BIG HOUSING IDEAS THAT FIT YOUR NEIGHBORHOOD!

PRE-APPROVED PROTOTYPE PLANS FOR INFILL HOUSING SITES

May 2026

Prepared For:

CITY OF RIVERSIDE

SCAG
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Prepared By:

RADAR PLACEWORKS

MISSION STATEMENT

The missing middle prototype plans project will provide a diverse set of accessible pre-approved housing options rooted in community input and designed to honor neighborhood identity.

CONTENTS

APPENDICES

BIG HOUSING IDEAS THAT FIT YOUR NEIGHBORHOOD!

HELP DESIGN HOUSING THAT WORKS FOR EVERYONE!

Project Overview

The City of Riverside is preparing pre-approved plans for small to medium scale housing development in the city. By incentivizing the development of various housing types, the project aims to expand the housing supply, offer a broader range of housing types, and help reduce overall housing costs for residents.

What is "Missing Middle" Housing?

These plans are intended for certain housing types, referred to as "Missing Middle" housing, which include duplexes, triplexes, fourplexes, townhouses, courtyard buildings, medium multiplexes, and live-work units. These housing options are designed to accommodate a variety of household types and support the development of walkable, inclusive neighborhoods.

Project Timeline:

Summer 2025

- Understanding Local Housing Needs
- Community Workshops
- Technical Advisory Committee Meetings

Fall 2025 – Spring 2026

- Design Phase

Summer 2026

- Public Hearing and Adoption of Prototype Plans
- Community Workshops to promote and publicize Plans



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CITY OF RIVERSIDE

SCAG SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

PRE-APPROVED PROTOTYPE PLANS
Project Process

Project Process Overview

The City of Riverside facilitated the development of the Pre-approved Prototype Plans as a collaborative process to ensure the plans meet the needs and values of existing and future residents of the City. Development of the plans involved technical analysis, meetings with the community and local experts, and collaboration with City departments. The components and steps that informed the development of the pre-approved plans is outlined below and further described on this page.

- Design Brief
- Site Inventory Analysis
- Development Feasibility Analysis
- Public Workshops
- Technical Advisory Meetings
- Design Development & Plan Set Preparation

Design Brief

The Design Brief provides an overview of key design considerations to guide development of the pre-approved plans. The design brief consolidates feedback gathered from three public workshops, one meeting with the Technical Advisory Committee, and recommendations provided by the consultant team. The Design Brief included community preferences for housing features, amenities, and design elements, expert perspectives on market conditions, and practical considerations for housing development to be considered for the pre-approved plans.

Site Inventory Analysis

A site inventory analysis was conducted to determine infill development potential for the City of Riverside. The analysis identified vacant or underutilized parcels and 2021-2029 Housing Element Sites that were zoned Multi-Family Residential, Mixed-Use, and Commercial. The results of the analysis provided typical lot dimensions and parameters to inform the pre-approved plans. This analysis ensures that pre-approved plans will be right sized for development in Riverside.

Development Feasibility Analysis

The purpose of the Development Feasibility Analysis was to evaluate whether there would be a sufficient return on investment to attract a developer to purchase a site and construct new housing in the City of Riverside. The analysis found that bungalow units and duplex product types would be financial feasible to develop as for-rent housing under current market conditions.

Outreach and Engagement

Six public workshops with the Riverside community were held as part of this project. The workshops were held in two phases with three workshops in each phase. The first phase of workshops introduced the project to the community and solicited input on community preferences and priorities for housing to help inform the design of the pre-approved housing plans. The second phase of workshops was aimed to publicize the completed pre-approved plans and provide assistance on how to use the plans. Both phases of public workshops included 2 in-person meetings and 1 virtual meeting. The workshops were promoted through the city's social media channel, e-blasts, and physical flyers at the city counter.

Technical Advisory Committee

The purpose of the technical advisory committee meetings was to solicit feedback from local experts to inform the design brief. The committee was comprised of design professionals, developers, contractors, and housing advocates. The committee convened three times and focused on local housing needs, emerging market trends, feasibility and development considerations, local knowledge, data gaps, and assistance with project awareness.

Design Development & Agency Collaborations

Following completion of the design brief, technical analysis, and meetings with local experts and the community, the City and consultant team prepared pre-approved housing plans that reflected community needs and values and honor neighborhood identity. These plans were reviewed by various City agencies so that they are 'pre-approved'. These plans are provided by the City at no cost to anyone who wishes to build housing in Riverside. Additionally, these plans provide cost and time savings in design - making easier for anyone to build.

PRE-APPROVED PROTOTYPE PLANS
FLOW CHART

Pre-approved plans for bungalow unit and duplex housing are provided by the City of Riverside at no cost to anyone who wishes to build housing in Riverside.

Read more to learn how you can use these plans!

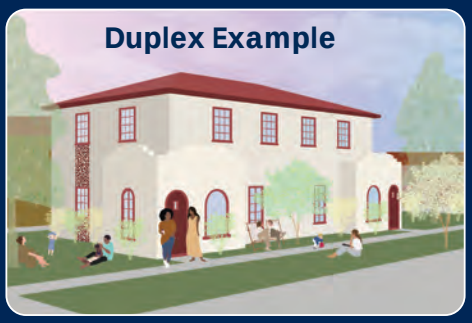
Step 1. Determine Eligibility

- **Your property is currently zoned residential and complies with the development standards of the underlying zone.**
- **Consult the Planning Division to determine if any entitlements are necessary.**
- *Note: Restrictions may apply for project sites located in the Flood Hazard or Very High Fire Severity Zones. Please contact City of Riverside Fire Department and Public Works.*

Step 2. Select a Pre-approved Plan

- **Select between the duplex or bungalow unit pre-approved plans. Choose the appropriate plan eligible for your zone and lot dimensions.**

Duplex Example



Bungalow Unit Example

Step 3. Prepare a Site Plan

- **Work with a licensed professional to prepare a site plan.**

Step 4. Obtain Planning Clearance

- **Visit the City of Riverside Planning Division to obtain clearance (online or in person)**
- **Determine if any entitlements are necessary prior to Building Permit issuance.**

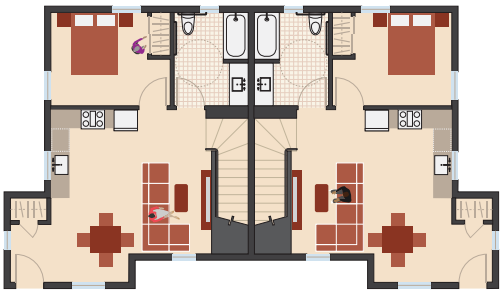
Step 5 Submit Plans to Building and Safety

- **Submit plans online or in person**
- **If submitting in person, obtain Planning Clearance from the City of Riverside Planning Department**

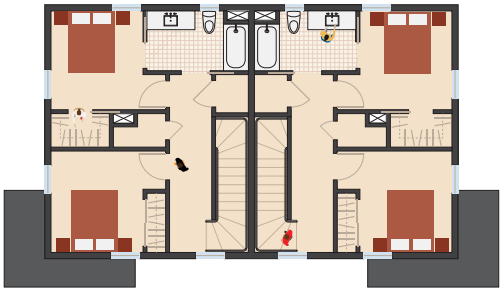
See the City's ENTITLEMENT AND DEVELOPMENT PROCESS FLOW CHART for next steps.

PRE-APPROVED PROTOTYPE PLANS
DUPLEX

FLOOR 1



FLOOR 2



DUPLEX

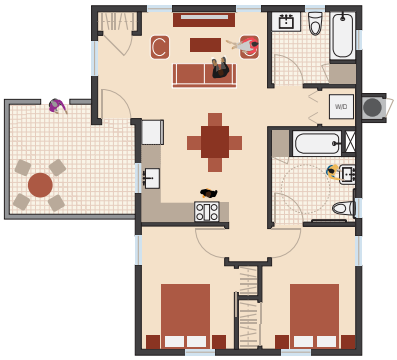
The Duplex is a two-story, Spanish Revival-style building containing two units. Two or more Duplex buildings, or a combination of Duplexes and Bungalow Units, can be arranged on larger lots.

Details

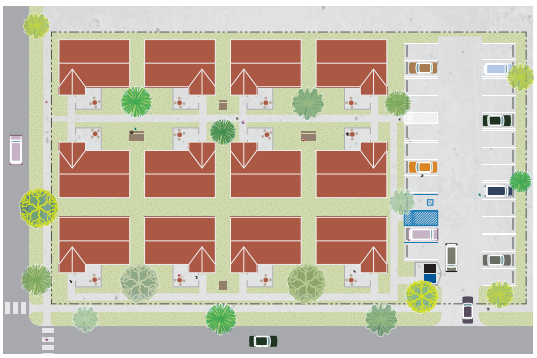
- **Style & Size:** Two-story, Spanish Revival style, approximately 1,300 SF per unit.
- **Configuration:** 3 bedroom/2 bath per unit.
- **Amenities:** Includes an accessible ground floor bedroom and bath and in-unit laundry.
- **Engineering:** Unit plans include coordinated and pre-approved structural, mechanical, electrical, and plumbing engineering for application cost and time savings.
- **Applicant Responsibility:** The applicant must provide Site Plans (Open Space, Pathways, Parking, and Trash), which must be designed by others.

PRE-APPROVED PROTOTYPE PLANS
BUNGALOW UNIT

FLOOR 1



EXAMPLE SITE PLAN



BUNGALOW UNIT

The Bungalow Unit is a single-story, Spanish Revival-style building designed to be arranged in multiples around a courtyard, which offers developers flexibility in the number of units accommodated on site.

Details

- **Style & Size:** Single-story, Spanish Revival style, approximately 1,000 SF per unit.
- **Configuration:** 2 bedroom/2 bath per unit.
- **Amenities:** Includes an accessible ground floor bedroom and bath, in-unit laundry, and a private enclosed patio surrounded by a low privacy wall.
- **Engineering:** Plans include coordinated and pre-approved structural, mechanical, electrical, and plumbing engineering for application cost and time savings.
- **Applicant Responsibility:** The applicant must provide Site Plans (Open Space, Pathways, Parking, and Trash), which must be designed by others.

PRE-APPROVED PROTOTYPE PLANS
FREQUENTLY ASKED QUESTIONS

What is 'Missing Middle Housing'?

- Missing Middle Housing refers to a range of small- to medium-scale residential buildings with multiple units that are compatible in scale and form with detached single-family homes.
- These housing types include duplexes, triplexes, fourplexes, courtyard buildings, townhouses, multiplexes, and live-work units.

Who can use these plans?

- Anyone who wishes to build housing in Riverside can use these plans.

Do I have to pay for these plans?

- These plans are provided by the City at no cost. Additionally, these plans provide cost and time savings in design - making it easier for anyone to build!

Will these plans streamline the entitlement process?

- No. Anyone who uses these plans must follow the City's Entitlement Development Process. See the City's Entitlement and Development Process Flow Chart for more information. These plans provide cost and time savings in design - making it easier for anyone to build!

How do I use these plans?

- Refer to the Pre-approved Prototype Plans Flow chart on the City Website.

Can I make changes to these plans?

- Yes. Anyone who wishes to use these plans may make changes so that the designs are compatible with the development lot. Any changes made must follow any applicable standards set forth in the City's municipal code.

Where can I access these plans and learn more?

- Visit **https://riversideca.gov/cedd/planning** to learn more!

RADAR and Team

DESIGN BRIEF

City of Riverside
Missing Middle Prototype Plans for Infill Housing Sites

December 31, 2025

PLACEWORKS BRANDOW & JOHNSTON Lam+Tea ENGINEERING

SECTIONS

1. PROJECT OVERVIEW

This project will be run and executed through City of Riverside's Community & Economic Development Department (CEDD), Planning Division.

MISSION STATEMENT

The Missing Middle Prototype Plans Project will provide a diverse set of accessible pre-approved housing options rooted in community input and designed to honor neighborhood identity.

PROJECT OBJECTIVES

The Missing Middle Prototype Plans for Infill Housing Sites Project aims to increase Riverside's housing opportunities through pre-approved prototype plans catered to a variety of missing middle housing types.

"Missing Middle" refers to a range of multi-unit housing types—such as duplexes, triplexes, townhomes, courtyard apartments, and cottage clusters—that provide more density than single-family homes but are smaller in scale than large apartment buildings. They've been largely excluded from modern zoning, making them uncommon in new residential development.

KEY PROJECT DRIVERS:

- **Infill Site Development:** Encourage the development of vacant and underutilized private and public infill sites with missing middle housing by providing pre-approved or near-approved construction plans.
- **Emission Reduction:** Reduce greenhouse gas emissions and vehicle miles traveled by introducing additional housing to areas with easy, walkable access to residents' daily needs, particularly within High Quality Transit Areas like the Magnolia and University Avenue Corridors.
- **Quality of Life Improvement:** Improve the quality of life for all residents by providing a variety of housing types centrally located to public transportation, addressing SCAG's 2040 RTP/SCS priority growth areas.

PUBLIC INPUT AND TECHNICAL ADVISORY COMMITTEE FEEDBACK

This design brief consolidates feedback gathered from three public workshops and one meeting with the Technical Advisory Committee and Radar's recommendations.

Public participants, representing residents from both the City and County of Riverside, provided input on their preferences for features and design elements to be considered in future Missing Middle housing plans. The Technical Advisory Committee offered expert perspectives on market conditions and practical considerations for developing housing at this scale in Riverside.

2. SITE INFORMATION & CONTEXT

The project consists of unit plans to be pre-approved for future developer incorporation into selected project sites. The development teams will need to also prepare site plans for submission.

METHODOLOGY OF SITE SELECTION FOR TEST FIT EXERCISE

In the absence of specific sites, the design team will perform two (2) test fits verifying layout options and feasibility. These site were selected beginning with options described and studied in the Site Analysis Land Inventory Memo. Multi-family, mixed used, and commercial parcels were identified by the zoning code and within the 1/2 mile High Quality Transit Corridor. Filtering of sites followed the SCAG REAP 2.0 Program definition of Infill sites; part of the of the Housing Element Sites; and viusally verified as vacant and underutitlized. City-owned parcels were also considered and given weight. Sites were also analyzed by parcel sizes, and dimensions. Corner sites were designated as the test fit site type for lots Mixed Use - Village (MU-V) and Mixed Use - Urban (MU-U). Commercial Retail (CR) lots were removed from test fit site selection.

Single Family sites were also identified by the zoning code and within the 1/2 mile High Quality Transit Corridor, and analyzed by parcel sizes, and dimensions. Inventory

included many parcels located midblock or at street corners with or without access from an alley. A midblock lot was designated as the test fit site type for Residential (R-1)

- Identified Sites include:
    - APN 219071005 - Cottage St
    - APN 138052012 - Nye Ave x White Oak St
    - APN 138052013 - Polk St x White Oak St (sim)
- Zoning and land use designations for Test Fit Sites:
    - Mixed Use - Village (MU-V)
    - Mixed Use - Urban (MU-U)
    - Residential (R1)
- Typical lot sizes and topography:
    - Corner lots (approx. 200' x 200', may be smaller)
    - Midblock lots (50'x150')
- Existing structures and conditions – sites must be vacant
- Urban Setting: ½ mile High-Quality Transit Buffer, where possible

APPLICABLE STATE BILLS

The following State bills may inform and impact future developers site plans of the pre-approved units, are included here as they may inform design decisions.

AB 2097 (Eff. January 1, 2023)

Eliminates minimum parking requirements within ½ mile of qualifying transit

With the aim to reduce housing costs, encourage transit-oriented development, and reduce dependency on cars, public agencies are prohibited from imposing minimum automobile parking requirements on most residential, commercial, and other development projects located within ½ mile of a major transit stop. Electric Vehicle (EV) charging infrastructure and accessible parking remain fully enforceable.

In other words, parking is not legally required by the Zoning Code for most of the infill sites included in the inventory. Based on developer feedback, parking is likely to be included, but will be decoupled from the unit plans.

AB 2011 (Eff. January 1, 2023)

Housing in Commercially zoned land (office/retail/parking)

With the goal to accelerate the delivery of affordable and mixed-income housing on commercially zoned lands, while ensuring high labor standards and environmental performance, housing projects that meet AB 2011 standards can receive ministerial (by-right) approval and exemption from CEQA. There are two project streams: 1) 100% Affordable Housing Projects and 2) Mixed-Income (15%+ units affordable). Developers must comply with prevailing wage requirements, provide health benefits and for projects with over 50 units, enroll in state-approved apprenticeship programs. AB 2011 is amended/expanded by AB 2243 in 2024 with expanded geographic eligibility, height rules and timeline reviews.

SB 6 (Eff. January 1, 2023; Sunset January 1, 2033) Middle Class Housing Act of 2022 - *Residential Development on Commercially zoned land without Rezoning*

With the goal to address retail vacancy and underused commercial parcels, this law deems specified residential development on commercially zoned land without rezoning. This law does not provide CEQA relief or affordability mandates like its companion bill, AB 2011. Applies to parcels up to 20 acres in urban or urbanized areas; project may be 100% residential or mixed-use with at least 50% residential square footage; affordable housing not required. Prevailing wage and skilled workforce required.

SB 9 (Eff. January 1, 2022) California HOME Act of 2021

Subdividing a Single-family residential Parcel

This law aims to enable "missing middle" housing like duplexes and lot splits statewide by allowing up to 2 primary units + ADU/JADUs per lot with optional lot split, max 4 units. It enables ministerial (by-right) approval for 1) urban lot splits, like a SRF lot parcel into two lots and 2) new primary housing units, up to 2 dwelling units on a qualifying parcel. Historic sites, regulated affordable housing, environmental constraints, recent tenants are disqualified.

Though barriers may include owner-occupancy requirements, site constraints, design standards (height, setbacks, unit size), HOA restrictions, and financing hurdles, it is presumed that small-scale developers are likely to attempt to utilize SB-9 to develop duplex or fourplex projects on single-family parcels, typically 50'x150' or larger.

Density Bonus Law (DBL)

(Gov. Code §§65915 - 65918)

Increase density on a property above the maximum set under a jurisdiction's General Plan land use plan.

The California Density Bonus Law allows an increase in the number of housing units beyond what local zoning permits when a project includes a required percentage of affordable units. The law also provides for concessions and incentives, which enable modifications to certain design standards or development regulations if those standards would make the project economically infeasible. Depending on the share of affordable units included, applicants may request between one and four incentives to help reduce the cost of providing affordable housing. In addition, applicants may seek waivers of development standards that would physically prevent the construction of a project at the permitted density or with approved incentives. To request a waiver, applicants must provide written justification demonstrating the need for such modifications. Unlike concessions or incentives, there is no limit to the number of waivers that may be requested.

3. BUILDING CODE, FIRE, GREEN, ACCESSIBILITY & ZONING

CODE REQUIREMENTS / APPLICABLE STANDARDS

- Riverside Municipal Code (Title 16 for Building and Construction; Title 17 Grading, Title 18 Subdivision)
- 2025 California Building Code
- 2025 California Residential Code
- 2025 California Fire Code
- 2025 California Electrical Code
- 2025 California Plumbing Code
- 2025 California Mechanical Code
- 2025 California Energy Code
- 2025 California Green Building Standards Code (CALGreen)
- 2025 California Administrative Code
- 2025 California Referenced Standards Code
- City Of Riverside - Local Design Criteria

NUMBER AND TYPE OF ACCESSIBLE UNITS

The proposed pre-approved unit plans will be combined into multi-family projects, which may be subject to Chapter 11A, which includes minimum requirements for accessible units. Rather than creating multiple variants, this project will make every unit accessible through the inclusion of (1) ground floor accessible bedroom and bath for the two prototype plans, including the duplex on single-family lots.

CIRCULATION AND ENTRY DESIGN GOALS

This project will include design for an accessible entrance, e.g., step-free access, and turning radii.

PARKING ACCESSIBILITY STANDARDS

Parking to be decoupled from unit plan design and provided separately by the developer during its site plan layout submittal process.

Projects that receive public funding—such as grants, loans, or land contributions—from a public entity are generally classified as Title II (Public Entity) housing under the Americans with Disabilities Act (ADA). Privately owned projects that receive any portion of public funding may also fall under this classification.

As part of the developer's site plan submittal, the design must comply with 2025 CBC Chapter 11A (Housing Accessibility), which includes requirements for accessible parking spaces, access aisles, and accessible routes serving covered dwelling units and common use areas. These accessibility provisions will be addressed by others and are outside the scope of this project.

UNIVERSAL DESIGN ASPIRATIONS

Universal design principles support the creation of housing that accommodates a wide range of ages and abilities. These strategies improve long-term livability and help minimize the need for future modifications. Typical features include no-step entries, wider doorways, ground-floor living options, lever-style hardware, reinforced bathroom walls for potential grab bar installation, curbless showers, and adaptable kitchen layouts with adjustable or varied-height counters, accessible storage, and front-control appliances. Collectively, these elements enhance accessibility, support aging in place, and provide flexibility for diverse households.

Optional but encouraged.

4. DESIGN CONSIDERATIONS

ARCHITECTURAL CHARACTER / AESTHETIC GOALS

Community feedback identified three preferred architectural styles that are well-suited to the City of Riverside and the surrounding Southern California context. This includes Spanish Revival, Craftsman and California Ranch. Spanish Revival was the strong favorite among these three.

The project will design to one architectural style: Spanish Revival. To achieve variation of the units, the design may include elements which could be simplified or removed with the goal of providing flexibility within controlled complexity.

TYPOLOGY AND DENSITY

Public input favored the Bungalow Court, Duplex and Townhouse or Row House types. These typologies range from one to three stories.

This project will include designs for 2 typologies: **Bungalow Court** and **Duplex**. The team agreed that townhomes are already sufficiently addressed in the market and represent a less “missing” type of housing.

The Technical Advisory Committee recommended that some of these housing models be designed as detached units to support potential future ownership opportunities, and be able to be combined into courtyard-style configurations at a density of at least 10 dwelling units per acre.

OPEN SPACE

Communal open spaces, such as courtyards, were also viewed positively, particularly when designed with connections to adjacent parking areas. Features considered desirable in open space design include pedestrian pathways and electric vehicle charging infrastructure, supporting integration between landscaped areas and parking.

Decisions regarding specific site amenities—such as community gardens, children’s play areas, dog parks or runs, and pools—will be determined by development teams through separate site design plan submission.

Open space integration is addressed in two ways: (1) at the unit level, through patios; and (2) at the complex level, through shared communal spaces and amenities provided by the developer or builder.

ORIENTATION AND SOLAR ACCESS

Although the public did not provide feedback on this topic, the Design Team will identify strategies to support energy efficiency and comfort. These include passive approaches such as daylighting, shading through building orientation and window placement, and the use of roof overhangs or shade structures. Mechanical heating and cooling systems can further support interior comfort.

When feasible, building orientation should maximize solar access and promote cross-ventilation within units.

MATERIAL PREFERENCES AND CONSTRAINTS

Durable, easy-to-maintain materials are preferred for both exterior and interior finishes. Spanish Revival is generally characterized by its painted stucco finish and contrasting color door and window frames. The wood doors and windows of true Spanish Revival are likely outside future project budgets, however, and alternate types will be evaluated for detailing. Clay tile detailing will be selective.

LANDSCAPE DESIGN GOALS

Landscaping such as native planting and stormwater management will be addressed by the future development team, through the separate site plan submission process, which will incorporate the pre-approved unit plans.

SUSTAINABILITY / GREEN BUILDING TARGETS

This project will be designed to be fully electric in compliance with California requirements and adhere to Green Code and Title 24 standards. LEED certification will not be pursued. New construction will require Solar panels be incorporated into unit roofs or parking cover roofs and will be managed as a separate permit process.

PARKING AND CIRCULATION NEEDS

Public feedback indicated a preference for private garages or individual parking spaces, with pedestrian pathways as the next most important feature. Electric Vehicle (EV) charging infrastructure was identified as a desirable element to include.

The Technical Advisory Committee members repeatedly stated that parking would be included in the design of

future planned projects, regardless of exemptions. Parking placement should be considered in relation to proximity to each unit rather than requiring it to be enclosed. Consolidated onsite parking could be served by a single continuous driveway. Parking areas should be designed to minimize visual impact on adjacent single-family neighborhoods.

Although bike parking was not a high priority in the survey results, it should still be provided.

5. UNIT TYPES & SIZES

Survey respondents expressed interest in housing arrangements that support small families, multigenerational households, and individuals living alone. The preferred bedroom configurations were 3-bedroom units, followed by 2-bedroom and 4-bedroom units. The majority also favored units with 2 or 3 bathrooms. The design team will design a unit that is 3-bedrooms and 2 baths (as part of the Duplex) and a 2 bedroom and 2 bath unit (as part of the Bungalow Court).

The Technical Advisory Committee noted there is demand for micro-units within Riverside. However, consideration should be given to their height—often 2–3 stories—to ensure compatibility with nearby single-family residences.

TYPES AND AREA RANGES

Unit Type	Target SF	Notes
2-Bed 2-Bath	894 GSF	1 Ground-Level Accessible Bedroom and Bathroom
3-Bed 2-Bath	1,268 GSF	1 Ground-Level Accessible Bedroom and Bathroom

IN-UNIT AMENITIES:

Public feedback identified in-unit laundry hookups as the highest-priority amenity.

Residents indicated a preference for private patios or balconies directly connected to kitchens and/or dining areas.

FLEXIBILITY AND ACCESSIBILITY IN LAYOUTS

Surveyed residents expressed equal preference for single-floor units and for dedicated home office space (e.g., one bedroom which might double as an office). An open-plan layout was favored by most respondents.

Additional considerations included accommodation for senior care and in-home care. This project will provide these accommodations at the ground level of the unit by including a bedroom and full bath with accessibility compliance, such as turn-around space, roll-under sinks, and shower seating.

The Technical Advisory Committee also recommended incorporating aging-in-place strategies, such as locating primary bedrooms on the ground floor or designing pantry spaces that could be converted to accommodate future elevators. Bathrooms could be designed to allow for grab bars and wheelchair turn-around space.

COMMUNITY OUTREACH SUMMARY

Community outreach and engagement are essential to ensure the Riverside Missing Middle Prototype Plans reflects local needs and priorities. To solicit feedback on how these prototype plans can best serve Riverside, the project team conducted two in-person community workshops and one virtual community workshop. All three workshops provided the same content, held at different times to allow multiple opportunities to participate. Additionally, an online survey was also made available from July 29th to August 12th to mirror the activities conducted at the community workshops and provide an alternative participation opportunity for those unable to attend. This memo provides a summary of findings from the community workshops and online survey.

Workshop #1	Workshop #2	Workshop #3
Tuesday, July 29, 2025	Thursday , July 31, 2025	Saturday, August 2, 2025
10:00am - 11:00am	6:30pm - 7:30pm	11:00am - 12:00pm
Virtual Zoom Room	Springbrook Clubhouse	Bourns Family Youth Innovation Center

32 SURVEY RESPONDENTS

46 WORKSHOP ATTENDEES

My top three priorities when choosing a new home are:

1. Private Outdoor Space (27%)
2. Number of Bedrooms (23%)
3. Number of Bathrooms (25%)

What does the future of Housing look like in Riverside? (selected responses)

"I envision a future with a diverse set of housing. Areas with single family detached, high rise apartments and a mix of medium density multi family."

"The future of housing in Riverside looks like more high density housing available, while maintaining design and style characteristics that match with the ethos of the neighborhood built in."

Layout Preferences

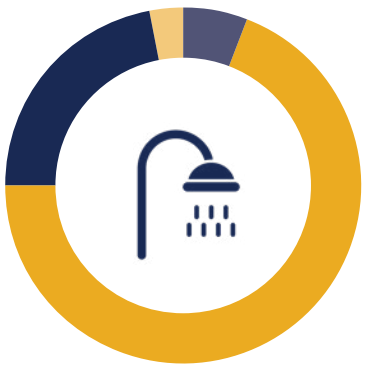
I prefer to live:

- Small family/ group **(39%)**
- Alone **(17%)**
- Multigenerational Household **(17%)**
- One other person **(9%)**
- Shared Accommodations **(9%)**
- Large family/group **(6%)**
- None of these options **(3%)**

My preferred home would have:

- 3 Bedrooms **(49%)**
- 2 Bedrooms **(28%)**
- 4+ Bedrooms **(19%)**
- Studio **(1%)**
- Other **(1%)**

My preferred home would have:

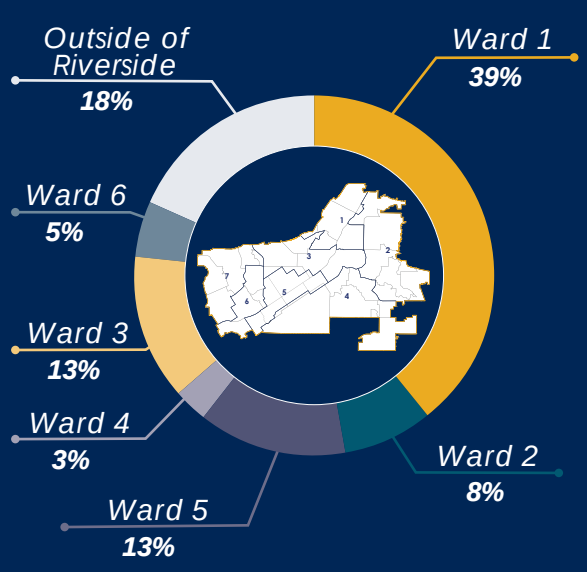


- 2 Bathrooms **(69%)**
- 3 Bathrooms **(22%)**
- Other **(4%)**
- 1 Bathroom **(6%)**

My unit preferences are:

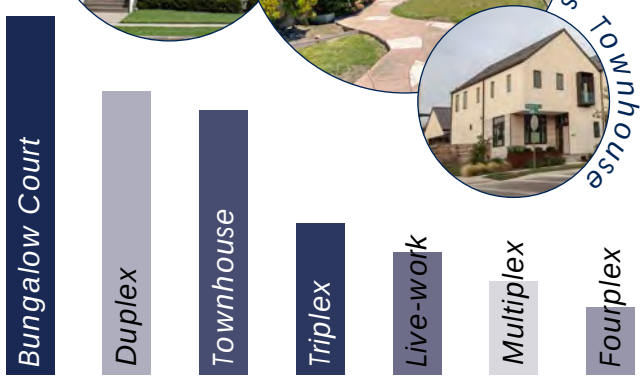
- Single Floor **(25%)**
- Dedicated Home Office **(24%)**
- Open Plan **(21%)**
- Multiple Floor **(10%)**
- Unit on Ground Floor **(8%)**
- Enclosed Plan **(7%)**
- Unit on Upper Floor **(3%)**
- Other **(3%)**

Where are participants from?



Architectural Preferences

My preferred housing type is:



My preferred architectural style is:

Outdoor Space and Amenities

My preferred open space is:*

53% Private Patio or Balcony

24% Communal Courtyard

19% Rooftop Deck

**Other: 4%*

Private Patios should be connected by:

- **34%** Dining Room
- **7%** Bedroom
- **4%** Other
- **14%** Front Door
- **41%** Kitchen

Other considerations should be:

50% Senior Needs

29% In-Home Care

21% Accessibility

The amenities that best serve my mobility needs are:

- Private Garage/Parking Spaces — 34%
- Pedestrian Pathways — 30%
- EV Charging — 14%
- Biker Lockers — 10%
- Bike Racks — 5%
- Motorcycle Parking — 3%

In-Unit amenities most important to me are:


In-Unit Laundry

31% In-Unit Laundry Hook Ups


Private Garden

24% Private Garden/ Outdoor Space


Enclosed Parking

19% Enclosed Parking Space

17% Large In-Unit Storage


In-Unit Storage

7% Secured Package Delivery

1% Other

Common amenities most important to me are:

- **26%** Community Garden/Lawn
- **19%** Kids Play Area
- **15%** Dog Park/ Run
- **15%** Pool or Hot Tub
- **13%** Barbecue Grilles
- **5%** Shared Laundry Room
- **4%** Bike Storage Spaces
- **3%** Other

Community Lawn

Kids Play Area

Dog Park/Run

Pool or Hot Tub

PLACEWORKS

MEMORANDUM

DATE August 22, 2025

TO Daniel Palafox, City of Riverside, Rachel Allen and Karina Contreras, RADAR, Inc.

FROM Alan Loomis, Chad So, and Pranjali Deokule, PlaceWorks, Inc.

SUBJECT Revised Site Inventory Analysis for the Missing Middle Prototype Plans for Infill Housing Sites Project

INTRODUCTION

This memorandum presents the site selection methodology for the City of Riverside Missing Middle Study. This revised site inventory is an initial step in the project to evaluate infill development potential based on various site livability criteria. The findings from this memo will be used for developing prototypes for missing middle housing.

The site inventory was conducted in two parts. The first part of the inventory analyzed the parcels zoned for Single Family, Multi Family, Mixed Use, and Commercial uses using the base criteria, as described in Part A of this memo. Whereas Part B of the inventory applied a set of livability criteria and scoring to sites identified in Part A.

The single family lots may potentially accommodate different housing typologies that are more appropriate in single family residential neighborhoods than areas containing commercial or multi family development. Furthermore, the utilization of a single family lot may have less impact on the property owners' decision to develop or redevelop the lot. Therefore, parcels zoned for single family residential are analyzed separately in this site inventory.

DESCRIPTION OF INFILL SITES:

According to SCAG's REAP 2.0 Program[1], infill sites are areas within existing development which contain the following features:

i. Areas unused or underutilized lands
ii. Areas accessible to destinations and daily services by transit, walking or bicycling, and areas located in an urban center or urban corridor.
iii. Areas that are not identified as agricultural or natural and working lands according to the Dept of Conservation's Farmland Mapping & Monitoring Program (FMMP) and the California Protected Areas Database (CPAD).
iv. Urban Areas, including residential, commercial, public institutional, transit or transportation passenger facility, or retail use, or any combination of those uses. ("California Public Resources Code section 21072 (2025)")

The above description of infill areas emphasizes the revitalization of underutilized areas within established urban areas. The site inventory methodology and site livability criteria were developed in considering this description of infill areas and after consulting with the project team.

PART A: APPLICATION OF BASE CRITERIA FOR SITE SELECTION

The following section of the memo describes the base criteria used for selecting sites with Single Family, Multi Family, Mixed Use, and Commercial zoning designations. The site selection process is illustrated with the help of maps and tables.

The site inventory was conducted using ArcGIS tools. The datasets for the analysis were collected from City of Riverside, County of Riverside, Southern California Association of Governments (SCAG), and the Office of Environmental Health Hazard Assessment (OEHHA).

STEP 1: PARCELS WITH SELECTED ZONING DESIGNATIONS WITHIN HALF MILE OF SCAG'S HIGH-QUALITY TRANSIT CORRIDOR (HQTC)

The City's zoning data was used to select parcels that are designated for Single Family, Multi-family Residential, Mixed-Use, or Commercial uses.

[1] SCAG REAP 2.0 Guidance for Mapping Projects Areas to meet Infill Definition, https://scag.ca.gov/sites/default/files/2024-05/guidance_on_mapping_infill_areas_23-0405_v1_1.pdf, accessed July 16, 2025.

Next, the parcels that are located within a walkable distance from SCAG's High Quality Transit Corridor (HQTC)[2] were selected. For purpose of this analysis, the areas within a walkable distance of HQTC were considered to be good candidates for missing middle housing development. A typical acceptable walking distance to transit is between 0.25 miles to 0.5 miles and therefore a half-mile buffer was generated from HQTC, which was used to select parcels for further analysis.

Map 1 represents parcels zoned for Multi Family, Mixed Use, or Commercial uses, which are located within a half mile of high-quality transit corridor.

Map 2 represents parcels with single family zoning designations that are located within a half mile of high-quality transit corridor. Single family designation includes R-1-1/2 Acre, R-1-7000, and R-1-8500 districts.

STEP 2: FILTERING PARCELS FOR VACANT, UNDERUTILIZED LAND, AND HOUSING ELEMENT SITES

Housing Element Sites

Parcels identified as part of the Housing Element Inventory were included in the analysis since these sites have already been deemed suitable for housing development in the Housing Element, they would be good candidates for missing middle housing development.

Vacant or Underutilized Parcels

Multi Family, Mixed Use, and Commercial Areas: For Multi Family, Mixed Use, and Commercial areas, parcels identified as being vacant or underutilized in the SCAG's existing land use data[3] were included in the analysis. Underutilized land was determined using the SCAG data containing land use code and the ratio of improvement to land assessed value (IL Ratio). If IL Ratio was less than 1, the site was considered underutilized. Table 1 provides the count of parcels by zoning designation, including count of vacant or underutilized parcels, and number of city-owned parcels.

Furthermore, an aerial survey of multi family, mixed use, and commercial parcels was conducted using google earth. This analysis was done to verify the vacant and underutilized parcels. Table 1 provides the count of parcels by zoning designation, including count of vacant or underutilized parcels, and number of city-owned parcels after the google satellite verification of parcels was completed.

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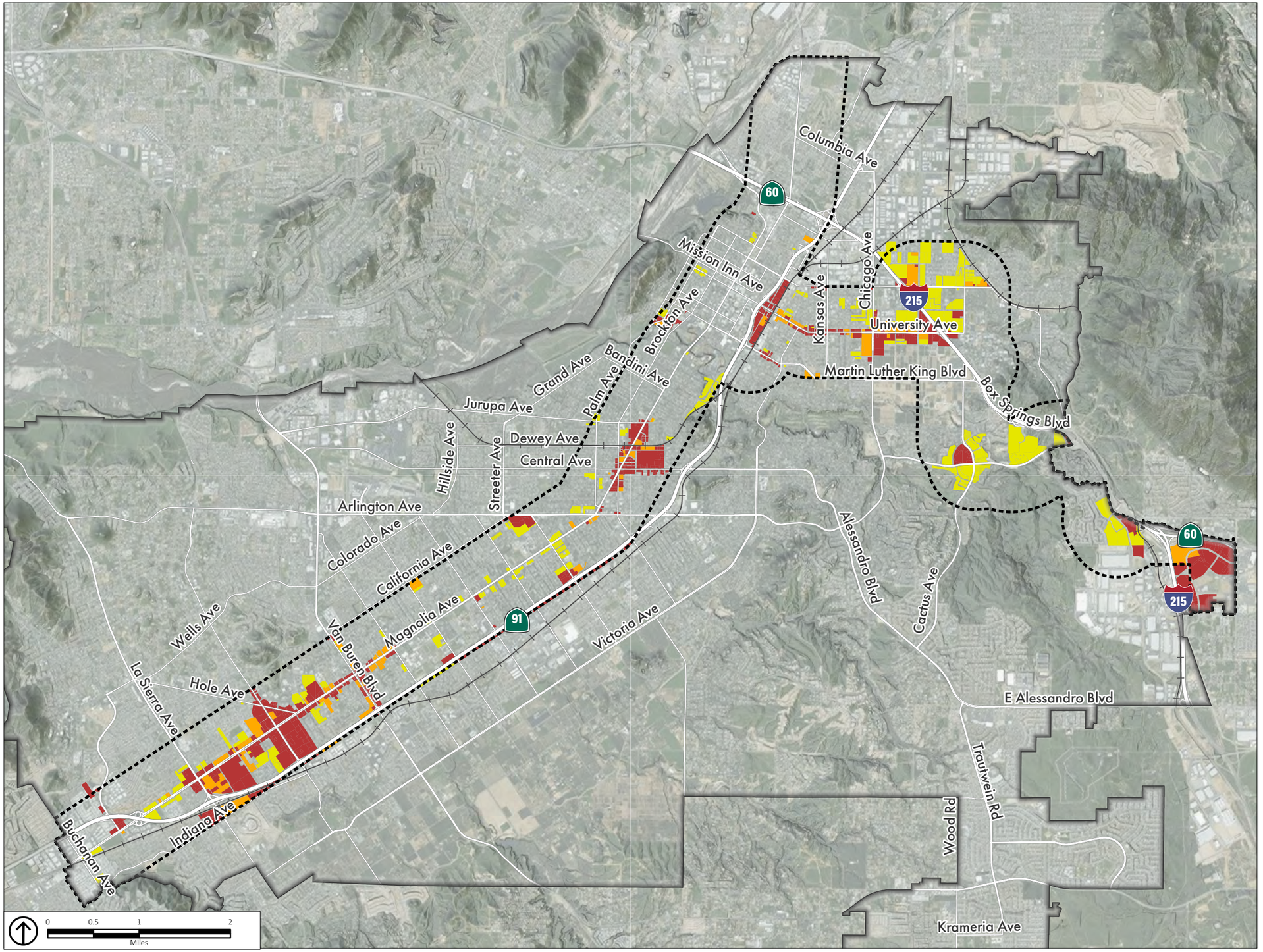
[2] The Southern California Association of Governments (SCAG's) High Quality Transit Corridors GIS data depicts existing and planned HQTC's, and major transit stops identified as a part of the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

[3] Source: Selected parcels include existing land use (ALU20) codes which correspond to common types of vacant land (codes 3000, 3100, 3300, and 1900). SCAG's HELPR 3.0 Housing, Environment, and Land Parcel Online Tool, https://rdp.scag.ca.gov/helpr/, accessed July 8, 2025.



LEGEND

- City Limit
- Half-Mile Buffer Around SCAG's High Quality Transit Corridor (HQTC)
- Railroad

Parcels by Zoning Designation

- Multi Family Residential
- Mixed Use
- Commercial

Site Inventory Part A, Step 1:

Map 1 illustrates the result of Step 1 of the site inventory. The map displays parcels that are-

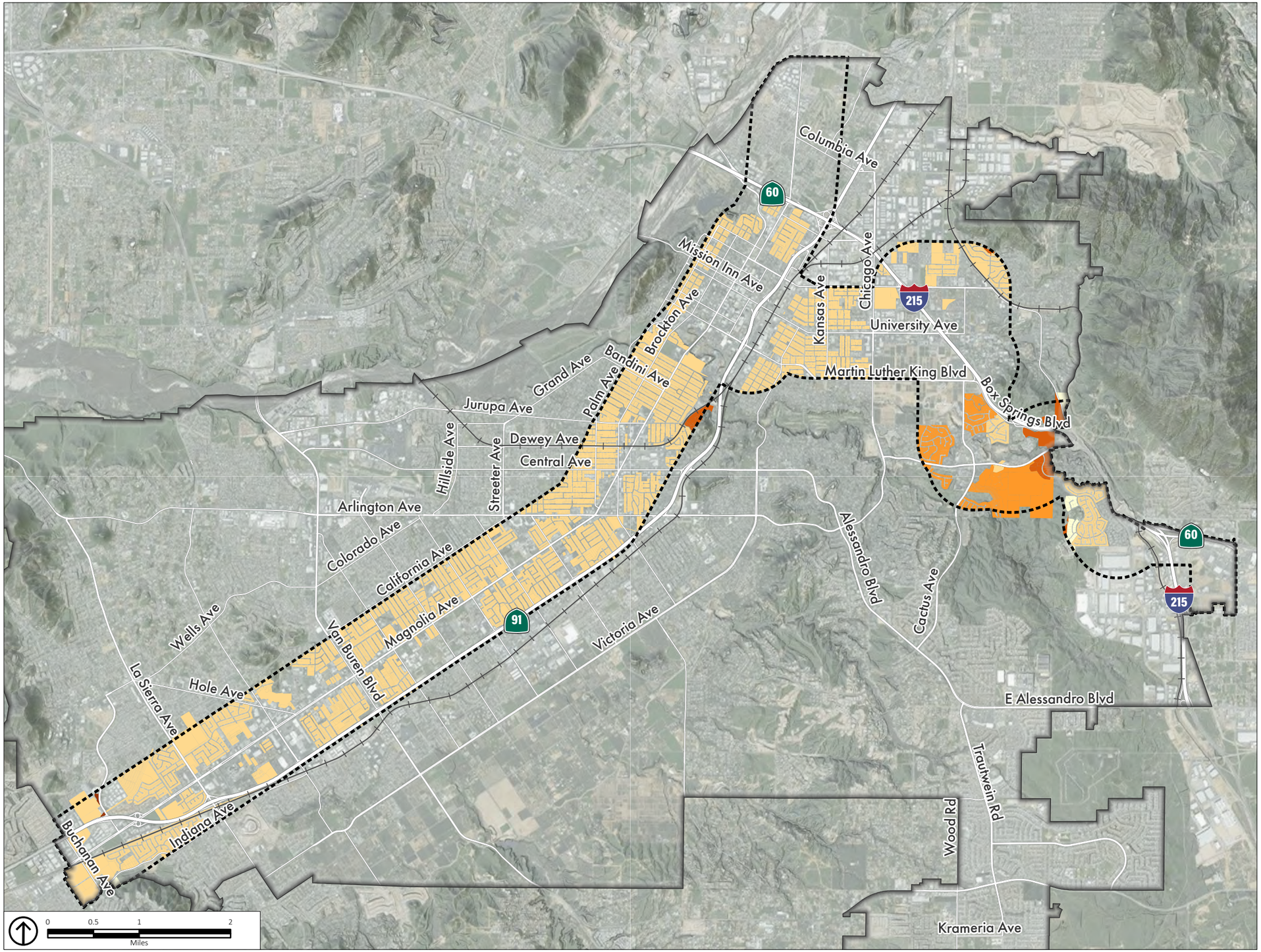
1) designated for commercial, mixed-use or multi-family residential uses as per zoning code and

2) located within a half-mile buffer of the SCAG's High Quality Transit Corridor.

Source: City and County of Riverside, 2025;
State of California OEHHA, 2025; PlaceWorks, 2025.

MAP 1

MULTI FAMILY, MIXED USE, AND COMMERCIAL PARCELS LOCATED WITHIN HIGH QUALITY TRANSIT CORRIDOR BUFFER



LEGEND

- City Limit
- Half-Mile Buffer Around SCAG's High Quality Transit Corridor (HQTC)

Single Family Parcels in Half Mile HQTC Buffer

- R-1-1/2 Acre - Single Family Residential
- R-1-7000 - Single Family Residential
- R-1-8500 - Single Family Residential
- RC - Residential Conservation
- RE - Residential Estate

Single Family Site Inventory Part A, Step 1:

Map 1 illustrates the result of Step 1 of the site inventory for single family parcels. The map displays parcels that are-

1) designated for single-family residential uses as per zoning code and

2) located within a half-mile buffer of the SCAG's High Quality Transit Corridor.

Source: City and County of Riverside, 2025;
State of California OEHHA, 2025; PlaceWorks, 2025.

MAP 2

SINGLE FAMILY PARCELS LOCATED WITHIN HIGH QUALITY TRANSIT CORRIDOR BUFFER

Map 3 shows the multi-family, mixed-use, and commercial parcels selected after completing Step 2 of the analysis. Some of the parcels represented on this map also contain city-owned parcels.

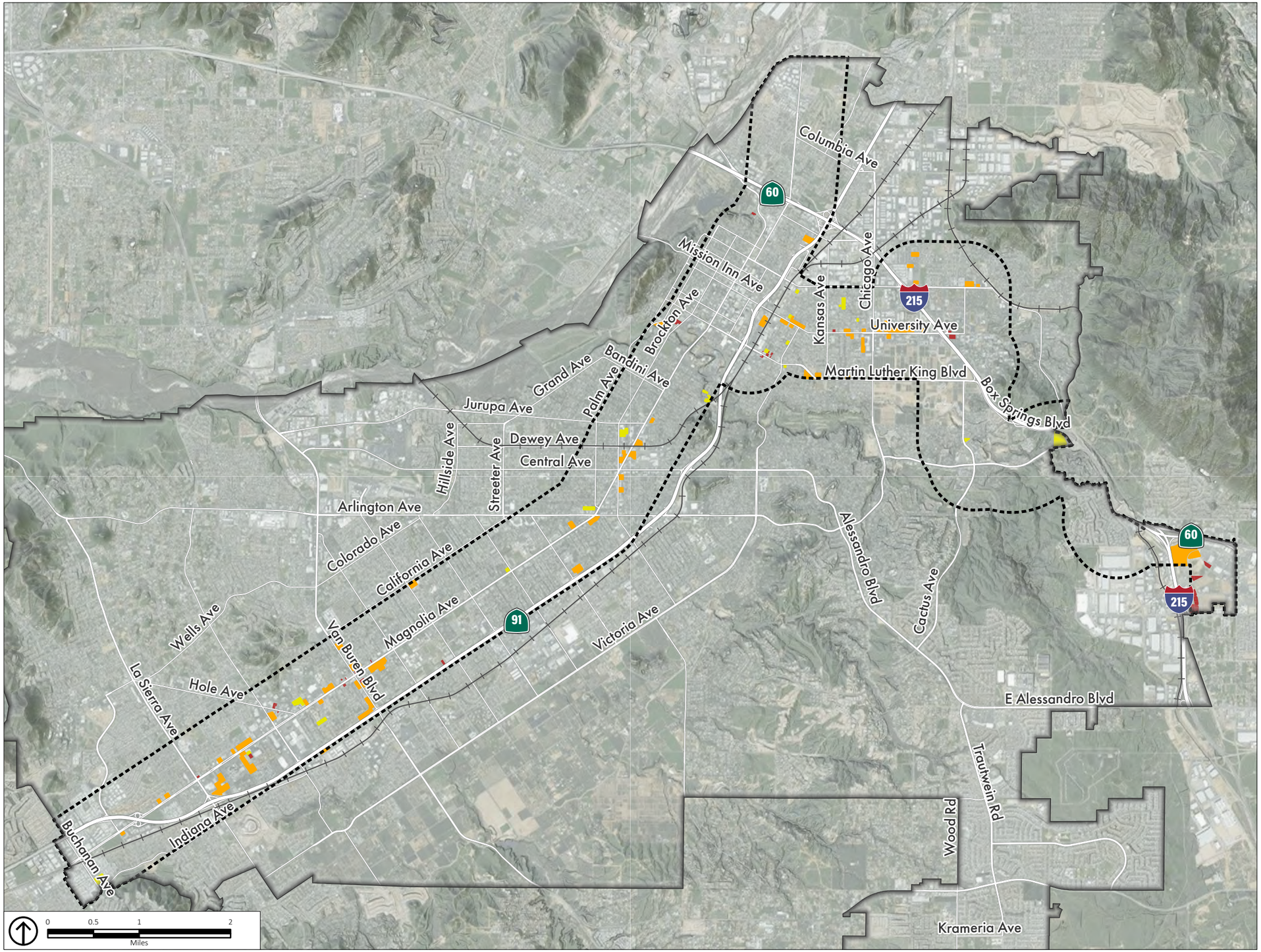
Table 1: Verified number of vacant or underutilized sites by zoning

Zoning	No. of Parcels Analyzed	No. of Vacant or Underutilized Parcels	No. of Housing Element Sites (Vacant/ Underutilized)	No. of City Owned Parcels (Vacant/ Underutilized)
Multi Family	1,962	44	33	4
Mixed Use	278	221	217	19
Commercial	903	52	1	6
Total	3,143	317	251	29

Single Family Areas: The utilization of a single family lot may have less impact on the property owners' decision to develop or redevelop the lot. A limited number of vacant parcels (approximately 42) were identified within single family zoned parcels. Additionally, a property owner or developer may take advantage of state legislation incentives such as SB 35 and SB 9, which may occur on current non vacant lots. Therefore, step 2 of the analysis was not applied to single family.

Table 2: Number of single-family parcels that are city-owned and housing element sites

Single Family Zoning	No. of Parcels Analyzed	No. of City Owned Sites	No. of Housing Element Sites
R-1-1/2 Acre - Single Family Residential	42	0	0
R-1-7000 - Single Family Residential	15,274	38	1
R-1-8500 - Single Family Residential	789	13	0
RC - Residential Conservation	45	6	0
RE - Residential Estate	3	2	0
Total	16,153	59	1



LEGEND

- City Limit
- Half-Mile Buffer Around SCAG's High Quality Transit Corridor (HQTC)
- Railroad

Vacant or Underutilized and Housing Element Sites by Zoning Designation

- Multi Family Residential
- Mixed Use
- Commercial

Site Inventory Part A, Step 2:

This map shows multi family, mixed use, and commercial parcels that are identified as -

(1) Housing element sites

(2) Vacant or underutilized according to the 2020 SCAG HELPR 3.0 data. Underutilized land was determined using ratio of improvement to land assessed value (IL Ratio). If IL Ratio was less than 1, the site was assumed to be underutilized.

A google satellite analysis was conducted to verify if the parcels are vacant or underutilized. This map shows resulting parcels after completing the google satellite analysis.

Source: City and County of Riverside, 2025;
State of California OEHHA, 2025; PlaceWorks, 2025.

MAP 3

MULTI FAMILY, MIXED USE, AND COMMERCIAL PARCELS IDENTIFIED AS HOUSING ELEMENT SITES, VACANT SITES OR UNDERUTILIZED SITES

STEP 3: ANALYZING TYPICAL LOT SIZES BY SQUARE FOOTAGES

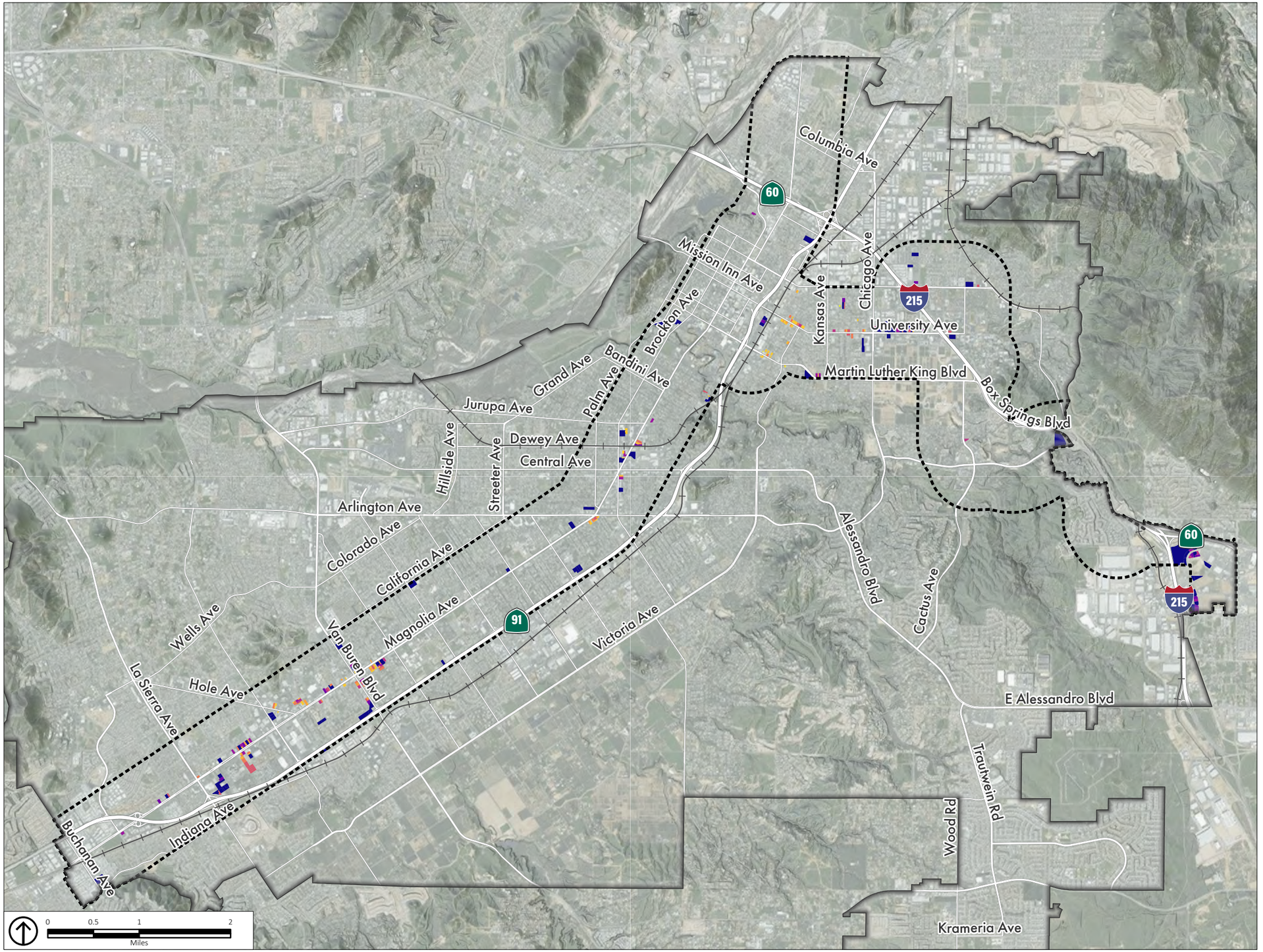
Multi Family, Mixed Use, and Commercial Areas: The most common range of parcel size is 5,000 to 10,000 square feet. Map 4 shows the range of multi family, mixed use, and commercial parcel sizes and count of parcels for each category of parcel size.

Single Family Areas: The selected parcels were categorized by size. The dominant parcel size range was found to be between 6,000 and 9,000 square feet, with most parcels falling in the 7,000 to 8,000 square foot range. Map 4 illustrates the distribution of these parcel sizes. Map 5 shows the range of single-family parcel sizes and count of parcels for each parcel size category.

STEP 4: IDENTIFY TYPICAL LOT DIMENSINS FOR TYPICAL SITES

Multi Family, Mixed Use, and Commercial Areas: The site inventory includes lots that are located midblock or at street corners, with or without access from an alley. Majority of the sites in the inventory appear to be underutilized and currently used for storage, parking, or have partially vacant lots. There are about 12 to 13 corner lots in this site inventory. The following set of images illustrate the variety of lot conditions for selected sites along University Avenue and Magnolia Avenue.

Single Family Areas: The single family site inventory includes many parcels located midblock or at street corners, with or without access from an alley. The following set of images illustrate the variety of lot conditions for selected sites along University Avenue and Magnolia Avenue.



LEGEND

- City Limit
- Half-Mile Buffer Around SCAG's High Quality Transit Corridor (HQTC)
- Railroad

Multi Family, Mixed Use and Commercial Parcels By Size (SF)

- 1,314 - 5,000 (7 parcels)
- 5,001 - 10,000 (88 parcels)
- 10,001 - 15,000 (33 parcels)
- 15,001 - 20,000 (35 parcels)
- 20,001 - 25,000 (28 parcels)
- 25,001 - 30,000 (15 parcels)
- 30,001 - 35,000 (20 parcels)
- 35,001 - 40,000 (16 parcels)
- 40,001 - 1,125,000 (75 parcels)

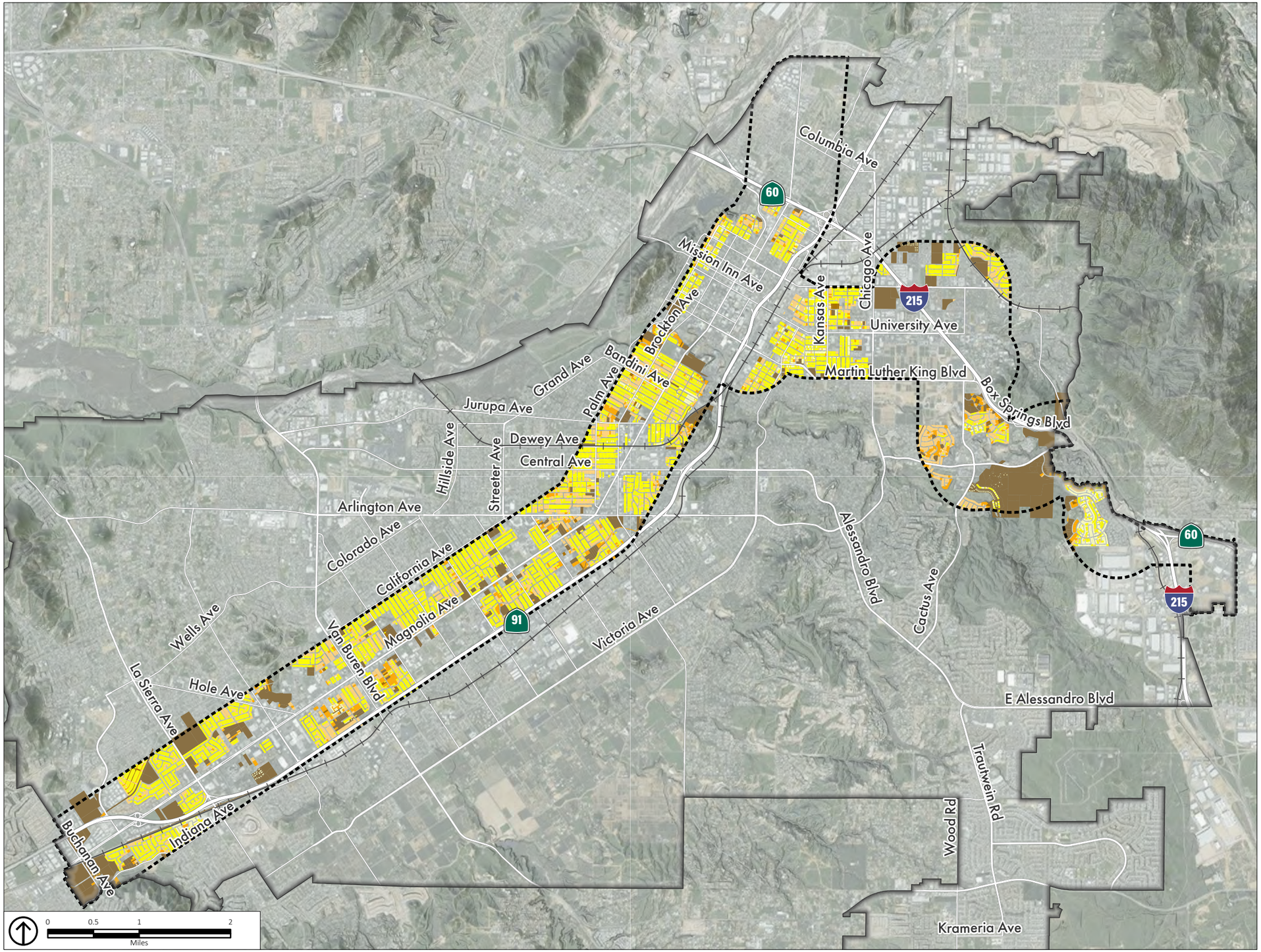
Site Inventory Part A, Step 3:

Multi family, mixed use, and commercial parcels from Step 3 are symbolized by the parcel size on this map. The parcel count for each parcel size category is noted in the legend above.

Source: City and County of Riverside, 2025;
State of California OEHHA, 2025; PlaceWorks, 2025.

MAP 4

ANALYSIS OF PARCEL SIZES FOR MULTI FAMILY, MIXED USE AND COMMERCIAL ZONING DISTRICTS



LEGEND

- City Limit
- Half-Mile Buffer Around SCAG's High Quality Transit Corridor (HQTC)
- Railroad

Single Family Parcels By Size (SF)

- Less than 6,000 (1,751 Parcels)
- 6,001 - 9,000 (10,473 Parcels)
- 9,001 - 15,000 (3,076 Parcels)
- 15,001 - 27,000 (497 Parcels)
- 27,001 - 30,000 (45 Parcels)
- Greater than 30,000 (311 Parcels)

Site Inventory Part A, Step 3 (Single Family):

Single Family Parcels from Step 3, are symbolized by the parcel size on this map. The parcel count for each parcel size category is noted in the legend above.

Source: City and County of Riverside, 2025; State of California OEHHA, 2025; PlaceWorks, 2025.

MAP 5

ANALYSIS OF PARCEL SIZES FOR SINGLE FAMILY ZONING DISTRICTS

Typical Lot Dimensions and Parcel Count for Multi Family, Mixed Use, and Commercial Areas

Image 1: Vacant Lot (~7,500 sf) and located along Magnolia Avenue, with access from a primary street or side street. Lot depth is ~142 feet and lot width is ~42 feet. There are 18 parcels in the site inventory that are representative of this image and have an area between 7,500 to 8,000 square feet.

Image 2: Vacant Lot (~9,500-10,000sf) along University Avenue, with access from primary street. Lot depth is ~170 feet and lot width is ~50 feet. There are 20 parcels in the site inventory that are representative of this image and have an area between 9,500 to 10,000 square feet.

Image 3: Midblock, vacant lot (~10,000 sf), accessible from Magnolia Avenue. Lot width is ~50 feet and lot depth is ~180 feet. There are 20 parcels in the site inventory that are representative of this image and have an area between 9,500 to 10,000 square feet.

Image 4: Vacant Corner Lot (~42,000 sf) along Magnolia Avenue, with access from primary street and secondary/side street. Lot depth is ~210 feet and lot width is ~200 feet. There are 16 parcels in the site inventory that are representative of this image and have an area between 40,000 to 45,000 square feet.

Typical Lot Dimensions and Parcel Count for Single Family Areas

Image 1: Vacant lot (~7,200 sf) along Cottage St, with access from primary street and an alley. Lot depth is ~142 feet and lot width is ~50 feet. There are 1,627 parcels in the site inventory that are representative of this image and have an area between 7,000 to 7,500 square feet.

Image 2: Vacant corner lot (~7,500 sf) along Howard Avenue, with access from primary and side street. Lot depth is ~75 feet and lot width is ~100 feet. There are 1,194 parcels in the site inventory that are representative of this image and have an area between 7,500 to 8,000 square feet.

Image 3: Group of vacant lots (~7,860 sf) along 12th Street, with access from primary and alley. Lot depth is ~157 feet and lot width is ~50 feet. There are 1,194 parcels in the site inventory that are representative of this image and have an area between 7,500 to 8,000 square feet.

Image 4: Vacant lot (~8,000 sf) along Denton Street, with access from primary street. Lot depth is ~150 feet and lot width is ~50 feet. There are 780 parcels in the site inventory that are representative of this image and have an area between 8,000 to 8,500 square feet.

PART B: APPLICATION OF LIVABILITY CRITERIA AND SCORING

STEP 5: SCORING SITES BASED ON LIVABILITY CRITERIA

Parcels were evaluated and assigned scores based on the specific conditions associated with each site's livability criteria described below. A total score for each parcel was then calculated by summing the individual scores across all criteria. The results of this scoring process are represented on Maps 6 and 7. Parcels are symbolized according to a graduated scale from low to high livability. Sites identified as least livable are represented with the lowest scores, while those most aligned with the livability criteria receive higher scores.

Table 3 provides a summary of all livability criteria and the scoring assigned to parcels for each criterion. Map 6 and 7 shows the revised inventory sites after completing Step 5.

Table 1: Summary of Site Livability Criteria and Scoring Method

Livability Criteria	Scoring Method
Historic Properties/ Cultural Resources	Any parcels identified as historic properties or located in a historic district were excluded from this analysis.
Airport Land Use Compatibility (ALUC) Zones	Parcels intersecting ALUC Zones B1, C, and C1are assigned a score of 0. Parcels intersecting ALUC Zones D and E are assigned a score of 1. All parcels outside ALUC Zones are assigned a score of 1.
Healthy Places Index (HPI) Percentile Ranking Score	Less Healthy Communities (Percentile Ranking <50) were assigned a score of 0. More Healthy Communities (Percentile Ranking between 50-75) were assigned a score of 1. Most Healthy Communities (Percentile Ranking between 75-100) were assigned a score of 2.
SCAG Mobility Hubs	Parcels within one mile of Mobility Hubs location were assigned a score of 1. Parcels located outside the one-mile radius of Mobility Hub locations were assigned a score of 0.
Neighborhood Mobility Zones (NMZs)	Parcels within NMZ were assigned a score of 1. Parcels located outside the NMZ were assigned a score of 0.
CalEnviroScreen (CES) 4.0 Indicators	Parcels that intersect with a CES Percentile Score of greater than 70 were assigned a score of -2. Parcels that intersect with a CES Percentile Score between 50 to 70 were assigned a score of -1. Parcels that intersect with a CES Percentile Score between 0 to 50 were assigned a score of 0.

Livability Criteria	Scoring Method
Disadvantaged Communities	Parcels intersecting disadvantaged communities were assigned a score of 0. The remaining parcels were assigned a score of 1.
SCAG Green Areas Resource Index Score	Parcels that are located outside of hazard areas, conserved habitat areas, tribal lands, or protected areas were assigned a score of 1. All remaining parcels where no data was available were given a score of 0.

Criteria 1. Historic Properties

Parcels identified as historic or cultural resources[4] were excluded from the analysis.

According to the City of Riverside Historic Resources Inventory Webmap[5], historic resources include sites designated as historic landmarks and sites located within historic districts or neighborhoods conservation areas. Cultural resources include properties that are either identified as national historic resources, included in the national register of historic landmarks, or contain historic landmarks.

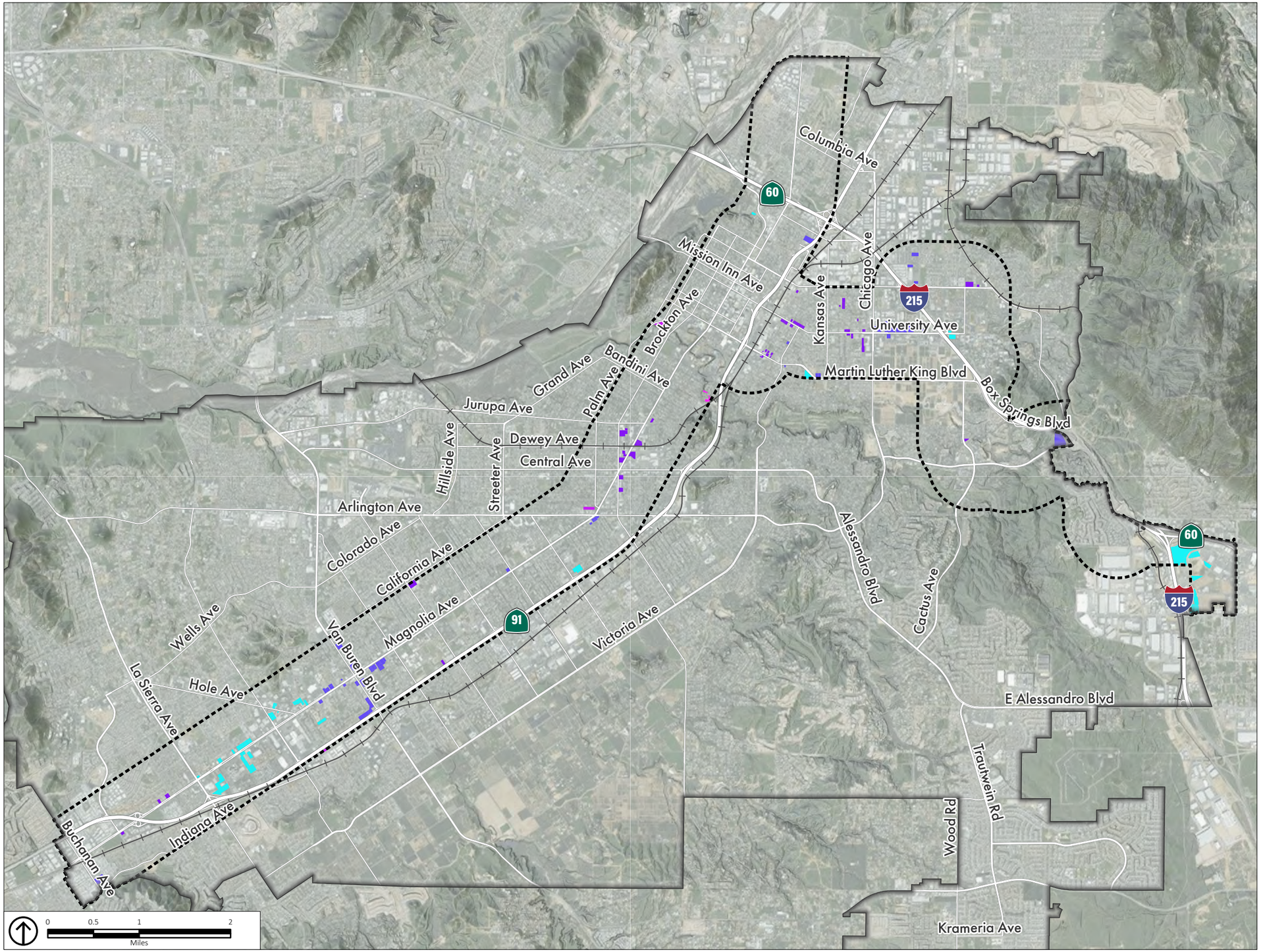
Criteria 2: Airport Land Use Compatibility Plan (ALUCP) Zones[6]

The Riverside County Airport Land Use Plan (ALUCP) establishes zones around airports to minimize land use conflicts and guide local development decisions. These zones include noise and safety criteria used by jurisdictions during project review.

[4] Riverside GIS Open Data Portal, https://mapriverside-opendata-cityofriverside.hub.arcgis.com/search, accessed July 12, 2025.

[5] Riverside Historic Resources Inventory, https://mapriverside.riversideca.gov/GeocortexWV/WebViewer/?app=2d32ffc3b0f1409ea67a5023519d6f00, accessed August 5, 2025.

[6] Source: County of Riverside Airport Land Use Commission Website- https://rcaluc.org/current-compatibility-plans, accessed on July 12, 2025.



LEGEND

- City Limit
- Half-Mile Buffer Around SCAG's High Quality Transit Corridor (HQTC)
- Railroad

Livable Score for Muti Family, Mixed Use and Commercial Parcels

- < 0 (Least Livable) (103 parcels)
- 1 (101 parcels)
- 2 (88 parcels)
- 3 (5 parcels)
- 4 (Most Livable) (3 parcels)

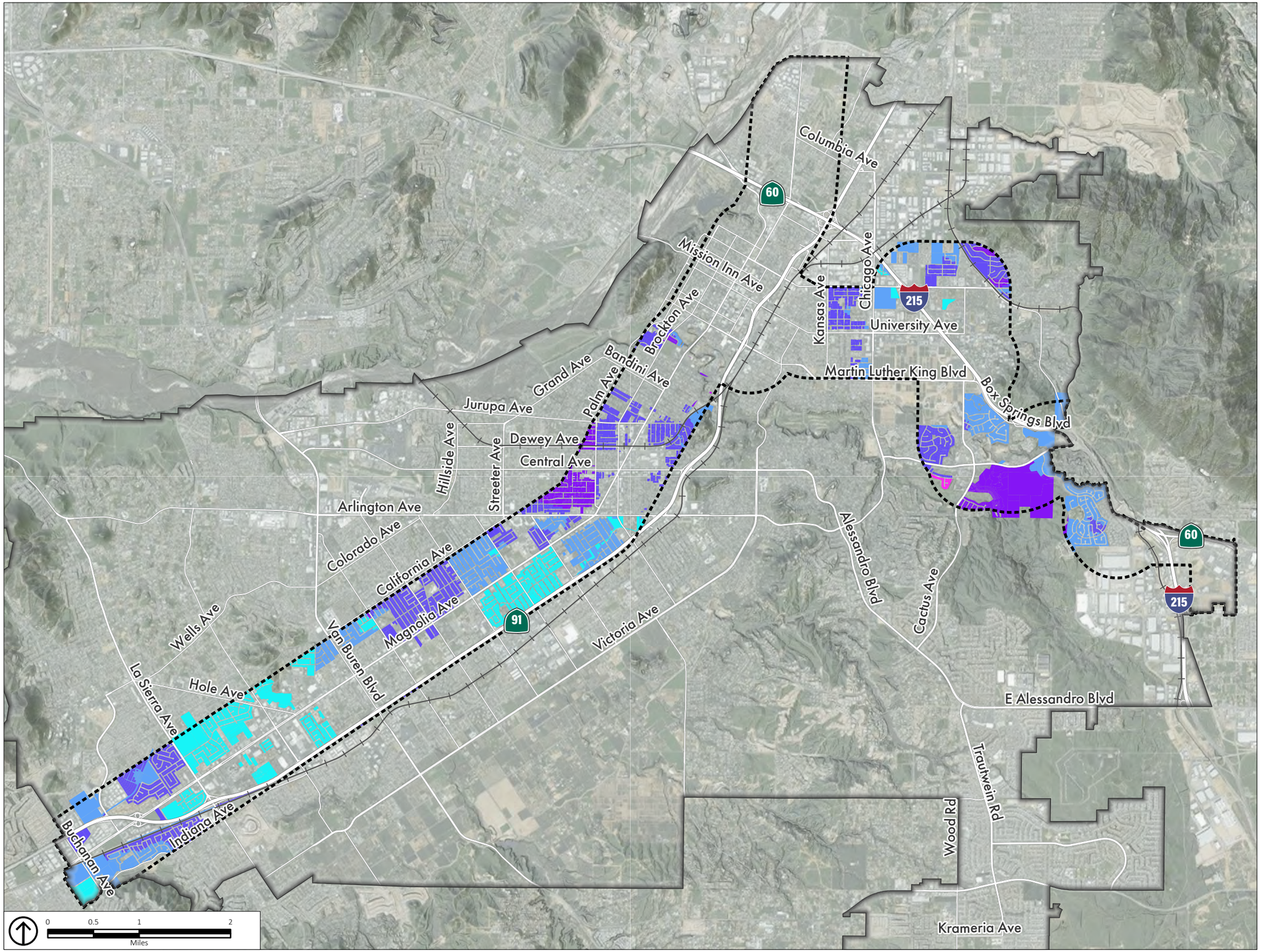
Site Inventory Part A, Step 5:

Multi Family, Mixed Use, and Commercial Parcels from Step 5 are symbolized by the livability score on this map. The parcel count for each score category is noted in the legend above.

Source: City and County of Riverside, 2025;
State of California OEHHA, 2025; PlaceWorks, 2025.

MAP 6

LIVABILITY SCORE FOR MULTI FAMILY, MIXED USE AND COMMERCIAL PARCELS



LEGEND

- City Limit
- Half-Mile Buffer Around SCAG's High Quality Transit Corridor (HQTC)
- Railroad

Livable Score for Single Family Parcels

- <0 (Least Livable) (2,158 Parcels)
- 1 (3,037 Parcels)
- 2 (4,202 Parcels)
- 3 (881 Parcels)
- 4 (3 Parcels)
- 5 (Most Livable) (23 Parcels)

Site Inventory Part A, Step 5 (Single Family):

Single Family Parcels from Step 5 are symbolized by the livability score on this map. The parcel count for each score category is noted in the legend above.

Source: City and County of Riverside, 2025;
State of California OEHHA, 2025; PlaceWorks, 2025.

MAP 7

LIVABILITY SCORE FOR SINGLE FAMILY PARCELS

The Riverside Municipal Airport Zones[7], March Air Reserve Base Airport Zones[8], and FLABOB Airport Zones[9] intersect the half-mile buffer around HQTC. According to the Countywide and Individual Airport Land Use Compatibility Plans, the Airport Zones B1, C, and C1 are associated with very high to moderate noise impacts, safety criteria and limitations on density of residential development within such zones. Airport Zone D and E is typically associated with low noise impact and has no additional compatibility policies or restrictions on residential density.

Based on the description of zones and limitations on residential density, all areas within zones B1, C, and C1 were assigned a score of 0 and all areas in ALUCP zones D, E, and areas outside of the airport land use compatibility zones were assigned a score of 1.

Criteria 3: Healthy Places Index (HPI) Percentile Ranking Score

The Healthy Places Index (HPI) Percentile Ranking Score combines several community characteristics, like access to healthcare, housing, education, and more, into a single indexed HPI score. The healthier a community, the higher the HPI score. The HPI Score contains Census tract level food access, retail density, park access, tree canopy coverage, and Healthy Places Index (HPI) score data of the SCAG region (0 (Least) - 100 (Most) Advantaged).

The data was classified into four categories and assigned a score, as follows:

- Least healthy Communities: Parcels with HPI Percentile Ranking Score between 0 to 25. These were assigned a score of 0.
- Less Healthy Communities: Parcels with HPI Percentile Ranking Score between 25 to 50. These were assigned a score of 0.
- More Healthy Communities: Parcels with HPI Percentile Ranking Score between 50 to 75. These were assigned a score of 1.
- Most Healthy Communities: Parcels with HPI Percentile Ranking Score between 75 to 100. These were assigned a score of 2.

Criteria 4: SCAG Mobility Hubs

This dataset presents the final results of SCAG's (Southern California Association of Governments) Mobility Hubs research conducted in 2024, focusing on identifying and prioritizing potential mobility hub locations across the region. Using GIS analysis and a data-driven approach, over 700 potential

[7] Source: County of Riverside Airport Land Use Commission Website- https://rcaluc.org/current-compatibility-plans, accessed on July 12, 2025.

[8] Source: March Air Reserve Base / Inland Port Airport Land Use Compatibility Plan: CHAPTER 3 INDIVIDUAL AIRPORT POLICIES AND COMPATIBILITY MAPS, March Air Reserve Base (Adopted November 13, 2014).

[9] Source: Riverside County Airport Land Use Compatibility Plan Policy Document: CHAPTER 3 INDIVIDUAL AIRPORT POLICIES AND COMPATIBILITY MAPS, Flabob Airport (Adopted December 2004).

mobility hub locations were evaluated based on factors such as proximity to transit and rail stops, park-and-ride facilities, key institutions, and Priority Equity Communities. The hubs were grouped into six typologies—Downtown, Urban, Emerging Urban, Suburban and Rural, Equity, and Institutional—based on land use density, transportation features, and growth potential. Each typology includes context-specific recommendations, such as electric vehicle charging or bike-share facilities. The analysis drew on data from Caltrans, LA Metro, and SCAG.

For the purpose of this analysis, parcels within one mile of the mobility hubs were identified and assigned a score of 1. Parcels outside the one-mile buffer around mobility hubs were assigned a score of 0.

Criteria 5: SCAG Neighborhood Mobility Zones

"Neighborhood Mobility Areas (NMAs) are regions focused on improving safe, convenient access to key destinations like schools, hospitals, and parks. SCAG identifies NMAs using four factors: intersection density, low-speed streets, land use mix, and accessibility to amenities within one mile. These factors are weighted equally through z-scores at the Transportation Analysis Zone (TAZ) level, with the top 25% of performing areas designated as NMAs. The initial NMAs were then reviewed and refined by local jurisdictions.

For the purpose of this analysis, parcels located within the neighborhood mobility zones were identified and assigned a score of 1. Parcels outside the neighborhood mobility zones were assigned a score of 0.

Criteria 6: CalEnviroScreen 4.0 Indicators

CalEnviroScreen is a screening tool used to help identify communities disproportionately burdened by multiple sources of pollution and population characteristics that make them more sensitive to pollution. (“CalEnviroScreen: A Geographic Approach to Environmental Justice - Esri”) The CalEnviroScreen scores are calculated from the scores for two groups of indicators: Pollution Burden and Population Characteristics. (“Pollution Indicators - OEHHA”) Population Characteristics scores for each census tract are derived from the average percentiles for the three Sensitive Populations indicators and five Socioeconomic Factors indicators.

Parcels that intersect with a CalEnviroScreen Percentile Score of greater than 70 were assigned a score of -2. Parcels that intersect with a CalEnviroScreen Percentile Score between 50 to 70 were assigned a score of -1. Parcels that intersect with a CalEnviroScreen Percentile Score between 0 to 50 were assigned a score of 0.

Criteria 7: Disadvantaged Communities

The SB 535 disadvantaged communities represent the 25% highest scoring census tracts in CalEnviroScreen 4.0, census tracts previously identified in the top 25% in CalEnviroScreen 3.0, census tracts with high amounts of pollution and low populations, and federally recognized tribal areas as identified by the Census in the 2021 American Indian Areas Related National Geodatabase.

Parcels intersecting areas identified as SB 535 Disadvantaged Communities were assigned a score of 0 and remaining parcels were assigned a score of 1.

Criteria 8: SCAG Green Areas Resource Index Score:

Parcels that are located outside of the following areas were assigned a score of 1. If parcels are in one or more of the following hazard areas or sensitive areas, they were assigned a score of -2. All remaining parcels where no data was available were given a score of 0.

- Agricultural Resources
- Coastal Inundation (Sea Level Rise)
- Land Protected Under Conservation Easements
- Conservation Land
- Farmlands
- Flood Areas
- Military Installations
- Natural Community and Habitat Conservation Plans
- Open Space and Parks
- Tribal Lands
- Wetlands
- Wildfire risk
- Wildland-Urban Interface

CONCLUSION

This memo has outlined the methodical approach to identifying potential infill development sites for missing middle housing in the City of Riverside. The two-part analysis—first evaluating zoning-based eligibility and then applying livability criteria, can be used to determine sites that are good candidates for missing middle housing development. The separation of single-family parcels recognizes the unique role these sites may play in facilitating context-sensitive housing typologies with potentially fewer redevelopment barriers. The resulting site inventory will directly inform the design and placement of prototype housing types, in the future phases of Missing Middle Study.

MEMORANDUM

Date: March 30, 2026

To: Karina Contreras, LEED AP | Senior Associate

Prepared For: City of Riverside

Address: karina@radarinc.net
RADAR, Inc.
423 Gin Ling Way
Los Angeles, CA 90012

From: Steve Gunnells, Chief Economist

Subject: Missing Middle Prototype Plans - Financial Feasibility Analysis

Analysis

1. INTRODUCTION

This memo provides an overview of the financial feasibility analysis of the two development concepts for missing-middle prototype plans for infill housing sites. The purpose of this report is to evaluate whether there would be a sufficient return on investment to attract a developer to purchase a site and construct new housing. The two development concepts analyzed in this memo serve as starting points for the financial feasibility analysis. Findings from the two development concepts do not reflect financial feasibility for all sites within the City of Riverside but rather provide guidance for the City and developers on factors that affect financial feasibility for related sites.

The analysis focuses primarily on for-rent housing. The concept of missing-middle housing is housing that is attainable to middle-income households. Most often in Southern California, this means rental housing. However, the analysis also addresses financial feasibility of for-sale housing.

2. TYPICAL DEVELOPMENT PROCESS

The analysis is based on a common pattern for development expected for missing-middle housing on infill sites in Riverside. As discussed below, the intent of this project is to simplify the development process in order to incentivize the production of missing-middle housing on infill sites in the city. A simplified development process, with building plans available from the city, would open the door to builders and contractors rather than just larger-scale developers. Nevertheless, this report uses the generic descriptor "developer."

In the typical development process expected for these types of projects, the developer would:

2A. Purchase a site.

In a larger-scale development project, the developer may first acquire an option to purchase a site for the duration of the entitlement process. The developer would purchase the site after the project receives entitlement. The developer would typically use proceeds from the construction loan for 50 percent of the purchase price.

This analysis assumes that the developer funds two months of entitlement out-of-pocket (i.e., part of their equity investment). Land costs are described in section 5, Development Costs. With the construction loan in the next stage, the analysis assumes the developer purchases the site in month 3, using the construction loan to pay 50 percent of the acquisition cost.

2B. Obtain building permits and a construction loan for 60 percent of the estimated cost.

The analysis assumes that in the third month, the developer secures building permits and obtains a construction loan, which is used to pay 60 percent of all subsequent development costs. The remainder of the costs are part of the developer's equity investment. The analysis assumes a construction loan interest rate of 10.08 percent and loan fees of 2.5 percent, based on data from realtyrates.com and an assumption of declining interest rates over the next 12 months.

2C. Construct the housing.

The developer begins construction in the fourth month. The analysis assumes 2 months of site work followed by 12 months of construction. Construction costs are described in section 5, Development Costs.

2D. Take out a permanent loan to pay off the construction loan and rent out the housing units.

At the end of construction, the developer takes out the permanent loan to pay off the construction loan and leases the units. In a larger development, it may take several months to fully lease up. However, the analysis assumes that the developers of these two projects will be able to pre-lease the limited number of units being constructed. The analysis assumes that the permanent loan and full lease-up are achieved in month 18. The permanent loan uses an interest rate of 6.87 percent based on data from realtyrates.com.

2E. Use part of the rental income to make payments on the permanent loan and to operate and maintain the property and pay taxes.

The monthly rental income the developer receives is used to make debt service payments on the permanent loan. The income is also used for operations and maintenance, to cover vacancies between tenants, and to build reserves. The use of income is described in section 6, Project Income.

2F. Retain the remainder of the rental income as the return on the developer's investment.

After making debt service payments and paying operating and maintenance costs, the remaining rental income flows to the developer and is the return on the developer's equity investment (the 40 percent of costs not covered by the construction loan). The return on investment is described in section 7, Financial Feasibility.

3. RETURN ON INVESTMENT EVALUATION

3A. Leveraged Cash-on-Cash Yield

The developer will have to invest in the development project. As discussed above, this investment would cover half of the land cost and 40 percent of the construction cost. Once the project is operational, the rental revenue, after paying for operations, maintenance, reserves and debt service, is the return that the developer would receive. The most common metric for evaluating this return is the leveraged cash-on-cash yield. This is derived by dividing the total amount the developer invested by the annual net operating income after debt service. The industry standard is that the leveraged yield should equal or exceed 8 percent to warrant the developer's investment. Therefore, this is the target evaluated in this analysis.

3B. Unleveraged Cash-on-Cash Yield

A simplified evaluation metric is the unleveraged cash-on-cash yield. This metric is calculated by dividing the expected net operating income (after operations and vacancies but before debt service) by the total development cost. The industry standard is that the unleveraged cash-on-cash yield should equal or exceed 6 percent.

This metric is often used when a developer first considers whether a potential project is worth exploring. Because it does not account for financing costs, though, it is less useful when a developer begins to seek out equity investment partners and bank financing. This analysis provides the unleveraged cash-on-cash yield only for context.

3C. Internal Rate of Return

The internal rate of return (IRR) is the evaluation metric used for for-sale development projects. It is based on the developer's net cash flow over time, including the costs of development, financing costs, and the final net sales proceeds. The industry standard is that a development should generate an IRR of 15 percent or more. It is important to note that the IRR measures the net sales values the developer receives after paying off the construction loan, and it is measured against the developer's equity investment, not the total cost of development. Furthermore, IRR is a complex measure that identifies the discount rate at which a project's cash inflows equal cash outflows. Contrary to what the name seems to imply, the IRR does not directly measure the amount of profit the developer earns.

4. DEVELOPMENT PROGRAM

The features and components of the two concept plans are described in more detail in other project documents. Table 1 identifies aspects of the two plans relevant to the financial feasibility evaluation.

The plan for the 0.85-acre Simmons/Magnolia site is to develop twelve bungalows (single-family detached housing), with a common parking area. Each unit would have two bedrooms and two full bathrooms. The common surface parking lot clearly orients the plan as a rental product. It could conceivably be developed as a condominium for-sale product, but this would require more in-depth market research to determine its marketability and suitable pricing.

The plan for the 0.2-acre Taft Street site is to develop a single two-story duplex with a single detached garage (parking for four cars total). Both units would have three bedrooms and two full bathrooms. The detached common garage also orients this plan as a rental project. As with the other site, this plan could conceivably be developed as a condominium for-sale product, with additional market research.

Table 1: Development Program for Two Missing-Middle Housing Prototypes, City of Riverside, 2026

Site:	Simmons/ Magnolia Site (Bungalows)	Taft Street Site (Duplex)
Area (sq. ft.)	37,230	8,513
Area (acres)	0.85	0.20
Number of Units	12	2
Density (du/acre)	14.0	10.2
COVERAGE (sq.ft.)		
Buildings	8,013	1,342
Garages/Covered Parking		800
Parking/Drive Aisle	9,192	235
Sidewalks/Patios/Trash Enclosures	4,788	704
Landscape	15,237	5,432
UNITS		
Unit Type	Bungalow	Duplex
Stories	Bungalow	Duplex
Bedrooms	1	2
Bathrooms	2	3
Unit Size (GFA sq.ft.)	2	2
Patio (sq.ft.)	146	–

Source: PlaceWorks, 2026, using designs and information from RADAR.

5. DEVELOPMENT COSTS

The estimated costs of development are provided in Table 2. The analysis indicates that the Simmons/ Magnolia project would have a total development cost of $4.14 million, before financing. This is about $345,000 per unit. The Taft Street project would have a total development cost of $809,000, or $404,000 per unit.

Table 2: Development Costs for Two Missing-Middle Housing Prototypes, City of Riverside, 2026

	Simmons/ Magnolia Site (Bungalows)	Taft Street Site (Duplex)
CONSTRUCTION COSTS		
Site Work ($)	372,300	85,134
Building Costs ($)	1,785,459	311,713
Garage / Carport ($)	0	47,067
Circulation ($)	183,840	2,938
Landscaping ($)	100,125	30,682
Total Hard Cost	$2,441,724	$477,533
Soft Costs ($) @ 10% of Hard Cost	244,172	47,753
Estimated Development Impact Fees ($)	537,504	89,584
Contingency ($) @ 20% of Hard Cost	488,345	95,507
Total Soft Cost	$1,270,021	$232,844
LAND COSTS		
Estimated Land Price ($)	409,530	93,647
Due Diligence ($) @ 5%	20,477	4,682
Land Acquisition Cost	$430,007	$98,330
Total Development Cost	4,141,752	808,707

Source: PlaceWorks, 2026.

Notes to Table 2:

1. The unit costs for site work, circulation (driveways and parking spaces), and landscaping in estimates based on PlaceWorks' experience with similar projects.

2. Construction costs for buildings, including garages and carports, are based on Craftsman Book Company's 2026 National Building Cost Manual, adjusted for Riverside based on location adjustments recommended in the source. The estimated building construction costs per gross square foot are: $212.02 for the bungalows; $145.50 for the duplex units; $16.27 for the bungalow carport; and $58.83 for the duplex garage. The total building construction cost per unit are $198,100 for the bungalow units and $196,300 for the duplex units.

3. Soft costs, assumed at 10 percent of hard costs, are lower than a more typical assumption of 20 percent because the intent to provide general building plans and a streamlined permitting process should result in a reduction in soft costs. This is simply PlaceWorks' assumption, and additional analysis is warranted to determine the extent of actual reductions that developers could expect.

4. The City's housing element identified $11/square foot as the average land acquisition cost. Based on PlaceWorks' review of publicly available records, this assumed land cost appears valid for the two areas under consideration.

6. PROJECT INCOME

The sole source of income considered for these two plans is the rent paid by future residents. The project income, including the annual net operating income, is provided in Table 3.

PlaceWorks surveyed asking rents in the two areas where these projects are located. There is little in the way of available data on market-rate rents for newly constructed single-family detached and duplex housing units. The estimated rents are based on average rents by number of bedrooms and square footage, with an assumed 15 percent premium increase for new construction versus existing available rental housing stock.

The analysis assumes an annual allowance of 30 percent of the gross annual rental income to cover operations, maintenance, and reserves as well as lost income from vacancies. The cash flow analysis in this report assumes that unit rents will increase by 4 percent per year and that the operations and vacancy allowance will increase by 2.5 percent per year.

Table 3: Estimated Project Income for Two Missing-Middle Housing Prototypes, City of Riverside, 2026

	Simmons/ Magnolia Site (Bungalows)	Taft Street Site (Duplex)
Unit Rent, ($) Monthly	3,294	3,540
Gross Annual Rent ($)	474,336	84,960
Operations and Vacancy Allowance ($) @ 30.0%	142,301	25,488
Net Operating Income (NOI), $ Annually	332,035	59,472

Source: PlaceWorks, 2026.

7. FINANCIAL FEASIBILITY

Table 4 summarizes the financial feasibility of the two prototype development plans. As discussed above, the primary evaluation metric is the leveraged cash-on-cash yield, with a threshold of 8.0 percent or higher for a project to be considered financially feasible.

The analysis indicates that a developer for the Simmons/Magnolia site would need to invest $1.8 million in the project. That developer could expect the project to generate annual income of nearly $175,000 in the first year of full occupancy. This represents a leveraged yield of 9.71 percent, indicating that the project should be financially feasible.

For the Taft Street site, the developer would need to invest $352,000 in the project. The development could be expected to generate annual income of $28,300 after operations and vacancies and after debt service. This represents a leveraged yield of 8.05 percent, which meets the threshold. Thus, this plan should be financially feasible given current market conditions.

For both plans, the unleveraged yield, 8.0 percent for the Simmons/Magnolia site and 7.4 percent for the Taft Street site, is above the 6 percent threshold. This is a further indication that both projects are financially feasible to develop.

Table 4: Financial Feasibility Summary for Two Missing-Middle Housing Prototypes, City of Riverside, 2026

	Simmons/ Magnolia Site (Bungalows)	Taft Street Site (Duplex)
Leveraged Cash-on-Cash Yield		
Year 1 NOI ($) after Debt Service	174,075	28,307
Equity Investment ($)	1,793,309	351,568
Leverage Yield	9.71%	8.05%
Unleveraged Yield		
Year 1 NOI ($) before Debt Service	332,035	59,472
Development Cost ($)	4,141,752	808,707
Unleveraged Yield	8.02%	7.35%

Source: PlaceWorks, 2026.

8. FOR-SALE FEASIBILITY

The primary focus of this analysis is the feasibility of these product types and locations developed as for-rent products. The designs do not easily lend themselves to ownership products, mostly because of the parking arrangements. The bungalows on the Simmons/Magnolia site have a common surface parking lot. The lot could provide covered parking, but it would likely need to be converted into a common garage with some storage space to make the housing more attractive to buyers. The parking/garage could be handled as common area in a condominium. Similarly, the common garage planned for the duplex on the Taft Street site could also be handled as a condominium. The project might be more attractive to purchasers with the housing centered on the lot and separate garages, although that could increase construction costs.

The financial feasibility analysis finds that the Simmons/Magnolia site bungalows would not be feasible to be developed as a for-sale product. The net sales proceeds, estimated at $4.89 million, would not cover the total development and financing cost, $5.02 million. The analysis assumes that each bungalow would sell for $433,600. The sales price would need to increase 7.5 percent to $466,000 to be financially feasible. In contrast, the financial feasibility analysis finds that the Taft Street site duplex would be financially feasible to develop as a for-sale product. The analysis assumes that each duplex unit would sell for $519,000, generate an IRR of 17.7 percent.

Finally, it is worth noting that although market-rate rents tend to be more highly correlated with the number of bedrooms rather than square footage, the market sales values of for-sale housing tend to be more highly correlated with square footage than number of bedrooms. Thus, with for-sale housing development, there is a financial incentive for the developer to build larger units. If the sites considered through this project can accommodate larger units, developers may have the incentive to build larger, and thus more expensive, housing. However, further market research would be warranted to understand the return on investment that larger housing sizes might generate.

Findings

The analysis finds that the two missing-middle housing prototypes should be financially feasible to develop as for-rent housing under current market conditions. For the bungalows, with an average monthly rent of $3,300, the estimated annual net operating income of $332,000 would generate a yield of 9.7 percent, based on the developer's equity investment of $1.79 million. For the duplex, with an average monthly rent of $3,540, the estimated annual net operating income of $59,500 would generate a yield of 8.1 percent, based on the developer's equity investment of $352,000. For rental development projects, the threshold for financial feasibility is a yield of 8 percent or higher in the first year of full occupancy.

The analysis recognizes that the two prototypes might face market-acceptance challenges as for-sale products because of the parking and lack of private garages. Nevertheless, the Taft Street duplex could be financially feasible to develop as a for-sale project given the estimated sales price of $519,000. However, the Simmons/Magnolia bungalows would not be financially feasible to develop as for-sale products. The analysis estimates the sales price of these units at $434,000, although this estimate is limited by the lack of recent sales of similar products. If this 894-square foot, 2-bedroom product could sell for $466,000, then it would be financially feasible to develop.