity compared to the existing flow rate. This increase brings the flow in the existing main to 19.9% d/D. This increase falls within the acceptable limits for an 8" main as specified in the County of Los Angeles Sewer Design Manual which allows a d/D of up to 50% of the design flow capacity for pipes less than 15" in diameter. Therefore, no upgrades would be required.

See Appendix J for Sewer Analysis for project site & Fire flow test for adjacent property for Site 10

## 11.0 128 Maryland St, El Segundo CA 90245

Trash Services: Trash collection is currently provided by American Reclamation, Arrow Disposal, Athens, California Waste Services, Haul Away Rubbish Service, JJK Roll-off, Key Disposal and Recycling, NASA services, Patriot Services, Republic/ Consolidated Disposal Svcs, Take 2 Services, Universal waste Systems, Ware Disposal, Waste Management, Waste Resources EDCO, who will serve the proposed project and will continue until the City contracts with a new trash collection company.

Water Services: There is an 8" existing water main in Maryland St, which is maintained by the city there are existing public fire hydrants about 5' away from the property which provides fire water coverage for the area including this site.

The proposed water infrastructure for 128 Maryland St. will consist of new fire, domestic and irrigation water meters, and lateral connections to the existing water system. The fire water demand for the project is the larger of all water demands and will set the requirement for flow to the site. Because the site has adequate fire water coverage, it is assumed that the site will be able to be served by the water main in Maryland St.

Sewer Study: There is an 8" sewer main maintained by the city of El Segundo in Maryland St, which serves the area. This main connects with other city mains before reaching the pump station which eventually discharges to a 24" LA County trunk main on California Street.

The introduction of the proposed development into the existing sewer network will lead to an increase of around 3.75% compared to existing conditions in sewer flow capacity. This increase brings the flow in the existing main to 28.38% d/D, This increase falls within the acceptable limits specified in the County of Los Angeles Sewer Design Manual for an 8" pipe which allows a d/D of up to 50% of the design flow capacity for pipes less than 15" in diameter. Therefore, no upgrades would be required.

See Appendix K for Sewer Analysis for Site 11

### **13.0 Attachments:**

Appendix A – Sewer Analysis for project site & Fire flow test for adjacent property for Site 1

Appendix B – Sewer Analysis for site 2

Appendix C – Sewer Analysis for site 3

Appendix D – Sewer Map

Appendix E – Sewer Analysis for site 5

Appendix F – Sewer Analysis for project site & Fire flow test for adjacent property for Site 6

Appendix G – Sewer Analysis for project site & Fire flow test for adjacent property for Site 7

Appendix H – Sewer Analysis for site 8

Appendix I – Sewer Analysis for project site & Fire flow test for adjacent property for Site 9

Appendix J – Sewer Analysis for project site & Fire flow test for adjacent property for Site 10

Appendix K – Sewer Analysis for site 11

Appendix L – LA County Sewer manual excerpts

## **APPENDIX A**

Sewer Analysis for project site & Fire flow test for adjacent property for Site 1

## EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
PCH	34L11	34L10	10	0.02154	7,008	1998 S PCH	Club**	125	876	0.003	0.003	0.23	0.023	2.30%
	34L10	34L9	10	0.00889	5,162	1930 S PCH	pet hospital**	200	1,032	0.003	0.006	0.40	0.04	4.00%
	34L9	34L8	10	0.02037	53	1920 S PCH	residential**	156	8,268	0.026	0.031	0.70	0.07	7.00%
	34L8	3454	10	0.02049	6,907	1970 S PCH	medical building**	200	1,381	0.004	0.058	0.94	0.094	9.40%
					7,128	1900 S PCH	Restaurant**	1000	7,128	0.022				
	3454	3453	8	0.00873	1,750	1890 E PCH	Store**	100	175	0.001	0.078	1.42	0.1775	17.75%
					42,584	1880 S PCH	Supermarket**	150	6,388	0.020				
	3453	3452	8	0.00873	8,121	1878 S PCH	Restaurant**	1000	8,121	0.025	0.145	1.94	0.2425	24.25%
					108	1850 S PCH		125	13,500	0.042				
	3450	3449	8	0.00889	3,712	1800 E PCH	Restaurant**	1000	3,712	0.011	0.204	2.29	0.28625	28.63%
					98	1800 E PCH	Residential*	156	15,288	0.047				
	3449	3448	8	0.00860	9,636	1770 PCH project site	commercial/ laundry**	3825	36,858	0.114	0.318	2.91	0.36375	36.38%
	3448	3447	8	0.01810	12,698	1770 E PCH	lens crafter**	100	1,270	0.004	0.338	2.48	0.31	31.00%
					4,456	1756 S PCH	Restaurant**	1000	4,456	0.014				
					31,000	1700 S PCH	4-story inn**	20	620	0.002				
	3447	3446	8	0.03480	23,000	1700 A-E PCH	inn**	20	460	0.001	0.339	2.10	0.2625	26.25%
	3446	3445	8	0.03730				20	460	0.001	0.340	2.10	0.2625	26.25%
3445	3437	8	0.02430	1,624	1698 S PCH	Restaurant**	1000	1,624	0.005	0.402	2.50	0.3125	31.25%	
				17,308	1670 S PCH	Restaurant**	1000	17,308	0.054					
				26,279	1650 S pch	mixed use**		-						
				5,451	1640 S PCH	Office**	200	1,090	0.003					
Avenue I	3437	3436	8	0.00270	1,500	1630 S Elena Ave	Store**	100	150	0.000	0.689	Existing flows over capacity		
	3436	3435	12		connecting line							0	0.00%	

## PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
PCH	34L11	34L10	10	0.02154	7,008	1998 S PCH	Club**	125	876	0.003	0.003	0.23	0.023	2.30%
	34L10	34L9	10	0.00889	5,162	1930 S PCH	pet hospital**	200	1,032	0.003	0.006	0.40	0.04	4.00%
	34L9	34L8	10	0.02037	53	1920 S PCH	residential**	156	8,268	0.026	0.031	0.70	0.07	7.00%
	34L8	3454	10	0.02049	6,907	1970 S PCH	medical building**	200	1,381	0.004	0.058	0.94	0.094	9.40%
					7,128	1900 S PCH	Restaurant**	1000	7,128	0.022				
	3454	3453	8	0.00873	1,750	1890 E PCH	Store**	100	175	0.001	0.078	1.42	0.1775	17.75%
					42,584	1880 S PCH	Supermarket**	150	6,388	0.020				
	3453	3452	8	0.00873	8,121	1878 S PCH	Restaurant**	1000	8,121	0.025	0.145	1.94	0.2425	24.25%
					108	1850 S PCH		125	13,500	0.042				
	3450	3449	8	0.00889	3,712	1800 E PCH	Restaurant**	1000	3,712	0.011	0.204	2.01	0.25125	25.13%
					98	1800 E PCH	Residential*	156	15,288	0.0473				
	3449	3488	8	0.00860	40	1770 PCH project site	30 unit*	468	18,720	0.058	0.268	2.66	0.3325	33.25%
	3448	3447	8	0.01810	2,000	1770 E PCH	Retail(restaurant conservative)**	1000	2,000	0.006	0.288	2.28	0.285	28.50%
					12,698	1770 E PCH	lens crafter**	100	1,270	0.004				
					4,456	1756 S PCH	Restaurant**	1000	4,456	0.014				
	3447	3446	8	0.03480	31,000	1700 S PCH	4-story inn**	20	620	0.002	0.289	1.94	0.2425	24.25%
					23,000	1700 A-E PCH	inn**	20	460	0.001				
3446	3445	8	0.03730				20	460	0.001	0.290	1.90	0.2375	23.75%	
3445	3437	8	0.02430	1,624	1698 S PCH	Restaurant**	1000	1,624	0.005	0.352	2.33	0.29125	29.13%	
				17,308	1670 S PCH	Restaurant**	1000	17,308	0.054					
				26,279	1650 S pch	mixed use**		-	0.000					
				5,451	1640 S PCH	Office**	200	1,090	0.003					
Avenue I	3437	3436	8	0.00270	1,500	1630 S Elena Ave	Store**	100	150	0.000	0.639	6.69	0.83625	83.63%
	3436	3435	12		connecting line			-	0.000					





# California Water Service Company Fire Flow Test

7/26/2023

Test Date: 01/06/2016    Time: 14:00

District: HERMOSA REDONDO

Zone: 225-1

Plat: 25-22

Address: 1818 PACIFIC COAST HWY

Cross Street: 18TH ST

**For 1770 E PCH**

Requested By: FIRE SAFE SYSTEMS (CHAD BURNETT)

Conducted By: DYLAN COLLINS & IVAN WHEATON

Purpose Of Test: DETERMINE FLOW AVAILABILITY

Witnessed By: Calwater:

Others:

<u>Outlet No.</u>	<u>Outlet Size</u>	<u>PITOT</u>	<u>Observed</u>	<u>Static Pressure</u>	<u>Residual Pressure</u>	<u>Flow Observed</u>	<u>Flow Avail. @20</u>
<u>Location 1 Hydrant No.:</u> HR-1182			<u>Address:</u> IN FRONT OF 1830 PACIFIC COAST HWY				
1	4.00	10	1358	46	34	1358	2062
2							
3							
4							

Location 2 Hydrant No.:

Address:

- 1
- 2
- 3
- 4

Location 3 Hydrant No.

Address:

- 1
- 2
- 3
- 4

Total Flow Observed Available @20:

1358

2062

Remarks: FLOWED 4" PORT. RES. 9 AT 20 FEET

Static/Residual Location: STATIC AND RESIDUAL TAKEN FROM FAUCET 50 FEET SOUTH OF FIRE HYDRANT :

Note:

Regardless of the results of this test, California Water Service Company assumes no liability beyond that stated in the following excerpt from the P.U.C. Tarriff Schedule: "The utility (California Water Service Company) will supply only such water at such pressure as may be available from time to time as a result of its normal operation of the system."



## **APPENDIX B**

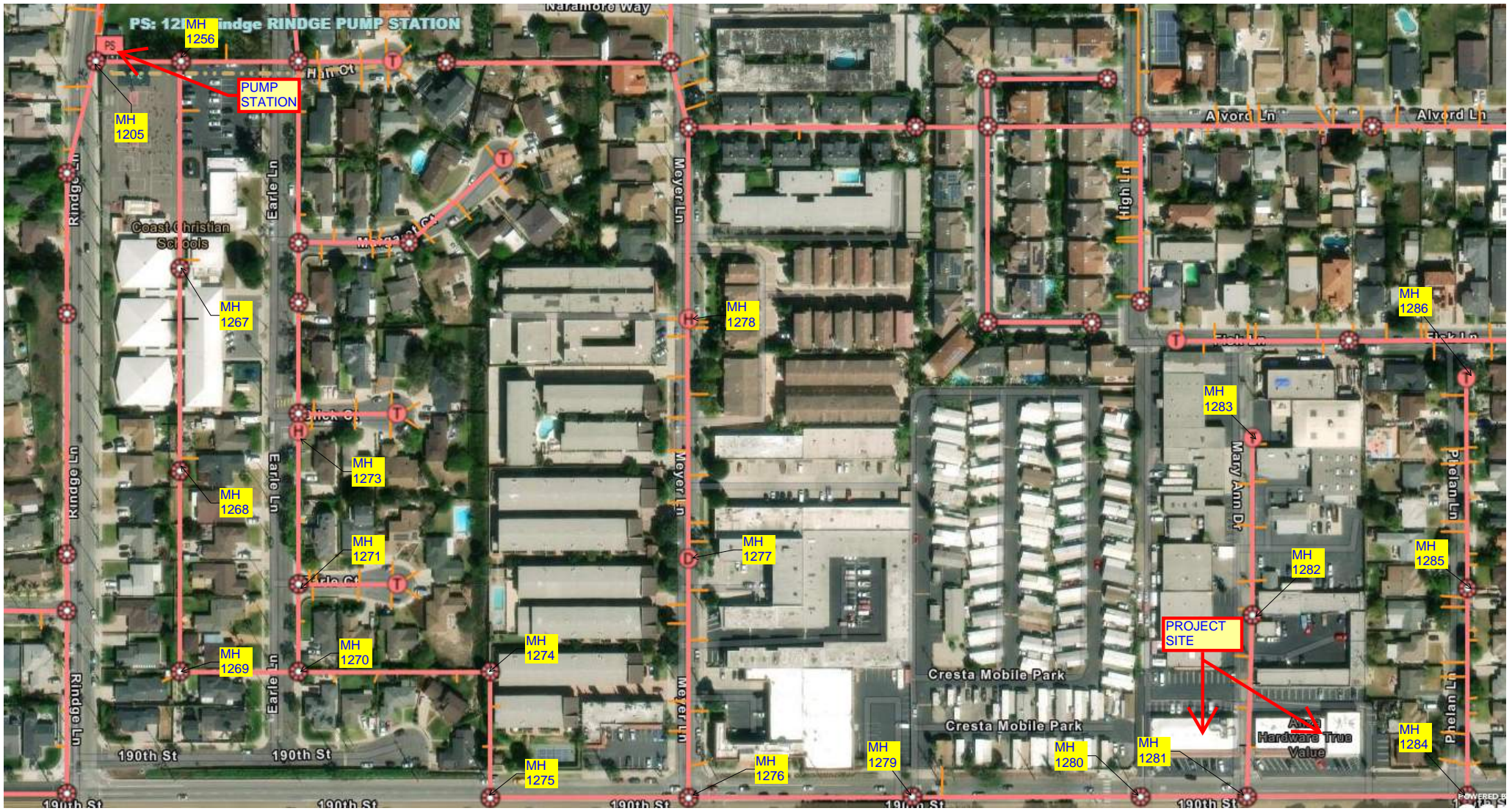
Sewer Analysis for site 2

## EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Mary Ann Dr	1283	1282	8	0.00300	7,569	620 Mary Ann Dr	Auto Body**	100	757	0.002	0.011	0.72	0.09	9.0%
					9,794	630 Mary Ann Dr	Auto Body**	100	979	0.003				
					4,061	621 Mary Ann Dr	Auto Body**	100	406	0.001				
					4,420	619 Mary Ann Dr	Auto Body**	100	442	0.001				
					5,095	603 Mary Ann Dr	Auto Body**	100	510	0.002				
					5,347	577 Mary Ann Dr	Auto Body**	100	535	0.002				
	1282	1281	8	0.00189	11,054	530 Mary Ann Dr	Auto Body**	100	1,105	0.003	0.030	1.30	0.16	16.3%
					3,201	553 Mary Ann Dr	Professional office	200	640	0.002				
					6,890	2431 190th St Project Site	Restaurant*	1000	6,890	0.021				
					9,106	2433 190th St	Store	100	911	0.003				
190th St	1281	1280	8	0.00397	connecting line			-	0.000	0.099	1.53	0.19	19.1%	
	1280	1279	8	0.00340	83		mobile home park*	156	12,948	0.040	0.139	1.62	0.20	20.3%
	1279	1276	8	0.00424	connecting line			-	0.000	0.139	1.53	0.19	19.1%	
190th St	1276	1275	8	0.00461	connecting line			-	0.000	0.205	2.73	0.34	34.1%	
	1275	1274	8	0.00478	1	2217 190th St	Residential*	156	156	0.000	0.206	2.70	0.34	33.8%
	1274	1270	8	0.03960	1	2215 190th St	Residential*	156	156	0.000	0.207	1.43	0.18	17.9%
					1	2213 190th St	Residential*	156	156	0.000				
					1	2211 190th St	Residential*	156	156	0.000				
					1	500 Earle Lane	Residential*	156	156	0.000				
Earle Ln	1273	1271	8	0.00200	5	2214-2209 Earle Lane	Residential*	156	780	0.002	0.002	0.35	0.04	4.4%
	1271	1270	8	0.00554	7	2211-2208 Earle Lane	Residential*	156	1,092	0.003	0.006	0.05	0.01	0.6%
	1270	1269	8	0.00497	connecting line			-	0.000	0.213	2.73	0.34	34.1%	
	1269	1268	8	0.01000	18		Multiple single family*	156	2,808	0.009	0.222	2.32	0.29	29.0%
	1268	1267	8	0.00993	41,317	525 Earle Lane	School**	200	8,263	0.026	0.248	2.46	0.31	30.8%
	1267	1256	8	0.00867	connecting line			-	0.000	0.248	2.55	0.32	31.9%	
	1266	1265	8	0.02097	4	2215-2209 Glick Ct	Residential*	156	624	0.002	0.002	0.60	0.08	7.5%
	1265	1262	8	0.00304	connecting line				-	0.000	0.002	0.32	0.04	4.0%
	1262	1257	8	0.04716	14	2209-2208 Margaret Ct	Residential*	156	2,184	0.007	0.009	0.34	0.04	4.3%
	1261	1260	8	0.07398	7	2215-2220 Fisher Ct	Residential*	156	1,092	0.003	0.003	0.54	0.07	6.8%
	1260	1259	8	0.10875	6	2214-2209 Fisher Ct	Residential*	156	936	0.003	0.006	0.23	0.03	2.9%
	1259	1257	8	0.01198	connecting line				-	0.000	0.006	0.39	0.05	4.9%
	1258	1257	8	0.00450	8	2208-2215 Hall Ct	Residential*	156	1,248	0.004	0.019	0.63	0.08	7.9%
	1257	1256	8	0.05660	connecting line				-	0.000	0.025	1.28	0.16	16.0%
	1256	1205	8	0.01464					-	0.000	0.273	2.34	0.29	29.3%

## PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Mary Ann Dr	1283	1282	8	0.00300	7,569	620 Mary Ann Dr	Auto Body**	100	757	0.002	0.011	0.72	0.09	9.0%
					9,794	630 Mary Ann Dr	Auto Body**	100	979	0.003				
					4,061	621 Mary Ann Dr	Auto Body**	100	406	0.001				
					4,420	619 Mary Ann Dr	Auto Body**	100	442	0.001				
					5,095	603 Mary Ann Dr	Auto Body**	100	510	0.002				
					5,347	577 Mary Ann Dr	Auto Body**	100	535	0.002				
	1282	1281	8	0.00189	11,054	530 Mary Ann Dr	Auto Body**	100	1,105	0.003	0.057	1.78	0.22	22.25%
					3,201	553 Mary Ann Dr	Professional office**	200	640	0.002				
					6,890	2431 190th St Project Site	fitness/ restaurant**	1000	6,890	0.021				
					6,500	2433 190th St Project site	Restaurant**	1000	6,500	0.020				
190th St	1276	1275	8	0.00461	connecting line			-	0.000	0.148	2.35	0.29	29.38%	
	1275	1274	8	0.00478	1	2217 190th St	Residential*	156	156	0.000	0.214	2.76	0.35	34.50%
	1274	1270	8	0.03960	1	2215 190th St	Residential*	156	156	0.000	0.216	1.62	0.20	20.25%
1					2213 190th St	Residential*	156	156	0.000					
1					2211 190th St	Residential*	156	156	0.000					
1					500 Earle Lane	Residential*	156	156	0.000					
Earle Ln	1273	1271	8	0.00200	5	2214-2209 Earle Lane	Residential*	156	780	0.002	0.002	0.35	0.04	4.38%
	1271	1270	8	0.00554	7	2211-2208 Earle Lane	Residential*	156	1,092	0.003	0.006	0.05	0.01	0.59%
	1270	1269	8	0.00497	connecting line			-	0.000	0.222	2.79	0.34	34.9%	
	1269	1268	8	0.01000	18		Multiple single family*	156	2,808	0.009	0.231	2.37	0.29	29.6%
	1268	1267	8	0.00993	41,317	525 Earle Lane	School**	200	8,263	0.026	0.256	2.51	0.31	31.4%
	1267	1256	8	0.00867	connecting line			-	0.000	0.256	2.59	0.32	32.4%	
	1266	1265	8	0.02097	4	2215-2209 Glick Ct	Residential*	156	624	0.002	0.002	0.60	0.08	7.5%
	1265	1262	8	0.00304	connecting line				-	0.000	0.002	0.32	0.04	4.0%
	1262	1257	8	0.04716	14	2209-2208 Margaret Ct	Residential*	156	2,184	0.007	0.009	0.34	0.04	4.3%
	1261	1260	8	0.07398	7	2215-2220 Fisher Ct	Residential*	156	1,092	0.003	0.003	0.54	0.07	6.8%
	1260	1259	8	0.10875	6	2214-2209 Fisher Ct	Residential*	156	936	0.003	0.006	0.23	0.03	2.9%
	1259	1257	8	0.01198	connecting line				-	0.000	0.006	0.39	0.05	4.9%
	1258	1257	8	0.00450	8	2208-2215 Hall Ct	Residential*	156	1,248	0.004	0.019	0.63	0.08	7.9%
	1257	1256	8	0.05660	connecting line				-	0.000	0.025	1.28	0.16	16.0%
	1256	1205	8	0.01464					-	0.000	0.282	2.38	0.29	29.8%



## **APPENDIX C**

Sewer Analysis for site 3

EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OC CUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Stanford Ave	1533	1550	8	0.0539	6	1415 Stanford Ave	Residential*	156	936	0.003	0.021	0.49	0.0613	6.13%
					38	1414 Stanford Ave	Residential*	156	5,928	0.018				
Aviation Blvd	1551	1550	8	0.05500	26,722	1151 Aviation Blvd Project Site	Superstore**	325	8,685	0.027	0.027	0.55	0.0688	6.88%
	1550	1549	8	0.01905	Connecting line					0.000	0.048	0.93	0.1163	11.63%
	1549	1548	8	0.01131	Connecting line					0.000	0.048	1.06	0.1325	13.25%
Goodman Ave	1552	1548	8	0.06120	28	1317 Aviation Blvd	Residential*	156	4,368	0.014	0.015	0.04	0.0051	0.51%
					2	1410 Goodman Ave	Residential*	156	312	0.001				
					1	1408 Goodman Ave	Residential*	156	156	0.0005				
					1	1406 Goodman Ave	Residential*	156	156	0.0005				
Aviation Blvd	1548	1502	8	0.00375	7,828	1401 Aviation Blvd	Auto Body**	100	783	0.002	0.074	1.71	0.2138	21.38%
					7,060	1415 Aviation Blvd	Auto Body**	100	706	0.002				
					2,939	1421 Aviation Blvd	Gym**	600	1,763	0.005				

PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OC CUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Stanford Ave	1533	1550	8	0.0539	6	1415 Stanford Ave	Residential*	156	936	0.003	0.021	0.49	0.0613	6.13%
					38	1414 Stanford Ave	Residential*	156	5,928	0.018				
Aviation Blvd	1551	1550	8	0.05500	46	1151 Aviation Blvd Project Site	1 Bed	156	7,176	0.022	0.083	0.94	0.1175	11.75%
					24		2 Bed	312	7,488	0.023				
					12,000		Retail**	1000	12,000	0.037				
	1550	1549	8	0.01905	Connecting line					0.000	0.104	1.35	0.1688	16.88%
1549	1548	8	0.01131	Connecting line					0.000	0.104	1.54	0.1925	19.25%	
Goodman Ave	1552	1548	8	0.06120	28	1317 Aviation Blvd	Residential*	156	4,368	0.014	0.015	0.04	0.0051	0.51%
					2	1410 Goodman Ave	Residential*	156	312	0.001				
					1	1408 Goodman Ave	Residential*	156	156	0.0005				
					1	1406 Goodman Ave	Residential*	156	156	0.0005				
Aviation Blvd	1548	1502	8	0.00375	7,828	1401 Aviation Blvd	Auto Body**	100	783	0.002	0.129	2.26	0.2825	28.25%
					7,060	1415 Aviation Blvd	Auto Body**	100	706	0.002				
					2,939	1421 Aviation Blvd	Gym**	600	1,763	0.005				



## **APPENDIX D**

Sewer Map





## **APPENDIX E**

Sewer Analysis for site 5

EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%	
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)											
218 Pl	1	2	8	0.00400	13	20765 Avalon Blvd	Residential*	156	2,028	0.006	0.006	0.51	0.06	6.38%	
	2	3	8	0.00400	14	454 Carson Plaza Dr	Residential*	156	2,184	0.007	0.013	0.73	0.09	9.13%	
	3	4	8	0.06680	1	550 Carson Plaza Dr	Residential*	156	156	0.000	0.019	0.45	0.06	0.06	5.63%
					1,388	21822 Main St	Restaurant**	1000	1,388	0.004					
					3,889	21800 Main St	Store	100	389	0.001					
					1,283			100	128	0.000					

PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%	
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)											
218 Pl	1	2	8	0.00400	13	20765 Avalon Blvd	Residential*	156	2,028	0.006	0.006	0.51	0.06	6.38%	
	2	3	8	0.00400	14	454 Carson Plaza Dr	Residential*	156	2,184	0.007	0.013	0.73	0.09	9.13%	
	3	4	8	0.06680	1	550 Carson Plaza Dr	Residential*	156	156	0.000	0.027	0.53	0.07	0.07	6.63%
					1,388	21822 Main St	Restaurant**	1000	1,388	0.004					
					3,000	21800 Main St	Commercial	1000	3,000	0.009					

2. ALL 8" V.C.P. TO BE 10' LONG  
 Allow 1/2" for each 10' of 8" V.C.P.  
 1/2" Sp. in each 10' of 8" and each

### DOUBLE SCALE LOMITA BUILDING DISTRICT NO. 71

USE STANDARD STRENGTH PIPE EXCEPT AS NOTED.  
 USE CEMENT MORTAR FOR ALL VITRIFIED CLAY PIPE JOINTS.  
 ALL STRUCTURES SHALL BE BRICK SEWER STRUCTURES AS PER PLAN NO. S-1-104, EXCEPT AS NOTED.  
 USE STANDARD MANHOLE FRAMES AND COVERS AS PER PLAN NO. S-A-117, EXCEPT AS NOTED.  
 RESURFACE TRENCH WITHIN PAVED AREA WITH PREMIUM ROCK AND OIL 4" INCHES IN THICKNESS OR 8" INCHES 4 B.M. EXCEPT AS NOTED.  
 USE FORMULA NO. 7 SEC. 34 OF SPECIFICATIONS TO COMPUTE ALLOWABLE LEAKAGE.  
 THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION AND STORM DRAIN DIVISION BY TELEPHONE MADISON 9-4747, EXT. 302 AT LEAST 24 HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.  
 CONSTRUCT HOUSE LATERALS WITH 1/2" RISE PER FOOT TO 4 1/2" LINE, WITH ONE INCH DIP UNTIL LINE OF WORK IS REACHED.  
 HOUSES IN CIRCLES AT ENDS OF HOUSE LATERALS INDICATE DEPTH BELOW CURB - GRADE, OR GRADE OF CURB ENTER LINE OF STREET.  
 HOUSES IN CIRCLES AT ENDS OF HOUSE LATERALS INDICATE HOUSE LATERALS SHALL BE CONSTRUCTED WITH 1/2" RISE PER FOOT TO PROPERTY LINE.  
 HOUSES IN CIRCLES AT ENDS OF HOUSE LATERALS INDICATE 1/2" RISE PER FOOT TO PROPERTY LINE AND HOUSE EXISTENCE SHALL BE CONSERVED WITH 1/2" RISE PER FOOT TO PROPERTY LINE.  
 CONSTRUCTION IN STATE HIGHWAYS SHALL CONFORM WITH STATE HIGHWAY DEPARTMENT.  
 RESURFACE TRENCH WITHIN PAVED AREA IN PRIVATE STREET WITH PREMIUM ROCK AND OIL ONE INCH THICKER THAN EXISTING PAVEMENT AND ALL EXISTING GATE MATERIALS SHALL BE REPLACED TO ITS ORIGINAL THICKNESS.

COUNTY IMPROVEMENT NO. 2083M  
 PROFILE, ALIGNMENT AND GRADE OF  
 SANITARY SEWERS  
 TO BE CONSTRUCTED BY  
**218<sup>TH</sup> PLACE**  
 AND OTHER RIGHTS OF WAY

29974

PAGE 1 OF 2 PAGES

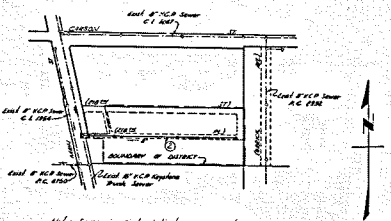
SCALE 1" = 40'  
 MARCH 1958  
 COUNTY OF LOS ANGELES, CALIFORNIA

JOHN A. LAMBE COUNTY ENGINEER  
 SUBMITTED *H. L. ...* APPROVED *C. R. Colquhoun*

C. R. COLQUHOUN  
 COUNTY ENGINEER  
 1818 ...

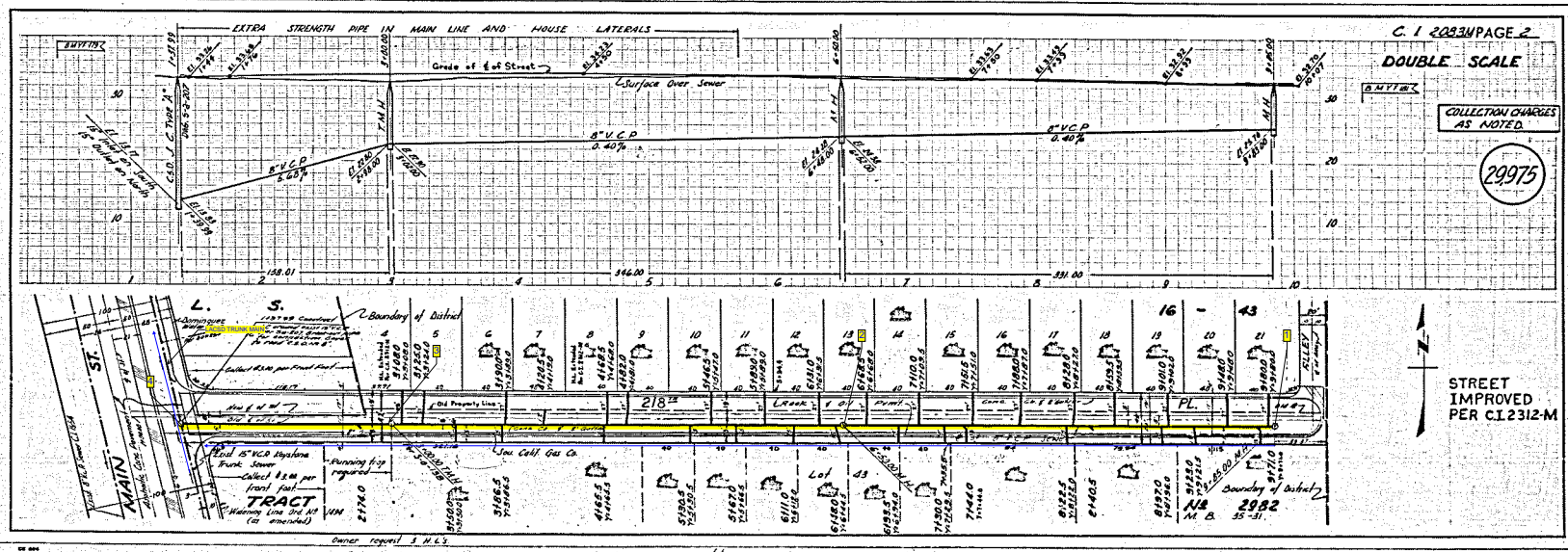
FOR LEGEND  
 SEE PLAN NO. S-4-48

DESIGNED	TRACED	CHECKED	DATE
F. B. ...	F. B. ...	F. B. ...	Mar 1958
A. B. ...	A. B. ...	A. B. ...	Mar 1958
W. S. ...	W. S. ...	W. S. ...	Mar 1958



INDEX MAP  
 C. I. 2083M 218<sup>TH</sup> PLACE  
 Scale 1" = 300'

BEFORE STARTING WORK ON ANY EXISTING UTILITY...  
 and before final acceptance of this work,  
 County Sanitation District should be notified  
 in order that registered inspection may be made.



C. I. 2083M PAGE 2  
 DOUBLE SCALE

COLLECTION CHARGES  
 AS NOTED

29975

STREET IMPROVED  
 PER C.I. 2312-M

F. B. ...

H. G. ...

## **APPENDIX F**

Sewer Analysis for project site & Fire flow test for adjacent property for Site 6



E.M. 800 400 ELEV. 10000  
 GARDENA QUAD 19 70



INDEX MAP  
 SCALE: 1" = 200'  
 P.C. 72-5

FILE COMPLIANT WITH SECTION 200818 OF THE SPECIAL PROVISIONS WILL BE REQUIRED FOR BATTERY ASSEMBLY UNIT INSTALLATION OF BACKUP BATTERY AND SHUT-EQUIPMENTS BY A QUALIFIED REGISTERED DESIGN LABORATORY SHALL BE PROVIDED BY THE PERMITTEE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF FINAL RECEIPTANCE.

Turning Radius: Distances shall be 1/4" = 100' to 1/8" = 50' to 1/16" = 25' to 1/32" = 12.5' to 1/64" = 6.25' to 1/128" = 3.125' to 1/256" = 1.5625' to 1/512" = 0.78125' to 1/1024" = 0.390625'

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF CARSON AND THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.

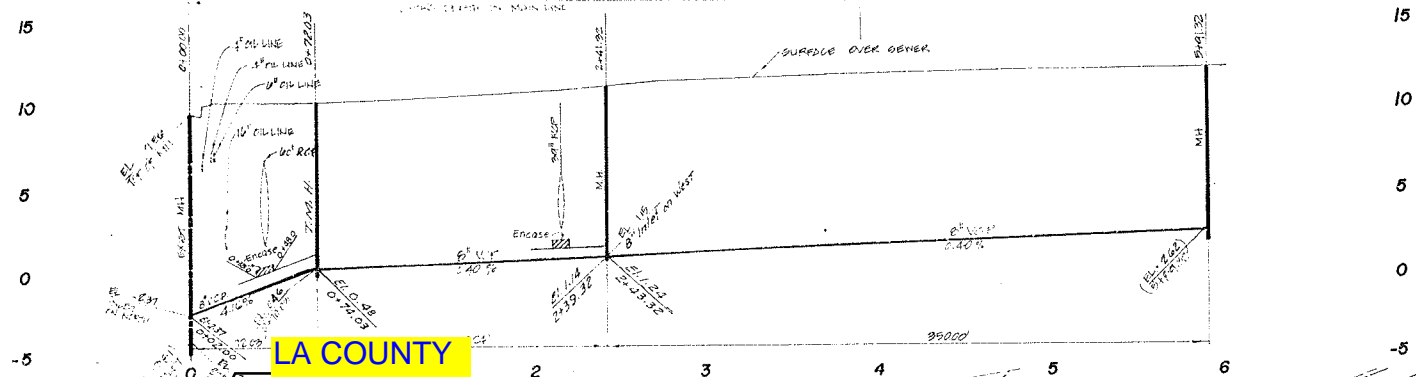
PARCEL MAP NO. 2327  
 PRIVATE CONTRACT NO. 72-5

W.S. 20  
 SHEET 2 PAGES  
 SCALE: 1" = 40'  
 SHARPCARD ENGINEERS INC.  
 1005 S. GARDEN BLVD., SUITE 100  
 GARDENA, CALIFORNIA 90247  
 REG. NO. 132207

NO.	DESCRIPTION	AMOUNT
1	PLANS	100.00
2	PERMITS	100.00
3	INSURANCE	100.00
4	CONSTRUCTION	100.00
5	MAINTENANCE	100.00
6	OPERATION	100.00
7	REPAIRS	100.00
8	REPLACEMENT	100.00
9	UPGRADE	100.00
10	RENOVATION	100.00
11	DEMOLITION	100.00
12	LANDSCAPING	100.00
13	UTILITIES	100.00
14	PAVING	100.00
15	CONCRETE	100.00
16	STEEL	100.00
17	WOOD	100.00
18	GLASS	100.00
19	PLASTER	100.00
20	PAINT	100.00
21	FINISH	100.00
22	MOVING	100.00
23	STORAGE	100.00
24	TRAVEL	100.00
25	MEALS	100.00
26	ENTERTAINMENT	100.00
27	SPORTS	100.00
28	RECREATION	100.00
29	EDUCATION	100.00
30	HEALTH	100.00
31	WELLNESS	100.00
32	BEAUTY	100.00
33	HAIR	100.00
34	SKIN	100.00
35	NAILS	100.00
36	SPAS	100.00
37	SAUNAS	100.00
38	POOLS	100.00
39	BARBECUES	100.00
40	TRAILS	100.00
41	BOULEVARDS	100.00
42	DRIVEWAYS	100.00
43	ALLEYS	100.00
44	STAIRS	100.00
45	ELEVATORS	100.00
46	RAMP	100.00
47	DOORS	100.00
48	WINDOWS	100.00
49	ROOFING	100.00
50	FOUNDATION	100.00
51	FRAMING	100.00
52	MECHANICAL	100.00
53	ELECTRICAL	100.00
54	PLUMBING	100.00
55	HEATING	100.00
56	Cooling	100.00
57	VENTILATION	100.00
58	INSULATION	100.00
59	SEWER	100.00
60	WATER	100.00
61	SEWER	100.00
62	WATER	100.00
63	SEWER	100.00
64	WATER	100.00
65	SEWER	100.00
66	WATER	100.00
67	SEWER	100.00
68	WATER	100.00
69	SEWER	100.00
70	WATER	100.00

CITY OF CARSON, CALIFORNIA  
 HARVEY T. BRANDT, CITY ENGINEER  
 JOHN D. PARKHURST, CHIEF ENGINEER  
 APPROVED: [Signature]  
 CHECKED: [Signature]  
 REG. NO. 132207  
 CITY OF CARSON REG. DIST. 12.05

SM006883

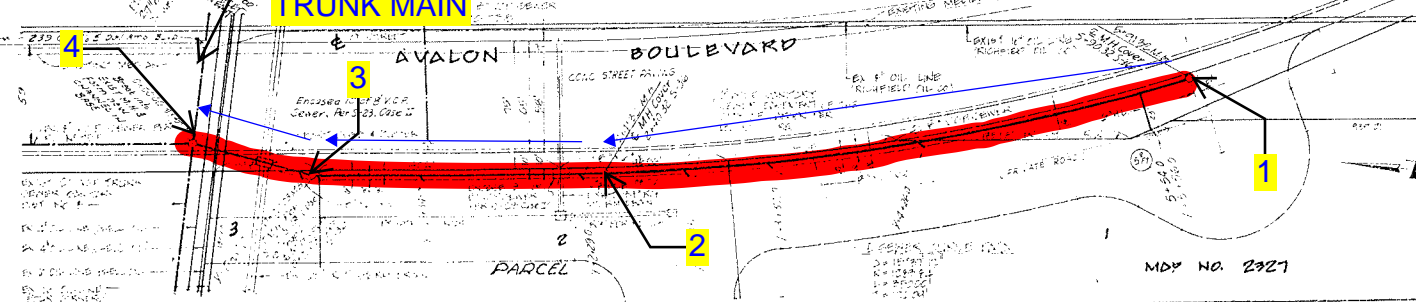


LA COUNTY TRUNK MAIN

NO CHARGE FOR CONNECTIONS

43661

PROFILE  
 SCALE: HORIZ. 1" = 40'  
 VERT. 1" = 4'



MDY NO. 2327



# California Water Service Company Fire Flow Test

7/26/2023

Test Date: 03/28/2022      Time: 13:00

District: DOMINGUEZ

Zone: 2

Plat: 28-32

Address: 20700 Avalon BLVD

Cross Street: E Dominguez ST

Requested By: C. Ruiz

*For 20715 Avalon blvd*

Conducted By: R. Curiel

Purpose Of Test: Determine Flow Availability

Witnessed By: Calwater: R. Pan

Others: A. Lopez

<u>Outlet No.</u>	<u>Outlet Size</u>	<u>PITOT</u>	<u>Observed</u>	<u>Static Pressure</u>	<u>Residual Pressure</u>	<u>Flow Observed</u>	<u>Flow Avail. @20</u>
<u>Location 1 Hydrant No.:</u> DOM-1459			<u>Address:</u> 20700 Avalon Blvd.				
1	4.00	40	2717	96	80	2717	6302
2							
3							
4							
<u>Location 2 Hydrant No.:</u> 1502			<u>Address:</u> 20700 Avalon Blvd.				
1	4.00	53	3127			3127	7254
2							
3							
4							
<u>Location 3 Hydrant No.</u>			<u>Address:</u>				
1							
2							
3							
4							
<u>Total Flow Observed Available @20:</u>						5844	13556

Remarks: Distance from FH1 to SR is 330' - dist from FH2 to SR is 12' // Distance from FH1 to PL is 30' - dist from FH2 to PL 12'

Static/Residual Location: 20700 Avalon Blvd.

Note:

Regardless of the results of this test, California Water Service Company assumes no liability beyond that stated in the following excerpt from the P.U.C. Tarriff Schedule: "The utility (California Water Service Company) will supply only such water at such pressure as may be available from time to time as a result of its normal operation of the system."

## **APPENDIX G**

Sewer Analysis for project site & Fire flow test for adjacent property for Site 7



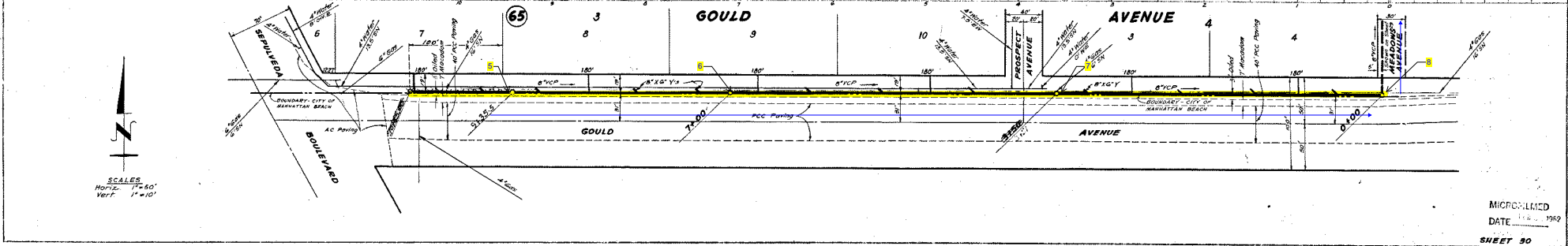
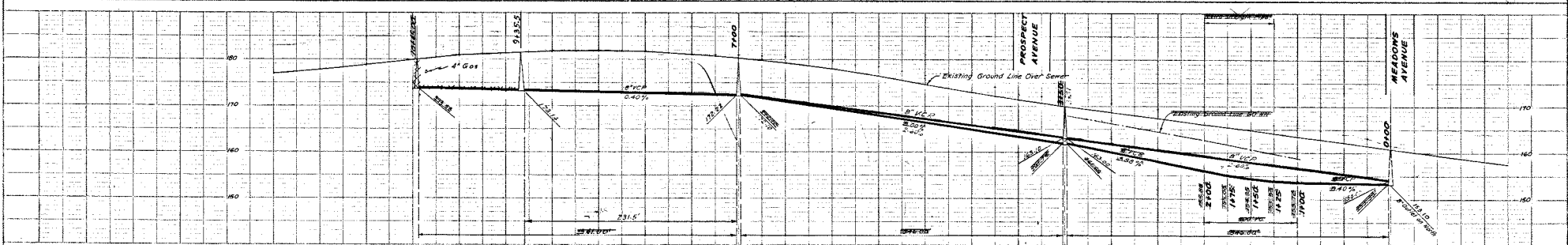
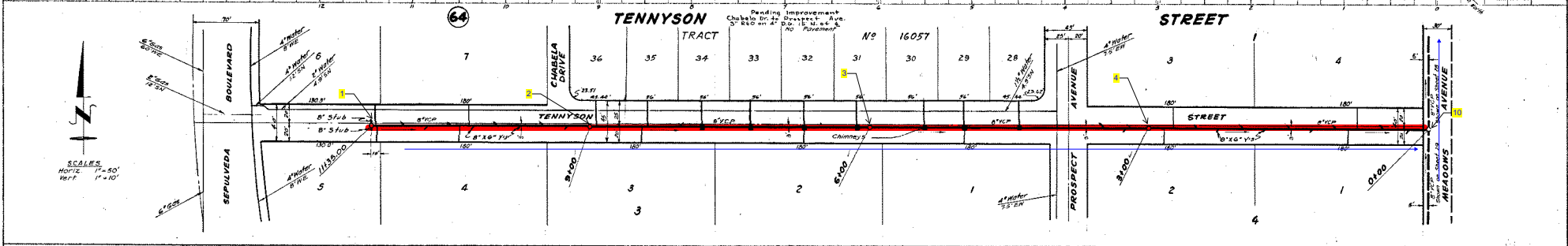
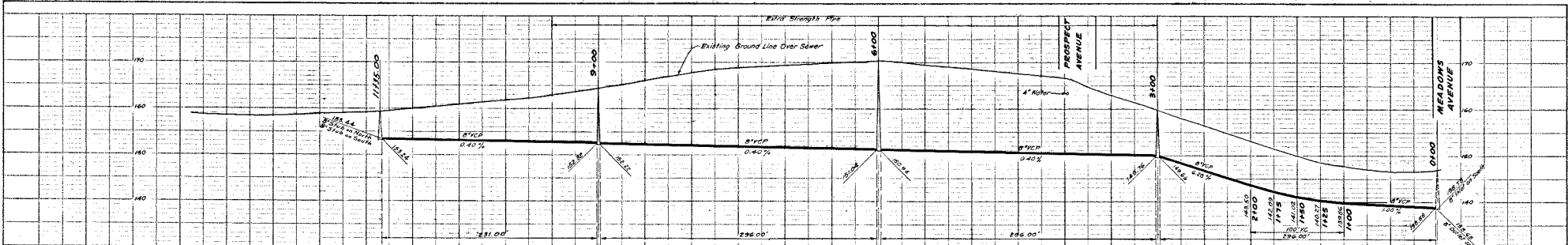
EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow		Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)				(gal/day) per unit/room or per 1000sf of area	gal/day					
Tennyson St	1	2	8	0.00400	27,491	700 S Sepuvela Blvd 1	Mall*	150	4,124	0.013	0.040	1.24	0.16	15.50%
					8,891	600 S Sepuvela Blvd	Restaurant**	1000	8,891	0.028				
	2	3	8	0.00400	5	1141-1181 Tennyson St	Multiple Single Family	260	1,300	0.004	0.059	1.50	0.19	18.75%
					30	1161 Tennyson St	Apartment Bldg	156	4,680	0.014				
	3	4	8	0.00400	5	1191-1231 Tennyson St	Multiple Single Family	260	1,300	0.004	0.071	1.65	0.21	20.63%
					10	1208 Tennyson st	Apartment Bldg	156	1,560	0.005				
4	10	8	0.06280	6	1220 Tennyson st	Apartment Bldg	156	936	0.003	0.075	1.51	0.19	18.88%	
				5	1141-1251 Tennyson St	Multiple Single Family	260	1,300	0.004					
Artesia Blvd (Formerly Gould Ave	5	6	8	0.00400	7,364	700 S Sepuvela Blvd 2	Office**	100	736	0.002	0.026	1.01	0.13	12.63%
					6,659		Store**	100	666	0.002				
					6,933		Restaurant**	1000	6,933	0.021				
	6	7	8	0.02680	2,914	1203 Artesia Blvd	Restaurant**	1000	2,914	0.009	0.054	0.91	0.11	11.38%
					6,050	1221 Artesia Blvd	Restaurant**	1000	6,050	0.019				
	7	8	8	0.02680	21,842	1243 Artesia Blvd	Church	50	1,092	0.003	0.062	0.97	0.12	12.13%
7,590					1243 Artesia Blvd	School	200	1,518	0.005					
Meadows Ave	8	9	8	0.04480	Connecting Line				0.000	0.062	2.68	0.34	33.50%	
	9	10	8	0.01600	4,057	1243 Artesia Blvd	School	200	811	0.003	0.064	1.11	0.14	13.88%
	10	11	8	0.00400	Connecting Line				0.000	0.139	2.64	0.33	33.00%	
	11	12	8	0.00400	12	1230-1231 Shelly St (culdesac)	Multiple Single Family	260	3,120	0.010	0.268	2.56	0.32	32.00%
					26,893	500 S Sepulveda Blvd	Superstore	200	5,379	0.017				
					57	1140-1281 Keats st	Multiple Single Family	260	14,820	0.046				
20,297					400 S Sepulveda Blvd	Professional office**	300	6,089	0.019					
12	13	8	0.01000	36,492	300 S Sepulveda Blvd	Professional office**	300	10,948	0.034					
				5	1271-1280 Bryant Place	Multiple Single Family	260	1,300	0.004					
13	14	8	0.00400	6	375-333 S Meadows Ave	Multiple Single Family	260	1,560	0.005	0.275	3.32	0.42	41.50%	
				3	233-327 S Meadows Ave	Multiple Single Family	260	780	0.002					
Voorhees Ave	14	15	8	0.01160	11	1301-1327 Voorhees Ave	Multiple Single Family	261	2,871	0.009	0.284	2.54	0.32	31.75%
					12	1326-1357 Voorhees Ave	Multiple Single Family	260	3,120	0.010				
	15	16	8	0.02320	23	1300-1356 Curtis Ave	Multiple Single Family	260	5,980	0.019	0.312	2.23	0.28	27.88%

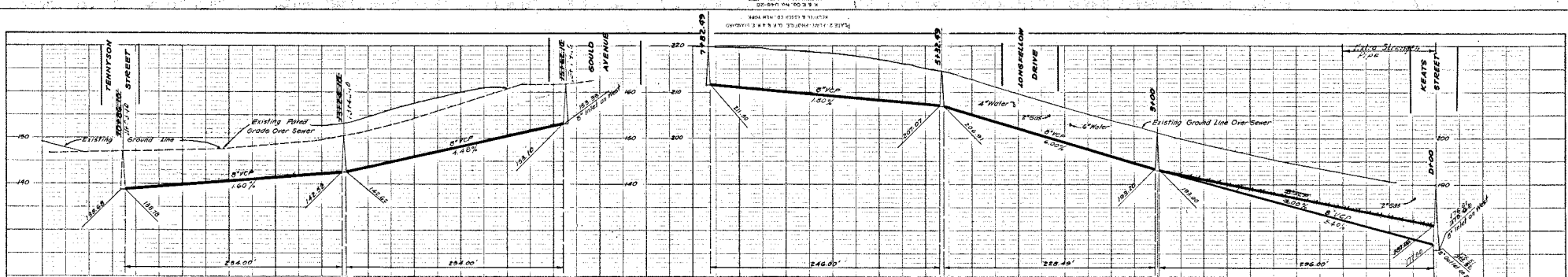
PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow		Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)				(gal/day) per unit/room or per 1000sf of area	gal/day					
Tennyson St	1	2	8	0.00400	15	700 S Sepuvela Blvd 1	Units*	156	2,340	0.007	0.035	1.17	0.15	14.63%
					8,891	600 S Sepuvela Blvd	Restaurant**	1000	8,891	0.028				
	2	3	8	0.00400	5	1141-1181 Tennyson St	Multiple Single Family	260	1,300	0.004	0.053	1.43	0.18	17.88%
					30	1161 Tennyson St	Apartment Bldg	156	4,680	0.014				
	3	4	8	0.00400	5	1191-1231 Tennyson St	Multiple Single Family	260	1,300	0.004	0.065	1.58	0.20	19.75%
					10	1208 Tennyson st	Apartment Bldg	156	1,560	0.005				
4	10	8	0.06280	6	1220 Tennyson st	Apartment Bldg	156	936	0.003	0.069	1.45	0.18	18.13%	
				5	1141-1251 Tennyson St	Multiple Single Family	260	1,300	0.004					
Artesia Blvd (Formerly Gould Ave	5	6	8	0.00400	7,364	700 S Sepuvela Blvd 2	Office**	100	736	0.002	0.275	3.32	0.42	41.50%
					27		Studio	156	27,000	0.084				
					100		1 Bed	156	26,000	0.080				
					54		2 Bed	312	8,424	0.026				
					15		3 Bed	468	3,900	0.012				
	22,750	Restaurant**	1000	22,750	0.070									
6	7	8	0.02680	2,914	1203 Artesia Blvd	Restaurant**	1000	2,914	0.009	0.303	2.12	0.27	26.50%	
				6,050	1221 Artesia Blvd	Restaurant**	1000	6,050	0.019					
7	8	8	0.02680	21,842	1243 Artesia Blvd	Church	50	1,092	0.003	0.311	2.14	0.27	26.75%	
				7,590	1243 Artesia Blvd	School	200	1,518	0.005					
Meadows Ave	8	9	8	0.04480	Connecting Line				0.000	0.311	1.88	0.24	23.50%	
	9	10	8	0.01600	4,057	1243 Artesia Blvd	School	200	811	0.003	0.313	2.46	0.31	30.75%
	10	11	8	0.00400	Connecting Line				0.000	0.382	4	0.50	50.00%	
	11	12	8	0.00400	12	1230-1231 Shelly St (culdesac)	Multiple Single Family	260	3,120	0.010	0.511	3.63	0.45	45.38%
					26,893	500 S Sepulveda Blvd	Superstore	200	5,379	0.017				
					57	1140-1281 Keats st	Multiple Single Family	260	14,820	0.046				
20,297					400 S Sepulveda Blvd	Professional office**	300	6,089	0.019					
12	13	8	0.01000	36,492	300 S Sepulveda Blvd	Professional office**	300	10,948	0.034					
				5	1271-1280 Bryant Place	Multiple Single Family	260	1,300	0.004					
13	14	8	0.00400	6	375-333 S Meadows Ave	Multiple Single Family	260	1,560	0.005	0.518	4.83	0.60	60.38%	
				3	233-327 S Meadows Ave	Multiple Single Family	260	780	0.002					
Voorhees Ave	14	15	8	0.01160	11	1301-1327 Voorhees Ave	Multiple Single Family	261	2,871	0.009	0.527	3.54	0.44	44.25%
					12	1326-1357 Voorhees Ave	Multiple Single Family	260	3,120	0.010				
	15	16	8	0.02320	23	1300-1356 Curtis Ave	Multiple Single Family	260	5,980	0.019	0.555	3.01	0.38	37.63%

MANHATTAN BEACH  
 SEABOARD ENGINEERING CO.  
 1982

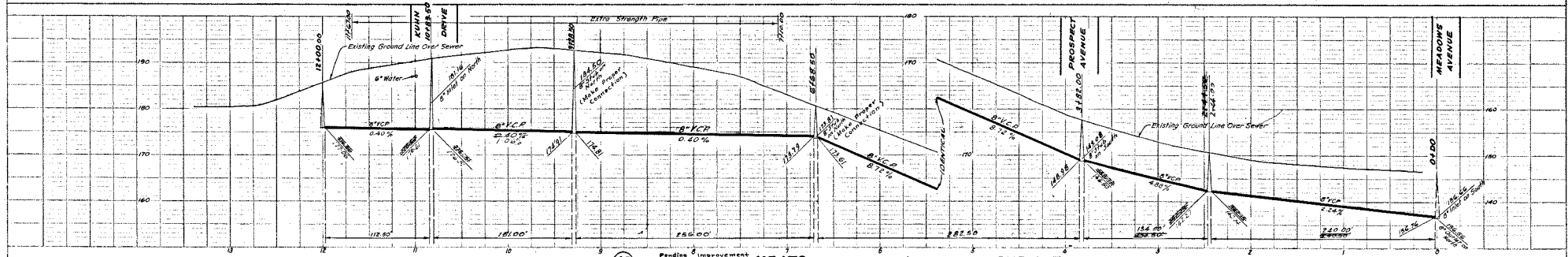
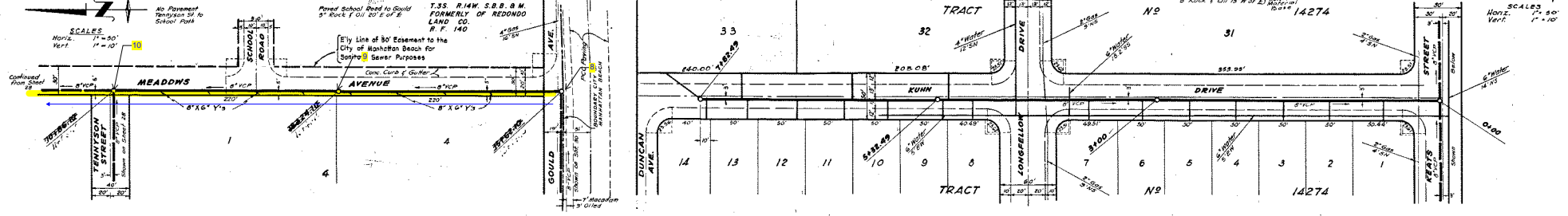


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 DATE 11/13/82  
 SHEET 90  
 76  
 MANHATTAN BEACH ASSESSMENT DISTRICT NO.  
 SEABOARD ENGINEERING CO.

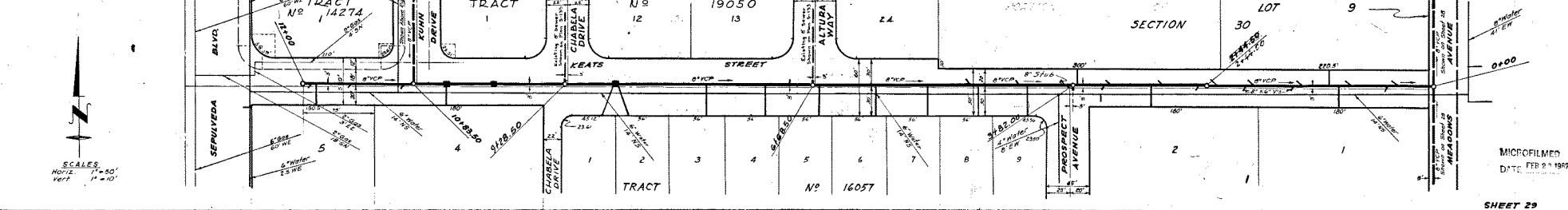


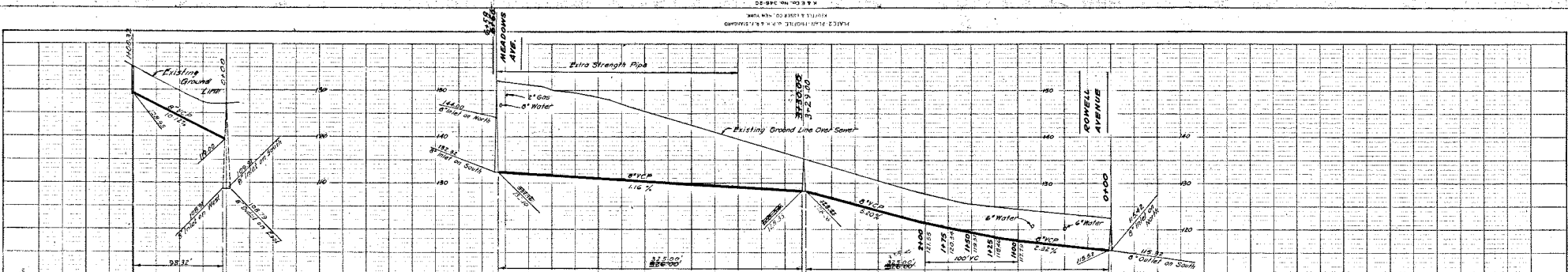
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62 KUHN DRIVE

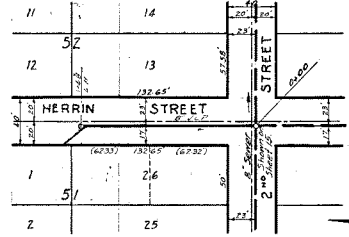


63 KEATS STREET

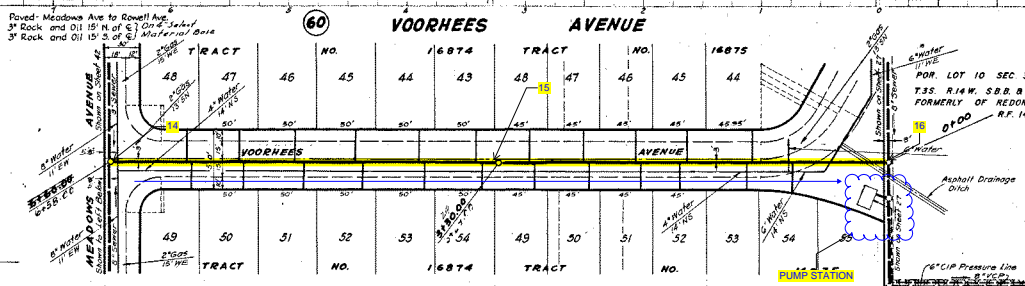




119 HERRIN STREET

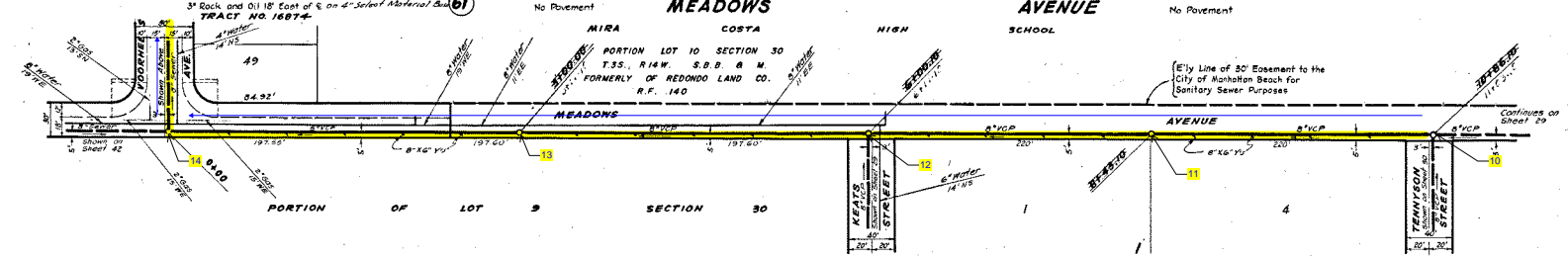
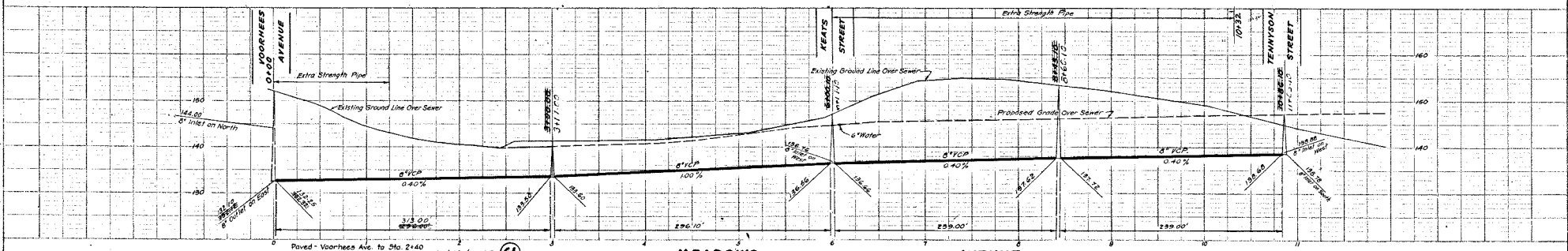


SCALES  
 Horiz. 1" = 50'  
 Vert. 1" = 10'



LAND CO.  
 POR. LOT 10 SEC 30  
 T.3S. R.14W. S.B.B. & M.  
 FORMERLY OF REDWOOD  
 R.F. 140

SCALES  
 Horiz. 1" = 50'  
 Vert. 1" = 10'



SCALES  
 Horiz. 1" = 50'  
 Vert. 1" = 10'

MICROFILMED  
 FEB 24 1962  
 DATE

SHEET 28  
 MANHATTAN BEACH ASSESSMENT DISTRICT NO. 7C  
 SEABOARD ENGINEERING CO.

WATER MASTER PLAN UPDATE 2021

Table 8-2 – Hydrant Results

Field Test Tab	Test Number	Test	Test	Time	Flow Hydrant ID	Residual Hydrant ID	Flow Hydrant (psi)	Flow Hydrant (gpm)	Residual Hydrant (psi)	Model Flow Hydrant (gpm)	Model Residual Hydrant (psi)	% difference from Model to Field
test-1	1A	static	start	8:13 AM	FH 446	FH 449			93		94	0.9%
test-1	1A	residual	end	8:16 AM	FH 446	FH 449	26	2,021	76	2,021	82	6.9%
test-1	1B	static	start	8:28 AM	FH 446	FH 449			97		98	0.8%
test-1	1B	residual	end	8:30 AM	FH 446	FH 449	29	2,134	79	2,021	80	1.4%
test-2	2A	static	start	8:56 AM	FH 514	FH 513			97		98	0.8%
test-2	2A	residual	end	8:58 AM	FH 514	FH 513	39	2,475	67	2,475	72	6.7%
test-2	2B	static	start	9:05 AM	FH 514	FH 513			92		92	0.1%
test-2	2B	residual	end	9:07 AM	FH 514	FH 513	39	2,475	68	2,475	70	2.7%
test-3	3A	static	start	9:28 AM	FH 539	FH 540			97		98	1.3%
test-3	3A	residual	end	9:31 AM	FH 539	FH 540	34	2,311	82	2,315	85	4.0%
test-3	3B	static	start	9:41 AM	FH 539	FH 540			94		94	0.0%
test-3	3B	residual	end	9:42 AM	FH 539	FH 540	33	2,276	79	2,315	84	6.2%
test-4	4B	static	start	10:04 AM	FH 215	FH 218			86		86	0.1%
test-4	4B	residual	end	10:06 AM	FH 215	FH 218	29	2,134	68	2,280	70	2.6%
test-4	4A	static	start	10:15 AM	FH 215	FH 218			84		75	11.9%
test-4	4A	residual	end	10:17 AM	FH 215	FH 218	30	2,170	70	2,170	70	0.3%
test-5	5A	static	start	10:40 AM	FH 315	FH 319			69		71	2.6%
test-5	5A	residual	end	10:42 AM	FH 315	FH 319	30	2,170	33	2,170	50	34.0%
test-5	5B	static	start	10:51 AM	FH 315	FH 319			69		70	1.7%
test-5	5B	residual	end	10:53 AM	FH 315	FH 319	30	2,170	32	2,170	51	37.3%
test-6	6B	static	start	11:26 AM	FH 279	FH 282			79			
test-6	6B	residual	end	11:28 AM	FH 279	FH 282	18	1,681	69	2,170		
test-6	6A	static	start	11:43 AM	FH 279	FH 282			82			
test-6	6A	residual	end	11:45 AM	FH 279	FH 282	18	1,681	70	1,661	75	7.9%
test-9	9A	static	start	12:45 PM	FH 378	FH 379			117		117	0.1%
test-9	9A	residual	end	12:47 PM	FH 378	FH 379	46	2,688	99	2,688	104	4.9%
test-11	11A	static	start	1:17 PM	FH 22	FH 23			93		92	0.9%
test-11	11A	residual	end	1:19 PM	FH 22	FH 23	31	2,206	77	2,206	71	7.8%
test-11	11B	static	start	1:33 PM	FH 22	FH 23			91		94	3.2%
test-11	11B	residual	end	1:35 PM	FH 22	FH 23	22	1,859	79	2,206	77	2.4%
test-10	10A	static	start	2:32 PM	FH 64	FH 69			81		85	5.2%
test-10	10A	residual	end	2:34 PM	FH 64	FH 69	45	1,126	63	1,126	67	5.9%
test-8	8A	static	start	2:56 PM	FH 343	FH 344			83		88	5.8%
test-8	8A	residual	end	2:58 PM	FH 343	FH 344	36	1,007	73	1,007	73	0.5%
test-7	7A	static	start	3:20 PM	FH 162	FH 163			77		79	3.0%
test-7	7A	residual	end	3:22 PM	FH 162	FH 163	13	1,429	60	1,434	73	17.9%
test-7	7B	static	start	3:38 PM	FH 162	FH 163			82		84	2.9%
test-7	7B	residual	end	3:40 PM	FH 162	FH 163	13	1,429	58	1,434	73	20.5%
											Average	6%

700 S SEPULVEDA  
HYDRANT FLOW DATA

## **APPENDIX H**

Sewer Analysis for site 8

## EXISTING CONDITIONS

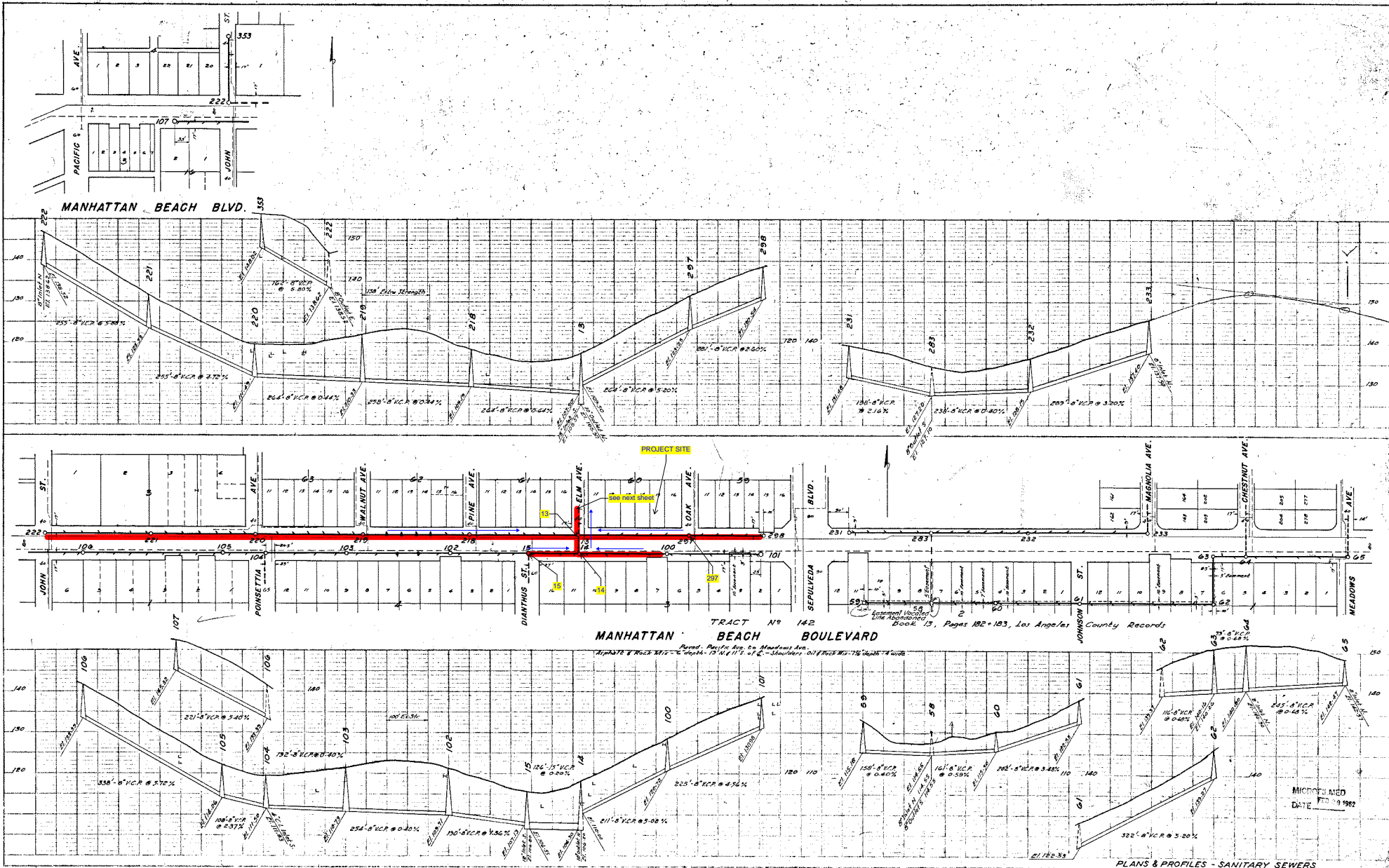
Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Manhattan Beach Blvd	15	14	15	0.002	2236	1101 Manhattan Beach Blvd Project site	Gas Station Store	100	224	0.001	0.758	5.24	0.35	34.93%
					5649	1020 Manhattan Beach Blvd	Professional Building	300	1,695	0.005				
	100	14	8	0.0508	1452	1026 Manhattan Beach Blvd	Spa	0	-	0.000	0.004	0.23	0.03	2.88%
					6943	1040 Manhattan Beach Blvd	Office	200	1388.6	0.004				
	14	13	10	0.018	Connecting Line					0.000	0.762	3.47	0.35	34.70%
	298	297	8	0.026	4876	1129 Manhattan Beach Blvd Project site	Office	200	975.2	0.003	0.003	0.24	0.03	3.00%
	297	13	8	0.052	3082	1011 Manhatta Beach Blvd	Restaurant**	0	0	0.000	0.008	0.32	0.04	4.00%
4932					1005 Manhattan Beach Blvd	Professional Building	300	1479.6	0.004579					
Elm Ave	13	12	10	0.0164	Connecting Line				0	1.083	4.31	0.43	43.10%	
	12	11	15	0.002	11	1144-1212 Elm Ave	Residential*	260	2860	0.00885	1.092	6.39	0.43	42.60%
	11	10	15	0.002	8	1300-1313 Elm Ave	Residential*	260	2080	0.006436	1.098	6.41	0.43	42.73%
	10	9	15	0.004	12	1400-1501 Elm Ave	Residential*	260	3120	0.009655	1.431	6.13	0.41	40.87%
	9	8	15	0.004	12	1504-1608 Elm Ave	Residential*	260	3120	0.009655	1.441	6.15	0.41	41.00%
	8	7	18	0.002	16	1700-1800 Elm Ave	Residential*	260	4160	0.012873	1.454	6.88	0.38	38.22%
	7	6	18	0.002	16	1801-1818 Elm Ave	Residential*	260	4160	0.012873	1.467	6.91	0.38	38.39%
19th St	6	5	21	0.001	Connecting Line				0	1.781	8.65	0.41	41.19%	
Pine Ave	5	4	21	0.001	13	1900-2200 Pine Ave	Residential*	260	3380	0.010459	1.792	8.70	0.41	41.43%
	4	3	21	0.001	12	2313-2200 Pine Ave	Residential*	260	3120	0.009655	1.801	8.70	0.41	41.43%
	3	2	18	0.0633	15	2416-2312 Pine Ave	Residential*	260	3900	0.012068	1.813	3.19	0.18	17.72%

## PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/ OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Manhattan Beach Blvd	15	14	15	0.002	2236	1101 Manhattan Beach Blvd Project site	Gas Station Store	100	224	0.001	0.758	5.24	0.35	34.93%
					5649	1020 Manhattan Beach Blvd	Professional Building	300	1,695	0.005				
	100	14	8	0.0508	1452	1026 Manhattan Beach Blvd	Spa	0	-	0.000	0.004	0.23	0.03	2.88%
					6943	1040 Manhattan Beach Blvd	Office	200	1388.6	0.004				
	14	13	10	0.018	Connecting Line					0.000	0.762	3.47	0.35	34.70%
	298	297	8	0.026	4876	1129 Manhattan Beach Blvd Project site	Office	200	975.2	0.003	0.003	0.24	0.03	3.00%
	297	13	8	0.052	6	1011 Manhatta Beach Blvd	3-Bed	468	2808	0.009	0.016	0.44	0.06	5.50%
4932					1005 Manhattan Beach Blvd	Professional Building	300	1479.6	0.004579					
Elm Ave	13	12	10	0.0164	Connecting Line				0	1.099	4.34	0.43	43.40%	
	12	11	15	0.002	11	1144-1212 Elm Ave	Residential*	260	2860	0.00885	1.108	6.44	0.43	42.93%
	11	10	15	0.002	8	1300-1313 Elm Ave	Residential*	260	2080	0.006436	1.115	6.46	0.43	43.07%
	10	9	15	0.004	12	1400-1501 Elm Ave	Residential*	260	3120	0.009655	1.447	6.17	0.41	41.13%
	9	8	15	0.004	12	1504-1608 Elm Ave	Residential*	260	3120	0.009655	1.457	6.19	0.41	41.27%
	8	7	18	0.002	16	1700-1800 Elm Ave	Residential*	260	4160	0.012873	1.470	6.92	0.38	38.44%
	7	6	18	0.002	16	1801-1818 Elm Ave	Residential*	260	4160	0.012873	1.483	6.95	0.39	38.61%
19th St	6	5	21	0.001	Connecting Line				0	1.797	8.69	0.41	41.38%	
Pine Ave	5	4	21	0.001	13	1900-2200 Pine Ave	Residential*	260	3380	0.010459	1.808	8.72	0.42	41.52%
	4	3	21	0.001	12	2313-2200 Pine Ave	Residential*	260	3120	0.009655	1.818	8.75	0.42	41.67%
	3	2	18	0.0633	15	2416-2312 Pine Ave	Residential*	260	3900	0.012068	1.830	3.21	0.18	17.83%

PLAN  
 MANHATTAN BEACH BOULEVARD  
 SANITARY SEWERS  
 PROJECT SITE

PROFILE  
 MANHATTAN BEACH BOULEVARD  
 SANITARY SEWERS  
 PROJECT SITE



TRACT N° 142  
 MANHATTAN BEACH BOULEVARD

Placed Pacific Ave. to Meadows Ave.  
 ALPHABET & BLOCK 211 - 212 - 213 - 214 - 215 - 216 - 217 - 218 - 219 - 220 - 221 - 222 - 223 - 224 - 225 - 226 - 227 - 228 - 229 - 230 - 231 - 232 - 233 - 234 - 235 - 236 - 237 - 238 - 239 - 240 - 241 - 242 - 243 - 244 - 245 - 246 - 247 - 248 - 249 - 250 - 251 - 252 - 253 - 254 - 255 - 256 - 257 - 258 - 259 - 260 - 261 - 262 - 263 - 264 - 265 - 266 - 267 - 268 - 269 - 270 - 271 - 272 - 273 - 274 - 275 - 276 - 277 - 278 - 279 - 280 - 281 - 282 - 283 - 284 - 285 - 286 - 287 - 288 - 289 - 290 - 291 - 292 - 293 - 294 - 295 - 296 - 297 - 298 - 299 - 300 - 301 - 302 - 303 - 304 - 305 - 306 - 307 - 308 - 309 - 310 - 311 - 312 - 313 - 314 - 315 - 316 - 317 - 318 - 319 - 320 - 321 - 322 - 323 - 324 - 325 - 326 - 327 - 328 - 329 - 330 - 331 - 332 - 333 - 334 - 335 - 336 - 337 - 338 - 339 - 340 - 341 - 342 - 343 - 344 - 345 - 346 - 347 - 348 - 349 - 350 - 351 - 352 - 353 - 354 - 355 - 356 - 357 - 358 - 359 - 360 - 361 - 362 - 363 - 364 - 365 - 366 - 367 - 368 - 369 - 370 - 371 - 372 - 373 - 374 - 375 - 376 - 377 - 378 - 379 - 380 - 381 - 382 - 383 - 384 - 385 - 386 - 387 - 388 - 389 - 390 - 391 - 392 - 393 - 394 - 395 - 396 - 397 - 398 - 399 - 400 - 401 - 402 - 403 - 404 - 405 - 406 - 407 - 408 - 409 - 410 - 411 - 412 - 413 - 414 - 415 - 416 - 417 - 418 - 419 - 420 - 421 - 422 - 423 - 424 - 425 - 426 - 427 - 428 - 429 - 430 - 431 - 432 - 433 - 434 - 435 - 436 - 437 - 438 - 439 - 440 - 441 - 442 - 443 - 444 - 445 - 446 - 447 - 448 - 449 - 450 - 451 - 452 - 453 - 454 - 455 - 456 - 457 - 458 - 459 - 460 - 461 - 462 - 463 - 464 - 465 - 466 - 467 - 468 - 469 - 470 - 471 - 472 - 473 - 474 - 475 - 476 - 477 - 478 - 479 - 480 - 481 - 482 - 483 - 484 - 485 - 486 - 487 - 488 - 489 - 490 - 491 - 492 - 493 - 494 - 495 - 496 - 497 - 498 - 499 - 500 - 501 - 502 - 503 - 504 - 505 - 506 - 507 - 508 - 509 - 510 - 511 - 512 - 513 - 514 - 515 - 516 - 517 - 518 - 519 - 520 - 521 - 522 - 523 - 524 - 525 - 526 - 527 - 528 - 529 - 530 - 531 - 532 - 533 - 534 - 535 - 536 - 537 - 538 - 539 - 540 - 541 - 542 - 543 - 544 - 545 - 546 - 547 - 548 - 549 - 550 - 551 - 552 - 553 - 554 - 555 - 556 - 557 - 558 - 559 - 560 - 561 - 562 - 563 - 564 - 565 - 566 - 567 - 568 - 569 - 570 - 571 - 572 - 573 - 574 - 575 - 576 - 577 - 578 - 579 - 580 - 581 - 582 - 583 - 584 - 585 - 586 - 587 - 588 - 589 - 590 - 591 - 592 - 593 - 594 - 595 - 596 - 597 - 598 - 599 - 600 - 601 - 602 - 603 - 604 - 605 - 606 - 607 - 608 - 609 - 610 - 611 - 612 - 613 - 614 - 615 - 616 - 617 - 618 - 619 - 620 - 621 - 622 - 623 - 624 - 625 - 626 - 627 - 628 - 629 - 630 - 631 - 632 - 633 - 634 - 635 - 636 - 637 - 638 - 639 - 640 - 641 - 642 - 643 - 644 - 645 - 646 - 647 - 648 - 649 - 650 - 651 - 652 - 653 - 654 - 655 - 656 - 657 - 658 - 659 - 660 - 661 - 662 - 663 - 664 - 665 - 666 - 667 - 668 - 669 - 670 - 671 - 672 - 673 - 674 - 675 - 676 - 677 - 678 - 679 - 680 - 681 - 682 - 683 - 684 - 685 - 686 - 687 - 688 - 689 - 690 - 691 - 692 - 693 - 694 - 695 - 696 - 697 - 698 - 699 - 700 - 701 - 702 - 703 - 704 - 705 - 706 - 707 - 708 - 709 - 710 - 711 - 712 - 713 - 714 - 715 - 716 - 717 - 718 - 719 - 720 - 721 - 722 - 723 - 724 - 725 - 726 - 727 - 728 - 729 - 730 - 731 - 732 - 733 - 734 - 735 - 736 - 737 - 738 - 739 - 740 - 741 - 742 - 743 - 744 - 745 - 746 - 747 - 748 - 749 - 750 - 751 - 752 - 753 - 754 - 755 - 756 - 757 - 758 - 759 - 760 - 761 - 762 - 763 - 764 - 765 - 766 - 767 - 768 - 769 - 770 - 771 - 772 - 773 - 774 - 775 - 776 - 777 - 778 - 779 - 780 - 781 - 782 - 783 - 784 - 785 - 786 - 787 - 788 - 789 - 790 - 791 - 792 - 793 - 794 - 795 - 796 - 797 - 798 - 799 - 800 - 801 - 802 - 803 - 804 - 805 - 806 - 807 - 808 - 809 - 810 - 811 - 812 - 813 - 814 - 815 - 816 - 817 - 818 - 819 - 820 - 821 - 822 - 823 - 824 - 825 - 826 - 827 - 828 - 829 - 830 - 831 - 832 - 833 - 834 - 835 - 836 - 837 - 838 - 839 - 840 - 841 - 842 - 843 - 844 - 845 - 846 - 847 - 848 - 849 - 850 - 851 - 852 - 853 - 854 - 855 - 856 - 857 - 858 - 859 - 860 - 861 - 862 - 863 - 864 - 865 - 866 - 867 - 868 - 869 - 870 - 871 - 872 - 873 - 874 - 875 - 876 - 877 - 878 - 879 - 880 - 881 - 882 - 883 - 884 - 885 - 886 - 887 - 888 - 889 - 890 - 891 - 892 - 893 - 894 - 895 - 896 - 897 - 898 - 899 - 900 - 901 - 902 - 903 - 904 - 905 - 906 - 907 - 908 - 909 - 910 - 911 - 912 - 913 - 914 - 915 - 916 - 917 - 918 - 919 - 920 - 921 - 922 - 923 - 924 - 925 - 926 - 927 - 928 - 929 - 930 - 931 - 932 - 933 - 934 - 935 - 936 - 937 - 938 - 939 - 940 - 941 - 942 - 943 - 944 - 945 - 946 - 947 - 948 - 949 - 950 - 951 - 952 - 953 - 954 - 955 - 956 - 957 - 958 - 959 - 960 - 961 - 962 - 963 - 964 - 965 - 966 - 967 - 968 - 969 - 970 - 971 - 972 - 973 - 974 - 975 - 976 - 977 - 978 - 979 - 980 - 981 - 982 - 983 - 984 - 985 - 986 - 987 - 988 - 989 - 990 - 991 - 992 - 993 - 994 - 995 - 996 - 997 - 998 - 999 - 1000

PLANS & PROFILES - SANITARY SEWERS  
 MANHATTAN BEACH ASSESSMENT DISTRICT #68  
 CURRIE ENGINEERING CO. SHEET 4

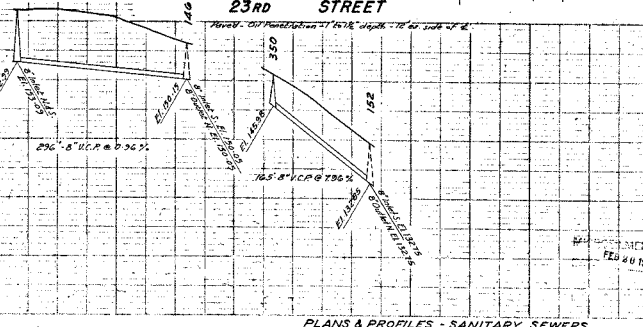
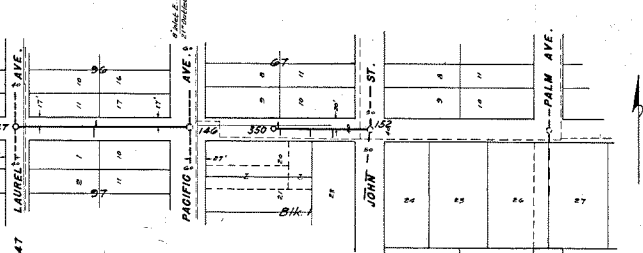
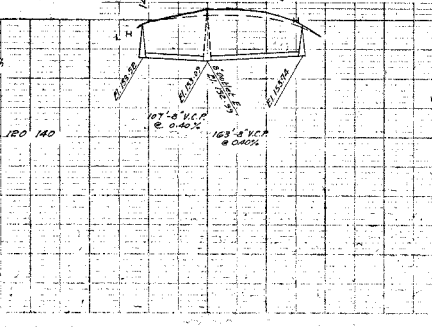
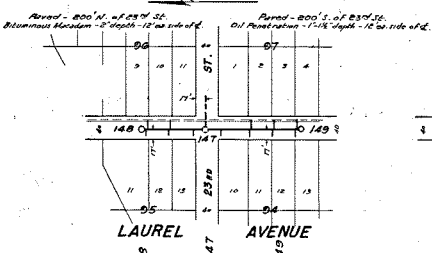
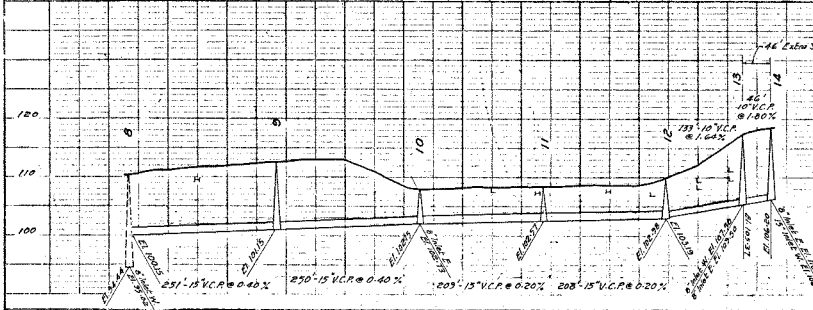
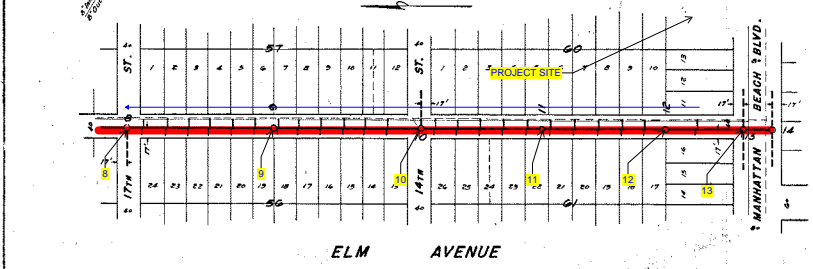
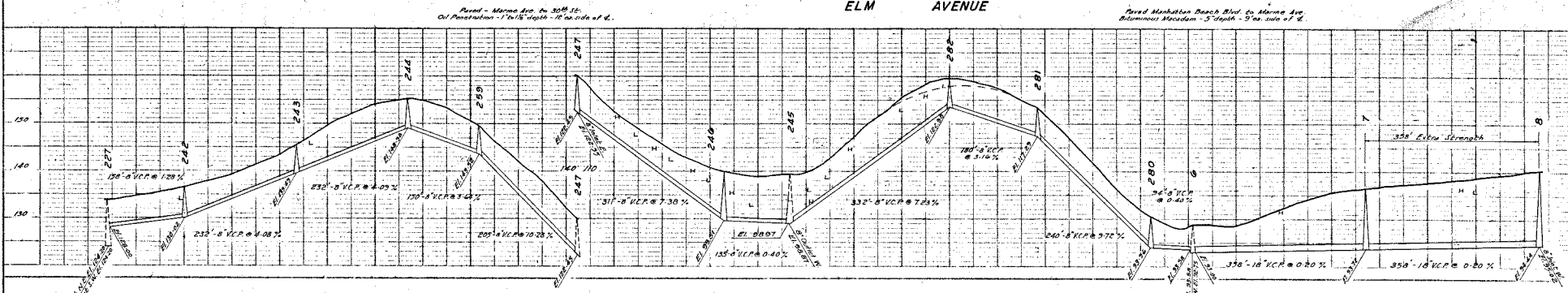
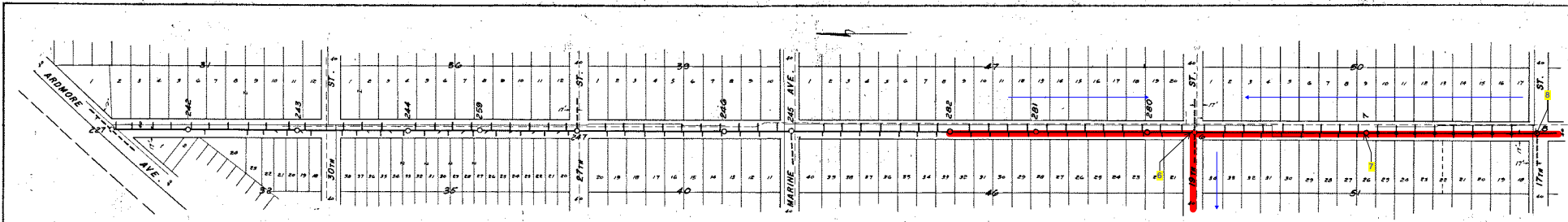
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S-145

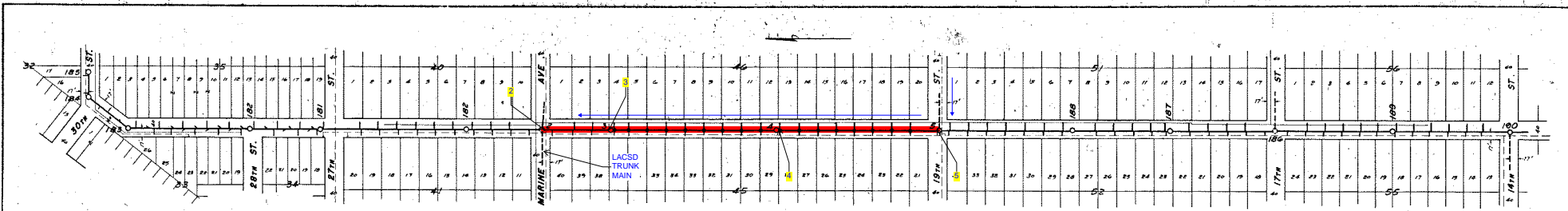


PLAN  
 CURVE DATA  
 STATIONING  
 TOTAL LENGTH  
 DATE

PROFILE  
 CURVE DATA  
 STATIONING  
 TOTAL LENGTH  
 DATE



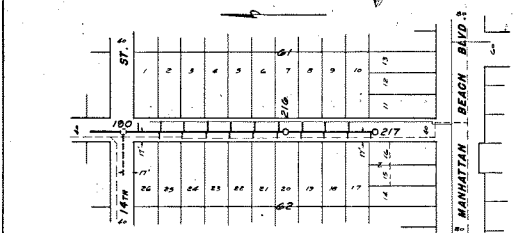
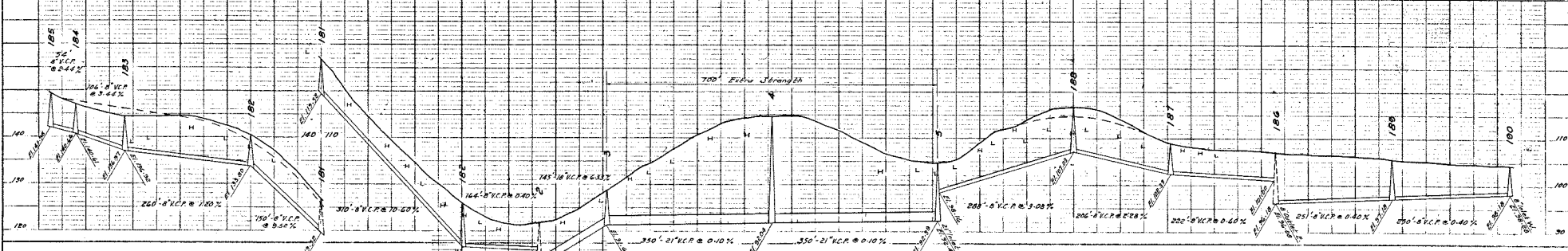
PLANS & PROFILES - SANITARY SEWERS  
 MANHATTAN BEACH ASSESSMENT DISTRICT # 68  
 CURRIE ENGINEERING CO. SHEET 1A



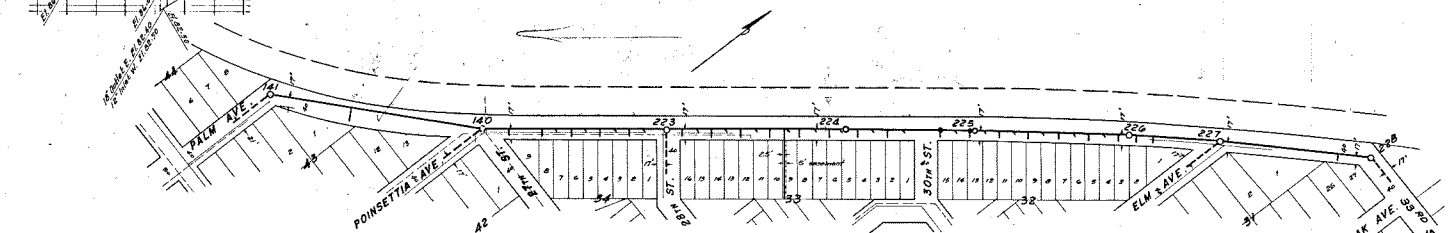
Paved - Marine Ave. to 30th St.  
 Oil Penetration - As shown determined

PINE AVENUE

Paved - Manhattan Beach Blvd. to Marine Ave.  
 Bituminous Macadam - 3" depth - 3" no. size # 2 d.

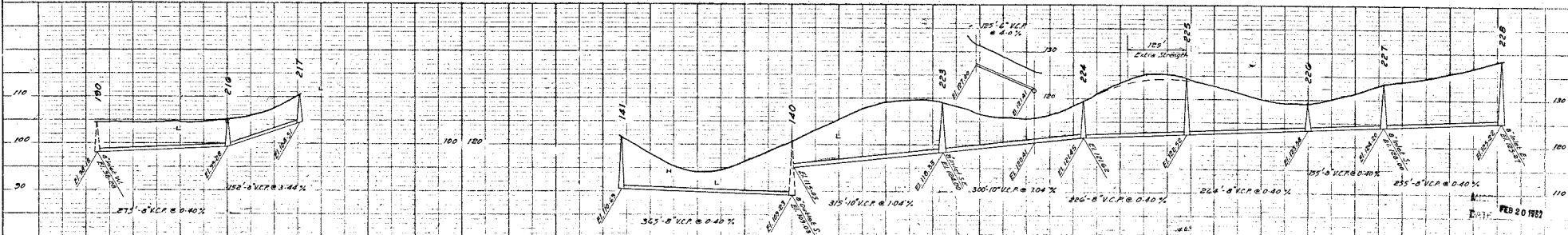


PINE AVENUE



TRACT NO 1638 Book 22, Page 142-143, Los Angeles County Records

ARDMORE AVENUE



FEB 20 1952

PLANS & PROFILES - SANITARY SEWERS

MANHATTAN BEACH ASSESSMENT DISTRICT # 68  
 CURRIE ENGINEERING CO.

M.H.'S - 22

8' 3/4" - 44.3'

10' 1/2" - 125'

18' 5/4" - 145'

10' 1/2" - 70'

S-145

## **APPENDIX I**

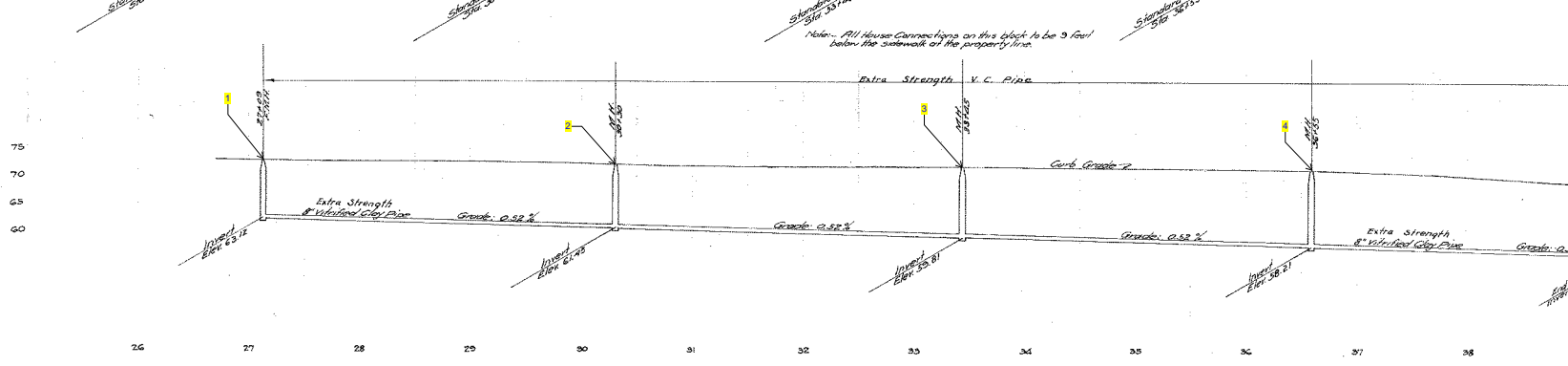
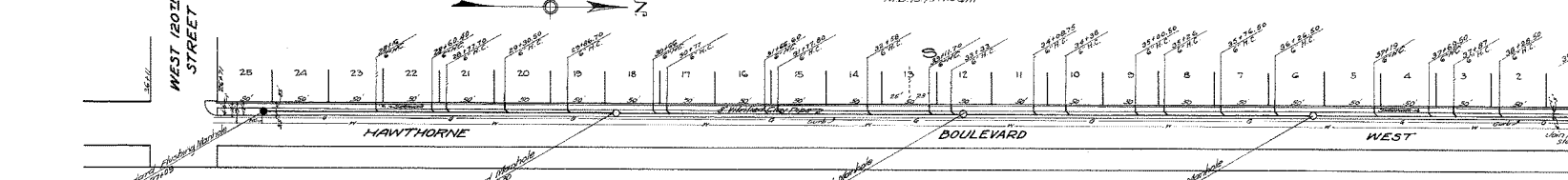
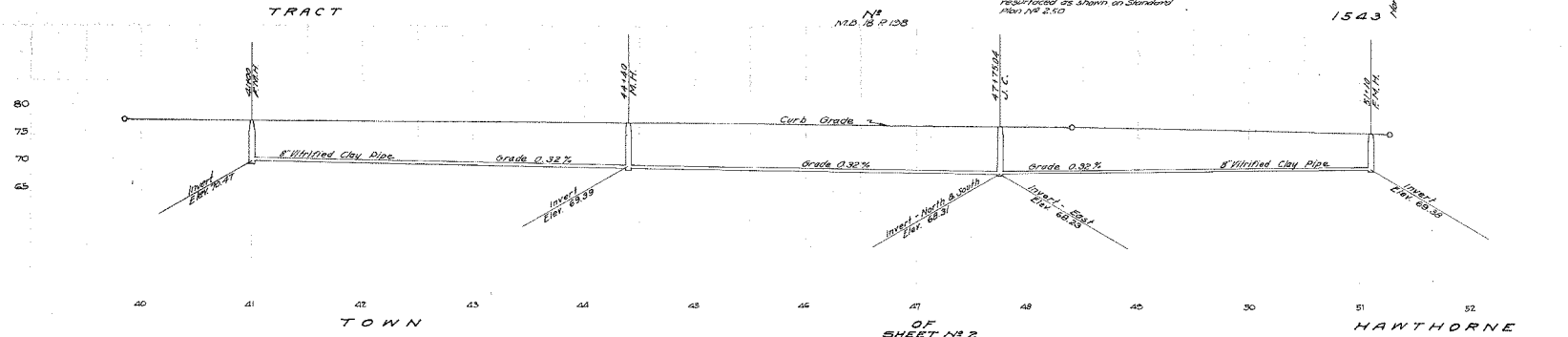
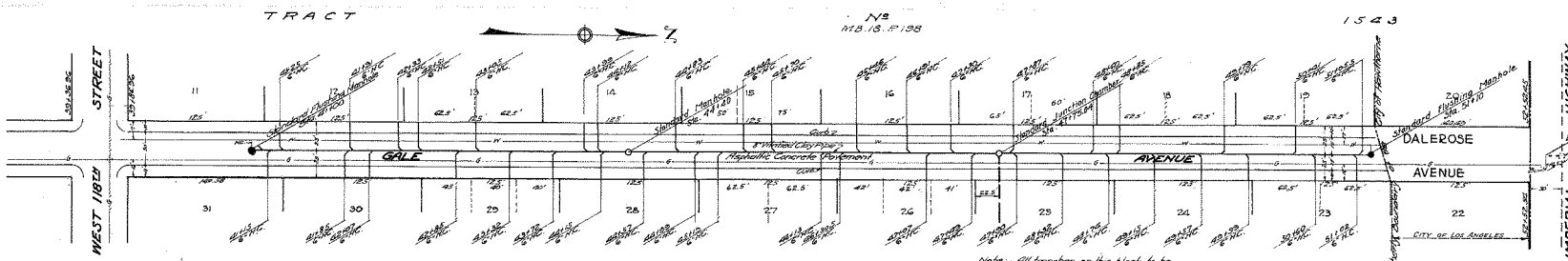
Sewer Analysis for project site & Fire flow test for adjacent property for Site 9

EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Hawthorne Blvd	1	2	8	0.05200	10,262	11983 Hawthorne Blvd	Store**	100	1,026	0.003	0.006	0.48	0.06	6.0%
					5,536	11953 Hawthorne Blvd	Store**	100	554	0.002				
					1,245	11969 Hawthorne Blvd	-	0	-	0.000				
					14,594	11939 Hawthorne Blvd	Storage**	25	365	0.001				
	2	3			5,577	11921 Hawthorne Blvd	Church**	50	279	0.001	0.034	1.08	0.14	13.5%
					5,408	11909 Hawthorne Blvd	Store**	100	541	0.002				
	3	4			8,229	11911 Hawthorne Blvd	Restaurant**	1000	8,229	0.025	0.111	1.93	0.24	24.1%
					51,761	11873 Hawthorne Blvd	Super Store**	325	16,822	0.052				
					8,013	11855 Hawthorne Blvd	Restaurant**	1000	8,013	0.025				
					15,907	11831 Hawthorne Blvd	Store**	100	1,591	0.005				
	4	5			18,731	11835 Hawthorne Blvd	Store**	100	1,873	0.006	0.140	2.17	0.27	27.1%
					18,732	11825 Hawthorne Blvd	Super Store**	325	6,088	0.019				

PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Hawthorne Blvd	1	2	8	0.05200	10,262	11983 Hawthorne Blvd	Store**	100	1,026	0.003	0.006	0.48	0.06	6.0%
					5,536	11953 Hawthorne Blvd	Store**	100	554	0.002				
					1,245	11969 Hawthorne Blvd	-	0	-	0.000				
					14,594	11939 Hawthorne Blvd	Storage**	25	365	0.001				
	2	3			5,577	11921 Hawthorne Blvd	Church**	50	279	0.001	0.100	1.83	0.23	22.9%
					56,000	11811 Hawthorne Blvd - Project site	Commercial**	325	18,200	0.056				
	3	4			77	11811 Hawthorne Blvd - Project site	Restaurant**	156	12,012	0.037	0.237	2.85	0.36	35.6%
					282	11811 Hawthorne Blvd - Project site	Super Store**	156	43,992	0.136				
					154	11811 Hawthorne Blvd - Project site	Store**	312	48,048	0.149				
	4	5			12	11811 Hawthorne Blvd - Project site	Store**	624	7,488	0.023	0.408	3.85	0.48	48.1%



CITY OF LOS ANGELES  
 RESURFACING OF ENCANTATIONS  
 In accordance with Sec. 12041, Spec. 137,  
 Street Location Class  
 Dalrose Ave. 15-58, 5202 to 18-58, 32153 #

SUBMITTED June 12 1939  
 BY M. J. [Signature]  
 SENIOR CIVIL ENGINEER  
 BY Minell Butler  
 CIVIL ENGINEER  
 APPROVED [Signature] 10 1939  
[Signature]  
 CITY ENGINEER

Reviewed By [Signature] 10 1939  
 C.E.

APPROXIMATE QUANTITIES

8" vitrified clay pipe, 100 ft. standard	976.0
6" vitrified clay pipe, 100 ft. standard	791.0
8" w/ pipes, standard	12
6" w/ boxes, standard	11
standard manholes	5
standard flushing manholes	3
excavating, sq. ft.	4960.0
8" standard galvanized iron pipe, 100 ft.	6.0
3" concrete, 100 ft.	30.0
excavation, cu. yds.	3780.0

Elevations are in feet above U.S.G.S. or Mean Sea Level datum.

Revised: April 25, 1940  
 DRAWN [Signature]  
 CHECKED [Signature]  
 APPROVED [Signature]  
 C.E.

## **APPENDIX J**

Sewer Analysis for project site & Fire flow test for adjacent property for Site 9

EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%	
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)											
134th Street	1	2	8	0.0040	17	11324 W 133rd St	Mobile Home Park	156	2,652	0.008	0.034	1.15	0.14	14.4%	
					20	4775 W 134th St	Residential	156	3,120	0.010					
					5	4761 W 134th St	Residential	156	780	0.002					
					4,051	13412 S Inglewood Ave	Professional Building**	300	1,215	0.004					
					1	4776 W 134th St	Single Family Residence	156	156	0.0005					
	2	3	12	4687-4755 W 134th St	Single Family Residence	156	1,872	0.006	0.039	1.23	0.15	15.4%			
	3	4	14	4639-4686 W 134th St	Single Family Residence	156	2,184	0.007	0.046	1.33	0.17	16.6%			
	4	5	17	4638-4605 W 134th St	Single Family Residence	156	2,652	0.008	0.054	1.44	0.18	18.0%			
	Ramona Avenue	5	6	8	0.0077	10	13305-13404 Ramona Ave	Single Family Residence	156	1,560	0.005	0.073	1.42	0.18	17.8%
						28	4591-4522 W 134th St	Single Family Residence	156	4,368	0.014				

PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day) per unit/room or per 1000sf of area	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%	
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)											
134th Street	1	2	8	0.0040	14	11324 W 133rd St	4-Bedroom Units	156	8,736	0.027	0.053	1.43	0.18	17.9%	
					20	4775 W 134th St	Residential	156	3,120	0.010					
					5	4761 W 134th St	Residential	156	780	0.002					
					4,051	13412 S Inglewood Ave	Professional Building**	300	1,215	0.004					
					1	4776 W 134th St	Single Family Residence	156	156	0.0005					
	2	3	12	4687-4755 W 134th St	Single Family Residence	156	1,872	0.006	0.058	1.49	0.19	18.6%			
	3	4	14	4639-4686 W 134th St	Single Family Residence	156	2,184	0.007	0.065	1.58	0.20	19.8%			
	4	5	17	4638-4605 W 134th St	Single Family Residence	156	2,652	0.008	0.073	1.67	0.21	20.9%			
	Ramona Avenue	5	6	8	0.0077	10	13305-13404 Ramona Ave	Single Family Residence	156	1,560	0.005	0.092	1.59	0.20	19.9%
						28	4591-4522 W 134th St	Single Family Residence	156	4,368	0.014				

PLAN

DATE: \_\_\_\_\_

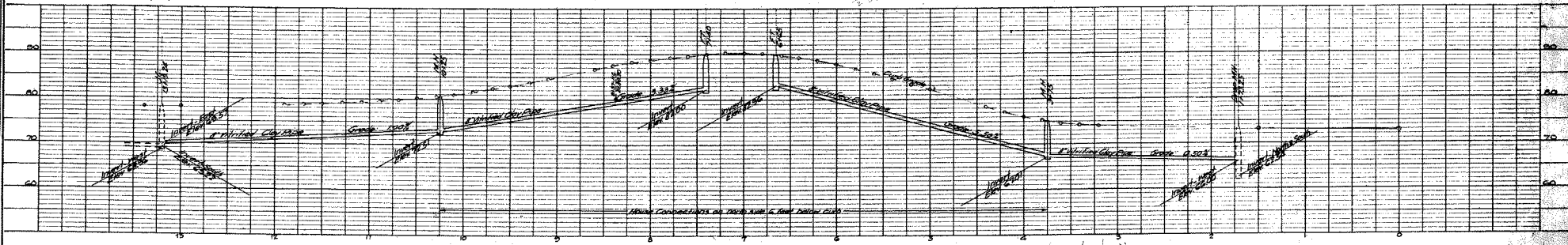
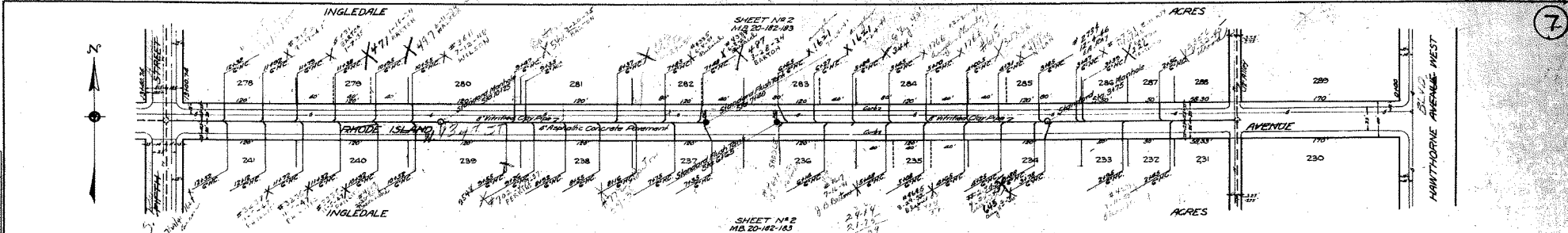
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PROJECT: \_\_\_\_\_

BY: \_\_\_\_\_

CHECKED: \_\_\_\_\_

APPROVED: \_\_\_\_\_



PROFILE

DATE: \_\_\_\_\_

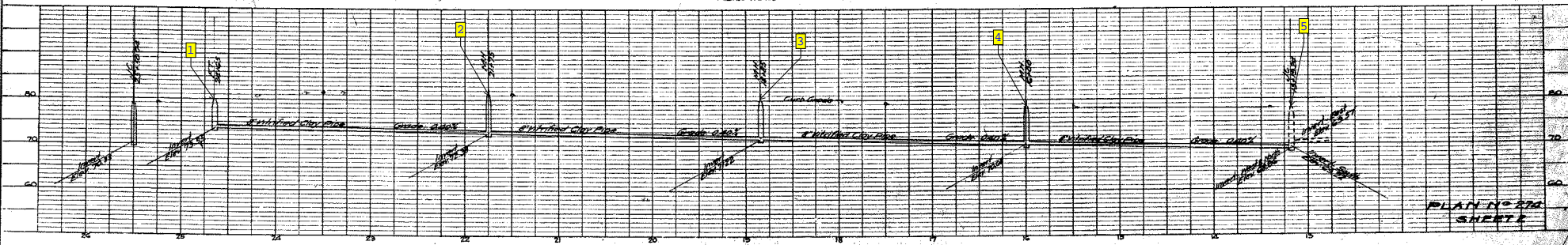
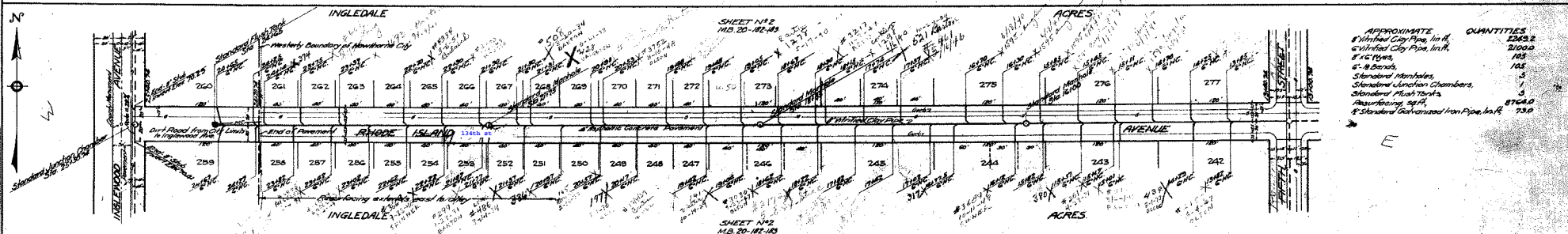
SCALE: \_\_\_\_\_

PROJECT: \_\_\_\_\_

BY: \_\_\_\_\_

CHECKED: \_\_\_\_\_

APPROVED: \_\_\_\_\_



APPROXIMATE QUANTITIES

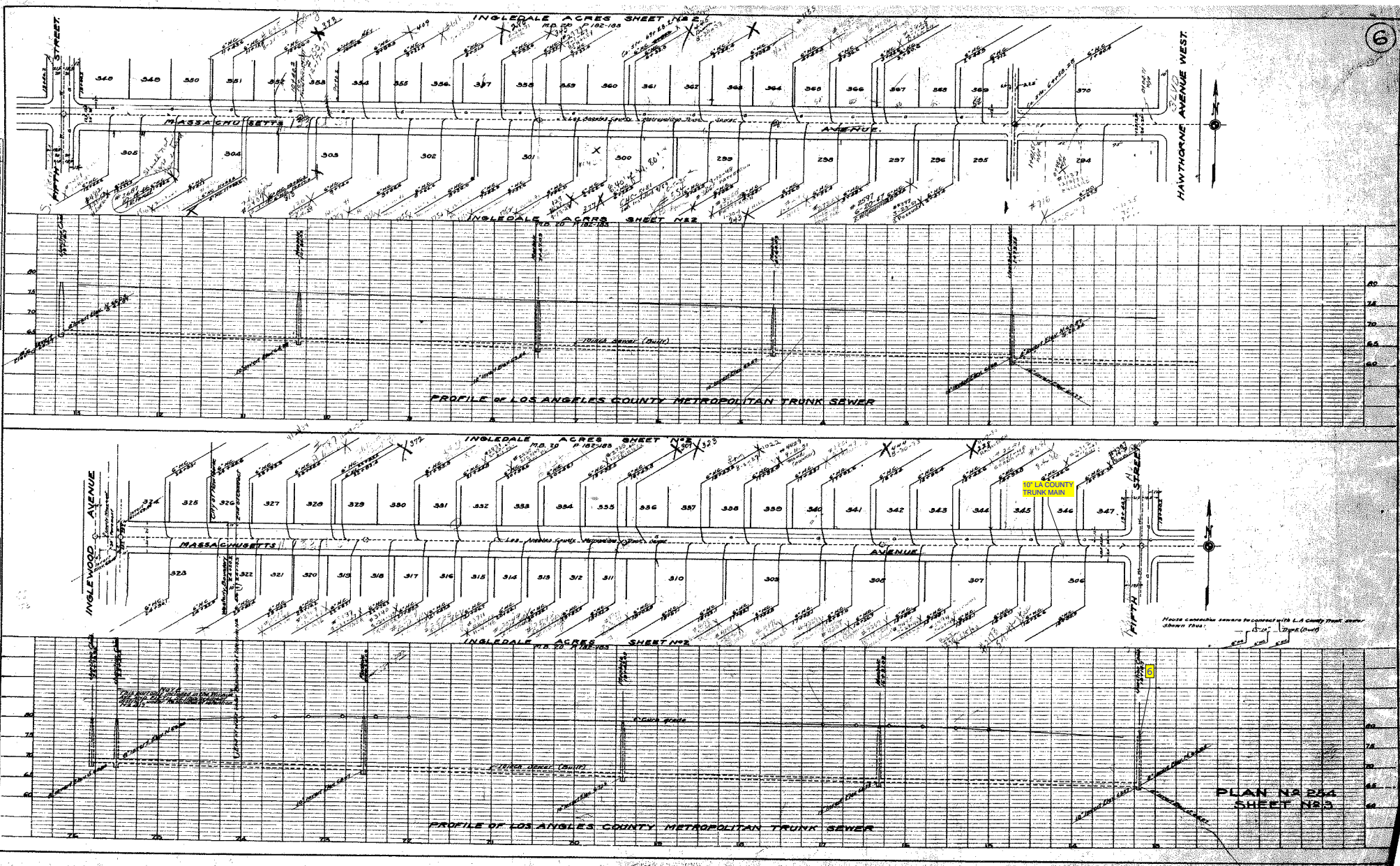
8" Vertical Clay Pipe, In ft.	23632
6" Vertical Clay Pipe, In ft.	21000
8" STYPS	185
6" Bends	105
Standard Manholes	5
Standard Junction Chambers	1
Standard Manholes	3
Manholes, sp. ft.	8768.0
8" Standard Advanced Iron Pipe, In ft.	73.0

PLAN NO. 224  
SHEET 1



PLAN	DATE
REVISED	BY
NOTE BOOK	NO.
PL. OF PLAN CHECKED	
NO.	

PROFILE	DATE
REVISED	BY
NOTE BOOK	NO.
PL. OF PROFILE CHECKED	
NO.	



PLAN N2254  
SHEET N23



# California Water Service Company Fire Flow Test

7/26/2023

Test Date: 11/09/2018      Time: 10:30

District: HAWTHORNE

Zone: 1

Plat: 16-23

Address: 13325 Hawthorne BLVD

Cross Street:

For 13324 W 133<sup>rd</sup> St

Requested By: Phylisha Wright

Conducted By: Dylan Noble

Purpose Of Test: FIRE FLOW AVAILABILITY

Witnessed By: Calwater: Pedro Corona

Others:

<u>Outlet No.</u>	<u>Outlet Size</u>	<u>PITOT</u>	<u>Observed</u>	<u>Static Pressure</u>	<u>Residual Pressure</u>	<u>Flow Observed</u>	<u>Flow Avail. @20</u>
<u>Location 1 Hydrant No.:</u> HAW-207			<u>Address:</u> 13315 Hawthorne Blvd				
1	4.00	11	1425	55	37	1425	2040
2							
3							
4							
<u>Location 2 Hydrant No.:</u> 0206			<u>Address:</u> 13405 Hawthorne Blvd				
1	4.00	13	1549			1549	2218
2							
3							
4							
<u>Location 3 Hydrant No.:</u> -			<u>Address:</u>				
1							
2							
3							
4							
<u>Total Flow Observed Available @20:</u>						2973	4258

Remarks: FLOWED WITH DIFUSER, 6" CI MAIN, RESERVOIR LEVELS AT 11' PRIOR AND DURING TEST, WB 18 AT 0 CFS, WB 20 AT 5.9 CFS

Static/Residual Location: TAKEN OF SPIGOT AT 13339 HATHORNE BLVD

Note:

*Regardless of the results of this test, California Water Service Company assumes no liability beyond that stated in the following excerpt from the P.U.C. Tarriff Schedule: "The utility (California Water Service Company) will supply only such water at such pressure as may be available from time to time as a result of its normal operation of the system."*

## **APPENDIX K**

Sewer Analysis for site 11

EXISTING CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day)	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Maryland St	1	2	8	0.06440	41,873	126 Maryland St Project site	Professional Building	300	12,562	0.039	0.172	1.29	0.1613	16.13%
	2	3	8	0.06440	4,974	1001 E Franklin Ave	Store	100	497	0.002	0.173	1.29	0.1613	16.13%
	3	4	8	0.04843	40,255	134 Maryland St Project site	Office	200	8,051	0.025	0.201	1.49	0.1863	18.63%
					10,386	133 Center St Project site	Store	100	1,039	0.003				
Center St	4	PS	8	0.0165	13,990	231 Center St	store	100	1,399	0.0043	0.206	1.97	0.2463	24.63%

PROPOSED CONDITIONS

Street Name	Segment		Pipe		Area (sf) or Units	Address	DESCRIPTION/OCCUPANT LOAD FACTOR (OLF)	Average Daily Flow (gal/day)	gal/day	Peak Flow (cfs)	Cumulative Flow (cfs)	Normal Depth (in)	d/D	Percent Full%
	U/S MH #	D/S MH #	Size (in.)	Slope (ft/ft)										
Maryland St	1	2	8	0.06440	18,300	126 Maryland St Project site	Existing Professional Building	300	5,490	0.017	0.150	1.20	0.1500	15.00%
	2	3	8	0.06440	4,974	1001 E Franklin Ave	Store	100	497	0.002	0.151	1.21	0.1513	15.13%
	3	4	8	0.04843	23	134 Maryland St Project site	Studio	156	3,588	0.011	0.247	1.65	0.2063	20.63%
					46		1Bed	156	7,176	0.022				
					14		2Bed	312	4,368	0.014				
					7		3Bed	468	3,276	0.010				
					20		4Bed	624	12,480	0.039				
Center St	4	PS	8	0.0165	13,990	231 Center St	store	100	1,399	0.0043	0.251	2.27	0.2838	28.38%



# **APPENDIX L**

LACSD Sewer Manual Excerpts

**TABLE 1**  
**LOADINGS FOR EACH CLASS OF LAND USE**

<u>DESCRIPTION</u>	<u>UNIT OF MEASURE</u>	<u>FLOW (Gallons Per Day)</u>	<u>COD (Pounds Per Day)</u>	<u>SUSPENDED SOLIDS (Pounds Per Day)</u>
<b>RESIDENTIAL</b>				
Single Family Home	Parcel	260	1.22	0.59
Duplex	Parcel	312	1.46	0.70
Triplex	Parcel	468	2.19	1.05
Fourplex	Parcel	624	2.92	1.40
Condominiums	Parcel	195	0.92	0.44
Single Family Home (reduced rate)	Parcel	156	0.73	0.35
Five Units or More	No. of Dwlg. Units	156	0.73	0.35
Mobile Home Parks	No. of Spaces	156	0.73	0.35
<b>COMMERCIAL</b>				
Hotel/Motel/Rooming House	Room	125	0.54	0.28
Store	1000 ft <sup>2</sup>	100	0.43	0.23
Supermarket	1000 ft <sup>2</sup>	150	2.00	1.00
Shopping Center	1000 ft <sup>2</sup>	325	3.00	1.17
Regional Mall	1000 ft <sup>2</sup>	150	2.10	0.77
Office Building	1000 ft <sup>2</sup>	200	0.86	0.45
Professional Building	1000 ft <sup>2</sup>	300	1.29	0.68
Restaurant	1000 ft <sup>2</sup>	1,000	16.68	5.00
Indoor Theatre	1000 ft <sup>2</sup>	125	0.54	0.28
Car Wash				
Tunnel - No Recycling	1000 ft <sup>2</sup>	3,700	15.86	8.33
Tunnel - Recycling	1000 ft <sup>2</sup>	2,700	11.74	6.16
Wand	1000 ft <sup>2</sup>	700	3.00	1.58
Financial Institution	1000 ft <sup>2</sup>	100	0.43	0.23
Service Shop	1000 ft <sup>2</sup>	100	0.43	0.23
Animal Kennels	1000 ft <sup>2</sup>	100	0.43	0.23
Service Station	1000 ft <sup>2</sup>	100	0.43	0.23
Auto Sales/Repair	1000 ft <sup>2</sup>	100	0.43	0.23
Wholesale Outlet	1000 ft <sup>2</sup>	100	0.43	0.23
Nursery/Greenhouse	1000 ft <sup>2</sup>	25	0.11	0.06
Manufacturing	1000 ft <sup>2</sup>	200	1.86	0.70
Dry Manufacturing	1000 ft <sup>2</sup>	25	0.23	0.09
Lumber Yard	1000 ft <sup>2</sup>	25	0.23	0.09
Warehousing	1000 ft <sup>2</sup>	25	0.23	0.09
Open Storage	1000 ft <sup>2</sup>	25	0.23	0.09
Drive-in Theatre	1000 ft <sup>2</sup>	20	0.09	0.05

Source: <https://www.lacsd.org/services/wastewater/willserveprogram.asp>

**TABLE 1**  
(continued)  
**LOADINGS FOR EACH CLASS OF LAND USE**

<u>DESCRIPTION</u>	<u>UNIT OF MEASURE</u>	<u>FLOW (Gallons Per Day)</u>	<u>COD (Pounds Per Day)</u>	<u>SUSPENDED SOLIDS (Pounds Per Day)</u>
<b>COMMERCIAL</b>				
Night Club	1000 ft <sup>2</sup>	350	1.50	0.79
Bowling/Skating	1000 ft <sup>2</sup>	150	1.76	0.55
Club	1000 ft <sup>2</sup>	125	0.54	0.27
Auditorium, Amusement	1000 ft <sup>2</sup>	350	1.50	0.79
Golf Course, Camp, and Park (Structures and Improvements	1000 ft <sup>2</sup>	100	0.43	0.23
Recreational Vehicle Park	No. of Spaces	55	0.34	0.14
Convalescent Home	Bed	125	0.54	0.28
Laundry	1000 ft <sup>2</sup>	3,825	16.40	8.61
Mortuary/Cemetery	1000 ft <sup>2</sup>	100	1.33	0.67
Health Spa, Gymnasium				
With Showers	1000 ft <sup>2</sup>	600	2.58	1.35
Without Showers	1000 ft <sup>2</sup>	300	1.29	0.68
Convention Center, Fairground, Racetrack, Sports Stadium/Arena	Average Daily Attendance	10	0.04	0.02
<b>INSTITUTIONAL</b>				
College/University	Student	20	0.09	0.05
Private School	1000 ft <sup>2</sup>	200	0.86	0.45
Church	1000 ft <sup>2</sup>	50	0.21	0.11



October 12, 2005

*Dean Efstathiou*  
*Dean D. Efstathiou*  
Approved

TO: Dean Efstathiou  
FROM: Dennis Hunter *DH*  
Land Development Division

**POLICIES FOR MANAGING AVAILABLE SEWER CAPACITY  
AND SEWAGE DISCHARGE IN EXCESS OF DESIGN CAPACITY**

The following will set forth Public Works' policies related to managing sewer infrastructure capacity. Design capacity of the sewer mainline is defined as follows:

< 15" diameter      ½ full = 100% capacity (d/D)  
≥ 15" diameter      ¾ full = 100% capacity (d/D)

When Public Works determines there is available capacity in a mainline sewer for infill and redevelopment projects, the remaining available capacity shall be allocated on a first come – first serve basis.

Sewer Advisory Committee

A Sewer Advisory Committee (SAC) will be formed for the purpose of recommending courses of action to address proposed development connecting to existing sewers that will cause them to be operating beyond their design capacity. The SAC will make their recommendations to Dean Efstathiou, Assistant Director. The SAC will be chaired by Waterworks and Sewer Maintenance Division and will have representatives from Design and Land Development Divisions. Each Division will appoint a Principal Engineer or Senior Civil Engineer as a representative to the SAC and will convene whenever sewer decisions are required to address developmental impacts. Sewer Maintenance will maintain records of SAC meetings and will prepare recommendations to Administration for approval. The SAC may require other Division representatives to participate on a case-by-case basis when necessary, such as Building and Safety and Programs Development.

**Divisional Responsibilities**

Design Division

1. Support activities of the SAC.
2. Prepare sewer area studies when required.

3. Maintain records/archive of all approved sewer area studies and flow measurements.

#### Land Development Division

1. Support activities of the SAC.
2. Impose sewer area study requirements for private developments if necessary and review/approve all submittals.
3. Refer cases to SAC when both sewer area studies and flow measurements indicate that a potential overload situation exists or will exist based on criteria described below.
4. Provide copies of all approved sewer area studies and flow measurements to Design Division for archiving.

#### Waterworks and Sewer Maintenance Division

1. Chair the SAC, maintain meeting records and prepare position papers to Administration.
2. Advise the SAC when an overload condition is observed during maintenance activities.
3. Initiate effort to track and map all overload areas within the Consolidated Maintenance District.
4. Keep database of all flow measurement results.

#### Design Criteria

1. Capacity of sewer mainlines less than 15" in diameter are considered full (100 percent) when the ratio of the depth of flow (d) over the pipe diameter (D) is equal to 0.5, expressed as  $d/D = 0.5$ .
2. Capacity of sewer mainlines equal to or greater than 15" in diameter are considered full (100 percent) when the ratio of the depth of flow (d) over the pipe diameter (D) is equal to 0.75, expressed as  $d/D = 0.75$ .

Dean Efstathiou  
August 25, 2005  
Page 3

3. When an area study indicates that flow conditions based on calculated discharges is between 101 percent to 150 percent of capacity, no flow measurements and no mitigation will be required. If maintenance records warrant, a flow test may be required.
4. When an area study for a development that proposes to increase the density or change the zoning indicates that flow conditions are between 151 to 200 percent of capacity, flow measurements shall be required. If the flow test indicates that the actual flow condition is below 151 percent, no mitigation will be required. If the flow test results indicate the actual flow is above 151 percent, the case shall be referred to the SAC to evaluate options and make recommendations to Administration for approval. These options may include, but are not limited to: requiring full mitigation from the development, assessing pro-rata shares, creation of a reimbursement district, or establishing a County Improvement (CI) district.

AHN:ca

P:\LD\PUB\SUBP\CHECK\SEWER\MISCELLANEOUS\SEWER INFRASTRUCTURE MANAGEMENT

cc: Administration (Kelly)  
Building and Safety (Patel)  
Design (Kumar)  
Land Development (D'Antonio, Burger, ~~Ruiz~~, Chong, Witler, Narag)  
Programs Development (Afshari)  
Waterworks and Sewer Maintenance (Del Real, Lehto)