



City of Chino Hills

GENERAL PLAN

Adopted June 10, 2025

City of Chino Hills General Plan

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CITY OF
CHINO HILLS
GOVERNMENT CENTER

City of Chino Hills

General Plan

**INTRODUCTION, ENVIRONMENTAL
JUSTICE, VISION, & GOALS**

INTRODUCTION

Through its goals, policies, and actions, this General Plan guides the City of Chino Hills (City) during the next 20 years. The overriding goal of the General Plan is to maintain the City's high quality of life.

This introductory chapter of the General Plan provides an overview of the Chino Hills community. It also explains the purpose and legal requirements of the General Plan and its organization.

A. ABOUT CHINO HILLS

The City is an extraordinary community. It offers the full package of quality of life advantages that allow its residents and businesses to succeed.

Incorporated on December 1, 1991, the City laid out its vision for the future in the first 1995 General Plan. Following the desires of its citizens, the City set out to be a community with high quality residential and commercial areas in a rural setting, a high level of public services, and a pleasing environment in which to live, work and shop. Today, the City has achieved its vision.

Ranked as one of the best places to live in America¹, Chino Hills is known for its high quality of life and beautiful rural atmosphere. The community, with its current population of 77,964², enjoys more than 3,000 acres of publicly owned open space. Public recreational facilities include 44 parks, 5 special recreational facilities, and 48 miles of trails. Its City boundaries encompass approximately 28,736 acres, 7,366 acres of which are part of the Chino Hills State Park of land area.

As the City looks forward to its next twenty years, this General Plan builds upon its success and lays out a course to maintain its high quality of life for the future.

B. BRIEF HISTORY

The City of Chino Hills was part of a rancho acquired in 1841 by Antonio Maria Lugo from the original Mission San Gabriel land grant. The Chino Hills lands were used as rich grazing ground for hundreds of cattle, horses, and sheep. Other ranchos in the vicinity were Cucamonga Rancho and Rancho San Jose to the north, and El Rincon Rancho to the southwest. Cattle and horses from the different ranches often mingled in the Chino Hills. When California became a United States territory, the ranchos were distributed to new owners through a homesteading process. The Yorba family homesteaded the land that includes Chino Hills.

Up through the mid-twentieth century, cattle grazing remained the primary land use in the Chino Hills area. Gradually, other land uses were introduced, including mining for petroleum, gravel, and clay. By the late twentieth century, communities surrounding Chino Hills began to rapidly urbanize.

Prior to its incorporation, Chino Hills was part of unincorporated San Bernardino County, where expanses of flat and inexpensive land were being converted to haphazardly developed residential

¹ Money Magazine, 2019.

² State of California, Department of Finance, Table 2: E-5 City/County Population and Housing Estimates, 1/1/2022.

tracts. Most of Chino Hills had been protected from haphazard development because its hilly topography had made tract subdivisions too expensive. However, by the late 1970s, it was clear that development pressures were moving toward Chino Hills.

In 1979, the County initiated preparation of the Chino Hills Specific Plan, a document that planned for the eventual development of 18,000 acres of Chino Hills land. The Chino Hills Specific Plan was the first in the State of California to be designed for an unincorporated area. The Specific Plan called for clustered residential development in order to protect as much open space as possible. Commercial development was slated along the Highway 71 corridor and major arterials.

By the late 1980s, Chino Hills' residents were actively exploring the pros and cons of cityhood. The residents ultimately decided that incorporation would allow them greater control over the community's future. By 1991, Chino Hills became a city.

1. Regional Location

The City of Chino Hills is located in the Chino Valley within the County of San Bernardino. As shown on the Regional Location Map below, it is uniquely located at the extreme southwestern corner of San Bernardino County, where the boundaries of four counties meet. The City is bordered by Los Angeles County on the north and west, by Orange County on the south and west, and by Riverside County on the south and east. Surrounding cities include Chino, Pomona, Diamond Bar, Brea, Yorba Linda, and Corona.

C. ABOUT THE GENERAL PLAN

Every California city must adopt a comprehensive, long term General Plan. The General Plan must cover a local jurisdiction's entire planning area and address the broad range of issues associated with the City's development. The General Plan is the City's constitution or blueprint for its long-range physical development.

Through this General Plan, Chino Hills defines a path that recognizes the City's many assets, including its high quality of life, beautiful surrounding hillsides, and excellent location adjacent to State Route (SR) 71. At the same time, the General Plan addresses the critical issues that will face the City as it matures and approaches build-out, specifically:

- Where will future growth occur?
- How can the City support and enhance commercial and employment generating land uses?
- What are the opportunities to enhance the community's sustainability through transit and mixed-use development?
- How will Chino Hills ensure its older and special neighborhoods continue to be maintained?
- How will Chino Hills ensure its special and cohesive community identity is retained?
- How will the City maintain its rural setting?

- How will the City be able to continue to designate space for its State-mandated allocation of housing units under the Regional Housing Needs Assessment?
- Is traffic adequately managed?
- How should the community maintain its open spaces?
- Are there opportunities for additional open space and recreational facilities?
- How can the City support more energy efficient facilities and practices?
- What can the community do to support healthy living?
- What can the City do to support environmental justice for all ethnic, racial and socioeconomic community members?

1. Planning Area

The Planning Area for the Chino Hills General Plan encompasses approximately 28,736 acres (or approximately 45 square miles) within the City boundaries.³ The City has no sphere of influence outside its borders.

³ Acreage includes 26,799 acres of properties within the City that are provided with Land Use Designations in the updated General Plan Land Use Map, and an additional 1,937 acres within public and private roadways.



Regional Location Map

2. Planning Horizon

This General Plan provides the goals, policies, and actions that will guide the City during its next 20 years, placing the horizon for this General Plan at 2045.

In accordance with state General Plan guidelines, the horizon year does not mark an end point, but rather provides a general context from which the City can make shorter-term decisions. Planning is a continuous process, and the City commits to reviewing this General Plan regularly to ensure consistency with new information and changes in community needs and values.

3. Plan Consistency

General Plan consistency is one of the most important considerations surrounding the General Plan. Without consistency, there is little chance of the plan working. The consistency requirement has five dimensions:

- a) **Equal Status among Elements:** All elements of the General Plan have equal legal status.
- b) **Consistency between Elements:** All elements of the General Plan must be consistent with one another.
- c) **Consistency within Elements:** Each element's data, analyses, goals, policies, and implementation programs must be consistent with, and complement one another. Established goals, data, and analysis must form the foundation for any ensuing policies.
- d) **Area Plan Consistency:** All principles, goals, objectives, policies, and plan proposals set forth in an area or community plan must be consistent with the overall General Plan.
- e) **Text and Diagram Consistency:** The General Plan's text and its accompanying diagrams are integral parts of the plan. They must agree.

4. Contents of the Plan

This General Plan contains this Introduction, the Vision chapter, and eight elements that comply with General Plan guidelines established by the *California Government Code* (§65302). Brief explanations of the eight elements follow:

- 1) **Land Use Element:** The Land Use Element is required by state law. It designates all lands within the City for specific uses such as housing, commercial, industrial, and open space uses. The Land Use Element also provides development regulations for each land use category, and overall land use policies for the City.
- 2) **Circulation Element:** The Circulation Element is required by state law. It specifies the general location and extent of existing and proposed major streets and other transportation facilities. It also specifies infrastructure facilities that carry water, wastewater, and storm water.
- 3) **Housing Element:** The Housing Element is required by state law and requires separate review by the California Department of Housing and Community Development (HCD). Housing Elements are required to be updated every eight years.

- 4) **Conservation Element:** The Conservation Element is required by state law. It addresses land resources, biological resources, cultural resources, air quality and greenhouse gas emissions, water resources, and drainages.
- 5) **Parks, Recreation, and Open Space Element:** Although the Parks and Recreation components of this Element are not required by state law, the Open Space component is required. This element provides guidance for development of future parks and recreation facilities and programs, and the preservation, acquisition, management, and use of open space in the City.
- 6) **Noise Element:** The Noise Element is required by state law. It addresses existing and potential noise concerns in the community.
- 7) **Safety Element:** The Safety Element is required by state law. It addresses protection of the community from risks associated with the effects of flooding, seismic, and other geologic hazards, hazardous materials, and wild land fires.
- 8) **Economic Development Element:** While not required by state law, the Economic Development Element is included to promote a diversified economy and to promote sound fiscal policies.

5. Organization of the General Plan

Each element of the General Plan begins with a description of its purpose, its content, and its connection to the community's vision as outlined in the Vision chapter. Each element then provides an overview of its salient issues relative to the Chino Hills community, and concludes with goals, policies, and actions designed to address the issues.

Within each element, the goals, policies, and actions measures function as follows:

- **Goal:** A goal is a general direction-setter. It is an ideal future end related to the public health, safety, or general welfare.
- **Policy:** A policy is a statement that guides decision-making and action. It indicates a commitment of the local legislative body to a particular course of action. A policy is based on and helps implement a General Plan's goals. Each goal must have at least one corresponding policy.
- **Action:** An action is an implementing procedure, program, or technique that carries out General Plan policy. Each policy must have at least one corresponding implementation measure.

D. AMENDMENT OF THE GENERAL PLAN

Amending the General Plan requires compliance with certain provisions of the *California Government Code*. The General Plan must be amended in the same manner as its original adoption: by resolution of the City Council upon recommendation by the Planning Commission.

The City may adopt no more than four amendments per element per year. However, this limitation does not apply under the following conditions, which could be applicable to Chino Hills:

- Optional elements
- Amendments requested and necessary for affordable housing
- Any amendment necessary to comply with a court decision in a case involving the legal adequacy of the General Plan
- Amendments to bring a General Plan into compliance with an airport land use plan

In addition, the State of California recognizes the dynamic nature of the General Plan and provides for periodic review of the document to ensure that it is consistent with the conditions, values, expectations, and needs of the community. The City annually prepares a General Plan Progress Report detailing the status of the General Plan and progress in its implementation. The annual progress report assists the City in determining the ongoing effectiveness of the General Plan and identifying necessary “course adjustments” to land use and environmental goals, policies, and implementation measures.

ENVIRONMENTAL JUSTICE

Government Code Section 65302 requires that General Plans include either an Environmental Justice Element or related goals, policies, and objectives integrated into other elements that identify any disadvantaged communities within the Planning Area, and provide policies to reduce the unique or compounded health risks facing those communities.

Much of the state environmental justice policies focus on disadvantaged communities. The term “disadvantaged community” (DAC) is defined by the California Health and Safety Code, Section 39711, and refers to areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure to hazards or environmental degradation, and socio-economic vulnerability, determined by concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment. Identifying DACs is the responsibility of local jurisdictions. SB 1000 specifies several ways for local jurisdictions to identify DACs, including the “off-the-shelf” method of using public maps published by the California Environmental Protection Agency (CalEPA), which is responsible for identifying disadvantaged communities pursuant to Health and Safety Code Section 39711.

The California Communities Environmental Health Screening Tool (“CalEnviroScreen”) is a data tool developed by CalEPA’s Office of Environmental Health Hazard Assessment (OEHHA) pursuant to Health and Safety Code Section 39711 and other statutory requirements. According to this screening tool, no disadvantaged communities have been identified by CalEPA in Chino Hills. (Reference: <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>)

However, to ensure that the principles of environmental justice are incorporated into this General Plan, the City retained a consultant to assess environmental justice conditions in the City and develop policies to address identified conditions. The consultant, Dudek, conducted a community survey and participated in a November 2022 General Plan public workshop to gain community input regarding environmental justice issues in Chino Hills. Dudek summarized its assessment and presented recommended policies in an Environmental Justice Existing Conditions and Policy Menu, February 2023, included in Appendix A .

A. ENVIRONMENTAL JUSTICE CONDITIONS

Existing conditions assessed in the Dudek Environmental Justice report include Health, Healthy Foods, Parks, Public Transportation, Libraries and Community Centers, Safe Walking and Biking, Safe and Sanitary Homes, Air Pollution, and Hazardous Materials.

Overall, Chino Hills residents are found to be healthier than other San Bernardino County or State of California residents, with less incidences of asthma, cardiovascular disease, diabetes, obesity, and low birth rate. Although Chino Hills has ample healthy food options, most of those options are located in the northern and eastern portions of the City, and not within a comfortable walking or biking distance for most residents.

Chino Hills has an ample park system, consisting of 4 community parks, 32 neighborhood parks and 5 nature parks, distributed throughout the City. To address the changing recreational needs

of its residents, the City maintains a Parks and Recreation Master Plan⁴ and continues to modify and renovate existing facilities as needed.

Although most Chino Hills residents have access to cars, the City has only one public transit stop. OmniTrans provides an on-demand OmniRide service. However, without greater transit options, Chino Hills residents are less likely to ride transit to work than residents in other parts of the county and state.

Similar to its extensive parks system, Chino Hills has numerous community facilities to serve its residents, including a Civic Center that contains the James Thalman Library, San Bernardino County Sheriff's Department building, Chino Valley Fire District administration building, and an adjacent U.S. Postal Service office. Additionally, the City has a large Community Center, McCoy Equestrian & Recreation Center, Mystic Canyon Community Building, Sleepy Hollow Community Building, and many parks with gazebos that can be rented by residents for private gatherings.

Chino Hills has over 48 miles of trails and ample sidewalks for residents to walk, with low rates of pedestrian injuries compared to the county and the state. Available bike lanes in the City are generally limited to Class II, a striped on-street lane. Residents who responded to the Environmental Justice survey indicated that they would bike more frequently if bikeways were separated from vehicle traffic by a physical barrier.

Overall, housing in Chino Hills is well maintained. In a 2021 windshield survey conducted as part of the Housing Element update, 97% of the City's housing stock was found to be sound, with 3% needing minor repairs, and only one house needing major structural repairs. Also, with limited heavy industry in the City, residents of Chino Hills are less concerned about air pollution and hazardous materials than residents in other parts of the county or state.

B. ENVIRONMENTAL JUSTICE POLICY MENU

An Environmental Justice Policy menu was developed to address these above-described environmental justice conditions within Chino Hills. The policy menu starts with the vision statement: *A Chino Hills that supports environmental justice for all ethnic, racial, and socioeconomic community members*. Its policies are incorporated in the General Plan by element and topic, as indicated below:

1. Land Use Element

Healthy Balanced Neighborhoods

- a) Pursue programs and services that assist senior, disabled, and lower income households to locate and remain in Chino Hills neighborhoods.

⁴ The Parks Master Plan is the City's implementation program for acquisition, development, and use of future park and recreation facilities and programs; and is discussed further in the Parks, Recreation, and Open Space Element.

- b) Strive to locate groceries and other healthy food retailers within a short or walking distance of all residents.
- c) Support farmers' markets in the community.
- d) Implement Housing Element policies that support maintenance of a both multifamily for sale housing and rental housing options.

2. Circulation Element

Public Facilities

- a) Prioritize transportation investments to increase safety around parks, open spaces, community centers, major shopping centers, schools, preschools, and childcare centers.
- b) Make available to the public, maps that show mobility routes for walking, biking, and transit, as well as, how these networks connect to schools, parks, healthy food, and transit.
- c) Require EV chargers in new public and private developments, including new multifamily developments.

Public Transportation

- a) Work to ensure that all transit stops have as many amenities as feasible such as: shade structures, water fountains, wayfinding, live route information, and bicycle parking.
- b) Partner with transit agencies to continue and further develop a free or reduced fare program, and other transportation modes such as dial-a-ride for youth, seniors, disabled, and other vulnerable populations.

Walking and Biking

- a) Make available to the public, maps that show mobility routes for walking, biking, and transit, as well as, how these networks connect to schools, parks, healthy food, and transit.
- b) Add bike lanes, sidewalks, and crosswalk improvements to close gaps in walking and biking networks and improve safe mobility across the City with a focus on areas around schools and public facilities.

3. Conservation Element

Air Pollution

- a) Require landscaping, ventilation systems, double-paned windows, setbacks, barriers, air filters and other measures to achieve healthy indoor air quality levels in the development of new sensitive land uses.

- b) Review CEQA checklist for Air Quality Impacts to sensitive land uses and model mitigation measures consistent with the most recent CAPCOA handbook.
- c) Provide public information to let residents living within 1,000 feet of a freeway know what the risks are and what mitigation measures they can take. These would include things such as installing high-efficiency air filters, keeping windows closed in the early morning, refraining from outdoor exercise in the mornings, installing thick landscaping, reducing driving, and using public transport instead.
- d) Prioritize tree planting on high volume roadways adjacent to sensitive uses.

Hazardous Waste

- a) Partner with the City's franchised solid waste hauler to host regular cleanup events, including e-waste collection.
- b) Work with the County of San Bernardino and the City's franchised solid waste hauler to advertise programs and locations accepting household hazardous materials, such as paint, batteries, motor oil, and oil filters.

4. Parks, Recreation, and Open Space Element

Parks

- a) As part of future Parks Master Plan updates, consider opportunities for community gardens.
- b) Maintain shade trees and landscaping that makes parks more comfortable and visually appealing while adapting to extreme heat and drought.
- c) Continue to ensure that parks are available in all residential areas of the City.
- d) Provide a wide variety of recreation programs that meet the diverse needs of the community and contribute to the physical and mental health of the population.
- e) Provide in each park site, various facilities that, at a minimum, include bike racks, picnic tables, benches, drinking fountain, restrooms, signage, concrete trash receptacles, tot lot, and accommodations for at least one other sport or recreational activity.
- f) Ensure that all existing and future recreation facilities are accessible to everyone and consistent with the requirements of the Americans with Disabilities Act.
- g) Add or improve public access to WIFI in park

VISION

This General Plan is based on the community's vision for the future of the City of Chino Hills (City). This section identifies the vision that the City's General Plan is designed to achieve.

A. VISION PROCESS

From the time of its incorporation, the City has envisioned itself as a community with a high quality of life. Foremost in the citizens' vision has been the preservation of the rural character of Chino Hills. In the context of Chino Hills, "rural character" is provided by a sense of openness and a sense of living in a community that retains reminders of its agricultural roots as a ranching area for cattle, horses, and sheep. These rural attributes are preserved primarily through an extensive system of protected open space lands, including the hills that provide a backdrop to the community's residential and commercial areas. Development is generally clustered in the flatter areas of the City, near roadways.

The City articulated this vision in its first General Plan and defined a course through which the City has come to manifest the following characteristics:

- High-quality residential and commercial areas in a rural setting
- High level of public services
- Pleasing environment in which to live and work
- Local shopping and employment opportunities
- Ample outdoor recreation
- Increased tax base to support City government and the services it provides
- Retention of older and special neighborhoods
- Carefully managed growth
- Manageable traffic levels
- A cohesive community identity

As the City moves toward its next 20 years, remaining undeveloped lands are expected to develop, and the City will approach build-out. This change will bring new challenges to the City. For example, there could be fewer opportunities to accommodate state and regional housing objectives. Provisions for transit could require retrofit of roads or developments. Public facilities will age and require greater maintenance. Revitalization of older properties and buildings could be required.

To meet these challenges and maintain the City's high quality of life, this General Plan refines the City's vision into the following 20 statements. Each goal, policy, and implementation measure presented in the General Plan's elements is designed to meet these vision statements.

B. VISION STATEMENTS

The General Plan Update carries forward the City's vision to preserve the rural character of Chino Hills by maintaining an extensive system of protected open space lands including the hills and ridgelines, which provide a backdrop to the community's residential and commercial areas.

- V-1 A Chino Hills that continues to reflect high quality residential and commercial areas surrounded by a rural setting, defined by natural hillsides and open spaces.
- V-2 A Chino Hills that provides ample local shopping, services, and employment, and a secure tax base to support City government and the services it provides.
- V-3 A Chino Hills that protects the character and quality of the community and its neighborhoods.
- V-4 A Chino Hills that supports its commercial and employment centers.
- V-5 A Chino Hills that supports a sustainable balance of land uses, open spaces, and infrastructure.
- V-6 A Chino Hills that endeavors to plan for and facilitate a housing supply affordable to all income groups.
- V-7 A Chino Hills that supports healthy living.
- V-8 A Chino Hills that plans for the maintenance of its open space resources and protection of wildlife.
- V-9 A Chino Hills that continues to provide ample trails, parks, sports fields, and community facilities for enjoyment by the public.
- V-10 A Chino Hills that supports a wide range of transportation systems to ensure adequate and efficient access to, from, and within the City.
- V-11 A Chino Hills that participates in regional transportation planning programs.
- V-12 A Chino Hills that continues to provide a high level of public services and amenities for families and residents of all ages.
- V-13 A Chino Hills that continues to provide for adequate public utilities.
- V-14 A Chino Hills that supports water and energy conservation.
- V-15 A Chino Hills that supports regional water quality mandates.
- V-16 A Chino Hills that supports regional targets for reductions in greenhouse gas emissions.
- V-17 A Chino Hills that endeavors to minimize risks from naturally occurring hazards.
- V-18 A Chino Hills that endeavors to minimize risks from human-made hazards.

- V-19 A Chino Hills that minimizes noise/land use incompatibilities and supports the peace and serenity of its neighborhoods.
- V-20 A Chino Hills that supports environmental justice for all ethnic, racial and socioeconomic community members.

GOALS

To achieve the Chino Hills' vision for the future, each element of this General Plan establishes goals from which specific policies and actions are developed. These goals are summarized below and presented within each element specific to the issues that they are designed to address:

1. Land Use

- Goal LU-1: Protect Chino Hills' natural environment
- Goal LU-2: Balance residential with commercial, business, and public land uses
- Goal LU-3: Maintain, and enhance where feasible, the integrity of City neighborhoods
- Goal LU-4: Provide for excellence in urban design
- Goal LU-5: Plan for sustainable land uses
- Goal LU-6: Promote healthy balanced neighborhoods

2. Circulation

- Goal C-1: Provide a comprehensive vehicular transportation network
- Goal C-2: Support regional transportation policies that link Chino Hills to neighboring cities and counties
- Goal C-3: Provide safe and adequate pedestrian, bicycle, and public transportation systems to provide alternatives to single occupant vehicular travel and to support land uses
- Goal C-4: Encourage development that supports balanced land uses and alternative modes of transportation that reduce the reliance on the automobile
- Goal C-5: Ensure an adequate and well-maintained infrastructure system

3. Housing

- Goal H-1: Provide a range of housing types to meet the needs of existing and future residents
- Goal H-2: Maintain and enhance the quality of existing residential neighborhoods
- Goal H-3: Develop housing that is sensitive to environmental issues
- Goal H-4: Provide support services to meet the special housing needs of the City's residents
- Goal H-5: Promote equal opportunities to access housing for all persons regardless of age, race, religion, sex, marital status, sexual orientation, ancestry, national origin, color, familiar status, or disability

4. Conservation

- Goal CN-1: Preserve Chino Hills' rural character
- Goal CN-2: Protect Chino Hills' cultural resources
- Goal CN-3: Promote sustainable practices that conserve natural resources and reduce greenhouse gas emissions
- Goal CN-4: Ensure adequate water supply and delivery
- Goal CN-5: Provide for adequate and efficient solid waste disposal
- Goal CN-6: Promote clean air to reduce adverse effects on human health and the environment

5. Safety

- Goal S-1: Provide adequate emergency service
- Goal S-2: Educate at-risk and underserved communities
- Goal S-3: Increase the City's climate resilience
- Goal S-4: Protect City infrastructure and facilities
- Goal S-5: Maintain a safe and efficient evacuation network
- Goal S-6: Protect the community from geologic hazards
- Goal S-7: Protect the community from flooding hazards
- Goal S-8: Minimize the risk from fire hazards
- Goal S-9: Minimize the risk from hazardous materials

6. Parks, Recreation, and Open Space

- Goal PR-1: Provide a high quality and ample park and recreational opportunities for all residents
- Goal PR-2: Continue to plan, create, and maintain a system of safe accessible trails throughout the City
- Goal PR-3: Protect and preserve City designated open space areas

7. Noise

- Goal N-1: Manage existing noise sources
- Goal N-2: Limit new noise conflicts

8. Economic Development

- Goal ED-1: Promote a diversified economic base
- Goal ED-2: Support managed growth with sound fiscal and development policies



City of Chino Hills

General Plan

LAND USE ELEMENT

The Land Use Element contains a land use plan that designates all lands within the City of Chino Hills (City) for specific uses. The element also provides development regulations for each land use designation and general land use policies for the City.

A. PURPOSE THE LAND USE ELEMENT

The State of California requires all cities to include a Land Use Element within their General Plan that regulates the type and intensity of development by land use area. This Land Use Element functions as a guide to the ultimate pattern of development for the City.

As required by §65302(a) of the *California Government Code*, this Land Use Element describes the proposed general distribution, location, and extent of land uses within the City, including housing, business, industry, open space, recreation facilities, educational facilities, public buildings and grounds, solid and liquid waste facilities, flood hazard areas, agricultural land, and other categories of public and private uses of land. This element also describes standards of population density and building intensity for the land use designations.

B. CONNECTION TO COMMUNITY VISION

The Land Use Element supports the City's vision to preserve and enhance high quality, balanced development; the rural character of the natural environment; ample private and public services; sustainable land use patterns; community character; healthy living; and environmental justice. Toward this end, the Land Use Element focuses on implementing the following 8 of the City's 20 Vision Statements. (Numbers in parenthesis reference numerical order of Vision Statements as presented in the Vision section of this General Plan.)

1. A Chino Hills that continues to reflect high quality residential and commercial areas surrounded by a rural setting defined by natural hillsides and open spaces. (V-1)
2. A Chino Hills that provides ample local shopping, services, and employment, and a secure tax base to support City government and the services it provides. (V-2)
3. A Chino Hills that protects the character and quality of the community and its neighborhoods. (V-3)
4. A Chino Hills that supports its commercial and employment centers. (V-4)
5. A Chino Hills that supports a sustainable balance of land uses, open spaces, and infrastructure. (V-5)
6. A Chino Hills that endeavors to plan for and facilitate a housing supply affordable to all income groups. (V-6)
7. A Chino Hills that supports healthy living. (V-7)
8. A Chino Hills that supports environmental justice for all ethnic, racial and socioeconomic community members. (V-20)

C. RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Land Use Element is the driving element in the General Plan. Because it establishes the type, intensity, and pattern of land uses, it both shapes and is shaped by housing, transportation,

noise, air quality, infrastructure, public services, natural resources, safety, open space, and recreation issues.

Development permitted through the Land Use Element dictates the network and capacity of the Circulation Element roadway plan. It dictates the distribution of water and wastewater facilities described in the Conservation Element. It provides for a variety of residential dwelling unit types and densities that accommodate Housing Element mandates to provide housing opportunities for all members of the community. It is a precursor to future population trends that affect parks and recreational policies of the Parks, Recreation, and Open Space Element; public service policies of the Safety Element; and fiscal policies of the Economic Development Element. Land uses that are sensitive to noise, such as residential and school uses, form the basis for Noise Element policies that avoid or buffer excessive noise sources.

D. RELATIONSHIP TO OTHER LOCAL REGULATORY DOCUMENTS

The regulatory documents that are used to implement the General Plan Land Use Element on a day-to-day basis are summarized below.

1. Chino Hills Municipal Code

The Land Use Element establishes the primary basis for the zoning provisions within Title 16 of the Chino Hills Municipal Code (“Municipal Code”). As required by *California Government Code* §65860, zoning must be consistent with the General Plan. An action, a program, or a project is consistent with the General Plan if, considering all its aspects, it will further the objectives and policies of the General Plan and not obstruct the attainment of those objectives and policies.

Title 16 of the Municipal Code translates the land use designations provided in the Land Use Element into detailed descriptions of permitted uses, development standards, and other regulations intended to implement the General Plan.

2. Specific Plans

Specific Plans are required to conform to the General Plan. Specific Plans function as the primary zoning document for a particular area, providing focused guidance and regulation specific to the project site. They include a land use plan, a circulation plan, an infrastructure plan, development standards, design guidelines, a phasing plan, a financing plan, and an implementation plan.

3. Subdivision Ordinance

The Chino Hills Subdivision Ordinance is part of the Municipal Code and ensures that all subdivisions within the City are designed with the infrastructure necessary to support the proposed development, including road access, drainage, parks, school sites, utilities and related easements, and lot size and configuration.

E. LAND USE ELEMENT ISSUES

The primary issues that shape the Chino Hills Land Use Plan and the goals, policies, and actions of this Land Use Element are summarized below.

1. Future Growth

Much of the land in the City designated for development has been built. Vacant land that remains, primarily consists of hillside properties or properties constrained by natural resources or hazards, and will accommodate only limited growth.

Outside pressures for growth are expected to come from current or new state regulations that call for adequate housing sites. To accommodate requirements of the Regional Housing Needs Assessment (RHNA), future multifamily sites that can support very high density development must be identified. Other outside pressures for growth come from state and regional directives for mixed use and transit-oriented development. Opportunities for such development will depend on future regional transit links, and will likely occur along major arterials.

This Land Use Element plans for these outside pressures by promulgating land use designation changes that identify new multifamily housing sites and mixed use sites that allow a mix of commercial and residential land uses.

The City's population substantially grew since incorporation in 1991; however, the City experienced a small decline in the past two years. Projected residential unit growth including the 6th RHNA cycle, as detailed in Table 1-9 of this element, shows a buildout total of 31,454 residential units. Table 1-1 summarizes population growth through 2045.

Table 1-1 – Chino Hills Population Growth			
	2023	2045	Persons Per Household
Population	77,058	95,620	3.04*
* Persons per household based on Department of Finance and Southern California Associated Governments data.			

2. Sustainable Development

Sustainable development is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.¹ In terms of a land use plan, sustainability encourages centralized land uses, mixed uses, and preservation of open spaces.

From a community standpoint, sustainability coincides with a high quality of life. It provides for easily accessible public and commercial land uses, trails and walkable spaces, natural open spaces, and efficient energy systems that contribute to a cleaner environment and a healthy community.

The City has been developed on sustainable principles. Most development is located on relatively flat terrain. Commercial land uses are clustered along major arterials. City policies protect natural ridgelines and open spaces. The City has 3,188 acres of publicly owned open space, 44 parks,

¹ World Commission on Environment and Development, 1987.

and 48 miles of trails. Current and future sustainable development is supported by the Land Use Element.

3. Jobs/Housing

In 2019, Chino Hills had 17,710 jobs and 25,834 housing units², for a jobs to housing ratio of 0.69. By 2050, Chino Hills is projected to have 18,287 jobs and 31,454 housing units³, for a jobs to housing ratio of 0.58. This data demonstrates most Chino Hills residents commute outside the City to work and will continue to do so in the future.

A balance of jobs to housing is based on the premise that vehicle miles traveled and time spent commuting can be reduced when sufficient jobs are available locally. Benefits of a healthy jobs-to-housing balance are reduced mobile air pollutant emissions and improved quality of life for workers experiencing a shorter commute time. More jobs can also translate into more tax revenue for the City.

Retail jobs in 2017 accounted for 14% of the jobs in the City.⁴ Retail jobs generate sales tax that supports City services, and provide convenient shopping opportunities for the City's residents, workers, and visitors. Recent large commercial developments in the City have helped to expand retail job growth and retail sales tax.

Chino Hills' highly educated labor force gives it a key competitive ingredient necessary to compete for office and technology related employment. Nearly 48% of the City's adult residents have a bachelor's degree or higher. However, while the City has the labor force advantage needed to lure office operations, its available lands for office and business uses are almost fully developed, limiting opportunities for expanded job producing uses. Supporting the City's supply of business and commercial sites is supported by the Land Use Element.

4. Community Character

Long-established neighborhoods, including Sleepy Hollow, Los Serranos, Canon Lane, and the English Road area, have been integrated into the community without losing their unique identity. Small ranches and large-lot residential areas suitable for keeping horses are an important aspect of the City's rural character.

Retaining the character of established communities, while ensuring compliance with current legislative requirements, is a focus of the General Plan inclusive of this Land Use Element.

5. Chino Hills State Park

Chino Hills State Park is a 14,173-acre land preserve, 7,325 acres of which are within the City's boundaries. It is located in a group of hills that includes the Puente Hills to the northwest. The Park has approximately 88 miles of trails⁵ (48 miles of trails in Chino Hills) for hiking, biking, and equestrian riding, and facilities for overnight camping. The Land Use Element promulgates policies to avoid intrusions into the Park's sensitive habitat areas, open spaces, and vistas.

² Table 1-1: E-5 City/County Population and Housing Estimates, 1/1/2023.

³ Refer to Table 1-5, below.

⁴ SCAG 2023 Local Profiles – Chino Hills.

⁵ Chino Hills State Park Road and Trail Management Plan, December 2020; accessed September 1, 2022.

6. Boys Republic

Since 1907, Boys Republic's main campus has been located in Chino Hills. Students live in 25 onsite cottages, within an open and sprawling 200-acre farm and school. The self-contained campus offers multi-disciplinary treatment for teenagers in need of highly structured supervision. An on-grounds high school, vocational preparedness and work experience programs, athletics, and student government leadership training keep the young residents busy and productive.

The City has developed around the Boys Republic campus. Today the property is bordered by the Chino Valley Freeway (SR-71) and surrounded mostly by commercial and civic uses. This Land Use Element continues to recognize the unique institutional nature of the Boys Republic. At some future date, if the Boys Republic moves from this property, appropriate future uses should be carefully planned to consider the property's size and important location adjacent to SR-71, existing high quality retail, and the City Civic Center.

7. Overlay Districts

Overlay districts are created to implement policies relative to special land uses and environmental or safety conditions. The City of Chino Hills has and continues to apply overlay districts through both its General Plan and Municipal Code.

a. Existing Overlay Districts

Previously, the 1994 General Plan identified six overlay districts. These overlay districts included Biotic Resources, Geologic Hazard, Fire Hazards, Small Lot, Agricultural Preserve, and Scenic Resources. In 2014, the City added the Equestrian and Large Animal overlay, totaling seven overlays.

As part of the 2015 General Plan, the Agricultural Preserve overlay district was deleted, bringing the total overlays back down to six. It had previously applied to properties within an agricultural preserve established pursuant to the California Land Conservation Act of 1965. No properties within the City remain in an agricultural preserve.

The 2015 General Plan also recommended removing references to the Scenic Resources overlay. No scenic highways within Chino Hills have been designated by the state or the City. There are no candidates for the scenic highway land use designation. Consequently, the scenic corridor aspect of the overlay district was removed in 2022. However, the City's Ridgeline Protection Ordinance requires development to respect designated Ridgelines and Knolls, so the Scenic Resources Overlay recognizes these features.

b. General Plan Overlay Districts

This General Plan carries forward the six overlays. These overlay districts are described below.

- (1) **Biotic Resources.** The Biotic Resources Overlay District applies to areas of the City that have been identified by a state or federal agency as habitat for plants or animals officially listed as threatened or endangered by the state of California and/or the federal government. The overlay district generally follows the sensitive and native habitat areas mapped on Figure 1-2 CNDDDB Identified Special Status Species in Chino Hills in the Conservation Element, but may also apply to other non-mapped sensitive and

native habitat areas within the City. This district is carried forward within the Conservation Element of this General Plan.

- (2) **Geologic Hazard.** The Geologic Hazard Overlay District is mapped and applies to potentially active seismic faults and areas where landslides, liquefaction hazards, and other geologic hazards are known or suspected to occur. The Chino Fault is active and subject to the Alquist-Priolo Act. The map for the Geologic Hazard Overlay District is within the Safety Element of this General Plan as shown in Figures 5-1 to 5-4.
- (3) **Fire Hazard.** The Fire Hazard Overlay District is mapped and applies to high fire hazard areas. The Fire Hazard Overlay Map of the City was updated in 2005. It identifies areas in the City subject to fire hazards and areas not subject to fire hazards. The Fire Hazard Overlay District map is within the Safety Element of this General Plan as shown in Figure 1-1 and within the Municipal Code.
- (4) **Small Lot.** The Small Lot Overlay District is shown in Figure 1-2 and mapped on the City Zoning Map and applies to all lots within the following areas.
 - The Canon Lane area, including Tract 1913 and Tract 1945
 - Portions of the Los Serranos area, including Tract 1932; Tract 2557; Tract 2562; and Tract 2576
 - The Sleepy Hollow area, including Tract 1868; Tract 2037; Tract 2211; and Tract 2358
 - The “Carbon Canyon Tract”
 - The “Sleepy Hollow Tract”

The Small Lot Overlay District established special development standards for areas where substandard lots had been created through previous subdivision activity. The special standards are designed to ensure that the overall development intensity in small lot areas does not exceed infrastructure capacities and that structures built consistent with the standards applicable at the time are not legal non-conforming. The Small Lot Overlay District is mapped on the City Zoning Map.

- (5) **Scenic Resources.** The Scenic Resources Overlay District is currently defined by the Municipal Code as:
 - a) Prominent ridgelines, view windows, and viewsheds as defined in Chapter 16.08 (and shown in Figure 1-3 and in the Municipal Code).

Maps and policies regarding prominent ridgelines are contained in the Municipal Code. These policies identify Exceptionally Prominent Ridgelines, Prominent Ridgelines, Prominent Knolls, and Important Visual Resources.

- (6) **Equestrian and Large Animal.** The Equestrian and Large Animal Overlay District establishes boundaries in which properties are permitted to keep horses and other large animals. Designated properties include commercial, residential, and open space lands, which are regulated according to the maximum number of animals permitted. The overlay district stipulates operational requirements regarding compliance with the

National Pollutant Discharge Elimination System (NPDES). The Equestrian and Large Animal Overlay District is defined and mapped as shown in Figure 1-4 and within the Municipal Code.

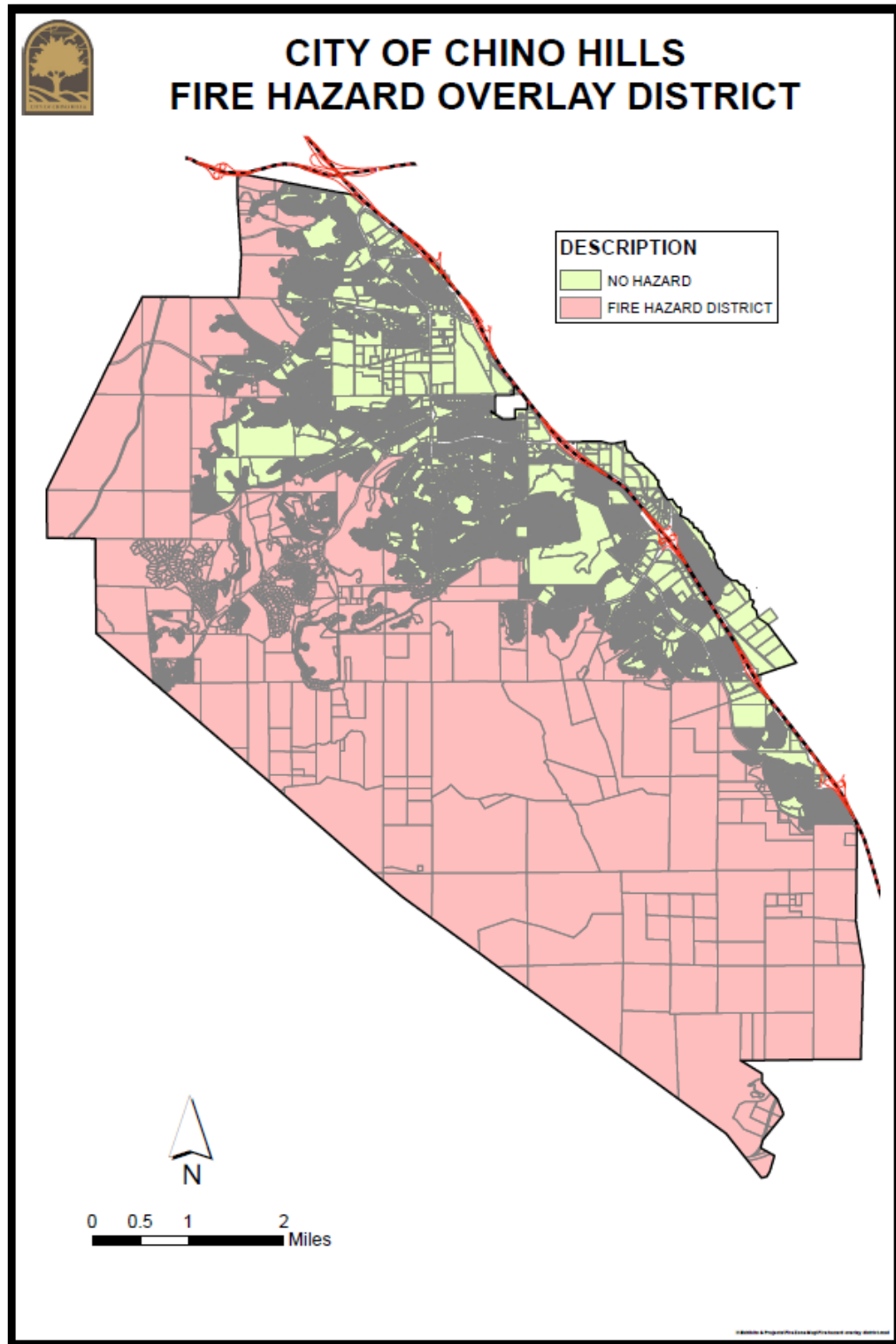


Figure 1-1 – Fire Hazard Overlay



CITY OF CHINO HILLS

SMALL LOT OVERLAY

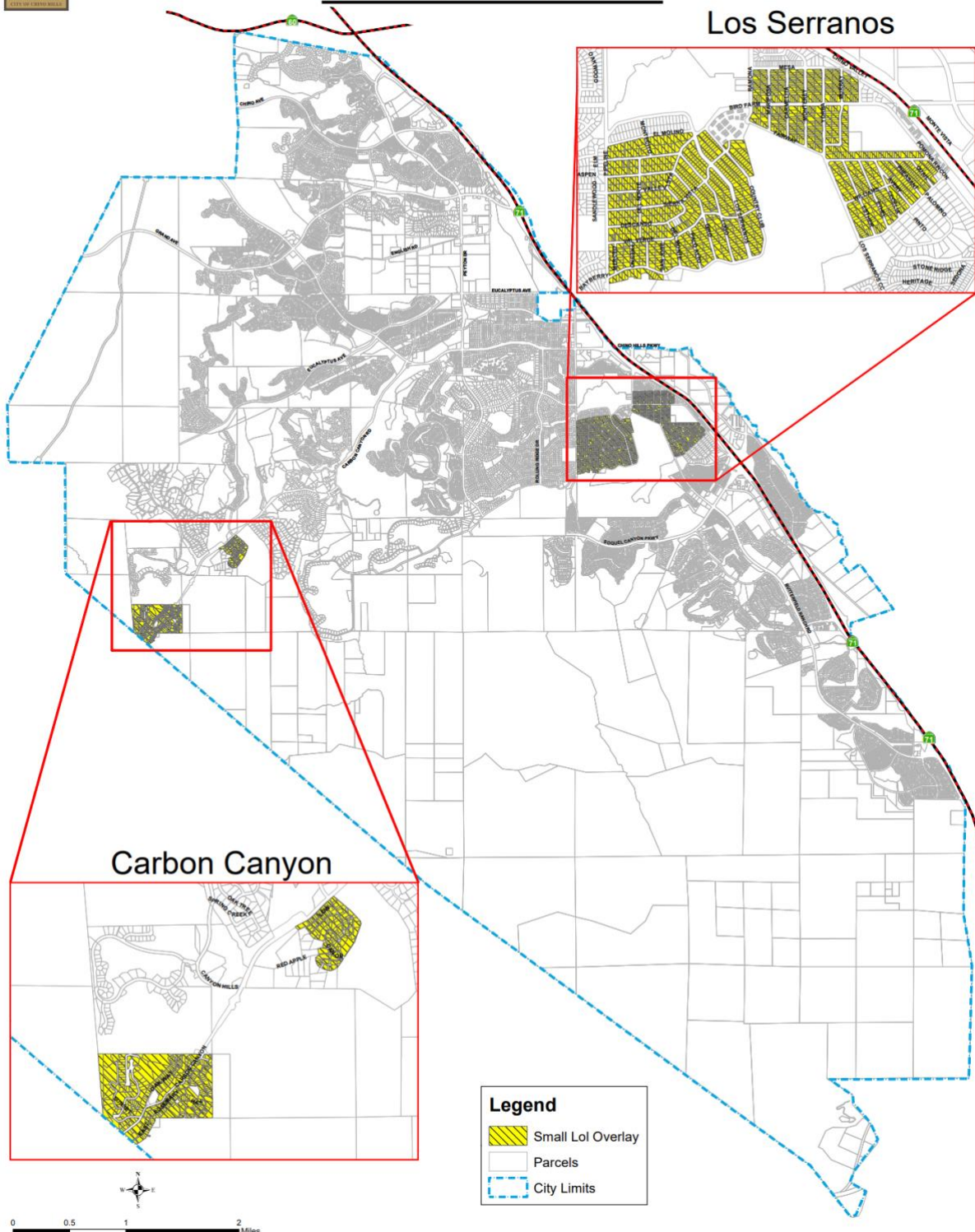


Figure 1-2 – Small Lot Overlay



CITY OF CHINO HILLS RIDGELINE MAP

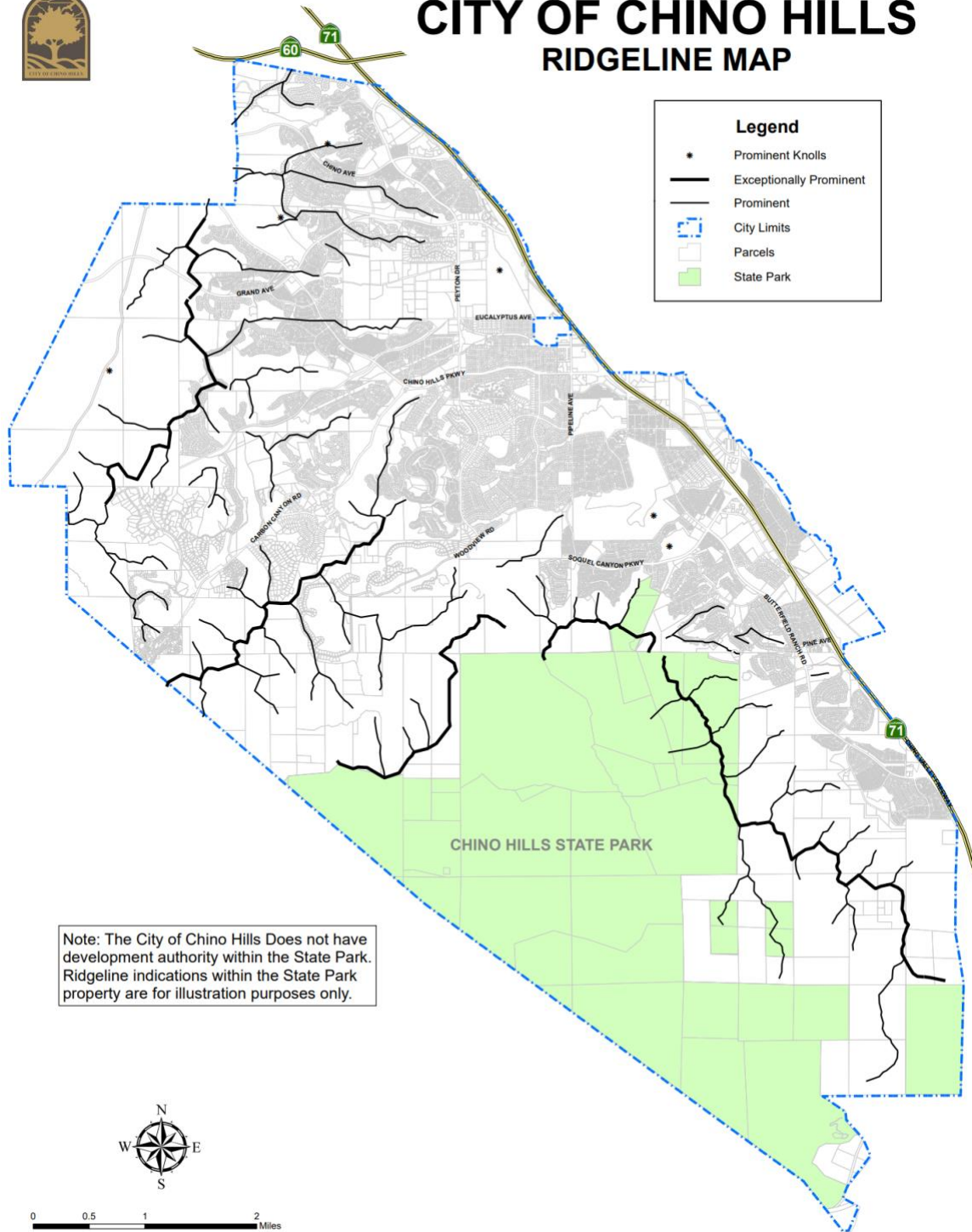


Figure 1-3 – Scenic Resources Overlav

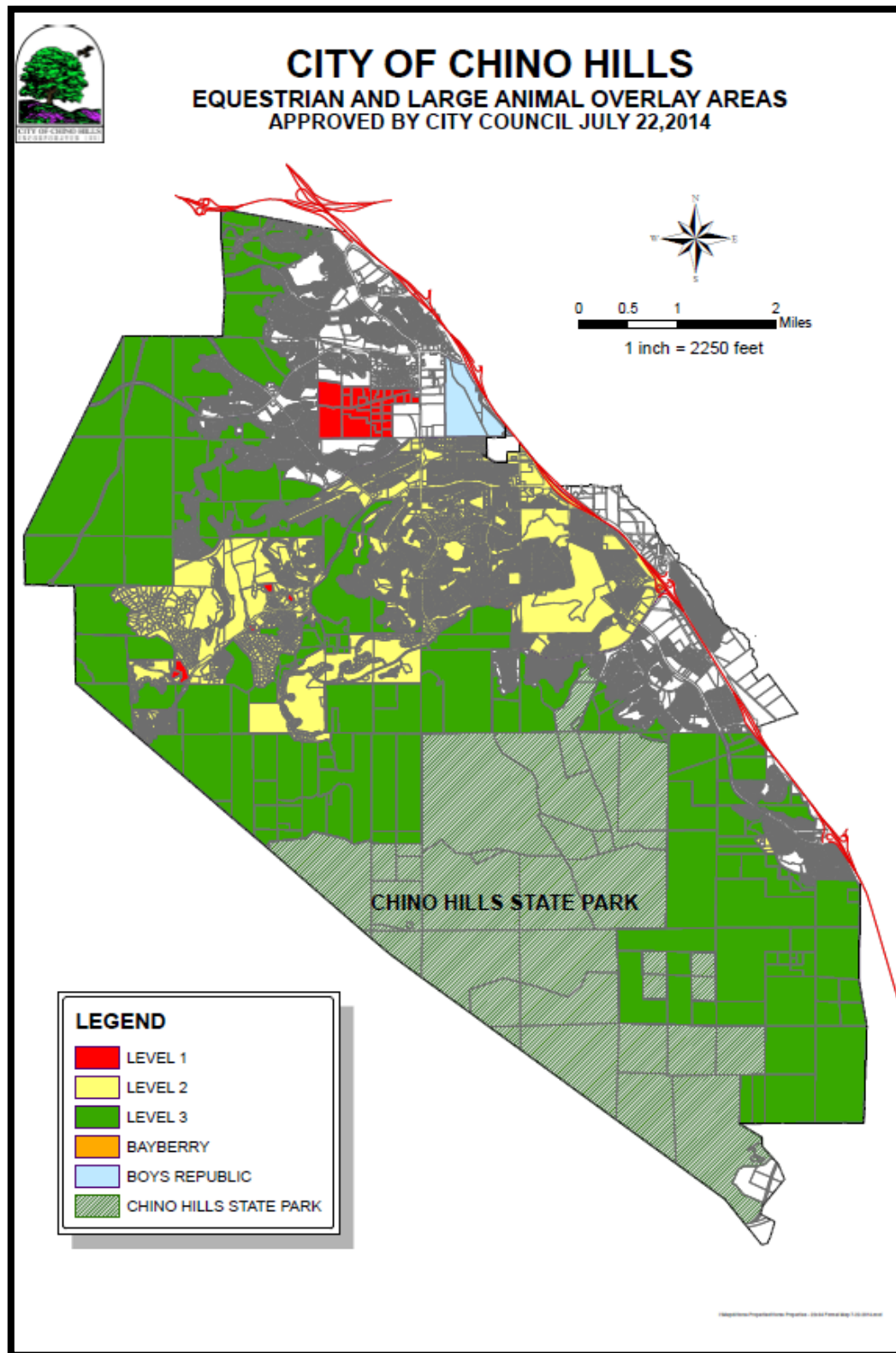


Figure 1-4 – Equestrian and Large Animal Overlay

8. New Residential Land Uses

The new residential land uses are established to implement the goals and policies of the General Plan 6th Cycle Housing Element by facilitating development of housing at appropriate densities to accommodate the City's allocation of "lower income" and "moderate" income households, consistent with Government Code Section 65583. The new residential land uses are consistent with Housing Element Policy H-1.1, which states: *Maintain sufficient land designated and appropriately zoned for housing to accommodate Chino Hills' Regional Housing Needs Assessment (RHNA) in locations throughout the community.*

To satisfy this policy, the new land uses incorporate 7 "lower income" and 2 "moderate" income RHNA sites that require a General Plan land use change to allow residential uses or higher density residential uses.

Four new residential land use categories are established:

- Medium Density Housing
 - Urban High Density Housing
 - Very High Density Housing
 - Mixed Use Housing
- a. **Medium Density Housing.** The Medium Density Housing land use is established to facilitate development of the Housing Element to accommodate "moderate income" sites. Residential densities permitted within this land use designation range are from 9 to 12.5 du/ac, as indicated on Table 1-2. Locations of Medium Density Housing sites are shown in Figure 1-5.

Table 1-2 – Medium Density Housing Sites			
Site	Housing Element Allocated Number of Units	Acres	Density (du/ac)
Canyon Estates	160	13.4	9 -12.5
Wang	275	30.5	9 -12.5

- b. **Urban High Density Housing.** The Urban High Density Housing land use is established to facilitate development of the Housing Element to accommodate "lower income" sites within an urban setting, defined as adjacent to commercial and civic uses. Residential densities permitted within this land use designation range from 30

du/ac to maximum of 93 du/ac, as indicated in Table 1-3. The location of the Very High Density Housing Urban site is shown in Figure 1-5.

Table 1-3 – Urban High Density Housing Sites			
Site	Housing Element Allocated Number of Units	Acres	Density (du/ac)
Shoppes II	744	8.0	30-93

- c. **Very High Density Housing.** The Very High Density Housing land use is established to facilitate development of the Housing Element to accommodate “lower income” sites. Residential densities permitted within this land use designation range from 20 du/ac and a maximum of 30 du/ac, as indicated in Table 1-4. Locations of Very High Density Housing land uses are shown in Figure 1-5.

Table 1-4 – Very High Density Housing Sites			
Site	Housing Element Allocated Number of Units	Acres	Density (du/ac)
Park Overflow	50	1.8	20-30
Los Serranos Golf Course	532	21.3	20-30
Western Hills Golf Course	166	8.3	20-30
Wang	148	7.3	20-30

- d. **Mixed Use Housing.** The Mixed Use Housing land use designation is established to facilitate development of the Housing Element to accommodate “lower income” sites within a commercial center. Residential densities permitted within this land use designation range from 30 du/ac to maximum of 47 du/ac, as indicated in Table 1-5. Locations of Mixed Use Housing sites are shown in Figure 1-5.

Table 1-5 – Mixed Use Housing Sites

Site	Housing Element Allocated Number of Units	Acres	Density (du/ac)
Shoppes	267	5.7	30-47
Commons*	300	30.2	30-47

*Acreage and density requirements detailed in The Commons Specific Plan SP06-01.

9. Solid Waste Facilities

No solid waste facilities are currently located within the City limits of Chino Hills. Solid waste from the City is hauled to the Pomona Valley Transfer Station located at 1371 E. 9th Street in Pomona. From there, the solid waste is transported to the El Sobrante Landfill located at 10910 Dawson Canyon Road in Temescal Valley. The design capacity of the landfill is 209.91 million cubic yards. There are currently no needs or plans for new or expanded solid waste facilities to serve Chino Hills.⁶

10. Liquid Waste Facilities

No liquid waste facilities are currently located within the City limits. Wastewater from the City is piped to Regional Plant No. 2 (RP-2), located at 16400 El Prado Road in Chino. RP-2 treats an annual average flow of 5.0 MGD (million gallons per day). RP-2 works in tandem with the Carbon Canyon Wastewater Reclamation Facility (CCWRF), which is located at 14950 Telephone Avenue in Chino. CCWRF treats an annual average flow of 8.0 MGD and has a process capacity of 14 MGD. Recycled water from these facilities provides a supplemental water source. Both RP-2 and CCWRF are owned and operated by the Inland Empire Utilities Agency (IEUA).

Current expansion projects at IEUA's Regional Plant-5 (RP-5), located at 6063 Kimball Avenue in Chino, will allow the decommissioning of RP-2. RP-2 is located on leased land from the U.S. Army Corps of Engineers (USACE) and will be in the flood plain when USACE raises the elevation of the Prado Dam. The process capacity at RP-5 will increase from 15 MGD to 22 MGD.

Capacity at RP-5 and CCWRF are expected to be adequate to serve the City's wastewater requirements through year 2035. There are currently no plans by IEUA or another wastewater utility to locate future liquid waste facilities in the City. Consequently, location of future liquid waste facilities is not considered in this Land Use Element. Wastewater capacity is addressed in the Conservation Element of this General Plan.

F. LAND USE PLAN

Physical development in the City is classified according to major land use designations: Residential, Commercial, Open Space, Institutional/Public Facility, or Mixed Use. The Residential,

⁶ Email communication with Glenda Chavez, Public Sector Manager, Waste Management, October 11, 2022

Commercial, and Open Space major designations are further disaggregated within the Land Use Plan.

Each of the new residential land use designations described in Tables 1-1, 1-2, 1-3, and 1-4, above, are included in the Land Use Plan. In addition, two “above moderate income” sites identified in the Housing Element are included in the Land Use Plan: A portion of the Canyon Estates property for 96 single family units, on a 16-acre site, with a maximum density of 6 du/ac. The balance of the site will remain Agriculture/Ranches to achieve the total of 166 single-family units identified in the Housing Element; and a portion of the Los Serranos Golf Course for 41 single family units, on a 6.9-acre site, with a maximum density of 6 du/ac. At the time the Housing Element was being prepared, 124 single-family units were proposed on the Los Serranos Golf Course, however, only 41 units are needed to fulfill the above moderate income allocated units under RHNA. Therefore, a portion of the golf course will be re-zoned for only the 41 units to accommodate the shortfall.

The Land Use Plan, including all land use designated changes required by the Housing Element, is graphically described in the Land Use Map (reference Figure 1-5 – General Plan Land Use Map.)

The Land Use Plan is supported by Table 1-6 – General Plan Land Uses by Acres and Percent of Total Acres. Table 1-7 – Relationship of Land Use Designations to Municipal Code Districts; Table 1-8 – General Plan Land Use Designation Descriptions; Table 1-9 – Adopted Specific Plans by Land Uses and Acres; and Table 1-10 – Land Use Designations by Acreage and Development Intensity.

Table 1-6 – General Plan Land Uses by Acres and Percent of Total Acres

Land Use Designation	General Plan Acres	Percent of Total Acres
Residential		
Agriculture/Ranches	7,169	26.7%
Rural Residential	782	3.0%
Low Density Residential	3,644	13.6%
Medium Density Residential	353	1.3%
High Density Residential	309	1.2%
Very High Density Residential	34	0.1%
Subtotal	12,489	46.6%
Commercial		
Commercial	398	1.4%
Business Park	63	0.2%
Commercial Recreation	806	3.0%
Subtotal	1,267	4.8%
Open Space		
Public Park	295	1.1%
Public Open Space	3,182	11.9%
Private Open Space	1,460	5.5%
Chino Hills State Park	7,325	27.3%
Subtotal	12,262	45.8%
Institutional/Public Facility	643	2.4%
Mixed Use	56	0.2%
Total	26,754*	100%

*The 26,754-acre figure represents the total acreage of properties within the City that are provided with Land Use Designations in the updated General Plan Land Use Map. Public and private streets and State Route 71 are not provided with a Land Use Designation and are not included within the Total Acreages figure. Public and private right-of-way occupies an additional 1,982 acres within the City's boundaries. The City's total area, including properties with Land Use Designations and right-of-way, is 28,736 acres (or approximately 45 square miles).

1. General Plan Land Use Designations Relationship to the Municipal Code Districts

Table 1-7 shows the relationship between General Plan land use designations and their respective Municipal Code districts or Specific Plan.

Table 1-7 – Relationship of Land Use Designations to Municipal Code Districts

General Plan Land Use Designation	Municipal Code District or Specific Plan
Residential	
Agriculture/Ranches	Agriculture-Ranches (RA)
Rural Residential	Rural Residential (R-R)
Low Density Residential	Low Density Residential (R-S)
Medium Density Residential	Medium Density Residential (RM-1)
High Density Residential	High Density Residential (RM-2)
Very High Density Residential	Very High Density Residential (RM-3)
Medium Density Housing	Medium Density Housing (MDH)
Urban High Density Housing	Urban High Density Housing-1 (SP04-01, VHDH-1)
Very High Density Housing	Very High Density Housing (VHDH); Very High Density Housing-2 (SP04-01, VHDH-2)
Commercial	
Commercial	Neighborhood Commercial (C-N) General Commercial (C-G) Commercial Freeway (C-F)
Business Park	Business Park (BP) Light Industrial (LI)
Commercial Recreation	Commercial Recreation (C-R)
Open Space	
Public Park	Public Park (PP)
Public Open Space	Open Space Public (OS-2)
Private Open Space	Open Space Private (OS-1)
Chino Hills State Park	State Park Property
Institutional/Public Facility	
Institutional/Public Facility	Institutional Private (I-1) Institutional Public (I-2)
Mixed Use	
Mixed Use	Mixed Use (M-U)
Mixed Use Housing	Mixed Use Housing (MUH) (SP04-01) (SP06-01)

2. General Plan Land Use Designation Descriptions

Each land use designation is defined in Table 1-8 – General Plan Land Use Designation Descriptions in terms of permissible uses and intensity of physical development.

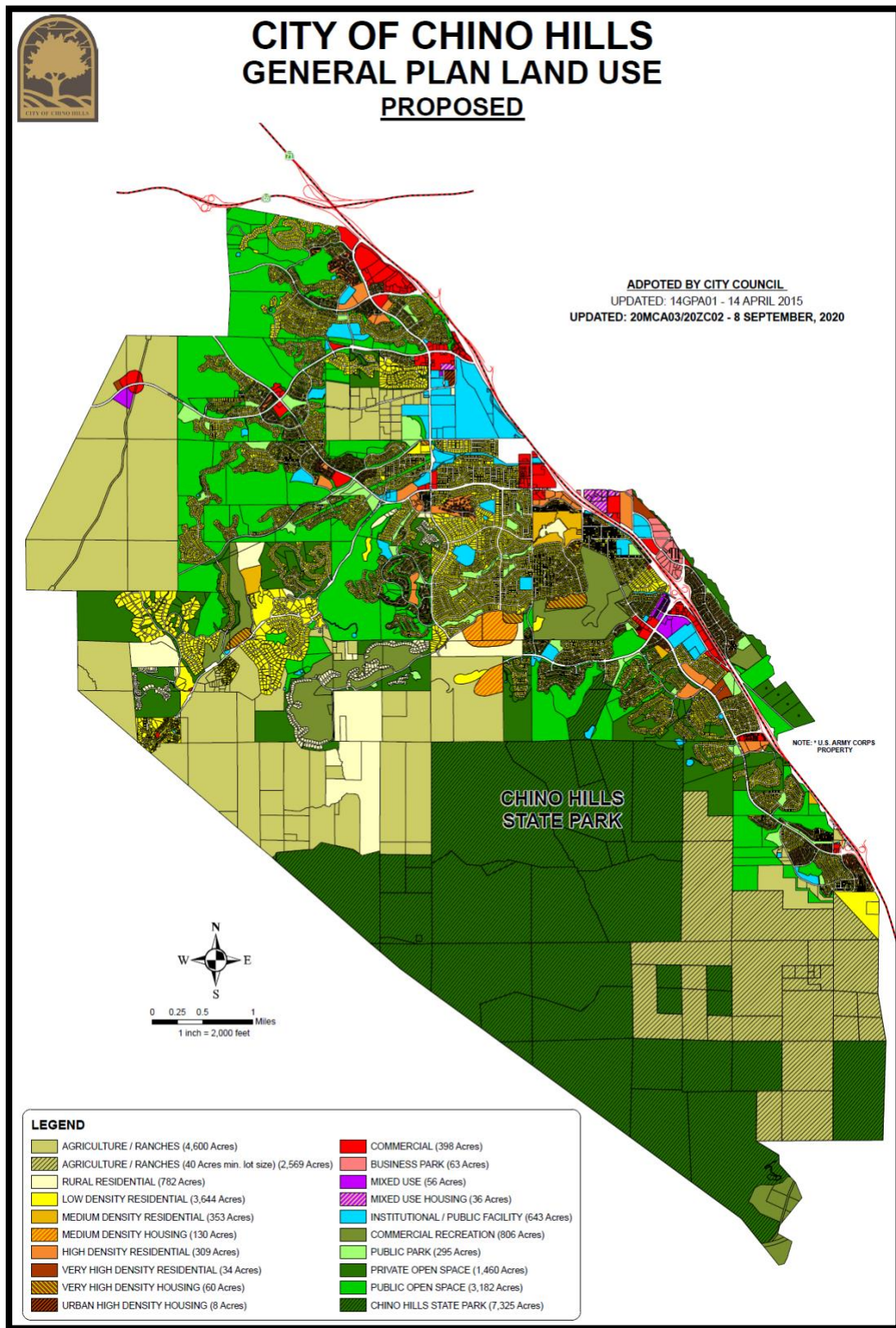


Figure 1-5 – General Plan Land Use Map

Table 1-8 – General Plan Land Use Designation Descriptions

Designations	Definition	Development Standards
Residential		
Agriculture/Ranches	The Agriculture/Ranches land use designation permits residential development on very large lots, five acres in size or more. To protect environmental and visual resources, clustering of development is encouraged. This designation also permits agriculture as a primary use subject to a site development permit.	0.2 du/ac maximum ^[a] Refer to Agriculture-Ranches (R-A) development standards within the Municipal Code. To protect environmental and visual resources, minimum lot size may be reduced as specified in the Municipal Code, provided the overall density of the parcel is not increased.
Rural Residential	The Rural Residential land use designation permits residential development on large lots, with a minimum of one-half acre or larger. To protect environmental and visual resources, clustering of development is encouraged.	2 du/ac maximum Refer to Rural Residential (R-R) development standards within the Municipal Code. To protect environmental and visual resources, minimum lot size may be reduced as specified in the Municipal Code, provided the overall density of the parcel is not increased.
Low Density Residential	This land use designation includes areas proposed for development with conventional single-family detached housing. Development at this density requires full urban levels of service and public improvements. On large parcels, development will be concentrated in more developable areas with large contiguous areas left as open space.	6 du/ac maximum Refer to Low Density Residential (R-S) development standards within the Municipal Code.
Medium Density Residential	This land use designation includes densities appropriate for single-family attached townhouses, two-story townhouses, condominiums, and low-density apartments. This land use designation is generally applied in areas of relatively flat land with good access to arterial streets and public services. On large parcels, development should be concentrated in more developable areas, with large contiguous areas left as open space. Parcels should	12 du/ac maximum Refer to Medium Density Residential (RM-1) development standards within the Municipal Code.

Designations	Definition	Development Standards
	be laid out to minimize visual impact of development as well as roads. Residential developments in this land use designation will be designed to create a high quality living environment, with pleasing architecture and landscaping.	
High Density Residential	This land use designation includes higher density condominiums and apartments. On large parcels, development should be concentrated in more developable areas, with large contiguous areas left as open space. Residential developments in this land use designation will be designed to create a high quality living environment, with pleasing architecture and landscaping.	25 du/ac maximum Refer to High Density Residential (RM-2) development standards within the Municipal Code.
Very High Density Residential	This land use designation is applied to sites adjacent to shopping and employment areas. It is intended for rental and ownership units. Residential developments in this land use designation will be designed to create a high quality living environment, with pleasing architecture and landscaping, and to be compatible with surrounding development.	35 du/ac maximum Refer to Very High Density Residential (RM-3) development standards within the Municipal Code.
Medium Density Housing	The Medium Density Housing land use designation is established to facilitate development of the Housing Element to accommodate “moderate income” sites.	9 du/ac minimum; 12.5 du/ac maximum. Refer to Medium Density Housing (MDH) development standards within the Municipal Code.
Urban High Density Housing	The Urban High Density Housing - land use is established to facilitate development of the Housing Element to accommodate “lower income” sites, in areas adjacent to commercial and civic uses.	30 du/ac minimum; 93 du/ac maximum. Refer to SP04-01 ^[b] Urban High Density Housing (VHDH-1) development standards.
Very High Density Housing	The Very High Density Housing land use is established to facilitate development of the Housing Element to accommodate “lower income” sites.	20 du/ac minimum; 30 du/ac maximum. Refer to Very High Density Housing (VHDH) development standards within the Municipal Code; and SP04-01 Very High Density Residential Housing-Urban (VHDH-2)
Commercial		

Designations	Definition	Development Standards
Commercial	This land use designation is applied to areas appropriate for concentrated retail use, where shoppers often make a single trip to visit a number of related establishments.	Refer to Commercial development standards within the Municipal Code.
Business Park	This land use designation primarily includes small and large-scale businesses involved in research and development, light manufacturing, distribution, or support services, as well as a variety of commercial uses.	Refer to Business Park and Light Industrial development standards within the Municipal Code.
Commercial Recreation	This land use designation includes public and private golf courses and amusement areas, equestrian centers, tennis clubs, batting cages, and related uses such as pro-shop or restaurant if a part of a recreation complex. It may also be applied to a destination resort hotel developed as part of a golf course or open space-oriented project.	Refer to Commercial-Recreation development standards within the Municipal Code.
Open Space		
Public Park	This land use designation includes City-owned parks. Typical uses within public parks are active recreational areas and passive open space areas, including such uses as sports fields, picnic areas, playgrounds/tot lots, landscaped areas, parking, and other support facilities including structures.	Refer to the Parks, Recreation and Open Space Element.
Public Open Space	This land use designation is applied to City-owned public space areas that are intended to remain open space for the use and enjoyment of the community. This classification includes natural open space, conservation areas, and trails. The Chino Hills State Park is designated separately on the General Plan Land Use Map.	Refer to Open Space use provisions within the Municipal Code.
Private Open Space	This land use designation is applied to privately owned open space areas that have been required to be set aside as open space within private developments and remain owned by a Homeowners Association or other nonprofit entity. This classification includes natural open space; private recreational facilities and parks; and other open space owned by a private or nonprofit entity.	Refer to Open Space use provisions within the Municipal Code.

Designations	Definition	Development Standards
State Park	The State Park land use designation encompasses properties that are within the City boundaries but are owned and operated by the Chino Hills State Park. Primary use within the State Park is natural open space. Appropriate secondary and accessory uses include trails, visitor facilities, ranger facilities, utilities that do not substantially degrade park use or viewsheds, and roads to serve the park and ancillary facilities.	NA
Institutional/Public Facility		
Institutional/ Public Facility	This land use designation includes public and private institutional uses such as City and other government properties, community centers, fire stations, public schools, religious facilities, and Boys Republic. Public facility uses include public utilities and utility rights of way.	Refer to Institutional/Public Facility Districts development standards within the Municipal Code.
Mixed Use		
Mixed Use	This land use designation is applied to sites appropriate for a mix of multifamily residential development and commercial. Mixed Use development may occur either combined in a single development or located side by side. Mixed Use development is intended to create a diverse, pedestrian-friendly neighborhood, incorporating sustainable land use and design elements. Residential developments in this land use designation will be designed to create a high quality living environment, with pleasing architecture and landscaping, and to be compatible with surrounding development.	Refer to Mixed Use District development standards within the Municipal Code.
Mixed Use Housing	The Mixed Use Housing land use is established to facilitate development of the Housing Element to accommodate “lower income” sites within a commercial center.	30 du/ac minimum; 44 du/ac maximum. Refer to Mixed Use Housing development standards within the SP04-01 and SP06-01^[c].

^[a] du/ac = dwelling units per acre

^[b] SP04-01 = The Shoppes at Chino Hills Specific Plan

^[c] SP06-01 = The Commons at Chino Hills Specific Plan

Note: Densities are rounded up to the nearest whole number. “Primary permitted use” means that the use shall occupy the majority of site area and the balance of the site shall be complementary to the use.

3. Planned Development

The Planned Development (PD) designation to areas within the City where existing PDs exist. PDs were used by the County of San Bernardino to allow flexible development plans that could supersede General Plan and zoning policies. Existing PDs were mapped on the City Official Zoning Map. However, many of the existing PD documents are incomplete, and many have policies and standards that are difficult to interpret.

The 2015 General Plan set a policy to convert PDs to conventional zoning, and several of the PDs have been replaced by traditional zoning. For developed

PD areas, zoning designations are applied that best match the development in

compliance with Measure U (discussed in Section G. Land Use Development Intensity) and other applicable law. Further, to the extent the development standards for a PD are different than the proposed zoning, separate Municipal Code amendments are developed and adopted for each particular PD concurrently with the PD designation to avoid a property from becoming non-conforming due to a redesignation.

The currently existing PD areas within the City are mapped in the Zoning Map, and include the following:

- PD 00-01 - Canyon Estates
- PD 5-157 - Oak Tree Downs
- PD 13-137 - Laband Ranch
- PD 13-141 - Diamond Valley Estate
- PD 15-150 - Brock Homes
- PD 17-127 - Rolling Ridge
- PD 18-157 - Stonefield
- PD 19-153 - Crowell/Leventhal
- PD 19-161 - Vellano
- PD 23-152 - Village Oaks
- PD 25-137 - Bramalea "Grand Point"
- PD 26-137 - Warmington Homes
- PD 26-149 - Lewis Homes/Green Valley
- PD 29-139 - Payne Ranch
- PD 37-161 - Galstian Family Trust
- PD 41-149 - Lusk/Woodview
- PD 41-163 - Kaufman & Broad, south of Soquel Canyon Parkway
- PD 43-161 - Kaufman & Broad, north of Soquel Canyon Parkway

PD 50-153 - Fairfield Ranch

PD 50-167 - Richland Homes

PD 51-163 - Sterling Builders

PD 57-174 - Butterfield Ranch

PD 97-001 - Higgins Ranch

PD 2003-01- Pine Valley Estates

4. Specific Plan

The Land Use Element provides for Specific Plans, which function as the primary zoning document for a particular site and provide focused guidance and regulation specific to the site. A Specific Plan identifies the location, extent, and density of new development and also indicates specific development standards that are applicable. Consistent with state law, a Specific Plan includes a land use plan, a circulation plan, an infrastructure plan, development standards, design guidelines, a phasing plan, a financing plan, and an implementation plan.⁷

Chino Hills currently has three adopted Specific Plans that govern land use development within their respective project sites: The Shoppes at Chino Hills, The Commons at Chino Hills, and Biz Park. Permitted land uses within these Specific Plans are summarized in Table 1-9.

The Shoppes at Chino Hills Specific Plan contains three RHNA Housing designations: (1) Mixed Use Housing at The Shoppes Retail portion; (2) Urban High Density Housing at the Shoppes II Mixed Use portion; and (3) Very High Density Housing at the Parks Overlay within the Community Park portion of the Specific Plan. The Park Overlay section of the Specific Plan is 1.8 acres and will be redesignated in the General Plan Land Use map as Very High Density Housing to accommodate RHNA housing obligations. The section of the Shoppes site is 6.2 acres located on the southeastern portion of the property and will be designated as Mixed Use Housing under the General Plan Land Use map to accommodate RHNA obligations. The Shoppes II site is 8 acres and will be entirely redesignated as Urban High Density Housing in the General Plan Land Use map. The Specific Plan will be amended to identify the specific areas for RHNA housing sites. The Commons at Chino Hills Specific Plan contains a 6.9-acre Mixed Use Housing designation within its Retail/Restaurant portion on the northeastern section of the center to accommodate RHNA housing obligations.

Applications for new Specific Plans must be accompanied by applications to amend the site's zoning designation to "Specific Plan."

⁷ California Government Code, §65450 et seq.

Table 1-9 – Adopted Specific Plans by Land Uses and Acres

Specific Plan	Land Use	Acres
The Shoppes at Chino Hills	Shoppes Retail	26.2
	Civic Center	11.7
	Shoppes Mixed Use Site Area	8.0
	Community Park	43.0
	Community Center	8.9
	Total	97.8
Commons at Chino Hills	Retail/Office/Hotel/Restaurant/ Home	49.1
	Total	49.1
BizPark	Business Park/Retail/Restaurant	19.7
	Total	19.7
Total Adopted Specific Plans		166.6

G. LAND USE DEVELOPMENT INTENSITY

The type and amount of physical development that could occur in the City are governed by the General Plan Land Use Map and the densities promulgated in Table 1-8 – General Plan Land Use Designation Descriptions. Table 1-10 – Land Use Designations by Acreage and Development Intensity, projects the development intensity, including the maximum amount of dwelling units and employment square footage that could occur at General Plan build-out.

1. Measure U (Ordinance No. 123)

Measure U was adopted on November 23, 1999, as a result of the approval by a sufficient number of affirmative votes of the Save Our Canyon Initiative at a Special Municipal Election held on November 2, 1999. Pursuant to the Ordinance, its text is incorporated into the Land Use Plan as follows.

The maximum density of any land designated for residential density shall not exceed the density established by the Chino Hills Specific Plan, the Chino Hills General Plan, the Zoning Map, or any finalized development agreements in place prior to the passage of the Initiative. Any increase in density greater than that specified above must be approved by a majority vote of the electorate of the City. However, the City Council of the City of Chino Hills may reduce the density of any land designated for residential use. Notwithstanding the foregoing, the City Council may increase residential density as necessary to meet the City's minimum mandated Housing Element requirements as set forth in California Government Code §65580, et seq., as amended from time to time, including, without limitation, the City's share of regional housing needs.

Any land within the City designated for a non-residential use shall not be converted to a residential use without a majority vote of the electorate of the City. Notwithstanding the foregoing, the City Council may increase residential density as necessary to meet the City's minimum mandated Housing Element requirements as set forth in *Government Code* §65580 et seq., as amended, from time to time without limitation, the City's share of regional housing needs. The City Council may also redesignate non-residential property to residential property as part of a simultaneous transfer of zoning designations between residential and non-residential properties provided that the net effect of the transfer does not increase the total number of residential units allowed on the properties in the transfer. Additionally, while transfers of land use designations within a planned development shall be permitted in accordance with the transfer standards contained in this paragraph, planned development zoning cannot be transferred to any other property in the City.

Table 1-10 – Land Use Designations by Acreage and Development Intensity

General Plan Land Use Designation	Acres	General Plan Build-Out				
		Square Feet (Non-Residential)	Single Family Units	Multifamily Units	Mobile Home Units	Total Dwelling Units
Residential						
Agriculture/Ranches	7,185	0	487	0	0	487
Rural Residential	782	0	768	0	0	768
Low Density Residential	3,621	28,156 ^a	16,321	332	0	16,653
Medium Density	353	0	4,131	149	602	4,882
High Density	309	0	198	4,203	0	4,401
Very High Density	34	0	0	792	0	792
Urban High Density	8	0	0	744	0	744
Subtotal	12,449	284,156	21,905	7,551	602	30,058
Commercial						
Commercial	421	3,575,766	0	2 ^b	0	2
Business Park	63	1,141,202	1 ^c	0	0	1
Commercial	813	216,428	0	0	0	0
Subtotal	1,297	4,934,396	1	2	0	3
Open Space						
Public Park	295	0	0	0	0	0
Public Open Space	3,186	0	0	0	0	0
Private Open Space	1,459	0	0	0	0	0
State Park	7,325	0	0	0	0	0
Subtotal	12,265	0	0	0	0	0
Institutional/Public Facility						
Institutional/Public	640	2,118,225	2 ^e	1 ^f	0	3
Subtotal	640	2,118,225	2	1	0	3
Mixed Use						
Mixed Use	56	177,168 ^d	432	391	0	823
Mixed Use Housing	13	97,144	0	567		567
Subtotal	69	33,087	0	958	0	1,390
Total	26,754^g	7,355,089	22,340	8,512	602	31,454

a Non-residential square footage in Low Density Residential includes Chino Hills Four Square Church, Iglesia La Luz Del Mundo, Sehan Evangelical Church-Amber, and a Verizon facility.

b One multi-family Unit at Oakmont and one multi-family unit at Chancellor assisted living facilities.

General Plan Land Use Designation		General Plan Build-Out				
	Acres	Square Feet (Non-Residential)	Single Family Units	Multifamily Units	Mobile Home Units	Total Dwelling Units

c Single-family unit in Business Park is caretaker unit at Chino Hills Self Storage.

d. Non-residential square foot in Mixed Use land use includes City Hall parking structure.

e One single-family unit at Buddhist Temple and one single-family unit at BAPS.

f One multi-family unit at Boys Republic.

g The 26,754-acre figure represents the total acreage of properties within the City that are provided with Land Use Designations in the updated General Plan Land Use Map. Public and private streets and State Route 71 are not provided with a Land Use Designation and are not included within the Total Acreages figure. Public and private right-of-way occupies an additional 1,982 acres within the City's boundaries. The City's total area, including properties with Land Use Designations and right-of-way, is 28,736 acres (or approximately 45 square miles). Note: Development intensity for nonresidential and residential based on existing development, approved plans; and in the case of undeveloped and uncommitted land, based on typical City development pattern of 62.5% of maximum site development potential. Hillside properties buildout projected at 50% density based on topography constraints and Clustering Ordinance.

2. Measure U Implementation Policies

Measure U allows for the transfer of residential densities subject to the following criteria.

- Maximum residential densities for properties are established by the November 2, 1999 General Plan, the Zoning Map or any then-applicable finalized development agreement.⁸
- Residential densities may be transferred as part of a simultaneous transfer of General Plan and zoning designations between properties.
- Residential density transfers may involve multiple donor and recipient sites.
- The net effect of a residential transfer may not increase the total number of residential units allowed on the properties in the transfer.
- Transfers of land use designations within a planned development shall be permitted, but planned development zoning cannot be transferred to any other property in the City.
- Measure U allows for an increase in residential densities as needed to meet the City's minimum mandated Housing Element requirements relative to the City's share of regional housing needs.

From time to time, the City has utilized these Measure U implementation policies to transfer residential densities between properties. This Land Use Plan utilizes these policies to transfer residential densities and to increase residential densities to meet the City's regional housing needs obligations.

H. LAND USE CATEGORIES

1. Primary Land Use Categories

The primary categories of land uses permitted by the Land Use Plan and as outlined in Table 1-10 fall within the broad categories of Housing, Commercial/Business, Mixed Use, Institutional/Public Facility, and Open Space. These categories are identified consistent with §65302(a) of the *California Government Code*.

a. Housing

The Land Use Element provides for a wide variety of residential land use designations that permit a broad range of dwelling unit densities and allow for a diversity of housing unit types. Residential designations include Agriculture/Ranches, Rural Residential, Low Density Residential, Medium Density Residential, Medium Density Housing, High Density Residential, Very High Density Residential, Very High Density Housing, Urban High Density Housing, Mixed Use and Mixed Use Housing. Within these land use designations, residential housing

⁸ The Chino Hills Specific Plan was explicitly repealed on October 10, 1995 by the City Council (Resolution 95R-57) prior to the adoption of the General Plan, so its limits were not in effect as of November 2, 1999 and are therefore not a consideration in determining maximum densities as of that date.

types vary from estate or ranch style residents at a maximum density of 0.2 dwelling units per acre on land designated Agriculture/Ranches, to multi-story, multifamily residential at a maximum density of 35 dwelling units per acre on land designated Very High Density Residential, up to 50 dwelling units per acre on land designated Mixed Use, and up to 93 dwelling units per acre on land designated Urban High Density Housing. Combined, the residential densities account for 11,770 acres or 46.6% of the City's total 26,754 acres.⁹

The development intensities presented in Table 1-10 are intended as reasonable estimates of current and future development until the City reaches build-out. For residential, the estimate is based on a current (2022) count of 11,770 acres and an expected build-out of 31,666 dwelling units. For non-residential, the estimate is based on a current (2022) count of 1,937 acres and an expected build-out of 7,355,089 square feet.

For residential and non-residential land, future development on undeveloped and uncommitted land is based on a typical City development pattern of 62.5% of maximum site development potential.

b. Commercial/Business

The Land Use Element provides for a wide variety of commercial and business uses to locate or expand in the City. Designated commercial/ business categories include Commercial, Business Park, Commercial Recreation, and Mixed Use.

As depicted in Table 1-10, approximately 484 acres of land in the City are designated for commercial and business-related development. Adding the 69 acres of Mixed Use, total commercial and business-related development densities account for 553 acres or 2.1% of the City's total acreage. Development of these commercial and business-related land uses would generate new jobs that will contribute to the expected jobs-to-housing ratio in Chino Hills.

c. Mixed Use

Mixed Use development is intended to create a diverse and pedestrian-friendly neighborhood consisting of housing mixed with shopping, workplace and entertainment uses, and nodes for transportation access, all within a short walk of each other. Mixed Use development is strongly encouraged to provide access to public transit, and is expected to include all of the following components.

- Walkability and connectivity
- Inviting and functional public spaces
- Variety of uses that include medium to very high density housing and community serving commercial uses
- Improved quality of urban design

⁹ Excludes public and private right of way acreage.

- Environmental sensitivity

Residential Uses within a Mixed Use Development

Any housing proposal may include an application to use a density bonus consistent with state law.

Commercial Uses within a Mixed Use Development

Mixed Use commercial uses may include retail, restaurant, entertainment, and hotel. Professional office, personal service, and parking facilities may also be permitted as secondary uses.

Mixed Use Development Standards

This classification is applied to sites appropriate for a mix of residential and commercial development. Appropriate sites include those adjacent to major arterial roadways or major highways and existing or proposed commercial development. The Mixed Use designation allows for a combination of residential and commercial uses, either combined in a single vertical development or located side by side in a horizontal development.

Recognizing that the Mixed Use designation allows for a variety of project mixes and types, an applicant for a mixed use development must clearly demonstrate that the proposed project is compatible with adjacent land uses; is composed of consistent and high quality design and materials; and is of a type and mix of uses to be securely absorbed into the marketplace.

d. Institutional/Public Facility

The Land Use Element provides for 640 acres of institutional uses and public facilities, accounting for 2.4% of the City's total acreage. These uses provide important educational, civic, and infrastructure services within the community.

Institutional/Public Facility uses are businesses, creating a variety of types of jobs, including those related to education, civic, and cultural operations. Open Space uses also may be business related, generating jobs operating golf courses or maintaining parks.

e. Open Space

Section 65560 of the *California Government Code* states: "Open space land is any parcel or area of land or water which is essentially unimproved and devoted to an open-space use...". Open space is used for the preservation of natural resources, managed production of resources, outdoor recreation, and public health and safety. In Chino Hills, Open Space uses include Public/Private Open Space, Public Park, and portions of the Chino Hills State Park. Approximately 12,265 acres of the City are designated as Open Space. The Conservation Element and Parks, Recreation and Open Space Element provide further discussion of the City's open space resources.

The Land Use Element recognizes that historic encroachments onto City-owned open space have taken place, both before and after incorporation of the City. These encroachments were identified in the City of Chino Hills Open Space Encroachment Purchase Program Mitigated Negative Declaration, adopted in December of 2015. Actions have been incorporated into the Element to further the completion of formalizing these encroachments where it benefits the City and public interest.

I. OTHER LAND USE CATEGORIES

The primary land uses discussed above generate supplemental land use categories that are considered within the Land Use Plan. These categories are identified consistent with §65302(a) of the *California Government Code*.

1. Education Facilities

Numerous education facilities exist in the City that offer elementary through post-baccalaureate course work. Table 1-11 identifies existing public and private schools located in the City. Figure 1-8 identifies the location of these schools.

Table 1-11 – Public and Private Education Facilities

Site	Name	Type	Grade Levels
1	Ayala High School	Public	9-12
2	Butterfield Ranch Elementary	Public	K-6
3	Canyon Hills Junior High School	Public	7-8
4	Chaparral Elementary	Public	K-6
5	Chino Hills High School	Public	9-12
6	Country Springs Elementary	Public	K-6
7	Eagle Canyon Elementary	Public	K-6
8	Glenmeade Elementary	Public	K-6
9	Hidden Trails Elementary	Public	K-6
10	Gerald Litel Elementary	Public	K-6
11	Alternate Education Center (formally Los Serranos)	Public	K-12
12	Oak Ridge Elementary	Public	K-6
13	Rolling Ridge Elementary	Public	K-6
14	Townsend Junior High School	Public	7-8
15	Wickman Elementary	Public	K-6
16	Boys Republic High School	Private	9-12
17	Chino Hills Christian School	Private	K-6
18	Loving Savior of the Hills Lutheran Church	Private	Pre K-8

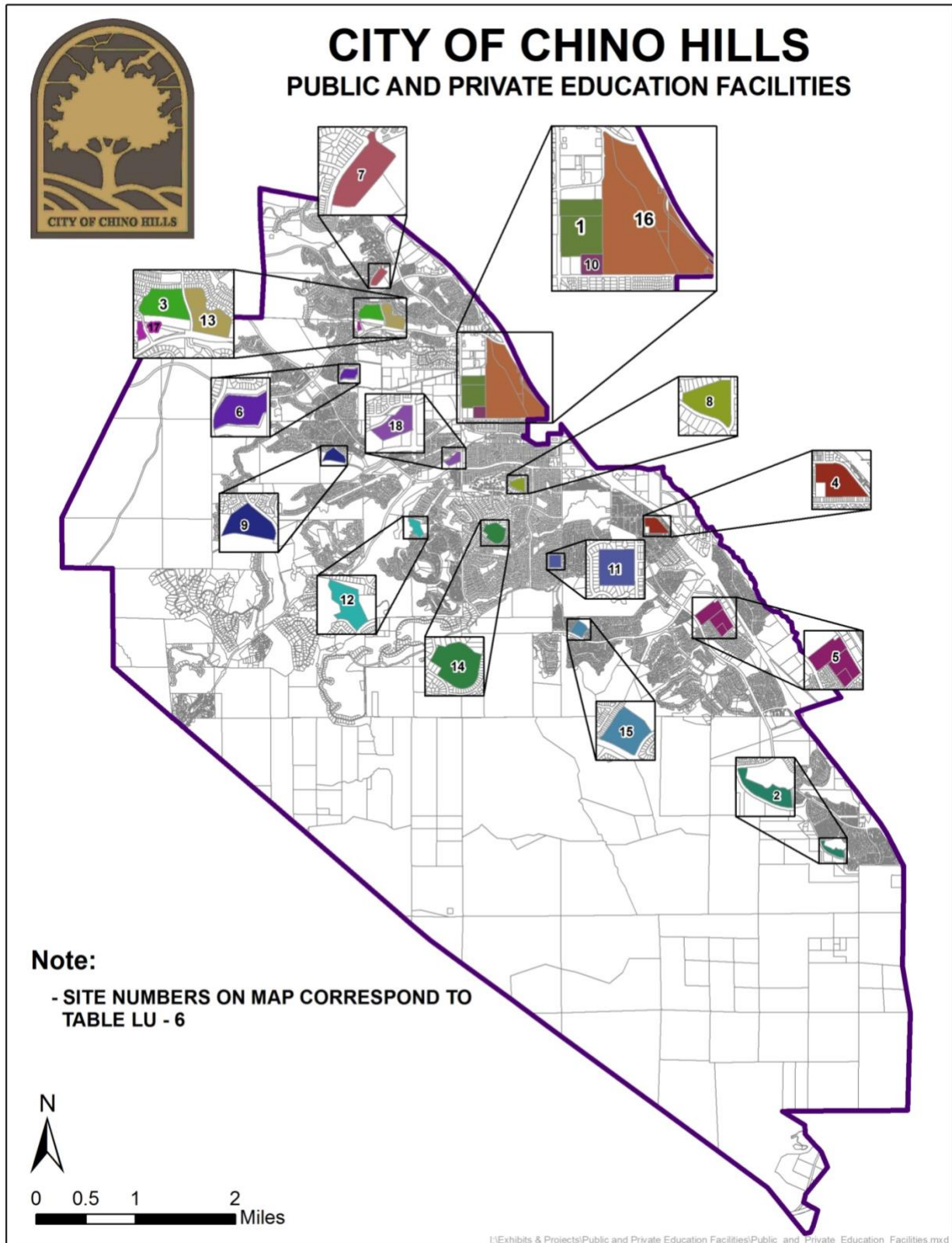


Figure 1-6 – Public and Private Education Facilities

2. Employment Uses

Employment uses designated in the Land Use Plan include Commercial/Business and Institutional/ Public Facility. Development of these uses would generate additional jobs, which are expected to reach a total of 18,600 jobs by 2040. The City has an estimated 2,800 home-based businesses, adding jobs and economic activity to the City.

3. Mineral Resources

Oil is currently produced in the Chino-Soquel Oil Field and Mahala Oil Field. In the southeastern portion of the City, the California Geological Survey (CGS) has classified the sand and gravel resources along the Santa Ana River Wash as Mineral Resource Zone 2 (MRZ-2), which is defined as an area where adequate information indicates that significant mineral deposits exist or are highly likely. The majority of this area lies within the Chino Hills State Park. Mineral resources within the City are further discussed in the Conservation and Safety Elements.

4. General Plan Overlays

Table 1-12 identifies the eight overlay zones that are incorporated as part of this General Plan. descriptions of these overlays are provided in Section E.7 of this chapter.

Table 1-12 – General Plan Overlay Classifications

Overlay	Description
1. Biotic Resources	Applies to areas where sensitive biological resources are known or expected to occur. (Refer to the Conservation Element.)
2. Geologic Hazard	Applies to seismic fault zones and areas where landslides, liquefaction hazards, and other geologic hazards are known or suspected to occur. (Refer to the Safety Element.)
3. Fire Hazard	Applies to designated high fire hazard areas. (Refer to the Safety Element.)
4. Small Lot	Applies to all lots within the following areas: • The Canon Lane area, including Tract 1913 and Tract 1945 • Portions of the Los Serranos area, including: Tract 1932; Tract 2557; Tract 2562; and Tract 2576 • The Sleepy Hollow area, including: Tract 1868; Tract 2037; Tract 2211; and Tract 2358 • The "Carbon Canyon Tract" • The "Sleepy Hollow Tract." (Refer to Circulation Element and Municipal Code.)

Overlay	Description
5. Scenic Resources	Applies to Important Visual Resources, including Exceptionally Prominent Ridgelines, Prominent Ridgelines, Prominent Knolls, and Associated Primary View Points. (Refer to Conservation Element and Municipal Code.)
6. Equestrian and Large Animal	Applies to properties on which the keeping of horses and other large animals are permitted. Designated properties include commercial, residential, and open space lands, which are regulated according to the maximum numbers of animals permitted and operational requirements for National Pollutant Discharge Elimination System (NPDES) compliance. (Refer to Conservation Element and Municipal Code.)

J. LAND USE ELEMENT GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions support the City of Chino Hills Land Use Plan and its vision to preserve and enhance high quality, balanced development; the rural character of the natural environment; ample private and public services; sustainable land use patterns; community character; healthy living; and environmental justice.

Goal LU-1: Protect Chino Hills' Natural Environment

Policy LU-1.1: Preserve Chino Hills' Rural Character by Limiting Intrusion of Development into Natural Open Spaces.

Action LU-1.1.1: Continue to monitor, enforce, and update as required the adopted City hillside development standards.

Action LU-1.1.2: Continue to protect City-designated extremely prominent ridgelines, prominent ridgelines, and knolls from intrusion by development.

Action LU-1.1.3: Ensure that new development in canyon areas conforms to the unique natural setting of each area and site, retaining the character of existing landforms, preserving significant native vegetation and require low visual profiles and dense vegetation for buildings.

Action LU-1.1.4: Continue to require ridgelines and natural slopes to be dedicated and maintained as open space as required by the Municipal Code.

Action LU-1.1.5: Maintain open space requirements for new development based on the slope of the land as required by the Municipal Code; and require that a percentage of required open space be left in its natural state.

Action LU-1.1.6: Cluster development where appropriate to minimize grading, and roadway and driveway intrusions into sensitive habitat areas, open spaces, and Chino Hills State Park.

Action LU-1.1.7: Prohibit development in areas adjacent to Chino Hills State Park (for example, ridgelines), which would result in urban runoff to the watershed of the Park.

Action LU-1.1.8: Continue to require residential tract development to preserve open space based on the slope of the land.

Action LU-1.1.9: In areas adjacent to Chino Hills State Park, require substantial open space buffers between the proposed development and the State Park.

Action LU-1.1.10: Promote preservation of natural features such as streams, rock outcroppings, and unique vegetative clusters.

Action LU-1.1.11: Use dedicated open space, as opposed to built barriers, as a buffer between development areas, wherever possible.

Action LU-1.1.12: Design roads and driveways for hillside residential development that conforms to existing topography and that minimizes grading and retaining walls.

Action LU-1.1.13: Discourage development intrusions on biological resources identified in the Conservation Element.

Action LU-1.1.14: Use designated fuel modification zones to buffer natural areas and new residential development.

Action LU-1.1.15: Maintain the southeastern portion of the City designated with an asterisk as “*40 ac. min. lot size” in the City’s Zoning Map. The existing designations for this southeastern portion remain unchanged by this General Plan Update and the Zoning Map Amendment.

Policy LU-1.2: Preserve and enhance the aesthetics resources of Chino Hills, including the City’s unique natural resources, roadside views, and scenic resources.

Action LU-1.2.1: Discourage new development from obstructing public views of extremely prominent ridgelines, prominent ridgelines, knolls, significant open spaces, or important visual resources as identified in the Municipal Code.

Action LU-1.2.2: Require buildings to be designed and to utilize materials and colors to blend with the natural terrain in hillside areas and adjacent to public open spaces, extremely prominent ridgelines, prominent ridgelines, knolls, or important visual resources as identified in the Municipal Code.

Action LU-1.2.3: In conjunction with project development, require contour disturbed areas that are to be retained as open space to blend with natural slopes, and revegetate the open space with native plants.

Action LU-1.2.4: Minimize the visual bulk of new development through implementation of the City residential and non-residential design guidelines.

Action LU-1.2.5: Direct new development to limit visibility from the visitor center, the campgrounds, the parking areas, the trails, and the floors of Aliso, Telegraph and tributary canyons within the Chino Hills State Park.

Action LU-1.2.6: Dedicate and maintain landscaped areas as required by the City.

Action LU-1.2.7: Recognize and implement the Tres Hermanos Authority directives for the Tres Hermanos area within Chino Hills.

Policy LU-1.3: Minimize encroachments into City-owned open space.

Action LU-1.3.1: Implement the City Open Space Encroachment Purchase Program allowing adjacent property owners to purchase properties the City has identified as historic encroachments into the City-owned open space identified in 2015, and facilitate the legalization of these encroachments through land sales, lot line adjustments, redesignation of General Plan and zoning designations, and permanent demarcation of property lines, to the extent such sales do not negatively impact public health and safety and are beneficial to the City.

Action LU-1.3.2: Implement an enforcement program to recover City-owned open space if owners have declined to purchase an adjacent property and to prevent future open space encroachments by adjacent development.

Goal LU-2: Balance Residential with Commercial, Business, and Public Land Uses

Policy LU-2.1: Ensure that development of commercial and business uses meet the needs of the residents.

Action LU-2.1.1: Ensure that new commercial and business development is consistent and compatible with the existing character of the community and meets City development standards.

Action LU-2.1.2: Continue to review, and amend as necessary, the Municipal Code to ensure that land uses and development standards reflect current market trends, community needs, and state requirements.

Action LU-2.1.3: For new developments, provide appropriate buffers between traffic-intensive land uses and roadways and residential uses.

Policy LU-2.2: Ensure balanced residential development.

Action LU-2.2.1: Protect environmental and visual resources within Agriculture/ Ranches and Rural Residential properties by promoting clustering of residential lots with reduced minimum lot sizes, provided the overall residential density of the property is reduced.

Action LU-2.2.2: Continue to identify appropriate sites to meet the City's RHNA allocation.

Policy LU-2.3: Ensure public land uses and utilities are visually and functionally compatible with surrounding development.

Action LU-2.3.1: Require underground utilities for all new development.

Action LU-2.3.2: Require all utilities to be designed and installed in a manner that minimizes visual and environmental impacts.

Action LU-2.3.3: Locate and design public facilities to ensure visual and functional compatibility with adjacent residential and commercial land uses.

Policy LU-2.4: Manage land use plans to ensure high quality, cohesive development.

Action LU-2.4.1: Continue to convert Planned Development (PD) districts to conventional zoning.

Action LU-2.4.2: Discourage new PDs or PD amendments, and instead encourage developers to use the specific plan process when site specific development standards are requested.

Action LU-2.4.3: Continue to implement the Municipal Code clustering provisions for designated Agricultural/Ranches and Rural Residential properties.

Policy LU-2.5: Promote land use patterns that support a regional jobs/housing balance.

Action LU-2.5.1: Achieve a balance of commercial uses that provides for the retail, business, professional, and other service needs of City residents, and that will attract customers from the surrounding region.

Action LU-2.5.2: Create a broad range of employment opportunities for Chino Hills' residents that are compatible with the community's residential character and the skills and education of Chino Hills' work force.

Action LU-2.5.3: Concentrate major business park and commercial uses that represent a potential employment base near the Chino Valley Freeway corridor and along major arterials.

Action LU-2.5.4: Continue to review, and amend as necessary, the Municipal Code to ensure that a wide range of commercial and employment uses are available.

Action LU-2.5.5: Encourage the revitalization of existing commercial areas.

Goal LU-3: Maintain, and enhance where feasible, the Integrity of City Neighborhoods

Policy LU-3.1: Maintain the character and quality of existing neighborhoods.

Action LU-3.1.1: Continue and expand as feasible, programs to maintain and enhance the City's older areas, including the communities of Los Serranos, Sleepy Hollow, Canon Lane, and English Road.

Action LU-3.1.2: Maintain programs to balance the keeping of horses and large animals with contemporary land use and environmental requirements.

Action LU-3.1.3: Protect the character of low density residential neighborhoods, by discouraging nonresidential uses that are of a size or scale substantially larger than a typical single-family house.

Policy LU-3.2: Minimize traffic, noise, and other nuisance intrusions in residential neighborhoods.

Action LU-3.2.1: Locate assembly and other neighborhood serving facilities on the perimeter of residential neighborhoods with access to a collector street.

Action LU-3.2.2: Provide sidewalks along all streets in residential neighborhoods; and where possible, provide sidewalks in internal green belts.

Goal LU-4: Provide for Excellence in Urban Design

Policy LU-4.1: Promote high quality development.

Action LU-4.1.1: Continually monitor and amend, as necessary, the design guidelines for all types of development.

Action LU-4.1.2: Encourage rehabilitation or upgrade of aging residential, commercial, and business-related areas and structures.

Action LU-4.1.3: Screen negative views through site planning, architectural, and landscape devices.

Action LU-4.1.4: Discourage commercial signage that creates visual clutter and obstructs public views into the establishment.

Action LU-4.1.5: Ensure that all development within a recognized residential tract is of comparable or superior exterior design and materials and in accordance with City residential design guidelines to prevent partially completed residential tracts from being completed in a manner that is not aesthetically compatible with existing portions of the tract.

Action LU-4.1.6: Implement policies that require residential development to be designed at a scale that is in harmony with surrounding uses and the environment.

Policy LU- 4.2: Utilize extensive landscaping to beautify Chino Hills' suburban and urban areas.

Action LU-4.2.1: Continually monitor and upgrade the City Landscape Standards.

Action LU-4.2.2: Require landscaping to be continuously maintained in good condition.

Action LU-4.2.3: Support use of drought-resistant landscape materials complementary to the area, and consistent with state and local landscape and water conservation requirements.

Action LU-4.2.4: Require landscaping that uses water efficiently and reduces water use to the lowest practicable amount without a decline in the quality or quantity of landscapes.

Action LU-4.2.5: Require landscaping that protects existing habitat and creates new habitat by requiring local native plants, climate adapted non-natives, and prohibiting invasive plant species.

Policy LU-4.3: Promote high-quality public spaces.

Action LU-4.3.1: Maintain high-quality streetscape design for major corridors into and through the City.

Action LU-4.3.2: Maintain enhanced signage and landscape treatments at major entrances to the City.

Goal LU-5: Plan for Sustainable Land Uses

Policy LU-5.1: Promote infill, mixed use, and higher density development.

Action LU-5.1.1: Continue to identify sites suitable for mixed use development while maintaining the vitality of the commercial uses.

Action LU-5.1.3: Coordinate land use patterns with transportation plans to improve and protect air quality, and reduce vehicular trips.

Action LU-5.1.4: Continue to plan for high density residential and mixed use development near commercial areas, major roadways, and transit facilities.

Action LU-5.1.5: Encourage development to incorporate pedestrian and bicycle trails, fitness areas, and/or other facilities that promote healthy living.

Action LU-5.1.6: Collaborate with the owners and developers for the Canyon Estates and Los Serranos RHNA sites to establish Specific Plans to balance land uses between residential and private open space.

Policy LU-5.2: Encourage residential density transfers to areas more suitable for residential development for more cohesive planning and preserve natural resources.

Action LU-5.2.1: Continue to collaborate with residential developers and property owners for density transfer opportunities pursuant to Measure U.

Goal LU-6: Promote Healthy Balanced Neighborhoods

Policy LU-6.1: Pursue programs and services that assist senior, disabled and lower income households locate and remain in Chino Hills neighborhoods.

Action LU-6.1.1: Engage with the target population to ensure needs are being met and pursue assistance programs where needed.

Policy LU-6.2: Strive to locate groceries and other healthy food retailers within a short or walking distance of all residents.

Action LU-6.2.1: Continue to work with the City's economic development consultant and property owners to encourage food retailers to occupy neighborhood commercial spaces in the City.

Policy LU-6.3: Support farmer's markets in the community.

Action LU-6.3.1: Continue to engage, promote, and facilitate farmers markets within commercial centers and religious institutions.

Policy LU-6.4: Implement Housing Element policies that support maintenance of both multifamily for-sale housing and rental housing options.

Action LU-6.4.1: Review housing policies annually during the General Plan Annual Report to ensure the facilitation of housing types.



City of Chino Hills

General Plan

CIRCULATION ELEMENT

The Circulation Element addresses the provision of roadways, transit, bikeways, and other local public infrastructure in the City of Chino Hills (City).

A. PURPOSE OF THE CIRCULATION ELEMENT

The State of California requires all cities to include a General Plan Circulation Element to specify the general location and extent of existing and proposed major streets, other transportation facilities, and public utilities.

As required by *California Government Code* §65302(b), this Circulation Element establishes standards for the design and operation of the City's roadway system and defines the transportation system needed to meet those standards. The Circulation Element also defines transit services and bikeways to meet the needs of the Chino Hills community. Public infrastructure is also discussed, including water, sewer and storm drainage infrastructure (wet utilities); and electricity, natural gas, and telecommunications infrastructure (dry utilities).

B. CONNECTION TO COMMUNITY VISION

The Circulation Element supports the City's vision to provide well-planned transportation and utility systems that support the general pattern of development. Toward this end, the Circulation Element focuses on implementing the following 7 of the City's 20 Vision Statements. (Numbers in parenthesis reference numerical order of Vision Statements as presented in the Vision section of this General Plan.)

1. A Chino Hills that supports its commercial and employment centers. (V-4)
2. A Chino Hills that supports a sustainable balance of land uses, open spaces, and infrastructure. (V-5)
3. A Chino Hills that supports healthy living. (V-7)
4. A Chino Hills that supports a wide range of transportation systems to ensure adequate and efficient access to, from, and within the City. (V-10)
5. A Chino Hills that participates in regional transportation planning programs. (V-11)
6. A Chino Hills that continues to provide adequate public utilities. (V-13)
7. A Chino Hills that supports environmental justice for all ethnic, racial, and socioeconomic community members. (V-20)

C. RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Circulation Element identifies the circulation network to support the Land Use Plan of the Land Use Element, facilitating the efficient movement of people and goods. To the extent that the Circulation Plan is successfully implemented, traffic will move efficiently through the City with minimal congestion. Minimizing congestion will yield air quality benefits, because vehicles that flow smoothly along roadways, as opposed to slow/stop/start conditions, operate more efficiently and generate lower volumes of air pollutants through their exhaust systems. These air quality benefits are directly correlated with the Conservation Element goals, policies, and actions relating to air quality and a reduction in greenhouse gas emissions.

D. RELATIONSHIP TO OTHER LOCAL REGULATORY DOCUMENTS

Several City regulatory mechanisms are used to implement the General Plan Circulation Element on an ongoing basis.

1. **Chapter 10.0 of the Municipal Code – Vehicles and Traffic:** The City implements standards for parking and stopping of vehicles; speed limits; abandoned vehicles; wheeled toys; and parking lot utility services.
2. **Chapter 12.0 of the Municipal Code – Streets, Sidewalks, and Public Places:** The City implements regulations that govern design and construction of streets, sidewalks, and rights of way.
3. **Storm Drain Master Plan:** The City of Chino Hills Storm Drain Master Plan identifies current storm drain deficiencies and plans to remedy these deficiencies. To assess deficiencies, the Storm Drain Master Plan divides the City into 12 drainage basins and analyzes each area to determine estimated storm water run-off based on 10-, 25-, and 100-year storm events. Based on this run-off information, a storm drain system improvement plan is provided that identifies preliminary sizing for future storm drains that will be constructed either by development projects or through the City's Capital Improvement Program. Most of the planned storm drain facilities are designed to provide capacity for 100-year events.
4. **Water and Recycled Water Master Plan:** The City maintains a Water and Recycled Water Master Plan that provides comprehensive documentation, analysis, and recommendations for the water and recycled water systems, including a calibrated GIS-based hydraulic model for each system. The Water and Recycled Water Master Plan develops a Capital Improvement Program (CIP) that identifies the recommended projects needed to ensure that the City continues to provide safe, reliable, and efficient water and recycled water service to the community.
5. **Wastewater Master Plan:** The City maintains a Wastewater Master Plan which assesses the existing wastewater collection system and identifies proposed improvements to mitigate existing and future system deficiencies. The Wastewater Master Plan includes CIP recommended projects needed to ensure that the City continues to provide safe, reliable, and efficient wastewater service to the community.

E. CIRCULATION ELEMENT ISSUES

The following section discusses the existing transportation and infrastructure systems and conditions within the City. These conditions define the primary issues that shape the Chino Hills Circulation Plan and the goals, policies, and actions of this Circulation Element.

1. Existing Roadway Network

The road network within the City comprises a functional classification system that groups the roads according to the character of traffic service that they are intended to provide. Within the City are three primary roadway functional classifications: Arterial, Collector, and Local.

- **Arterial:** The arterial system is the principal system that serves the major centers of activity within the City and carries the highest traffic volumes. The arterial system is designed to carry the major portion of trips entering and leaving the City, as well as the majority of through movements desiring to bypass the City.

The City arterial system includes a 6-lane Major Arterial and a 4-lane Minor Arterial.

- **Collector street system:** The Collector street system provides traffic circulation and access within residential neighborhoods, commercial areas, and industrial areas. It differs from the Arterial system in that facilities on the Collector system may penetrate residential neighborhoods, distributing trips from the Arterials through the area to the ultimate destination. Conversely, the Collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system.
- **Local street system:** The Local street system comprises all facilities not on one of the higher systems. It serves primarily to provide direct access to abutting land and access to the higher order systems. It offers the lowest level of mobility and usually contains no bus routes.

The City's primary roadway system also includes two State Routes: State Route 71 (SR-71) Freeway and its interchanges, and SR-142 (Carbon Canyon Road and a portion of Chino Hills Parkway).

2. Existing Major Corridors

Descriptions of existing major roadways in the City are provided below.

- **Peyton Drive** is a north-south divided Major/Minor Arterial with a raised median and six lanes (three per direction) from SR-71 to Eucalyptus Avenue, two lanes (one per direction) from Eucalyptus Avenue to Chino Hills Parkway. Class 2 bike lanes (see Section E.3 below for an explanation of bikeway classifications) are provided along each side of Peyton Drive. On-street parking on Peyton Drive is prohibited.
- **Grand Avenue** is a divided east-west Major/Minor Arterial with a raised median through the City from SR-71 to the west city limit. Grand Avenue has four lanes (two per direction) west of Peyton Drive and six lanes (three per direction) east of Peyton Drive to SR-71. Class 2 bike lanes are provided along each side of Grand Avenue between the west city limit and Peyton Drive. On-street parking is prohibited on Grand Avenue.
- **Eucalyptus Avenue** is an undivided Collector oriented east-west in the City from Pipeline Avenue to just west of Rancho Hills Drive. Eucalyptus Avenue has two lanes (one per direction) west of Peyton Drive to its westerly terminus, three lanes (one eastbound, two westbound) east of Peyton Drive adjacent to Litel Elementary School, and two lanes (one per direction) east of that point to Pipeline Avenue. Class II bike lanes are provided along each side of Eucalyptus Avenue from west of Peyton Drive to Chino Hills Parkway. On-street parking is allowed on the north side of Eucalyptus Avenue east of Peyton Drive in front of the school. Parking is also allowed on the south side of Eucalyptus Avenue from Peyton Drive to the east city limit.
- **Chino Hills Parkway** is a four- to six-lane divided Minor Arterial/State Highway oriented generally east-west through the City from the north city limit to the south city limit. Four travel lanes are provided to the west of Pipeline Avenue, and six travel lanes are provided to the east of Pipeline Avenue. Chino Hills Parkway has raised medians along the majority of its length, with several painted medians provided between Grand Avenue and Eucalyptus Drive, as well as several two-way left-turn lanes between Peyton Drive and Pipeline Avenue. On-street parking is prohibited on Chino Hills Parkway. Class 2

bike lanes are provided along each side of the City-owned portion of Chino Hills Parkway from the north city limit to Carbon Canyon Road. Class 2 bike lanes are also provided on the north side of Chino Hills Parkway from Peyton Drive to Cherry Drive, and on the south side of Chino Hills Parkway from Peyton Drive to Rolling Ridge Drive.

- **Pipeline Avenue** is a two- to four-lane Collector oriented north-south in the City from Eucalyptus Avenue to its southerly terminus at Soquel Canyon Parkway. At its north end in the City, the roadway of Pipeline Avenue aligns west and becomes Eucalyptus Avenue. Pipeline Avenue is a divided 2-lane collector street, one lane in each direction, spanning from Glen Ridge Drive to Soquel Canyon Parkway, with short four-lane segments provided at Glen Ridge Drive 600 feet northerly, and at Chino Hills Parkway 1,000 feet southerly. On-street parking on Pipeline Avenue is prohibited.
- **Soquel Canyon Parkway** is a six-lane Arterial oriented east-west in the City from SR-71 to approximately one-third mile west of Pipeline Avenue. At this section, Soquel Canyon Parkway has three lanes per direction, raised medians, and left-turn lanes. Class 2 bike lanes are provided along each side of Soquel Canyon Parkway from west of Pipeline Avenue to Butterfield Ranch Road. From its westerly termination point to Pipeline Avenue, Soquel Canyon Parkway is a two-lane collector street with raised medians and left-turn lanes. On-street parking on Soquel Canyon Parkway is prohibited.
- **Butterfield Ranch Road** is a four- to six-lane Major/Minor Arterial following a north-south alignment from Soquel Canyon Parkway to SR-71 in the City. At its north end, Butterfield Ranch Road becomes Los Serranos Country Club Drive north of Soquel Canyon Parkway. Six travel lanes divided by a raised median are provided on Butterfield Ranch Road north of Pine Avenue. South of Pine Avenue, four travel lanes are provided on Butterfield Ranch Road, divided into various segments by raised center medians, painted center medians, and striped centerlines. Class 2 bike lanes are provided along each side of Butterfield Ranch Road, and on-street parking is prohibited.
- **Chino Avenue** is a four- to six-lane Major/Minor Arterial oriented east-west in the City between the east and west city limits. To the west of Peyton Drive, Chino Avenue provides four lanes of travel divided by two-way left-turn lanes, painted center medians, and a striped centerline west of San Rafael Drive. To the east of Peyton Drive, Chino Avenue provides six lanes of travel (three per direction) divided by a raised median with Class 2 bike lanes along each side from Peyton Drive to SR-71. On-street parking on Chino Avenue is prohibited.
- **Carbon Canyon Road** is a designated State Highway, State Route 142 (SR-142). In the City, Carbon Canyon Road is composed of a two-lane highway classified as a Major Arterial with Class 3 bike lanes provided in both directions between Old Carbon Canyon Road and Chino Hills Parkway. Carbon Canyon Road is primarily undivided with a double yellow centerline along its length and short painted medians located along switchback turns and in advance of side street intersections.
- **Woodview Road** is a two-lane undivided roadway in the City, oriented east-west from its westerly terminus at the Vellano Country Club to its easterly terminus at Pipeline Avenue. Woodview Road is classified as a Collector, with a double yellow centerline along the majority of its length. A painted median is provided between Versante Terrace

and Venezia Terrace for a distance of approximately one-third mile. On-street parking on Woodview Road is prohibited. Woodview Road includes Class 2 bike lanes provided in both directions between Peyton Avenue and Vellano Club Drive.

3. Transit

OmniTrans is the public transit agency that serves the San Bernardino Valley, inclusive of Chino Hills. Omnitrans currently operates local and express bus routes, sbX bus rapid transit service,¹ Access (a paratransit service for the disabled), and OmniRide.²

In Chino Hills, fixed route bus service is currently limited to one route. OmniTrans operates fixed route line No. 88, which runs from The Shoppes Retail Center located in the northeast quadrant of the City and connects east and north to Chino Transit Center and Montclair Transit Center. OmniTrans also provides a citywide OmniRide on-demand transit service that serves all of Chino Hills. For veterans, seniors, disabled persons, and Medicare riders, OmniTrans offers reduced fares.

4. Bikeways

Bicycle and pedestrian paths in the City provide an energy efficient alternative to the automobile and help to link the commercial residential and open space uses with the City. Standard bikeway classifications include:

- Class 1 – Bike path that provides a completely separated right of way for the exclusive use of bicycles and pedestrians.
- Class 2 – Bike lane that provides a striped lane for one-way bike travel on a street or highway adjacent to auto travel lanes.
- Class 3 – Bike route that provides for shared use with motor vehicle traffic.

Existing bikeways in the City include Class 2 and Class 3. Locations of Class 2 bikeways along Existing Major Arterials are shown in Figure 2-6. The City has a network of mixed-use trails that provide recreational bike, pedestrian, and equestrian travel, and no exclusive Class I bike paths. The planning, development, maintenance, and use of trails are discussed in the City Trails Master Plan, a component of the Parks, Recreation and Open Space Element of the General Plan.

5. Infrastructure

Water, sewer, and storm drainage infrastructure (wet utilities); and electricity, natural gas, and telecommunications infrastructure (dry utilities) are essential components of the circulation system. Such infrastructure is typically installed in conjunction with development to serve that development or be reasonably related to it. Utility systems usually follow the street system and are installed within the public right of way. The City is responsible for planning and maintenance of wet utilities. The City of Chino Hills Storm Drain Master Plan, the Water and Recycled Water Master Plan, and the Wastewater Master Plan anticipate the infrastructure improvements needed to serve current and expected development.

¹ The sbX Green line is an express passenger service, that offers transportation to major destinations in the cities of San Bernardino and Loma Linda, and consists of 60-foot vehicles powered by environmentally-friendly compressed natural gas.

² OmniRide is a microtransit service that serves Bloomington, Chino/Chino Hills and Upland with on-demand, reservation based transportation. Customers can reserve rides on an app, then be picked up and dropped off at the locations of their choosing within the service area boundaries.

Through its annual Capital Improvement Program (CIP), the City identifies anticipated major infrastructure needs for the next five years, including street improvements, traffic signals, sewer improvements, water system improvements, and storm drains. Planning and programming of water system improvements are handled by the City. CIP projects include those for which funding is anticipated from federal, state, and local sources. Because priorities and funding levels are subject to change, the CIP is subject to annual review and revisions. The CIP is designed to:

- Provide a centralized and comprehensive mechanism for forecasting and defining capital improvement needs;
- Assign priorities among capital projects;
- Budget projects in accordance with City priorities;
- Develop a projected revenue program for financing;
- Schedule projects on a fixed-time basis and provide appropriate implementation;
- Coordinate activities of various City departments and outside entities in meeting schedule objectives;
- Monitor and evaluate the progress of capital improvements; and
- Inform the public and private developers of projected capital improvement needs and implementation projects.

While the CIP can save the City money by facilitating purchase of land and materials in advance of actual need, careful consideration is necessary when programming projects to ensure that physical improvements do not outpace need. The City's policy has been and continues to be that infrastructure should be installed only when necessary and only to the extent warranted to avoid excessive maintenance costs.

Electricity in the City is provided by Southern California Edison (SCE). SCE is regulated by the California Public Utilities Commission (CPUC), which oversees investor-owned electric power and natural gas utility companies in California. SCE is required to supply electricity and extend infrastructure to all new developments within its service area. Natural gas in the City is provided by Southern California Gas (SCG), which is also regulated by the CPUC. Telecommunication services in the City are provided by a variety of private entities.

F. CIRCULATION PLAN

This section of the Circulation Element discusses the circulation improvements, programs, and policies needed to maintain existing development and support future development in the City. The Circulation Plan updates policies intended to maintain an adequate roadway network to meet current and future energy use, costs, and environmental impacts.

1. Roadway Plan

The Roadway Plan for the City describes the major roads that carry traffic to, from, and through the City. The Roadway Plan includes SR-71, SR-142 (Carbon Canyon Road), Major Arterials, Minor Arterials, and Collector streets. It is the network that links regional and cross-city traffic to the City's local streets.

Figure 2-5, below, illustrates the City of Chino Hills Roadway Plan. It describes the location, classification, and number of lanes for each of the network roads. The Existing Major Roadways, described above, are included in the Roadway Plan.

City of Chino Hills

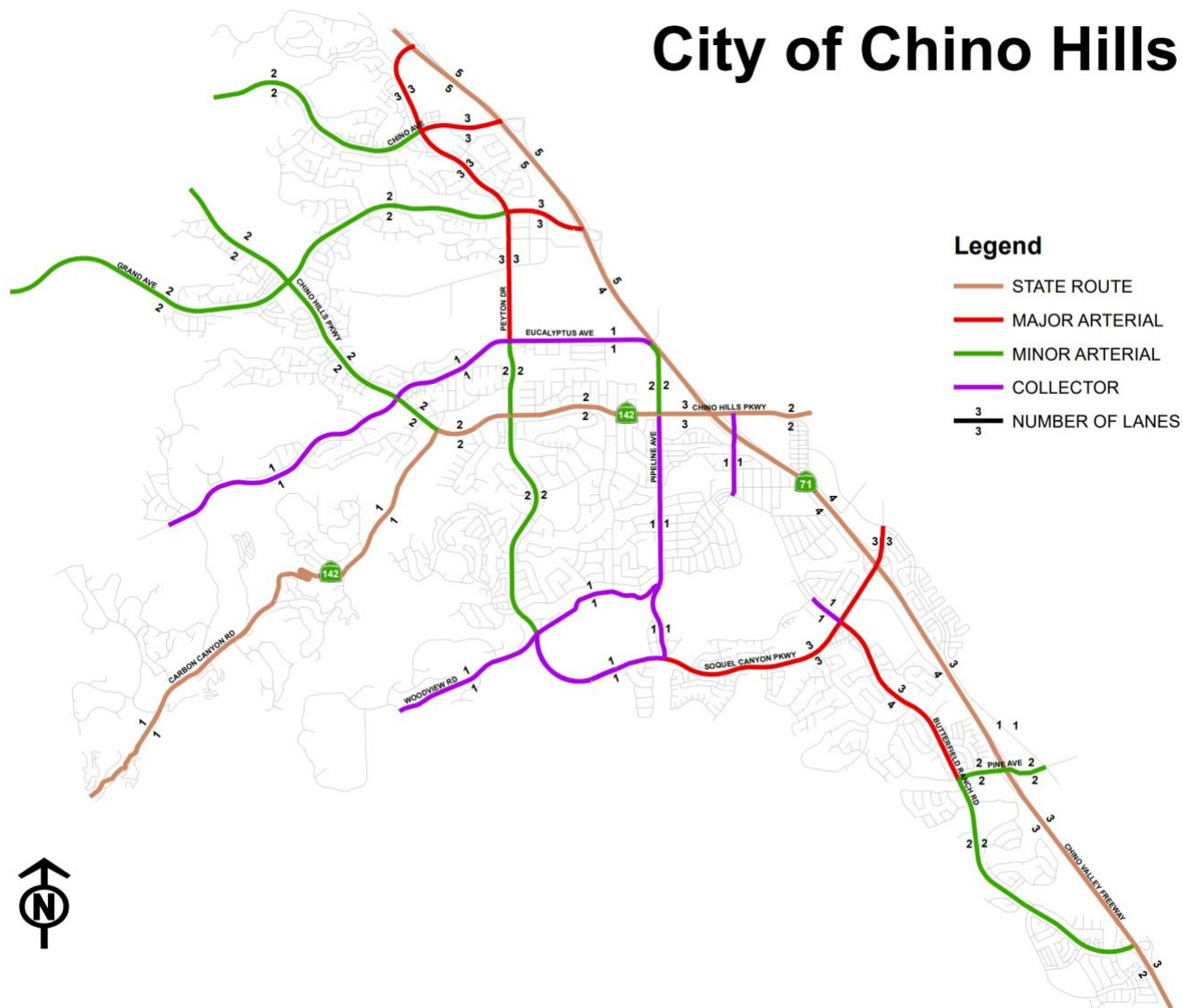


Figure 2-1 – Roadway Plan

2. Planned Roadways

In addition to the Existing Major Roadways, the Roadway Plan includes three planned roadways, described below.

- **Pine Avenue:** Pine Avenue is currently a 4-lane Minor Arterial from Butterfield Ranch Road to SR-71. The Roadway Plan identifies completion of Pine Avenue as a 2-lane Minor Arterial from its current terminus to the City's eastern boundary.
- **Tonner Canyon Road:** Tonner Canyon Road is a potential corridor along the western portion of the City through the Tres Hermanos Conservation District property. Development of this road is uncertain due to the expected expense and the conservation purpose of the Tres Hermanos property. At this time, there are no plans for the construction of the roadway or for other improvements to replace it. This Circulation Element does not illustrate Tonner Canyon Road as a part of the City's roadway network.
- **Soquel Canyon Parkway:** Soquel Canyon Parkway currently terminates at its westerly end approximately one-third mile west of Pipeline Avenue. An extension of Soquel Canyon Road, from its current westerly terminus to Peyton Drive, is planned to fill a gap in the circulation network and to provide an alternative to Pipeline Drive for north-south travel. To handle the projected long-term traffic volumes in that part of the City, this extension is planned as a 2-lane Collector street. A future private development project at the terminus of Soquel Canyon Parkway will be required to extend the 2-lane Collector street and connect to Peyton Drive.

3. Traffic Levels of Service

The quality of vehicular traffic flow is measured in terms of Levels of Service (LOS). The LOS measures the volume of traffic against the capacity of the roadway, known as a volume to capacity (V/C) ratio. Six LOS measures are defined by the letter designations A through F. LOS A represents the best operating conditions, and LOS F represents the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions. Table 2-1, below, summarizes these designations by conditions and V/C ratio.

Table 2-1 – Level of Service Descriptions

Level of Service	Traffic Flow Conditions	V/C* Range
A	Free flow. Individual users are virtually unaffected by the presence of others in the traffic system	0.00 – 0.60
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A.	0.61 – 0.70
C	Stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	0.71 – 0.80
D	High-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.	0.81 – 0.90
E	Operating conditions at or near the capacity level. Freedom to maneuver within the traffic stream is extremely difficult. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.	0.91 – 1.00
F	Level-of-Service F. Forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.	>1.00

*V/C = volume to capacity ratio

The City seeks to maintain an LOS of D or better on its roadways. For future development projects, traffic increases that cause the LOS at an affected intersection to change from LOS D to LOS E or LOS F are considered significant. If an intersection is already operating at LOS E or F, a significant impact occurs if the proposed development results in an increase of over 1% of the volume-to-capacity ratio ($\Delta V/C \geq 0.01$).

4. Vehicles Miles Traveled (VMT)

Senate Bill 743 (Steinberg, 2013), which was codified in Public Resources Code Section 21099, required changes to the guidelines for implementing CEQA Guidelines (CEQA) regarding the analysis of transportation impacts. Pursuant to this legislation, public agencies are required to use Vehicle Miles Traveled (VMT) instead of LOS as the metric to evaluate transportation impacts in CEQA documents such as Initial Studies/(Mitigated) Negative Declarations and Environmental Impact Reports.

In response to this requirement, the City adopted Administrative Policy 3.8, "Vehicle Miles Traveled (VMT) Guidelines Implementation Policy." This policy establishes procedures for transportation studies prepared in the City that are subject to CEQA, including the methodology, screening criteria, significant impact thresholds, and mitigation measures related to VMT impacts for land use and transportation projects.

Outside of the CEQA process the City can choose to continue to evaluate project traffic impacts using the LOS metric.

5. Roadway Standard Cross-Sections

The City has established standard cross-sections for City-controlled road classifications identified in the Roadway Plan. These include Major Arterial, Minor Arterial (4 lanes), and Collector street. The cross-sections for these roads are provided in Figure 2-6 through Figure 2-8, below.

6. Transit Plan

The City has worked closely with OmniTrans to retain the one fixed bus route, illustrated in Figure 2-9, below, and to obtain the OmniRide program. The City continues to coordinate with OmniTrans and regional transportation agencies to maintain and expand transit service within the City and to regional connections.

7. Bikeway Plan

The City of Chino Hills Bicycle Master Plan provides bike lanes through the City with connections to adjacent communities. Figure 2-10, below, illustrates the City's Bicycle Master Plan. It includes Class 2 and Class 3 bike lanes.

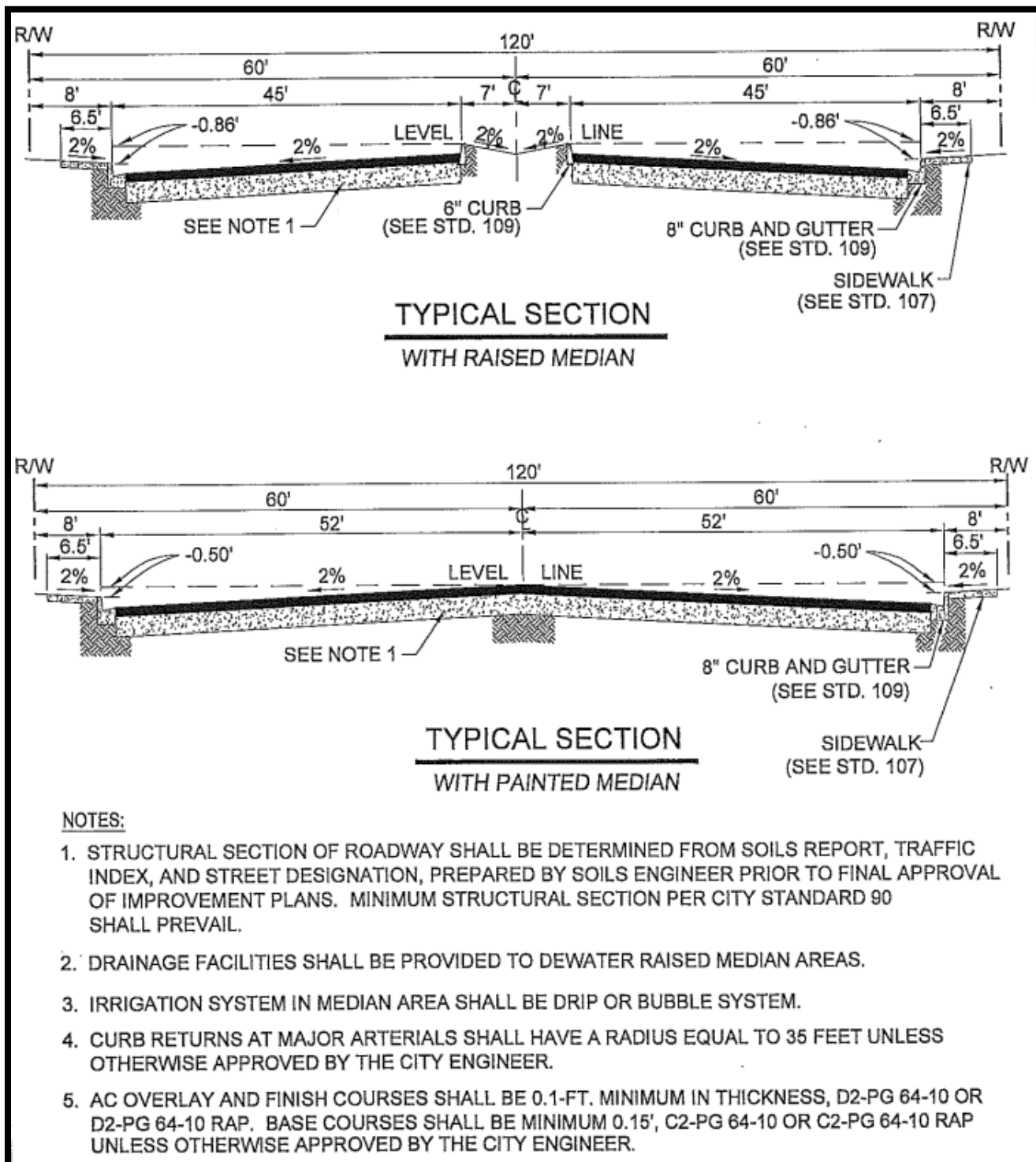


Figure 2-2 – Major Arterial Cross-Section

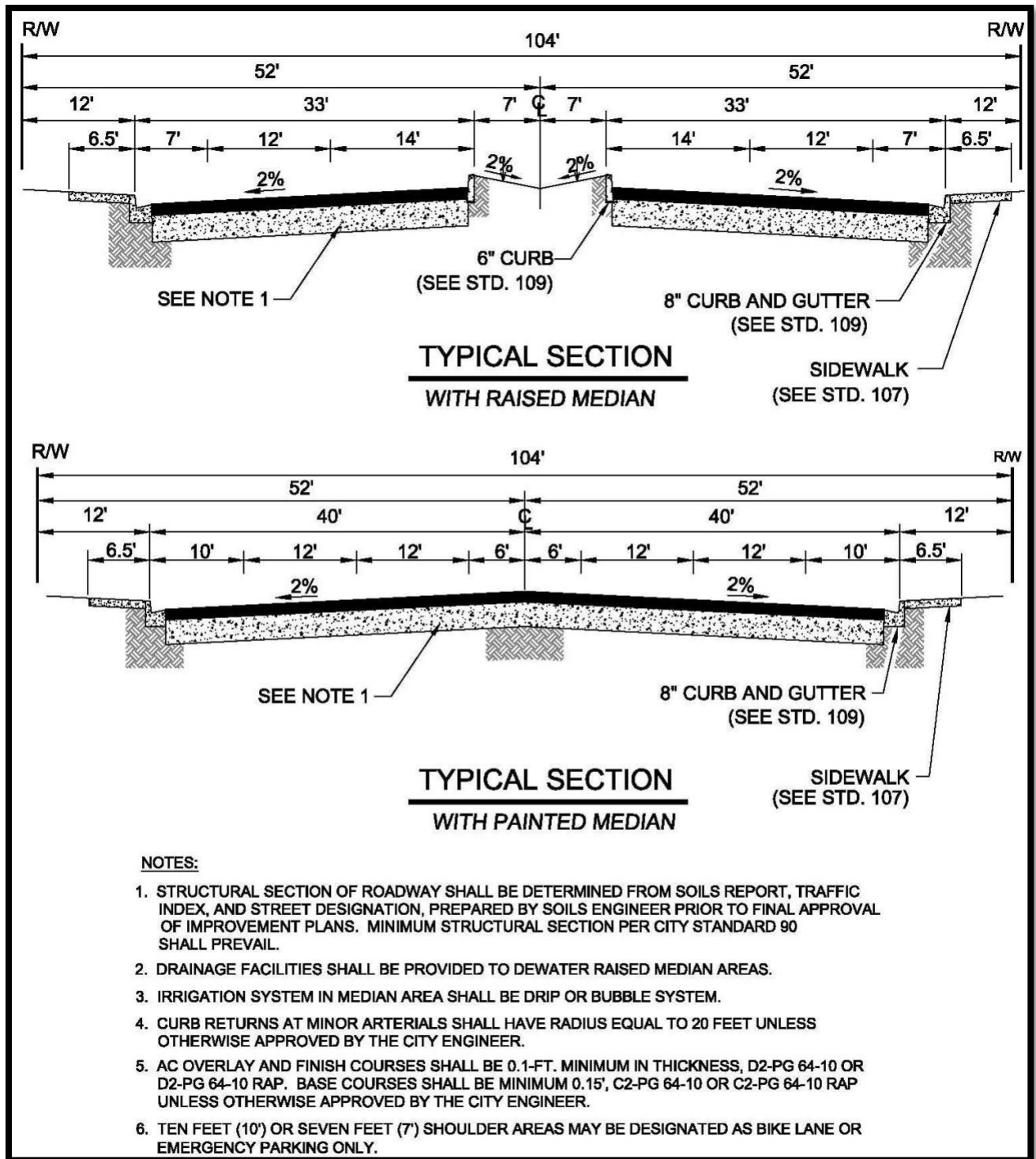
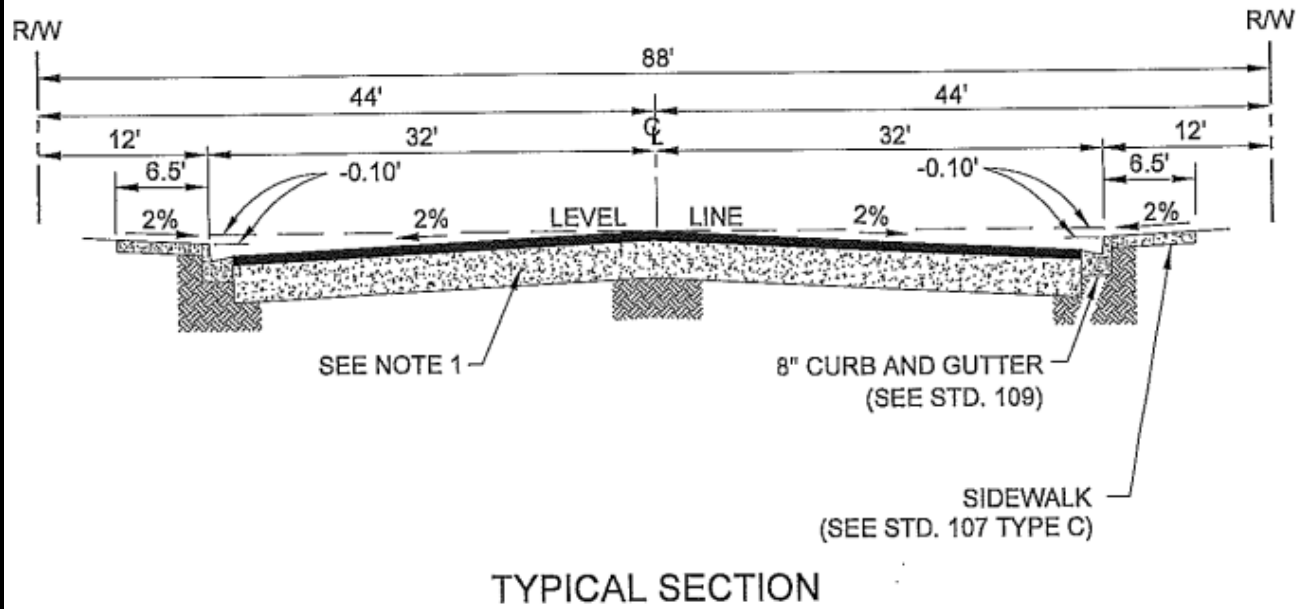


Figure 2-3 – Minor Arterial Cross-Section (4 lanes)



NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS REPORT, TRAFFIC INDEX, AND STREET DESIGNATION, PREPARED BY SOILS ENGINEER PRIOR TO FINAL APPROVAL OF IMPROVEMENT PLANS. MINIMUM STRUCTURAL SECTION PER CITY STANDARD 90 SHALL PREVAIL.
2. CURB RETURNS AT SECONDARY HIGHWAYS SHALL HAVE RADIUS EQUAL TO 20 FEET UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. AC OVERLAY AND FINISH COURSES SHALL BE 0.1-FT. MINIMUM IN THICKNESS, D2-PG 64-10 OR D2-PG 64-10 RAP. BASE COURSES SHALL BE MINIMUM 0.15', C2-PG 64-10 OR C2-PG 64-10 RAP UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

Figure 2-4 – Collector Cross-Section

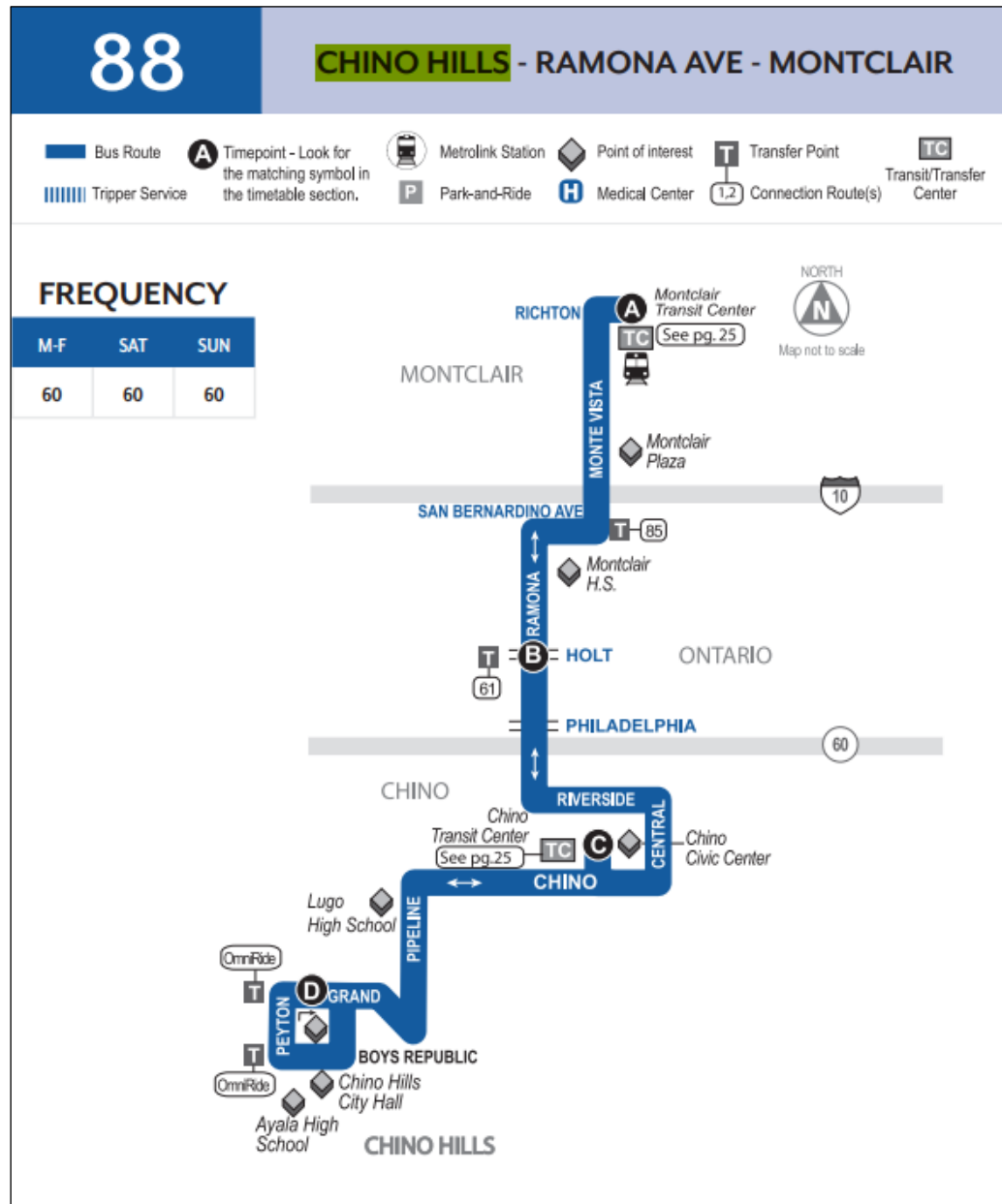


Figure 2-5 – OmniTrans Fixed Bus Route No. 88

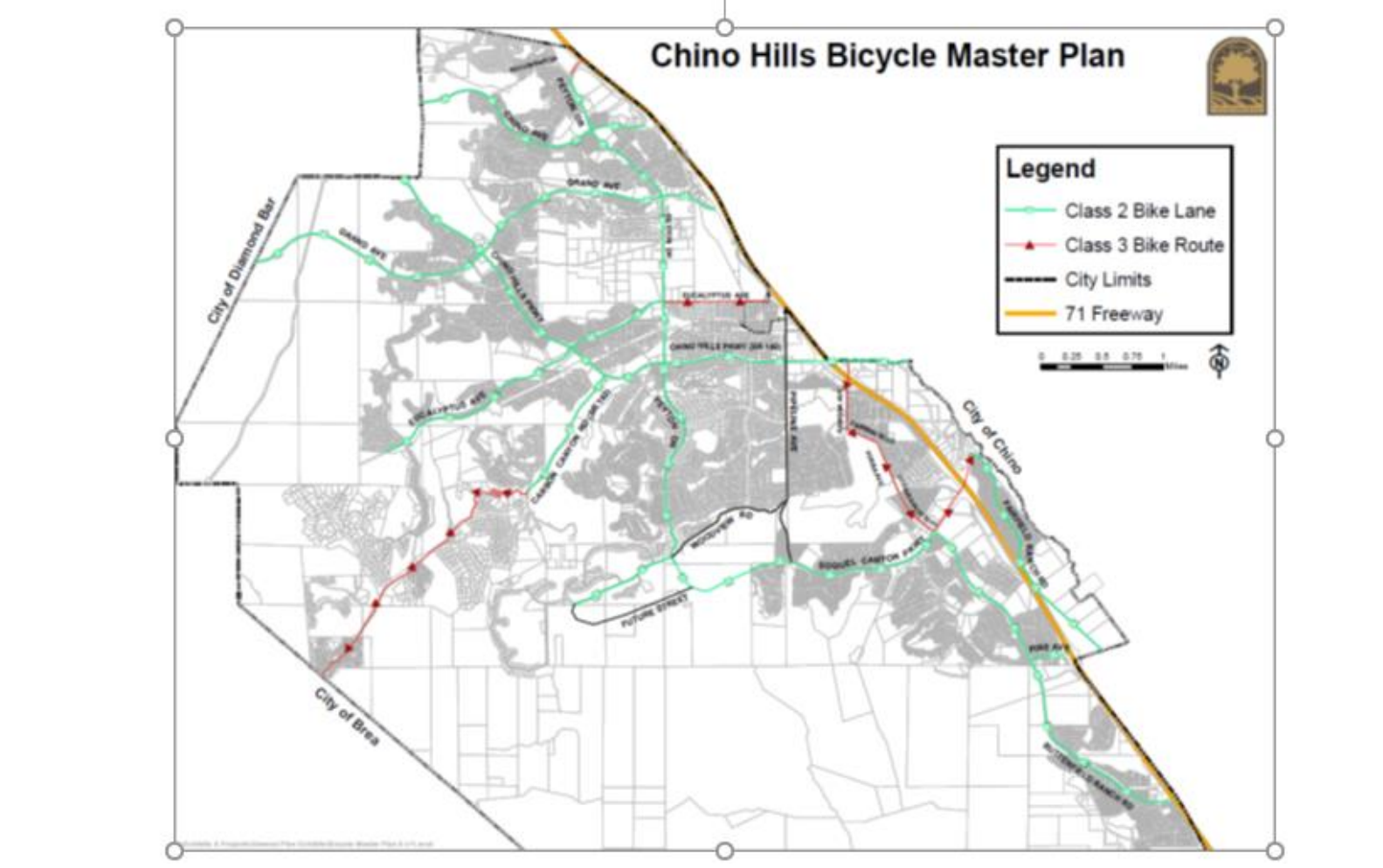


Figure 2-6 – Bicycle Master Plan

G. CIRCULATION ELEMENT GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions support the City of Chino Hills Circulation Plan and the City's vision to provide well-planned transportation and utility systems that support the general pattern of development.

Goal C-1: Provide a Comprehensive Vehicular Transportation Network

Policy C-1.1: Provide a comprehensive roadway network that supports the movement of people and goods in a safe and efficient manner.

Action C-1.1.1: Achieve and maintain a minimum Level of Service D on all roadway links and at all roadway intersections, with the exception of intersections within one-half mile of the SR-71 Freeway, where a minimum Level of Service E shall be maintained.

Action C-1.1.2: Maintain San Bernardino County Congestion Management Program (CMP) highway system roadway links and intersections at Level of Service E.

Action C-1.1.3: Require traffic impact analyses or traffic studies for private and public projects, applying LOS criteria, to ensure that discretionary development projects do not cause roadway congestion in excess of acceptable levels of service within Chino Hills, or on CMP roadway links or intersections.

Action C-1.1.4: Require new developments to provide for all roads within their boundaries and to pay their fair share of planned roadway improvement costs.

Action C-1.1.5: Continue to assert that all improvements to and maintenance of the portion of Chino Hills Parkway/Carbon Canyon Road that is part of SR-142 shall be the responsibility of the State of California.

Action C-1.1.6: Continue to enforce heavy truck travel restrictions throughout the City.

Policy C-1.2: Create a safe, efficient, and neighborhood-friendly street system.

Action C-1.2.1: Minimize through traffic in residential neighborhoods through a variety of land use controls and traffic control devices.

Action C-1.2.2: Construct major streets on the perimeter of the neighborhood to improve public safety by eliminating hazards, noise, smoke, odor, and other nuisances from residential areas.

Action C-1.2.3: Design collector streets to circulate traffic within the neighborhood but discourage through traffic.

Action C-1.2.4: Design local streets to primarily provide access to homes and other properties.

Action C-1.2.5: Require all development projects to meet mandatory standards with regard to vertical and horizontal alignments, access control, rights of way, cross-sections, intersections, sidewalks, curbs and gutters, cul de sacs, driveway widths and grades, right of way dedication and improvements, and curb cuts for the disabled.

Action C-1.2.6: Provide adequate sight distances for safe vehicular movement at a road's design speed and at all intersections as consistent with City and Caltrans standards.

Action C-1.2.7: Prohibit direct driveway access from individual residences to arterials, and collectors.

Action C-1.2.8: Require driveway placement to be primarily designed for safety and, secondarily, to enhance circulation.

Action C-1.2.9: Plan access and circulation of each development project to accommodate vehicles (including emergency vehicles and trash trucks), pedestrians, and bicycles.

Action C-1.2.10: Require adequate off-street parking for all developments.

Goal C-2: Support Regional Transportation Policies That Link Chino Hills to Neighboring Cities and Counties

Policy C-2.1: Support and participate in regional efforts to improve vehicular and non-vehicular transportation systems.

Action C-2.1.1: Support and cooperate with all aspects of the countywide CMP for maintaining levels of service for CMP segments located in the City.

Action C-2.1.2: Coordinate with San Bernardino Associated Governments (SANBAG) regarding the integration of Intelligent Transportation Systems (ITS) that will maximize the efficiency of the transportation system through advanced technologies, such as adaptive signal controls.

Action C-2.1.3: Collaborate with regional transportation planning and transit agencies to plan for the efficient allocation of transportation resources.

Action C-2.1.4: Support regional efforts to the extent feasible to reduce single-occupancy vehicle travel.

Action C-2.1.5: Continue to implement the citywide trip reduction ordinance, consistent with San Bernardino County CMP requirements, to reduce traffic congestion and improve air quality.

Action C-2.1.6: Continue to implement Vehicle Miles Traveled (VMT) City policy and guidelines to ensure consistency with State Office of Planning and Research Green House Gas reduction efforts.

Goal C-3: Provide Safe and Adequate Pedestrian, Bicycle, and Public Transportation Systems to Provide Alternatives to Single Occupant Vehicular Travel and to Support Land Uses

Policy C-3.1: Encourage the use of public transportation for commute and local, and increase citywide transit ridership.

Action C-3.1.1: Work with OmniTrans and/or other transit providers to maintain and expand transit routes serving the City and the surrounding communities.

Action C-3.1.2: Work with OmniTrans and/or other bus providers to assess and provide paratransit services for low-income, elderly, disabled, and other residents in need of access assistance.

Action C-3.1.3: Work to ensure that all transit stops have as many amenities as feasible such as: shade structures, water fountains, wayfinding, live route information, and bicycle parking.

Action C-3.1.4: Partner with transit agencies to continue and further develop a free or reduced fare program, and other transportation modes such as dial-a-ride, for youth, seniors, disabled, and other vulnerable populations.

Action C-3.1.5: Make available to the public maps that show mobility routes for walking, biking and transit, as well as, how these networks connect to schools, parks, healthy food, and transit.

Policy C-3.2: Support other alternatives to single-occupant vehicular travel.

Action C-3.2.1: Work with the Chino Valley Unified School District to implement ride sharing, bike routes, and other non-single-occupant vehicle transportation options.

Action C-3.2.2: Establish one or more park-and-ride lots to be located near freeway interchanges, and require secure and easily accessible park-and-ride facilities.

Action C-3.2.3: Support the citywide Bicycle Master Plan and bikeway improvements.

Action C-3.2.4: Add bike lanes, sidewalks, and crosswalk improvements to close gaps in walking and biking networks and improve safe mobility across the City with a focus on areas around schools and public facilities.

Goal C-4: Encourage Development That Supports Balanced Land Uses and Alternative Modes of Transportation That Reduce the Reliance on the Automobile

Policy C-4.1: Plan for high-density mixed-use development close to arterial roadways and available transit.

Action C-4.1.1: Locate high density housing within walking distance of transit, as determined by state and regional policies.

Action C-4.1.2: Locate high density housing within walking distance of shopping, services and transit.

Action C-4.1.3: Prioritize transportation investments to increase safety around parks, open spaces, community centers, major shopping centers, schools, preschools, and childcare centers.

Action C-4.1.4: Require mixed use and/or high-density development to incorporate pedestrian-oriented design elements, such as accessibility to adjacent shopping, services and transit; safe pedestrian connections and crossings; parks and public open spaces; street furniture, attractive pedestrian-oriented design at the street level; street facing buildings; and street trees and landscaping.

Action C-4.1.5: Encourage use of alternative fuel vehicles and the construction of infrastructure to charge/fuel alternative fuel vehicles.

Action C-4.1.6: Require EV chargers in new public and private developments, including new multifamily developments.

Goal C-5: Ensure an Adequate and Well-Maintained Infrastructure System

Policy C-5.1: Provide adequate infrastructure improvements in conjunction with development.

Action C-5.1.1: Plan and design new roadways and expansion/completion of existing roadways to allow for co-location of water, sewer, storm drainage, communications, and energy facilities within the road right of way.

Action C-5.1.2: Require private and public development projects to be responsible for providing road improvements along all frontages abutting a public street right of way in accordance with the design specifications for that roadway.

Action C-5.1.3: Require private and public development projects to be responsible for providing traffic control devices and wet and dry utility improvements necessary to meet the needs of the project, and to properly integrate into the established and planned infrastructure systems.



City of Chino Hills

General Plan

HOUSING ELEMENT

Certified - September 2022

The City Of Chino Hills Housing Element was updated in 2022.

To preview the document, please click the link below.

[Chino Hills 6th Cycle Housing Element \(2021-2029\)](#)



City of Chino Hills

General Plan

CONSERVATION ELEMENT

The Conservation Element addresses the protection and management of the City of Chino Hills' (City) natural and cultural resources. These include scenic visual resources, trees, hillsides, biological resources, agricultural land, mineral resources, water, air quality, cultural resources, and energy conservation.

A. PURPOSE OF THE CONSERVATION ELEMENT

The State of California requires all cities to include a General Plan Conservation Element to address the conservation, development, and utilization of natural resources.

As required by §65302(d) of the *California Government Code*, this Conservation Element addresses the natural resources within the City, which include ridgelines, natural open space, native trees and vegetation, wildlife, soils, natural waterways, water supply, wastewater, minerals, and clean air. This Conservation Element also addresses the identification and protection of cultural resources within the City.

The Conservation Element works in concert with the Parks, Recreation and Open Space Element to address the comprehensive and long-range preservation and conservation of open space lands, consistent with §65302(e) of the *California Government Code*.

B. CONNECTION TO COMMUNITY VISION

The Conservation Element supports the City's vision to preserve natural resources, promote energy conservation, and protect cultural resources. Toward this end, the Conservation Element focuses on implementing the following 8 of the City's 19 Vision Statements. (Numbers in parenthesis reference numerical order of Vision Statements as presented in the Vision section of this General Plan.)

1. A Chino Hills that supports a sustainable balance of land uses, open spaces, and infrastructure. (V-5)
2. A Chino Hills that supports healthy living. (V-7)
3. A Chino Hills that plans for the maintenance of its open space resources and protection of wildlife. (V-8)
4. A Chino Hills that continues to provide for adequate public utilities. (V-13)
5. A Chino Hills that supports water and energy conservation. (V-14)
6. A Chino Hills that supports regional water quality mandates. (V-15)
7. A Chino Hills that supports regional targets for reductions in greenhouse gas emissions. (V-16)
8. A Chino Hills that supports environmental justice for all ethnic, racial, and socioeconomic community members. (V-20)

C. RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Conservation Element identifies natural and cultural resources and methods to protect these resources. Many of the identified natural resources, such as ridgelines, biologically sensitive areas, and natural waterways, are protected as permanent open space. These protected natural areas are given an Open Space designation within the Land Use Plan of the Land Use Element. Provisions to preserve and maintain these areas are further articulated in the Parks, Recreation and Open Space Element.

D. RELATIONSHIP TO OTHER LOCAL REGULATORY DOCUMENTS

Several City regulatory mechanisms are used to implement the General Plan Conservation Element on an ongoing basis:

1. **Chapter 13.08 of the Municipal Code – Water Conservation:** The City implements the California Water Code, establishing policies to conserve water supplies and to avoid or minimize the effects of any future water shortage.
2. **Chapter 13.16 of the Municipal Code – Storm Drain System:** The City prohibits all non-permitted discharges to the municipal storm drain system. This prohibition applies to the discharge to municipal storm drains from spills, dumping, or disposal of materials other than storm water. This regulation is intended to reduce pollutants in storm water discharges to the maximum extent practicable and to ensure compliance with National Pollutant Discharge Elimination System (NPDES) permits.
3. **Chapter 15.04.090 of the Municipal Code – 2022 Edition of the California Energy Code adopted:** The City adopts the 2022 California Green Building Standards Code, which sets new mandates for new buildings including reductions in water consumption, diversion of construction waste, and provision of more energy efficient operational systems.
4. **Chapter 16.07 of the Municipal Code – Landscape and Water Conservation Requirements :** The City establishes guidelines for the installation and maintenance of low-water-use landscaping.
5. **Chapter 16.08 of the Municipal Code – General Design Regulations:** The City implements regulations to protect and enhance the unique visual resources of Chino Hills. These visual resources include the community's hillside setting, diverse topographic forms, and scenic qualities.
6. **Chapter 16.30 of the Municipal Code – Scenic Resources Overlay District:** The City establishes the scenic resources overlay district to provide development standards that will protect, preserve, and enhance Chino Hills' Important Visual Resources, including Exceptionally Prominent Ridgelines, Prominent Ridgelines, Prominent Knolls, and Associated Primary View Points.
7. **Chapter 16.50 of the Municipal Code – Grading Regulations:** The City preserves its hillside setting and diverse topographic forms through grading standards and guidelines that minimize impacts to the natural landform.
8. **California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings:** The City implements the California Building Energy Efficiency Standards for Residential and Nonresidential Buildings that were established in 1978 in response to a legislative mandate to reduce California's energy consumption.
9. **Urban Water Management Plan:** The City maintains an Urban Water Management Plan (UWMP), prepared pursuant to the California Water Code (CWC). The UWMP provides a high-level overview of the City's water supplies, water demands, water service reliability, and drought risk assessment. In addition to these key components, Chino Hills' UWMP has also developed a stand-alone Water Shortage Contingency Plan (WSCP) which provides guidance for the City's intended actions during a water supply shortage.

10. **Citywide Water and Recycled Water Master Plan:** The City maintains a Water and Recycled Water Master Plan that provides comprehensive documentation, analysis, and recommendations for the water and recycled water systems, including a calibrated GIS-based hydraulic model for each system. The Water and Recycled Water Master Plan develops a Capital Improvement Program (CIP) that identifies the recommended projects needed to ensure that the City continues to provide safe, reliable, and efficient water and recycled water service to the community.
11. **Citywide Wastewater Master Plan:** The City maintains a Wastewater Master Plan that assesses the existing wastewater collection system, and identifies proposed improvements to mitigate existing and future system deficiencies. The Wastewater Master Plan includes CIP recommended projects needed to ensure that the City continues to provide safe, reliable, and efficient wastewater service to the community.

E. CONSERVATION ELEMENT ISSUES

There are numerous natural and cultural resources within the City, the conservation of which could affect the community's environmental quality, aesthetics, and quality of life. The following section discusses the primary resources and conservation issues that shape the Chino Hills Conservation Plan and the goals, policies, and actions of this Conservation Element.

1. Natural Setting

The City's rural character is largely defined by its natural setting, which consists of natural open spaces, ridgelines, canyons, wildlife corridors, and existing woodlands and native and heritage trees. The Conservation Element updates policies intended to protect the natural setting.

2. Biological Resources

The City is home to a wide diversity of plant and animal species, often located in the canyons.

a) Vegetation Communities

Native and non-native vegetation occur within the 11 following vegetation communities:

1. Annual Grasslands/Ruderal
2. California Walnut Woodland
3. Chaparral
4. Coast Live Oak Woodland
5. Coastal Sage Scrub/Chaparral Ecotone
6. Diegan Coastal Sage Scrub
7. Disturbed/Developed (Non-native)
8. Freshwater Emergent Wetland
9. Open Water
10. Riverine
11. Southern California Coast Live Oak Riparian Forest
12. Southern Sycamore-Alder Riparian Woodland
13. Southern Willow Scrub

These native vegetation communities comprise approximately 58% of the City's incorporated boundaries, excluding Chino Hills State Park. Figure 4-1 – Chino Hills Vegetation Communities Map identifies the locations of the vegetation communities within the City. A brief

description of each community is provided below. (Percentages of vegetation communities within the City are City boundaries exclusive of Chino Hills State Park.) Descriptions for Open Water and Non-Native Areas are also provided. Of these communities, those that contain waterways, wetlands, and riparian areas also function to recharge groundwater and manage storm water.

1. **Annual Grasslands/Ruderal.** Annual grassland is dominated by annual grasses that are primarily of Mediterranean origin. Approximately 37% of the City area consists of annual grassland. Dominant species found in this community include wild oat (*Avena fatua*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis ssp. rubens*), foxtail barley (*Hordeum murinum ssp. leporinum*), wild radish (*Raphanus sativus*), bull thistle (*Cirsium vulgare*), tocalote (*Centaurea melitensis*), and wild mustard (*Brassica nigra*).
2. **California Walnut Woodland.** California walnut woodland is an open- to occasionally closed-canopy woodland dominated by California black walnut (*Juglans californica*). The understory is sparse with scattered patches of annual grasses. This sub-association occurs on moist, fine-textured soils of valley slopes and bottoms. Approximately 1% of the City area supports California walnut woodland communities. Walnut woodlands communities are designated by the CDFW and the CNDDB as “very threatened.”
3. **Chaparral.** Chaparral communities consist of evergreen, broad-leaved or needle-leaved, sclerophyllous (hard-leaved), medium height to tall shrubs that form a dense cover on steep slopes. The herbaceous understory is often sparse to nonexistent, but there is often a substantial accumulation of leaf litter in mature chaparral stands. Approximately 3% of the City area supports chaparral communities. Dominant species within this community include black sage, laurel sumac, scrub oak (*Quercus berberidifolia*), lemonade berry (*Rhus integrifolia*), toyon, and Mexican elderberry.
4. **Coast Live Oak Woodland.** Coast live oak woodland is dominated by coast live oak (*Quercus agrifolia*) and exhibits a shrub layer that varies from sparse to moderately dense and may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes spp.*), laurel sumac, and Mexican elderberry (*Sambucus nigra*). Approximately 4% of the City area supports coast live oak woodland communities. Coast live oak woodland and Southern California Coast Live Oak Riparian Forest are designated by CDFW and the CNDDB as “occurring in more than 100 viable locations statewide and/or more than 50,000 acres of habitat remaining.”
5. **Coastal Sage Scrub/Chaparral Ecotone.** Less than 1% of the City area consists of a mosaic of overlapping chaparral and coastal sage scrub communities.

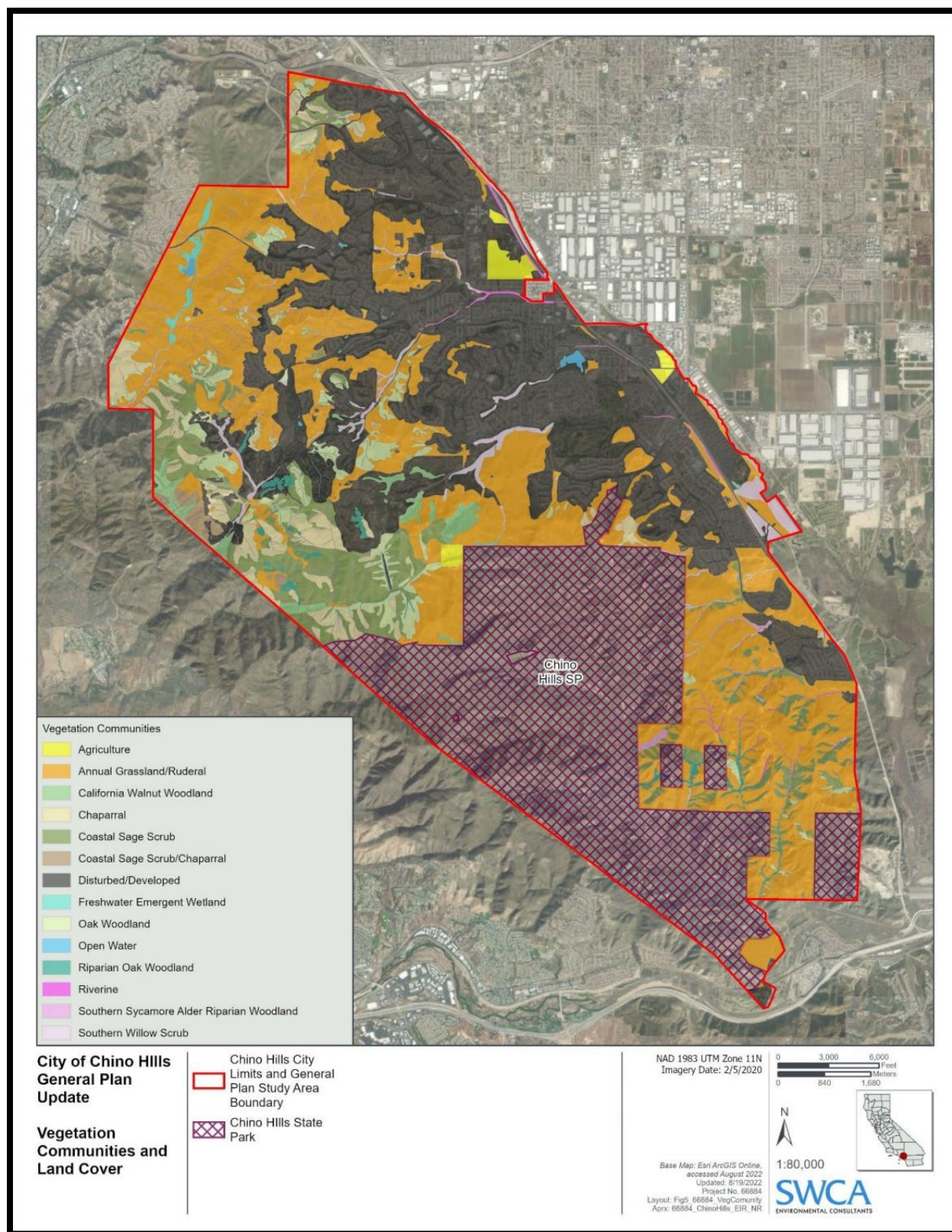


Figure 4-1 – Chino Hills Vegetation Communities Map

6. Diegan Coastal Sage Scrub. Diegan coastal sage scrub consists of drought-deciduous, low, soft-leaved shrubs with herbaceous understory on gentle to steep slopes under 3,000 feet. Approximately 8% of the City area supports Diegan coastal sage scrub communities. Dominant species in this community include California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). Other component species include laurel sumac (*Malosma laurina*), coast goldenbush (*Isocoma menziesii*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), deerweed (*Lotus scoparius*), and coyote brush (*Baccharis pilularis*). Diegan coastal sage scrub is designated by the California Department of Fish and Wildlife (CDFW) (formerly the California Department of Fish and Game) and the California Natural Diversity Database (CNDDDB) as “very threatened,” which is defined as habitat occurring within 21 to 100 viable locations statewide and/or between 10,000 and 50,000 acres of habitat remaining.

7. Disturbed/Developed (Non-Native) Areas. Developed areas of Chino Hills comprise approximately 41% of the City area. Most of the vegetation in the developed areas is non-native, ornamental plants.

Less than 1% of the City area is currently used for agriculture.

8. Freshwater Emergent Wetland. Freshwater emergent wetland consists of freshwater marsh and freshwater seep communities. This habitat type is generally located within perennial or intermittent channel bottoms and is characterized by grass, forb, and emergent species such as southern cattail (*Typha domingensis*), bulrush (*Scirpus spp.*), Mexican rush (*Juncus mexicanus*), spike rush (*Eleocharis spp.*), and rabbitsfoot grass (*Polypogon monspeliensis*). Less than 1% of the City area supports freshwater emergent wetland communities. Freshwater marsh is designated by the CDFW and the CNDDDB as “very threatened.”

9. Open Water. Less than 1% of the City area consists of open water.

10. Riverine. This community consists of unvegetated ephemeral, intermittent, or perennial stream channels, and comprises 1% of the City area.

11. Southern California Coast Live Oak Riparian Forest. Coast live oak riparian woodland is dominated by coast live oak and possesses a poorly developed shrub layer that may include poison oak (*Toxicodendron diversilobium*), toyon, laurel sumac, and Mexican elderberry. Riparian oak woodland habitats were distinguished from upland oak woodland habitats based on their association with drainages as described above. Approximately 1% of the City area supports Southern California coast live oak riparian forest communities. Southern California coast live oak riparian forest is designated by the CDFW and the CNDDDB as “occurs in more than 100 viable locations statewide and/or more than 50,000 acres of habitat remaining.”

12. Southern Willow Scrub. Southern willow scrub is characterized by dense, broad-leaved, winter-deciduous riparian thickets dominated by one or more willow species. The dominant species of this community is arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), mule fat (*Baccharis salicifolia*), and stinging nettle (*Urtica dioica*). Approximately 2% of the City area supports southern willow scrub communities. Southern willow scrub communities are designated by the CDFW and the CNDDDB as “very threatened” and occur in 6 to 20 known locations and/or 2,000 to 10,000 acres of habitat remaining.

This habitat has some potential to support federally listed species including least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*).

13. **Southern Sycamore-Alder Riparian Woodland.** Southern sycamore-alder riparian woodland is dominated by western sycamore (*Platanus racemosa*) and may support white alder (*Alnus rhombifolia*), California blackberry (*Rubus ursinus*), and poison oak in the understory. Less than 1% of the City area supports southern sycamore-alder riparian woodland communities. Southern sycamore-alder riparian woodland is designated by the CDFW and the CNDDDB as “occurs in more than 100 viable locations statewide and/or more than 50,000 acres of habitat remaining.”



b) Special-Status Animals

A number of special-status animal species inhabit the native plants communities within the City. Special-status animals include fish, birds, reptiles, and mammals that are listed by the United States Fish and Wildlife Services (USFWS) and/or the CDFW as endangered, threatened, or a species of concern. Special status animals identified by the CNDDDB as occurring in the City are shown in Figure 4-2 – CNDDDB Identified Special Status Species in Chino Hills. Notable special-status animal species that are known to or have potential to occur within the City are described below.

1. Fish

- a) **Santa Ana Sucker (*Catostomus santaanae*).** The Santa Ana sucker is federally listed as threatened and is a CDFW Species of Concern. This species requires clean, clear, and relatively cool streams of varying width and depth with appropriate substrates (e.g., a mix of sand, gravel, cobble, and boulder). Chino Creek may provide suitable habitat for this species.
- b) **Arroyo Chub (*Gila Orcuttii*).** The arroyo chub is designated as a California Species of Concern. This species requires year-round flowing water with deep pools and muddy substrate. It was declared a Fish Species of Special Concern in California by the Department of Fish and Wildlife in 1995, and the department recommends protection and management of any remaining natural stream habitat in their range. Perennial streams within the City, including Chino Creek, provide suitable habitat for this species.

2. Birds

- a) **California gnatcatcher (*Polioptila californica californica*)**. The California gnatcatcher (CAGN) is federally listed as threatened and is a CDFW Species of Concern. This small songbird is a year-round, obligate resident of coastal sage scrub communities in Southern California and northwestern Baja California, Mexico. Coastal sage scrub communities dominated by California sagebrush, California buckwheat, white sage, and black sage are preferred by this species. Loss and fragmentation of suitable habitat due to expanding development have been major factors in the decline of this bird in Southern California.

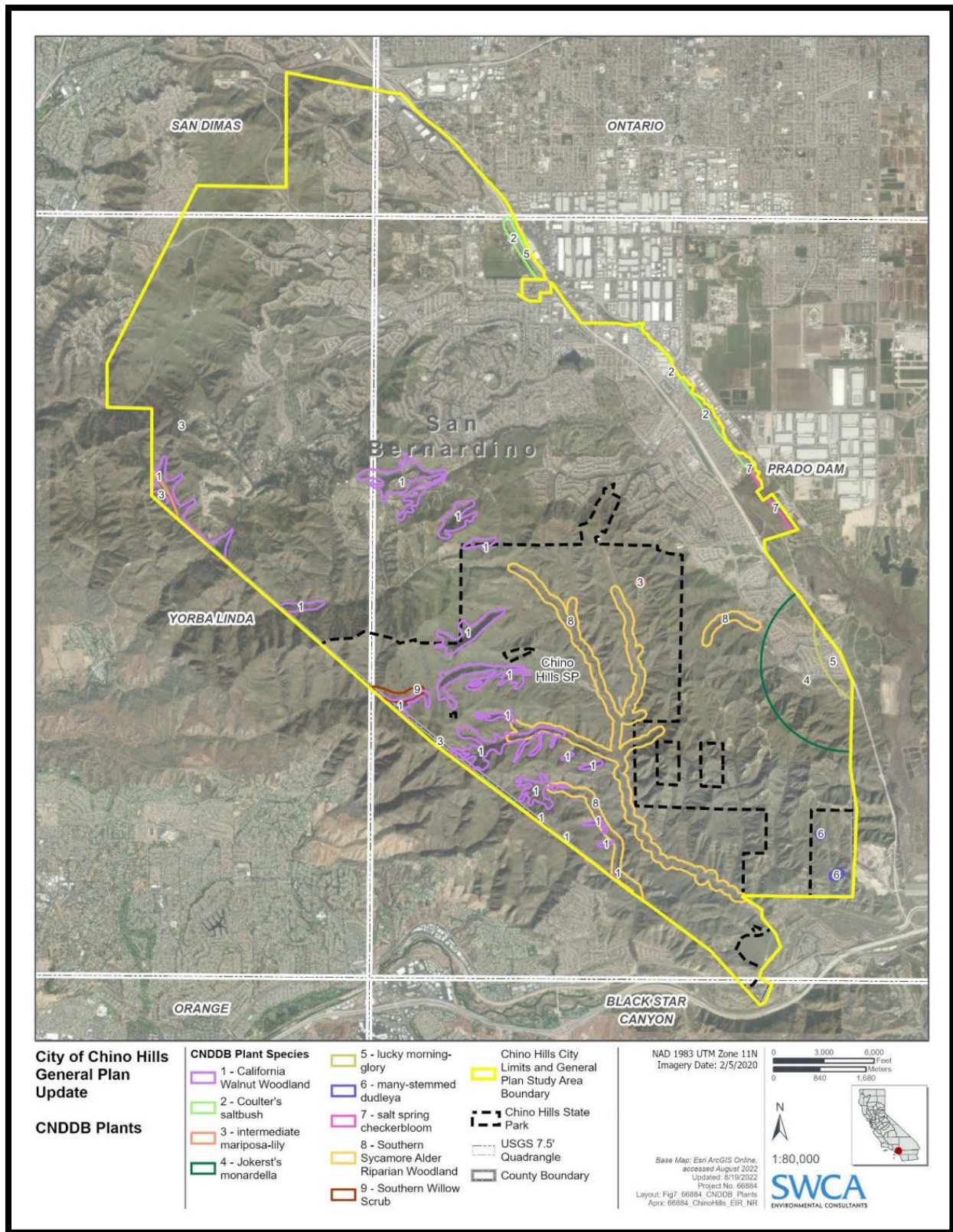


Figure 4-2 – CNDDB Identified Special Status Species in Chino Hills

- b) **Least Bell's Vireo (*Vireo belli pusillus*)**. The least Bell's vireo (LBV) is a state and federally listed endangered species. This vireo nests and forages almost exclusively in riparian woodland habitats. Historically, the LBV was abundant in riparian habitats throughout the central valley, coastal Southern California, and in scattered oases and canyons in California deserts. Populations declined dramatically due to widespread destruction and degradation of riparian habitats and brood-parasitism by the brown-headed cowbird (*Molothrus ater*). The USFWS listed the LBV as an endangered species in 1986. During the last decade, the LBV has begun to exhibit a substantial recovery due in large measure to management, including trapping to remove brown-headed cowbirds from areas occupied by the vireo. Habitat restoration has also provided additional habitat areas for this species, contributing to its recovery.
- c) **Southwestern Willow Flycatcher (*Empidonax traillii extimus*)**. The southwestern willow flycatcher (SWFL) is state and federally listed as endangered. The SWFL breeds in riparian habitats along rivers, streams, or other wetlands characterized by dense willows and shrubs in woodlands with standing water. SWFL currently occupies a small fraction of its former range. The decline has been attributed to widespread destruction and degradation of riparian habitats and brood-parasitism by the brown-headed cowbird. As a result, the SWFL was listed by CDFW as an endangered species in 1991, and was federally listed as endangered in 1995. Currently, fewer than 100 breeding pairs are known in Southern California.
- d) **Swainson's hawk (*Buteo swainsonii*)**. The Swainson's hawk is state-listed as threatened. The Swainson's hawk is a rare visitor to this region and is not known to nest within the City. This species may forage in open grassland, scrub habitats, or agricultural areas.
- e) **Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)**. The western yellow-billed cuckoo is federally designated as a species of concern and state listed as endangered. The species requires broad tracts of mixed old growth riparian forests including a canopy of willow and cottonwood and a dense understory of blackberry, nettles, and wild grape.
- f) **Burrowing Owl (*Athene cunicularia*)**. The western burrowing owl is a federal and state species of concern. A petition to list the species under the California Endangered Act (ESA) was reevaluated and is now considered as a candidate species while California Department of Fish and Wildlife (CDFW) conducts a species status review to confirm candidacy. Fewer than 10,000 pairs of this owl occur in the state, with only the Imperial County population considered stable. The remaining populations within the state are considered declining. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrub characterized by generally flat areas with low-growing vegetation. This owl will occupy abandoned rodent burrows and man-made structures such as culverts, pipes, and debris piles.
- g) **Coastal Cactus Wren (*Campylorhynchus brunneicapillus couesi*)**. The coastal cactus wren is a state species of concern. It resides in the coastal sage scrub and chaparral plant communities that include substantial cover of cacti (*Opuntia* sp.). In addition to cacti, characteristic shrubs in suitable habitat include California buckwheat,

coastal sage brush, several sages, and scattered shrubs including lemonade berry and laurel sumac. The Southern California coastal plain populations of cactus wren have continued to decline due to habitat loss and fragmentation.

- h) **Golden Eagle (*Aquila chrysaetos*)**. The golden eagle is a state fully protected species. This raptor occurs in rolling foothills, mountain areas, sage-juniper flats, and deserts. Nesting is primarily restricted to rugged, mountainous country. According to a 2001 report detailing Nesting Birds of Prey Monitoring results for Chino Hills State Park, up to four pairs of golden eagles are known to nest in the vicinity of Chino Hills State Park.
- i) **Grasshopper Sparrow (*Ammodramus savannarum*)**. The grasshopper sparrow is a state species of concern. During the breeding season in California, grasshopper sparrows occur on mesas and slopes in dense, dry, or well-drained grasslands, especially native grassland with a mix of grasses and forbs for foraging and nesting. They especially occur in grasslands composed of a variety of grasses and tall forbs with scattered shrubs for singing perches.
- j) **Loggerhead Shrike (*Lanius ludovicianus*)**. This species is a state species of concern, which forages over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral, and beach with scattered shrubs.
- k) **Long-Eared Owl (*Asio otus*)**. The long-eared owl is designated as a state species of concern when nesting. Riparian habitat is required by the species, but it also uses live oak thickets and other dense stands of trees.
- l) **Northern Harrier (*Circus cyaneus*)**. The northern harrier is a state species of concern. Characteristically, this hawk inhabits marshlands, both coastal salt water and freshwater, but often forages over grasslands and fields. It glides and flies low over open habitats searching for prey.
- m) **Tri-colored Blackbird (*Agelaius tricolor*)**. The tri-colored blackbird is currently a state species of concern. The decline of the tri-colored blackbird has been attributed to the loss of breeding and foraging habitat, as well as pollutants and predation by mesopredators (e.g., opossums, feral cats) and native birds (e.g., black-crowned night heron). The tri-colored blackbird was a Candidate Species for listing as state endangered, but subsequent statewide surveys indicated that population numbers were sufficiently large to preclude listing.
- n) **White-Tailed Kite (*Elanus leucurus*)**. The white-tailed kite is a state fully protected species. White-tailed kite foraging habitat includes grasslands, open shrub, agricultural areas, wetlands dominated by grasses, fence rows, and irrigation ditches (with residual vegetation) adjacent to grazed lands, riparian, oak woodlands, coastal sage scrub, and saltmarsh. White-tailed kite use trees with dense canopies for nesting including oaks and willows.

- o) **Yellow-Breasted Chat (*Icteria virens longicauda*)**. The yellow-breasted chat is designated as a state species of concern while nesting. Yellow-breasted chats in Southern California are primarily found in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed under-stories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds.
- p) **Yellow Warbler (*Dendroica petechia*)**. The yellow warbler, which is a state species of concern while nesting, is a migratory songbird that breeds in riparian habitats in Southern California. Suitable habitat typically consists of multi-layered riparian scrub or willow woodland corridors along flowing streams.

3. Amphibians

- a) **Coast Range California Newt (*Taricha torosa torosa*)**. The coast range California newt, a state species of concern, occurs in the Coast Ranges, the Transverse Ranges, and the Peninsular Ranges from central Mendocino County to San Diego County. It is commonly found in or near seasonal or permanent streams under cover of trees.
- b) **Western Spadefoot Toad (*Scaphiopus hammondi*)**. The western spadefoot toad is a federal and state species of concern. This toad occurs primarily in grassland or scrub habitats associated with temporary pools, which are essential for breeding and egg laying. Spadefoot toads also use riparian habitats with suitable pool resources for breeding, which must also be free of exotic pests.

4. Reptiles

- a) **Coast Horned Lizard (*Phrynosoma coronatum blainvillei*)**. The coast horned lizard is a state species of concern. This lizard inhabits coastal sage scrub and chaparral habitats associated with sandy, rocky, or shallow soils that support native harvester ants (*Pogonomyrmex* spp.).
- b) **Coast Patch-Nose Snake (*Salvadora hexalepis virgultea*)**. The coast patch-nose snake has been designated a state species of concern. This snake inhabits sandy flats and rocky open areas in coastal sage scrub and chaparral.
- c) **Orange-Throated Whiptail (*Cnemidophorus hyperythrus*)**. The orange-throated whiptail is a state species of concern. This lizard is known to occur in coastal sage scrub, chaparral, and valley-foothill hardwood habitats of San Bernardino, Riverside, Los Angeles, Orange, and San Diego counties. It prefers washes and other sandy areas with patches of brush and rocks.
- D) **Northern Red-Diamond Rattlesnake (*Crotalus ruber ruber*)**. The northern red-diamond rattlesnake has been designated a state species of concern. This snake inhabits chaparral, woodland, grassland, and desert areas from Morongo Valley west to the coast and south along the peninsula ranges to Baja California. The northern red-diamond rattlesnake occurs in rocky areas or dense vegetation and requires rodent burrows or cracks in rocks for cover.

- e) **Silvery Legless Lizard (*Anniella pulchra pulchra*)**. The silvery legless lizard is a state species of concern. This small secretive species lives and forages in leaf litter and under small debris within sandy washes, scrub habitats, and woodlands.
- f) **Southwestern Pond Turtle (*Emys marmorata pallida*)**. The southwestern pond turtle is designated as a state species of concern and inhabits slow moving permanent or intermittent streams, small ponds, small lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and sewage treatment lagoons.
- g) **Two-Striped Garter Snake (*Thamnophis hammondi*)**. The two-striped garter snake is a state species of concern. This species requires year-round or near year-round water with riparian or emergent vegetation for shelter.

5. Mammals

- a) **American Badger (*Taxidea taxus*)**. The American badger is a state species of concern. Badgers mainly prey upon ground squirrels and pocket gophers and primarily inhabit grassland, scrub, and forest habitats with friable soils.
- b) **Big free-tailed bat (*Nyctinomops macrotis*)**. The big free-tailed bat is classified as a state species of concern. The bats usually roost in rock crevices in high places, although sometimes they use man-made structures.
- c) **Mexican Long-Tongued Bat (*Choeronycteris Mexicana*)**. The Mexican long-tongued bat is classified as a state species of concern. The bats are generalists in their roosting requirements, using a variety of structures including mines, caves, and human structures.
- d) **Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)**. The northwestern San Diego pocket mouse is a state species of concern that inhabits coastal sage scrub, sage scrub/ grassland ecotones, chaparral communities, and non-native grassland.
- e) **Pallid bat (*Antrozous pallidus*)**. The pallid bat is classified as a state species of concern. The bats are generalists in their roosting requirements, using a variety of structures including rock crevices, tree hollows, mines, caves, and human structures.
- f) **Pocketed free-tailed bat (*Nyctinomops femorosaccus*)**. The pocketed free-tailed bat is classified as a state species of concern. The bats are a crevice-dwelling species found in a variety of habitats, but usually associated with high cliffs and rugged rock outcrops where they roost during the day.
- g) **San Diego Desert Woodrat (*Neotoma lepida intermedia*)**. The San Diego desert woodrat is designated as a state species of concern. Desert woodrats are found in a variety of shrub and desert habitats, primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth. Woodrats often are associated with cholla cactus, prickly pear cactus, and other large cactus patches within coastal sage

scrub communities. They also are found in rocky outcroppings and boulder-covered hillsides in chaparral or oak woodlands.

- h) **Western mastiff bat (*Eumops perotis*)**. The western mastiff bat is a federal and state species of concern. The bats are a cliff-roosting species whose distribution is constrained to areas where significant rock features offer suitable roosting habitat, and major threats to the species are urban expansion and activities that disturb or destroy cliff habitat.
- i) **Western red bat (*Lasiurus blossevillei*)**. The western red bat is classified as a state species of concern. The bats are solitary and migratory, and rely heavily on intact sycamore and cottonwood riparian habitat for roosting and foraging.
- j) **Western Yellow Bat (*Lasiurus xanthinus*)**. The western yellow bat is classified as a state species of concern. The species roosts in leafy riparian vegetation such as sycamores or palms.
- k) **Yuma Myotis (*Myotis yumanensis*)**. Yuma myotis is classified as a state species of concern. The species roosts in large colonies in caves and mines, and under bridges.

c) Special-Status Plants

A number of special-status plant species have the potential to occur within the City. These species include the following

1. **Braunton's Milk Vetch**. Braunton's milk vetch (*Astragalus brauntonii*) is a member of the pea family that is designated as a federal endangered species as well as a California Rare Plant Rank (CRPR) 1B.1 species. This perennial herb is known to occur in chaparral, coastal scrub, and valley and foothill grasslands below 640 meters (2,100 feet) MSL (mean sea level). Where it occurs, this species is most commonly found in recently burned/disturbed areas. This species is known to bloom from January through August.
2. **Munz's Onion**. Munz's onion (*Allium munzii*) is a member of the onion family and is designated as federal endangered and state threatened as well as a CRPR 1B.1 species. This perennial bulbiferous herb is known to occur in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, and mesic valley and foothill grassland associated with clay soils from 297 to 1,070 meters (975 to 3,510 feet) MSL. Munz's onion is known to bloom from March through May.
3. **Nevin's Barberry**. Nevin's barberry (*Berberis nevinii*) is a member of the barberry family and is designated as a federal and state listed endangered species as well as a CRPR 1B.1 species. This perennial evergreen shrub is known to occur in chaparral, cismontane woodland, coastal scrub, and riparian scrub with gravelly substrates from 275 to 825 meters (900 to 2,705 feet) MSL. Nevin's barberry is known to bloom from March through June.
4. **San Fernando Valley Spineflower**. San Fernando Valley spineflower (*Chroisanthe parryi* var. *fernandina*) is a member of the buckwheat family that is designated as a CRPR 1B.1 species, but is not a state or federal listed species. This annual herb is known to occur in

sandy coastal scrub and valley and foothill grassland from 150 to 1,220 meters (490 to 4,000 feet) MSL. This species is known to occur in Los Angeles, Orange, and Ventura counties and is known to bloom from April through July.

5. **Thread-Leaved Brodiaea.** Thread-leaved brodiaea (*Brodiaea filifolia*) is a member of the brodiaea family and is designated as a federally threatened and state endangered species as well as a CRPR 1B.1 species. This perennial herb is known to occur in chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grasslands, and vernal pools with clay substrates from 25 to 1,219 meters (82 to 3,998 feet) MSL. Thread-leaved brodiaea is known to bloom from March through June.
6. **California Black Walnut.** California black walnut (*Juglans californica*) is a member of the walnut family that is designated as a CRPR 4.2 species, but is not state or federally listed. This perennial deciduous tree is known to occur in chaparral, cismontane woodland, and coastal scrub from 50 to 900 meters (165 to 2,952 feet) MSL. California black walnut is known to bloom from March through August.
7. **California Sawgrass.** California sawgrass (*Cladium californicum*) is a member of the sedge family that is designated as a CRPR 2.2 species, but is not a state or federal listed species. This perennial herb is known to occur in meadows and seeps and within freshwater and alkaline marshes and swamps from 60 to 600 meters (200 to 1,968 feet) MSL. This species is known to bloom from June through September.
8. **Chaparral Nolina.** Chaparral nolina (*Nolina cismontana*) is a member of the butcher's broom family and is designated as a CRPR 1B.2 species, but is not a state or federal listed species. This perennial evergreen shrub is known to occur in chaparral and coastal scrub with sandstone or gabbro substrates from 140 to 1,275 meters (460 to 4,182 feet) MSL. Chaparral nolina is known to bloom from May through July.
9. **Chaparral Ragwort.** Chaparral ragwort (*Senecio aphanactis*) is a member of the sunflower family that is designated as a California Rare Plant Rank 2.2 species, but is not a state or federal listed species. This annual herb is known to occur in chaparral, cismontane woodland, and alkaline coastal scrub and flats from 15 to 800 meters (49 to 2,624 feet) MSL. Chaparral ragwort is known to bloom from January through April.
10. **Chaparral Sand Verbena.** Chaparral sand verbena (*Abronia villosa* var. *aurita*) is a member of the four o'clock family¹ that is designated as a CRPR 1B.1 species, but is not a state or federal listed species. This annual herb is known to occur in chaparral, coastal scrub, and desert dunes from 80 to 1,600 meters (262 to 5,248 feet) MSL. Chaparral sand verbena is known to bloom from January through September.
11. **Coulter's Saltbush.** Coulter's saltbush (*Atriplex coulteri*) is a member of the goosefoot family that is designated as a CRPR 1B.2 species, but is not a state or federal listed species. This perennial herb is known to occur in coastal bluff scrub, coastal dunes, coastal scrub, and foothill and valley grasslands with alkaline or clay soils from 3 to 460

¹ The plant family is called "four-o'clock" because it opens in late afternoon.

meters (10 to 1509 feet) MSL. Coulter's saltbush is known to bloom from March through October.

12. **Heart-Leaved Pitcher Sage.** Heart-leaved pitcher sage (*Lepechinia cardiophylla*) is a member of the mint family that is designated as a CRPR 1B.2 species, but is not a state or federal listed species. This perennial shrub is known to occur in chaparral, closed cone coniferous forest, and cismontane woodland from 520 to 1,370 meters (1,705 to 4,494 feet) MSL. Heart-leaved pitcher sage is known to bloom from April through July.
13. **Intermediate Mariposa Lily.** Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) is a member of the Lily family and is designated as a CRPR 1B.2 species, but is not a state or federal listed species. This species is known to occur in chaparral, coastal scrub, and valley and foothill grasslands. Intermediate mariposa lily is known to bloom from May through July.
14. **Long-Spined Spine Flower.** Long-spined spine flower (*Chorizanthe polygonoides* var. *longispina*) is a member of the buckwheat family and is designated as a CRPR 1B.2 species, but is not a state or federal listed species. This annual herb is known to occur in chaparral, coastal scrub, meadows and seeps, valley and foothill grasslands, and vernal pools from 30 to 1,530 meters (98 to 5,018 feet) MSL. Long-spined spine flower is known to bloom from April through July.
15. **Malibu Baccharis.** Malibu baccharis (*Bacchatis malibuensis*) is a member of the sunflower family that is designated as a CRPR 1B.1 species, but is not a state or federal listed species. This perennial shrub is known to occur in chaparral, cismontane woodland, coastal scrub, and riparian woodland from 150 to 305 meters (492 to 1,000 feet) MSL. Malibu baccharis is known to bloom in August.
16. **Many-Stemmed Dudleya.** Many-stemmed Dudleya (*Dudleya multicaulis*) is a member of the stonecrop family that is designated as a CRPR 1B.2 species, but is not a federal or state listed species. This perennial herb is known to occur in chaparral, coastal scrub, and valley and foothill grasslands and is often associated with clay soils. Many stemmed dudleya is known to bloom from April through July.
17. **Mesa Horkelia.** Mesa horkelia (*Horkelia cuneata* ssp. *puberula*) is a member of the rose family that is designated as a CRPR 1B.1 species, but is not a federal or state listed species. This perennial herb is known to occur in maritime chaparral, cismontane woodland, and coastal scrub, and is often associated with sandy or gravelly substrates. Mesa horkelia is known to bloom from February through July.
18. **Parry's Spine Flower.** Parry's spine flower (*Chorizanthe parryi* var. *parryi*) is a member of the buckwheat family and is designated as a CRPR 1B.1 species, but is not designated as a state or federal listed species. This annual herb is known to occur in chaparral, cismontane woodland, coastal scrub, and rocky or sandy openings in foothill valley and grasslands from 275 to 1,220 meters (900 to 4,001 feet) MSL. Parry's spine flower is known to bloom from April through June.
19. **Plummer's Mariposa Lily.** Plummer's Mariposa Lily (*Calochortus plummerae*) is a member of the lily family that is designates as a CRPR 1B.2 species, but is not a federal

or state listed species. This species is known to occur in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland from 100 to 1,700 meters (328 to 5,575 feet) MSL. This species is known to bloom from May through July.

20. **Robinson's Peppergrass.** Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*) is a member of the mustard family that is designated as a CRPR 1B.2 species, but is not a state or federal listed species. This annual herb is known to occur in chaparral and coastal scrub below 855 meters (2,805 feet) MSL. Robinson's peppergrass is known to bloom from January through July.
21. **Round-Leaved Filaree.** Round-leaved filaree (*California macrophylla*) is a member of the geranium family that is designated as a CRPR 1B.1 species, but is not a state or federal listed species. This annual herb is known to occur on cismontane woodland, and valley and foothill grasslands with clay soils from 15 to 1,200 meters (50 to 3,936 feet) MSL. Round-leaved filaree is known to bloom from March through May.
22. **Salt Spring Checkerbloom.** Salt spring checkerbloom (*Sidalcea neomexicana*) is a member of the mallow family that is designated as a CRPR 2.2 species, but is not a state or federal listed species. This perennial herb is known to occur in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and alkaline playas from 15 to 1,530 meters (50 to 5,020 feet) MSL. Salt spring checkerbloom is known to bloom from March through June.
23. **San Bernardino aster.** San Bernardino aster (*Symphyotrichum defoliatum*) is a member of the sunflower family that is designated as a CRPR 1B.2 species, but is not a state or federal listed species. This rhizomatous herb is known to occur in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland near ditches, streams, and springs from 2 to 2,040 meters (6 to 6,690 feet) MSL. This species is known to bloom from July through November.
24. **Smooth Tarplant.** Smooth tarplant (*Centromadia pungens* subsp. *laevis*) is a member of the sunflower family that is designated as a CRPR 1B.1 species, but is not a state or federal listed species. This annual herb is known to occur in chenopod scrub, meadows and seeps, playas, riparian woodland, and saline valley and foothill grasslands below 640 meters (2,100 feet) MSL. Smooth tarplant is known to bloom from April through September.
25. **Southern Tarplant.** Southern tarplant (*Centromadia parryi* subsp. *australis*) is a member of the sunflower family and is designated as a CRPR 1B.1 species, but is not designated as a state or federal listed species. This annual herb is known to occur in marshes and swamps, valley and foothill grasslands, and vernal pools below 427 meters (1,400 feet) MSL. Southern tarplant is known to bloom from May through November.
26. **White Rabbit Tobacco.** White rabbit tobacco (*Pseudognaphalium leucocephalum*) is a member of the sunflower family and is designated as a CRPR 2.2 species, but is not a federal or state listed species. This perennial herb is known to occur in chaparral,

cismontane woodland, coastal scrub, and riparian woodlands with sandy or gravelly soils below 2,000 meters (6,890 feet) MSL. This species is known to bloom from July through December.

d) Watershed

The City's watershed comprises a system of streams, watercourses, and pools that run through the hills and usually lie at the bottom of canyons and drainage ravines.

Runoff from the City generally drains east and south toward Chino Creek and Prado Flood Control Basin, and on to the Santa Ana River Basin. Canyons on the west side of the City, including Tonner Canyon, Carbon Canyon, Soquel Canyon, and Aliso Canyon, drain westward toward Los Angeles and Orange counties. With the exception of Tonner Canyon, which drains into the San Gabriel River watershed, the remaining canyons drain into the lower reaches of the Santa Ana River Basin. Urban runoff from the City can pollute the natural watersheds of the Santa Ana River and San Gabriel River Basins.

As authorized by the federal Clean Water Act, the NPDES permit process regulates the drainage of water from urban sources. NPDES permits specify the discharge limits for certain pollutants to ensure that local industries pre-treat the pollutants they discharge into treatment plants and that urban development's filter run-off before releasing it to storm drains.

Administration of the NPDES is the responsibility of the State Water Resources Control Board (SWRCB), which has jurisdiction over nine Regional Water Quality Control Boards (RWQCB) in California. The City falls under the authority of the Santa Ana RWQCB (SARWQCB). The City is also a co-permittee in the San Bernardino County NPDES Program. The Conservation Element updates policies intended to protect the quality of the watershed.

e) Water Supply

The City currently obtains water supply from the following sources:

- Imported water originating in the Sacramento-San Joaquin River Delta (Bay Delta)
- Imported water supply from Monte Vista Water District
- Groundwater from the Chino Basin that is produced locally by the City and purchased from local wholesalers

Recycled water provided by the Inland Empire Utilities Agency (IEUA). The Conservation Element updates policies intended to maintain adequate water supply to meet current and projected City demands.

f) Wastewater

Wastewater collection and conveyance within the City is provided by the City's Sewer Division. The eastern side of the City is served by lateral and trunk sewers that are predominantly gravity-fed to the IEUA interceptor. The western, hilly side of the City, which includes Tonner and Carbon Canyons, is served by on-site septic systems. An exception is the Western Hills

Mobile Home Trailer Park adjacent to the Western Hills Golf Course, which has its own private reclamation plant that also supplies reclaimed water to irrigate the golf course.

Wastewater treatment within the City is provided by the IEUA through two treatment plants: Regional Plant No. 5 (RP-5) (on Kimball Avenue in Chino) and the Carbon Canyon Plant (on Chino Hills Parkway). The Conservation Element updates policies intended to maintain adequate wastewater capacity to meet current and projected City demands.

3. Mineral Resources

According to the California Division of Mines and Geology, no significant mineral deposits are known to exist in the City. Immediately outside the City limits in the extreme southeast corner, Mines and Geology has classified sand and gravel resources along the Santa Ana River wash as “MRZ-2,” defined as “areas where adequate information indicates that significant mineral deposits are present ... or where it is judged that a high likelihood for their presence exists.” Much of this area is within Chino Hills State Park.

Within the Chino Hills city limits, oil has been produced since the late 1800s. Minor oil production continues in the Chino-Soquel Oil Field and the Mahala Oil Field.

The existing oilfields within the City are within undeveloped lands designated “Agriculture/Ranches.” Oil exploration, drilling, and production are conditionally permitted uses under the Agriculture/Ranches zoning designation. Because of the limited supply of mineral resources within the City, no additional mineral resource related policies are identified in this Conservation Element. Policies to ensure safe oil drilling, excavation, and processing are provided in the Safety Element.

4. Agricultural Land

In the past, agriculture was a significant land use in the City. Uses have ranged from very intensive dairies and cattle feed lots on flatter land, to row crops and horse raising, to less intensive “dry farming” and cattle grazing on the rolling hills. Today, only approximately 1% of the City area is used for agriculture. This remaining agriculture consists of orchards, cultivated cropland, abandoned or fallow fields, pastureland, and accompanying residences. Most of the large ranches, while still being dry farmed and grazed, are no longer owned by farming interests and are expected to be developed over the next several years.

The remaining sizable agricultural activities within the City are on undeveloped lands and on Boys Republic. Cattle grazing occurs on privately owned, undeveloped, and open space properties. The City also uses cattle grazing for weed abatement on its large publicly owned open space lands.

5. Air Quality

Air quality affects a community’s well-being. Poor air quality contributes to respiratory diseases, cancer, birth defects, difficulty in exercising, and reduced life spans. Poor air quality also affects the economy through workdays lost due to illness, increased medical care expenses, and residents and workers choosing to live or work in areas with a healthier environment. Air quality is a regional issue of which every city and county in the region feels the effect.

In Chino Hills, pollutants that affect air quality are largely regional, from industries, freeways and roadways from across the region.

Chino Hills is located within the South Coast Air Basin (SCAB) region, which includes parts of San Bernardino, Los Angeles, Riverside, and Orange counties. The SCAB is so named because its geographical formation is that of a basin, with the surrounding mountains trapping the air and its pollutants in the valleys below.

Air pollutants that have been identified as unhealthful to persons and the environment are regulated by federal and state policies. These include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter (PM₁₀ and PM_{2.5}), and lead. Standards for maximum concentrations of these pollutants are intended to provide an adequate margin of safety to protect public health, including sensitive groups such as children, senior citizens, and people with breathing difficulties. Of these pollutants, the region is considered non-attainment for ozone² and PM₁₀ and PM_{2.5}.³

The Conservation Element updates policies intended to reduce air pollution and satisfy regional air quality objectives.

6. Greenhouse Gas Emissions

Recent legislation in the State of California is focused on reducing emissions of “greenhouse gases” (GHGs). GHGs emitted by human activity are implicated in global climate change, commonly referred to as “global warming.” These greenhouse gases, so called because of their role in trapping heat near the surface of the earth, include carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

The Global Warming Solutions Act of 2006 (AB 32) required the California Air Resources Board (CARB) to prepare a Scoping Plan to achieve reductions in GHG emissions in California. The Scoping Plan, approved by the CARB in December 2008, encourages local governments to reduce GHG emissions consistent with statewide targets, which is equivalent to reducing community-wide emissions 15% below current levels by 2020.

Local governments have the authority to pass ordinances, standards, and codes to mandate community level actions. Cities and counties can also adopt local programs as an important strategy to reduce community-scale GHG emissions. The Conservation Element includes policies intended to support reductions in GHG emissions.

² Ozone is a pungent, colorless gas typical of southern California smog. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. Ozone levels peak during the summer and early fall months.

³ Particulates are a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 but smaller than 10 micrometers, or PM₁₀) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers, or PM_{2.5}) often come from fuel combustion, power plants, and diesel buses and trucks. Fine particles can also be formed in the atmosphere through chemical reactions.

7. Climate Change

A closely related issue to air quality and GHG is the adverse effects of climate change. Climate change is a worldwide issue and is exacerbated by increased concentrations of GHG, which in turn contributes to warming temperatures, sea level rise, and altered weather patterns that affect rainfall and air quality. General Plan policies, particularly those related to housing and transportation, can have a profound effect on minimizing the factors that contribute to the production of GHG.

Although worldwide in nature, policies of the General Plan can support efforts to reduce GHG and abate climate change effects. The Conservation Element includes policies intended to address climate change.

8. Energy Conservation

Energy is essential for transportation, industry, commercial enterprise, and residential use and services. Controlling energy costs is important to the City's residents and businesses. At the same time, reducing emissions from energy is critical to the health of the City's residents and the overall environment.

Effective strategies to reduce energy use, costs, and environmental impacts start with the General Plan. Transportation-related energy consumption can be reduced by decreasing vehicle miles traveled, such as by locating jobs close to residences and residences close to transit. Industry, commercial, and residential-related energy consumption can be reduced with the use of more energy efficient equipment and appliances.

Green building techniques can be adopted to significantly reduce the energy demands from development. "Green building" is a term used to describe a structure that is designed, built, renovated, operated, or reused in a sustainable and resource-efficient manner. It encompasses energy efficiency, use of renewal energy, water conservation, indoor environmental quality, use of recycled and renewable materials, construction waste reduction, and site planning. The Conservation Element includes policies intended to reduce energy use, costs, and environmental impacts.

9. Solid Waste Management

To minimize the amount of solid waste disposed of in landfills, the State Legislature passed the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990, which required all cities and counties to divert 25 percent of their solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000. In 2011, AB 341 modified this regulation and directed the California Department of Resources Recycling and Recovery (CalRecycle) to develop and adopt regulations for mandatory commercial recycling. AB 341 also established a statewide recycling goal of 75 percent; the 50 percent disposal reduction mandate still applies for cities and counties under AB 939, the Integrated Waste Management Act.

In 2016, recognizing that landfills emit methane⁴, a gas that contributes to GHG and climate change, the State passed SB 1383 which requires every jurisdiction to provide organic waste collection services to all residents and businesses.

Currently, solid waste from the City is hauled to the Pomona Valley Transfer Station located at 1371 E. 9th Street in Pomona. From there, the solid waste is transported to the El Sobrante Landfill located at 10910 Dawson Canyon Road in Temescal Valley. The Conservation Element updates policies intended to provide for the adequate and efficient collection and disposal of solid waste.

10. Cultural and Paleontological Resources

Potential cultural resources within the City include historical and archaeological resources. Paleontological resources also occur in the City. The potential for each of these resources occurring within the City is discussed below.

a) History of Chino Hills

The prehistoric cultural chronology for the Chino Hills area divides prehistory into three periods: Milling Stone at 8,000 to 3,000 years before present, Intermediate at 3,000 to 1,400 years before present, and Late at 1,400 to 150 years before present.

All of Chino Hills is within the traditional tribal territory of the Tongva/Gabrielino, which is believed to have inhabited the area beginning in the Milling Stone or Intermediate period, approximately 3,000 years before present. These people are believed to have established the village of Pashiinonga, which was located on a rise above Chino Creek. This village would have been a base with smaller satellite villages and seasonal camps in the vicinity.

Beginning in 1771, Mission San Gabriel was given control over all the lands east and south of the mission, including the Chino Hills area. The inhabitants of Pashiinonga and other villages were forcibly relocated to the Mission. The lands were used for ranching activities, mostly cattle grazing, to support the Mission. In the 1820s, the Mexican government gained control of California, and by 1834 the mission lands were being redistributed as private land grants called “ranchos.”

The 22,000-acre Rancho Santa Ana del Chino was granted in 1841 to Antonio Maria Lugo, a prominent Mexican citizen. One of Lugo’s daughters married Isaac Williams, an American-born man who had become a Mexican citizen. The couple settled on the ranch and built an adobe home. Shortly thereafter, 17,280 acres adjoining Rancho Santa Ana del Chino were granted to Isaac Williams.

In September 1846, as war between Mexico and the United States was declared, the first battle of the war took place at the Williams adobe. A party of Americans on the way to Los Angeles to quell Californios stopped at the adobe to rest. The Californios sent a group to the adobe to cut off the Americans, and a battle ensued, now known as the “Battle of Chino.” After the American bullets were exhausted, the roof of the adobe was set on fire. Williams surrendered to save the lives of his children. The Americans were taken prisoner and marched

⁴ Methane (CH₄) is a hydrocarbon that is a primary component of natural gas. Methane is also a greenhouse gas (GHG), so its presence in the atmosphere affects the earth’s temperature and climate system. Methane is emitted from a variety of anthropogenic (human-influenced) and natural sources. ²

to Los Angeles. The prisoners were all freed when other American forces reoccupied Los Angeles. It took nearly four more months and four more battles before a peace treaty was signed shifting control of California to the United States.

After the war, Williams repaired his house and resumed his activities. He applied for and received patent for all the acreage of Rancho Santa Ana del Chino and its addition. It became known as Chino Ranch. After Williams' death, his daughters stayed involved with the ranch. One of the daughters, Victoria Regina Williams, married Joseph Bridger, and the couple built a second adobe, located south of the Williams adobe in what is now Los Serranos.

In 1874, burdened by drought, flood, and new American taxes, the entire Chino Ranch was sold to Richard Gird, who moved into the property and continued ranching. Gird subdivided the eastern portion and developed the town of Chino, while retaining the future Chino Hills as a ranch and residing in the Bridger adobe. In 1894, Gird sold the remaining ranch acreage, and it was subsequently broken into small parcels and sold to various buyers. Some of the parcels were explored for oil and wells were installed following the late 1890s discovery of oil in the Brea-Olinda Field west of Chino Hills. In 1909, Boys Republic purchased and occupied 240 acres including the former location of Isaac Williams' adobe and probably the village of Pashiinonga. Other portions of the former Gird property were used for ranching, farming, milk production, and other agricultural activities.

In 1914, a trio of Los Angeles businessmen purchased property in western Chino Hills that they named Tres Hermanos Ranch. The three businessmen were Harry Chandler of the Los Angeles Times, wildcat oil driller turned elite attorney Tom Scott, and William Rowland, former Los Angeles County Sheriff and descendant of wealthy La Puente rancher John Rowland. The three men used the Tres Hermanos Ranch as a working cattle ranch for family weekends and for an annual private-invitation-only spring round up with rodeo, branding, and barbeque for fellow members of the Los Angeles elite. In 1978, the City of Industry bought Tres Hermanos, and it continued as a working cattle ranch. In 2019, the Tres Hermanos Conservation Authority took ownership of the property, which is a joint powers agency with representatives from the cities of Chino Hills, Diamond Bar, and Industry. Under the Tres Hermanos Conservation Authority, the property is limited in use to open space, public use, or preservation.

In 1922, the Sleepy Hollow Resort, located south of Tres Hermanos, debuted with 80 acres subdivided for weekend getaway cabins. By 1925, a golf course was completed at Los Serranos Country Club on the eastern edge of Chino Hills. It featured recreation activities along with home sites. The Bridger/Gird Adobe was the original golf course clubhouse but burned down in 1957.

In 1954, an 800-acre site south of Soquel Canyon was selected for an Aerojet facility that assembled and tested ordnance for the United States Department of Defense. Use continued until 1995. In 1963, the Western Hills Golf and Country Club opened. Beginning in the late 1970s, residential development increased in Chino Hills with a major boom in the 1980s. This residential development occurred mostly in the central area of Chino Hills and was organized into planned communities known as Carbon Canyon, The Oaks, Woodview, and Los Serranos.

In 1979, to plan for the Chino Hills area development, the County of San Bernardino initiated preparation of the Chino Hills Specific Plan, a document that planned for the eventual development of 18,000 acres of Chino Hills land. The area had been protected from haphazard

development because the land was not flat enough to build inexpensively. However, it was clear that development pressures were moving toward Chino Hills. The Chino Hills Specific Plan was the first in the State of California to be designed for an unincorporated area. A Citizen's Advisory Committee and County officials worked in cooperation with 150 property owners to develop the Plan. The Specific Plan called for clustered residential development concentrated in village cores, decreasing in density away from the core in order to protect as much open space as possible.

In 1991 the City incorporated and adopted its first City General Plan in 1994. Additional residential areas and retail centers were planned. In the late 1990s, residential developments were built in the Butterfield Ranch, Rincon, Gordon Ranch, Laband, and Rolling Ridge Estate areas of the City. The Laband area included development of the English Road equestrian area, which remains an integral part of the Chino Hills equestrian community. Development of these areas was accompanied by construction of major shopping centers. In recent years, the City constructed a new community park, a civic center, a fire station, a library, a post office, and other community facilities.

b) Archeological Resources

According to the Native American Heritage Commission, the entire City is potentially sensitive for prehistoric resources. A records search conducted by the California State University, Fullerton California Historical Resources Information System (CHRIS) indicates 105 previous cultural resource studies were conducted within the study area, and 142 previously recorded cultural resources were identified within the study area. Of those resources, 70 are prehistoric archaeological resources, 33 are historic-period archaeological resources, 14 are multicomponent resources, and 34 are historic-period built environment resources. Of these resources, two are officially recognized historic sites⁵:

- Site of Rancho Chino Adobe is a California Historical Landmark and is identified by a marker at a former fire station at 4040 Eucalyptus Avenue. Near this site, Isaac Williams in 1841 built a large adobe home, located on the 22,000-acre Rancho Chino which he acquired from his father-in-law Antonio Lugo. The "Battle of Chino" occurred at the adobe on September 26-27, 1846, during which 24 Americans were captured by a group of about 50 Californios. Located on the Southern Immigrant Trail to California, the adobe later became an inn and stage stop famous for its hospitality.

5 Cultural Resources Technical Report for the Chino Hills General Plan Update, City of Chino Hills, California

- Site of the “Battle of Chino,” a California Point of Interest, is identified by a marker at the same property, 4040 Eucalyptus Avenue.

c) Potential Cultural Resources within Chino Hills

Five areas within the City represent notable parts of Chino Hills’ history. These areas are summarized below.

1. **Boys Republic.** In 1909, Boys Republic, an organization that provides vocational education for teens with life challenges, moved on to a 240-acre site within Chino Hills. The period of potential historical significance for the facility is 1909-1959 when Boys Republic used agricultural training as the primary method of helping at risk youth and during which they constructed most of the buildings on the property.

In addition, the Boys Republic property has potential to be an archaeological district with both prehistoric and Mexican periods of significance. The property is the most probable location of the prehistoric village of Pashiinonga and the former location of Isaac Williams’ adobe and ranch, which was the site of the Battle of Chino. Williams’ ranch had numerous functional outbuildings and worker residences in addition to his own adobe. Subsurface remnants of these previous occupations are highly likely to be present.

2. **Tres Hermanos.** During the period 1910-1930, Tres Hermanos Ranch was developed in association with persons important in local history, namely Harry Chandler of the Los Angeles Times, wildcat oil driller turned attorney Tom Scott, and William Rowland, former Los Angeles County Sheriff and descendant of wealthy La Puente rancher, John Rowland.

A unique historic structure from this period within the Tres Hermanos property is a multiple-arch dam with 26.5 feet of height and 79.5 feet of breadth. The dam was built in 1918 and has an associated pump. The dam was built to detain water for what is now known as the Arnold Reservoir.



3. **Sleepy Hollow.** During the 1920-1940 period, the Sleepy Hollow area developed as weekend getaway cabins. Few of these original cabins remain, and there is minimal potential that historic resources remain.
4. **Los Serranos.** The site of the original clubhouse of the 1925 Los Serranos County Club, which was the historic American period Bridger/Gird Adobe, could contain historic resources.
5. **Laband.** The local importance of horse properties in the development of the City are recognized with an Equestrian Overlay Zone that recognizes the English Road area as a unique equestrian area.

d) Paleontological Resources

The eastern Puente Hills, also known as the Chino Hills, are made up of middle to late Miocene Epoch (15 million to 9 million years old) marine sedimentary rock units overlain in some areas by Pleistocene Epoch (1.8 million

to 10 thousand years old) terrestrial sediments. Beginning about 23 million years ago, the ocean extended well past the modern shoreline and covered Chino Hills. The Miocene sediments were deposited as submarine fans. Tectonic events about 5 million years ago including uplift of local mountains and subsidence of valleys resulted in withdrawal of the ocean and beginning of river and stream cutting of channels into the exposed sediments.

In most of the City, two formations are present. The older of the two is the Monterey Formation which is middle Miocene in age. The Sycamore Canyon Formation is late Miocene in age. Pleistocene Epoch Quaternary Older Alluvium is mapped at the surface in the vicinity of the ancestral Santa Ana River and its tributaries. However, results of paleontological monitoring of development projects have found these sediments more widely distributed in the City, particularly in canyons. Thus far, all results indicate a late Pleistocene age of about 50,000 to 12,000 years for fossils from the Older Alluvium in the City.

Known paleontological resources in the City consist of Miocene and Pleistocene fossils. Miocene fossils representing the time period when Chino Hills was ocean floor include many



kinds of marine life but also leaves from terrestrial plants that were washed into the ocean by streams and rivers. The Miocene marine fossils include marine mammals of 8 types, boney fishes of 41 types, cartilaginous fishes of 4 types, marine invertebrates of 18 types, and marine plants of 10 types. Miocene land plants of 32 types are represented along with freshwater snails. Pleistocene terrestrial mammals are represented by 8 types.

The single most scientifically significant fossil is the Chino Hills Dolphin, *Atocetus anguloi*, recovered during construction excavations for Vellano in Soquel Canyon. This dolphin is a new and previously unknown species and has no living relatives. It was recovered from the latest Miocene (circa 9 million years ago) Sycamore Canyon Formation. The skeleton represents an adult individual, and includes the cranium, the mandible, vertebrae, ribs, and some bones of the pectoral flipper. It has distinctive features of the skull and teeth that are unlike any other dolphin.

F. CONSERVATION PLAN

This section of the Conservation Element discusses the programs and policies the City will have or continue to have in place to promote conservation of its natural resources, energy conservation, and protection of its cultural resources.

1. Scenic Resources Overlay District

The Scenic Resources Overlay District protects designated Important Visual Resources, including Exceptionally Prominent Ridgelines, Prominent Ridgelines, Prominent Knolls, and Associated Primary View Points.

2. Biotic Resources Overlay District

The Biotic Resources Overlay District applies to areas of the City that have been identified by a state or federal agency as potential habitat for plants or animals officially listed as threatened, endangered, or sensitive by the State of California and/or the federal government. These areas are generally mapped in Figure 4-2 Figure 4-2 – CNDDDB Identified Special Status Species in Chino Hills. Any proposed development within these areas will require appropriate surveys of biological resources to assess the potential for special-status species and their habitats. Where there is a potential for special-status species or habitat to occur outside the overlay boundaries, appropriate biological resource surveys will be required.

3. Water/Wastewater

The City maintains a Water and Recycled Water Master Plan, and a Wastewater Master Plan that evaluates the City's existing and planned water sources, water and recycled water distribution systems, and sewer collection systems with respect to their ability to meet projected demands. The master plans outline a strategy to reduce the City's reliance on imported water, increase groundwater capacity, develop additional supply sources, maximize collection and use of recycled water, maintain adequate wastewater capacity, and pursue regional solutions to the supply and distribution of water, and collection and treatment of wastewater.

4. Greenhouse Gas/Energy Conservation

Reducing GHGs and conserving energy are closely related objectives. The City cooperates with regional agencies to develop and implement policies expected to achieve these objectives and culminate in a GHG Reduction or Climate Action Plan. These policies are promulgated through this Conservation Element and other current and expected future City activities. These policies include:

- “Green” building design in new and existing construction, through the increased use of energy efficiency, alternative energy, recycled materials, renewable resources, local materials, water efficiency, and pollution reduction.
- Sustainable development by promoting mixed-use and high-density residential routes next to transportation routes; transit, bicycle, and pedestrian linkages.
- Clustering of development and preservation of natural open spaces.
- Expanded promotion and use of renewable energy resources.

5. Cultural Resources

Based on the number of prehistoric and historic artifacts found within Chino Hills, the entire City is considered sensitive for archaeological resources. Appropriate archaeological surveys will be required whenever a development project requires excavation or archaeological resources are otherwise expected to be present.

Similarly, based on the numerous fossil findings in Chino Hills, the entire City is considered sensitive for paleontological resources. Appropriate paleontological surveys will be required whenever a development project requires excavation or paleontological resources are otherwise expected to be present.

Historical resources have potential to occur in the City’s older communities. To ensure that potential historical resources in these areas are identified and recorded and/or preserved as appropriate, historical resource surveys will be conducted for any development activities expected to disturb the potential historical resources listed below.

a) Boys Republic

The Boys Republic property contains a number of potential historical resources, including artifacts associated with:

- The Isaac Williams adobe and ranch
- Battle of Chino
- Agricultural training facilities that generally occurred between 1909 and 1959

b) Tres Hermanos

The Tres Hermanos property contains a number of potential historical resources, including structures and/or artifacts associated with:

- The multiple-arch dam and the Arnold Reservoir

c) Los Serranos

The Los Serranos Golf Course property contains a potential historical resource that may include artifacts associated with:

- The original clubhouse of the 1925 Los Serranos County Club, which was the historic American period Bridger/Gird Adobe could be considered.

G. CONSERVATION ELEMENT GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions support the City of Chino Hills Conservation Plan and its vision to preserve natural resources, promote energy conservation, and protect cultural resources.

Goal CN-1: Preserve Chino Hills' Rural Character

Policy CN-1.1: Preserve and protect Chino Hills' rural and natural scenic qualities

Action CN-1.1.1: Protecting ridgelines as identified under Land Use Element Goal LU-1, Policy LU-1.1, Action LU-1.1.2.

Action CN-1.1.2: Preserve the character of natural open spaces as identified under Land Use Element Goal LU-1, Policy LU-1.1, Action LU-1.1.3 and Action LU-1.1.12.

Action CN-1.1.3: Preserve as much open space as possible along canyon roadways such as Carbon Canyon, Soquel Canyon, and the canyons adjacent to Chino Hills State Park.

Action CN-1.1.4: Keep canyon floors as close as possible to their natural condition to accommodate natural periodic flooding, wildlife habitat, and native riparian plants.

Action CN-1.1.5: Encourage natural contour grading as identified under Land Use Element Goal LU-1, Policy LU-1.2, Action LU-1.2.3.

Action CN-1.1.6: Use existing trees and additional tree planting to blend new development and manufactured slopes with the natural setting, especially in highly visible locations.

Action CN-1.1.7: Preserve existing significant trees where feasible, and extensively plant new trees consistent with the City tree protection ordinance.

Policy CN-1.2: Preserve and protect Chino Hills' biological resources.

Action CN-1.2.1: Preserve natural open spaces that act as wildlife corridors.

Action CN-1.2.2: Discourage new development in areas that contain sensitive, rare, or endangered species, oak woodlands, chaparral, and riparian habitats

Action CN-1.2.3: Preserve oak woodlands, riparian areas, and fresh water marshes to the maximum extent feasible.

Action CN-1.2.4: Require and monitor compliance with the City tree protection ordinance.

Action CN-1.2.5: Limit channeling of streams to the minimal improvements necessary for flood control as determined by a City-approved project-specific hydrologic analysis, and encourage these improvements to have a natural appearance.

Action CN-1.2.6: Require biological resources surveys prior to proposed development within the Biotic Resources Overlay District and in other areas where there is a potential for special-status species or habitat to occur.

Action CN-1.2.7: Require a wildlife movement study for any project, including any new or extended roadway, potentially adversely affecting wildlife movement. This shall include identification of, and if warranted mitigation to protect, existing habitat linkages, wildlife corridors, wildlife movement in the vicinity, and crossing structures at freeways and major roadways; and recommended project design changes and avoidance, minimization, and mitigation measures to offset potentially significant adverse impacts to wildlife movement. For a new or extended roadway that is anticipated to result in a significant adverse impact to wildlife movement, require project design changes and/or avoidance, minimization, and/or mitigation measures which could include, but not be limited to: construction of wildlife crossings (e.g., underpass, overpass), fencing to guide wildlife, native plant restoration, and/or a lighting plan (to ensure that any new lighting does not deter wildlife through remaining habitat linkages).

Goal CN-2: Protect Chino Hills' Cultural Resources

Policy CN-2.1: Protect Chino Hills' archaeological resources.

Action CN-2.1.1: Require appropriate archaeological surveys as part of the environmental review process where archaeological resources may be present.

Action CN-2.1.2: Require on-site inspections by a qualified archaeologist during grading activities where archaeological resources may be present.

Action CN-2.1.3: Where archaeological resources are found during development activities, require identified archaeological materials to be preserved, restored, cataloged, and/or transmitted to the appropriate repository or as otherwise directed by a qualified professional archaeologist.

Action CN-2.1.4: Consult with local Native American tribes as required to avoid impacts on tribal cultural archaeological resources.

Policy CN-2.2: Protect Chino Hills' paleontological resources.

Action CN-2.2.1: Require appropriate paleontological surveys as part of the environmental review process where paleontological resources may be present.

Action CN-2.2.2: Where paleontological resources are found during development activities, require on-site inspections by a qualified paleontologist during grading activities where paleontological resources may be present.

Action CN-2.2.3: Require identified paleontological materials to be preserved, restored, cataloged, and/or transmitted to the appropriate repository or as otherwise directed by a qualified professional paleontologist.

Policy CN-2.3: Protect Chino Hills' potential historical resources.

Action CN-2.3.1: Prior to a change of land use or other action on the Boys Republic property that could disturb a potential historic resource, require a historic resource survey of the property by a qualified historic resource consultant, and consider incorporating any recommendations as requirements into subsequent development approval.

Action CN-2.3.2: Prior to a change of land use or other action on the Tres Hermanos property that could disturb a potential historic resource, require a historic resource survey of the property by a qualified historic resource consultant, and consider incorporating any recommendations as requirements into subsequent development approval.

Action CN-2.3.3: Prior to grading on-site of the original clubhouse of the 1925 Los Serranos Country Club, require an appropriate archaeological survey to determine the presence of artifacts associated with the former Bridger/Gird Adobe site and consider incorporating any recommendations as requirements into subsequent development approval.

Action CN-2.3.4: For structures over 45 years old, review available City building records and make a determination regarding the structure's potential historical significance prior to permitting its demolition or substantial alteration.

Goal CN-3: Promote Sustainable Practices that Conserve Natural Resources and Reduce Greenhouse Gas Emissions

Policy CN-3.1: Endorse green building design in new and existing construction.

Action CN-3.1.1: Implement green building policies that promote increased use of energy efficiency, alternative energy, recycled materials, renewable resources, local materials, water efficiency, and pollution reduction.

Action CN-3.1.2: Establish programs that encourage homeowners to reduce energy consumption.

Action CN-3.1.3: Seek available funding sources that can be applied toward green building programs.

Action CN-3.1.4: Coordinate with state and regional agencies to ensure that alternative energy facilities are compatible with Chino Hills' natural and built environment.

Policy CN-3.2: Continue to participate in County and regional greenhouse gas reduction programs.

Action CN-3.2.1: Reduce greenhouse gas emissions in City operations.

Action CN-3.2.2: Power City vehicles and equipment with reduced carbon dioxide emission fuels.

Action CN-3.2.3: Provide greenhouse gas reduction information and resources to the Chino Hills community.

Goal CN-4: Ensure Adequate Water Supply and Delivery

Policy CN-4.1: Promote water conservation.

Action CN-4.1.1: Continue to implement water conservation programs to sustain potable water sources.

Action CN-4.1.2: Promote use of drought-tolerant plant materials and low-water-usage irrigation systems.

Action CN-4.1.3: Promote low-water-use plantings and materials in City street medians and parkways.

Action CN-4.1.4: Continue to use reclaimed water for non-potable water supplies wherever not precluded by public health considerations.

Policy CN-4.2: Plan for water resources and distribution.

Action CN-4.2.1: Continue master planning for water supply and distribution to meet current and projected City demands.

Action CN-4.2.2: Implement water master plan policies through the City's capital improvement program.

Policy CN-4.3: Protect water quality.

Action CN-4.3.1: Protect water resources from urban runoff and other potential pollution sources through implementation of best management practices and area-wide Urban Storm Water Runoff Programs.

Action CN-4.3.2: Require reclaimed water to meet the Regional Quality Control Board requirements.

Action CN-4.3.3: Support appropriate ground water contamination investigations and cleanup efforts by the local water agencies, the Regional Water Quality Control Board, and responsible private parties.

Goal CN-5: Provide for Adequate and Efficient Solid Waste Disposal

Policy CN-5.1: Meet the City's solid waste disposal needs, while maximizing opportunities for waste reduction and recycling.

Action CN-5.1.1: Partner with the City's franchised solid waste hauler to host regular cleanup events, including e-waste collection.

Action CN-5.1.2: Work with the County of San Bernardino and the City's franchised solid waste hauler to advertise programs and locations accepting household hazardous materials, such as paint, batteries, motor oil and oil filters.

Goal CN-6: Promote Clean Air to Reduce Adverse Effects on Human Health and the Environment

Policy CN-6.1: Reduce air pollution through coordinated land use, transportation, and energy use planning.

Action CN-6.1.1: Endorse regional air quality and transportation management plans in order to reduce air pollution emissions and vehicle trips.

Action CN-6.1.2: Review CEQA checklist for Air Quality Impacts to sensitive land uses and model mitigation measures consistent with the most recent CAPCOA handbook.

Action CN-6.1.3: Encourage multifamily development to develop close to existing/planned transit and commercial areas to encourage pedestrian and non-automobile traffic.

Action CN-6.1.4: Promote transit that serves the City and links to adjacent cities and counties.

Action CN-6.1.5: Provide commercial areas that are conducive to pedestrian and bicycle circulation.

Action CN-6.1.6: Provide a coordinated system of pedestrian and bikeways.

Action CN-6.1.7: Encourage businesses to alter truck delivery routes and local delivery schedules to off-peak hours.

Policy CN-6.2: Reduce air pollution impacts on health.

Action CN-6.2.1: Locate residential and other sensitive land uses away from freeways and other major air pollutant emitting sources.

Action CN-6.2.2: Require landscaping, ventilation systems, double-paned windows, setbacks, barriers, air filters and other measures to achieve healthy indoor air quality levels in the development of new sensitive land uses.

Action CN-6.2.3: Provide public information to let residents living within 1,000 feet of a freeway know what the risks are and what mitigation measures they can take. These would include things such as installing high-efficiency air filters, keeping windows closed in the early morning, refraining from outdoor exercise in the mornings, installing thick landscaping, reducing driving, and using public transport instead.

Action CN-6.2.4: Prioritize tree planting on high volume roadways adjacent to sensitive uses.

Action CN-6.2.5: Require businesses to limit air pollution emissions in compliance with state and regional regulations and to reduce health impacts on sensitive land uses.

Action CN-6.2.6: Require businesses to limit odor emissions to eliminate or reduce nuisance impacts on sensitive land uses.

Policy CN-6.3: Reduce air pollution emissions from construction activities.

Action CN-6.3.1: Require preparation of air quality analyses of construction-related air quality impacts using the latest available air emissions model or other analytical method determined in conjunction with SCAQMD for all projects subject to the California Environmental Quality Act (CEQA). If such analyses identify potentially significant regional or local air quality impacts, require the incorporation of appropriate mitigation to reduce such impacts.

Action CN-6.3.2: Encourage large construction projects to mitigate diesel exhaust emissions through the use of alternative fuels and control devices.

Action CN-6.3.3: Require dust abatement actions for all new construction and redevelopment projects.

Policy CN-6.4: Reduce air pollution emissions from new development.

Action CN-6.4.1: Require preparation of air quality analyses that analyze operational air quality impacts using the latest available air emissions model or other analytical method determined in conjunction with SCAQMD for all projects subject to the California Environmental Quality Act (CEQA). If such analyses identify potentially significant regional or local air quality impacts, require the incorporation of appropriate mitigation to reduce such impacts.



City of Chino Hills

General Plan

SAFETY ELEMENT

The Safety Element addresses the natural and human-made hazards affecting the City of Chino Hills (City). These include seismic, geologic, flood and inundation, fire, hazardous materials, and climate change hazards. A discussion of Citywide emergency preparedness plans is included within this Element.

A. PURPOSE OF THE SAFETY ELEMENT

The State of California requires all cities to include a General Plan Safety Element to identify and, whenever possible, reduce the impact of natural and man-made hazards that may threaten the health, safety, and property of the City.

As required by §65302(g) of the California Government Code, this Safety Element addresses earthquakes and related ground failure hazards; subsidence; flooding; slope hazards; release of hazardous materials; aircraft hazards; wildland and urban fires; emergency planning (including hazard identification and risk assessment, hazard mitigation, and emergency response and action); and fire, police, and medical services. This Safety Element also incorporates climate adaptation strategies to reduce risk to buildings, infrastructure, natural resources, and communities.

B. CONNECTION TO COMMUNITY VISION

The Safety Element supports the City's vision to protect the community from unreasonable risks caused by natural and human-made hazards. Toward this end, the Safety Element focuses on implementing the following 7 of the City's 20 Vision Statements. (Numbers in parenthesis reference numerical order of Vision Statements as presented in the Vision section of this General Plan.)

1. A Chino Hills that supports healthy living. (V-7)
2. A Chino Hills that continues to provide a high level of public services and amenities for families and residents of all ages. (V-12)
3. A Chino Hills that continues to provide for adequate public utilities. (V-13)
4. A Chino Hills that supports regional targets for reductions in greenhouse gas emissions. (V-16)
5. A Chino Hills that endeavors to minimize risks from natural occurring hazards. (V-17)
6. A Chino Hills that endeavors to minimize risks from human-made hazards. (V-18)
7. A Chino Hills that supports environmental justice for all ethnic, racial, and socioeconomic community members. (V-20)

C. RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS, LOCAL PLANS, AND CITY ORDINANCE

The Safety Element identifies hazards and hazard abatement provisions to guide local decisions related to zoning, subdivisions, and land use entitlement permits. The natural and human-made

hazards and risk reduction strategies addressed in this element are incorporated into related mapping and policy frameworks in the Land Use and Conservation Elements.

D. RELATIONSHIP TO OTHER LOCAL REGULATORY DOCUMENTS

Several City regulatory mechanisms are used to implement the General Plan Safety Element on an on-going basis.

1. Emergency Operations Plan (EOP)

The EOP addresses the City's planned response to extraordinary emergencies associated with natural, environmental, and human-made disasters. The plan does not address normal day-to-day emergencies or the well-established and routine procedures used in coping with such emergencies. Instead, the operational concepts reflected in this plan focus on potential large-scale disasters that can generate unique situations requiring unusual emergency responses.

2. Hazard Mitigation Plan (HMP)

The City of Chino Hills HMP works in concert with the EOP to proactively identify potential local hazards and human-made disasters; to provide City emergency planners a rationale for prioritizing emergency preparedness actions for specific hazards; and to identify mitigation strategies. Emergencies or disasters may cause death, injured or displaced people, or significant damage to our communities, businesses, public infrastructure, and our environment. A disaster could result in tremendous amounts in terms of response and recovery dollars and economic loss.

3. Storm Drain Master Plan

The Storm Drain Master Plan identifies current storm drain deficiencies and plans to remedy these deficiencies. To assess deficiencies, the Storm Drain Master Plan divided the City into 12 drainage basins and analyzed each area to determine estimated storm water run-off based on 10, 25 and 100-year storm events. Based on this run-off information, a storm drain system improvement plan is provided that identifies preliminary sizing for future storm drains that will be constructed either by development projects or through the City Capital Improvement Program. Most of the planned storm drain facilities are designed to provide capacity for 100-year events.

4. Chapter 8.16 of the Municipal Code – California Fire Code Adopted

The City adopts the State of California Fire Code, currently the 2022 version, which regulates and governs the safeguarding of life and property from fire and explosion hazards, hazardous materials arising from the storage, handling and use of hazardous substances, materials and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises.

5. Chapter 13.16 of the Municipal Code – Storm Drain System

The City prohibits all non-permitted discharges to the municipal storm drain system. This prohibition applies to the discharge to municipal storm drains from spills, dumping, or disposal of materials other than storm water. This regulation is intended to reduce pollutants in storm water discharges to the maximum extent practicable and to ensure compliance with National Pollutant Discharge Elimination System (NPDES) permits.

6. Chapter 15.04 of the Municipal Code – California Building Code

The City adopts the California Building Code, currently the 2022 Edition, as the building codes of the City for regulating the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, equipment, use, height, area, and maintenance of all buildings and/or structures in the City.

7. Chapter 15.12 of the Municipal Code – Floodplain Damage Prevention and Floodplain Management

The City adopts floodplain management regulations that require protection against flood damage at the time of construction; restrict alteration of natural floodplains, stream channels, and natural protective barriers; control construction and development activities that may increase flood damage; and control of flood barriers that could unnaturally divert flood waters or increase flood hazards in other areas.

8. Carbon Canyon Community Wildfire Protection Plan (CWPP)

The Carbon Canyon Fire Safe Council developed the Carbon Canyon Community Wildfire Protection Plan (CWPP) to identify and prioritize areas for hazardous fuel reduction treatments and ways residents can reduce ignitions and property losses through person actions within Carbon Canyon.

E. SAFETY ELEMENT ISSUES

Numerous safety hazards within the City could affect life and property in future years. Safety hazards can be generally grouped into two categories: naturally occurring and human-made. In many instances, safety hazards are susceptible to natural and human-made risk factors. For example, flooding could occur naturally as a result of intense precipitation over a short duration, causing rivers, natural drainage courses, or flood plains to overflow. Human-made flooding could occur as a result of dam or levee failure, obstruction of and/or development within a natural drainage or flood plain, or fire hydrant damage from an automobile accident.

In accordance with Government Code Section 65302 (as amended by SB 379), The City prepared a Climate Change Vulnerability Assessment (CCVA) to identify the risks climate change poses to the City. The CCVA is included as an appendix to the Safety Element, Appendix B. To comply with Government Code Section 65302(g), the Safety Element includes a residential emergency evacuation route analysis, included in Appendix C.

Rincon Consultants, Inc. (hereinafter referred to as "Rincon") prepares vulnerability assessments that evaluate climate change hazards, including wildfire, based on numerous sources, including third party consultants, State and Federal mapping resources, and various software modeling programs that are considered industry standard best practices. The CCVA prepared for this Safety Element evaluated wildfire hazards based on CAL FIRE's Fire Hazard Severity Zones. Wildfire is unpredictable, and the specific conditions of wildfire could result in fire behavior that diverges from the assumptions used in this analysis. There is no guarantee that wildfire behavior and specific treatment to avoid such behavior will follow or prevent wildfire impacts. Rincon is not responsible for any damage to life or property that might occur based on the results of the vulnerability analyses in the CCVA, and any accompanying recommendations.

The following section discusses the potential hazards that shape the Chino Hills Safety Plan and the goals, policies, and actions of this Safety Element.

1. Geologic Conditions

The City is located in the eastern Puente Hills, in the northern portion of the Peninsular Ranges geomorphic province. The Peninsular Ranges province is characterized by a series of northwest to southeast-oriented valleys, hills, and mountains separated by faults associated with and parallel to the San Andreas Fault System. Two of these faults, the Chino Fault and the Whittier Fault, are located in and near the City, respectively. These faults, and the bedrock and sediment types that occur in the Chino Hills area, control to a large extent the potential geologic impacts that could occur in the City.

The hilly portions of the City are underlain primarily by bedrock of the Puente Formation. This bedrock formation was deposited between 6 million and 11 million years ago during a period when the area was submerged under the ocean.

Approximately 2 to 3 million years ago, the continent began to rise and the ocean dropped, while a complex process of faulting and folding caused the uplift of the Puente Hills area and the City of Chino Hills. The bedrock materials of the Puente Formation have been folded and faulted within the Puente Hills such that bedding inclinations now range from gentle to steeply dipping (i.e., 10 to 70 degrees) with numerous folds of varying scales and axis orientations. In its entirety, the Puente Formation is estimated to be approximately 13,000 feet thick within the Chino Hills area.

The Puente Formation is divided into three members within the City: the Sycamore Canyon member, the Yorba member, and the Soquel member.¹ The Sycamore Canyon member of the Puente Formation, the youngest member, generally consists of thickly bedded sandstone and pebbly conglomerate with lesser amounts of siltstone and siliceous siltstone. The Yorba member generally consists of predominantly thinly bedded siltstone, sandy siltstone, and siliceous siltstone, with scattered to rare claystone beds. The Soquel member, the oldest member of the formation, generally consists of well-bedded graded sandstone with interbedded siltstone.

The Topanga Formation is exposed within the southeastern portion of the City, adjacent to the Horseshoe Bend area of the Santa Ana River, within Chino Hills State Park. The Topanga Formation was deposited about 15 million years ago, and generally consists of massively bedded sandstone and conglomerate with interbeds of siltstone and minor claystone. In addition to outcropping in the southeastern portions of the City, the Topanga Formation generally underlies the Puente Formation in the Chino Hills area.

The Safety Element updates policies intended to reduce risks from seismic and geologic hazards.

2. Seismic Hazards

Earthquakes occur when planes of weakness, called faults, in the earth's crust move past one another. Southern California is located on a boundary of two tectonic plates, the North American Plate and the Pacific Plate, causing the area to be considered seismically active. Numerous faults considered active or potentially active have been mapped in Southern California, including in the vicinity of and within the City. Earthquakes on faults can trigger several geologic phenomena that can cause severe property damage and loss of life. These hazards include ground shaking, fault rupture, liquefaction and associated hazards, subsidence, and seiches (waves in enclosed bodies of water). Earthquakes can also cause a variety of localized, but not less destructive, hazards

¹ Morton and Miller, 2006.

such as urban fires, dam failures, and release of toxic chemicals. The City could be impacted by any or all of these hazards.

Earthquakes are normally classified by the severity of their magnitude or their seismic intensity. “Magnitude” is defined as a measure of the amount of energy released when a fault ruptures. The intensity of seismic ground shaking at any given site is a function of several factors, but primarily the magnitude of the earthquake, the distance from the epicenter to the area of concern, the type of geologic material between the epicenter and the site, and the topographic conditions of the site. The amount of damage is also controlled to a certain extent by the size, shape, age, and engineering characteristics of the affected structures. Most buildings in the City are of wood-frame construction, which, while not immune to structural damage, is notably resilient to earthquake shaking, particularly when designed per current Building Codes.

The location of active and potentially active earthquake faults within or proximate to Chino Hills is illustrated in Figure 5-1 – Active and Potentially Active Faults Affecting Chino Hills. The geologic and seismologic characteristics of these faults are discussed below.

a. Chino Fault

The Chino Fault is considered a northern splay of the Elsinore Fault Zone.² The Chino Fault extends approximately 21 kilometers southeast through the City toward the City of Corona where it joins the Elsinore Fault Zone near the southern terminus of Main Street in Corona. Available geologic mapping, paleoseismic studies, and oil well data indicate that the Chino Fault trends northwest to southeast and dips approximately 50 to 70 degrees toward the southwest. The sense of fault displacement along the Chino Fault is predominantly right-lateral, strike-slip; however, some early geologic mapping and recent paleoseismic studies suggest a reverse sense of movement at some locations.

Several recent geologic studies of the Chino Fault have revealed Holocene fault displacement (i.e., during the last 11,000 years). The California Geological Survey re-evaluated the Chino Fault in 2002 as a result of these recent findings and has zoned the Chino Fault as “active” pursuant to the guidelines of the Alquist-Priolo Earthquake Fault Zone Act. Two historic earthquakes are attributed to the Chino Fault: the February 16, 1989 magnitude 3.2 strike-slip earthquake that occurred at a depth of approximately 4.3 kilometers, and the December 14, 2001 magnitude 3.9 strike-slip earthquake that occurred at a depth of approximately 13.8 kilometers.

b. Elsinore Fault Zone

The Elsinore Fault extends approximately 200 kilometers from near the border with Mexico to its northern terminus near Whittier Narrows (Figure 5-1 – Active and Potentially Active Faults Affecting Chino Hills). The Uniform California Earthquake Rupture Forecast (UCERF2) and the Working Group on California Earthquake Probability (WGCEP 95) identify five fault segments within the Elsinore Fault Zone –Whittier, Glen Ivy, Temecula, Julian, and Coyote Mountains segments, from north to south. The Whittier segment exhibits a reverse, right-lateral oblique sense of movement, while the Glen Ivy, Temecula, Julian, and Coyote Mountains segments exhibit a right-lateral, strike-slip sense of movement.

² Treiman, 2002.

c. San Jose Fault

The San Jose Fault is located north of the City and extends approximately 20 kilometers from the south side of the San Jose Hills northeast to near Claremont (Figure 5-1 – Active and Potentially Active Faults Affecting Chino Hills). Available data suggests that the fault dips steeply to the north with a reverse sense of fault displacement (i.e., north side up). The California Department of Water Resources indicates that the San Jose Fault is well defined based on the presence of a groundwater barrier and suggests that the San Jose Fault offsets “older alluvium” approximately 100 meters in the subsurface.

d. Puente Hills Blind Thrust

The Puente Hills Blind Thrust is a north-dipping thrust that extends approximately 40 kilometers east across the Los Angeles basin from downtown Los Angeles to Brea. A blind thrust fault is a buried fault, the surface of which does not break the surface. The fault is manifested at the surface by series of folds above the fault surface including the Montebello Hills and west and east Coyote Hills. The fault is subdivided into three segments: Los Angeles, Santa Fe Springs, and Coyote Hills. At least four large earthquakes (i.e., magnitude 7.2 to 7.5) are believed to have occurred on the fault in the past 11,000 years. The 1987 Whittier Narrows earthquake occurred on the Puente Hills Blind Thrust.

e. Sierra Madre-Cucamonga Fault Zone

The Sierra Madre-Cucamonga Fault Zone is located along the boundary between the southern margin of the San Gabriel Mountains and the northern portions of the San Fernando and San Gabriel valleys (Figure 5-1 – Active and Potentially Active Faults Affecting Chino Hills). The Sierra Madre-Cucamonga Fault Zone extends approximately 95 kilometers from near Interstate 405 in the San Fernando Valley to Lytle Creek. The Sierra Madre-Cucamonga Fault Zone is a major reverse fault in southern California. Historic fault rupture occurred along approximately 19 kilometers of the western portions of the Sierra Madre-Cucamonga Fault Zone between about Big Tujunga Canyon and Dunsmore Canyon during the February 9, 1971 (magnitude 6.4) San Fernando Earthquake.

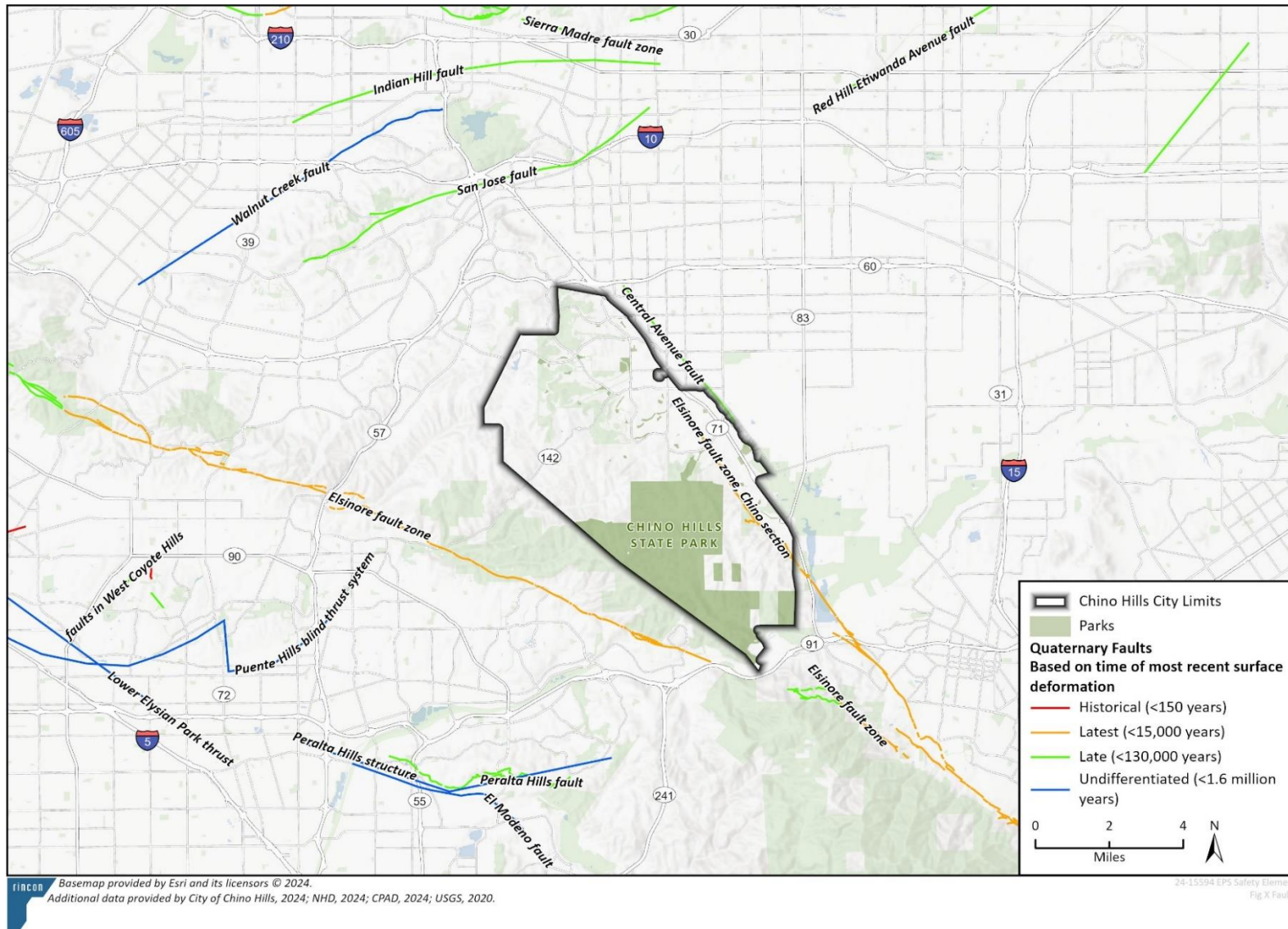


Figure 5-1 – Active and Potentially Active Faults Affecting Chino Hills

f. San Jacinto Fault Zone

The San Jacinto Fault Zone is located east of the City and is one of the most seismically active faults in California. The fault zone extends approximately 250 kilometers from the area near Cajon Pass where the San Jacinto fault joins the San Andreas fault south to the Imperial Valley. This fault has a right-lateral, strike-slip sense of movement. The San Jacinto fault zone is divided into eight segments based on fault geometry, historical seismicity, and slip rate data. The segments of the San Jacinto Fault Zone are San Bernardino Valley, San Jacinto Valley, Anza/Clark, Coyote Creek, Borrego Mountain, and the sub-parallel Superstition Mountain and Superstition Hills segments.

g. San Andreas Fault Zone

The San Andreas Fault extends southeast from where the fault joins the Kings Range Thrust and Mendocino Fault Zone approximately 1,300 kilometers to the Gulf of California. The San Andreas Fault is one of the most active faults and has the highest measured slip rate in California. The San Andreas Fault is the only known source of Magnitude 8 earthquakes in southern California. The predominant sense of movement along the San Andreas Fault is right-lateral, strike-slip. The San Andreas Fault has been subdivided into the northern and southern sections. In southern California, the fault zone has been divided into 10 segments: Parkfield (PK), Cholame (CH), Carrizo (CC), Big Bend (BB), Mojave north (NM), Mojave south (SM), San Bernardino north (NSB), San Bernardino south (SSB), San Geronio-Garnet Hill (BG), and Coachella (CO). Only the southern nine fault segments from the Cholame segment south have a significant influence on seismic hazards in the City.

h. Ground Shaking

The active and potentially active faults discussed above are capable of generating moderate to strong ground motions during earthquakes. Moderate to strong ground motions could result in damage to buildings and civil works within the City.

Earthquake shaking is likely the seismic hazard with the greatest potential risk to loss of life and/or property within the City. The loss of life and/or property can be reduced by designing projects in accordance with the most recent versions of building codes and standards like the California Building Code (CBC) and the American Society of Civil Engineers Standard (ASCE) No.7.

Although a great deal is known about where earthquakes are likely to occur, there is currently no reliable way to predict when an earthquake will occur in any specific location. Scientists study the past frequency of large earthquakes in order to determine the future likelihood of similar large earthquakes. Based on the number of historic earthquakes and known active faults in the vicinity of the City, ground shaking will affect the City again in the future. The eastern portion of the City is underlain by alluvial sediments that may be saturated. These sediments would likely be subject to ground amplification (ground shaking is typically less severe on rock than on alluvium) in the event of an earthquake occurring on one of the major active faults in the vicinity of the City, including the Elsinore, Chino, Puente Hills, San Jacinto, San Andreas, or Cucamonga faults.

The historic record of moderate to strong earthquakes in southern California extends back to the Mission era. There have been approximately 10 historic earthquakes with magnitudes

greater than approximately 5 that have resulted in moderate to strong damaging earthquake ground motions in the vicinity of the City. These historical earthquakes include:

- 1812 Wrightwood Earthquake
- 1857 Fort Tejon Earthquake
- 1899 Cajon Pass Earthquake
- 1987 Whittier Narrows Earthquake
- 1988 and 1990 Upland Earthquakes
- 1991 Sierra Madre Earthquake
- 1992 Landers and Big Bear Earthquakes
- 1994 Northridge Earthquake
- 1999 Hector Mine Earthquake
- July 29, 2008 Unnamed Earthquake

i. Surface Fault Rupture

The potential for surface fault rupture in the City exists along the Chino Fault, which extends along the City's western boundary. Although the Chino Fault has not ruptured within historic time, geologic studies reveal the fault has experienced surface fault rupture within the Holocene period (i.e., approximately the last 11,000 years).

The California Geological Survey (CGS) established an Alquist-Priolo Earthquake Fault Zone around the Chino Fault on May 1, 2003. A generalized map illustrating the Chino Fault and the Alquist-Priolo Earthquake Fault Zone is presented on Figure 5-2 – Seismic Hazards Earthquake Rupture. The Alquist-Priolo Earthquake Fault Zone map for the Chino Fault is only intended to serve as a guide in determining the general location of earthquake fault zones and is not suitable for local planning and site selection. It should be noted that the CGS frequently updates the Alquist-Priolo Earthquake Fault Zone maps, and that Alquist-Priolo zones in the City should be verified as part of local planning efforts.

j. Liquefaction

Liquefaction is a soil strength and stiffness loss phenomenon that typically occurs in loose, saturated, cohesionless soils as a result of strong ground shaking during earthquakes. The potential for liquefaction at a site is usually determined based on the results of a subsurface geotechnical investigation and the groundwater conditions beneath the site. Hazards to buildings associated with liquefaction include bearing capacity failure, lateral spreading, and differential settlement of soils below foundations, which can contribute to structural damage or collapse.

The California State Legislature passed the Seismic Hazards Mapping Act (SHMA) in 1990 (*California Public Resources Code*, Division 2, Chapter 7.8) as a result of earthquake damage caused by the 1987 Whittier Narrows earthquake and the 1989 Loma Prieta earthquake. The

purpose of the SHMA is to protect public safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. The site is not mapped within a seismic hazard zone based on review of currently published maps available on the CGS website. However, review of the CGS website indicates that seismic hazard zone mapping of the City of Chino Hills is planned in the future.

Portions of the City may be underlain by loose, saturated alluvial materials subject to liquefaction. Areas considered most susceptible to liquefaction include the low-lying areas in the eastern portion of the City within the Chino Basin and canyon areas in Chino and eastern Puente Hills, as shown on Figure 5-3 – Liquefaction Susceptibility Seismically-Induced Landslide Hazard Zones delineated by the California Department of Conservation (2021), and Figure 5-4 – Canyons in the City of Chino Hills. Development of sites within these hazard zones should include site-specific liquefaction studies as part of a geotechnical engineering investigation.

3. Geologic Hazards

Surficial sediments overlie bedrock in the lower portions of the City, particularly within canyons and at the eastern base of the Chino Hills. These sediments include very old alluvial soils to recent alluvial soils, slopewash and channel deposits, as well as landslide deposits. These sediments have been deposited over the past 2 million years as ancient stream channels have eroded the Chino Hills to their current topographic expression. Generally, the older surficial deposits are semi-consolidated and consist of sands and silts with some clay. Younger surficial deposits may consist of coarser materials and are generally unconsolidated. Landslide deposits are generally made up of the source materials that failed, such as bedrock or weak surficial soils on slopes. Areas in the City susceptible to landslides are shown in Figure 5-3 – Liquefaction Susceptibility Seismically-Induced Landslide Hazard Zones.

a. Earthquake-Induced Landsliding

Earthquake-generated strong ground motions can worsen existing unstable slope conditions. Typical earthquake-induced landslides in the terrain of the Chino Hills area could include rotational slumps, rock falls, shallow slumps, and slides commonly associated with moderate to steep road cuts and natural slopes. If the slope materials become saturated, strong ground motions could also trigger mudslides and mudflows. Properly designed and constructed engineered slopes will generally perform well during an earthquake.

b. Storm-Induced Landsliding and Erosion

Heavy rainfall often triggers surficial sliding (debris flows and mudflows) along the sides of canyons and on steep slopes. Hill slopes composed of Puente Formation blanketed with topsoil and colluvium are more susceptible to erosion if not properly planted. Extreme precipitation events are expected to occur more frequently and more intensely as a result of climate change, which will increase the risk of landslides. Landslide events are also anticipated to occur more often and with greater magnitude due to extreme weather events.

The current California Building Code (2023) provides guidelines that may reduce the potential for erosion of cut and fill slopes, including appropriate plantings, slope maintenance, and construction of erosion control devices. Older hillside areas of the City developed prior to implementation of the current CBC may not have benefited from such protection, and consequently could experience a greater likelihood of storm damage.

Natural canyons and other hillside undeveloped areas may be susceptible to storm-induced landsliding and erosion. Downslope developments or those that may be impacted by these events should be designed with appropriate erosion control and/or debris catchment devices in order to minimize damage to developments.

c. Subsidence from Groundwater Withdrawal

Ground subsidence resulting from groundwater extraction has been documented at several locations in California, including Chino-Riverside, Bunker Hill-Yucaipa, and Temecula. Subsidence in these regions has typically occurred over broad areas where groundwater levels have declined as much as 150 feet over a period of decades. Ground subsidence generally occurs where deep alluvial valleys exist. Alluvium-filled canyons in the Chino Hills area generally contain less than 200 feet of alluvium overlying consolidated bedrock of the Puente Formation. Therefore, future subsidence due to groundwater withdrawal is not anticipated to occur in the City of Chino Hills.

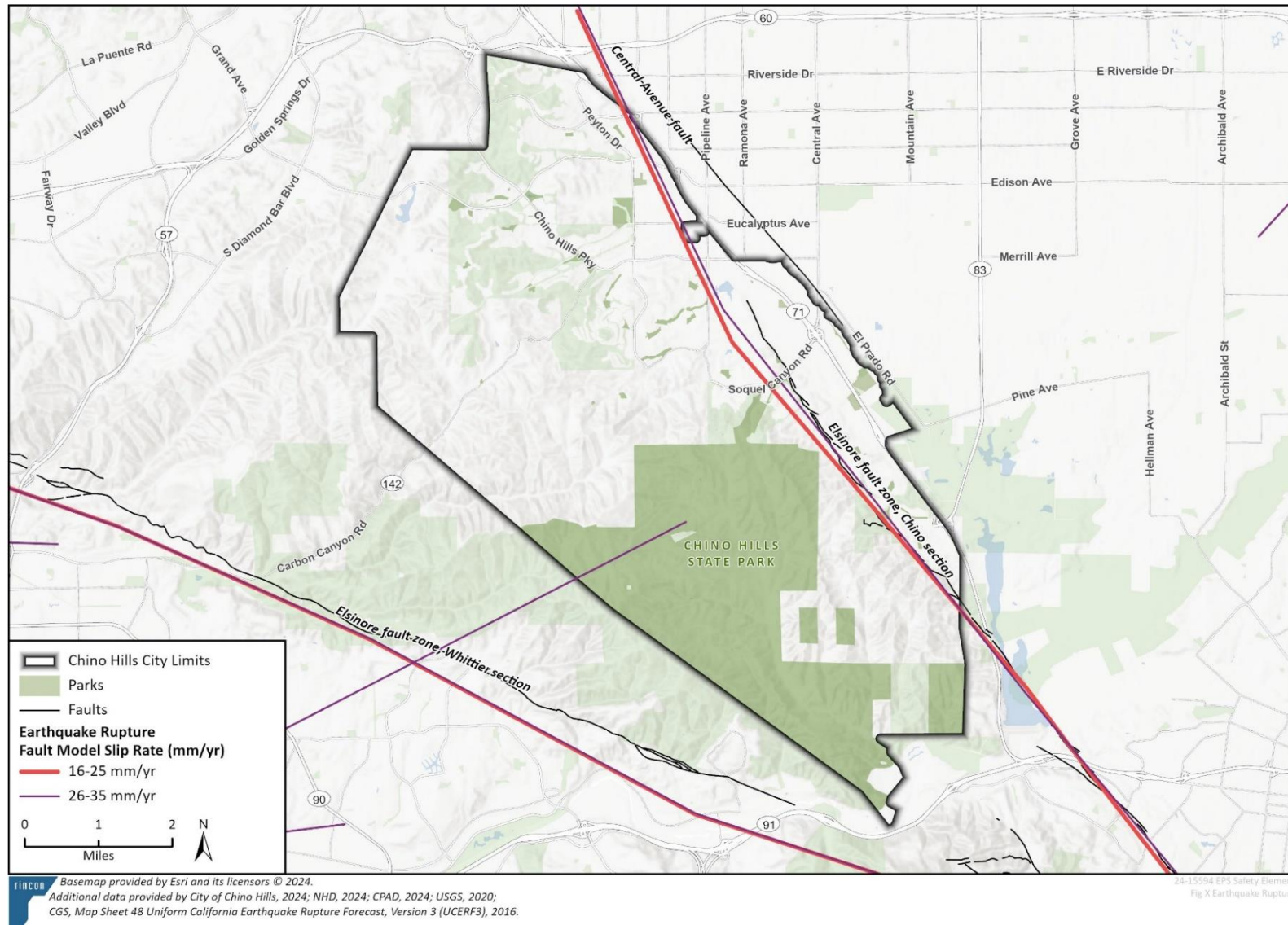


Figure 5-2 – Seismic Hazards Earthquake Rupture

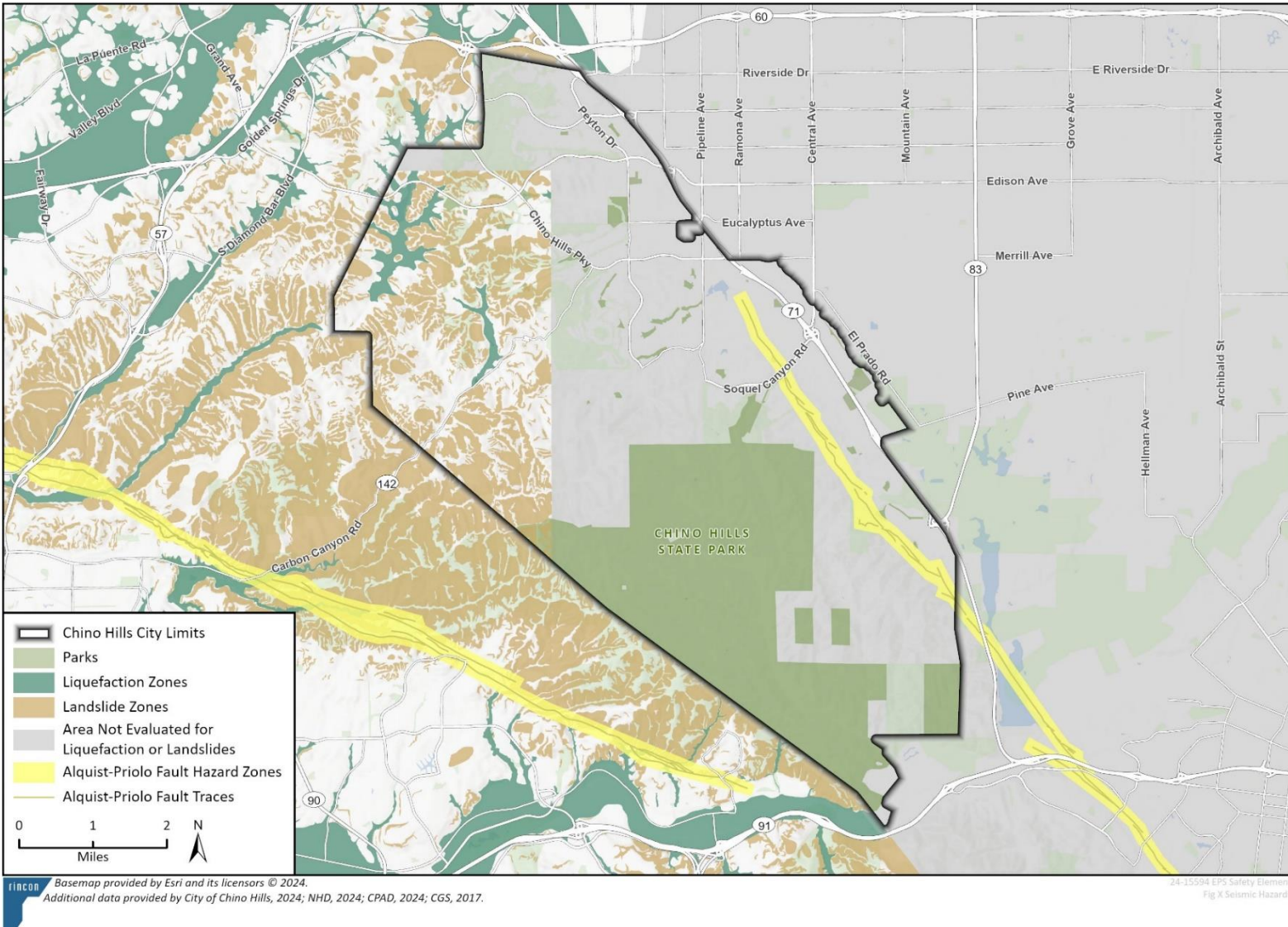


Figure 5-3 – Liquefaction Susceptibility Seismically-Induced Landslide Hazard Zones

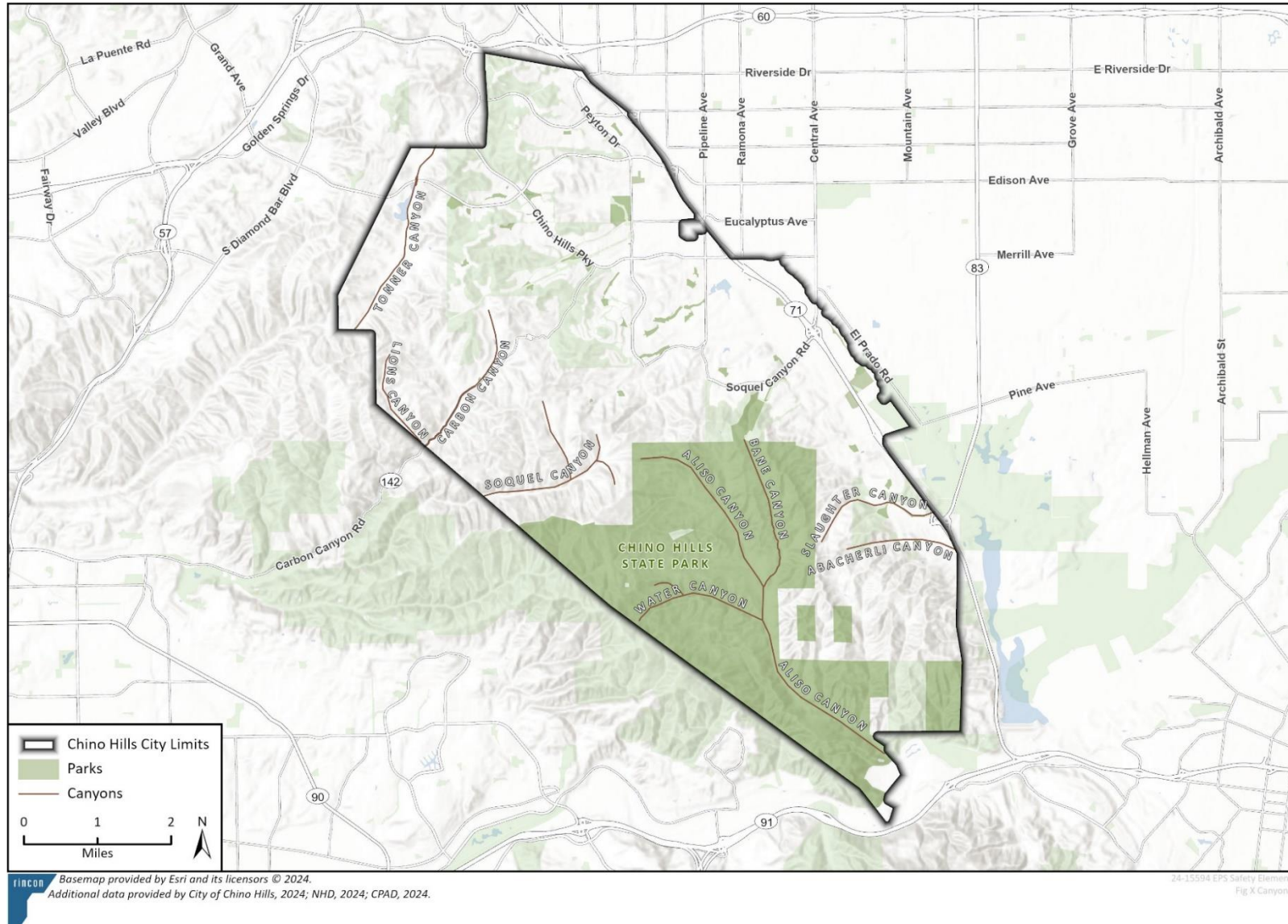


Figure 5-4 – Canyons in the City of Chino Hills

d. Collapsible and Expansive Soil

Soils can collapse or expand for a variety of reasons, including the type of soil or presence of water. Low-density soils such as recently deposited river sediments can settle if subjected to the heavy loads associated with building foundations. These soils may also settle if compacted during an earthquake when water is extruded from the soil as a result of strong ground shaking, and the particles are compressed together.

Granular soils, such as sands and gravel held together by clay or another water-soluble binder, can compact or densify if the clay is washed away by infiltrating water. This process is called “hydro-compaction.” The change in volume that results when soils densify can cause extensive damage to building foundations, infrastructure (such as roads and bridges), and utilities.

The sandy alluvial deposits located within the major drainages traversing the City may be susceptible to consolidation and hydro compaction. Bedrock of the Puente Formation generally has a low settlement potential.

Soil settlement can also occur in the eastern side of the City in the area where clay was previously mined. If the open pits left behind from the clay mining operation are backfilled with fill soils that are not compacted under the supervision of a geotechnical engineer, settlement could occur.

Expansive soils are soils with a significant amount of montmorillonitic clay, a mineral that has the ability to shrink and swell as the water content changes. When changes in the environment result in a change in the moisture content of these clays, the soils change volume. Changes in volume of these soils can be brought on by seasonal changes in rainfall or changes in irrigation. Vegetation, especially large trees planted near a foundation, can also cause significant changes in soil volume as the trees withdraw water from the surrounding soil. Poor drainage around a structure can also result in localized swelling. The change in soil volume brought about by these processes can cause extensive damage to structures built over these soils. Differential expansion or settlement along the edges of a building foundation can also cause extensive structural damage. In the United States, expansive soils cause more damage in dollars to highways, streets, and buildings than other natural disasters such as earthquakes, floods, and tornadoes combined.

Most surface soils in the City have a moderate to low shrink-swell potential. However, some soils formed in place from weathering of clay-rich units of the Puente Formation have a high shrink-swell potential. The distribution of these surface soils in the City is shown on Figure 5-5 – Expansive Soils. The Puente Formation locally contains layers of volcanic ash that weather to highly expansive clays. These ash layers could be exposed during grading.

e. Reactive Soils

Reactive or corrosive soils have chemical properties that can disintegrate or corrode metal pipes and concrete. Corrosive soils include soils with low (less than 3) or high (greater than 9) pH values and low resistivity, and soils rich in sulfates. Soils with high concentrations of sodium, magnesium, or calcium sulfate can react chemically with the hydrated lime in cement and disintegrate permeable concretes that have a high water-to-cement ratio. Geotechnical engineers routinely conduct sulfate analyses of soils as part of geotechnical investigations. The impact of sulfate-rich soils on concrete can be mitigated by using special cement mixes

that include additives to reduce the permeability of the concrete and by paying careful attention to the mix design, quality control, and curing of the concrete.

Soils in the Chino Hills area generally are potentially corrosive to ferrous metals and severely corrosive to concrete. The City currently requires a soils analysis for corrosion prior to installation of water lines, sewer mains, or storm drains. Special design and materials must be used where corrosive soils exist.

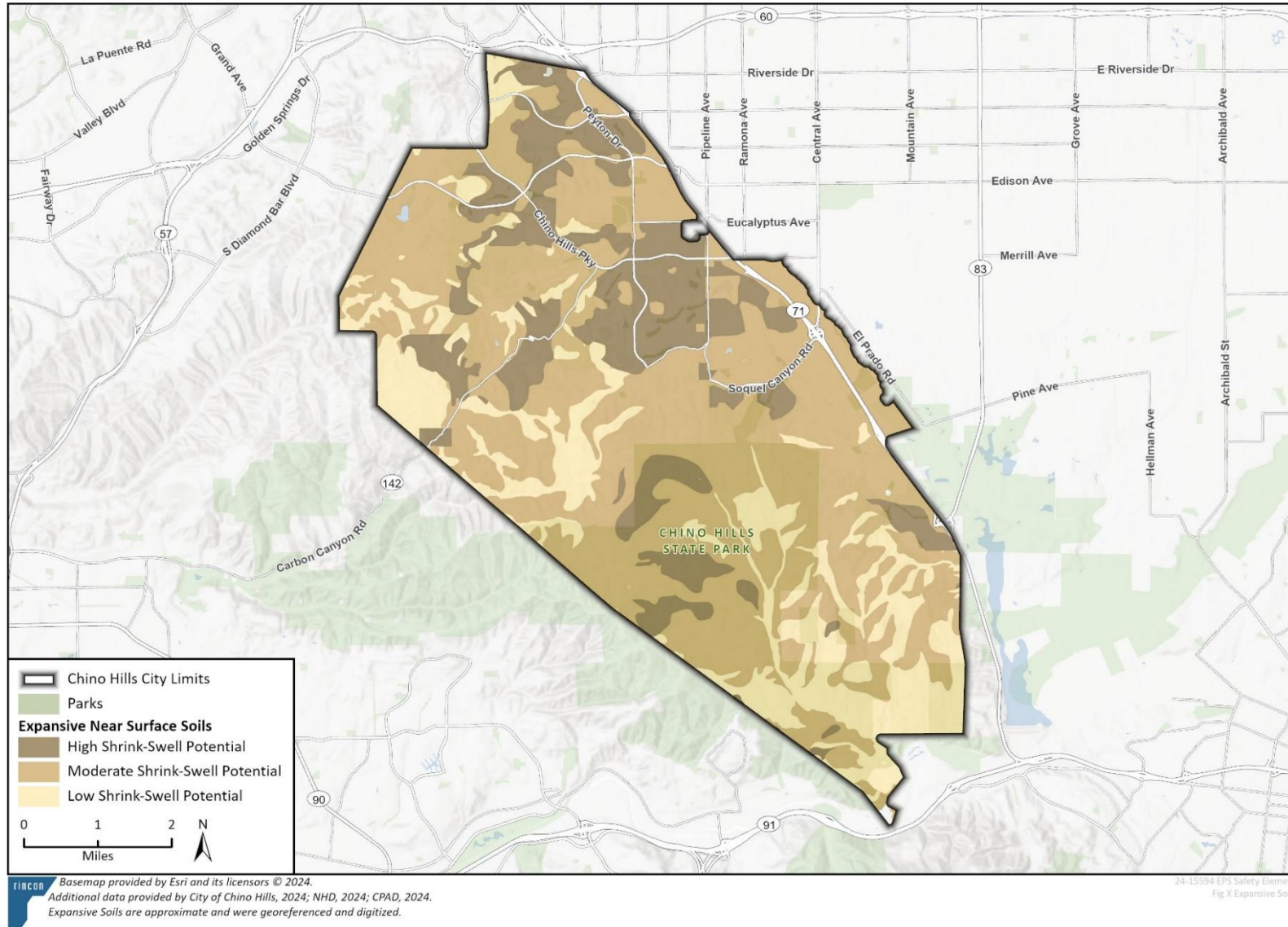


Figure 5-5 – Expansive Soils

4. Flood and Inundation Hazards

California Government Code §65302(g) requires local governments to assess the potential impact that failure of a dam or other water retention structure may pose to the community. The Safety Element must also assess the impact of flooding from storm activity, such as 1% annual chance and 0.2% annual chance floods. Due to climate change, more frequent and more extreme rain events may cause localized flooding that can damage property and hinder emergency response activities, such as evacuation and fire department access to fire hydrants.

a. Storm Flooding

Most rainfall in the City area occurs in the winter months between December and March. Runoff from the City generally drains east and south, toward Chino Creek and Prado Flood Control Basin, and on to the Santa Ana River Basin. Canyons on the west side of the City, including Tonner Canyon, Carbon Canyon, Soquel Canyon, and Aliso Canyon, drain westward toward Los Angeles and Orange Counties. With the exception of Tonner Canyon, which drains into the San Gabriel River watershed, the remaining canyons drain into the lower reaches of the Santa Ana River Basin. All the canyons in the City are prone to seasonal flooding.

Localized flooding has occurred historically in the Chino Hills area, generally when drainage facilities are too small to convey the storm flows generated from increased urbanization and paved surfaces in the area. In addition, storm drainage systems are usually not designed to manage the volume of stormwater generated during extreme precipitation events. These events are anticipated to occur more frequently due to climate change, which will overwhelm storm drainage systems in lower lying areas of the City, resulting in localized flooding.

Severe erosion along many natural channels, and debris-clogged drainages, compound the problem. Localized flooding has been known to occur in some areas of the City, notably the lowlands bounded by Pipeline, Eucalyptus and Merrill Avenues, and the Chino Creek Channel, also the section of Peyton Road between Eucalyptus Avenue and Carbon Canyon Road. Sheet flooding has occurred in the Los Serranos area north of the golf course and along portions of English Road.

Portions of the City have been mapped by the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance program. FEMA relies on historical data to calculate flood frequencies and flood extent. Climate change is expected to increase rates of precipitation and the frequency of extreme precipitation events, which could result in more frequent and severe riverine flooding that could impact properties within flood zones as well as emergency services, power, wastewater, and storm drainage infrastructure, exacerbating public health concerns. The Flood Insurance Rate Maps (FIRMs) show that most of the areas mapped were designated Zone X and Zone D. Zone X covers areas of minimal flooding. Zone D is identified as an area where flood hazards are undetermined but possible. Areas on both sides of Carbon Canyon Creek and Little Chino Creek have been classified into Zones A, AE, and X. Zone A is an area with a 1% annual chance of flooding. Those portions of Zone A where the base flood elevations have been determined are classified as Zone AE. Zone X is defined as an area with an annual chance of flooding of between 1% and 0.2%; areas subject to a 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from the 1% annual chance flood. The basic flood Zones A, D, and X mapped in the City of Chino Hills area are shown on Figure 5-6 – Flooding and Inundation Zones and Figure 5-7 – FEMA Flood Map.

b. Private Drainage

Many of the soils in the Chino Hills area have a high erosion potential. Erosion is not only unsightly but can destabilize adjacent slopes. Channeling drainage away from slopes to maintained storm drains minimizes erosion potential on graded slopes.

On private property, the individual property owners are often responsible for inspection of their down drains and removal of debris. Removal of debris on a regular basis prevents private drain systems from clogging or overflowing, which could channel water and mud downslope with the potential for damage to adjacent properties and structures.

Residential drainages often connect into the larger storm drain system, which empties into natural drainages such as canyon areas. Paved concrete channels or flood velocity reduction structures are sometimes necessary in natural drainages to prevent erosion caused by channeled runoff.

c. Erosion-Induced Flooding

Significant hillside erosion can also occur following a wildland fire or extreme precipitation event. The City is likely to experience more frequent and larger loads of debris flow as a result of climate change. In October 2020, the Blue Ridge Fire burned close to 14,000 acres, mostly within the City of Chino Hills and Chino Hills State Park. Debris-laden floods emanating from recently burned slopes during rainstorms can result in large amounts of sediment deposited in the channels draining the area. To mitigate this hazard, runoff from unimproved areas should be controlled and channeled to adequate drainage facilities. Erosion on slopes can be minimized by covering them with drought-resistant vegetation. Other erosion control measures that can be used to control slope erosion include riprap, gabions, and concrete lining. Locating structures in the flow path of hillside gullies or swales should be prohibited unless adequate drainage and debris protection is designed into the project.

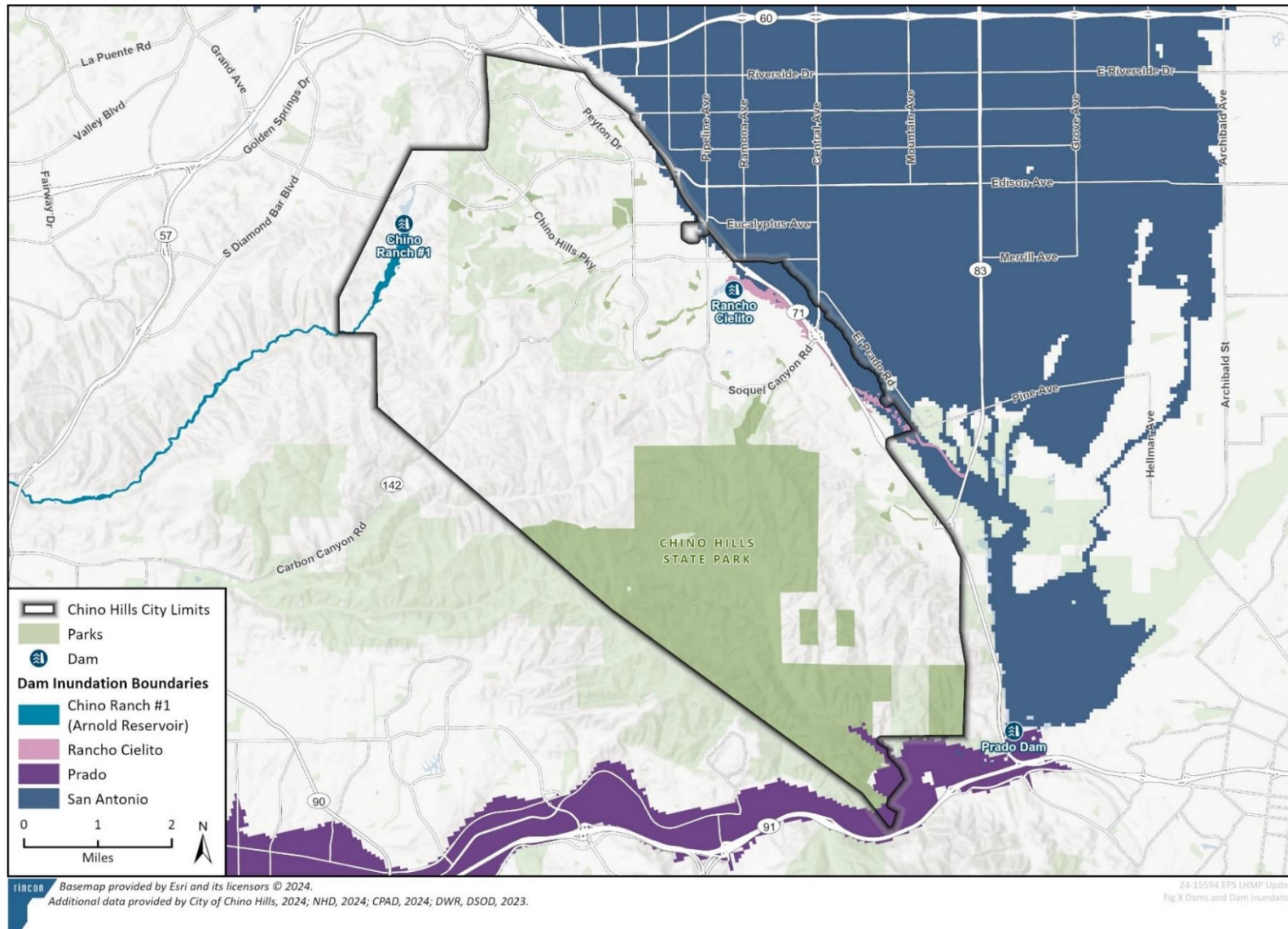


Figure 5-6 – Flooding and Inundation Zones

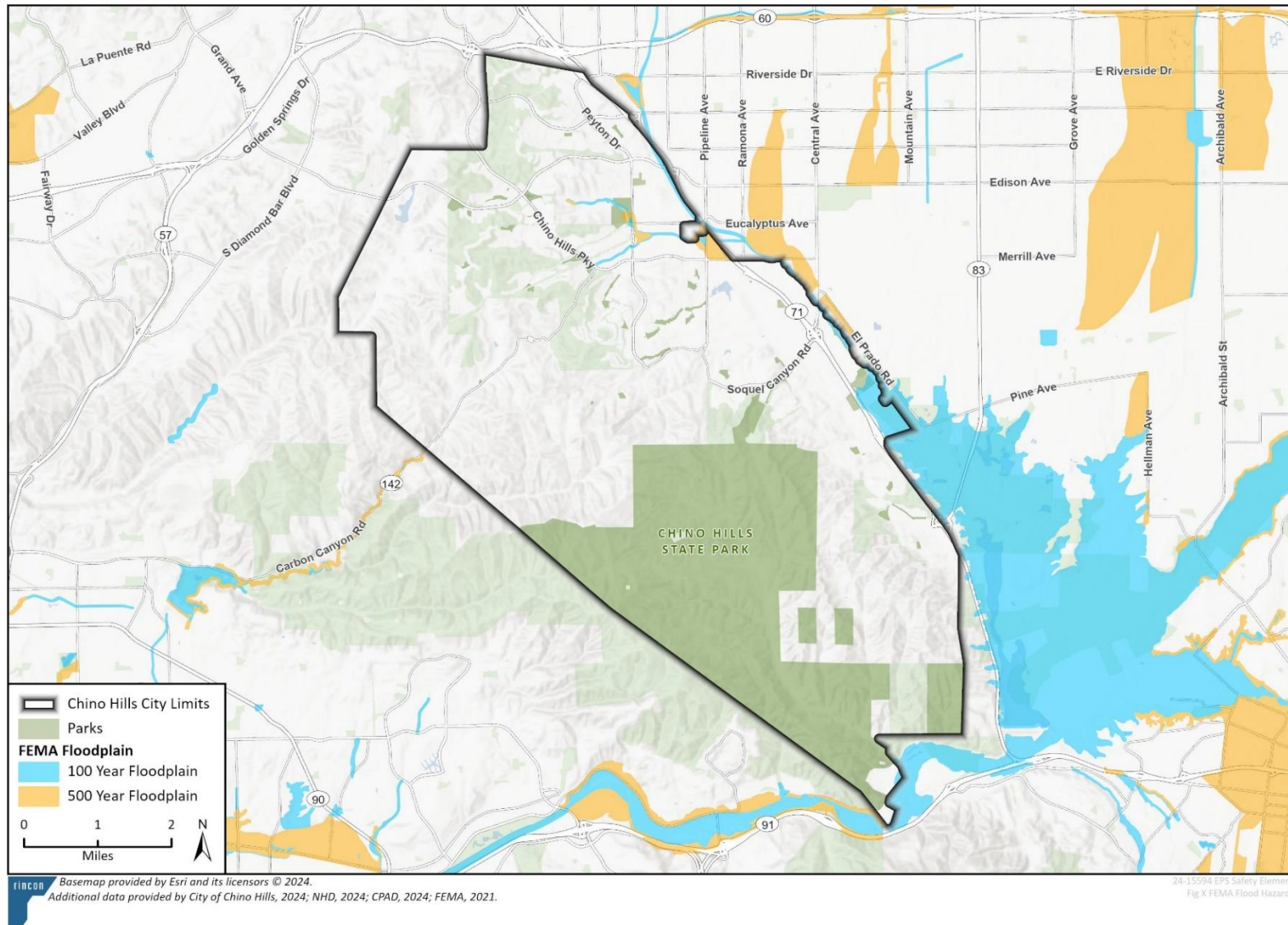


Figure 5-7 – FEMA Flood Map

Erosion on slopes can be minimized by covering them with drought-resistant vegetation. Other erosion control measures that can be used to control slope erosion include riprap, gabions, and concrete lining. Locating structures in the flow path of hillside gullies or swales should be prohibited unless adequate drainage and debris protection is designed into the project.

d. Seismically Induced Inundation

Seismically induced inundation refers to flooding as a result of water retention structures failing during an earthquake. There are two reservoirs within the City limits, Arnold Reservoir (Chino Ranch No. 1 Dam) and Los Serranos Lake, and two reservoirs adjacent to or upstream from the City that could fail during an earthquake and impact the City. In addition, culverts, levees, stock ponds, and other flood control structures may crack and suffer some structural damage during an earthquake, especially in areas susceptible to ground failure. These facilities could pose an inundation hazard if they contain water at the time of the seismic event, or if they are not repaired soon after an earthquake and prior to the next rain season.

e. Dam Inundation

California Government Code requires reservoir owners to develop and maintain an emergency plan to be implemented in the event that the dam is catastrophically breached. Each dam-specific emergency plan includes a map showing the potential limits of the flood that would result in the event of dam failure while the reservoir is at full capacity. These flooding maps show worst-case scenarios since most reservoirs and flood control structures in southern California are rarely filled to capacity. However, more frequent and severe extreme precipitation events resulting from climate change could increase the risk of dam failure. These events could result in dam overtopping or damage dam infrastructure, leading to dam failure. Reservoir owners are required to regularly inspect their dams for safety under supervision from the Department of Water Resources, Division of Safety of Dams (DSOD). The possibility of inundation in the event of a catastrophic dam failure is therefore remote but may become more likely to occur due to climate change.

San Antonio Dam is located about 10 miles north of the City in San Antonio Canyon in the San Gabriel Mountains. If this dam failed while filled to capacity, the lowlands of the City could be impacted by flooding. A small portion of the City along the southeastern border would also be flooded if Prado Dam, located in the southeast of the City, failed catastrophically while full.

Within the City, there are two small dams: Los Serranos Lake (also known as Rancho Cielito Reservoir) and Chino Ranch No. 1 Dam that could cause localized flooding if damaged. These reservoirs are described below.

- Los Serranos Lake (or Rancho Cielito Reservoir) is an earthen dam located in the Los Serranos area. The dam was reportedly built between 1880 and 1901, although the Department of Water Resources lists it as having been completed in 1912. The 9-foot-high dam is owned by Rolling Ridge Ranch and was reportedly built to store well water for agricultural purposes. The reservoir has a capacity of 110 acre-feet (1 acre-foot is a measure of volume equal to 1 acre of land covered with water to a depth of 1 foot) and a dam crest elevation of 644.6 feet above Mean Sea Level (MSL).³ Water in the reservoir is generally kept to within 3 feet of the dam crest. In the past, the stored water has been used to irrigate the golf course at the Los Serranos Country Club. The dam

³ Department of Water Resources, 2010.

is inspected yearly by the DSOD. At present, an inundation map has not been prepared for this reservoir. In the event of a breach of the dam, the area down-gradient from the dam with an elevation below about 642 feet MSL could be inundated. Inundation waters would probably flow east to southeast toward the Chino Valley Freeway, where water would pond behind the freeway and flow southward to the closest storm drain. Ultimately, floodwaters would flow into Chino Creek and the Prado Dam Flood Control Basin. Inundation depths are predicted to be less than five feet.

- Arnold Reservoir is located behind the Chino Ranch No. 1 dam. This dam is located in Tonner Canyon, in the northwest corner of the City. The 22-foot-high dam was completed in 1918 with a crest elevation of 959.5 feet MSL and a storage capacity of 137 acre-feet. The dam is owned by the Tres Hermanos Conservation Authority (Authority), a joint powers agency with representatives from the cities of Chino Hills, Diamond Bar, and Industry, and the stored water is used for livestock. In the event of dam failure, portions of Tonner Canyon that are currently undeveloped would be inundated to depths of up to 10 feet.

f. Seiches

Seismically induced flooding can occur as a result of seiches. Strong ground motion generated by an earthquake may trigger standing wave oscillation, or seiches, in enclosed or semi-enclosed bodies of water, such as lakes or reservoirs. If these seiches generate large enough amplitude, water may overflow the body of water, causing localized flooding of adjacent or downslope areas. Seiches could occur within the two reservoirs within the City, or in other enclosed bodies of water, such as swimming pools. In addition, small private reservoirs or ponds used for livestock water, wildlife management, and natural habitat preservation may be located within Chino Hills in the State Park or other ranching areas. These enclosed bodies of water may be susceptible to seiches, with resultant localized flooding.

g. Tank Reservoirs

There are currently 16 water tanks in the City used to store water for domestic purposes. These tanks vary in storage capacity between 0.25 and 5.0 million gallons. Five of these tanks are located within the Alquist-Priolo Special Studies Zone of the Chino Fault. If a moderate to strong earthquake were to occur on the Chino Fault or other nearby fault, these tanks could be damaged, releasing the stored water and flooding adjacent developments downslope. Strong ground motions generated by earthquakes can cause water inside the tank to slosh back and forth with great force. Historically, this has been known to lift water tanks off their foundations, causing the stored water to drain out of the tank in a matter of minutes and flood the downslope area.

Above-ground storage tanks should be adequately attached to the foundation and baffled to reduce the incidence of earthquake-induced structural damage. Water tanks should remain operational after an earthquake, as the stored water may be necessary to suppress earthquake-induced fires in the City. Residents may have to depend on the water stored in these tanks if the City water supply system is damaged.

5. Peakload Water Supply Requirement

The City of Chino Hills Urban Water Management Plan 2020⁴ (UWMP) provides a framework for long term water supply planning, including an assessment of current and projected peakload water demand. According to the UWMP for year 2021, total water demand in the City was 16,166 acre feet (ac/ft) and supplies were 29,526 ac/ft.

To assess the future reliability of the City water supply, the UWMP calculated future peakload requirements. For year 2045, City water demand will be 17,725 ac/ft and supply will be 33,684 ac/ft in a normal year. In a 5th consecutive dry year, demand would drop to 17,709 ac/ft, but supply would stay consistent at 33,684 ac/ft. As presented in the UWMP, the City has planned for adequate water supplies for existing and future demands. As a result of climate change, the City is likely to experience longer periods of drought which will impact the City's water supply. Prolonged drought will disproportionately impact low-income households, as they are more likely to experience cost burden associated with increased water rates. Drought conditions can lead to water scarcity and individuals may need to rely on poor quality water supplies. In addition, all emergency services, and in particular firefighting, require adequate water supply for fire suppression. Longer periods of drought may cause service strain for emergency and medical services.

6. Fire Hazards

Fire hazards in the City include wildland, urban, and earthquake-related fire potential. A wildland fire is a "fire occurring in a suburban or rural area that contains uncultivated lands, timber, range, watershed, brush, or grasslands."⁵ An urban fire is a fire that occurs in developed areas that may include structures and vehicles. An earthquake-induced fire is a widespread fire following an earthquake. The Safety Element updates policies intended to reduce risks from fire hazards.

a. Wildland Fires

Open space and canyon areas in the City are covered with chaparral, coastal sage scrub, deciduous woodlands, and grasslands. Introduced vegetation includes landscaping plants and agricultural species. The chaparral and coastal sage plant communities are highly combustible due to volatile oils contained in the plant tissues.

Wildfires in the City pose a high threat to natural resources, structures, and human safety. The high risk posed by fires is due to the combined effects of:

- Climate (dry summers with drought and Santa Ana wind conditions);
- Steep, rugged terrain (limiting accessibility to fire-fighting vehicles and personnel);
- Vegetation (highly combustible chaparral and similar plant communities that contain high concentrations of volatile oils);
- Development patterns (wildland and urban areas intermixed in the foothills and near canyon bottoms where development is located adjacent to highly flammable vegetation).

⁴ https://www.chinohills.org/DocumentCenter/View/24021/UWMP_final-2; accessed February 23, 2023.

⁵ State of California General Plan Guidelines, Governor's Office of Planning and Research, 2017.

Approximately 75% of Chino Hills is located within the City's designated Fire Hazard District (Figure 5-8 – City of Chino Hills Fire Hazard Overlay District). Lands within the district include Chino Hills State Park, the Tres Hermanos area, the Carbon Canyon area, and the southern portion of the City generally west of Butterfield Ranch Road and south of Soquel Canyon Parkway.

According to the California Department of Forestry and Fire Protection (CAL FIRE) 2018 Strategic Fire Plan for California, “since the turn of the century there has been a steep increase in structures lost compared to the 1990s.”⁶ This increase is due, in part, to increasing housing and development, but more notably, to earth's changing climate, with increasing temperatures and shifting wind and water patterns.

To reduce wildfire risk, the City adopted a Fire Hazard Overlay District and has established and enforced policies that are carried over in the Safety Element Goals, Policies, and Actions section of this Safety Element.

b. Severity Zones

CAL FIRE maintains maps of Fire Hazard Severity Zones (FHSZs) to assist with state and local planning for wildland fire protection. In State Responsibility Areas (SRAs), where the State of California is financially responsible for the prevention and suppression of wildfires, CAL FIRE identifies Moderate, High, and Very High Fire Hazard Severity Zones. In LRAs not under CAL FIRE's jurisdiction, fire protection is provided by the local fire protection agency. The Chino Valley Fire District (CVFD) is the local fire protection agency responsible for fire protection in LRAs in Chino Hills.

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped the most up to date Fire Hazard Severity Zones (FHSZ) throughout California (as may be amended by CAL FIRE in the future). Most of Chino Hills falls within the VHFHSZ (Figure 5-9 – CAL Fire Hazard Severity Zones and Critical Facilities). Within SRAs and LRAs outside of Chino Hills, VHFHSZs are located along the entire western boundary and most of the southeastern City boundaries, including portions of Chino Hills State Park, the eastern portion of Yorba Linda, Gypsum Canyon, and areas north and west of Corona Municipal Airport.

There are several critical facilities located within the VHFHSZ in Chino Hills. Critical facilities are those that provide essential products and services to the public, are necessary to preserve the welfare and quality of life in the City, or fulfill important public safety, emergency response, and/or disaster recovery functions.

Historically, wildfires in or near Chino Hills have impacted areas within Chino Hills State Park, within the western portion of the City and west and south of the City boundaries (Figure 5-10 – Historic Fire Perimeters). The recorded wildfires in and near Chino Hills span from 1947 to 2024, as shown in Table 5-1 – Historic Fires In and Near Chino Hills.

⁶ Fire Hazard Planning Technical Advisory, Governor's Office of Planning and Research, 2022.

Table 5-1 – Historic Fires In and Near Chino Hills

Wildfire Name	Year	Acres
Arnold No. 106 Fire	1947	1,907
Firestone Fire	1967	236
Serranos Fire	1973	304
Soquel Fire	1978	3,935
Los Serranos Fire	1979	172
Carbon Fire	1980	6,955
Owl Fire	1980	18,333
Hills Fire	1983	581
State Park Fire	1988	821
Carbon Canyon Fire	1990	4,978
Yorba Fire	1990	7,884
Evening Fire	2002	893
Yorba Linda Fire	2005	1,097
Freeway Fire	2008	30,307
Blue Ridge Fire	2020	13,695

Source: City of Chino Hills, 2024; NHD, 2024; CPAD, 2024, CAL FIRE FRAP, 2023

In addition to the Safety Element, there are several local plans that evaluate wildfire risk, outline mitigation to minimize wildfire risk, and allocate resources in the event of a wildfire.

The City of Chino Hills Hazard Mitigation Plan (HMP) was developed in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and followed FEMA's Local Hazard Mitigation Plan guidance. The City of Chino Hills HMP incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk, consistent with FEMA's guidelines. The implementation of these mitigation actions, include both short and long-term strategies, involve planning, policy changes, programs, projects, and other activities. The current City of Chino Hills HMP is posted on the City's website and can be found at the following link: (<https://www.chinohills.org/1242/Local-Hazard-Mitigation-Plan-LHMP>).

The Carbon Canyon Community Wildlife Protection Plan (CWPP) identifies wildfire risk in Carbon Canyon and recommends strategies to reduce fuel load and ways residents can reduce ignitions and property losses through person actions. The CWPP identifies Carbon Canyon Road, two existing mobile home parks, existing institutional and industrial uses within Carbon Canyon, and existing vegetation as sources of ignition and fuel. The Plan recommends vegetation management projects, community education programs, and home hardening and building retrofits that will reduce wildfire risk within Carbon Canyon. The Carbon Canyon CWPP is available on the Carbon Canyon Fire Safe Council website (<https://www.carboncanyonfsc.org/cwpp.html>). To address high fire risk in the Carbon Canyon area, the City will implement Policy S-8.2 through Policy S-8.3 and the associated actions.

c. Urban Fires

Urban fires are often caused by human activities, such as faulty electrical wiring, improper storage or handling of hazardous materials, industrial accidents, or the careless handling of matches or other fire-producing items.

To reduce the risk of urban fire, the City has adopted the California Fire Code, which regulates and governs the safeguarding of life and property from fire and explosion hazards, from hazardous materials arising from the storage, handling and use of hazardous substances, materials and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises. The California Fire Code requires fire and life safety protection in the form of fire sprinklers for all new residential homes and the installation of smoke alarms. In addition to the requirements of the California Fire Code, the CVFD has amended fire sprinkler requirements for commercial and industrial properties, to require the installation of said systems in all new buildings 5,000 square feet or larger.

d. Earthquake-Induced Fires

With the numerous faults in and around the City, there is a risk of earthquake-induced fire in the community. These types of fires typically start in urban areas, where an earthquake causes a gas line to break, an electrical power line to be downed, or an open flame to catch fire. At the same time, an earthquake can cause damage to the water distribution and emergency communication systems, making fire suppression difficult.

Commonly affected are unanchored gas heaters or gas-fired hot water heaters, which tend to tip over and damage rigid gas line connections during strong ground shaking. Given the residential setting of Chino Hills, damaged gas line connections, overturned appliances, and damaged electrical circuitry will be the most likely causes of earthquake-induced fires in the City.

To reduce the risk of earthquake-induced fires, the City adopts the California Fire Code, which includes numerous regulations to reduce fire risks. These regulations include installation of earthquake-resistant water pumps and the clearing of vegetation under power lines. In addition, the City Emergency Operations Plan (EOP) describes the City's planned response to earthquakes, earthquake-induced fires, and other emergencies.

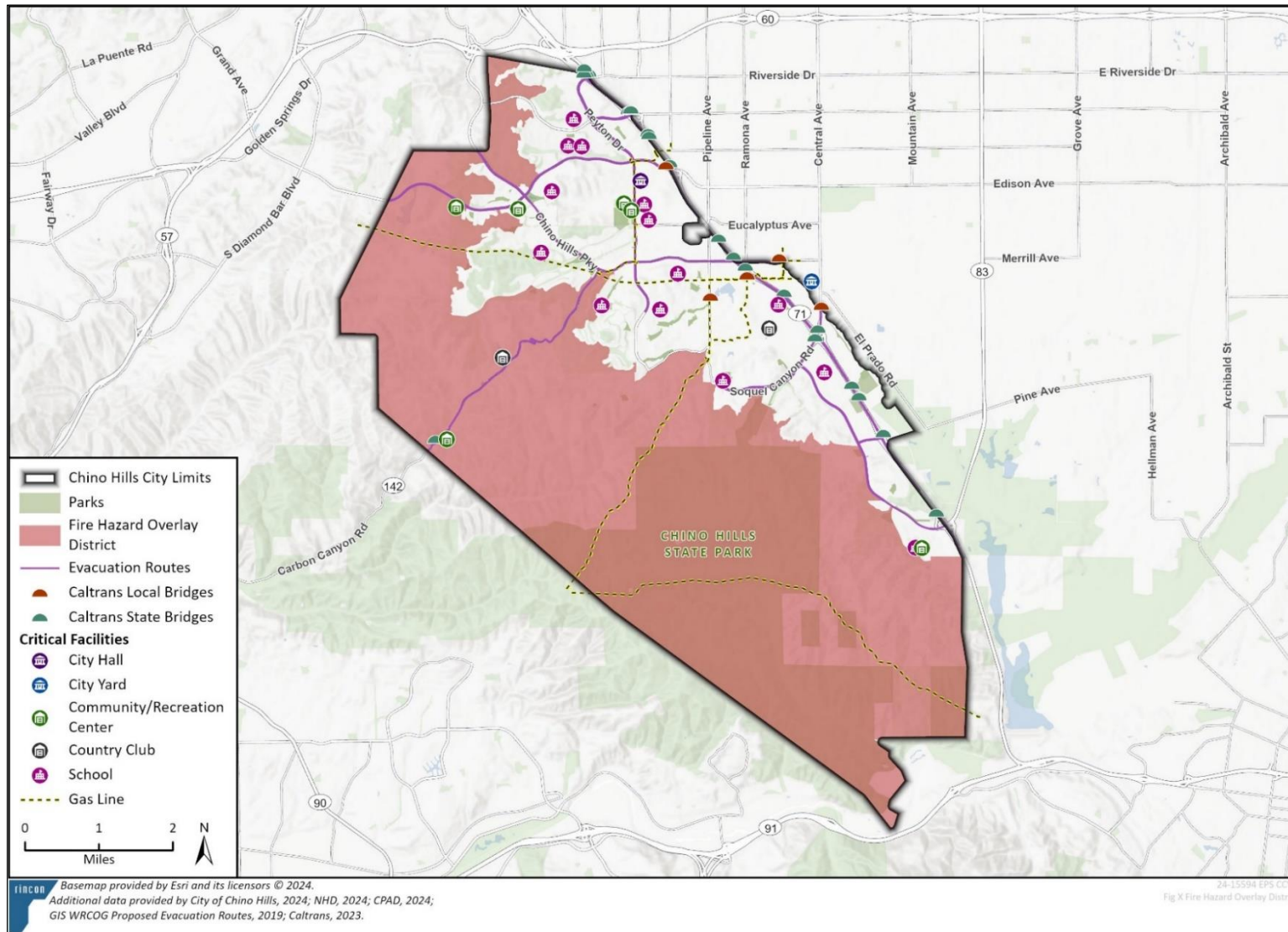


Figure 5-8 – City of Chino Hills Fire Hazard Overlay District

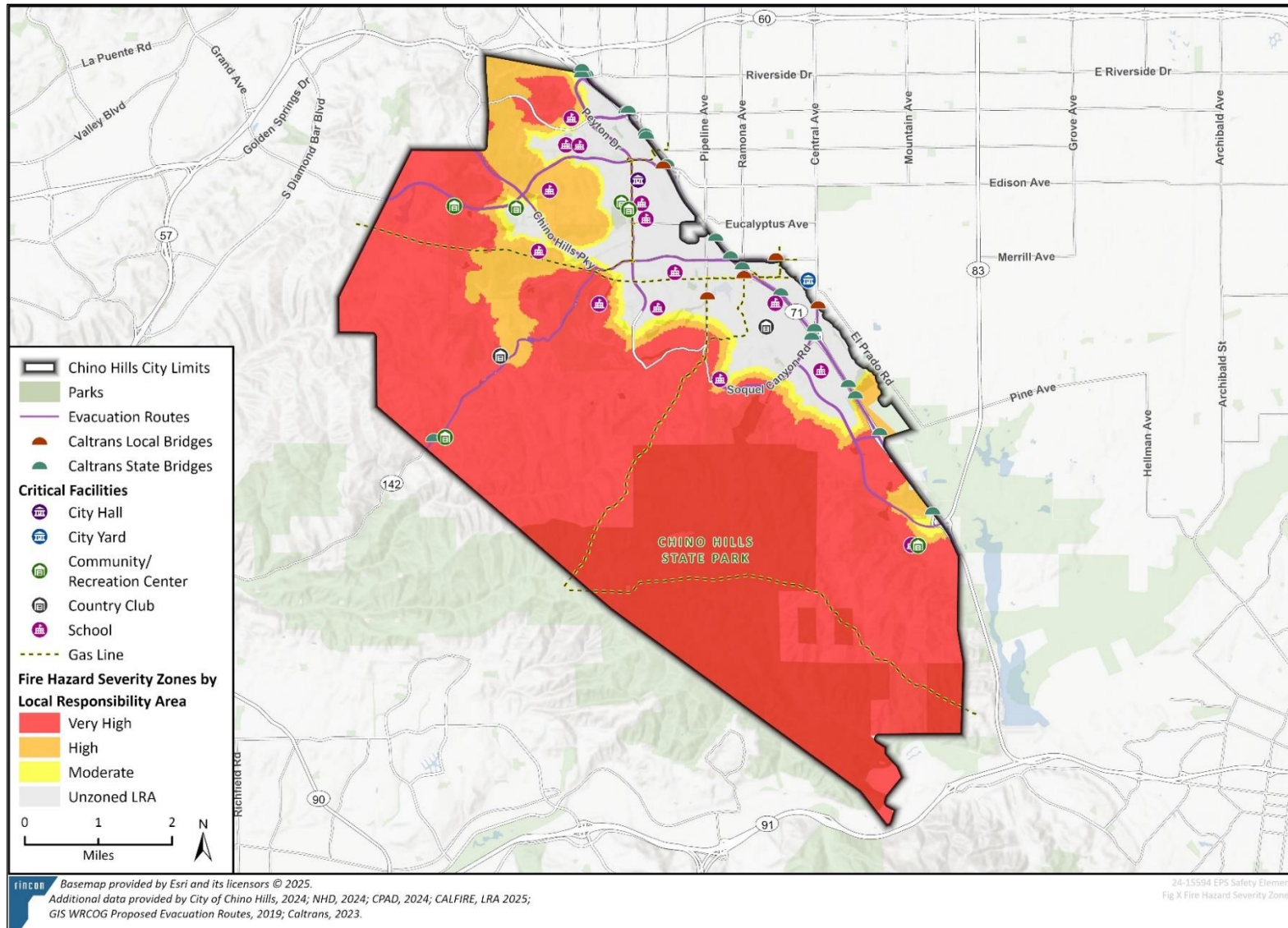


Figure 5-9 – CAL FIRE Fire Hazard Severity Zones and Critical Facilities

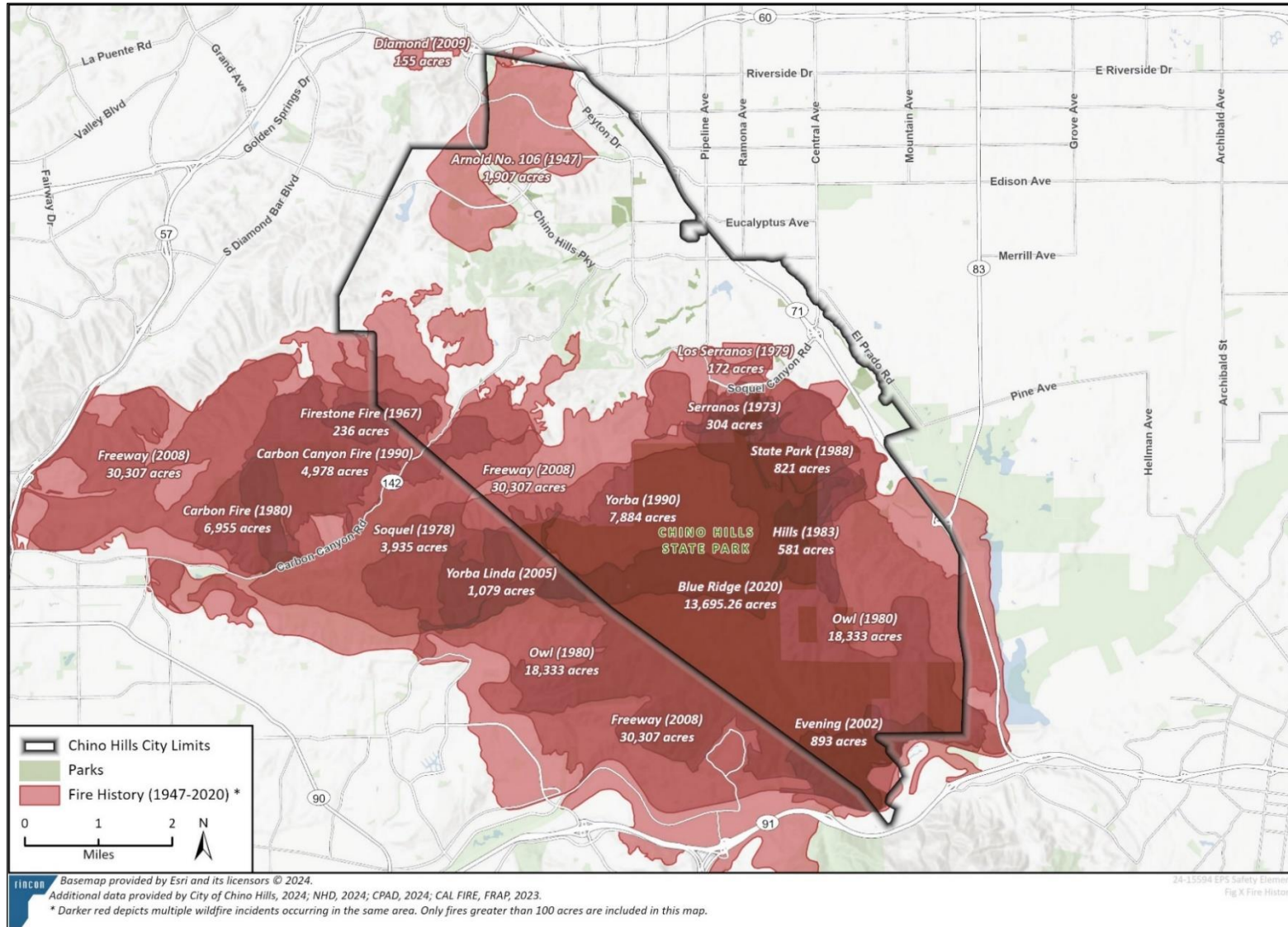


Figure 5-10 – Historic Fire Perimeters

7. Climate Change and Adaptation

Climate change refers to any distinct change in measures of climate lasting for a long period of time, including major changes in temperature, rainfall, snow, or wind patterns. Climate change is caused by natural factors, such as slow changes in the Sun's energy, Earth's orbit around the Sun, and ocean circulation. But today, climate change is most notably affected and accelerated by human activities that change the atmosphere, such as burning fossil fuels and altering the land surface, such as cutting down forests and covering earth with development.

The effects of climate change are varied: warmer and more varied weather patterns; melting ice caps; rising sea levels; increased flooding; increased wildfires; reduced air quality; reduced water supplies and natural resources; and inconsistent food supplies as these climate changes threaten agricultural production, fisheries, and animal farming. Already, as noted in the City of Chino Hills HMP, over the past 15 years, climate change induced heat waves have claimed more lives in California than all other declared disaster events combined.

In response to climate change concerns, the state adopted Senate Bill (SB) 379, which amended GC § 65302(g)(4) to require that climate change adaptation and resilience be addressed in General Plan Safety Elements. The law requires local agencies to incorporate the following into their climate adaptation and resiliency strategy:

- 1) A vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts, including, but not limited to, an assessment of how climate change may affect the risks associated with the natural hazards addressed in the safety element;
- 2) Information that may be available from federal, state, regional, and local agencies that will assist in developing the vulnerability assessment and the adaptation policies and strategies required;
- 3) A set of adaptation and resilience goals, policies, and objectives based on the information specified in the vulnerability assessment, for the protection of the community; and,
- 4) A set of feasible implementation measures designed to carry out the goals, policies, and objectives identified.

The Intergovernmental Panel on Climate Change provides several GHG emissions scenarios used to describe possible future GHG emissions and associated changes to global climate patterns. The state recommends two Representative Concentration Pathways (RCPs) to assess the City's potential vulnerability to climate change. RCP 4.5 represents a "mitigation" scenario in which global emissions peak around 2040 and then decline at the end of the century. RCP 4.5 is an unlikely scenario due to ongoing global emissions.⁷ This scenario assumes global agreement and implementation of GHG reduction strategies. RCP 8.5 represents a "business as usual" scenario in which emissions continue to rise throughout the 21st century. The Safety Element shows climate projection data associated with both emission scenarios; however, policies were formulated based on the projections associated with the RCP 8.5 scenario.

As previously referenced in Section D, Safety Element Issues, the City prepared a CCVA to assess communities and assets in Chino Hills that are vulnerable to climate change, consistent with SB 379, included in Appendix B.

⁷ <https://cal-adapt.org/help/faqs/which-rcp-scenarios-should-i-use-in-my-analysis/>

a. Climate Hazards

According to the CCVA, the following changes to climate conditions and associated natural hazards are expected to affect Chino Hills:

Increasing temperatures. Average maximum temperatures in Chino Hills are expected to rise between 4.2° Fahrenheit (F) and 5.1°F by 2050 and between 5.3°F to 8.4°F by 2100.

Increasing intensity of precipitation events and longer dry periods. It is projected that the wettest day every year will increase up to 30% by the end of the century with more precipitation occurring during extreme events.

Extreme Heat. Chino Hills is projected to experience an increase in the annual number of extreme heat days in the coming decades. In Chino Hills, an extreme heat day occurs when the maximum temperature is above 99.8°F. The annual number of extreme heat days is projected to increase by as much as 31 days and the annual number of warm nights is projected to increase by as much as 68 nights. Both are qualified as days or nights in which the temperature exceeds the 98th percentile of historically observed temperatures.

Drought. The City is projected to experience increases in the length of dry spells. The average annual maximum length of dry spells is projected to increase by 19 days, from 145 days to 164 days.

Wildfire. The City is projected to experience an increase in high wildfire risk days, frequency, and potential area burned from wildfires. Chino Hills is expected to experience an increase in the annual number of days with extreme wildfire risk from 71 days to 174 days.

Landslides. Susceptibility to landslides in Chino Hills is projected to increase as precipitation variability increases and wildfires increase in frequency, area, and severity.

Flooding. Climate change may cause areas throughout Chino Hills to experience more frequent flooding. Stormwater systems may be overwhelmed more frequently as more extreme rain events occur, causing localized flooding, which could impact properties and leave roads temporarily unusable.

Air Quality. Air quality is projected to worsen in Chino Hills and throughout the region due to an increase in wildfires and average maximum temperatures. Longer periods of drought will also contribute to worsening air quality.

b. Vulnerability

Certain populations within the community may be disproportionately harmed by the impacts of climate change. The City identified vulnerable populations using a variety of sources, including U.S. Census 2022 American Community Survey, Cal-Adapt, California's Fourth Climate Change Assessment, the California Healthy Places Index, and CalEnviroScreen 4.0, Tree Equity Score, and the City of Chino Hills HMP. Several factors influence sensitivity to climate hazards including an individual's health, age, and ability, societal disadvantages, inequities in access to health care, economic opportunity, education and other resources, and inequities found in basic needs and exposure to environmental stressors. The following vulnerable populations have been identified in Chino Hills:

- **Individuals with High Outdoor Exposure:** Outdoor workers
- **Under-Resourced Individuals:** Unemployed, households experiencing housing burden, individuals with educational attainment of less than 4 years of college
- **Individuals Facing Societal Barriers:** Non-white communities, linguistically isolated
- **Individuals with Chronic Health Conditions or Health Related Sensitivities:** Older adults, children, individuals with asthma, and individuals with cardiovascular disease

In Chino Hills, vulnerable populations are concentrated in the Carbon Canyon region and Los Serranos neighborhood. These areas are comprised of a high percentage of lower-income households and have a higher percentage of children (under 18 years old) and seniors (65 years old and older) compared to the rest of the City.

Within Chino Hills there is a large array of infrastructure and critical services that are vulnerable to climate change. Assets within this category include water services, fire services, emergency services, medical services, schools, utilities and major utility corridors, public transportation, roadways, and lifelines. Impacts to these assets can affect the service line ability to provide resources by straining the existing capacity or creating conditions that prevent typical responses under normal conditions.

The CCVA included an analysis of the City's Tree Equity Score, which measures the distribution of the benefits of trees by census block group. Trees provide a number of critical benefits to cities and residents including shade, improved air quality, increased rain interception and reduced stormwater runoff, and in great enough numbers, trees can cool ambient temperatures and reduce the impact of climate change and extreme heat on public health. Low-income communities and communities of color are often disproportionately affected by environmental hazards, including extreme heat and pollution. In addition, low-income and communities of color often have less access to parks and open space and live in areas with fewer trees, compared to other communities.

Tree Equity Scores are based on a range of neighborhood characteristics including the existing tree canopy, population density, income, employment, surface temperature, racial demographics, age distributions, and health metrics, to create a single tree equity score between 0 and 100. A score of 100 would indicate that a neighborhood has achieved tree equity.⁸

Of the 40 census block groups included in the Tree Equity Score Municipality Report for Chino Hills, 4 have a tree equity score below 75, 30 block groups have a score below 90, 8 block groups have a tree equity score of 90 or above, and 2 have a tree equity score of 100. It is estimated that 11,215 trees would need to be planted in the 13 block groups with the lowest scores to get all census block groups to a tree equity score of at least 80. This would increase the total tree canopy of Chino Hills by 1.2% and result in numerous other annual benefits including those listed below. In Chino Hills, areas with the lowest Tree Equity Scores are concentrated in the eastern part of the City, along State Route 71 and near the City's eastern boundary.

8. Hazardous Materials

The *California Health and Safety Code* defines a hazardous material as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant potential hazard

⁸ Tree Equity Score. 2024. <https://www.treeequityscore.org/map#11.24/33.9561/-117.7011>

to human health and safety or to the environment if released into the workplace or environment. The State of California (Title 22) further defines a hazardous material as a substance that exhibits any of the following properties.

- Toxic - capable of producing injury, illness, or damage to humans, domestic livestock, or wildlife through ingestion, inhalation, or absorption through any body surface;
- Ignitable/Flammable - capable of being set afire, or of bursting into flame spontaneously or by interaction with another substance or material, and/or capable of burning with great rapidity;
- Reactive - having properties of explosivity or of chemical activity which can be a hazard to human health or the environment; or
- Corrosive - having the ability to destroy living tissue or steel surfaces by chemical action.

An extremely hazardous material is defined by Title 22 as a substance that is:

- Acutely toxic - having the ability to cause injury, illness, or damage to humans, animals, or other living organisms by a single exposure of a duration measured in seconds, minutes, hours or days, or in the case of oral ingestion, by a single dose;
- Chronically toxic - having the ability to cause injury, illness or damage to humans, animals or other living organisms by prolonged or repeated exposure or consumption over a period of days, weeks, months, or years;
- Carcinogenic - capable of producing cancer;
- Bioaccumulative - a toxic substance that concentrates in living organisms through direct assimilation or food chain accumulation;
- Persistent in the environment - a toxic substance that resists natural degradation or detoxification; or
- Water reactive - having properties of explosivity or of violent chemical activity when in contact with water which can be a hazard to human health or the environment.

Releases of hazardous materials can occur during a natural disaster, such as during an earthquake. Improperly stored containers of hazardous substances may overturn or break, pipelines may rupture, and storage tanks may fail. Containers may also explode if subjected to high temperatures, such as those generated by a fire. If two or more reactive chemicals come in contact as a result of a spill, the hazard may be compounded.

The *California Fire Code* includes a set of criteria designed to minimize the risk of an accident and to be followed when storing, using, or handling hazardous materials. These requirements include secondary containment of substances, segregation of chemicals to reduce reactivity during a release, sprinkler and alarm systems, monitoring, venting and auto shutoff equipment, and treatment requirements for toxic gas releases. Examples of hazardous materials include oil, paints, thinners, cleaning solvents, compressed gas, radioactive materials, refined petroleum products, and pesticides.

Within the City, identified potential sources of hazardous materials include Aerojet Chino Hills Facility, gas lines, chlorine stations, and oil and gas wells. The Safety Element updates policies intended to reduce risks from hazardous materials.

a. Aerojet

The Aerojet Chino Hills Facility consists of about 800 acres located in a rural area in the southwestern portion of the City. It was a munitions assembly and test facility that operated from 1954 until the facility closed in November 1995. Aerojet has been working with the California Department of Toxic Substances Control (DTSC) to identify and remediate areas of the property and adjacent properties on which ballistics, toxics, or other hazardous materials are expected to occur. The most current update of Aerojet clean-up activities is provided on the DTSC website: <https://dtsc.ca.gov/aerojet-rocketdyne-chino-hills/>. The City continues to monitor remediation activities at the Aerojet Project Area.

b. Gas Lines

Four high-pressure natural gas transmission pipelines operated by Southern California Gas (SCG) extend across the City. Two of these pipes are 36 inches in diameter, and two are 30 inches in diameter. These pipes are fitted with automatically controlled valves so that, in the event of an emergency, the damaged section of pipe is shut off immediately and the pressure is diverted around the break. The natural gas distribution system, which includes the pipes that connect individual houses and structures to the street mains, is not fitted with automatic shut-off valves. However, all pipes in residential areas are controlled with a valve or a series of valves. In the event of an emergency, the SCG can isolate the area by closing these valves. Once the gas has been turned off, crews can make any needed repairs to the lines.

Within the City, SCG has implemented retrofit programs that replaced older copper pipes with flexible polyethylene pipe for gas mains, and increased use of seismically designed devices, such as mechanical couplings and flexible connections for piping. All new pipes installed in the City during the past two decades are made of plastic and less susceptible to failure.

c. Chlorination Storage

The City has a chlorination storage center located within the City limits. The station is located north of Eucalyptus Avenue and west of the Chino Valley Freeway, and the storage center is located on Eucalyptus Avenue. The storage center currently stores approximately 500 to 750 pounds of chlorine tablets used to treat pumped well water prior to its introduction into the City's domestic water system.

Chlorine can be utilized in a liquid, solid, or gaseous state when used for water purification. The gas is noncombustible, but as a strong oxidizer it can react explosively if mixed with some common substances such as fuel gas, ammonia, or turpentine. If inhaled, chlorine can irritate the eyes and nose and mouth tissues, and cause headaches, nausea and vomiting, dizziness, and other respiratory symptoms. The tablet form of chlorine that is currently stored at the storage center is less susceptible than a liquid form to a chlorine release or dispersion that could occur during a strong seismic event or other disaster.

d. Oil and Gas Wells

Petroleum and natural gas have been produced from oil fields in the eastern Puente Hills since the late 1880s. The Chino-Soquel oil field is located in the rugged area around Soquel Canyon, to the east of Sleepy Hollow, as shown in Figure 5-11 – Oil Fields Map. The Mahala oil field is located south of the Butterfield Ranch development in the eastern portion of the City. The Well Finder Map

issued by the California Geologic Energy Management Division (CalGEM) (accessed June 2024) indicates there are many plugged oil and gas wells in the City.

Most of these wells were likely not abandoned to current CalGEM regulations. If development is planned for an area known to have plugged and/or abandoned oil wells, these wells should be inspected and if necessary, re-abandoned to meet current regulations. If the property is planned for development, all wells must be slurry filled to minimize future problems. The City Planning Department is required to submit building permit applications to the Long Beach office of CalGEM if an oil well is known to have occurred in the area planned for development. If according to the CalGEM records, the wells in the area were not abandoned properly, it is the responsibility of the property owner to do so. Most wells plugged after the late 1970s were abandoned to current standards. However, all applicable building permit applications still should be submitted to the CalGEM for review.

Geological investigations that address environmental issues associated with oil field operations should be conducted prior to such areas being developed. Hazards that may require remediation and mitigation could include venting of gases, petroleum-saturated soils and soils contaminated with diesel, heavy metals or other hazardous substances.

e. Airport Safety

Chino Airport is located at 7000 Merrill Avenue in Chino, just east of the City of Chino Hills. It is a general aviation airport that serves private, business, and corporate tenants from Southern California. The Chino Airport Comprehensive Land Use Plan (CACLUP) establishes three safety zones, each with a specific set of land use guidelines. Safety Zone 1 restricts residential and industrial development; Safety Zone 2 restricts uses that would result in more than 50 persons per assembly area being present; Safety Zone 3 places no restrictions on residential or other uses.

Portions of Safety Zone 2 and Safety Zone 3 cross into an area of the City that is located east of Fairfield Ranch Road, south of Kimball Avenue and north of Pine Avenue, as shown in Figure 5-12 – Chino Airport Safety Zones. Within the Safety Zone 2 area of the City, most of the area is undeveloped and designated as Open Space in the Chino Hills Land Use Plan.

Within the Safety Zone 3 area of the City, most of the area is undeveloped and designated as Open Space in the Chino Hills Land Use Plan. The two exceptions are the Big League Dreams Sports Park, which is designated as Commercial Recreation within the Chino Hills Land Use Plan, and a small sliver of medium-density housing designated as Medium Density Residential within the Chino Hills Land Use Plan.

Existing development within the City and the Chino Hills Land Use Plan are consistent with the CACLUP Safety Zones.

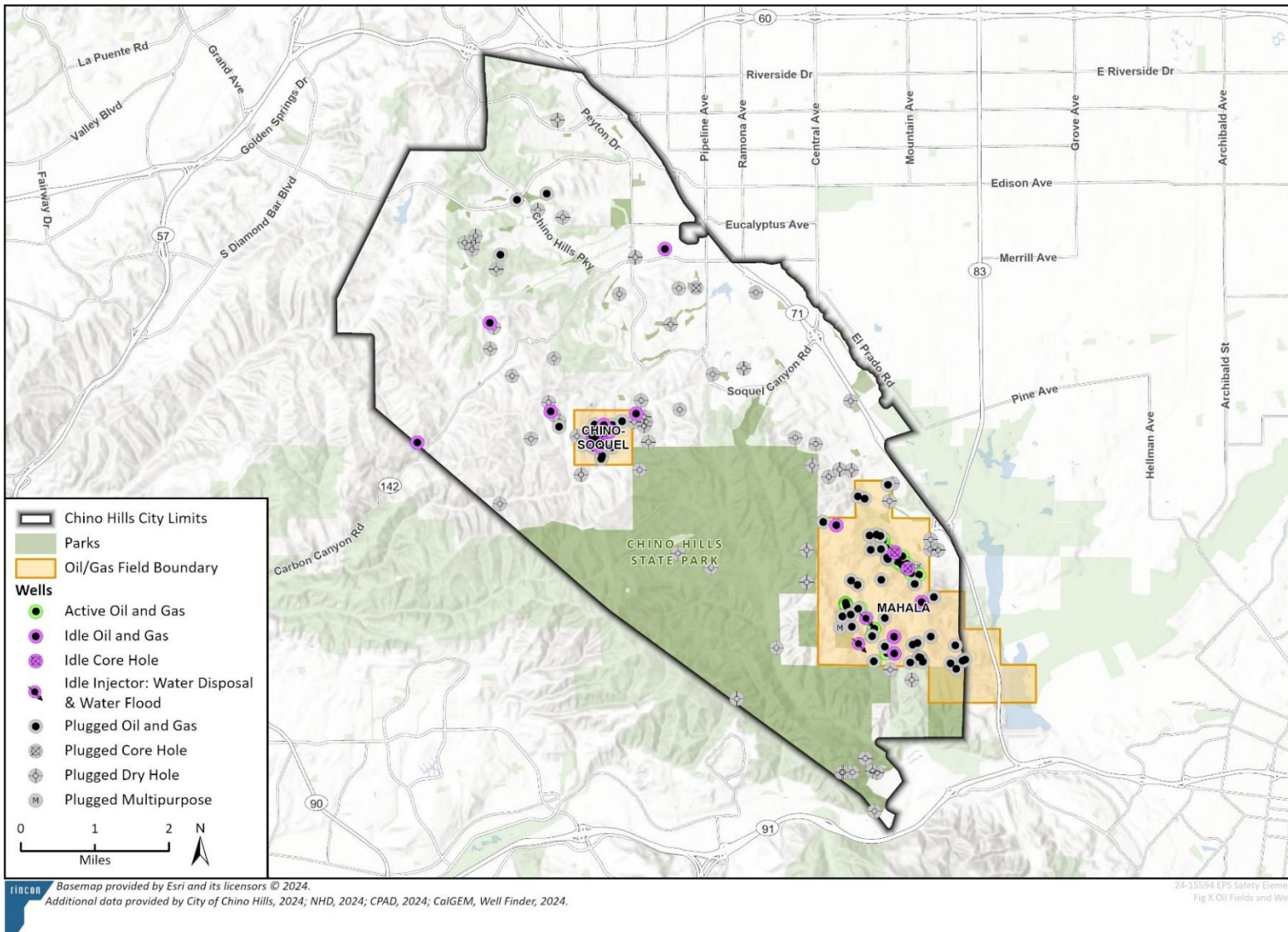


Figure 5-11 – Oil Fields Map

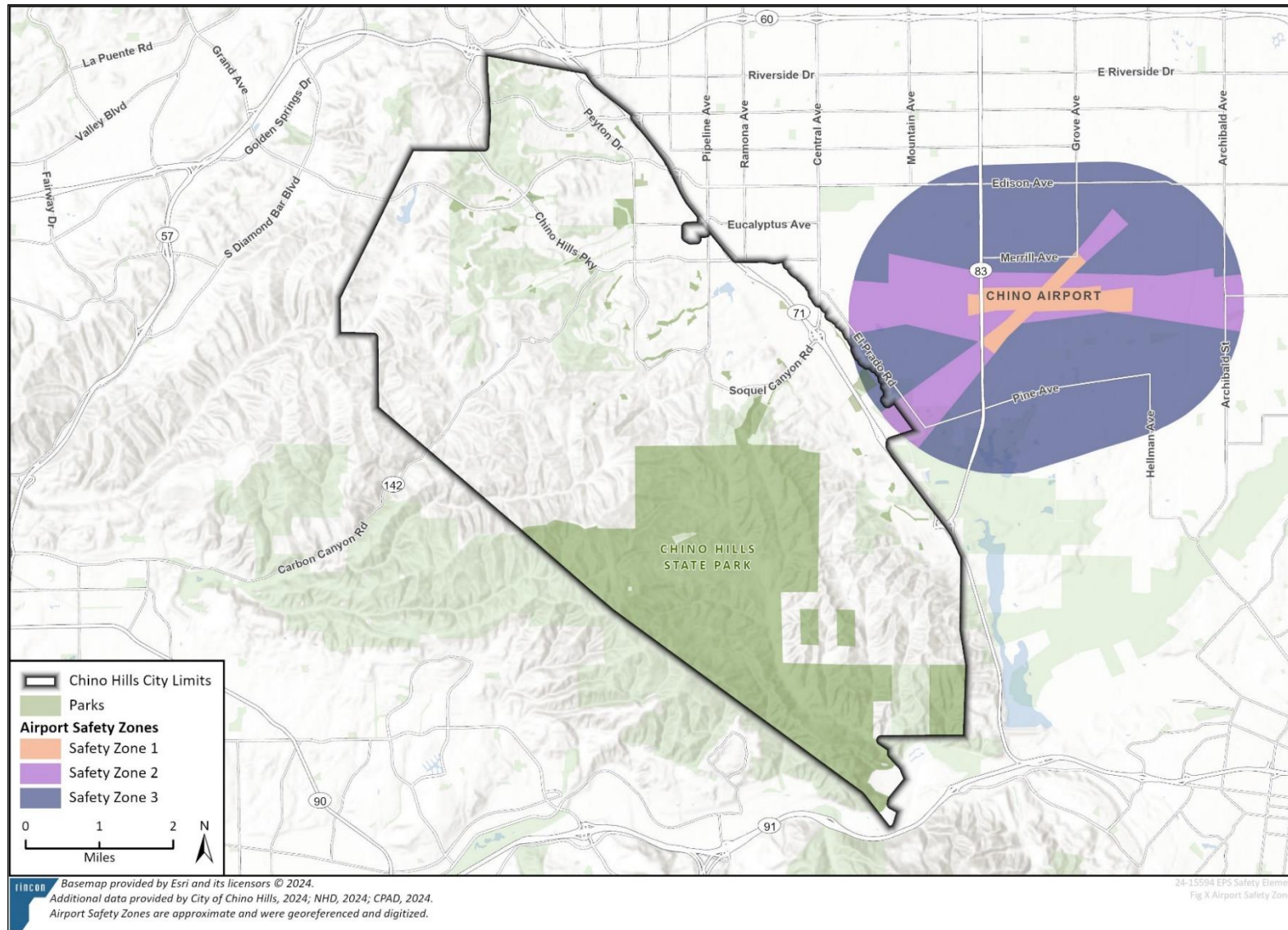


Figure 5-12 – Chino Airport Safety Zones

F. SAFETY PLAN

This section of the Safety Element discusses the programs and services the City has in place to reduce risks from natural and human-made hazards to the community.

1. Emergency Operations Plan / Hazard Mitigation Plan

The City of Chino Hills Emergency Operations Plan (EOP) is updated periodically and addresses the City's planned response to emergencies associated with natural, environmental, and human-made disasters. It provides guidance on the response to such emergencies as earthquakes, hazardous materials emergencies, flooding, and wildfires, and identifies City facilities for evacuation shelters.

The City of Chino Hills HMP, which is updated every five years, works in concert with the EOP to proactively identify and address risks from potential natural and human induced hazards. The City of Chino Hills HMP responds to the fact that emergencies or disasters may cause death, leave people injured or displaced, and inflict significant damage to our communities, businesses, public infrastructure, and our environment. A disaster could result in tremendous costs in terms of response and recovery dollars and economic loss.

Hazard mitigation identified in the City of Chino Hills HMP is intended to reduce or eliminate losses of life and property. After disasters, repairs and reconstruction are often completed in such a way as to simply restore areas to pre-disaster conditions. Such efforts expedite a return to normalcy; however, the replication of pre-disaster conditions results in a cycle of damage, reconstruction, and repeated damage. Mitigation is one of the primary phases of emergency management specifically dedicated to breaking the cycle of damage. Hazard mitigation is distinguished from other disaster management functions by measures that make the City development and the natural environment safer and more disaster resilient. Mitigation generally involves alteration of physical environments, significantly reducing risks and vulnerability to hazards by altering the built environment so that life and property losses can be avoided or reduced.

Objectives of the EOP and HMP are to: 1) Significantly reduce loss of life and injuries; 2) Minimize damage to structures and property as well as disruption of essential services and human activities; 3) Increase the emergency management capability of the City; 4) Ensure that the City takes steps to mitigate the risk of a cyber-attack; 5) Protect the continuity of local government to ensure no significant disruption of services during or due to a natural or man-made disaster; 6) Improve community emergency preparedness, collaboration, and outreach with other agencies; 7) Develop and implement mitigation strategies that optimize public funds in an efficient and cost-effective way; 8) Protect the health, safety, and general welfare of the citizens of the City of Chino Hills by ensuring that a reliable and adequate supply of water during drought conditions is available; 9) Protect the health, safety and welfare of the citizens of the City of Chino Hills from terrorist/active shooter situations.

Operation of the EOP and City of Chino Hills HMP is administered by a multijurisdictional Emergency Operations Team, which includes representatives from: the City, San Bernardino County Sheriff's Department, San Bernardino County Office of Emergency Services, CVFD, City of Chino, Chino Valley Unified School District, community members, local utility companies, and Chino Valley Chamber of Commerce.

2. Emergency Preparedness, Evacuation Routes, and Emergency Facilities

Successful implementation of EOP and City of Chino Hills HMP policies is accomplished through emergency preparedness activities, identification of evacuation routes, and designation of emergency facilities to shelter persons and animals during disaster events.

a. Emergency Preparedness

Extensive emergency preparedness information is provided to the community through the City website: <https://www.chinohills.org/77/Emergency-Preparedness>. This information includes a user friendly description of the City Emergency Preparedness Program, which provides emergency preparedness training and information to City staff; coordinates a community informational campaign regarding preparedness; Chino Hills Auxiliary Radio Team (CHART); plans and implements disaster drills in conjunction with other agencies; maintains Emergency Operations Center (EOC) preparedness; maintains emergency shelter, food, water, and equipment supplies.

The website also provides valuable information on what to do before, during, and after an emergency, with specific links for power outages, storm preparedness, flooding, earthquakes, extreme heat, high winds, gas leaks, hazardous material accidents, and wildfires.

Members of the community are encouraged to sign up for emergency alerts through the City e-notify program. E-notifications are sent out to inform the community of police alerts, natural and human induced emergencies, and major road closures.

b. Evacuation Routes

In response to increasing wildfire risk, the state adopted Senate Bill (SB) 99, which amended Government Code (GC) § 65302(g)(5) as follows: *“Upon the next revision of the housing element on or after January 1, 2020, the safety element shall be reviewed and updated as necessary to identify residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes.”*

The state also adopted Assembly Bill (AB) 747 and AB 1409, which amended GC § 65302.15 as follows: *“(a) Upon the next revision of a local hazard mitigation plan, adopted in accordance with the federal Disaster Mitigation Act of 2000 (Public Law 106-390), on or after January 1, 2022, or, if a local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2022, the safety element adopted pursuant to subdivision (g) of Section 65302 shall be reviewed and updated as necessary to identify evacuation routes and their capacity, safety, and viability and evacuation locations under a range of emergency scenarios. A county or city that has adopted a local hazard mitigation plan, emergency operations plan, or other document that fulfills commensurate goals and objectives may use that information in the safety element to comply with this section and, in that event, shall summarize and incorporate into the safety element that other plan or document.”*

To support these evacuation bills, the California Governor’s Office of Planning and Research (OPR) issued the Evacuation Planning Technical Advisory (TA) to guide cities and counties as they update their General Plan Safety Element in accordance with evacuation requirements.

In accordance with SB 99, AB 747, AB 1409, and OPR's Evacuation Planning Technical Advisory, the City conducted an evacuation capacity and emergency access analysis that identifies constraints during evacuations and potential impacts to the roadway network. The City consulted with the California Governor's Office of Emergency Services (CAL OES), Department of Conservation (DOC) – California Geological Survey, and State Board of Forestry and Fire Protection to inform the evacuation and emergency access analysis and to develop strategies to ensure efficient and safe evacuation in the event of a disaster.

The City has designated evacuation routes to move residents out of an impacted area in a disaster or hazard event, as shown in Figure 5-13 – Evacuation Routes. The following highways serve as the City's critical evacuation routes:

- State Route 71
- State Route 142 (Carbon Canyon Road)

In addition, the following local roads complement the highways as important evacuation routes:

- Peyton Drive
- Chino Avenue
- Chino Hills Parkway
- Grand Avenue
- Soquel Canyon Parkway
- Butterfield Ranch Road

The City identified potential shelter locations in the event of a disaster. Residents and visitors in need of shelter following a disaster are encouraged to report first to the shelter closest to them. If that shelter is full, closed, or otherwise unavailable, then residents would be referred to the next closest open shelter.

In compliance with SB 99 (Government Code Section 65302), the City identified residential developments with less than two evacuation routes located within any hazard zone defined in this Safety Element. There are seven neighborhoods in the City that have been identified as having only a single access route, as shown in Figure 5-14 – Single-Access Route Residential Neighborhoods. Policies S-5.2 and S-5.3 address constraints associated with single access neighborhoods.

Pursuant to AB 747 and AB 1409 (Government Code Section 65302.15), the City conducted an emergency evacuation analysis to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. The City evaluated three different evacuation scenarios that included evacuation scenarios associated with 1) a wildfire igniting in Carbon Canyon, 2) a wildfire igniting outside of Carbon Canyon that spreads toward Chino Hills, and 3) an earthquake along the Chino Fault in the southeast area of Chino Hills. Evacuation scenarios included reliance on different evacuation routes, background commute traffic, and roadway capacity. During an actual emergency that necessitates evacuation, evacuation routes are selected based on conditions on the ground and the type of hazard

event. In some cases, even State Route 71 and State Route 142, which function as main evacuation routes in the City, may be unusable. The evacuation scenarios that were selected for analysis are described in greater detail in Appendix C.

These scenarios are intended to model a potential range of different evacuation scenarios, but not all possible scenarios. Emergency evacuations can occur due to any number of events and at any location, beyond those specifically identified in the appendix report. In addition, emergency movement is unpredictable, and the specific conditions of an emergency evacuation could result in evacuation behavior that diverges from the assumptions used in the analysis. This analysis serves only to represent informed estimates of likely potential evacuation scenario footprints and capacity constraints based on available data and does not guarantee that evacuations will follow modeling that is used for analysis purposes. Emergency evacuation assessment is an emerging field, and the legislative requirement does not specify a standard methodology to follow.

The evacuation analysis identified several major roads that are used for evacuation that are congested during peak travel times, even without an evacuation event:

- Grand Avenue between Diamond Bar and Pleasant Hill Drive, west of Chino Hills Parkway
- Carbon Canyon Road between Brea and the Western Hills Country Club
- Several off-ramps from SR 71

In the event of an emergency evacuation, these roads could be over capacity, increasing the time it takes community members to evacuate.

As Chino Hills continues to grow in population, the transportation network could be significantly impacted during a City-wide emergency evacuation, constraining the City's ability to evacuate in a timely manner. As further described in Appendix C, major evacuation routes could be further pushed over capacity in the event of an emergency evacuation, including State Route 71 and State Route 142 (Carbon Canyon Road). Policy S-5.1 through Policy S-5.11 and the associated Actions seek to alleviate these potential evacuation constraints based on the results of the evacuation routes analysis.

When emergencies arise requiring evacuation, egress routes are identified by the City Emergency Operation Team, depending on the location and type of emergency. During the 2020 Blue Ridge Fire, which burned approximately 14,000 acres in the southern portion of the City, residents were notified to evacuate through e-notify, police and fire neighborhood loudspeakers, and door-to-door notification. This evacuation process was effective in protecting all lives and most property from damage. The City law enforcement is responsible for coordinating evacuation procedures, including notifying community members of evacuation orders, communicating recommended evacuation routes, and staffing check points along evacuation routes.

Evacuations in the City are most challenging in the Carbon Canyon area, as identified in the emergency evacuation analysis, Appendix C. This area contains varied topography of canyons and hills, some of the City's oldest housing stock, very narrow and winding streets built before the City's incorporation, and one major route in and out through State Route 142, Carbon Canyon Road. Alternative ingress/egress for the Carbon Canyon area provide

alternative routes for emergency access and evacuation to the east and west of Carbon Canyon, as shown in Figure 5-15 – Carbon Canyon Alternative Evacuation Routes. These alternative routes are controlled by locked gates but can be unlocked by the Chino Valley Fire District and Chino Hills Police Department via Knox boxes. In the event of an emergency requiring evacuation from Carbon Canyon using alternative routes, the City's law enforcement would unlock the gates to the alternative evacuation routes and facilitate evacuation procedures for Carbon Canyon.

The Carbon Canyon Fire Safe Council (CCFSC) is a collaborative group of community members and fire safety officials focused on reducing fire risk and assisting safe evacuation during emergencies. The CCFSC posts evacuation routes for the Carbon Canyon area and information on its website: [Evacuation Guides \(carboncanyonfsc.org\)](http://carboncanyonfsc.org).

To ensure adequate emergency access, all new development in the City is reviewed by the CVFD. Fire access roads are required to comply with CVFD standards, which include the requirement to be constructed of an all-weather hard surface, such as asphalt or concrete, and be a minimum unobstructed width of 26 feet. The road grade shall not exceed twelve percent (12%) maximum, unless otherwise approved by the Fire District. An approved turnaround shall be provided at the end of each roadway in excess of 150 feet in length.

c. Subdivision Review

As required by SB 99, any residential developments in any hazard area that do not have at least two emergency evacuation routes must be identified in this Safety Element.

Assembly Bill (AB) 2911 added Section 4290.5 to the Public Resource Code, which requires the California Board of Forestry and Fire Protection (the Board), in consultation with the State Fire Marshal and the local jurisdiction, to identify existing subdivisions with more than 30 dwelling units located in the SRA or LRA Very High Fire Hazard Severity Zone, identified pursuant to Section 51178 of the Government Code, without a secondary means of egress route that are at significant fire risk.

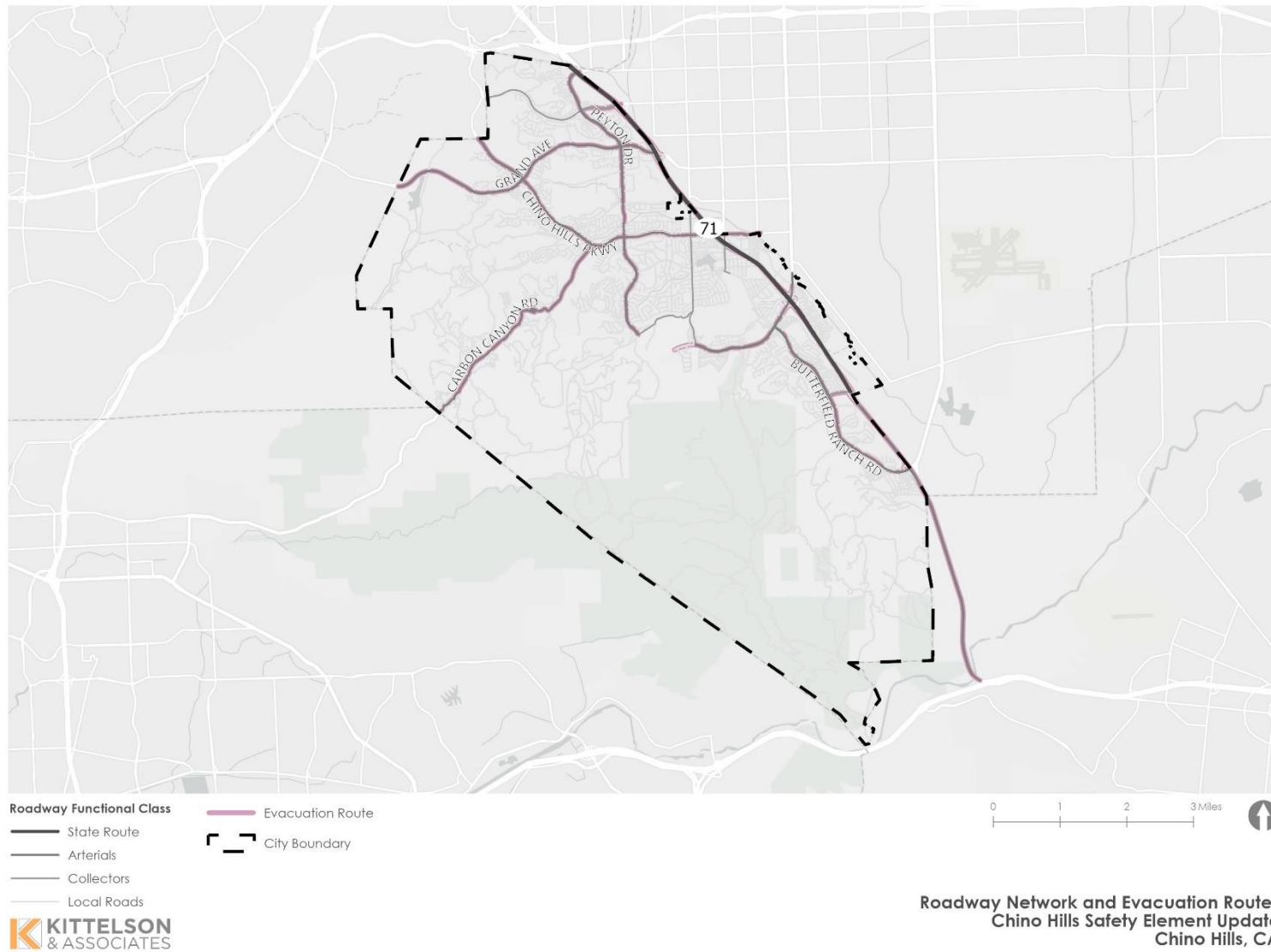


Figure 5-13 – Evacuation Routes

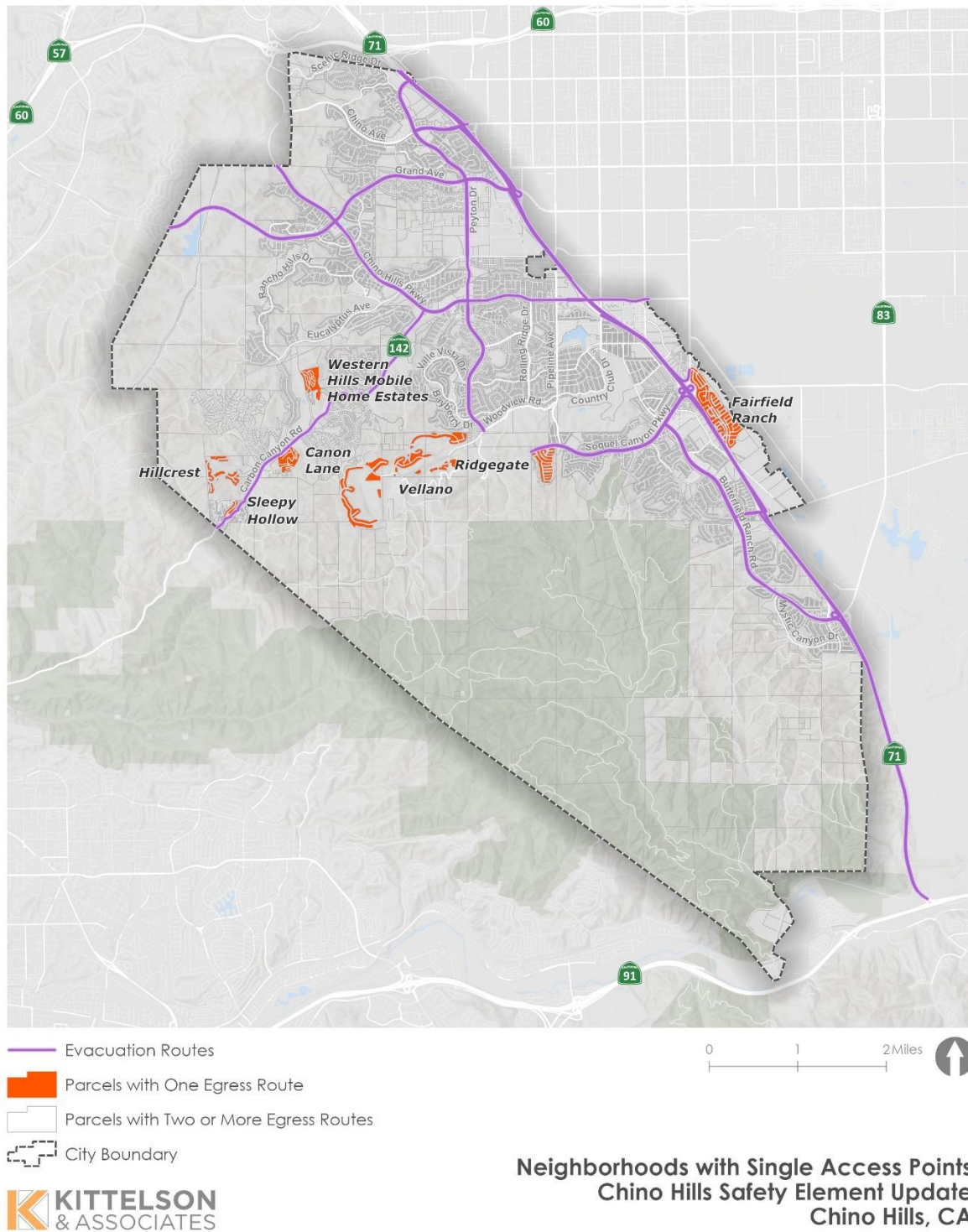


Figure 5-14 – Single-Access Route Residential Neighborhoods

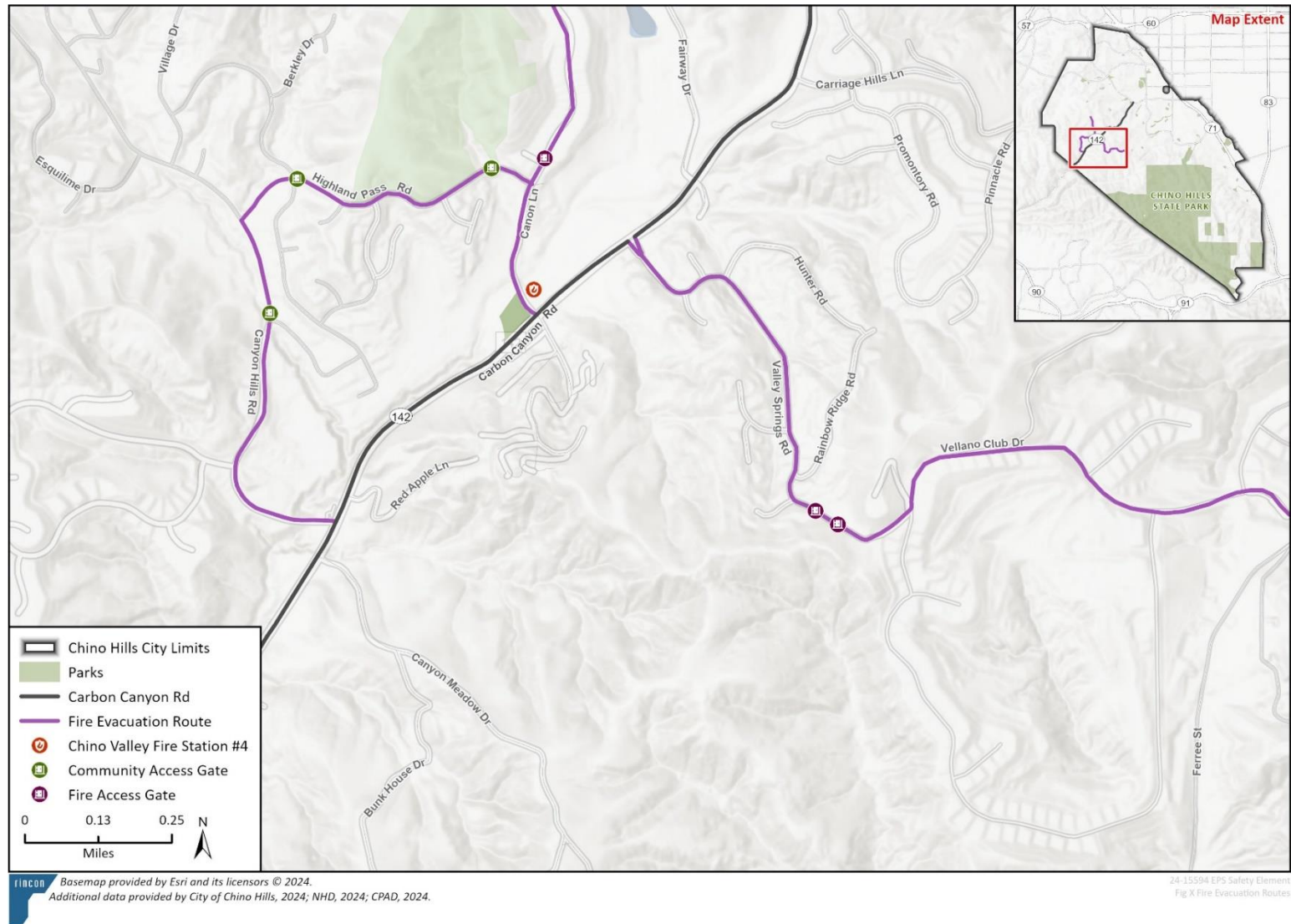


Figure 5-15 – Carbon Canyon Alternative Evacuation Routes

d. Emergency Facilities

Personnel from the Community Services Department are trained in shelter management and are prepared to manage shelters for both persons and animals. All of the City's recreation centers and schools have been designated as shelters and are supported by the American Red Cross (ARC).

3. Geologic Hazard Overlay District

The Geologic Hazard Overlay district was created to provide greater public safety by establishing review procedures and setbacks for areas that are subject to potential geologic problems such as ground shaking, earthquake faults, liquefaction, and landsliding. The Geologic Hazard Overlay District applies to Chino Hills fault hazards and areas prone to landslides, liquefaction hazards, and other geologic hazards. These geologic hazard areas are delineated in Figure 5-1 – Active and Potentially Active Faults Affecting Chino Hills, Figure 5-2 – Seismic Hazards Earthquake Rupture, Figure 5-3 – Liquefaction Susceptibility Seismically-Induced Landslide Hazard Zones, and Figure 5-4 – Canyons in the City of Chino Hills.

4. Flood Hazard Overlay District

The Flood Hazard Overlay District was created to provide greater public safety by establishing review procedures and setbacks for areas that are subject to potential flooding problems such as storm flooding and inundation areas. These flood hazard areas are delineated in Figure 5-6 – Flooding and Inundation Zones and Figure 5-7 – FEMA Flood Map.

5. Fire Hazard Overlay District

Under state law (Government Code Sections 65302 and 65302.5), the City of Chino Hills General Plan must address the risk of fire in LRAs within the City's jurisdiction. Consistent with state law, the City of Chino Hills has adopted a Fire Hazard Overlay map that identifies areas in the City subject to wildland fire hazards, as well as areas not subject to wildland fire hazard, shown in Figure 5-8 – City of Chino Hills Fire Hazard Overlay District.

Within the Fire Hazard Overlay District, the City establishes standards to protect structures and City residents from the potential hazards associated with wildland fires. These standards, which are promulgated in Chapter 16.22 “Fire Hazard Overlay District” of the Municipal Code, establish regulations for:

- Fuel modification areas for development projects
- Maintenance of fuel modification areas
- Construction requirements
- Building Separations
- Vehicular access to accommodate firefighting vehicles and apparatus.

a. Fire Suppression Capabilities

As a fire authority for the City, the CVFD provides fire suppression, fire prevention, and paramedic services. The CVFD also provides fire services to the City of Chino and its sphere

of influence. Within Chino Hills and Chino, the CVFD operates seven fire stations, a training facility, and administrative offices. In addition, an eighth fire station is currently in the planning process. A description of these facilities is provided in Table 5-2 – Chino Valley Independent Fire District Facilities.

Table 5-2 – Chino Valley Independent Fire District Facilities

Facility Name	Location	Description
Fire Administration	14011 City Center Drive Chino Hills	The building houses the offices of the Fire Chief, Deputy Chief, Fire Marshal, Fire Prevention, and Administrative Staff.
Station 61	5078 Schaefer Avenue Chino	The station covers the central portion of the Fire District service area. Currently, the station houses a Paramedic Engine Company staffed with four personnel.
Station 62	5551 Butterfield Ranch Road Chino Hills	Currently, the station houses one Paramedic Truck Company staffed with four personnel and one Battalion Chief.
Station 63	7550 Kimball Avenue Chino	The station serves the airport and the expanding Chino "Preserve" development in the eastern Chino area. The station houses a Paramedic Engine Company staffed with four personnel.
Station 64	16231 Canon Lane Chino Hills	The station houses a Paramedic Engine Company, staffed with four personnel.
Station 65	12220 Ramona Avenue Chino	The station houses a Paramedic Engine Company staffed with four personnel. It provides service to the northern end of Chino.
Station 66	13707 Peyton Avenue Chino Hills	The station currently houses one Paramedic Engine Company staffed with four personnel. This station primarily responds to calls in the northwest portion of the Fire District.
Station 67	5980 Riverside Drive Chino	The station houses a Paramedic Engine Company staffed with four personnel.
Training Facility	5092 Shaefer Avenue Chino	The Training Facility serves as a centralized location to conduct training for all Fire District personnel.
Station 68 (Planned)	Soquel Canyon Parkway and Pipeline Avenue Chino Hills	This station is planned to be strategically located in the urban-wildland interface to facilitate a quicker response and deployment of resources during wildland fires. The addition of a fourth fire station in Chino Hills will also improve response times and provide needed resources to draw from during emergency incidents throughout the Chino Valley.

The CVFD participates in the State of California Master Mutual Aid System. In addition, CVFD has cooperative agreements with other local fire agencies.

6. Emergency Medical Services

The CVFD provides advanced life support (ALS) care to Chino Hills, as well as the City of Chino and its sphere of influence. CVFD paramedic facilities are identified in Table 5-2, above. Private ambulance companies also provide emergency transport to Chino Hills.

Nearby hospital facilities that provide emergency medical care on-site include Chino Valley Medical Center in Chino, Placentia-Linda Hospital in Placentia, Montclair Hospital in Montclair, Pomona Valley Hospital in Pomona, San Antonio Community Hospital in Upland, Citrus Valley Medical Center in West Covina, Canyon Ridge Hospital in Chino, and Ontario Medical Center in Ontario.

7. Police Services

Law enforcement services in the City are provided by the Chino Hills Police/Sheriff's Department through a contract with the County of San Bernardino County Sheriff's Department.

The Police/Sheriff's Department operates out of the Chino Hills Police Station, located at 14077 Peyton Drive in Chino Hills. Police efforts in the City are supported by a Neighborhood Watch program, which is a cooperative effort between the City, the Police/Sheriff's Department, community members, and Homeowners' Associations, where appropriate. Overall, the City has a low crime rate when compared to the county, the state, and the nation.

G. SAFETY ELEMENT GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions support the City of Chino Hills Safety Plan and its vision to protect the community from unreasonable risks caused by natural and human-made hazards. Additional policies related to mitigating natural and manmade hazards can be found in the Chino Hills Hazard Mitigation Plan.

Policies herein are consistent with the requirements of California Government Code Section 65302(g) and are based on CAL FIRE's General Plan Safety Element Assessment and recommendations from CAL FIRE and the California State Board of Forestry and Fire Protection. Rincon did not develop original policies to mitigate wildfire.

Goal S-1: Provide Adequate Emergency Service

Policy S-1.1: Ensure that new development has sufficient fire protection, police, and emergency medical services available.

Action S-1.1.1: Require the review of development proposals to determine impacts on emergency services and ensure developments meet appropriate safety standards.

Action S-1.1.2: Regularly assess emergency service response times to ensure a safe and secure environment for people and property in the community.

Action S-1.1.3: Require all safety personnel meet minimum training requirements set forth by state and federal guidelines.

Policy S-1.2: Maintain and update the City Emergency Operations Plan (EOP) and City of Chino Hills Hazard Mitigation Plan (HMP), as required, to respond to extraordinary emergency situations associated with natural disasters, man-made disasters, technological incidents, and national security emergencies.

Action S-1.2.1: Provide for effective life safety measures and reduce property loss.

Action S-1.2.2: Provide for the rapid resumption of impacted businesses and community services.

Action S-1.2.3: Provide for accurate documentation and records required for cost recovery efforts from federal, state, and any other appropriate agencies.

Action S-1.2.4: Utilize water reservoirs, other smaller ponds, and swimming pools in the City as water sources for fire-suppression, if necessary.

Action S-1.2.5: Educate residents on how to prepare for multiday (three days or more) power outages.

Action S-1.2.6: Provide information to residents about how to shut off domestic gas supply in cases of emergency.

Action S-1.2.7: Continue to provide current and extensive emergency preparedness information on internet, social media, and other communication networks to maximize community outreach.

Action S-1.2.8: Collaborate with local, regional, and state emergency management, law enforcement, and fire agencies when updating the City's EOP, City of Chino Hills HMP, and other plans related to emergency preparedness and response.

Goal S-2: Educate At-Risk and Underserved Communities

Policy S-2.1: Develop a targeted outreach program for vulnerable populations (including non-English speakers, outdoor workers, non-white communities, individuals with chronic health conditions, seniors, persons with a disability, and homeless individuals) to educate them on how to prepare for and recover from disasters and climate change effects.

Action S-2.1.1: Ensure emergency preparedness information, including printed material, radio broadcasts, video, websites, and other media, is available in all languages spoken by at least 5% of the population.

Action S-2.1.2: Develop and annually update a list of languages spoken by at least 5% of the population, using data provided by the United States Census Bureau American Community Survey.

Action S-2.1.3: Engage community organizations and community partners on an annual basis to educate and distribute emergency response and preparedness information (such as evacuation procedures, evacuation routes, emergency notification protocol, home hardening tactics, etc.) to underserved and at-risk populations.

Policy S-2.2: Develop an outreach strategy to inform the community on climate change impacts.

Action S-2.2.1: Include Alerts for High-heat Days in the City's Emergency Alerts, including instructions for location of resiliency hubs, cooling centers, and self-care steps.

Action S-2.2.2: Educate those who use active transportation (bicycle and pedestrian), outdoor workers, low-income households, and seniors, about heat illness prevention and treatment.

Action S-2.2.3: Partner with existing public health community outreach and engagement efforts to spread greater awareness of the impacts of climate change.

Goal S-3: Increase the City's Climate Resilience

Policy S-3.1: Identify and implement strategies to reduce water demand and support community water saving measures.

Action S-3.1.1: Continue to implement water conservation provisions. Distribute educational outreach materials to spread awareness of the City's water saving programs and rebates.

Action S-3.1.2: Require the use of alternative sources of water, such as greywater, rainwater, air conditioning condensation, and foundation drainage for new development.

Policy S-3.2: Support greater resilience, redundancy, and reliability of local and regional infrastructure and services through collaboration, coordination, and implementation.

Action S-3.2.1: Assess critical facilities, including those for first responders and critical service providers, to determine retrofits needed for long-term resilience to climate change-affected hazards, including flooding and landslides, increased wind/storm events, an increase in high heat days, and/or wildfire.

Action S-3.2.2: Develop education and training resources for property owners and developers for implementing street trees, bioswales, understory planting, and green roofs that provide shading, mitigate wind, tolerate drought, resist fire, and include fire resistant landscaping areas and street trees, as part of cooling and resilience strategies in public and private spaces. Require the addition of shade structures in public spaces.

Action S-3.2.3: Distribute information on climate change impacts to the community with adapted communications for vulnerable populations, including but not limited to, actions residents can take to reduce exposure to unhealthy conditions associated with flood damaged properties, extreme heat, and poor air quality days.

Action S-3.2.4: Increase the capacity/resilience of vulnerable populations by ensuring they have a role in decision-making surrounding climate change in their communities, particularly within the Carbon Canyon and Los Serranos neighborhoods. Partner with community organizations to increase participation in community outreach events and planning efforts related to climate change planning and resilience.

Action S-3.2.5: Site new essential public facilities and infrastructure outside of the most up to date High and Very High Fire Hazard Severity Zones and FEMA Flood Hazard Zones, when feasible.

Action S-3.2.6: Require alternatives to air conditioning for public facilities such as ceiling fans, air exchangers, increased insulation, and low-solar-gain exterior materials to reduce peak electrical demands during high heat events to ensure reliability of the electrical grid.

Policy S-3.3: Protect energy infrastructure and increase redundancy of energy storage and distribution systems.

Action S-3.3.1: Pursue funds to establish sustainable power sources to provide redundancy and continued services for critical facilities during periods of high demand, such as extreme heat events.

Action S-3.3.2: Identify targeted and sustained funding sources to improve access to solar with battery backup to blackout -proof the homes of vulnerable populations.

Action S-3.3.3: Explore the feasibility of installing self-sufficient energy systems, such as microgrids, at city-owned facilities to minimize service disruptions during power outages triggered by a climate event.

Action S-3.3.4: Educate property owners on how to implement weatherization retrofits, adequate cooling, and air filtration, and publicize available assistance programs.

Action S-3.3.5: Retrofit all critical facilities with adequate cooling and air filtration.

Policy S-3.4: Utilize natural and recreational open space and parks to reduce extreme heat and flood impacts.

Action S-3.4.1: Maintain the City's large contiguous greenspaces wherever possible for greater cooling magnitude and extent. Require expansion of these areas adjacent to large-scale development projects in compliance with the Land Use and Conservation Elements of the General Plan.

Action S-3.4.2: Identify opportunities to increase urban tree canopy and maintenance projects in coordination with existing efforts. Increase use of drought tolerant and native plants in landscaping.

Action S-3.4.3: Restore degraded ecosystems to enhance the natural adaptive capacity of biological communities that are vulnerable to the effects of climate change.

Action S-3.4.4: Develop an outreach program focused on vulnerable populations that provides information on staying healthy and safe before, during, and after climate hazard events.

Action S-3.4.5: Develop a program to increase tree canopy coverage in Chino Hills to contrast urban heat island effect and reduce heat inequality, focusing on areas with a tree equity score below 80, such as Los Serranos.

Policy S-3.5: Develop short-term and long-term strategies to address climate change impacts related to wildfire, extreme heat, flooding, and drought.

Action S-3.5.1: Develop a climate action plan that includes climate change projections and policies and programs to reduce impacts of climate change and address climate adaptation.

Action S-3.5.2: Incorporate climate change projections in future resource conservation plans and land use plans, including research and monitoring plans.

Action S-3.5.3: Use the most recent available data to assess climate change impacts that may affect the City, including wildfire, extreme heat, flooding, and drought.

Action S-3.5.4: Convene a climate change task force to strategize and support implementation of climate related programs.

Goal S-4: Protect City Infrastructure and Facilities

Policy S-4.1: Continue to mitigate the risk of a cyber-attack and deter physical threats.

Action S-4.1.1: Authorize the City Information Technology Division to regularly update computer software and hardware to keep the network secure.

Action S-4.1.2: Authorize the City Facilities Division to strengthen the physical security at all City facilities by ensuring that only the proper personnel have access.

Goal S-5: Maintain a Safe and Efficient Evacuation Network

Policy S-5.1: Ensure the Chino Valley Fire District has complete access to all locations in the City, including gated residential communities and critical infrastructure.

Action S-5.1.1: Require that all homes and businesses have visible street addressing and signage. Review the feasibility of adopting a standardized street-addressing system.

Action S-5.1.2: Ensure roads used for emergency access are properly maintained and free of obstructions.

Action S-5.1.3: Install lighting and clear signage on emergency access routes.

Action S-5.1.4: Require all gated communities and buildings to have a KNOX box or other emergency access system to ensure quick emergency response.

Policy S-5.2: Improve emergency access and evacuation capacity for neighborhoods that have a single ingress/egress.

Action S-5.2.1: Develop and deploy evacuation and/or alternative emergency access route alternatives for single-access neighborhoods.

Action S-5.2.2: Designate and publicize evacuation routes for individual neighborhoods; including existing pedestrian pathways.

Action S-5.2.3: Instruct residents to take only one or two vehicles (based on household size) to reduce the number of evacuating vehicles. Offer offsite parking facilities to safely store secondary vehicles in advance of an emergency event.

Action S-5.2.4: Implement early evacuations under high-risk conditions for vulnerable communities with limited egress routes, including single-access neighborhoods.

Policy S-5.3: Prioritize engagement with single-access neighborhoods and high wildfire risk areas, including education on home retrofits, meeting current standards on structure hardening and road standards, proactively enforcing defensible space standards, and conducting emergency preparedness trainings.

Action S-5.3.1: Conduct targeted evacuation outreach and communication for single-access neighborhoods and neighborhoods in the Fire Hazard Overlay District to educate residents on their evacuation zone, nearby emergency shelters, and plan evacuation routes. Outreach and communication should include in-person, print, and digital outreach methods, and should utilize available neighborhood-specific communication methods, including homeowners associations, Nextdoor, Ring Neighborhoods, school notification systems, etc.

Action S-5.3.2: Educate and inform residents in single-access communities to maintain emergency supplies for at least 3 - 10 days.

Action S-5.3.3: In coordination with the Chino Valley Fire District and Chino Hills Police Department/San Bernardino County Sheriff's Department, conduct regular evacuation trainings with single-access community homeowner associations and residents.

Action S-5.3.4: Maintain critical evacuation routes and emergency vehicle access.

Policy S-5.4: Increase evacuation capacity and efficiency throughout the City.

Action S-5.4.1: As part of updating and maintaining the Emergency Operations Plan, analyze the feasibility of implementing the following traffic management strategies to increase evacuation capacity and efficiency:

- Reverse one or more lanes of highway to accommodate an increased flow of traffic in one direction.
- Redirect all lanes of a designated evacuation route to accommodate rapid evacuation from a city or region.
- Temporarily close inbound travel lanes on selected unlimited access arterials (such as parkways and boulevards) to allow outbound traffic to utilize these lanes during evacuation.
- Close inbound lanes on highways utilized for evacuation routes to prevent drivers on these routes from entering the City while evacuation is underway.

- Minimize left-turn movements along evacuation routes and on roads leading to evacuation routes.
- Increase the green time and/or progression band for through movements leading out of an evacuation zone.
- Install signal battery backups in case signal operations need to be maintained during a power outage.
- Develop a plan for using channeling devices, static signs, and coning strategies to manage intersection flow during power outage if the signals lack power.
- Determine how to stage tow trucks at bottleneck locations along evacuation routes to help detect and clear minor crashes and maintain traffic flows.
- Prioritize adding additional access to communities which are currently served by only one or two access points.
- Develop transportation solutions such as the use of a bus system for evacuating individuals with special needs (such as those with mobility limitations) and/or evacuating larger groups of people in fewer vehicles.
- Establish traffic control points (i.e., locations along designated evacuation routes with emergency management personnel) to maintain a greater degree of evacuation management. These locations could enhance the efficiency of an evacuation, reduce public confusion, and allow increased operational flexibility during an evacuation.

Policy S-5.5: Improve evacuation communication protocols among local agencies, organizations, and the general public.

Action S-5.5.1: Strengthen and maintain communication among coordinating emergency event agencies. This could be achieved through systems such as the Public Information Emergency System and Emergency Satellite Communications.

Action S-5.5.2: Use variable message board equipment and targeted installation of permanent dynamic message signs on evacuation routes to improve communication and reduce public confusion.

Action S-5.5.3: Implement a traffic control center to coordinate all evacuation activities. This center would have up to the minute reports on traffic patterns and can communicate directly with emergency officers via broadcast media, social media, and other emergency communications channels (e.g., County Telephone Emergency Notification System and San Bernardino Ready App) to let drivers know about roadway congestion and conditions, and direct them to alternate routes.

Action S-5.5.4: Install traffic counters and/or CCTV cameras on freeways, which can help assess traffic flow, volume of vehicles evacuating, and monitor incidents during emergency evacuation events.

Action S-5.5.5: Implement highway advisory radio to provide information regarding primary and secondary evacuation routes and incidents to the public.

Action S-5.5.6: Consider implementing a system of pre-defined evacuation zones. Pre-defined evacuation zones can provide a common reference system for first responders and the community.

Policy S-5.6: Maintain and update the City's Evacuation Plan, in conjunction with the Emergency Operations Plan, at minimum, every eight years.

Action S-5.6.1: Establish minimum standards for evacuation and emergency vehicle access to and from new or planned development, including regulations for weight and vertical clearance, dead-end, one-way, and single-lane conditions.

Policy S-5.7: Ensure well-maintained evacuation routes that are clear of obstruction.

Action S-5.7.1: Prioritize Capital Improvement Program (CIP) projects for roadways that serve as evacuation routes or require roadway improvements to better function in the event of an evacuation.

Action S-5.7.2: Require new development to provide adequate access (ingress, egress) and a minimum of two roadways with widths and lengths in compliance with California Building Code Chapter 7A requirements.

Action S-5.7.3: Maintain evacuation roadways and shoulders to clear them of trees, vegetation, and debris that would block travel lanes and shoulders for evacuating and emergency operation vehicles.

Policy S-5.8: Coordinate with specialized organizations such as hospitals, medical associations, public service organizations, public health staff, and other providers or community groups to provide evacuation assistance to vulnerable populations.

Action S-5.8.1: Incorporate the following considerations that vulnerable populations may require during evacuation planning and outreach efforts:

- Tailor evacuation outreach and communication protocols for those who are visually or hearing impaired, taking into consideration that people who are blind or partially sighted may depend on their guide dogs and/or others to lead them to safety and that people with hearing difficulties may require special arrangements to receive evacuation warnings, such as visual aids and maps.
- Partner with neighboring cities/private and non-profit agencies to provide adequate paratransit services for those who are mobility impaired.
- Publicize evacuation methods for people without vehicles, including emphasizing the importance of carpooling with neighbors or other community members and providing information on transit routes and transit stops.

- Provide bilingual or multilingual materials to support communication with non-English speaking populations during evacuation.
- Communicate in advance the location and availability of hospitals or facilities with emergency/life-sustaining medical equipment such as a dialysis machine.
- Arrange for food, shelter, and transportation for unhoused (homeless) population. Offer age-appropriate emergency and evacuation information to homeless children.

Action S-5.8.2: Identify areas of the City with a greater percentage of senior adults, persons with a disability, mobility impaired, and people with medical conditions, and people without vehicles.

Policy S-5.9: Develop and maintain a database of households with special evacuation needs. Ensure the database is accessible to emergency operation centers, including in the event of loss of internet or power.

Action S-5.9.1: Partner with Community Connect and other local service providers and advocacy organizations to help identify and document households with special evacuation needs.

Policy S-5.10: Coordinate with Chino Valley Unified School District on their evacuation plans and protocols.

Action S-5.10.1: Identify safe evacuation routes from school campuses to designated emergency centers.

Action S-5.10.2: Encourage regular evacuation trainings with School District personnel.

Action S-5.10.3: Update the City's Emergency Operations Plan to incorporate school evacuations into the City's evacuation plan.

Action S-5.10.4: Work with School District personnel to disseminate information on evacuation procedures and evacuation routes to students and their families.

Policy S-5.11: Establish evacuation procedures for households with large pets that include clear guidelines on when and how large animals should be evacuated in the event of a disaster.

Action S-5.11.1: Designate evacuation routes for large animals and identify facilities that can serve as temporary shelters for large animals.

Action S-5.11.2: Prepare mobile veterinary teams that can provide emergency care in the event of an emergency requiring evacuation.

Action S-5.11.3: Develop a large animal registration system to distribute evacuation information and evacuation orders for large animal owners.

Goal S-6: Protect the Community from Geologic Hazards

Policy S-6.1: Regulate development in high-risk seismic, landslide, and liquefaction hazard areas to avoid exposure to hazards.

Action S-6.1.1: Observe prudent land use planning in the Fault Hazard Zone delineated for the Chino Fault, restricting high occupancy and emergency operation facilities, and limiting residential development.

Action S-6.1.2: Conduct site-specific studies on soils, seismicity, and groundwater conditions to evaluate the potential for liquefaction and related ground failure phenomena in canyon floors and the alluvial flatlands.

Action S-6.1.3: Regulate development of utility structures over 100 feet in height in geologic hazard areas adjacent to existing or planned sensitive land uses.

Action S-6.1.4: Continue to regularly update Building Codes to provide for seismic safety design.

Action S-6.1.5: Support and educate property owners on seismic retrofitting and strengthening of existing facilities to minimize damage in the event of seismic or geologic hazards.

Action S-6.1.6: Discourage any grading beyond that necessary to create adequate and stable building pads.

Action S-6.1.7: Require all development to conform to the grading guidelines contained in the City Development Code.

Action S-6.1.8: Require fault zones to be clearly identified on tract and parcel maps to increase public awareness of fault rupture hazards.

Action S-6.1.9: Within geologic hazard overlay areas, require developments to minimize landscape irrigation.

Action S-6.1.10: Require new development to minimize peak runoff as required by the Municipal Code.

Goal S-7: Protect the Community from Flooding Hazards

Policy S-7.1: Restrict development in areas prone to flooding or within dam inundation areas.

Action S-7.1.1: Prohibit development of residential, commercial, industrial, and emergency facilities in the 100-year flood plain and on canyon floors.

Action S-7.1.2: Discourage development of emergency facilities in dam inundation areas.

Action S-7.1.3: Coordinate with the U.S. Army Corps of Engineers and the San Bernardino County Flood Control, Orange County Flood Control District, and Water Conservation District to keep current on Prado Dam Basin conditions and plans.

Action S-7.1.4: Provide accurate and up-to-date maps of areas exposed to 100-year and 500-year flood hazards, based on National Flood Insurance Program criteria.

Policy S-7.2: Maintain adequate flood control facilities.

Action S-7.2.1: Maintain and implement the City Master Drainage Plan.

Action S-7.2.2: Require that the potential environmental drainage impacts of new construction be assessed and mitigated, including impacts that privately owned and operated storm drains adjacent to slopes and canyon areas would have on City and County-maintained drains.

Action S-7.2.3: Review individual project designs to ensure that proposed drainage facilities will be properly linked with community-wide drainage facilities.

Action S-7.2.4: Coordinate the construction of a comprehensive storm drain system with individual projects in the General Plan area to ensure that all new development will be adequately protected from flooding prior to completion of the backbone system.

Action S-7.2.5: Maintain a schedule for funding of all flood control backbone facilities, including phasing.

Action S-7.2.6: Require property owners to install and maintain storm drains on their properties as necessary to address drainage related to their property.

Action S-7.2.7: Strengthen storm drain maintenance district to prevent local flooding and to prevent mud and debris flows from overtaxing storm drains during strong storms.

Action S-7.2.8: Require measures to be undertaken to control runoff from construction sites.

Action S-7.2.9: Require prompt revegetation and/or construction of newly graded sites to control erosion.

Action S-7.2.10: Limit grading operations during the rainy season.

Action S-7.2.11: Review individual project designs to ensure the stability of slopes adjacent to flood control facilities, which could be blocked due to slope failures.

Goal S-8: Minimize the Risk from Fire Hazards

Policy S-8.1: Actively collaborate with regional, state, and federal fire agencies to coordinate and implement wildfire mitigation measures and fuel load modifications reduction zones, including load clearing, prescribed burns, fire breaks, livestock grazing, and public and private road clearance, and other mitigation activities for areas proximal to the City.

Policy S-8.2: Maintain the water distribution system to deliver the fire flow requirements set in the City adopted Fire Code.

Action S-8.2.1: Ensure adequate fire flow capabilities in the Los Serranos and Carbon Canyon areas, and other sections of the City where deficiencies may occur.

Action S-8.2.2: Replace and upgrade old cast-iron pipelines and/or inadequately sized water mains when street improvements are made.

Action S-8.2.3: Provide for redundant emergency distribution pipelines in areas of potential ground failure or where deemed necessary by the Fire District and City.

Policy S-8.3: Continue to reduce fire risk through City development and operation policies.

Action S-8.3.1: Continue to implement and enforce fuel modification zones.

Action S-8.3.2: Educate residents on how to plant and maintain fire-retardant slope cover to reduce the risk of brush fire in areas adjacent to canyons.

Action S-8.3.3: Continue to provide for public education programs to enhance public awareness of fire safety, including the storage of flammable materials, use of fire-retardant building materials, and vegetation management in the perimeter of structures.

Action S-8.3.4: Coordinate with the Fire District to maintain and update mutual aid agreements with fire agencies from adjacent cities and counties.

Action S-8.3.5: Work with the Fire District to enforce all existing codes and ordinances regarding fire protection, building inspection, and vegetation management.

Action S-8.3.6: Coordinate with Chino Valley Fire District and State Fire Marshall personnel to provide and maintain two points of emergency evacuation, as required by SB 99.

Action S-8.3.7: Coordinate with Southern California Edison to implement an electrical undergrounding plan with a focus on critical evacuation roadways and areas with highest wildfire risk.

Action S-8.3.8: Provide education and training on home hardening strategies and home retrofits to meet current building standards and road standards and proactively enforce defensible space standards.

Action S-8.3.9: Prohibit new and/or intensification of existing general assembly uses in the most up to date Very High Fire Hazard Severity Zones unless it is determined that there is sufficient secondary egress and that adjoining major highways and street networks are sufficient for evacuation, as well as safe access for emergency responders under a range of emergency scenarios.

Action S-8.3.10: Establish fire-smart landscaping standards to increase wildfire resistance for landscaping, such as:

- Develop a list of plants that should not be used in landscaping within the most up to date Fire Hazard Overlay District, and High and Very High Fire Hazard Severity Zones.

- Publish guidelines for strategic placement of fire-safe plants and vegetation maintenance to minimize fire risk.
- Develop vertical clearance standards for landscaping and street trees.

Action S-8.3.11: Develop fuel modification plans for all new developments in SRAs and VHFHSZs.

Action S-8.3.12: Support implementation of recommended projects in the Carbon Canyon CWPP.

Action S-8.3.13: Require fire protection plans for all new development in VHFHSZs.

Policy S-8.4: Conduct comprehensive post-wildfire assessments for fire-damaged areas to reevaluate redevelopment after a large fire.

Goal S-9: Minimize the Risk from Hazardous Materials

Policy S-9.1: Minimize risk to life and property from production, use, and storage of hazardous materials and waste.

Action S-9.1.1: Continue to enforce Fire and Building Code provisions regarding secondary containment; segregation of chemicals to reduce reactivity during a release; sprinkler and alarm systems; and monitoring, venting, and automatic shut-off systems on all new developments.

Action S-9.1.2: Continue to require businesses that use, store, or generate hazardous materials to annually notify the San Bernardino County Department of Environmental Health Services, or appropriate County agency, and to comply with applicable regulations.

Policy S-9.2: Control the transportation of toxic, explosive, and other hazardous materials.

Action S-9.2.1: Require business owners to follow designated hazardous materials transportation routes.

Action S-9.2.2: Coordinate with adjacent jurisdictions to maintain regional objectives for hazardous materials management.

Action S-9.2.3: Regulate and limit the transport of vehicles carrying hazardous materials through the City.

Action S-9.2.4: Support annual checks for leaks of high pressure fuel and natural gas transmission lines.

Policy S-9.3: Monitor and enforce regulations to ensure adequate clean-up of hazardous materials and waste.

Action S-9.3.1: Require all new developments occurring within areas previously utilized for oil production to mitigate any hazards associated with the oil fields.

Action S-9.3.2: Confirm that oil and gas wells in areas proposed for development are abandoned to current standards set by the state.

Action S-9.3.3: Confirm that existing toxics are contained, removed, and/or remediated as required by applicable federal and state standards.



City of Chino Hills

General Plan

PARKS, RECREATION, & OPEN SPACE ELEMENT

The Parks, Recreation, and Open Space Element for Chino Hills addresses the development and management of future park and recreation facilities and programs, and the protection and preservation of open space in the City.

A. PURPOSE OF THE PARKS, RECREATION, AND OPEN SPACE ELEMENT

The Parks and Recreation components of this Element are optional elements, not mandated by §65302 of the *California Government Code*. Inclusion of the Parks and Recreation components in the General Plan reflects the City's commitment to providing abundant and high quality park and recreation facilities for the community.

The Parks and Recreation components incorporate the recommendations of the Parks and Recreation Master Plan for the City of Chino Hills (Parks Master Plan), which was developed as the implementation program for acquisition, development, and use of future park and recreation facilities and programs. The Parks Master Plan was based on information obtained during an extensive community-driven planning process, which included citizen participation through a series of community workshops, online survey, and other web-based and social media communications. This element summarizes the goals and objectives of the Parks Master Plan.

The Open Space component of this element is mandated by §65302 which requires all cities to plan for and manage their open spaces. "Open Space" is broadly defined by §65560 of the *California Government Code* as any parcel or area of land or water that is essentially unimproved and devoted to an open space use. This element focuses on open space for the community's outdoor enjoyment. Other open space resources in the City are addressed by the Conservation Element.

B. CONNECTION TO COMMUNITY VISION

The Parks, Recreation, and Open Space Element supports the City's vision to support a balance of land uses, healthy living, and ample supply of parks, recreational opportunities, and trails. Toward this end, the Parks, Recreation, and Open Space Element focuses on implementing the following five of the City's 20 Vision Statements. (Numbers in parenthesis reference numerical order of Vision Statements as presented in the Vision section of this General Plan.)

1. A Chino Hills that supports a sustainable balance of land uses, open spaces, and infrastructure. (V-5)
2. A Chino Hills that supports healthy living. (V-7)
3. A Chino Hills that continues to provide ample trails, parks, sports fields, and community facilities for enjoyment by the public. (V-9)
4. A Chino Hills that continues to provide a high level of public services and amenities for families and residents of all ages. (V-12)
5. A Chino Hills that supports environmental justice for all ethnic, racial and socioeconomic community members. (V-20).

C. RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Parks, Recreation and Open Space Element identifies park and recreational facilities throughout the City. Parks and open space lands are identified within the Land Use Plan of the Land Use Element. Three categories of parklands are identified: Public Park, Private Park, and Chino Hills State Park. Open space categories include Private Open Space and Public Open Space. This Element focuses on Public Park and Public Open Space lands.

Open Space lands connected to the preservation of aesthetic and natural resources are addressed in the Conservation Element.

D. RELATIONSHIP TO OTHER LOCAL REGULATORY DOCUMENTS

Several City regulatory mechanisms are used to implement the General Plan Parks, Recreation, and Open Space Element on an ongoing basis:

1. **Chapter 3.40.090 of the Municipal Code – Quimby in-lieu fees:** Imposition and implementation of the Quimby in-lieu fee is governed by Chino Hills Ordinance No. 66. (Ord. 109 § 12, 1998). Originally passed in 1975, the Quimby Act (California Government Code §66477) allows cities and counties to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements.
2. **Chapter 16.18 of the Municipal Code – Open Space District:** The City established open space (OS) district to provide public open space areas for active and passive recreational use.
3. **Chapter 16.86 of the Municipal Code – Dedication of Land for Park and Recreation Purposes:** Pursuant to California Government Code §66477, the City established procedures to require the dedication of land for park and recreation facilities or payment of in-lieu fees incident to and as a condition of approval of a Tentative Map or Tentative Parcel Map for certain subdivisions.
4. **Parks and Recreation Master Plan for the City of Chino Hills (2020):** The Parks Master Plan is the City's implementation program for acquisition, development, and use of future park and recreation facilities and programs.

E. PARKS, RECREATION, AND OPEN SPACE ELEMENT ISSUES

Parks, recreational facilities, and open spaces are essential to Chino Hills and its vision for a high quality of life. Issues associated with the provision and maintenance of these essential features include Park and Recreational Facilities, Trails, and Open Space.

1. Park and Recreation Facilities

Chino Hills features 44 parks, five community facilities, with many of the parks and facilities available for rental.

a. City Park Classifications

Parks are classified by type based primarily on their size, function, and character. The City of Chino Hills General Plan describes four park and recreation facility classifications for City facilities: Community Parks, Neighborhood Parks, Nature Parks, and Special Use Facilities.

In addition to these facilities, the City partners with local private, public, and nonprofit organizations to expand available park sites and facilities.

Figure 6-1 is a map showing the location of each park and Figure 6-2 is a matrix that describes size and features of each of the parks and recreation facilities within the City of Chino Hills.

- **Community Parks:** Community Parks provide a broad range of both passive and active recreational opportunities, but their primary purpose is to provide active recreational opportunities for use by a larger segment of the population than Neighborhood Parks. If a Community Park is located within a residential area, it can also serve a Neighborhood Park function and, therefore, is included in the service area analysis for Neighborhood Parks.

Recreation centers are important features in some Community Parks. These are building facilities that contain features such as multi-purpose rooms, classrooms, and offices for recreation staff.

Other facilities often found at Community Parks might include sports fields, amphitheaters, and group picnic areas. Large special events such as concerts and festivals might also be held in Community Parks.

Community Parks are among the most heavily used parks in the City, and they are focal points for a wide variety of community activities from Concerts in the Park to soccer and baseball on lighted fields. There are four (4) Community Parks in Chino Hills: Chino Hills Community Park, Grand Avenue Park, Veterans Park, and English Springs Park.

Chino Hills Community Park contains six ball fields with added features to support soccer and baseball games and practices as well as tournaments. Grand Avenue Park contains a community building and offers significant facilities for organized sports including soccer and basketball. Veterans Park is primarily a large grassy area and is home to the City's annual "Concerts in the Park" program. English Springs Park contains a pond and is primarily used for passive activities.

- **Neighborhood Parks:** Neighborhood Parks are intended to serve City residents who live in close proximity; however, they also contribute to the overall park system available to the entire community. Ideally, everyone in the City would live within convenient walking distance (typically one-half mile) of a Neighborhood Park. This is defined as the "service radius" or "service area" of a Neighborhood Park.

Neighborhood Parks should address daily recreation needs of the surrounding neighborhood. Features of Neighborhood Parks might include playgrounds, multi-purpose open turf areas, picnic tables and/or picnic shelters, walking paths, attractive landscaping, small parking areas, and recreation features such as basketball courts.

There are thirty-two (32) Neighborhood Parks in Chino Hills. They are generally located within or next to residential areas and tend to include a combination of passive and active recreation elements that address daily recreation needs.

- **Nature Parks:** Nature Parks are special passive recreation areas in which native vegetation, natural topography, natural drainage courses, and/or wildlife are key elements. Trails, seating, and interpretive opportunities might be included and use is

generally limited to passive activities. Nature Parks are not usually assigned a service radius for evaluation of park distribution (due to limited sites).

There are five (5) City-operated Nature Parks in Chino Hills: Eucalyptus Nature Park, Hickory Creek Nature Park, Hollow Run Nature Park, Strickling Nature Park, and Walnut Creek Nature Park. These generally are in association with natural features such as hillsides and represent convenient options for appreciating and observing local flora and fauna. Two of the Nature Parks, Hollow Run and Strickling, also offer playground opportunities.

b. Parkland Acreage

Total usable public parkland acreage is about 295 acres, comprised of usable active and passive recreation areas. These areas contain features such as sports fields, picnic areas, playgrounds and/or tot lots, parking, and other support facilities including structures.

PARKS AND FACILITIES

The City of Chino Hills features 44 parks, five community facilities, and 48 miles of trails. It is the mission of the City, in partnership with the community, to continue to develop and maintain the aesthetic beauty of the City, while fostering a safe and family-oriented environment.

For a full listing of park and facility amenities, please visit chinohills.org/ParksandFacilities.

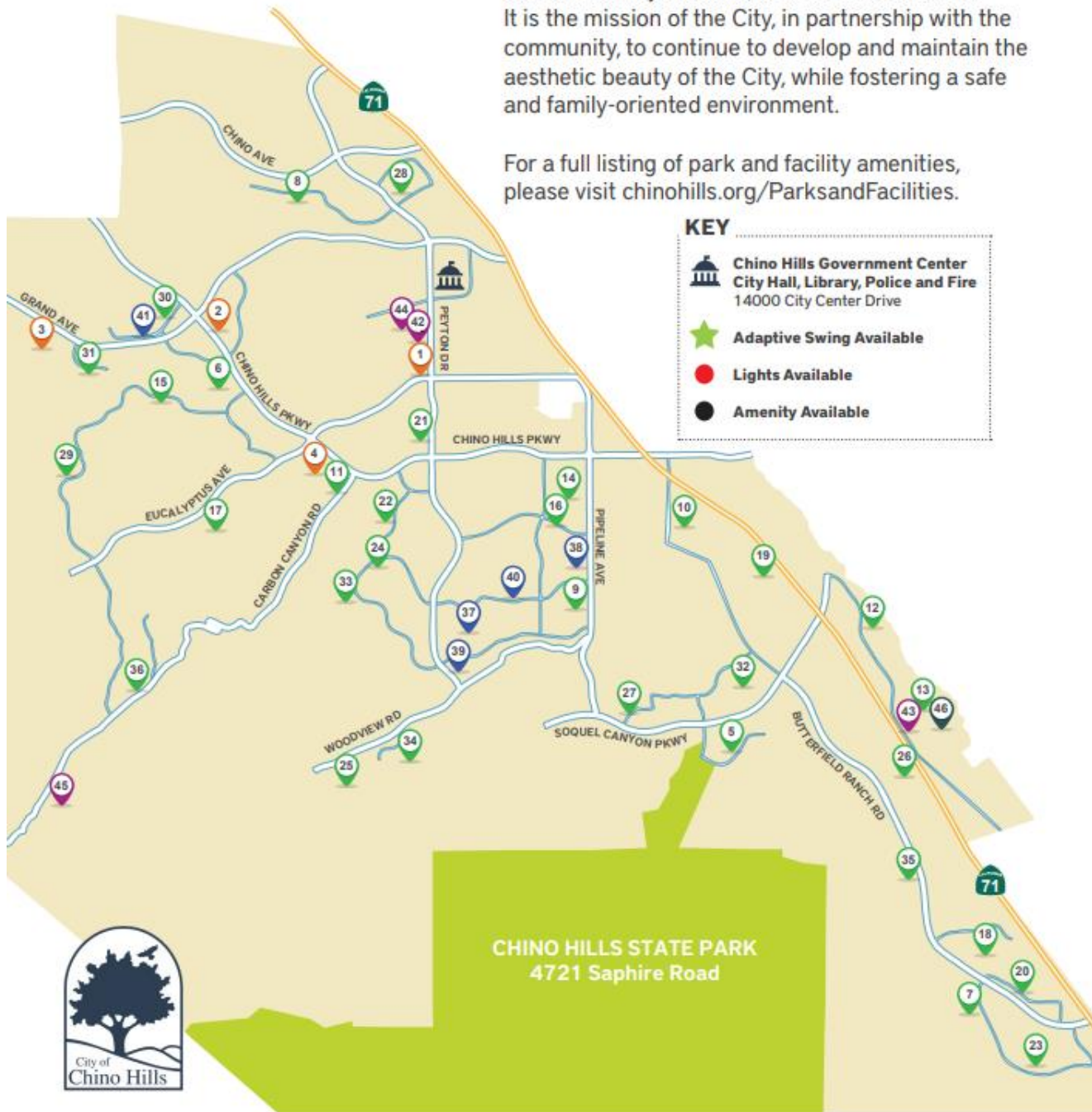


Figure 6-1 – Parks and Facilities Map

		BASEBALL FIELD(S)	BASKETBALL COURT(S)	RENTABLE GAZEBO(S)	OUTDOOR FITNESS STATIONS	PICKLEBALL COURT(S)	PLAYGROUND	RESTROOMS	SOCCER FIELDS	TENNIS COURT(S)	VOLLEYBALL COURT
PARKS & FACILITIES											
▶ COMMUNITY PARKS											
1	Chino Hills Community Park	3280 Eucalyptus Avenue	●				●	●	●		
2	English Springs Park	2201 Grand Avenue		●	●		●	●			●
3	Grand Ave Park & Community Building	1301 Grand Avenue		●	●		★	●	●	●	
4	Veterans Park	14877 Eucalyptus Avenue		●		●		●			
▶ NEIGHBORHOOD PARKS											
5	Alterra Park	4921 Soquel Canyon Parkway		●	●		●	●			
6	Autumn Hill Park	2119 Founders Drive		●	●						
7	Butterfield Park	17671 Mystic Canyon Drive		●	●			●			
8	Calle San Marcos Park	2659 Norte Vista Drive		●			●				●
9	Cinnamon Park	15580 Linden Lane					●				●
10	Covington Park	15138 Monterey Avenue					●				
11	Crossroads Park	2765 Chino Hills Parkway			●	●	●	●		●	
12	Danbury Park	15717 Danbury Way		●	●		●	●			
13	Fairfield Ranch Park	16333 Fairfield Ranch Road	●	●	●		●	●			
14	Glenmeade Park	15055 Oakwood Lane					●				
15	Hidden Hills Park	2000 Rancho Hills Drive		●			●	●			
16	Hilltop Park	15234 Pine Lane									
17	Hope for the Hills Park	1999 Avenida Cabrillo		●			●	●		●	
18	Hunters Hill Park	6070 Natalie Road	●	●			★	●			
19	Los Serranos Park	15450 Pomona Rincon Road		●	●		★	●			
20	Meadows Park	6266 Butterfield Ranch Road			●						
21	Morningfield Park	13250 Lost Trail Drive					●				
22	Morningside Park	15259 Morningside Drive									
23	Mystic Canyon Park & Community Building	6424 Mystic Canyon Drive		●			●				
24	Oak Ridge Park	15444 Valle Vista Drive					●				
25	Overlook Park	2861 Woodview Road									
26	Pinehurst Park	5800 Park Drive		●	●		★	●			
27	Rincon Park	16202 Pinehurst Drive		●			●	●			
28	Skyview Park	3200 Olympic View Drive		●			●				●
29	Sunset Park	1510 Rancho Hills Drive					★	●			
30	Sycamore Glen Park	1952 Sycamore Glen					●				
31	Terrace Park	1531 Morning Terrace Drive		●			●				
32	Torrey Pines Park	5011 Torrey Pines Drive					●	●			
33	Valle Vista Park	15636 Valle Vista Drive					●				
34	Vellano Park	16321 Aviano Lane		●	●	●	●	●			
35	Vila Borba Park	17001 Amadora Drive			●		★	●			
36	Western Hills Park	16230 Canon Lane					●				
▶ NATURE PARKS											
37	Eucalyptus Nature Park	3565 Valle Vista Drive									
38	Hickory Creek Nature Park	15445 Rolling Ridge Drive									
39	Hollow Run Nature Park	15959 Peyton Drive									
40	Strickling Nature Park	3670 Aspen Lane									
41	Walnut Creek Nature Park	14214 Walnut Creek Drive									
▶ FACILITIES											
42	Chino Hills Community Center	14250 Peyton Drive									
43	Chino Hills Skate Park	16333 Fairfield Ranch Road									
44	McCoy Equestrian & Recreation Center	14280 Peyton Drive									
45	Sleepy Hollow Community Building	16801 Rosemary Lane									
▶ PARTNER SITES/FACILITIES											
46	Big League Dreams Chino Hills Sports Park	16333 Fairfield Ranch Road									



FOR MORE INFORMATION
ON RENTAL FACILITIES,
PLEASE CALL
(909) 364-2826
OR SCAN QR CODE.



Figure 6-2 – Parks and Facilities Index

c. City Special Recreational Facilities

Unique and diverse Recreational Facilities are available throughout Chino Hills. These facilities include equestrian centers, trail staging areas, or community buildings (without an associated park).

There are five (5) diverse special Recreational Facilities: Chino Hills Community Center, McCoy Equestrian and Recreation Center, Chino Hills Skate Park, Mystic Canyon Community Building, and Sleepy Hollow Community Building. These are unique facilities that contribute to community identity and a rich quality of life in Chino Hills.

Chino Hills Community Center is a multi-use venue that offers opportunities for senior activities, teen activities, recreation programming, and banquet facilities with a commercial kitchen. It provides conference rooms, a game room, an outdoor gazebo, and a walking loop with exercise equipment.

McCoy Equestrian and Recreation Center is not only a premier equestrian venue, but also the location of many community and private events. The converted barn building is now a picturesque community hall, which is the site of weddings, parties, recreation programs, and meetings. It is a rentable building that offers flexible indoor and outdoor space.

Chino Hills Skate Park is a popular skateboard and skate venue with an adjacent parking lot.

Mystic Canyon Community Building is within Mystic Canyon Park and provides space for City recreation programs and small events.

Sleepy Hollow Community Building offers two (2) spaces for meetings or small events and can accommodate up to 60 guests for dining.

d. Partnership Sites/Facilities

Partnership Sites/Facilities are agreements for shared use between the City and a private or non-profit organization. Many soccer, baseball, and softball teams play year-round at the colorful Big League Dreams Sports Park. Six (6) fields, scaled-down replicas of famous major league stadiums, serve adult softball teams and youth baseball and softball teams. The venue also hosts a multitude of tournaments. Restaurants are located at the core of the complex. Big League Dreams Sports Park is on City-owned property, operated by a concessionaire.

School facilities, discussed below, also provide opportunity for community recreation.

e. Public School Facilities

In almost every Chino Hills neighborhood, school facilities play an important role in family life and routine. In a sense, they are civic gathering places and important resources in the community. There are fifteen (15) public school campuses within Chino Hills, all part of the Chino Valley Unified School District. Many campuses have outdoor play areas and sports fields that are used by the City, by sports organizations, and by Chino Hills residents. Ayala High School and Chino Hills High School both have swimming pools that are used to provide swim classes to Chino Hills residents. Figure 6-3 lists the current recreation facility inventory at public schools in Chino Hills.

CHINO VALLEY UNIFIED SCHOOL DISTRICT RECREATION FACILITY INVENTORY (in Chino Hills)		PARK/ PICNIC		ATHLETIC FACILITIES											
		Multi-Purpose Room/Auditorium	Playground / Tot Lot	Baseball*	Basketball (indoor)	Basketball (outdoor)	Football	Gymnasium	Soccer	Softball (youth)*	Softball (adult)	Swimming Pool	Tennis Court	Volleyball (Grass or Sand)	
SCHOOLS IN CHINO HILLS															
Butterfield Ranch Elementary	6350 Mystic Canyon Dr.	•	1	2P		4									
Canyon Hills Junior High	2500 Madrugada Dr.	•		1+2P		6			3					6	
Chaparral Elementary School	4849 Bird Farm Road	•	1			2									
Chino Hills High School	16150 Pomona Rincon Rd.	•		1P	2	4	1	2		1P					
Country Springs Elementary	14145 Village Center Dr.	•	1			2									
Eagle Canyon Elementary	13435 Eagle Canyon Dr.	•	1	1+3P		3									
Glenmeade Elementary (GATE Magnet)	15000 Whirlaway Lane	•	1	1+2P		4									
Gerald F. Litel Elementary	3425 Eucalyptus Avenue	•	1			2				3P					
Hidden Trails Elementary	2250 Ridgeview Drive	•	1	2P		2									
Los Serranos Elementary	15650 Pipeline Avenue	•	1	1+2P		3									
Michael Wickman Elementary	16250 Pinehurst Drive	•	1	1P		2									
Oak Ridge Elementary	15452 Valle Vista Drive	•	1	3P		1									
Rolling Ridge Elementary	13677 Calle San Marcos	•		2P		3									
Ruben S. Ayala High School	14255 Peyton Drive	•		1P	1	4	1	1	2	2P		1	6	5	
Townsend Junior High School	15359 Ilex Drive	•		3P		9			3	1P				3	
TOTALS FOR SCHOOL RECREATION FACILITIES		15	10	4+24P	3	51	2	3	8	7P		1	6	14	

DEFINITIONS

L = Lighted

P = Practice Field/Court

*If baseball/softball fields are currently not used for games, they are listed as practice fields

Figure 6-3 – Recreation Inventory of Existing Schools in Chino Hills

2. Trails

Residents value the City's trail system, with 48 miles of trails available for use and enjoyment. There are 16 trailheads that lead to 28 trails throughout the Chino Hills community.

The multi-use trail system is available to walkers, hikers, runners, bicyclists, and equestrians.

The City of Chino Hills App is a free downloadable app for smartphones that includes maps to trails located throughout the City and at the adjacent Chino Hills State Park. App users can click on any trail and check difficulty, time estimates for beginning hikers, distance, and even elevation gain. A chart shows the elevation of the entire trail so hikers can decide if they are ready to tackle a hike with multiple climbs in elevation. Trail photos, trailhead locations, access points, parking availability, and connections to other trails are noted and shown on a map. With GPS enabled on the smartphone, users can track their progress on the trail.

Key issues associated with the City's trail system include:

- Ensuring that the City's trails network is successfully planned, developed, programmed, maintained, and promoted so as to provide for the continued enjoyment of the community's natural resources.
- Continuing to enhance and maintain trailheads, including signage and access.
- Maintaining the City's trails in a manner that ensure the safety of users while also protecting the rural nature of the trail areas.
- Actively marketing and promoting use of the trails through educational efforts, dissemination of public informational materials, and programming various recreational activities involving use and enjoyment of the trails.
- Continuing to promote and expand web-based access to the City trail system.

a. Existing Trailheads

All the trails in Chino Hills can be accessed through the following existing trailheads:

- Butterfield Trailhead
- Grand Avenue Park Trailhead
- Madrugada Trailhead
- Overlook Trailhead
- Torrey Pines Trailhead
- Vila Borba Trailhead
- Community Park Trailhead
- Hickory Creek Trailhead
- McCoy Trailhead
- Ridgeview Trailhead
- Veterans Park Trailhead
- Fairfield Ranch Trailhead
- La Sierra Trailhead
- Oakridge Trailhead
- Sunset Trailhead

- Vellano Trailhead

3. Open Space

Residents value the City's rural atmosphere that has been preserved in Chino Hills, with approximately 3,200 acres of designated public open space. In addition, the City has approximately 1,460 acres of designated private open space, and over 7,300 acres of Chino Hills State Park land within its boundaries.

Key issues associated with the City's open space areas include:

- Maintaining the visual quality and rural atmosphere of Chino Hills by protecting the trees, woodland areas, ridgelines, springs, and waterways.
- Protecting large scale natural areas to preserve biological diversity.
- Maintaining wildlife corridors.
- Ensuring developers provide for the long term maintenance and protection of private open spaces.
- Protecting open space resources while still providing ways to utilize these areas for the benefit of the community.

F. PARKS, RECREATION, AND OPEN SPACE PLAN

1. Parks and Recreation Master Plan

As noted above, the Parks Master Plan is the City's implementation program for acquisition, development, and use of future park and recreation facilities and programs. The 2020 Parks Master Plan updated a previous 2007 master plan.

Since 2007, the Parks Master Plan reported that the City aggressively pursued and/or facilitated design and implementation of a significant number of park and recreation facility projects.

a. Parks Added Since 2007

The following is a partial list of park facilities added between 2007 and 2020. Also of note is that in 2012, Crossroads Park was split into two parks, Veterans Park and Crossroads Park:

- **Grand Avenue Park Soccer Fields:** Replaced two existing soccer fields with artificial turf within an existing 12-acre public park, located at 1301 Grand Avenue.
- **Los Serranos Park:** 6 acres of new public park recently completed on Chino Valley Unified School District property adjacent to Chaparral Elementary School. The City of Chino Hills entered into a 30-year agreement with the Chino Valley Unified School District to allow for the construction and use of this new park on district property. In addition, the two agencies have agreed to joint use of the park, and after school and weekend use of three outdoor basketball courts and parking at the school. Amenities include playground, adaptive swing, picnic area, gazebos, basketball court, fitness equipment, and handball court. The park is located at 15450 Pomona Rincon Road, southeast of Chaparral Elementary School on Chino Valley Unified School District property.

- **Overlook Park:** 1.5 acres of new public park. Amenities include picnic tables, BBQs, and a seating area featuring a view of the valleys and mountains. The park is located at 2861 Woodview Drive.
- **Pinehurst Park:** 14 acres of new public park. Amenities include full basketball court, one large rentable gazebo, two smaller gazebos, picnic tables, playground and tot lot, adaptive swings, rock climbing area, and large turf area for open play. The park is located at 5685 Park Drive.
- **Vellano Park:** 3.75 acres of new public park. Amenities include a tot lot, pickleball courts, full basketball court, picnic tables, two gazebos (one which is rentable), trail, large turf area, restrooms, and parking lot. The park is located at 16321 Aviano Lane.
- **Vila Borba Park:** 5.6 acres of new public park. First City dog park consisting of a 0.4 acre small dog area and a 0.7 acre large dog area. Amenities include tot lot, adaptive swing, one rentable gazebo, exercise stations, open turf area, walking paths, restrooms, parking lot. The park is located at 17001 Amadora Drive.

b. Recreational Facilities Added Since 2007

The major recreational facility added since 2007 is the Community Center:

- **Chino Hills Community Center:** 17,000 square feet of public community center building that, as noted above, offers opportunities for senior activities, teen activities, recreation programming, and banquet facilities with a commercial kitchen. The Community Center is located at 14550 Peyton Drive.
- **Converted Vellano Park's one tennis court** into four (4) pickleball courts.
- **Skate Park Improvements:** addition of lighting, bench-seating, and shade covers.

c. 2020 Parks Master Plan Issues

Using community workshops and surveys, key parks and recreation issues addressed through the Parks Master Plan included:

- Is there a need for more parks in the City?
- Are additional recreational facilities needed?
- Can the additional recreational facilities be accommodated within existing park and recreational facilities?
- What are the recreation programs that need to be: Added? Expanded? Discontinued?

In addition to the added park and recreational facilities, noted above, findings of the Parks Master Plan noted that the City has undertaken additions and upgrades not identified in the previous master plan. These undertakings include major park renovations and the addition of

a skate park. The City has also expanded ADA¹ compliant play equipment to ensure park and recreation facilities are available to all.

Within this context, the overall concept for the Parks Master Plan is that it is a fluid document, intended to provide recommendations that may be updated and modified to respond to changing conditions and community needs and desires.

Most of the facilities requested by the community through the Parks Master Plan outreach process are already available at City facilities and shared school facilities, including:

- Aquatic programs are offered at the swimming pools located at Ayala and Chino Hills High Schools.
- Four (4) pickleball courts recently added at Vellano Park, and nine (9) tennis courts currently located at Grand Avenue Park, Hope for the Hills Park, Crossroads Park, and Vellano Park.
- Programs such as art, exercise, and cooking classes are provided based on demand and existing City park and recreation facilities.
- Sports fields are available throughout the City at public parks and at Big League Dreams.
- The City Concerts in the Park activities continue each year, and through the Chino Hills Community Foundation chARTS program, various concerts are offered at the Chino Hills Community Center.
- The City's first inclusive playground was included in the renovation of Crossroads Park.

d. 2020 Park Master Plan Recommendations

Opportunities for future park and recreation facilities identified through the Parks Master Plan include the following:

- **Butterfield Ranch Road Site:** Approximately 20 acres of public open space zoned land exists northwest of Butterfield Ranch Road and Hidden Canyon Lane. This land could be improved as a future a recreation facility. A community center, gymnasium, aquatic center, sports fields, and sports courts are among the amenities that could be considered.
- **Galstian Park Site:** Two (2) acres of land is currently owned by the City and designated as public park. This land, located northwest of Slate Drive and Highview Lane, is an opportunity for a future neighborhood park. Increasing the size of the land by acquiring 4 acres located immediately adjacent and currently designated as private open space, would expand the opportunity to develop the neighborhood park.
- **Strickling Nature Park (existing):** There are 1.4 acres within Strickling Nature Park that are not currently developed for recreation. This area is designated public park and

¹ADA-compliant refers to adherence to the Americans with Disabilities Act (ADA), a set of laws that provide people with disabilities with equal opportunities.

is located northwest of Aspen Lane and Velour Drive. Possible recreation opportunities include picnicking opportunities and a playground.

- **Woodview-Pipeline Site:** This 2.29 acre site, located southwest of Woodview Road and Pipeline Avenue, is zoned as public open space. This site and may be suitable for a variety of elements that are appropriate for a neighborhood park including a community building.

2. Trails Plan

The City has a complete network of trails, which was last updated in 2017.

a. Trail System Benefits

The Trails Plan recognizes that development and maintenance of a comprehensive trails network serves Chino Hills residents in many ways. The City's trail system, as it develops into a comprehensive, linked network, provides increased access to parks and open space within the City, as well as to the state park, neighboring cities, and to other regional trail networks. A comprehensive trails system also provides an opportunity to use alternate transportation within and connecting to the City, rather than relying solely on automobiles. In addition, both individual and organized recreation opportunities can be expanded as trails are linked within and connecting to the City.

Also, health benefits can be enhanced through use of the City's trails for a multitude of activities, including but not limited to, biking (both street and mountain), hiking, running, walking, jogging, and horseback riding. Finally, the beauty and abundance of the City's natural resources can be enjoyed and appreciated while using the trails system.

b. Trail System Maintenance

Proper trail maintenance is a critical aspect of an effective trails system.

Trails within the City's system are maintained by the City based on the following four goals as guiding tenants:

- (1) That trails are safe for users;
- (2) That trails are maintained in a manner that protects, to the degree possible, the rural atmosphere of the trail system;
- (3) That trails are maintained in a manner that is aesthetically pleasing; and
- (4) That trails maintenance is managed with sensitivity to the environment.

3. Open Space Plan

Open space lands in Chino Hills are lands that are dedicated as permanent open space and will not be utilized for commercial, industrial, or residential development. Manufactured slopes created as part of the grading for development are not considered open space lands. Open space lands are typically undisturbed natural hillsides, ridges, valleys, and water courses that have aesthetic and environmental qualities that enhance the image and quality of life in Chino Hills.

a. Open Space Benefits

Softly rounded and steeply sloped hillsides along the southern and western boundaries of Chino Hills contribute to the unique character of the City and provide a valuable buffer between the City of Chino Hills and adjacent communities. The hills, in conjunction with the spectacular views to the north and east of the San Gabriel and San Bernardino Mountains, create the impression of a City embraced and protected by landform. This impression is further enhanced by the open and undeveloped nature of the hillsides throughout the City.

In addition to scenic beauty, open space areas protect environmentally sensitive natural resources, such as water courses, ridgelines, wildlife corridors, native vegetation, and cliffsides. In order to maintain the health of the ecosystem, large scale contiguous natural areas must be dedicated and protected to ensure biological diversity.

b. Open Space Maintenance

The City Public Works Department is responsible for maintaining public open space, as well as City parks and trails. Maintenance of open space focuses on weed abatement and clearance for fire management, water management, vandalism repair, City tree preservation, and maintenance.

G. PARKS, RECREATION, AND OPEN SPACE ELEMENT GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions support the City of Chino Hills Parks, Recreation, and Open Space Plan and its vision to support a sustainable balance of land uses, healthy living, and ample park and recreational facilities for all residents.

Goal PR-1: Provide a high quality and ample park and recreational opportunities for all residents

Policy PR-1.1: Provide active and passive public park facilities that will satisfy the basic leisure time needs of the City's residents and enhance the quality of life in Chino Hills.

Action PR-1.1.1: Maintain and upgrade the existing public parks to ensure they continue to provide quality facilities to meet the needs of the residents.

Action PR-1.1.2: Provide a citywide standard of at least 5 acres of improved public park land per 1000 residents (minimum 5 acres in size useable).

Action PR-1.1.3: Ensure that all existing and future recreation facilities are accessible to everyone and consistent with the requirements of the Americans with Disabilities Act.

Action PR-1.1.4: Provide in each park site various facilities that, at a minimum, include bike racks, picnic tables, benches, drinking fountain, restrooms, signage, concrete trash receptacles, tot lot and accommodations for at least one other sport or recreational activity.

Action PR-1.1.5: Add or improve public access to WIFI in parks.

Action PR-1.1.6: Maintain shade trees and landscaping that makes parks more comfortable and visually appealing while adapting to extreme heat and drought.

Action PR-1.1.7: Promote use of drought tolerant and native plant material where appropriate in parks.

Action PR-1.1.8: Provide adequate parking at each location to minimize parking problems on residential streets.

Action PR-1.9: Maintain lighting levels suitable for safety as well as the nighttime use of community and citywide facilities without undue glare impacts on nearby residential areas.

Action PR-1.1.10: Maintain identification signage for all parks that is consistent with the adopted City identification program and complementary to any established theme in each park.

Policy PR-1.2: Maintain the Parks Master Plan as a fluid document.

Action PR-1.2.1: Implement the park and recreation recommendations of the Parks Master Plan as sites become available.

Action PR-1.2.2: Continue to seek community input and community support on development of park and recreation programs.

Action PR-1.2.3: As part of future Parks Master Plan updates, consider opportunities for community gardens.

Action PR-1.2.4: Continue to ensure that parks available in all residential areas of the City.

Action PR-1.2.5: Implement Parks Master Plan recommendations to pursue funding sources for acquisition and maintenance of City park facilities.

Policy PR-1.3: Provide recreational facilities and programs that will satisfy the basic leisure time needs of the City's residents and enhance the quality of life in Chino Hills.

Action PR-1.3.1: Provide a wide variety of recreation programs that meet the diverse needs of the community and contribute to the physical and mental health of the population.

Action PR-1.3.2: Provide multi-use facilities for the City's residents, including space for meeting rooms, athletic activities, kitchen facilities, and recreation classes and programs.

Action PR-1.3.3: Locate community centers in various locations throughout the City for the convenience of residents.

Action PR-1.3.4: Provide an adequate supply of courts and fields for the top sports in Chino Hills, and modify or add as needed to accommodate changing sport trends.

Action PR-1.3.5: Enrich the cultural and creative life of the community through a diverse program of recreation opportunities for all ages and populations.

Policy PR-1.4: Promote the cooperation of all private and governmental entities in achieving the acquisition, development, funding, and operation of the park and recreational facilities and programs in the community.

Action PR-1.4.1: Continue to foster good relations with the School District in the design and development of school and City facilities to achieve maximum public benefit.

Action-1.4.2: Encourage individual and group participation in the support and development of new park and recreation facilities and programs.

Action-1.4.3: Continue to promote the City's existing volunteer program to provide needed recreation services in the City by recruiting high school and college students.

Action-1.4.4: Work with equestrian groups to maintain the McCoy Equestrian Center and to create and maintain equestrian facilities such as trailheads, and to carry out a trail patrol and maintenance program.

Action-1.4.4: Joint venture with private recreational providers in the City to further expand the scope of recreation program availability.

Goal PR-2: Continue to plan, create, and maintain a system of safe accessible trails throughout the City

Policy PR-2.1: Provide and maintain a multi-use trail system that safely accommodates bicycles, hikers, and equestrians.

Action PR-2.1.1: Maintain a network of multiuse trails that provides interconnectivity between Community and Neighborhood Parks, adjacent communities, the Chino Hills State Park, and areas of scenic interest.

Action PR-2.1.2: Integrate the planning for the trail network with the planning for streetscapes, parks, and open space.

Action PR-2.1.3: Where possible, provide trail users with rest areas in parks and open space, including bike racks, hitching posts, water, shade, and picnic facilities where appropriate.

Action PR-2.1.4: Develop and maintain trailheads or staging areas as focal points for trail activities and to enhance access for those who must drive to the trail.

Action PR-2.1.5: Whenever possible, provide trail connections to regional trails, local trails, and recreation facilities in adjacent communities.

Policy PR-2.2: Promote community access and use of the City trail system.

Action PR-2.2.1: Maintain a signage system that identifies trails and provides users with information regarding the trail system. Identify safety regulations, trail etiquette, difficulty, distance, and interpretive opportunities.

Action PR-2.2.2: Keep a current App based or similar system that provides a digital connection to trail maps and trail details.

Goal PR-3: Protect and preserve City designated open space areas

Policy PR-3.1: Implement strategies for protecting and maintaining the open space in perpetuity.

Action PR-3.1.1: Promote open space uses that generate revenue while limiting community impacts, such as grazing and/or agricultural production or communication facilities, where appropriate.

Action PR-3.1.2: Encourage dedications of open space adjacent to or connecting to the State Park.

Action PR-3.1.3: Pursue funding to ensure the long term maintenance of City open spaces, including development impact fees, assessment districts, grants, and other funding mechanisms available to the City.

Action PR-3.1.4: Provide adequate access for fire, emergency, and maintenance equipment.

Action PR-3.1.5: Continue to coordinate weed abatement efforts underway by the City with the Chino Valley Independent Fire District.

Policy PR-3.2: Implement strategies to protect open space natural resources.

Action PR-3.2.1: Develop and implement policies to protect the open space natural resources of the Tres Hermanos property.

Action PR-3.2.2: Continue to protect native trees through implementation of City tree preservation policies.

Action PR-3.2.3: Continue to protect exceptionally prominent and prominent ridgelines through implementation of City development policies.

Action PR-3.2.4: Continue to implement local, state, and federal policies that protect the natural springs and waterways, and wildlife habitats and corridors.



City of Chino Hills

General Plan

NOISE ELEMENT

The Noise Element is intended to limit exposure of the community to excessive noise levels. The Noise Element identifies and assesses current and expected future noise problems in the community, and establishes a plan to minimize noise concerns in the City of Chino Hills (City).

A. PURPOSE OF THE NOISE ELEMENT

The State of California requires all cities to include a General Plan Noise Element to guide decisions concerning land use and the location of excessive noise sources.

As required by §65302(f) of the *California Government Code*, this Noise Element provides a systematic approach to identifying and appraising excessive noise in the City, quantifying noise levels, and addressing excessive noise exposure, and community planning for the regulation of noise. This Noise Element includes policies, standards, criteria, programs, diagrams, a reference to action items, and maps related to protecting public health and welfare from noise.

B. CONNECTION TO COMMUNITY VISION

The Noise Element supports the City's vision to minimize noise impacts on the community. Toward this end, the Noise Element focuses on implementing the following 5 of the City's 19 Vision Statements. (Numbers in parenthesis reference numerical order of Vision Statements as presented in the Vision section of this General Plan.)

1. A Chino Hills that protects the character and quality of its neighborhoods. (V-3)
2. A Chino Hills that supports a sustainable balance of land uses, open spaces and infrastructure. (V-5)
3. A Chino Hills that supports healthy living. (V-7)
4. A Chino Hills that minimizes noise-land use incompatibilities and supports the peace and serenity of its neighborhoods. (V-19)
5. A Chino Hills that supports environmental justice for all ethnic, racial, and socioeconomic community members. (V-20).

C. RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Noise Element has a direct relationship to other General Plan elements, most notably the Land Use Element. Through the Land Use Map and Land Use Element policies, land uses that will be occupied by sensitive receptors are located away from excessive noise sources. Sensitive receptors to noise impacts are primarily residential uses, but also include can hospitals, libraries, and schools.

Policies that focus on placing residential uses away from major noise sources also are reflected in the Housing Element. The Noise Element also relates to the Circulation Element, because the location and design of roads and transit could impact existing and planned land uses. Finally, the Noise Element relates to the Conservation Element, because excessive noise may have a detrimental effect on sensitive habitats and the community's enjoyment of open spaces.

D. RELATIONSHIP TO OTHER LOCAL REGULATORY DOCUMENTS

Several local and state regulatory mechanisms are used to implement the General Plan Noise Element on a day-to-day basis. The City's Municipal Code provides, among other things, a basis for controlling excessive and annoying noise.

1. Chapter 6.04.040 Municipal Code – Noisy or At-Large Animals

This chapter defines the circumstances under which an animal, including barking dogs, may be deemed a nuisance.

2. Chapter 8.08.020 Municipal Code – Regulation of Construction Noise

This chapter regulates the hours during which construction activities are permitted on weekdays and Saturdays. No construction is permitted on Sundays or holidays.

3. Chapter 13.20.170 Municipal Code – Truck Noise

This chapter states that the noise level for trash collection vehicles during the stationary compaction process shall not exceed 75 dBA at a distance of 25 feet from the vehicle.



4. Chapter 16.09.100 Municipal Code – Commercial Outdoor Patio Guidelines

This chapter requires that the noise levels at an outdoor patio comply with the City's noise standards. If the patio is located adjacent to a residential use, an acoustical analysis is required to demonstrate that the patio will comply with the City's noise standards.

5. Chapter 16.12.070 Municipal Code – Entertainment Establishments

This chapter regulates noise from entertainment establishments that provide dancing, music, and similar activities.

6. Chapter 16.48.020 Municipal Code – Noise Performance Standards

This chapter sets standards for measuring noise and noise/land use compatibility, and identifies activities that are exempt from City noise ordinances.

7. Chapter 16.48.020 Municipal Code – Vibration Performance Standards

This chapter sets standards for regulating and measuring vibration levels and identifies activities that are exempt from City vibration ordinance.

8. California Noise Insulation Standards

The City implements the noise insulation standards adopted by the California Department of Housing and Community Development in order to regulate the noise levels allowed in habitable structures. The regulation requires that interior noise levels attributed to exterior noise sources do not exceed 45 decibels (dB) in any habitable room.

9. California State Building Code

Title 24, Part 2, of the *California Code of Regulations* establishes an interior noise criterion of 45 dBA CNEL for dwelling units.

E. NOISE ELEMENT ISSUES

The primary issues that shape the goals, policies, and actions of this Noise Element are summarized below.

1. Definition of Noise

Noise is generally defined as “unwanted” or “intrusive” sound. Excessive noise is associated with an interference with speech and other communication, a distraction at home and at work, the disturbance of rest and sleep, and the disruption of various recreational pursuits.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave, resulting in the tone’s range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves, combined with the reception characteristics of the human ear. In an urban environment, sound that becomes noise is typically a by-product of transportation systems, certain land uses, and ongoing human activity. Because of the many facets of noise, numerous acoustical terms are used to describe the intensity of sound. Definitions of commonly used acoustical terms are provided below.

a. Decibels

Sound pressures can be measured in units called microPascals (μPa). However, expressing sound levels in terms of μPa would be very cumbersome, because it would require a wide range of very large numbers. For this reason, sound pressure levels are described in logarithmic units of ratios of actual sound pressures to a reference pressure squared. These units are called bels. In order to provide a finer resolution, a bel is subdivided into ten decibels, abbreviated dB.

Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB. In fact, they would combine to produce 73 dB. This same principle can be applied to other traffic quantities as well. In other words, doubling the traffic volume or the speed of the

traffic on a street will increase the traffic noise level by 3 dB. Conversely, halving the traffic volume or speed will reduce the traffic noise level by 3 dB.

b. A-Weighting

Sound pressure level alone is not a reliable indicator of loudness. The frequency or pitch of a sound also has a substantial effect on how humans will respond. While the intensity of the sound is a purely physical quantity, the loudness or human response depends on the characteristics of the human ear.

Human hearing is limited not only to the range of audible frequencies, but also in the way it perceives the sound pressure level in that range. In general, the healthy human ear is most sensitive to frequencies between 1,000 hertz (Hz) and 5,000 Hz, and perceives both higher and lower frequency sounds of the same magnitude with less intensity. Frequency is measured in cycles per second, or hertz (Hz). One hertz equals one cycle per second.) In order to approximate the frequency response of the human ear, a series of sound pressure level adjustments is usually applied to the sound measured by a sound level meter. The adjustments, or weighting network, are frequency dependent.

Of all the various scales available for measuring noise, the A-weighted sound pressure level (identified as dBA) is the most useful scale of measurement in community noise measurement. The A-scale approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. A range of noise levels associated with common indoor and outdoor activities is shown in [Figure 7-1](#).

The A-weighted sound level of traffic and other long-term noise-producing activities within and around a community varies considerably with time. Measurements of this varying noise level are accomplished by recording values of the A-weighted level during representative periods within a specified portion of the day.

2. Community Noise Equivalent Level

It is recognized that a given level of noise may be more or less tolerable depending on the duration of exposure experienced by an individual. Numerous measures of noise exposure consider not only the A-level variation of noise but also the duration of the disturbance. The community noise equivalent level (denoted CNEL) measure weights the average noise levels for the evening hours (7:00 p.m. to 10:00 p.m.) by increasing them 5 dB, and weights the average noise levels for the nighttime hours (10:00 p.m. to 7:00 a.m.) by increasing them 10 dB. The daytime noise levels are combined with these weighted levels and are averaged to obtain a CNEL value. Figure 7-2, below, indicates the outdoor CNEL at typical locations throughout the Southern California area.

3. Effects of Noise

In general, noise may affect the average individual in the following ways.

a. General Hearing Loss or Damage

Sound levels that exceed 85 dBA, when experienced for long durations during each working day, may result in severe temporary or even permanent hearing loss. State and federal safety and health regulations currently protect workers at levels of exposure that exceed 90 dBA for each 8-hour workday.

b. Interference with Oral Communication

Speech intelligibility is impaired when sound levels exceed 60 dBA. The amount of interference increases with sound level, and with distance between speaker and listener.

c. Sleep Interference

Sound levels that exceed 40 to 45 dBA are generally considered excessive for sleeping areas within a residence.

4. Noise Sources**a. Traffic Noise**

Traffic is the primary contributor to long term noise in the City. This includes noise from automobiles, trucks, and motorcycles on arterial streets, the Pomona Freeway (SR-60), and the Chino Valley Freeway (SR-71). Figure 7-3, below, provides the CNEL contours for the existing traffic noise environment within the City. The map provides the CNEL contours ranging from 60 dB to 80 dB in 5-dB increments.

b. Operational Noise

Activities on commercial properties also contribute to existing noise. These activities include music in outdoor dining areas, loading dock operations, delivery trucks entering and leaving the area, and mechanical equipment located both inside and outside the buildings. These operational noise generating activities are typically considered a potential nuisance when located adjacent to a residential use.

There is no rail service in the City, and the City is outside the 65 dB CNEL for the Chino Airport.

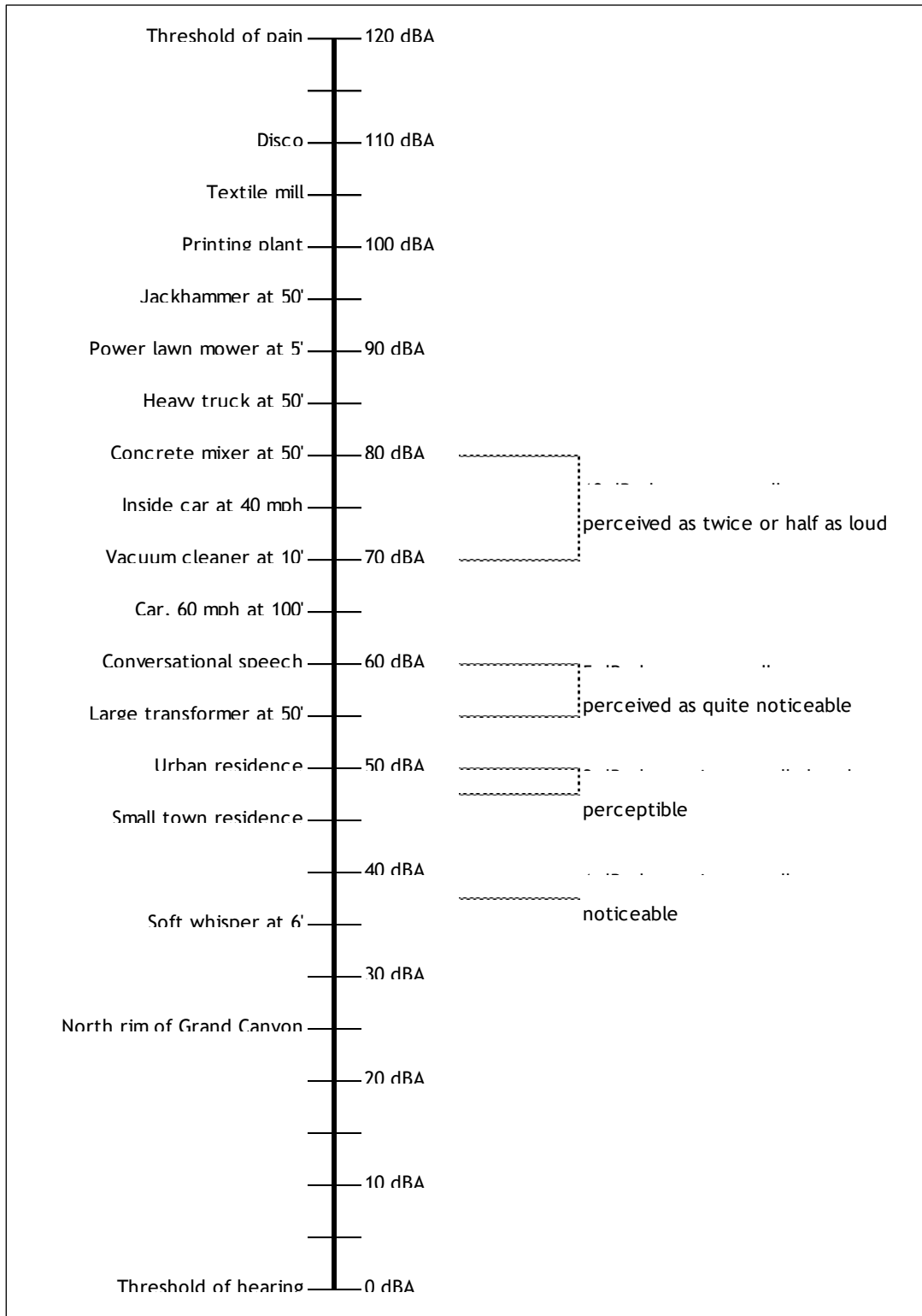


Figure 7-1 – Common Noise Sources and A-Weighted Noise Levels

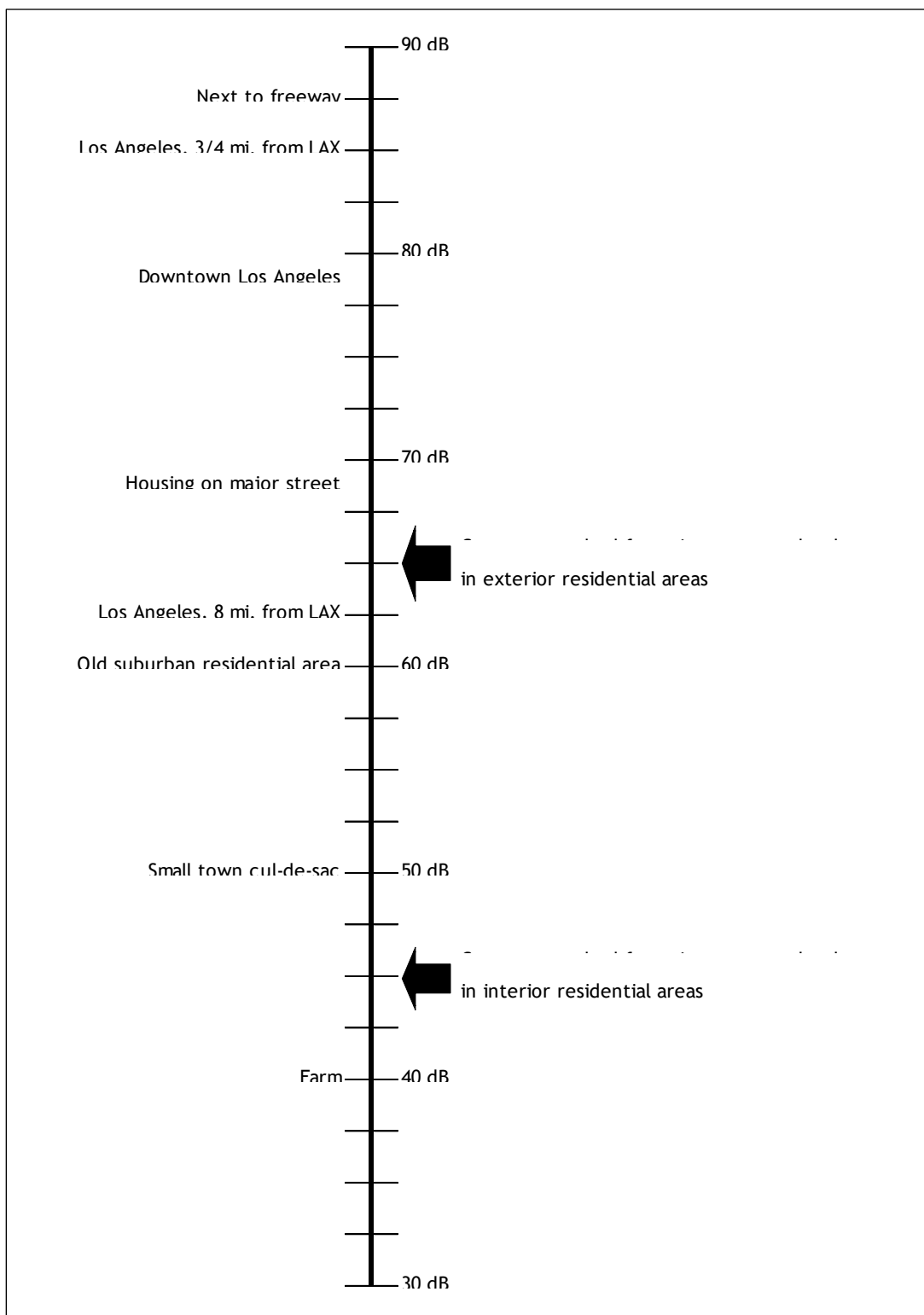


Figure 7-2 – Common CNEL Noise Exposure Levels at Various Locations

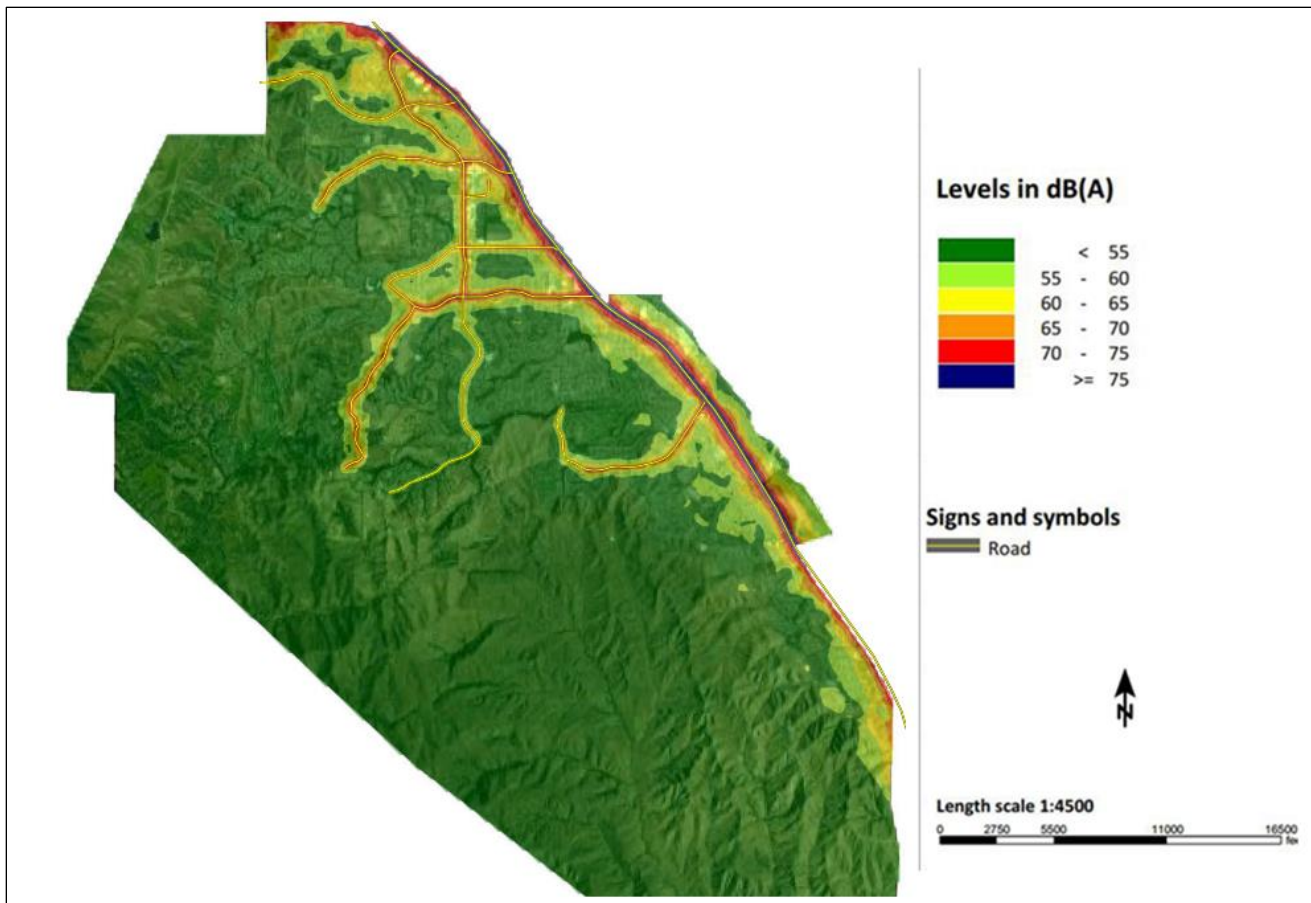


Figure 7-3 – Community Noise Equivalent Level (CNEL) Contours for the Existing Environment

c. Stationary Noise

Stationary noise sources in the City include sewage treatment plants, oil production, mechanical equipment on buildings, including air conditioning units, swimming pool pumps, and fans. Stationary noise sources can be a local problem if not properly shielded. Additional noise sources in residential neighborhoods include barking dogs, loud parties and/or amplified music, lawnmowers and leaf blowers, use of pools or tennis courts, and other activities. These noise events are generally annoying, but sporadic and short-term. Chapter 16.48.020 of the City's Municipal Code contains standards to control stationary noise sources within the City.

d. Construction Noise

Construction activities generate considerable amounts of noise, especially during the demolition phase and the construction of project infrastructure when heavy equipment is used. Because construction is temporary in most locations, and because people recognize the high noise level of construction activity is necessary, most people do not consider construction noise a nuisance. The City's Noise Ordinance restricts the hours of construction activity with high noise levels.



F. NOISE PLAN

In recognition of the fact that excessive or unusual noise can have significant adverse impacts on human health and welfare, the State of California has developed definitive guidelines for determining community noise levels and for establishing programs aimed at reducing community exposure to noise levels defined to be adverse. This Noise Element establishes a plan to incorporate state guidelines and minimize the effects of noise on people living and working in the City. Of particular concern is reducing the exposure of existing residences, schools, parks, libraries, and community centers to transportation noise and stationary noise sources.

1. Standards for Land Use/Noise Compatibility

Table 7-1 identifies acceptable exterior and interior noise standards for various land use categories within the City.

Table 7-1 – Land Use/Noise Compatibility Matrix			
Land Use Categories		CNEL	
Categories	Compatible Uses	Interior^A	Exterior^B
Residential	Single-Family, Duplex, Multiple-Family	45 ^C	65 ^E
	Mobile Homes	--	65 ^D
Commercial	Hotel, Motel, Transient Lodging	45 ^C	65
	Commercial, Retail, Bank, Restaurant, Health Clubs	55	F
	Office Buildings, Research and Development, Professional Offices	50	F
	Amphitheater, Concert Hall, Auditorium, Meeting Hall, Movie Theater	45	F
	Gymnasium (multi-purpose)	50	F
	Manufacturing, Warehousing, Wholesale, Utilities	65	F
Open Space	Parks	--	65
Institutional/Public Facility	Hospital, School, Classrooms	45 ^C	65
	Churches, Libraries	45 ^C	--

Interpretation:

- ^A Interior environment excludes bathrooms, toilets, closets, and corridors.
- ^B Outdoor environment limited to private yard of single-family or multifamily residential private patio that is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.
- ^C Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to UBC requirements.
- ^D Exterior noise level shall be such that interior noise level will not exceed 45 dB CNEL.
- ^E Multifamily developments with balconies that do not meet the 65dB CNEL standard are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.
- ^F Maximum worker noise exposure shall be an average of 85 dBA for each 8-hour workday.

2. Future Noise Sources

Traffic will continue to be the primary contributor to long-term noise in the City, with the highest expected noise levels adjacent to the SR-60 and SR-71. Figure 7-4, below, provides the CNEL contours for the future traffic noise environment within the City. The map provides the CNEL contours ranging from 60 dB to 85 dB in 5 dB increments.

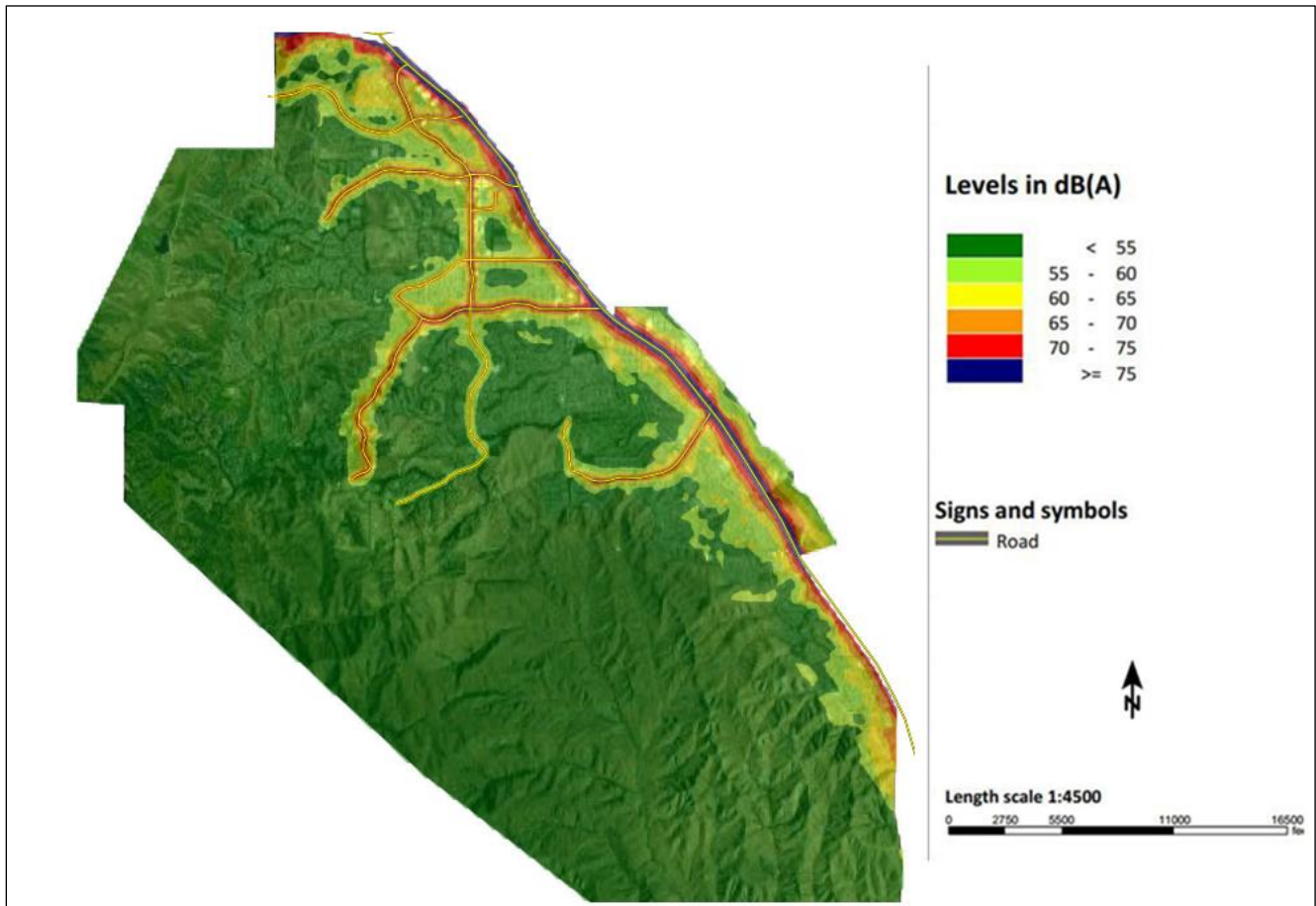


Figure 7-4 – Community Noise Equivalent Level (CNEL) Contours for the Future Environment

G. NOISE ELEMENT GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions support the City's Noise Plan to maintain and enhance the City's high quality mix of sustainable land uses and monitor future growth, while reducing existing and future noise levels. The Noise Plan provisions focus on reducing noise associated with traffic, operational activities, and stationary sources.

Goal N-1: Manage Existing Noise Sources

Policy N-1.1: Protect public health and welfare by eliminating or minimizing the effects of existing noise problems.

Action N-1.1.1: Control noise conditions in Chino Hills through the active, ongoing efforts of the City in coordination with other government agencies.

Action N-1.1.2: Increase public input on environmental noise issues, and establish a program for the monitoring and abatement of local noise sources.

Action N-1.1.3: Prohibit large commercial truck traffic in noise-sensitive areas, such as school sites, located in Chino Hills.

Action N-1.1.4: Restrict truck traffic to roadways that are located away from sensitive land uses.

Action N-1.1.5: Minimize through vehicular traffic in the City's residential areas.

Action N-1.1.6: Enforce state motor vehicle noise standards for cars, trucks, and motorcycles.

Action N-1.1.7: Incorporate sound attenuation measures in residential developments to achieve the City's standards. Such sound attenuation measures may include noise barriers, replacing existing windows and doors with sound-rated assemblies, insulating exterior walls and attics, and/or installing forced air ventilation.

Action N-1.1.8: Incorporate sound attenuation measures in commercial and industrial developments to ensure that mechanical equipment does not generate excessive noise levels.

Policy N-1.2: Where complaints are received by residents with regard to non-transportation noise sources (e.g., commercial/retail equipment or activities, fans, air conditioners), the City will protect the public health and welfare by implementing the following Action statement as necessary to ensure that the non-transportation noise source does not exceed the noise standards identified in Titles 6, 8 and 16 of the City of Chino Hills Municipal Code.

Action N-1.2.1: Ensure that equipment, machinery, fan, and air conditioning noise does not exceed specified levels, established in the City's Noise Ordinance.

Goal N-2: Limit New Noise Conflicts

Policy N-2.1: Minimize increases in noise levels due to new land use and transportation facility decisions.

Action N-2.1.1: Enforce the standards of Table 7-1 – Land Use/Noise Compatibility Matrix, which specify acceptable exterior and interior noise limits for various land uses throughout the City.

Action N-2.1.2: Continue to assess projects through the subdivision, site plan, conditional use permit, and other development review processes and incorporate conditions of approval and mitigation measures that ensure noise compatibility where appropriate.

Action N-2.1.3: Require a noise study to be performed and appropriate noise attenuation to be incorporated to reduce interior noise levels to 45 dB CNEL or less prior to approving any multifamily or mixed-use residential development in an area with a CNEL of 65 dB or greater.

Action N-2.1.4: Incorporate ambient noise level considerations into land use decisions involving schools, hospitals, and similar noise sensitive uses.

Action N-2.1.5: Ensure all new developments provide adequate sound insulation or other protection from existing and projected noise sources.

Action N-2.1.6: Design new transportation facilities to minimize noise impacts on nearby sensitive sources.

Action N-2.1.7: Ensure that all new hotels, motels, multifamily and single-family dwellings to be developed within an area where the outdoor CNEL exceeds 60 dB are designed to achieve an indoor CNEL of 45 dB or less.



the shoppes

City of Chino Hills

General Plan

ECONOMIC DEVELOPMENT ELEMENT

The Economic Development Element defines the City of Chino Hills' (City) primary policies related to the creation and maintenance of a diversified economic base.

A. PURPOSE OF THE ECONOMIC DEVELOPMENT ELEMENT

While not required by state law, the Economic Development Element is included in the City of Chino Hills General Plan to address the economic development issues faced by the City. Primary issues addressed in this Element include Shopping and Service Opportunities; New Businesses and Employment Creation; and Increased and Diversified City Revenues.

This element outlines the goals, policies, and actions toward achieving the ideal economic base for the City, which 1) provides a full range of retail shopping, services, and employment for its residents and 2) provides a stable tax revenue structure for the City that will shield it from the impacts of cyclical trends in the local and regional economy.

B. CONNECTION TO COMMUNITY VISION

The Economic Development Element supports the City's vision to support a high quality mix of residential and commercial land uses and ample private and public services. Toward this end, the Economic Development Element focuses on implementing the following four of the City's 20 Vision Statements. (Numbers in parenthesis reference numerical order of Vision Statements as presented in the Vision section of this General Plan.)

1. A Chino Hills that provides ample local shopping, services and employment, and a secure tax base to support City government and the services it provides. (V-2)
2. A Chino Hills that supports its commercial and employment centers. (V-4)
3. A Chino Hills that supports healthy living. (V-7)
4. A Chino Hills that supports environmental justice for all ethnic, racial, and socioeconomic community members. (V-20)

C. RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Economic Development Element works in tandem with the Land Use Element to support the City's high quality mix of sustainable land uses and to monitor future growth. At the same time, the Economic Development Element seeks to secure a tax base that can support public improvements articulated in the City Circulation Element, the Safety Element, the Conservation Element, and the Parks, Recreation and Open Space Element.

D. RELATIONSHIP TO OTHER LOCAL REGULATORY DOCUMENTS

Several City regulatory mechanisms are used to implement the General Plan Economic Development Element on a day-to-day basis.

1. Specific Plans

Specific plans function as the primary General Plan land use designation and zoning document for a particular area, providing focused guidance and regulation specific to the project site. They provide a circulation plan, an infrastructure plan, a phasing plan, a financing plan, and an implementation plan to support the specific plan development.

2. Subdivision Ordinance

The Chino Hills Subdivision Ordinance ensures that all subdivisions within the City are designed with the infrastructure necessary to support the proposed development, including road access, drainage, parks, school sites, utilities and related easements, and lot size and configuration.

3. Title 3 – Revenue and Finance

Title 3 of the City of Chino Hills Municipal Code establishes fiscal provisions to protect the City against claims; monitor City investments, purchases, and construction contracts; and administer taxes and fees charged and collected within the City.

E. ECONOMIC DEVELOPMENT ISSUES

1. Shopping and Service Opportunities

The City has developed a diverse retail base and has experienced a concomitant rise in its retail sales. Given the importance of sales taxes as a source of discretionary funding, this growth in retail sales has allowed the City to provide quality services to its residents.

Currently, there are 4,820,976 square feet of available commercial building space constructed in the City, consisting of retail, business, and hotel uses. As of 2024, the available commercial building space, 2,481,052 square feet (or 51%) occupied sales-tax-generating retail uses; and 1,612,074 square feet (or 33%) are occupied businesses that provide services, including office uses, financial institutions, medical offices, childcare facilities, and other similar uses that do not generate sales tax. A total of five hotels occupy 293,962 square feet (6% of the City's commercial building space), with a total of 562 rooms. The five hotels include the recently completed Holiday Inn Express at The Rincon commercial center. The balance of the total available commercial space is unoccupied, which represents around 9-10% average vacancy rate.

a. Recent Major Commercial Developments

Of the current commercial building space, about 1,000,000 square feet, or 20%, was constructed during the past ten years, and include:

- The Rincon: This 201,304 square foot center includes two hotels, medical offices, and a variety of restaurants and service uses.
- The Santa Barbara: This 15,700 square foot center is part of a mixed use development with 324 multifamily residential apartment units. The retail component contains restaurants and service uses.
- Soquel Square: This 17,300 square foot center is part of a mixed use development with 110 single family and townhome for-sale units. The retail component contains medical office, food, and service uses.

b. Major Commercial Centers

In addition to the three new centers listed above, there are about 20 other commercial centers in the City. Of these centers, there are three existing major commercial centers that are or have been responsible for a major share of the City's sales tax.

These three major commercial centers include the 574,000 square-foot Crossroads Marketplace, which includes such large retailers as Costco, Lowes, and Petco. In recent years, the big box component of the Crossroads Marketplace has experienced significant vacancies, due in part to the popularity of online shopping and business decisions of the center's previous owners. The City is working with the current ownership on changes to the center intended to fill the vacant spaces.

Another major commercial center is The Shoppes at Chino Hills. It is a 400,000 square-foot open-air regional lifestyle center that mixes retail, restaurants, services, and offices with plazas and amenities designed to encourage customers to stroll and gather. The Shoppes at Chino Hills has over 70 merchants, including several national and international stores such as Banana Republic, Sephora, and Old Navy.

The third major commercial center is The Commons. It is a 525,000 square-foot center that contains major retailers, including Lowes, Hobby Lobby, and an Ayres Hotel & Suites. Similar to the Crossroads Marketplace, The Commons has experienced significant vacancies in recent years, due in part to the popularity of online shopping and business decisions of the center's owners.

c. City Economic Development Efforts

To help fill retail vacancies, the City retains a commercial brokerage firm that serves as an economic development consultant, connecting desired businesses with available commercial spaces. The economic development consultant works in concert with the City's in-house economic development team, comprised of staff from Community Development and City Manager Departments. Together, the consultant and in-house team meet regularly to identify commercial vacancies and the typed of businesses that can best fill the spaces.

Through these economic development efforts, all but four of the City's commercial centers have near 100% occupancy; and of the four below full occupancy, all but one have occupancies over 80%.

The Economic Development Element updates policies to support and strengthen the City's retail base.

2. New Businesses and Employment Creation

Chino Hills' highly educated labor force gives it a key competitive ingredient necessary to compete for office and technology related employment. The Census Bureau's American Community Survey 2023 states that nearly 45% of the City's adult residents have a bachelor's degree or higher.

Within Chino Hills, there are an estimated 15,924 jobs, which are expected to grow to 18,600 by 2040.¹ In addition to these firm-based jobs, the City has approximately 2,800 home-based businesses, which have increased by 180% during the past ten years. More jobs can also translate into more spending at Chino Hills establishments and more tax revenue for the City.

¹ Southern California Association of Governments (SCAG) Socio Economic data, 2014.

a. Recent Business Developments

In addition to the recent commercial development noted above, two new business park/light industrial developments were completed during the past ten years.

1. Chino Hills Commerce Center: This 100,330 square foot light industrial building is fully occupied by a Wi-Fi equipment company.
2. Turner: This 321,554 square foot business park facility contains 15 suites, all of which are occupied, and a few which generate sales tax revenue for the City.

b. Major Business Centers

In addition to the two new centers listed above, there are about 12 other existing business parks, medical centers, and stand-alone businesses in the City. Of these centers, all are at or near 100% occupancy.

c. Future Major Business Center

The Biz Park project is a Business Park center that was approved in 2023. The project comprises 18 buildings for a total of 187,600 square feet. The center includes warehouse, research and development, office, and commercial uses.

3. Increased and Diversified City Revenues

The City is very near build-out, with three business oriented developments currently in the entitlement phase. As noted previously, one additional hotel recently opened and the City's economic development consultant and in-house team are actively engaged in filling remaining retail vacancies.

To shield the City from decreases in revenue caused by cyclical economic trends, Chino Hills has sought to diversify its economic base and manage future growth. The fact that the City has increased retail development and employment uses demonstrates that it has both increased and diversified its revenue base. The fact that the City maintains a comparatively wealthy and well-educated citizenry, has strong schools, and has a low crime rate, demonstrates that it has managed its growth well.

In 2022, the City initiated ballot Measure M to increase the Transit Occupancy Tax (TOT) for hotel room rentals from 10% to 12%. Measure M was approved by a majority of Chino Hills voters and will provide increased TOT revenue for the City's future.

Sales tax generated by retail sales is another important revenue source for California cities. Through its expanding supply of commercial development, the City continues to improve its sales tax base. In addition, the City continues to explore options for expanding its property tax share and financing mechanism to offset the maintenance costs of its open spaces and landscaped rights-of-way.

F. ECONOMIC DEVELOPMENT PLAN

The Economic Development Plan is supported by the Land Use Plan, which provides for Housing, Commercial/Business, Mixed-Use, Institutional/ Public Facility, and Open Space uses. The Economic Development Plan is further supported by the coordinated planning for and

implementation of public facilities and services, and the City's ongoing fiscal policies, including administration of taxes and fees.

G. ECONOMIC DEVELOPMENT ELEMENT GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions support the City's Economic Development Plan to maintain and enhance the City's high quality mix of sustainable land uses and monitor future growth.

Goal ED-1: Promote a Diversified Economic Base

Policy ED-1.1: Promote commercial service uses targeted to serve Chino Hills residents and shoppers from other areas.

Action ED-1.1.1: Concentrate major commercial uses near the SR-71 Freeway and major arterials.

Action ED-1.1.2: Encourage commercial uses that have a positive net fiscal benefit to the City.

Action ED-1.1.3: Continue to expand commercial activity in the City by emphasizing retail stores that serve regional, rather than purely local, needs.

Action ED-1.1.4: Promote and maintain levels of shopping, services, and entertainment that are appropriate to meet the market demand of the community and the region.

Action ED-1.1.5: Ensure the development of an aesthetically attractive and balanced commercial sector compatible with the community and recognizing the predominantly residential character of Chino Hills.

Action ED-1.1.6: Strive to locate grocery and other healthy food retailers within a short or walking distance of all residents.

Action ED-1.1.7: Support farmer's markets in the community.

Policy ED-1.2: Promote employment opportunities in Chino Hills.

Action ED-1.2.1: Promote a broad range of employment opportunities for Chino Hills residents that are compatible with the community's residential character and the skills and education of Chino Hills' workforce.

Action ED-1.2.2: Concentrate major business park and office development near the SR-71 Freeway and major arterials.

Action ED-1.2.3: Work with regional agencies, housing providers, and the development community, to promote employment growth coordinated with the availability of a variety of housing types and affordability levels, which support efforts to attract business while providing an adequate transportation system.

Action ED-1.2.4: Encourage child care/day care centers in proximity to employment centers and residential areas.

Action ED-1.2.5: Work with local and regional partners who provide life-long learning to ensure that residents and the workforce have access to continuing education.

Goal ED-2: Support Managed Growth with Sound Fiscal and Development Policies

Policy ED-2.1: Promote fiscal policies that support local tax-generating land uses.

Action ED-2.1.1: Where appropriate, offer development agreements for prospective developments that would have a positive net fiscal benefit to the City.

Action ED-2.1.2: Where appropriate, seek state and regional funding sources for infrastructure needed to support tax-generating land uses.

Action ED-2.1.3: Require new development to contribute its share of cost of providing necessary public services and infrastructure through equitable fees and exactions.

Policy ED-2.2: Review City fees annually to ensure appropriate relationship between fees and services.

Action ED-2.2.1: Set development fees as needed to provide adequate infrastructure and services for new development.

Action ED-2.2.2: Set municipal service fees as needed to maintain adequate infrastructure and services for existing residents and businesses.

Policy ED-2.3: Promote development review processes and procedures that encourage new development to create unique, high-quality, and regionally competitive places that add value to the community, augmenting public investments and existing residential and commercial districts.

Action ED-2.3.1: Require new development to protect existing investments by providing architecture and community design of equal or greater quality.

Policy ED-2.4: Promote maintenance of property and encourage improvements to property to protect private and public investments.

Action ED-2.4.1: Require adequate maintenance and upkeep of private property and buildings in order to protect property values and investments.

Action ED-2.4.2: Work with landowners, businesses, and the development community to invest in upgrades, improvements, modernization, and redevelopment of commercial and industrial properties to remain competitive in the region, protecting and enhancing tax revenues.



CHINO HILLS

ENVIRONMENTAL JUSTICE EXISTING CONDITIONS AND POLICY MENU

FEBRUARY 2023

DUDEK

Existing Conditions

This section outlines the current environmental justice concerns in Chino Hills. For each environmental justice concern, this assessment explains **what** the environmental justice concern is and what causes it to occur in Chino Hills. Then, the assessment maps **where** in Chino Hills the environmental justice concern is most prevalent. From there, it explains who is most vulnerable to each environmental justice concern. Lastly, it explains **how** the City of Chino Hills (City) may already be addressing the environmental justice concern.

This section addresses five public health environmental justice concerns: access to healthy living, pollution exposure, physical activity, public facilities, and safe and sanitary homes.

Public Health Indicators

The places where people live can affect their health. In a healthy community, everyone has access to healthy food, parks, and safe streets. Disadvantaged communities often have fewer of these healthy resources and have higher rates of chronic diseases and lower lifespans as a result.¹ As shown in **Table 1**, Chino Hills experiences better health outcomes than San Bernardino County when it comes to all health indicators assessed. The rate of low birth weight is the only health indicator assessed that is worse in Chino Hills than State averages.

Table 1. Health Indicators

Health Indicator	Location		
	Chino Hills	San Bernardino County	California
Asthma (ER visits per 100,000 people)	2.61	6.58	5.180
Cardiovascular Disease (ER visits per 100,000 people)	0.8	1.16	0.84
Diabetes (% of adults with diabetes)	9.35	11.70	10.10
Obesity (% of adults with a body mass index over 30 kg/m ²)	26.60	34.80	26.70
Low Birth Weight (% of low birth weights)	5.24	5.43	4.97

Source: Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthyplacesindex.org/>.

Note: ER = emergency room.

Legend: Quartile 1 = Good, Quartile 2 = Moderate, Quartile 3 = Poor, Quartile 4 = Challenged

Healthy Food

What

Healthy food is essential for all people, but it can be difficult to access and afford for some community members. Having access to affordable healthy food can encourage a healthier diet, lower the risk of chronic disease, and

¹ McCullough, M., D. Feskanich, M. Stampfer, E. Giovannucci, E. Rimm, F. Hu, D. Spiegelman, D. Hunter, G. Colditz, and W. Willett. 2002. "Diet Quality and Major Chronic Disease Risk in Men and Women: Moving Toward Improved Dietary Guidance." *American Journal of Clinical Nutrition* 76(6): 1,261–1,271.

reduce food insecurity.² Studies have shown that people who live near grocery stores have better health outcomes.³ For community members without a car, being able to walk or bike to a grocery store or other source of healthy food is imperative.

Where

Chino Hills is served by nine grocery stores that are distributed mainly in Chino Hills' eastern commercial areas (see **Figure 1**). Some residential areas are within walking or biking distance of a grocery store; however, households in the southern and western portion of Chino Hills have lower accessibility to grocery stores.

Other fresh food options beyond grocery stores include places like farmers markets and community gardens. Heritage Farmers Market is a weekly farmers market held at The Shoppes at Chino Hills. This market accepts EBT and is open year-round, rain or shine.⁴

Who

Those most in need of nearby grocery stores include low-income residents and households without access to a car. Chino Hills has limited amounts of both of these demographics. Additionally, according to the 2022 Community Survey and Public Workshop on environmental justice, some Chino Hills residents find that healthy food options are too expensive and/or too far from their homes.

How

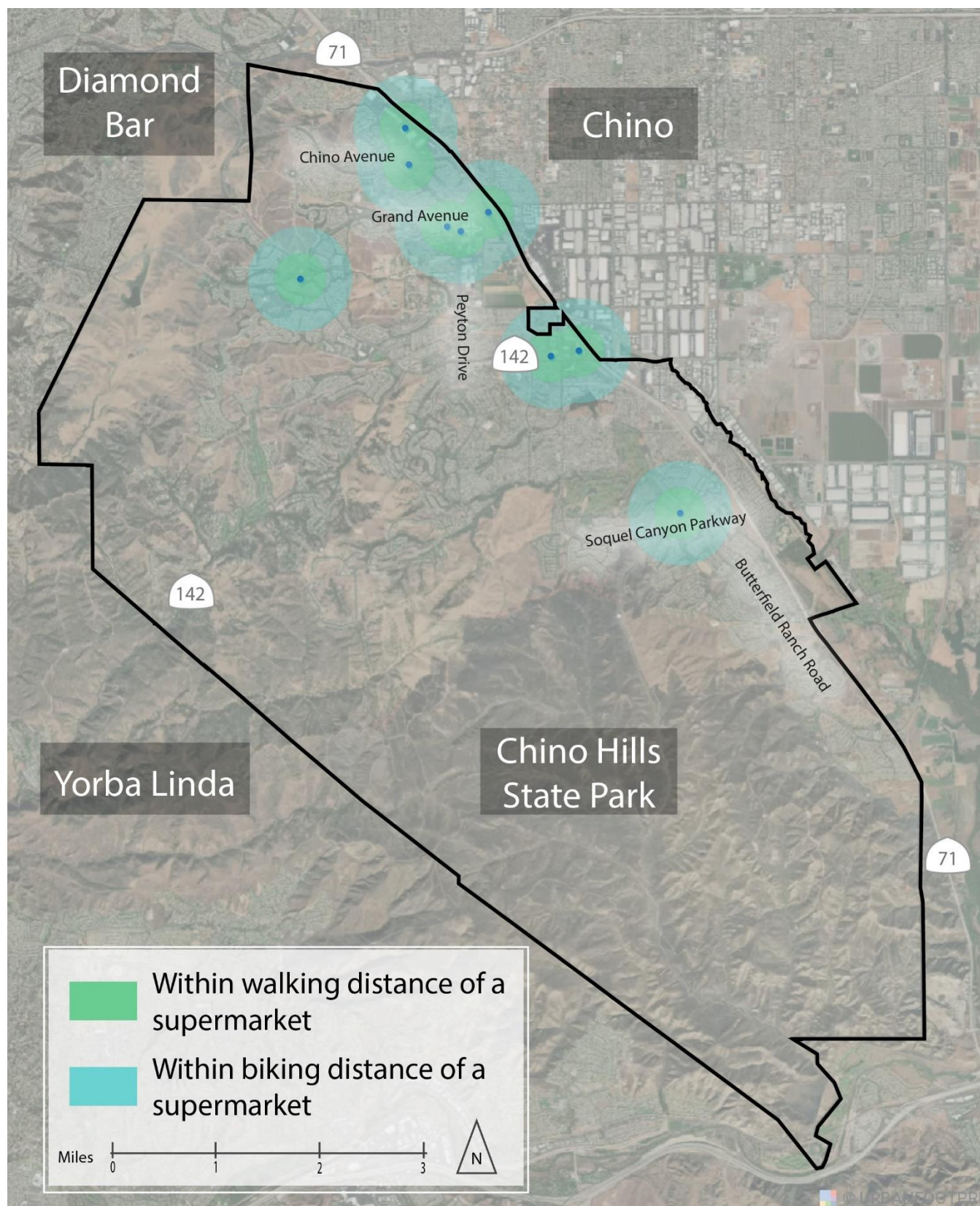
The City has multiple policies within their General Plan that indirectly improve access to healthy food. Many policies within the Circulation Element promote walking and biking trips. The Land Use Element contributes to where future developments are located. Policies within the Land Use Element promote both a balance of commercial uses and the locating of neighborhood-serving facilities on the perimeter of residential neighborhoods. Each of these policies have the ability to improve residential access to grocery stores as development and redevelopment occurs.

² McCullough et al. 2002.

³ Teuhaft, S., and A. Karpyn. 2018. "The Grocery Gap: Who has Access to Healthy Food and Why it Matters." https://healthyplacesindex.org/wp-content/uploads/2018/01/policy_link_grocery_gap.pdf.

⁴ Heritage. 2022. "Heritage @ The Shoppes at Chino Hills." <https://heritagefarmersmarket.org/chino-hills>.

Figure 1 Grocery Stores in Chino Hills



Parks

What

Parks offer space for safe and healthy recreation, and access to parks has been found to prevent chronic disease.⁵ Parks provide places for children to play and adults to walk. Parks, and the trees inside them, help to clean the air and cool down the surrounding area on hot days. These spaces also offer a gathering place that can allow for events and foster community. Ensuring that there are ample amounts of nearby park space improves quality of life for residents.

Where

Chino Hills has 44 parks, varying in location, size, and recreation opportunities.⁶ These parks can be seen on **Figure 2** with walking and biking access also displayed. In addition to City-owned-and-operated parks, there are several private residential parks managed by neighborhood associations.

The park acreage relative to the population is important to consider when looking at park accessibility to determine how busy a park may be. Chino Hills has approximately 0.146 park and open space acres per 1,000 residents, which is better than the State average. Approximately 91% of homes are located within half a mile from a City-owned park.

In addition to parks, Chino Hills has a trail system that connects neighborhoods and destinations to parks and navigates throughout certain parks. In total, Chino Hills is home to 48 miles of multi-use trails, which are available to people who walk, hike, run, bike, and ride horses. The trail feature is unique from many nearby cities and offers community members a chance to navigate the local hills.

One regionally significant open space area in Chino Hills is the Chino Hills State Park. This park is owned and operated by the State of California and offers camping, hiking trails, horseback riding, and other day-use activities that make it an attraction beyond just Chino Hills residents.

Who

Park accessibility goes beyond having adequate park acreage—it also includes the distribution of the parks. As shown in **Table 2**, over 90% of Chino Hills residents are within walking distance of a City or regional park. This ranks Chino Hills among the top 25th percentile of cities in California for residents within a half-mile of a park.⁷

Consistent with these statistics, the 2022 Community Survey and Public Workshop revealed that park access is not necessarily a top concern for Chino Hills residents. Some important takeaways with regards to parks, however, are that some residents think City parks should include more amenities such as playgrounds, sports facilities, exercise equipment, and dog-friendly areas.

⁵ Sherer, P.M. 2006. "The Benefits of Parks: Why America Needs More City Parks and Open Space." Trust for Public Land. http://www.tpl.org/content_documents/parks_for_people_Jul2005.pdf.

⁶ City of Chino Hills. n.d. "Park & Facilities." Accessed August 16, 2022. <https://www.chinohills.org/87/Park-Facility-Guide>.

⁷ Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthyplacesindex.org/>.

Figure 2 Parks and Park Access

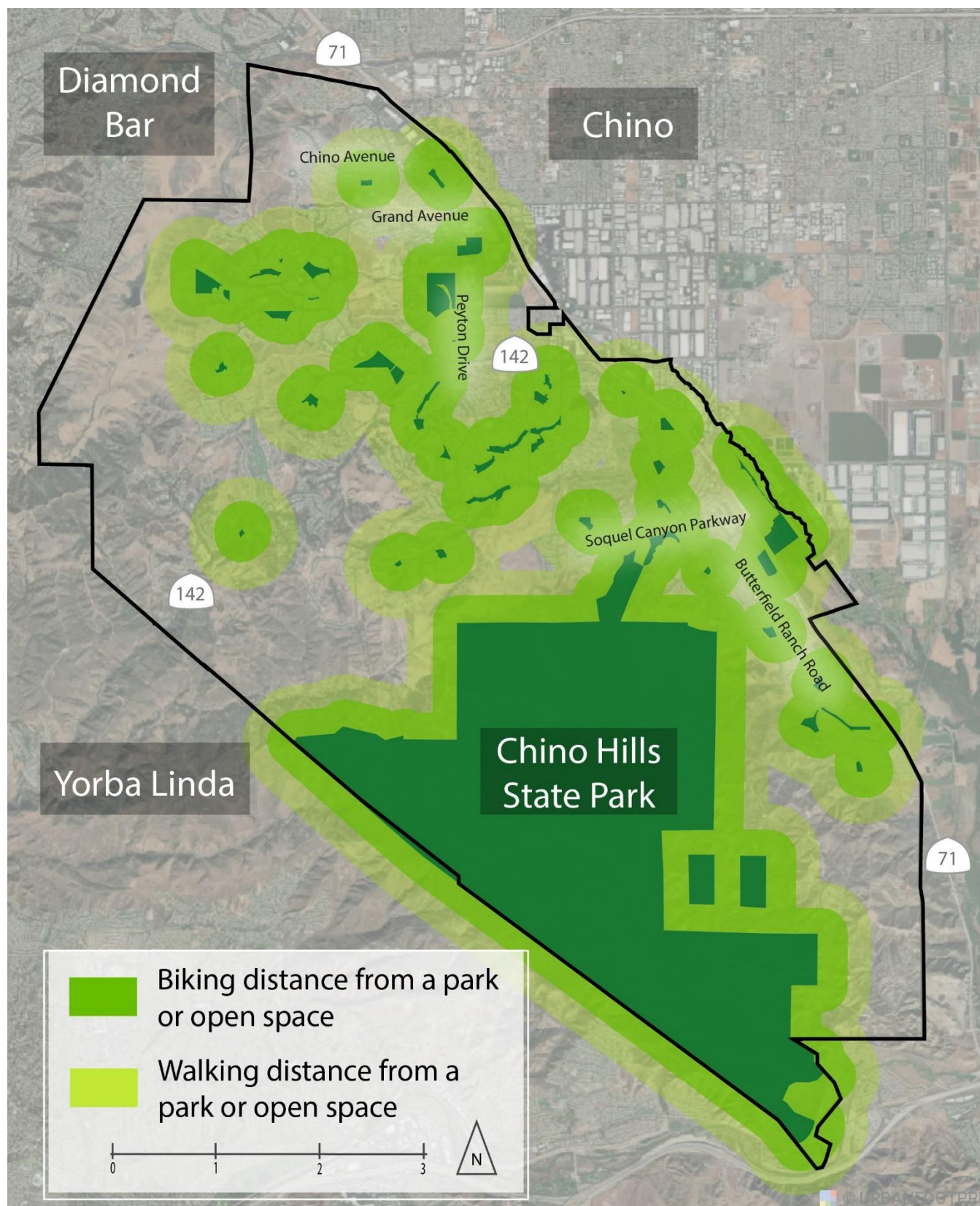


Table 2. Park Access

Distance per Mode of Transportation	Percent of Households		
	Chino Hills	San Bernardino County	California
Walking Distance to a Park (0.5 miles of a park, beach, or open space greater than 1 acre)	92.10	60.2	76.70

Source: Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthyplacesindex.org/>.

Legend: Quartile 1 = Good, Quartile 2 = Moderate, Quartile 3 = Poor, Quartile 4 = Challenged

How

The City is working to continue to provide quality parks and recreation facilities to serve its population. In 2019, the City Parks and Recreation Commission approved an updated Parks and Recreation Master Plan. The Master Plan update process included an extensive community outreach effort. Based on community input received, the Master Plan identified future facility needs, including an aquatic center, an indoor gym, a performing arts center, splash pads, a fitness center, tennis and pickleball courts, and more parks. The park needs included a new 2.3-acre park and expansion of two existing park sites. These Master Plan findings will be incorporated into the General Plan update Parks, Recreation and Open Space Element. There are also many policies within the Circulation Element that promote walking and biking trips, which can improve the accessibility of parks.

Public Transportation

What

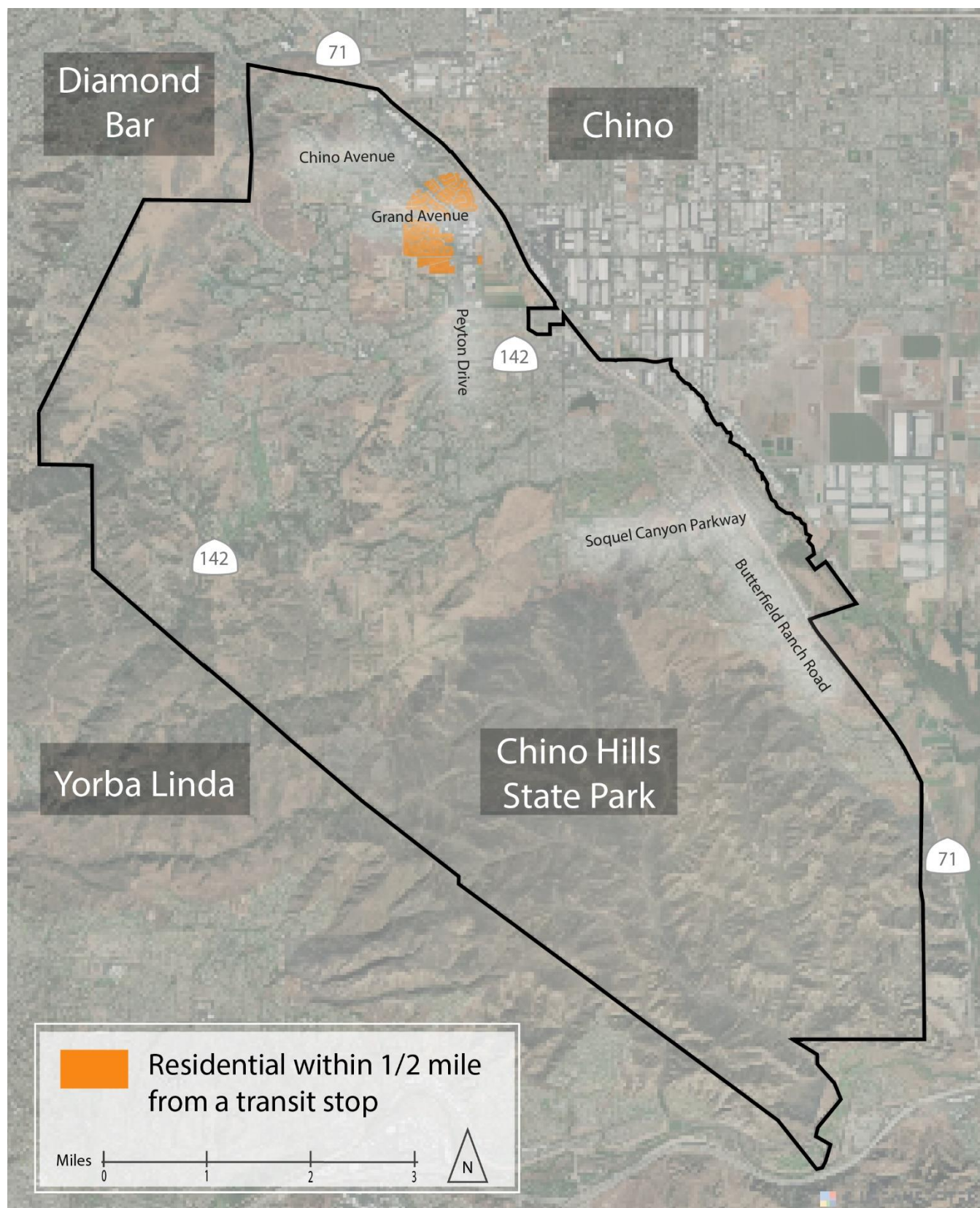
Being able to get from home to work, a grocery store, or a laundry service is essential for day-to-day life. Without access to a car, active transportation and public transportation are the only options. This makes active transportation and public transportation major equity issues.

Where

Most Chino Hills residents depend on driving to travel to work, school, and shopping. Transit in Chino Hills is provided by OmniTrans, which operates one fixed route line, No. 88, which runs from The Shoppes Retail Center located at Grand Avenue and Peyton Drive in the northeast quadrant of Chino Hills and connects east and north to Chino Transit Center and Montclair Transit Center. This route provides transit connections to shopping and employment areas outside of Chino Hills. The Pomona Transit Station is approximately 7 miles north of Chino Hills and provides rail service to Los Angeles and Riverside. **Figure 3** shows residential proximity to the existing transit stop in Chino Hills.

OmniTrans also provides a citywide OmniRide on-demand transit service that serves all of Chino Hills. OmniRide is a reservation-based, on-demand, shared transit service (like Uber or Lyft), providing local service in Chino/Chino Hills and Upland.

Figure 3 Residential Proximity to Transit



Who

As shown in **Table 3**, residents of Chino Hills are very likely to have a car, though there are residents without cars. Approximately 0.5% of Chino Hills households live within a short walk to the existing transit stop (0.25 miles) and approximately 3% of Chino Hills households live within a short bike ride of the transit stop (0.5 miles).

Although most Chino Hills residents have access to a car, some indicated that they see the lack of transit access as an important issue in their city in the 2022 Community Survey and Public Workshop. There was an emphasis on the need for more stops near important destinations and services.

Table 3. Public Transportation Access

Transit Indicators	Percent of Households		
	Chino Hills	San Bernardino County	California
Households with access to a Car	97.60	97.60	92.90
Households within biking Distance to a Major Transit Stop (0.5 miles or a 10-minute walk to a bus stop with 15-minute headways during peak hours)	2.33	—	—
Households with in walking Distance to Nearest Bus Stop (0.5 miles or a 10-minute walk to any bus stop)	3.41	—	—

Source: Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthyplacesindex.org/>. "Transitland Version 2." Transitland, May 29, 2021. <https://www.transit.land/>.

Legend: Quartile 1 = Good, Quartile 2 = Moderate, Quartile 3 = Poor, Quartile 4 = Challenged

How

OmniTrans is the sole public transit provider in Chino Hills and also serves portions of San Bernardino County. As noted above, OmniTrans also provides OmniRide, which offers free fares for K–12 students, and low-cost on-demand transit and discounted services for veterans, seniors, people with disabilities, and people receiving Medicare.⁸

The City also maintains close communications with OmniTrans to expand both ridership and service in Chino Hills. This communication occurs both at staff level and at the City Council level with a City Councilmember regularly attending OmniTrans board meetings. Policies of the City's 6th Cycle Housing Element, specifically Action H-3.2.2 and Policy Metrics H-3.2, commit to continuing these efforts.

Libraries and Community Centers

What

Libraries and community centers provide important community amenities, which improve quality of life. Amenities such as community events, Wi-Fi, educational opportunities, air conditioning, technology, and recreation are offered in these public spaces.

⁸ OmniTrans. 2022. OmniTrans. <https://omnitrans.org/>.

Where

Chino Hills has a Civic Center adjacent to The Shoppes at Chino Hills, which includes City Hall, the James S. Thalman Library, the Sheriff's Department, Chino Valley Fire District, and a US Postal Service office. Additionally, the City has a large Community Center near the Government Center at 14250 Peyton Drive. The Community Center has a banquet hall, conference rooms, fitness rooms, a commercial kitchen, and outdoor amenities.

Additional City recreation facilities include Grand Avenue Park Community Building, McCoy Equestrian & Recreation Center, Mystic Canyon Community Building, and Sleepy Hollow Community Building. Many of the City's parks have gazebos that can be rented by residents for private gatherings, including Alterra Park, Butterfield Park, Crossroads Park, Danbury Park, English Springs Park, Fairfield Ranch Park, Grand Avenue Park, Los Serranos Park, Pinehurst Park, Vellano Park, and Vila Borba Park. **Figure 4** shows the locations of all City recreation facilities listed, including parks with rentable gazebos.

Who

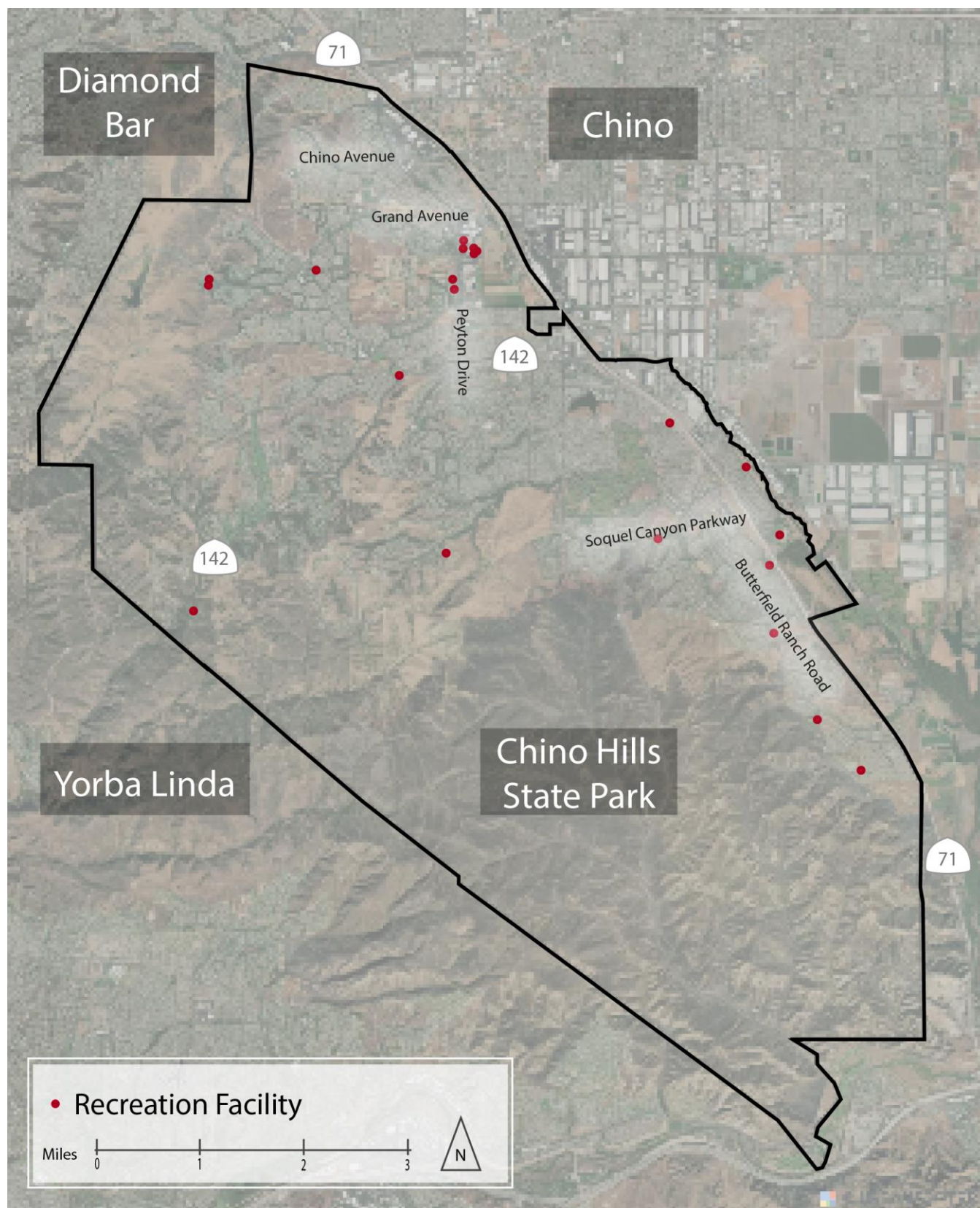
The City's Civic Center, along with The Shoppes and nearby Community Center, serve as a quasi "downtown" or "one-stop-shop" of community recreation, education, socialization, and services. These are centrally located along the City's primary arterials of Peyton Avenue and Grand Avenue, in the northeastern quadrant of Chino Hills. The other recreation facilities, noted above, provide convenient opportunities for residents in the western and southern-most neighborhoods in Chino Hills.

How

The City makes regular improvements and maintenance to public facilities to ensure their continued value to the community. The Community Center and other recreation facilities regularly host activities specifically for children, teens, older adults, and the art community. Facilities can also be rented by community members. The General Plan's Parks, Recreation and Open Space Element policies influence community facilities in Chino Hills. As noted previously, policies of the 2019 Parks and Recreation Master Plan will be incorporated into the General Plan update. These policies include compliance with the Americans with Disabilities Act (ADA); provision of adaptive play equipment; use of existing and shared facilities, where feasible, to meet changing community needs; and use of the Parks and Recreation Master Plan as a fluid document, intended to provide recommendations that may be updated and modified to respond to changing conditions and community needs and desires.

Recent examples of the City's fluidity in addressing community recreation needs include the addition of bike repair stations in parks, a splash pad at Pinehurst Park, and pickleball courts.

Figure 4 Recreation Facilities



Safe Walking and Biking

What

Walking and biking around a community offers an affordable and healthy way to get around. Walking and biking as a replacement for car trips can also reduce air pollution, traffic, and wear and tear on local roads. Providing safe corridors to walk and bike is important in a healthy community, especially if community members walk or bike as part of their regular commute to school or work.

Where

One way to measure how unsafe an area is for walking and biking is through collision data. On average, compared to the State, Chino Hills has a low rate of pedestrian injuries. The highest rates of severe and fatal pedestrian injuries occur in an area contained within Peyton Drive to the west, Eucalyptus Avenue to the north, Pipeline Avenue to the east, and Woodview Road to the south. This area is the only area that sees pedestrian injuries at a higher rate than the State average.⁹

From 2016 through 2020, 28 bike crashes and 28 pedestrian crashes occurred in Chino Hills for a total of 56 crashes. Many crashes occurred along Peyton Drive, Carbon Canyon Road, Butterfield Ranch Road, and Chino Hills Parkway, which are wider, more heavily used roads with higher speed limits. Thirteen crashes occurred at intersections, and three of these intersections had two crashes reported: Butterfield Ranch Road and Soquel Canyon Road, Chino Avenue and Peyton Drive, and Soquel Canyon Road and Talbot Court. Of Chino Hills' bike and pedestrian crashes, 30% occurred during morning rush hour (between 6 a.m. and 9 a.m.), with no other 3-hour period making up more than 17% of the crashes.¹⁰

All reported accidents, as well as complaints regarding unsafe street conditions, are addressed by the City Traffic Safety Committee. The Committee consists of representatives from the City Public Works Department, Building Division, and Police Department and meets monthly to facilitate pedestrian, bike, and vehicular safety.

According to the 2022 Community Survey and Public Workshop, many residents would walk or bike more if sidewalks, crossings, and bike lanes were safer and, most of all, if cars were slower and/or more cognizant of people who bike and walk. Some respondents indicated that safe walking and biking routes to stores and city facilities would improve their overall access to these destinations. Above all, residents exhibited concern over traffic safety. Many indicated that they have observed a variety of traffic violations in their neighborhoods, which make it less safe to walk or bike.

Who

Walking and biking can feel or be more unsafe for certain individuals than others. Older adults and people with physical disabilities may be less able to cross an intersection during the time allotted by a stop light. People who bike less frequently may be less comfortable navigating areas of town with more traffic. Additionally, people who regularly bike or walk for work or other regular errands are most at risk because they are on the street the most. Chino Hills has low rates of pedestrian injuries compared to San Bernardino County and the State (see **Table 4**); this may be because Chino Hills has a low number of active commuters (people who walk, bike, or ride transit to work), relative to both Los Angeles County and the State.

⁹ Public Health Alliance of Southern California. 2022.

¹⁰ SafeTREC and UC Berkeley. 2020. "Transportation Injury Mapping System." <https://tims.berkeley.edu/tools/gismap/>.

Table 4. Pedestrian Safety

Pedestrian Indicators	Location		
	Chino Hills	San Bernardino County	California
Pedestrian Injuries (annual average rate of severe and fatal pedestrian injuries per 100,000 people)	0.000017	0.000059	0.000059
Active Commuters (% of workers 16 years and older who commute to work by transit, walking, or cycling)	1.34	3.09	8.99

Source: Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthypacesindex.org/>.

Legend: Quartile 1 = Good, Quartile 2 = Moderate, Quartile 3 = Poor, Quartile 4 = Challenged

How

The City uses many policies and programs to accommodate alternative modes of transportation and create better citywide multimodal accessibility. The Circulation Element covers the majority of these policies and specifically calls out pedestrian and bike infrastructure at times, such as in Policy 6.1.4, which states, "provide commercial areas that are conducive to pedestrian and bicycle circulation." The Public Works Department is the main implementor of road improvements, and the Community Development Department has influence over land use planning and development requirements that relate to active transportation. The Public Works Department participates in the review of land development projects, providing the Community Development Department input related to street access and needed improvements.

Safe and Sanitary Homes

What

Conventionally, housing issues overlap with environmental justice primarily in the form of safe and sanitary living conditions within residences. Low-income residents are more likely to live in structures built before building standards regulating lead paint, asbestos, and other hazards were adopted. Living in these older homes, without removal of such toxins, can have significant long-term health impacts. Older housing stock might also have poor ventilation, leading to uncomfortable indoor temperatures and excessive moisture, which can lead to mold. Other indoor housing conditions that can be common in older and less-expensive housing include pests and vermin. Finally, overcrowding is a serious issue that impacts homes. According to the World Health Organization, overcrowding poses health risks by creating unsanitary conditions that can contribute to the spread of disease.¹¹

Moreover, the high cost of housing in California can contribute to or perpetuate overcrowding and poor living conditions and thus represent an environmental justice issue. High housing costs are often measured by housing burden. Housing burden refers to when residents pay more than 33% of their income on housing, and severe housing burden is when residents pay more than 50% of their income on housing. People experiencing this housing issue are less likely to be able to afford to make improvements to homes they own and are less likely to move away from rental properties that are unsanitary. To avoid increases in rent, these renters also may be less likely to bring up needed repairs to the property owners, and to avoid housing burden, some households will live in overcrowded spaces.

¹¹ WHO (World Health Organization). 2021. "What are the Health Risks Related to Overcrowding?" https://www.who.int/water_sanitation_health/emergencies/qa/emergencies_qa9/en/#:~:text=For%20communities%2C%20inadequate%20shelter%20and,the%20population%20density%20is%20high.

Housing equity is another issue separate from conventional environmental justice housing topics. Supportive services and equal opportunities for housing have historically not always been available. Several historic Federal, State, local, and private policies in the early 1900s contributed to exclusion and a reduction in homeownership by people of color. These policies included things like redlining, unequal mortgage and loan processes, race-restricted covenants on homes, case-by-case discrimination by realtors, and more. Homeownership is a major path toward wealth accumulation in the United States, and these historic policies contributed to generational wealth inequality.

Where

Overall, housing conditions throughout Chino Hills are good. However, areas where housing is 30 years old or older tend to require more repairs and updates to ensure that the housing is safe and sanitary. Since, about 53% of the housing stock in Chino Hills is 30 years old or older, it is important to monitor the condition of housing in Chino Hills. Most of the City's oldest housing is in Los Serranos and Sleepy Hollow, and, according to Code Enforcement, Los Serranos and Bayberry have the most code violations with regards to housing conditions. In a Windshield Survey of homes in these neighborhoods, 3.2% of the 2,189 homes surveyed were in Moderate condition, meaning that they require minor wall, roof, and/or eave repairs. Only one of the homes surveyed was in Substantial condition, meaning that it needs major structural repairs. It is also important to consider the fact that Los Serranos is home to a higher proportion of low-income residents, Hispanic residents, and residents with disabilities than any other neighborhood in Chino Hills.

Who

Chino Hills has a high rate of homeownership and relatively low rates of housing cost burden and overcrowding compared to the region and the State (see **Table 5**). According to CalEnviroScreen 4.0, Chino Hills has a very low rate of severe housing burden (spending over 50% of their income on housing) among low-income households (households making less than 80% of the area median income).¹² Across much of Chino Hills, less than 15% of residents are severely housing burdened low-income households. Some of this data can be misleading, however, due to the low number of low-income residents in Chino Hills. When looking only at low-income households in Chino Hills, over half are severely housing burdened. Therefore, while the issue may be smaller in magnitude in Chino Hills than in the region, housing burden is still a major issue for the City's low-income households. This is reflected in the 2022 Community Survey. Of those who responded to questions related to housing issues, a majority indicated that the biggest issue in their neighborhood is affordability of housing and/or home utilities.

Table 5. Housing Indicators

Housing Indicator	Percent of Households		
	Chino Hills	San Bernardino County	California
Homeowners	74.9	59.80	54.90
Low Income Homeowner Severe Cost Burden (homeowners who pay more than 50% of their income on housing costs)	9.12	10.80	11.10
Low Income Severe Renter Cost Burden (renters who pay more than 50% of their income on housing costs)	13.40	27.20	26.20

¹² OEHHA (California Office of Environmental Health Hazard Assessment). 2021. "Housing Burden." CalEnviroScreen 4.0. Accessed August 2022. <https://oehha.ca.gov/calenviroscreen/indicator/housing-burden>.

Table 5. Housing Indicators

Housing Indicator	Percent of Households		
	Chino Hills	San Bernardino County	California
Overcrowding (households with more than 1 occupant per room)	3.40	8.80	8.30

Source: Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthypacesindex.org/>.

Legend: Quartile 1 = Good, Quartile 2 = Moderate, Quartile 3 = Poor, Quartile 4 = Challenged

How

The City implements many regulations, policies, and programs to improve various housing conditions. For example, the City can provide incentives for homeowners and property owners to improve housing conditions, alter what housing is allowed to be built, or determine what housing conditions are able to persist. Although not all housing programs and policies are directly related to improving safe and sanitary housing, many have the secondary impact of doing so. For example, policies that allow for more affordable housing to be built can allow for residents to move away from overcrowded situations, which can improve the health of the housing situations for multiple people.

Many of the Housing Element's policies promote affordable housing development, including Policy H-1.2, Policy H-1.3, and Policy H-4.5. Others offer support for housing quality improvements, including Policy H-2.2 and Policy H-2.3. All policies and actions under Goal H-4 promote equity and housing access for populations with varied needs, including older adults, people with disabilities, people experiencing homelessness, and low-income households. Finally, actions and policies under Goal H-5 promote equal access to housing, specify fair housing education programming, and support enforcement of fair housing laws.

Air Pollution

What

The State of California measures 10 air pollutants. These pollutants are measured separately and compared to "healthy levels" determined by the State. Air is considered polluted when it does not meet the standard set by the State or Federal government. Chino Hills is located within the South Coast Air Basin. Air basins were created by the State of California based on where air naturally stagnates. The South Coast Air Basin is a coastal plain with connecting broad valleys and low hills that extend across the entirety of Los Angeles and Orange Counties, as well as the western portions of Riverside and San Bernardino Counties. The Pacific Ocean forms the southwestern border and high mountains surround the rest of the air basin. Currently the South Coast Air Basin is not in attainment for ozone or fine particulate matter (PM_{2.5}) standards.¹³

The South Coast Air Quality Management District (SCAQMD) is the air pollution control agency that provides direction regarding the management of air quality within the region. SCAQMD is responsible for controlling air pollution mainly from stationary sources, such as large power plants, refineries, gas stations, and some consumer products. SCAQMD also monitors air quality. The air pollution monitoring sites closest to Chino Hills are located in Pomona to the north, La Habra to the west, and Jurupa Valley to the east. These monitoring sites can provide a general understanding of air quality, but air pollution varies locally and reduces as it moves away from the source. Air

¹³ SCAQMD (South Coast Air Quality Management District). 2016. "National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for the South Coast Air Basin." <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf>.

pollution is likely worse in communities closer to the highly trafficked roadways of State Route 71, State Route 60, and State Route 142. Chino Hills' lack of railroads and industrial areas mean there are limited sources of pollution beyond car and truck traffic.

Ozone

Ground-level ozone is most commonly known as smog. Smog is caused by a chemical reaction when sunlight interacts with nitrogen oxides (NO_x) and volatile organic chemicals (VOCs), both of which are common emissions from cars. As regional temperatures increase due to climate change, it is anticipated that the amount of ground-level ozone will also increase if the amount of car traffic and other sources of NO_x and VOCs do not decrease. From 2019 to 2021, the South Coast Air Basin exceeded the 8-hour Federal standard for ozone an average of 134 days a year.¹⁴

The main contributors to the pollutants that form ground-level ozone in Chino Hills are vehicle emissions. Ground-level ozone can cause health issues, including difficulty breathing, coughing, inflamed airways, asthma attacks, and heart disease.

Particulate Matter

Particulate matter (PM) is made of microscopic solids and liquids in the air that are small enough to breathe. PM_{2.5} is 2.5 microns or less in diameter, or 1/28 the thickness of human hair. PM_{2.5} results from burning fuel for cars, trucks, and industrial processes. PM_{2.5} is small enough to get into the human bloodstream and can pose a high risk to human health. Similar to ozone, PM causes asthma and heart disease.¹⁵ From 2019 through 2021, PM_{2.5} exceeded 24-hour Federal standards an average of 26 days a year in the South Coast Air Basin.¹⁶

PM₁₀ is 10 microns or less in diameter, and includes dust, ash, and other small particles in the air. PM₁₀ is less detrimental to health in comparison to PM_{2.5} because it does not penetrate as deeply into peoples' lungs, but it still can cause irritation and some long-term respiratory effects. From 2019 through 2021, Federal 24-hour standards were exceeded on an average of 3 days per year, and State standards were exceeded for over half of the days over that same span.¹⁷

When

Chino Hills' levels of air pollution will increase as a result of climate change contributing to higher-than-average temperatures and longer warm seasons. Longer warm seasons can also contribute to longer pollen seasons, which can increase allergies and asthma episodes.¹⁸ Higher temperatures associated with climate change can also lead to elevated ozone levels by causing a higher rate of chemical reactions in the air. This will likely have the greatest impact in the summer months when temperatures are highest. However, the future level of air pollution will also depend on State laws mandating standards such as fuel efficiency and potential electrification of cars and trucks.

¹⁴ CARB (California Air Resources Board). 2022. "Air Quality Data (PST) Query Tool." Retrieved August 2022. <https://www.arb.ca.gov/aqmis2/aqdselect.php?tab=daily>.

¹⁵ Pope III, C.A., R.T. Burnett, M.J. Thun, E.E. Calle, D. Krewski, K. Ito, and G.D. Thurston. 2002. "Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution." *The Journal of the American Medical Association* 287: 1132–1141.

¹⁶ CARB 2022.

¹⁷ CARB 2022.

¹⁸ Hall, A., N. Berg, and K. Reich. 2018. "Los Angeles Summary Report." California's Fourth Climate Change Assessment. University of California, Los Angeles. Publication number: SUM-CCCA4-2018-007.

Where

Local air pollution is often higher in communities with low tree cover, limited park access, and high levels of traffic.¹⁹ **Figure 5** displays major sources of air pollution.

As shown in **Figure 5**, most of Chino Hills is separated from major roadways and have air pollution mitigated by trees in yards and parks and lining the streets.

Who

People with existing health conditions, such as asthma and heart disease, are more sensitive to air pollution. These health conditions are also caused by exposure to air pollution. This means that living in communities near sources of pollution causes cycles of health concerns. Chino Hills has fewer asthma and heart attack emergency room visits than regional and State averages.

Additionally, people who spend more time outdoors, including young children, people who work outdoors, and people who get to work without a car, are often exposed to polluted air at higher rates. Of these highly exposed populations, only children under 5 years old are present at similar rates as the State, with outdoor workers and active commuters seen at lower rates (see **Table 6**).

Table 6. Populations Vulnerable to Air Pollution

Population	Incidence in Population		
	Chino Hills	San Bernardino County	California
Children under Five (%)	6.07	7.33	6.39
Outdoor Workers (% of population 16 and older)	3.97	6.15	6.36
Active Commuters (% of population who commute by walking, biking, or taking public transit)	1.34	3.09	8.99
Asthma (asthma ER visits per 10,000 people)	0.261	0.658	0.518
Cardiovascular Disease (heart attack ER visits per 10,000 visits)	0.08	0.116	0.084

Source: Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthyplacesindex.org/>.

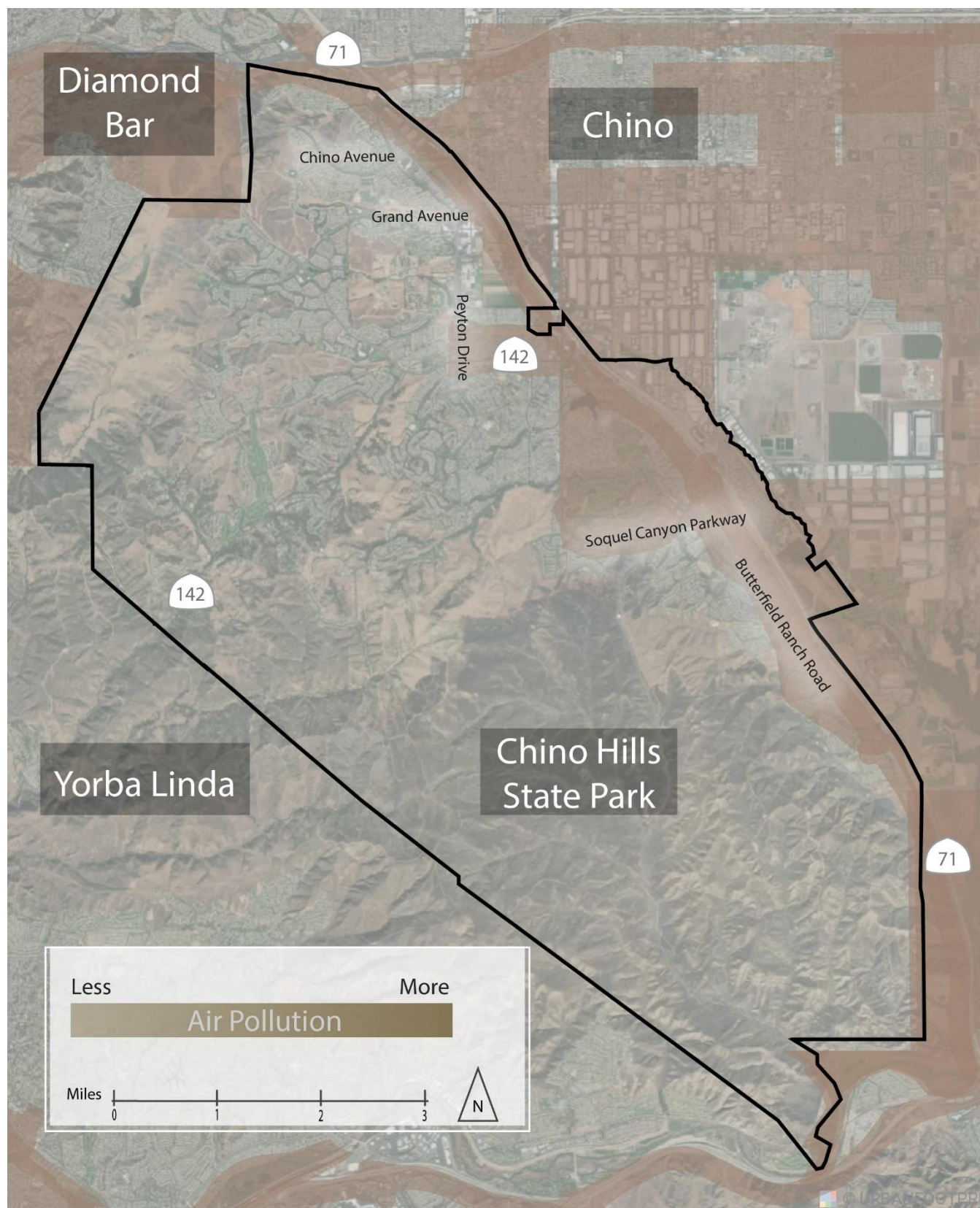
Notes: ER = emergency room. Higher populations are shown as "worse" in Table 6 specifically for vulnerability to air pollution, but these are not necessarily an overall "good" or "bad" trait for a community to have.

Legend: Quartile 1 = Good, Quartile 2 = Moderate, Quartile 3 = Poor, Quartile 4 = Challenged

Based on the 2022 Community Survey and Public Workshop, it seems that residents of Chino Hills are less concerned about pollution than other topics but are more concerned about air pollution than other types of pollution. Comments received on pollution-related topics indicate that some residents are especially concerned about impacts from wildfire smoke.

¹⁹ Frumkin, H., L.D. Frank, and R.J. Jackson. 2004. *Urban Sprawl and Public Health: Designing, Planning, and Building for Healthy Communities*. Washington, DC: Island Press.

Figure 5 Major Sources of Air Pollution



How

SCAQMD develops and adopts an Air Quality Management Plan every 3 years in compliance with Federal and State clean air standards. Primarily, Air Quality Management Plans provide regional agencies and local municipalities with policy and program options to improve local and regional air quality. The City's General Plan also includes policies and programs to address air pollution. Some policies are intended to reduce vehicle miles traveled, while others like Circulation Element Policy 2.1.3 provide guidance for buffers between traffic-intensive land uses and roadways and residential uses. Buffers are an effective way to reduce the local air pollution experienced by community members.

Local air quality is improved by the over 47,500 trees located on publicly maintained land throughout the community. Trees are a valuable asset because they provide shade, deflect the wind, clean the air, reduce noise levels, and tremendously enhance the appearance of our neighborhoods. The City is dedicated to preserving trees because of their inherent value. Trees are trimmed in conformance with the International Society of Arboriculture Standards to enhance the health and integrity of Chino Hills' trees.

Hazardous Materials

What

Hazardous materials are substances that can cause death, serious illness, or hazard to human health or the environment when they are not properly treated, stored, transported, or disposed of. Nearly all households and businesses have some amount of hazardous waste because many household substances are considered hazardous, including gasoline, refrigerants, paint, and some gardening supplies. Additionally, certain businesses, such as gas stations, car repair shops, and dry cleaners, generate greater amounts of hazardous waste. Hospitals, clinics, and laboratories generate medical waste, which can also be hazardous. Hazardous wastes are hazardous materials that no longer have practical use but have not yet been properly disposed of.

Where

Hazardous materials and waste can be found anywhere as a result of improper disposal or storage, but sites with large concentrations of hazardous materials are catalogued by EnviroStor and GeoTracker. EnviroStor is a data management program operated by the Department of Toxic Substances Control that is used to monitor, investigate, permit, and clean up sites with known contaminants. GeoTracker monitors underground storage tanks and other sources of groundwater contamination.

There is one active EnviroStor site in Chino Hills. This site is a former assembling, packing, research, and testing facility for munitions systems owned by Aerojet Rocketdyne (AR). It is in an unpopulated area in the western portion of Chino Hills, and no groundwater is sourced from this area. Thus, it has likely had no effect on the community. However, AR decided to dispose of the property in the mid-1990s and began the required cleanup and remediation process with the goal of making the property safe for unrestricted use by the next owner(s). While an end date to the cleanup project cannot be determined, the site is nearing the end of the process. In 2020, analyses of the soil and surface waters indicated that concentrations of toxic and/or explosive chemicals and cumulative health risks are sufficiently low to allow unrestricted use of all three Management Areas on the site.²⁰

²⁰ Wood Environment & Infrastructure Solutions Inc. 2020. Human Health and Ecological Risk Assessment Report Former Aerojet Rocketdyne Facility.

Who

Although it is not good for anyone to be exposed to hazardous waste near their place of residence, people more vulnerable to toxic chemicals include infants and children. Infants and children have a greater pound-for-pound exposure and less ability to detoxify and excrete these chemical toxins. Additionally, older adults and those with pre-existing conditions might be more vulnerable to toxic chemicals due to compromised immune systems.²¹ Of the population in Chino Hills, 6.07% are children younger than 5 years old, which is near the State average. Older adults in Chino Hills make up 10.8% of the population, which is similar to the County average and slightly less than the State average.²²

How

The State and Federal government provide regulations regarding hazardous waste storage and transportation.

Regarding household hazardous waste, the City uses its website to educate residents on what waste should not go to landfills and advertises where residents can go to dispose of household hazardous waste.

²¹ EPA (U.S. Environmental Protection Agency). 2020. "Exposure Assessment Tools by Lifestages and Populations - Highly Exposed or Other Susceptible Population Groups." Accessed August 19, 2020. <https://www.epa.gov/expobox/exposure-assessment-tools-lifestages-and-populations-highly-exposed-or-other-susceptible>.

²² Public Health Alliance of Southern California. 2022. "The California Healthy Places Index." <https://map.healthyplacesindex.org/>.

Chino Hills Environmental Justice Policy Menu

This policy menu was developed based on the findings of the existing conditions report. It is organized by General Plan Element, then further divided by the six pillars of Environmental Justice as defined by SB 1000.

Circulation Element

Public Facilities

1. Prioritize transportation investments to increase safety around parks, open spaces, community centers, major shopping centers, schools, preschools, and childcare centers.
2. Make available to the public maps that show mobility routes for walking, biking and transit, as well as, how these networks connect to schools, parks, healthy food, and transit.
3. Require EV chargers in new public and private developments, including new multifamily developments.

Public Transportation

1. Work to ensure that all transit stops have as many amenities as feasible such as: shade structures, water fountains, wayfinding, live route information, and bicycle parking.
2. Partner with transit agencies to continue and further develop a free or reduced fare program, and other transportation modes such as dial-a-ride, for youth, seniors, disabled, and other vulnerable populations.

Walking and Biking

1. Make available to the public maps that show mobility routes for walking, biking and transit, as well as, how these networks connect to schools, parks, healthy food, and transit.
2. Add bike lanes, sidewalks, and crosswalk improvements to close gaps in walking and biking networks and improve safe mobility across the City with a focus on areas around schools and public facilities.

Conservation Element

Air Pollution

1. Require landscaping, ventilation systems, double-paned windows, setbacks, barriers, air filters and other measures to achieve healthy indoor air quality levels in the development of new sensitive land uses.
2. Review CEQA checklist for Air Quality Impacts to sensitive land uses and model mitigation measures consistent with the most recent CAPCOA handbook.
3. Provide public information to let residents living within 1,000 feet of a freeway know what the risks are and what mitigation measures they can take. These would include things such as installing high-efficiency

air filters, keeping windows closed in the early morning, refraining from outdoor exercise in the mornings, installing thick landscaping, reducing driving, and using public transport instead.

4. Prioritize tree planting on high volume roadways adjacent to sensitive uses.

Hazardous Waste

1. Partner with the City's franchised solid waste hauler to host regular cleanup events, including e-waste collection.
2. Work with the County of San Bernardino and the City's franchised solid waste hauler to advertise programs and locations accepting household hazardous materials, such as paint, batteries, motor oil and oil filters.

Land Use Element

Healthy Balanced Neighborhoods.

1. Pursue programs and services that assist senior, disabled and lower income households locate and remain in Chino Hills neighborhoods.
2. Strive to locate groceries and other healthy food retailers within a short or walking distance of all residents.
3. Support farmer's markets in the community.
4. Implement Housing Element policies that support maintenance of a both multifamily for sale housing and rental housing options.

Parks, Recreation, and Open Space Element

Parks

1. As part of future Parks Master Plan updates, consider opportunities for community gardens.
2. Maintain shade trees and landscaping that makes parks more comfortable and visually appealing while adapting to extreme heat and drought.
3. Continue to ensure that parks available in all residential areas of the City. Provide a wide variety of recreation programs that meet the diverse needs of the community and contribute to the physical and mental health of the population.
4. Provide in each park site various facilities that, at a minimum, include bike racks, picnic tables, benches, drinking fountain, restrooms, signage, concrete trash receptacles, tot lot and accommodations for at least one other sport or recreational activity.
5. Ensure that all existing and future recreation facilities are accessible to everyone and consistent with the requirements of the Americans with Disabilities Act.
6. Add or improve public access to WIFI in parks.

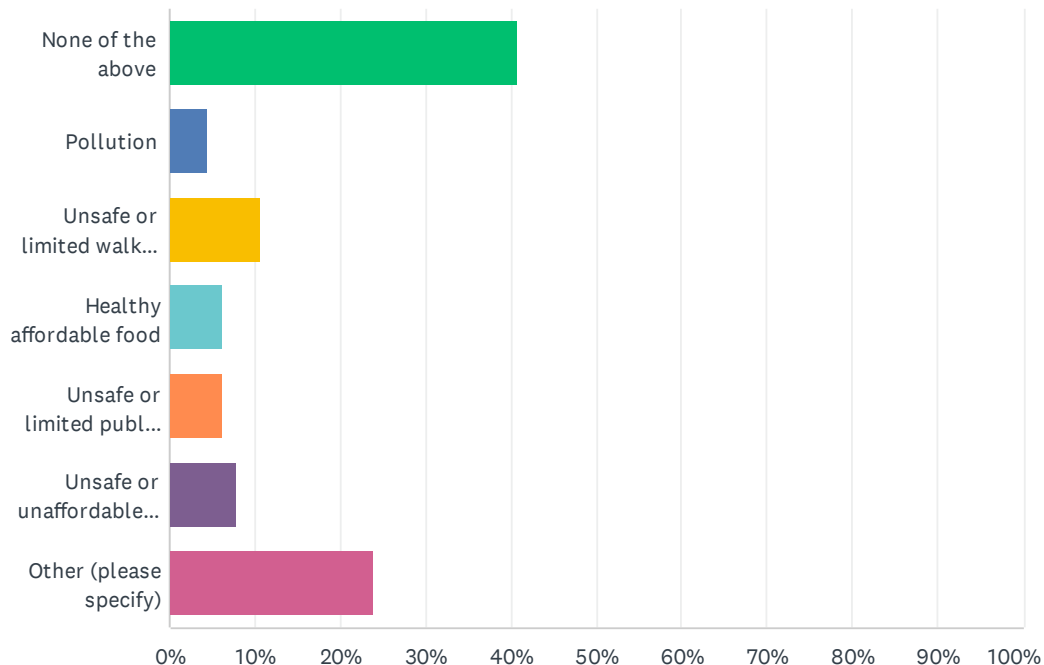


APPENDIX A:

DETAILED SURVEY RESULTS

Q1 Which of the following issues is the most prevalent in your neighborhood?

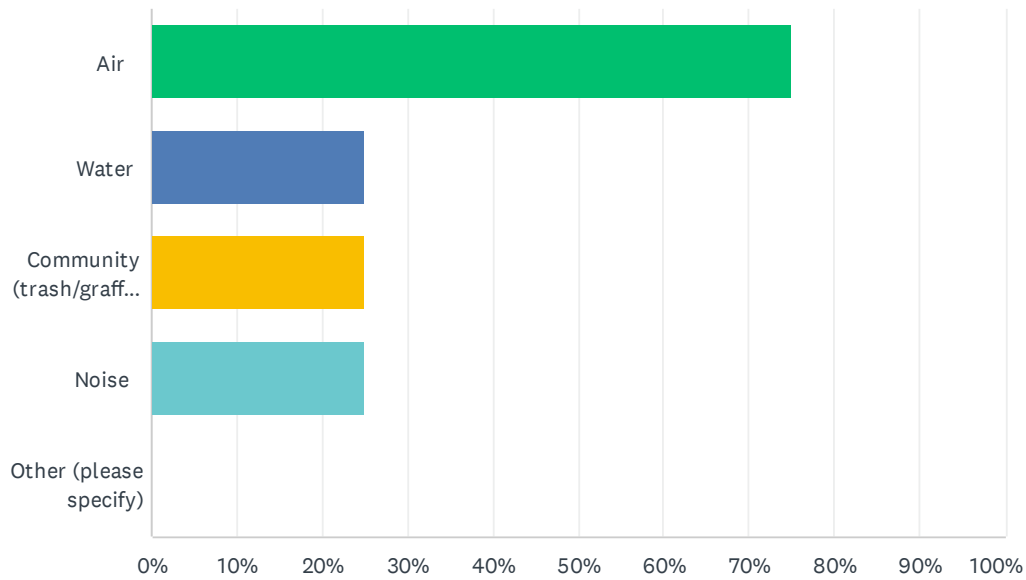
Answered: 113 Skipped: 1



ANSWER CHOICES	RESPONSES	
None of the above	40.71%	46
Pollution	4.42%	5
Unsafe or limited walking and biking	10.62%	12
Healthy affordable food	6.19%	7
Unsafe or limited public facilities (e.g. parks, libraries)	6.19%	7
Unsafe or unaffordable housing	7.96%	9
Other (please specify)	23.89%	27
TOTAL		113

Q2 Which parts of your environment feel polluted? (select up to three)

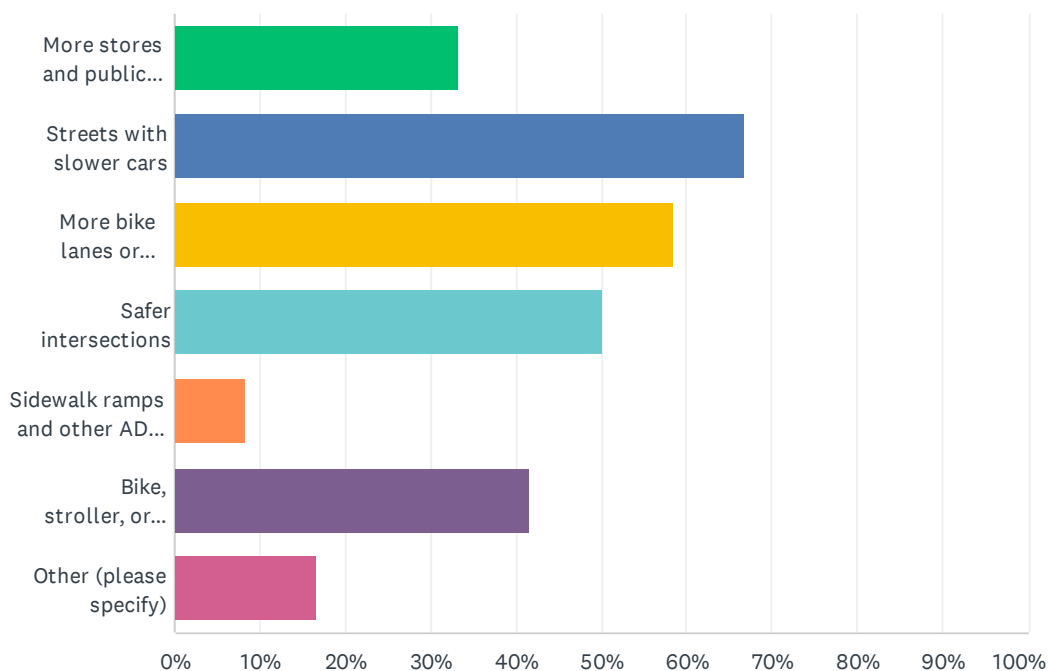
Answered: 4 Skipped: 110



ANSWER CHOICES	RESPONSES	
Air	75.00%	3
Water	25.00%	1
Community (trash/graffiti)	25.00%	1
Noise	25.00%	1
Other (please specify)	0.00%	0
Total Respondents: 4		

Q3 What would encourage you to walk or bike more? (select up to three)

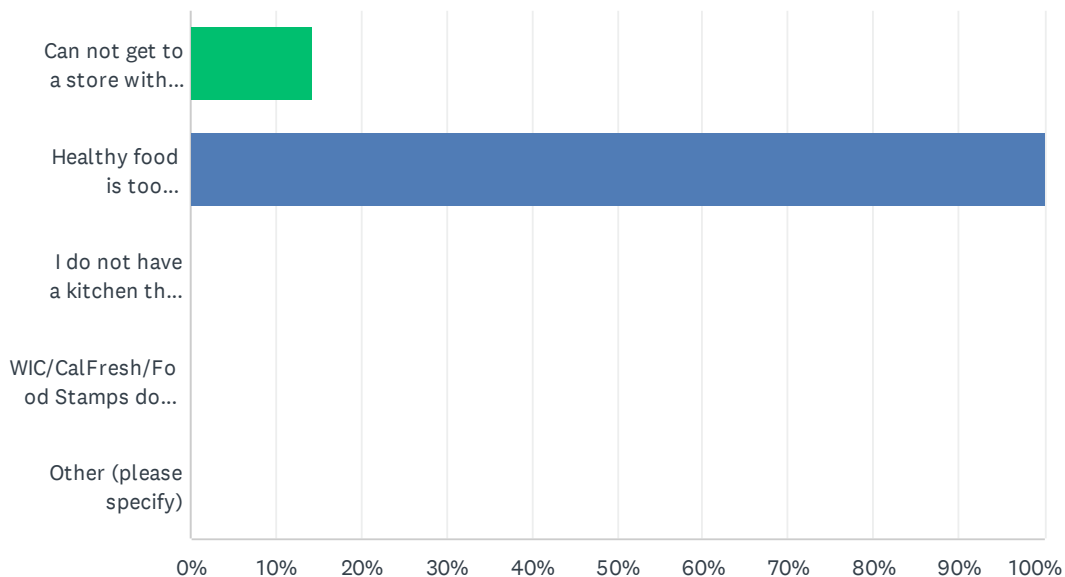
Answered: 12 Skipped: 102



ANSWER CHOICES	RESPONSES	
More stores and public spaces in walking and biking distance of my home	33.33%	4
Streets with slower cars	66.67%	8
More bike lanes or sidewalks	58.33%	7
Safer intersections	50.00%	6
Sidewalk ramps and other ADA improvements	8.33%	1
Bike, stroller, or scooter parking at important destinations	41.67%	5
Other (please specify)	16.67%	2
Total Respondents: 12		

Q4 What are the greatest challenges to maintaining a healthy diet? (Select up to three)

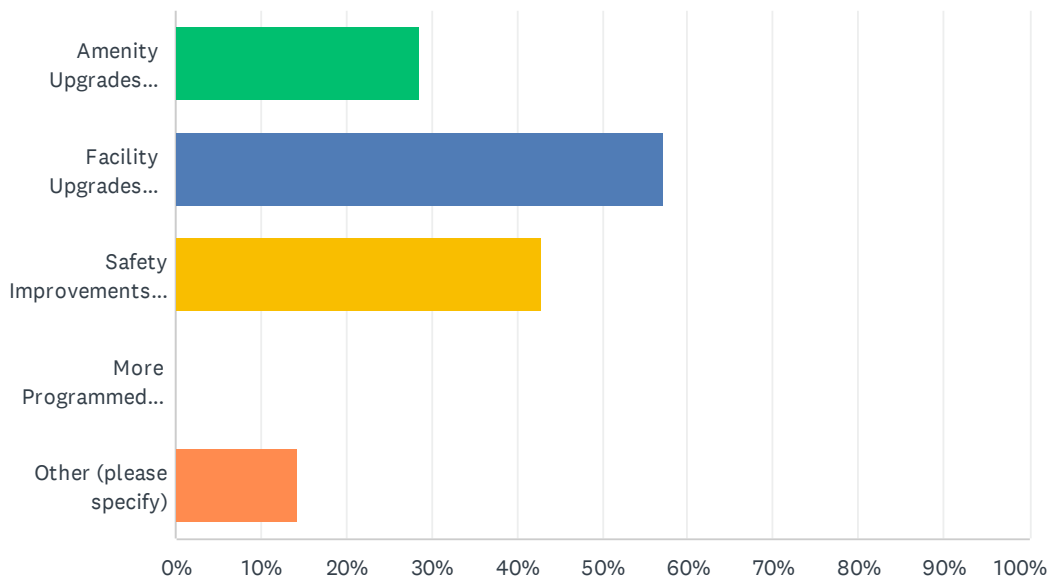
Answered: 7 Skipped: 107



ANSWER CHOICES	RESPONSES	
Can not get to a store with healthy food	14.29%	1
Healthy food is too expensive	100.00%	7
I do not have a kitchen that I can prepare healthy foods in	0.00%	0
WIC/CalFresh/Food Stamps don't work at the place I buy food	0.00%	0
Other (please specify)	0.00%	0
Total Respondents: 7		

Q5 What would encourage you to use the parks and public space in Chino Hills more? (select up to three)

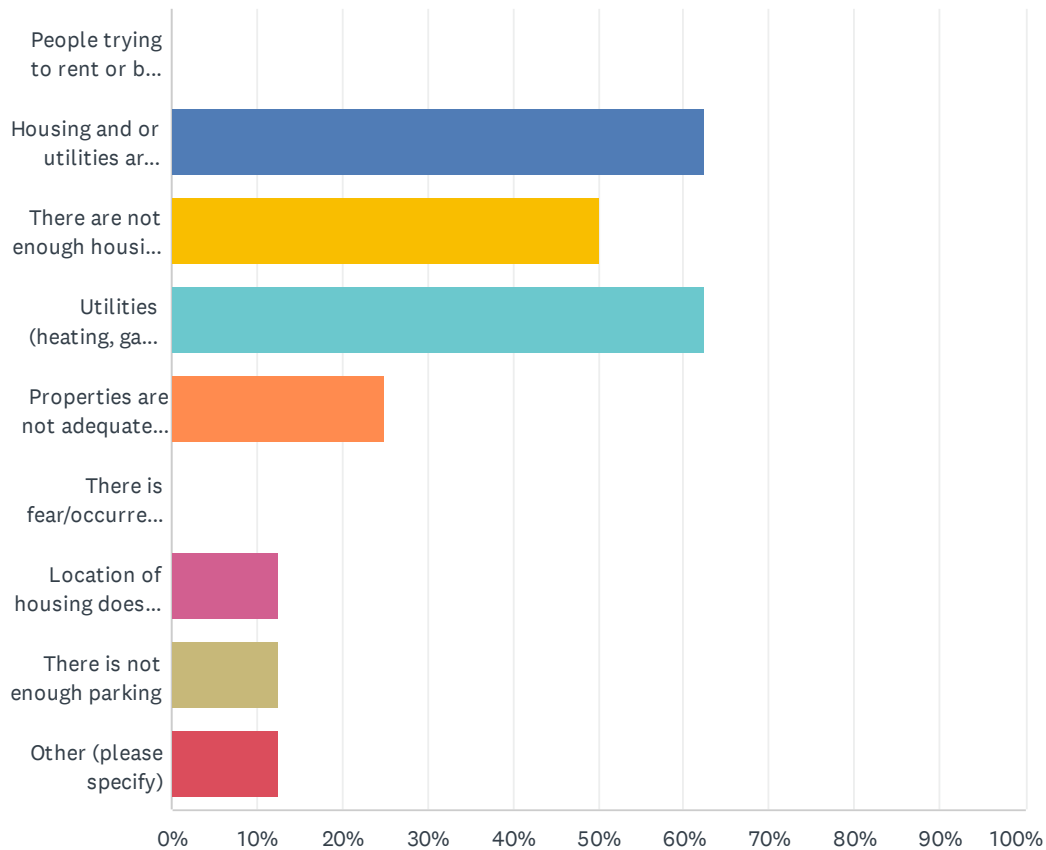
Answered: 7 Skipped: 107



ANSWER CHOICES	RESPONSES	
Amenity Upgrades (bathrooms, seating, landscaping, etc.)	28.57%	2
Facility Upgrades (playgrounds, sports fields, exercise equipment, etc.)	57.14%	4
Safety Improvements (lighting, monitoring, etc.)	42.86%	3
More Programmed Events (movie nights in the park)	0.00%	0
Other (please specify)	14.29%	1
Total Respondents: 7		

Q6 Which housing issues exist in your neighborhood (select up to three).

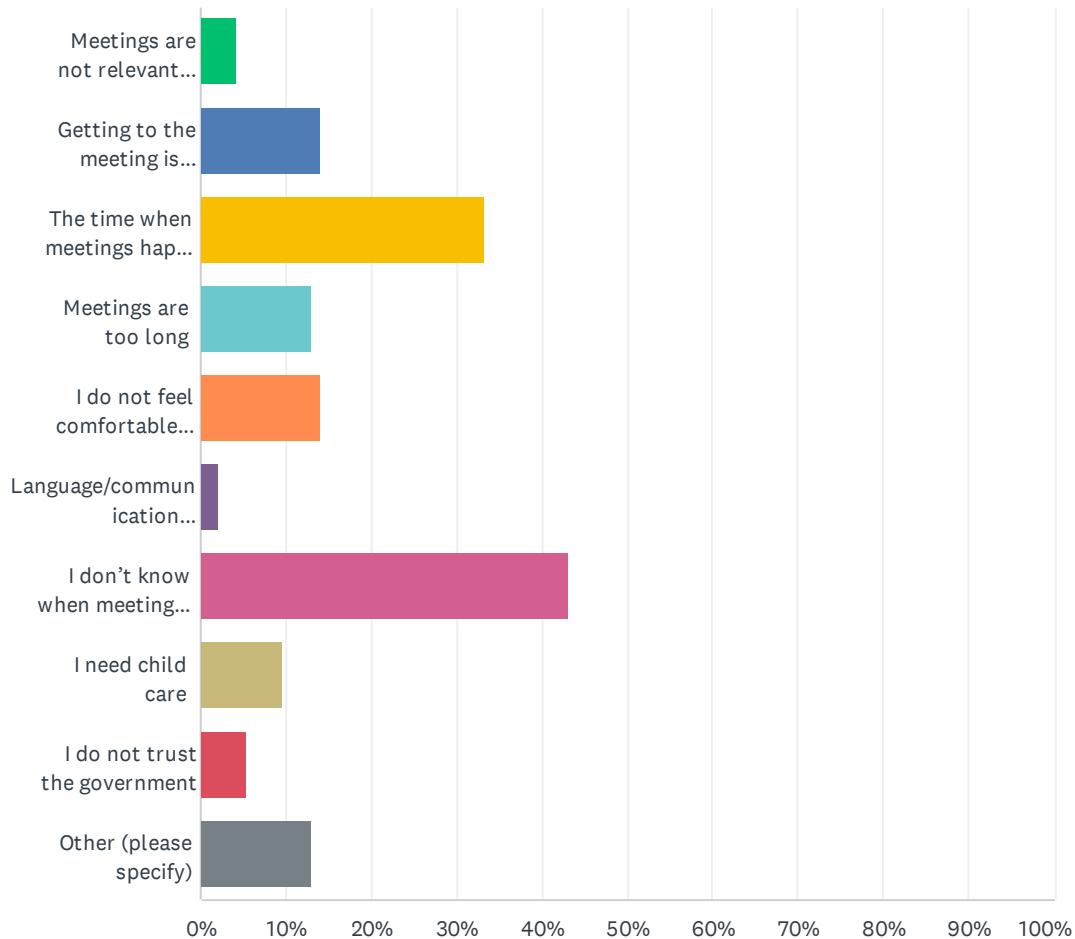
Answered: 8 Skipped: 106



ANSWER CHOICES	RESPONSES	
People trying to rent or buy a home are discriminated against	0.00%	0
Housing and or utilities are too expensive.	62.50%	5
There are not enough housing options (not enough of the size or type I am interested in).	50.00%	4
Utilities (heating, gas, etc.) are too expensive.	62.50%	5
Properties are not adequately maintained	25.00%	2
There is fear/occurrence of evictions.	0.00%	0
Location of housing does not provide convenient access to public transportation	12.50%	1
There is not enough parking	12.50%	1
Other (please specify)	12.50%	1
Total Respondents: 8		

Q7 Public meetings and workshops are a common way to gather feedback on major City topics and projects. What keeps you from attending public meetings? (Select up to three)

Answered: 93 Skipped: 21

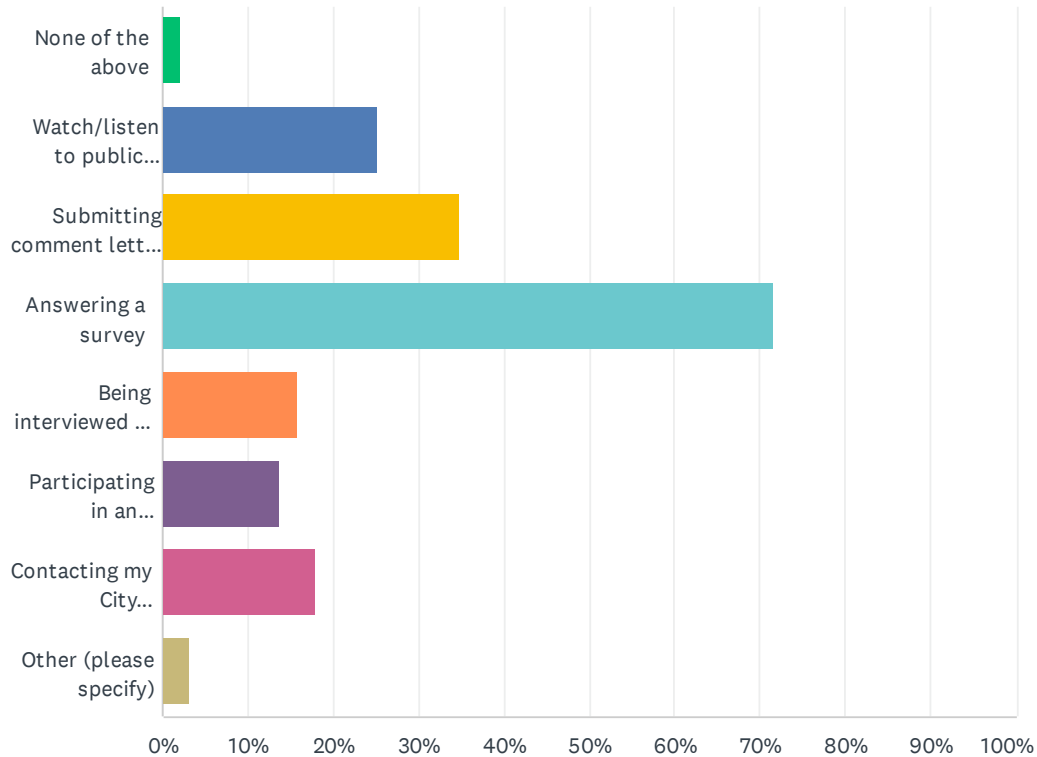


City of Chino Hills Community Survey

ANSWER CHOICES	RESPONSES	
Meetings are not relevant to me	4.30%	4
Getting to the meeting is difficult	13.98%	13
The time when meetings happen is inconvenient	33.33%	31
Meetings are too long	12.90%	12
I do not feel comfortable stating my opinions	13.98%	13
Language/communication barriers	2.15%	2
I don't know when meetings are happening	43.01%	40
I need child care	9.68%	9
I do not trust the government	5.38%	5
Other (please specify)	12.90%	12
Total Respondents: 93		

Q8 What is your preferred method of participating in public decision-making processes?

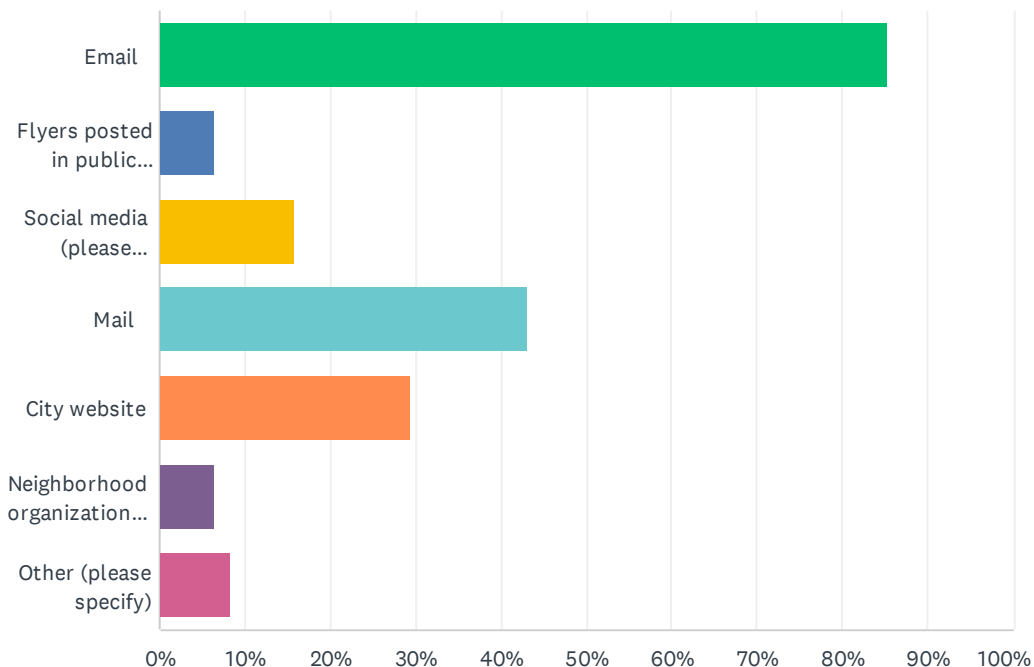
Answered: 95 Skipped: 19



ANSWER CHOICES	RESPONSES	
None of the above	2.11%	2
Watch/listen to public meetings (in-person/online) and verbally commenting	25.26%	24
Submitting comment letters or online comment forms	34.74%	33
Answering a survey	71.58%	68
Being interviewed by City Staff	15.79%	15
Participating in an interactive workshop with unique activities	13.68%	13
Contacting my City Councilmember	17.89%	17
Other (please specify)	3.16%	3
Total Respondents: 95		

Q9 What are the best ways to reach you and ask for your input on City projects? Please select up to three.

Answered: 95 Skipped: 19



ANSWER CHOICES	RESPONSES	
Email	85.26%	81
Flyers posted in public places	6.32%	6
Social media (please specify)	15.79%	15
Mail	43.16%	41
City website	29.47%	28
Neighborhood organizations or Local Non-Profits	6.32%	6
Other (please specify)	8.42%	8
Total Respondents: 95		



City of Chino Hills

Climate Change Vulnerability Assessment

May 2024



Prepared by
Rincon Consultants, Inc.

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Executive Summary

The City of Chino Hills Climate Change Vulnerability Assessment evaluates how climate change may impact vulnerable community members, natural resources, critical facilities, buildings, services, and infrastructure in Chino Hills. This report will inform Chino Hills of potential climate change impacts and help prepare the required climate adaptation goals, policies, and implementation programs for the Safety Element as part of the City's General Plan Update.

Climate change is a global phenomenon that can impact local health, natural resources, infrastructure, emergency response, and many other aspects of society through changes in climate conditions. In Chino Hills, temperature and precipitation are expected to change in the following ways:

- **Increasing temperatures.** Average maximum temperatures in Chino Hills are expected to rise between 4.2° Fahrenheit (F) and 5.1°F by 2050 and between 5.3°F to 8.4°F by 2100.
- **Increasing intensity of precipitation events and longer dry periods.** It is projected that the wettest day every year will increase up to 30% by the end of the century with more precipitation occurring during extreme events.

Changes in temperature and precipitation are expected to influence the frequency, duration, and magnitude of a variety of climate hazards. Climate change models indicate that Chino Hills is expected to experience the following by the end of the century:

- **Extreme Heat.** Chino Hills is projected to experience an increase in the annual number of extreme heat days in the coming decades. In Chino Hills, an extreme heat day occurs when the maximum temperature is above 99.8°F. The annual number of extreme heat days is projected to increase by as much as 31

days and the annual number of warm nights is projected to increase by as much as 68 nights. Both are qualified as days or nights in which the temperature exceeds the 98th percentile of historically observed temperatures (CEC 2024).

- **Drought.** The City is projected to experience increases in the length of dry spells.
- **Wildfire.** The City is projected to experience an increase in high wildfire risk days, frequency, and potential area burned from wildfires.
- **Landslides.** Susceptibility of landslides in Chino Hills is projected to increase as precipitation variability increases and wildfires increase in frequency, area, and severity.
- **Flooding.** Climate change may cause areas throughout Chino Hills to experience more frequent flooding. Stormwater systems may be overwhelmed more frequently as more extreme rain events occur, causing localized flooding, which could impact properties and leave roads temporarily unusable.
- **Air Quality.** Air quality is projected to worsen due to an increase in wildfires and average maximum temperatures. Longer periods of drought will also contribute to worsening air quality.

Report Organization

The report is composed of the following six parts:

1. **Introduction** describes the methodology and key data sources used to prepare the Climate Change Vulnerability Assessment.

2. **Exposure to Climate Hazards** outlines climate drivers, relevant climate hazards, historical hazards events, and how hazards are expected to change across Chino Hills.
3. **Sensitivity** identifies populations and assets most at risk to climate change.
4. **Adaptive Capacity** summarizes plans, policies, and programs that help Chino Hills cope with climate hazard events.
5. **Vulnerability Analysis** describes potential impacts for each hazard based on sensitive community, natural, and built assets, with consideration given to their adaptive capacity. The chapter includes figures mapping climate hazards spatially across Chino Hills, and vulnerability scores of low, medium, or high for each population group and asset. See Vulnerability Scoring Methodology section below for more detail.
6. **Conclusion** presents the key findings of this report and the list of the population groups and asset categories with medium and high-vulnerability scores.

Populations, Assets, and Services at Risk

Climate change will adversely impact community members, natural resources, critical facilities, buildings, services, and infrastructure in Chino Hills. The Chino Hills Climate Change Vulnerability Assessment describes the impacts climate change is expected to have on the following populations and assets:



Vulnerable Populations

While all people in a community will experience climate change, some are already and will continue to be more harmed by it than others. For example, older adults and young children are at higher risk for experiencing a heat related illness during an extreme

heat event. Several factors influence sensitivity to climate hazards including an individual's health, age, ability, experience of structural inequality, inequities in access to health care, economic opportunity, education and other resources, and inequities found in basic needs and exposure to environmental stressors (Cal OES 2020). These vulnerable populations should be prioritized when considering climate impacts, adopting climate resilience policies, and planning adaptation projects.

This section identifies vulnerable populations and assets within Chino Hills. Potential impacts from climate hazards on vulnerable populations and assets are presented in the Vulnerability Analysis section. Sensitive assets are grouped in the following manner:

- Individuals with high outdoor exposure
- Under-resourced individuals
- Individuals facing societal barriers
- Individuals with chronic health conditions or health related sensitivities



Natural and Recreational Resources

- Municipal parks
- Open spaces
- Hillsides
- Urban forest
- Critical habitat



Buildings and Facilities

- Municipal buildings
- Educational facilities
- Hospitals
- Residential, light industrial, and commercial development
- Fire stations
- Police stations



Infrastructure and Critical Services

- Water services
- Wastewater
- Storm drainage and flood protection
- Solid and hazardous waste and recycling
- Fire services
- Emergency services
- Medical services
- Utilities and major utility corridors
- Public transportation
- Roadways
- Active transportation routes

Adaptive Capacity

Adaptive capacity is the ability to adjust to the consequences of climate change. Types of adaptive capacity include adjustments in

behavior, resources, processes, and technologies. Chino Hills has actively taken steps to increase the City's adaptive capacity by relying on existing policies, plans, programs, and institutions that increase the City's resilience to climate change. There are existing plans prepared by Chino Hills and by San Bernardino County such as the City of Chino Hills Hazard Mitigation Plan (HMP) (2020) and the San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) (2022), as well as programs, and policies in place to mitigate the impacts of wildfire, landslide, flooding, and drought on the City's buildings, facilities, infrastructure, and critical services, as well as to mitigate the impacts of extreme heat, drought, and wildfire on the City's vulnerable populations.

Although some of Chino Hills assets evaluated were identified with high-vulnerability scores, the City has the opportunity to identify additional programs or adjustments to existing programs to improve adaptive capacity as part of the Safety Element update.

The adaptive capacity of the City's vulnerable populations, natural and recreational resources, building and facilities, and infrastructure and critical services are described and scored in Section 5, Vulnerability Analysis.

Vulnerability Analysis

Climate change is expected to impact public health, natural resources, buildings and facilities, and infrastructure and critical facilities. Understanding local climate risks and impacts allows communities to prepare for the future and increase their resilience. Population groups and asset categories with the highest vulnerability scores are described below.



Vulnerable Populations

- **Extreme Heat.** Increased number of extreme heat days will result in increased public health risks, particularly to vulnerable populations, through heat-impacted diseases and air quality degradation. Individuals with high outdoor exposure, under-resourced individuals, individuals facing societal barriers, and individuals with chronic health conditions are all vulnerable to extreme heat. Under-resourced individuals are less likely to receive medical care for illnesses triggered or exacerbated by extreme heat, or if treatment is received, they are likely to face a significant medical cost burden and related financial stress. Within urban landscapes, neighborhoods with more impermeable and dark colored surfaces, and fewer trees, parks, and water features, have greater heat exposure and heat related risk than urban communities with more green space and reflective surfaces. The lack of tree canopy in certain areas of Chino Hills such as Los Serranos and Carbon Canyon will exacerbate the urban heat island effect and increase heat inequity.
- **Drought.** Individuals with high outdoor exposure are particularly at risk to drought conditions. During prolonged drought conditions, people experiencing homelessness may have difficulty accessing clean and affordable drinking water. Non-white communities are at risk to drought conditions and associated cascading impacts. Individuals in these groups may face systemic and/or cultural barriers when seeking to access affordable and clean drinking water, which may cause dehydration and/or exacerbate underlying health conditions and illnesses. During periods of prolonged drought, under-resourced individuals are more likely to experience the cost burden associated with increased water rates, increases which could be a burden for people experiencing poverty and households experiencing housing burden. (Feinstein et al. 2017). These individuals may struggle to access clean and affordable drinking water which may cause financial strain (Gamble et al. 2016).
- **Wildfire.** Outdoor workers may be exposed to hazardous work conditions during wildfire events and may become injured from smoke inhalation or burns. Individuals with chronic health conditions, under resourced individuals, and individuals facing societal barriers are all at risk to wildfire impacts. The associated risks are mortality, structural damage and loss to their place of residence, smoke-caused health complications, and exacerbation of social vulnerabilities. Individuals with chronic health conditions or health related sensitivities may be more susceptible to injuries or death from burns (CDPH 2017).
- **Landslides.** Vulnerable populations living in areas with high landslide risk may be subjected to disproportionate negative impacts during landslide and debris flow events. Linguistically isolated individuals and foreign-born- may not be able to read landslide advisory warnings or governmental guidance, potentially causing missed critical evacuation information or limited ability to safely evacuate hazard areas.
- **Flooding.** Outdoor workers may be exposed to hazardous work conditions during flooding events and therefore are more likely to experience health impacts. Older people and children are particularly at risk to injury and/or death from high velocity flooding since they may not be able to safely evacuate floodwater hazard areas. Flooding may also limit access to transportation systems, healthcare centers, and emergency response to those that are injured or in need of consistent

medical care, such as those with chronic health conditions or illnesses.

- **Air Quality.** Individuals with high outdoor exposure and individuals with chronic health conditions are particularly at risk of negative impacts from poor air quality. Outdoor workers and people experiencing homelessness are disproportionately exposed to air pollutants because they spend much greater time outdoors. Individuals with chronic health conditions or health related sensitivities are at risk of developing or experiencing exacerbated health impacts from poor air quality. Children are extremely vulnerable to health impacts from poor air quality because their respiratory system has not fully developed yet. Older adults, military veterans, and pollution burdened individuals are vulnerable to health impacts from poor air quality because they are more likely to have underlying respiratory and/or cardiovascular conditions. Individuals with cardiovascular disease and individuals with asthma may experience severe health impacts if exposed to poor air quality.



Natural and Recreational Resources

- **Extreme Heat.** Wildlife under these conditions face impacts of heat stress and heat related illness as well as disrupted reproductive cycles. Plants are more likely to experience heat stress and drying, species' habitat ranges may shift and be replaced with invasive species. Natural resources are highly exposed to extreme heat and warm nights. Both mid- and end-of century projections depict dramatic increases in extreme heat days.
- **Drought.** Impacts from drought involve risks associated with water scarcity and availability for reliant natural resources.

Drought will disrupt habitats and wildlife abilities to survive from dehydration and reliable food sources. There is a risk of generally stressed natural resources and unsupportable conditions for consistent stream flow.

- **Wildfire.** The largest direct impacts to natural resources are caused by wildfires. There is direct mortality and loss of resources and wildlife from wildfire as well as indirect mortality due to uninhabitable areas, loss of available food sources and seed bank. The severity and frequency of wildfires can exacerbate these impacts further through habitat conversions resulting in vegetation communities that no longer support the species using that habitat.
- **Landslides.** In the event of a landslide there is potential for loss of lands, and habitat. Wildlife and plants face a compounding risk to landslide events because it creates both habitat displacement and increased mortality risk.
- **Flooding.** Flooding will reduce overall water quality through transport of debris and pollutants in runoff.
- **Air Quality.** The direct effects of air quality declines on natural resources relate to plant and wildlife health as increased air pollutants causes stress and mortality. Impacts from air quality can further impact natural resources since air quality declines correspond with other hazards such as extreme heat, compounding risks.



Buildings and Facilities

- **Extreme Heat.** Extreme heat could impact occupants of buildings and facilities that are not adequately weatherized for increased temperatures.

- **Landslides.** Chino Hills has 6,420 residential parcels, 1 hospital, and 2 schools located in the landslide risk zone, which are susceptible to damage in the event of a landslide event.
- **Wildfire.** There are 21,077 residential parcels in the City's wildfire hazard zones. The structures and buildings that occupy wildfire hazard zones are at risk of structural damage from wildfires.



Infrastructure and Critical Facilities

- **Extreme Heat.** Extreme heat affects roadways, active transportation routes creating vulnerabilities to damages through sustained heat. Electrical infrastructure is also at risk to grid overload through increased power demand.
- **Drought.** Drought can impact water reliability and water infrastructure. All emergency services depend on water, particularly firefighters who require adequate water supply for fire suppression. Drought vulnerability can create service strain for emergency and medical services.
- **Flooding.** Impervious surfaces can impede the absorption of water and augment flooding in areas of Chino Hills. There is risk of damage from increased extreme precipitation events including erosion, washouts, and an influx of debris and pollutants in runoff. Storm drainage and flood protection services for the City may be impacted by these events.
- **Wildfire.** There are City owned critical facilities located in the high and very high fire hazard severity zones that are at risk of damage and destruction caused by wildfires. Increased frequency of wildfires can place strain on fire and emergency services.

- **Landslides.** There is high landslide susceptibility to several critical facilities and along roadways in Chino Hills, these include 79 miles of transportation and lifeline assets. This increases the risk of emergency service disruption and impacts on evacuation.
- **Air Quality.** Higher incidence of unsafe air quality generated by increased smog, dust and wildfire smoke can create general strain on existing infrastructure and critical services through increased rates of hospitalization and emergency and medical services. First responders may also be directly impacted by poor air quality, particularly in combination with extreme heat and wildfire events.

Key Findings

The Climate Change Vulnerability Assessment identifies the community members, natural resources, critical facilities, buildings, services, and infrastructure most vulnerable to climate change hazards in Chino Hills.

According to the Chino Hills HMP (2020), residents in the Carbon Canyon region and Los Serranos neighborhood are also considered to be the most vulnerable due to their age and income levels. These areas are comprised of lower income (that is, lower than the US median income) homes as well as a higher than average amount of residents under age 18 and an average amount of residents 65 or older.

Although the City has policies and programs in place to prepare for climate related hazards, gaps remain as summarized in the Climate Change Vulnerability Assessment. This assessment is a starting point for establishing adaptation policies and programs in the Chino Hills Safety Element.

1 Introduction

Background on Climate Change

This report evaluates how climate change may impact vulnerable community members, natural resources, buildings and facilities, and services and infrastructure in Chino Hills. This report is consistent with Government Code § 65302 (as amended by Senate Bill (SB) 379) which requires cities, counties, and unincorporated areas across California to prepare a Climate Change Vulnerability Assessment to inform updates to the Safety Element of the General Plan. Understanding Chino Hills's vulnerabilities to climate change provides a foundation to develop required climate adaptation goals, policies, and implementation programs for the City's Safety Element.

Chino Hills Snapshot

Chino Hills encompasses 28,736 acres or approximately 45 square miles in the rolling hills of southwestern San Bernardino County and is located at the juncture of Los Angeles, Orange, and Riverside Counties. Chino Hills shares boundaries with the cities of Chino, Pomona, Brea, Diamond Bar, and Corona. Access to the community is provided by the Pomona (60) Freeway, the Chino Valley Freeway (71), and Carbon Canyon Road (SR142). Chino Hills was incorporated in 1991 and currently has a population of approximately 77,058 full-time residents (Cal DOF 2023). The City benefits from a mild, temperate climate, with average monthly temperatures ranging from the low 40s to the upper 80s.

Chino Hills is also subject to Santa Ana winds of 25 to 40 miles per hour, with gusts up to 60 to 75 miles per hour. These winds come out of the desert, blow to the southwest, and are often accompanied by hot temperatures.

The General Plan designates the vast majority of Chino Hills as Agriculture/Ranches, Public and Private Open Spaces, and Low Density Residential as can be seen in Figure 1. Existing critical facilities are also shown on in Figure 1 and represent facilities necessary for a community's response to

Causes of Climate Change

Climate change is caused by the addition of excess greenhouse gases (GHGs) to the atmosphere, which traps heat near the earth's surface raising global average temperatures in what is referred to as the greenhouse effect. This increase in average temperatures across the globe affects sea level rise, precipitation patterns, the severity of wildfires, the prevalence of extreme heat events, water supply, and ocean temperatures and chemistry (NASA 2022).

According to the Intergovernmental Panel on Climate Change (IPCC), GHGs are now higher than they have been in the past 400,000 years, raising carbon dioxide levels from 280 parts per million to 410 parts per million in the last 150 years (IPCC, 2021). The dramatic increase in GHGs is attributed to human activities beginning with the industrial revolution in the 1800s, which represented a shift from an agrarian and handicraft-based economy to one dominated by industry and machine manufacturing (NASA 2022).

and recovery from emergencies. Critical facilities must continue to operate during and following a disaster to reduce the severity of impacts on the community and accelerate recovery.

The following critical facilities are included in this assessment:

- Fire Stations
- Police Stations
- Hospital/Healthcare Facilities
- Emergency Shelters
- Schools
- Public Libraries

Figure 1 General Plan Land Use Designations and Critical Facilities in Chino Hills
[PLACEHOLDER FOR THE MAP]

Lexicon

Several words and phrases are used throughout the plan to illustrate climate vulnerabilities within Chino Hills.

- **Adaptation.** The process of adjustment to actual or expected climate and its effects, either to minimize harm or exploit beneficial opportunities. In natural systems, human intervention may facilitate adjustment to expected climate (IPCC, 2012).
- **Adaptive Capacity.** Chino Hills's ability to cope with and adjust to the impacts of climate change (Cal OES 2020).
- **Asset.** Refers to a resource, structure, facility or service that is relied on by a community.
- **Cascading Impact.** Climate hazard caused impacts that compromise infrastructure or disrupt critical services (i.e., power supply or water conveyance) broadening the scope of impact past a singular subject to reliant subsystems and populations (Collins et al. 2019).
- **Climate Driver.** A change in the climate which acts as the main source of change for subsequent climate hazards. Climate drivers relevant to the city and discussed in this report are temperature and precipitation.
- **Climate Hazard.** A dangerous or potentially dangerous condition created by the effects of the local climate (Cal OES 2020). Climate hazards of concern for Chino Hills are extreme heat, drought, wildfire, landslides, flooding, and air quality.
- **Compounding Risk.** When two or more extreme events or average events occur simultaneously and increase the scope of impact or severity of the event; an additional risk brought about by increased frequency of events from climate change (Seneviratne et al. 2012).
- **Exposure.** The presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm (Kalansky et al. 2018).
- **Impact.** Effects on natural and human systems including effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate hazards and the vulnerabilities of the system or asset effected (IPCC 2012).
- **Mitigation.** An act or sustained actions to reduce, eliminate, or avoid negative impacts or effects (Cal OES 2020).
- **Resilience.** The capacity of an entity (an individual a community, an organization, or a natural system) to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience (Cal OES 2020)
- **Sensitivities.** The degree to which a species, natural system, community, asset, or other associated system would be affected by changing climate conditions (Cal OES 2020).
- **Vulnerable Populations.** Vulnerable populations are the communities most impacted by climate change and climate disasters. Vulnerable populations may experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts (Cal OES 2020)
- **Vulnerability.** The propensity or predisposition to be adversely affected (IPCC 2012).

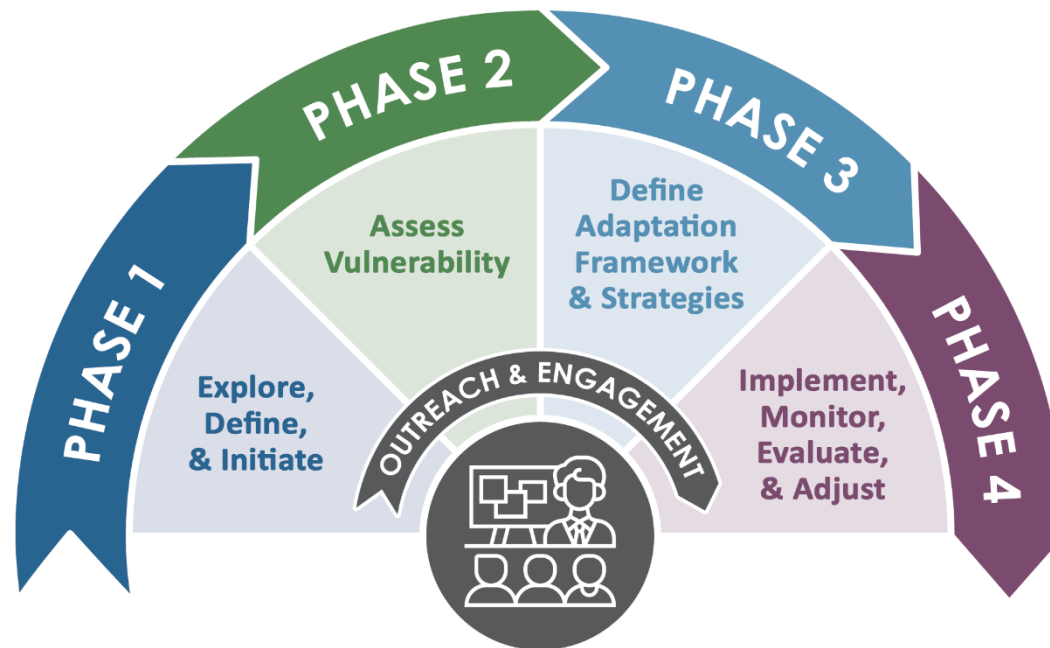
Vulnerability Assessment Methodology

The following section details state guidance, methods, and sources used in the production of this report.

California Adaptation Planning Guide Phases

The Chino Hills Climate Change Vulnerability Assessment follows the vulnerability assessment process recommended by the California Governor's Office of Emergency Services, as documented in the 2020 California Adaptation Planning Guide (Cal APG). The adaptation

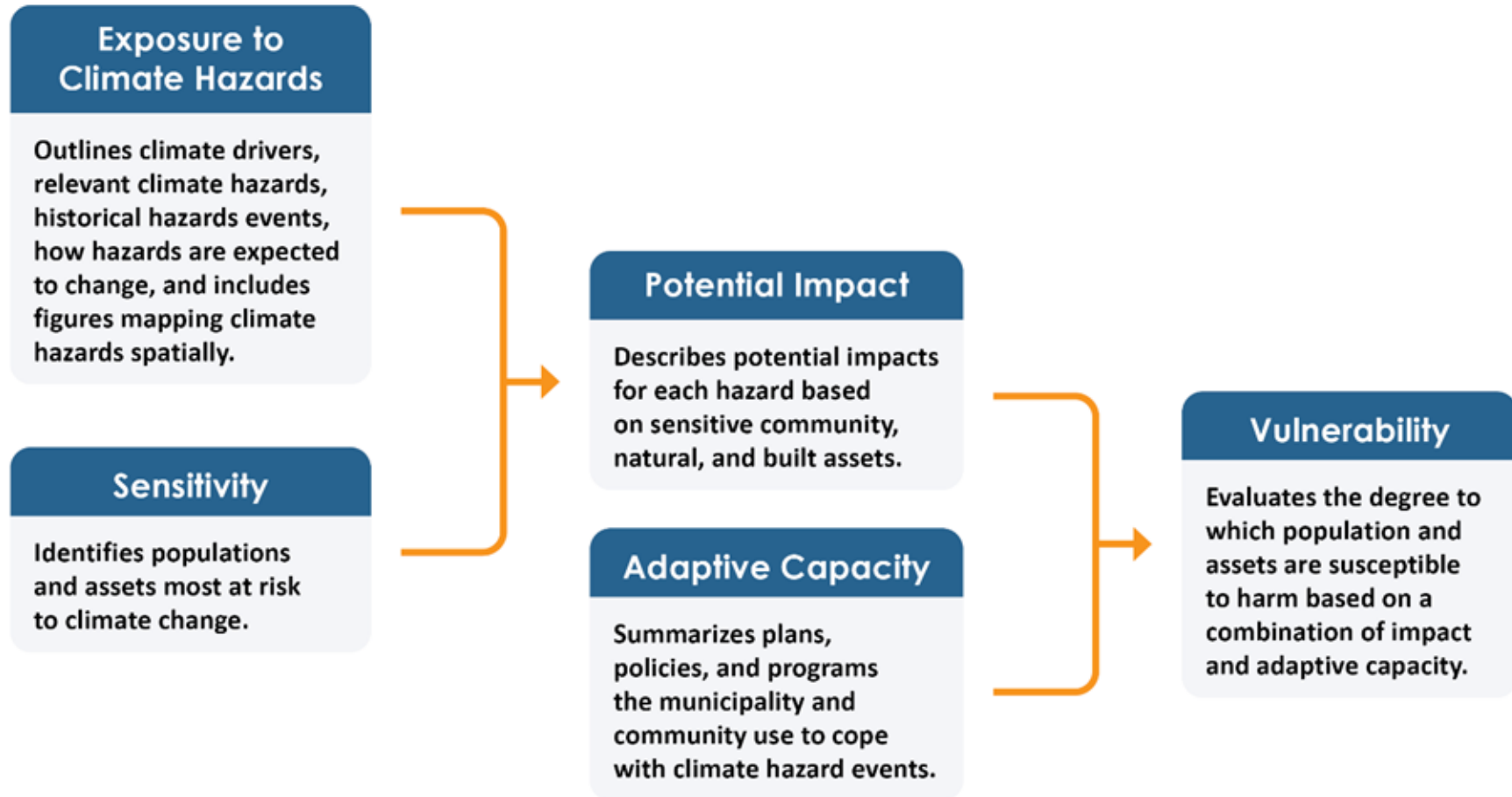
planning process outlined by the Cal APG consists of four phases, illustrated in the graphic below, with Phase 2 detailing the vulnerability assessment process (Cal OES, 2020).



Source: 2020 California Adaptation Planning Guide

The Chino Hills Climate Change Vulnerability Assessment is prepared consistent with Phase 2 of the Cal APG and is composed of the following parts shown in Figure 2.

Figure 2 Vulnerability Assessment Flow Diagram



Key Data Sources

The following data sources and tools, many of which are recommended within the Cal APG, were used in preparation of this report. Additional plans were consulted to inform the adaptive capacity analysis which are provided in Section 4.

- **U.S. Census, 2022 American Community Survey (ACS) 5-year estimates** present demographic data by census tract. U.S. Census data was used to identify the percentage of the Chino Hills population that corresponds to each vulnerable population.
- **Cal-Adapt** is an online tool that presents historic and modeled projections based on 10 different global climate models. The tool was developed and is maintained by the University of California with oversight from the California Energy Commission (CEC). This tool is used to present projection data related to minimum and maximum temperature, precipitation, extreme heat, drought, and wildfire.
- **California's Fourth Climate Change Assessment** was developed by the CEC and other State of California coordinating agencies to present up-to-date climate science, projections and potential impacts associated with climate change. The CEC and coordinating agencies developed nine regional reports to provide regional-scale climate information to support local planning and action. The Los Angeles Region Summary Report (2018) presents an overview of climate science, regional projections, specific strategies to adapt to climate impacts, and key research gaps needed to spur additional progress on safeguarding the Los Angeles Region from climate change. The Los Angeles Region Summary Report, which includes San Bernardino County, was used to understand regional changes that may affect Chino Hills both directly and indirectly.
- **The California Healthy Places Index (HPI)** is an online mapping tool that reports on community conditions that are known to predict health outcomes and life expectancy. The tool was prepared by the Public Health Alliance of Southern California, a collaborative of local health departments in Southern California. HPI displays 25 community characteristics at various legislative boundaries, including census tracts and city and county boundaries. The community characteristics relate to the following identified Policy Action Areas: economic, education, housing, health care access, neighborhood, clean environment, transportation, and social factors. HPI applies a relative percentile score across all census tracts in California using statistical modeling techniques based on the relationship of the Policy Action Areas to life expectancy at birth. Low percentile scores reflect unhealthy conditions. HPI was used to prepare the social sensitivity index score as described in more detail below. HPI is a useful in providing both big picture and localized insights into community health. The limitation of this tool is the data behind the measurements and percentile scores is based on US Census information from the American Community Survey 2015-2019. Though much of the community health indicators have remained constant the tool was supplemented with additional information from **CalEnviroScreen** and the **2022 U.S. Census** data to ensure that the best available data is used in this report.
- **CalEnviroScreen4.0** uses a variety of statewide indicators to characterize pollution burden (the average of exposures and environmental effects) and population characteristics (the average of vulnerable populations and socioeconomic factors). The model scores each of the indicators using percentiles and combines the scores to determine a CalEnviroScreen score for a given census tract relative to others in the state. Designated disadvantaged communities are those communities that scored

within the highest 25 percent of census tracts across California (CalEnviroScreen percentile scores of 75 or higher), in addition to other parameters relating to income status.

- **Tree Equity Score** is a mapping tool created by the non-profit organization, American Forests, using tree canopy data from Earth Define. Trees provide numerous environmental and health benefits, including improved air quality, shade, and ambient cooling. Trees are often distributed unequally throughout the neighborhoods in cities. Tree Equity Score is intended to help identify census tracts that could benefit from additional tree planting the most and to estimate the benefits of tree planting to make the case for allocating the resources needed to do so. Tree Equity Scores are based on how much tree canopy and surface temperature align with income, employment, race, age and health factors. Scores are meant to indicate whether there are enough trees in specific neighborhoods or municipalities for everyone to experience the health, economic and climate benefits that trees provide.
- **City of Chino Hills Hazard Mitigation Plan** presents updated information regarding hazards being faced by Chino Hills. The HMP (2020) also present mitigation measures to help reduce consequences from hazards, outreach and education efforts within the City since 2011, existing processes and plans in place that address Chino Hills' ability to prepare for climate change impacts and informed the adaptive capacity discussion of this report. The HMP (2020) was also used to identify recent historical events.
- **City of Chino Hills Environmental Justice Existing Conditions and Policy Menu** was prepared in 2023, and the Environmental Justice report assessed existing conditions that include: Health, Healthy Foods, Parks, Public Transportation, Libraries and Community Centers, Safe Walking and Biking, Safe and Sanitary

Homes, Air Pollution, and Hazardous Materials. In addition to a identify the environmental justice conditions, the report also contain a community survey conducted to gain community input regarding environmental justice issues in Chino Hills, and policies to address identified conditions.

Data Limitations

The limitations of this report and analysis stem from gaps in data availability and completeness of data methods. Census data can miss portions of the population (e.g., undocumented individuals) and general demographic information may not fully identify the full extent of populations vulnerable to climate change (Cantwell 2021). Federal Emergency Management Agency (FEMA) 100-year and 500-year flood plains do not account for climate change projections, zones are instead based on historical information. The California Department of Forestry and Fire Protection (CalFire) very high fire hazard severity zones are based on vegetation, fire history, and terrain but also has similar limitations in not projecting fire zones into the future (OSFM 2022). Extrapolating landslides and air quality hazard exposure data in the context of climate change is difficult and the estimates of exposure to these hazards are likely to be underestimated.

The data presented in **Cal-Adapt** tools are projections, or estimates, of future climate. The limitation in these projections is that the long-term behavior of the atmosphere is expressed in averages – for example, average annual temperature, average monthly rainfall, or average water equivalent of mountain snowpack at a given time of year. The averages discussed often downplay the extremes by which daily weather events occur and when presented as an average, only show moderate changes within the climate. What is often lost in averages is that the frequency of extremes, like atmospheric rivers, may increase while low-moderate intensity weather events

decrease through the end of the century. In instances of modeled precipitation projections, it maintains an average similar to historic levels which does not account for anticipated fluctuations in extremes (CEC 2024).

Vulnerability Scoring Methodology

Vulnerability scoring is a valuable step in the climate vulnerability assessment process because it identifies which assets and populations face the highest threat to climate hazards. This can aid in the prioritization of adaptation actions. The vulnerability score is a combination of the impact and adaptive capacity score. The impact and adaptive capacity scores are developed using a qualitative methodology outlined in the Cal APG, as seen in Table 1. Impact and adaptive capacity scores are identified for each asset and population for each climate hazard. The vulnerability score is prepared by combining the two scores as demonstrated in Table 2. The range of potential impacts spans 1 through 5 with 4-5 being the highest threat.

Table 1 Impact and Adaptive Capacity Scoring Rubric

Score	Impact	Adaptive Capacity
Low	Impact is unlikely based on projected exposure; would result in minor consequences to public health, safety, and/or other metrics of concern.	Asset managers lack adopted policies or established programs that help the community or the assets they manage to manage for change; major changes would be required.
Medium	Impact is somewhat likely based on projected exposure; would result in some consequences to public health, safety, and/or other metrics of concern.	Asset managers have some adopted policies or established programs that help the community or the assets they manage to manage climate impact; some changes would be required.
High	Impact is highly likely based on projected exposure; consequences to public health, safety, and/or other metrics of concern.	Asset managers have many adopted policies or established programs that help the community or the assets they manage to manage climate impact; minimal to no changes are required.

Source: Cal OES 2020

Table 2 Vulnerability Score Matrix

Potential Impacts	High	3	4	5
	Medium	2	3	4
	Low	1	2	3
		High	Medium	Low
Adaptive Capacity				

Source: Cal OES 2020

2 Exposure to Climate Hazards

Climate change is a global phenomenon that can impact local health, natural resources, infrastructure, emergency response, and many other aspects of society. Projected changes to the climate are dependent on location. The Cal-Adapt tool provides climate data from global scale models that have been localized (downscaled) to 3.7 mile by 3.7-mile grids (CEC 2024). The data in Cal-Adapt is consistent with information from the California Fourth Climate Change Assessment to model future changes in specific types of hazards within this assessment. Projections throughout this section are outlined by two separate Representative Concentration Pathways (RCP) (CEC 2024).

- RCP 4.5 is a medium emissions scenario where global emissions peak by the year 2040.
- RCP 8.5 is a high emissions scenario in which global emissions continue to rise through the end of the 21st century.

Additionally, projections are forecasted to mid-century (2035-2064) and end-century (2070-2099) as 30-year averages to be compared to a modeled historical baseline (1961-1990) (CEC 2024).

This section presents information on temperature and precipitation, which are characterized as climate drivers. The section then provides information on projected changes to natural hazards, including extreme heat, drought, wildfire, landslides, flooding, and air quality, which result from changes to climate drivers.

Climate Drivers

In Chino Hills, the climate drivers of concern include Temperature and Precipitation. All projections are pulled from the Cal-Adapt Local Climate Change Snapshot tool and supplemented with the Los Angeles regional information, which includes information for San Bernardino County, found in the California Fourth Climate Change Assessment (CEC 2024, Hall et al. 2018).

Temperature

Chino Hills has an average maximum temperature of 76.7°F and an average minimum temperature of 49.2°F (CEC 2024). The average maximum and minimum temperatures are expected to increase in Chino Hills with mid-century projections showing a 4.2°F (RCP 4.5) to 5.1°F (RCP 8.5) increase in temperature maximum and a 3.8°F (RCP 4.5) to 4.8°F (RCP 8.5) increase in temperature minimums (CEC 2024). End-Century projections show a 5.3°F (RCP 4.5) to 8.4°F (RCP 8.5) increase in temperature maximum and a 4.9°F (RCP 4.5) to 8.2°F (RCP 8.5) increase in temperature minimums in Chino Hills (CEC 2024). Temperature increases affect various climate related hazards including extreme heat, drought, wildfire, and poor air quality, further described in the Hazards section.

Precipitation

Climate projections show that there will be more frequent and longer dry periods punctuated by increased precipitation intensity of the largest storms or wet periods (Hall et al. 2018). Projections for Chino Hills predict that annual precipitation totals will remain

relatively stable, decreasing slightly by approximately 0.4 inches by end-century (RCP 8.5). However, as already observed in recent years, precipitation changes are largely observed as more extreme variability with intense wet years followed by extreme drought (CEC 2024). Climate change is projected to increase the intensity of extreme precipitation events in the Los Angeles region (Hall et al. 2018). By the end of the century, some locations in the Los Angeles region are expected to experience up to 30 percent more precipitation on the wettest day of the year and the intensity and frequency of atmospheric river events are also projected to occur (RCP 8.5) (Hall et al. 2018). Although changes in average precipitation are small, both wet and dry periods are expected to be more extreme, which can increase the risk of related climate hazards such as stormwater flowing and landslides (Hall et al. 2018). In Chino Hills, precipitation changes are expected to affect drought, flooding, landslides, wildfire, and air quality.

Historical Precipitation Extremes

Despite small changes in average precipitation, dry and wet extremes are both expected to increase in the future. By the late-21st century, the wettest day of the year is expected to increase across most of the Los Angeles region, with some locations experiencing 25-30% increases under RCP8.5 (Hall et al. 2018).

Hazards

This section outlines projected changes for the following climate hazards:



Extreme Heat



Drought



Wildfire



Landslides



Flooding



Poor Air Quality

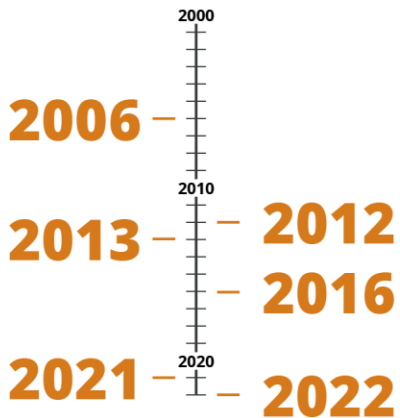


EXTREME HEAT

PAST

Extreme heat events across the state have presented historic challenges for all communities, including the City of Chino Hills. Over the past two decades, the region has experienced six extreme heat events.

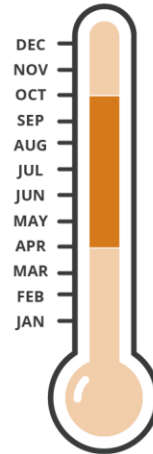
Extreme Heat Events



PRESENT

Extreme heat events are presently defined as days in which the temperature exceeds the 98th percentile of 99.8°F. Current extreme heat days occur between the months of April to October while the 30-year baseline average is 3 days annually.

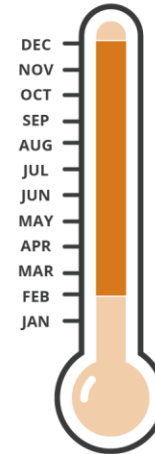
Extreme Heat Months (Baseline Years)



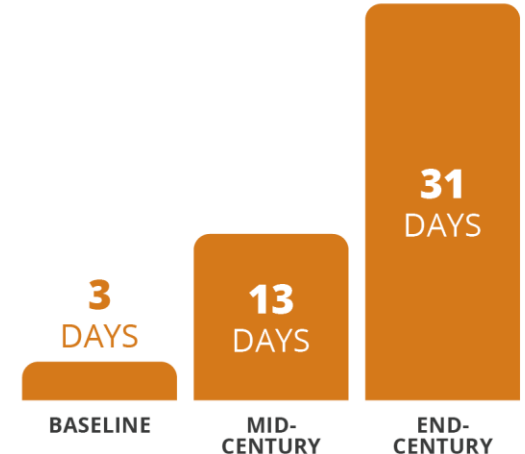
FUTURE

Extreme heat is expected to affect all of Chino Hills, with the most severe impacts to sensitive population groups. Days over 99.8°F are projected to increase to a total of 13 days per year by mid-century and 31 by end-century and occur during a wider range of months from February to December.

Extreme Heat Months (Mid & End-century Years)



Projected Annual Average of Extreme Heat Days



IMPACTS ON THE BUILT AND NATURAL ENVIRONMENT



CRACKED PAVEMENT



GRID OVERLOAD



WATER SCARCITY



VEGETATIVE STRESS



STRAINED EMERGENCY SERVICES

IMPACTS ON VULNERABLE POPULATIONS



DEHYDRATION



HEAT STROKE



HEALTH-RELATED MORTALITY



MENTAL AND BEHAVIORAL HEALTH



HEART DISEASE



RESPIRATORY ILLNESS



INCOME LOSS



INCREASE IN VECTOR-BORNE DISEASE

Urban Heat Island

Urban Heat Island (UHI) is a term that refers to developed areas that are hotter than the surrounding landscape primarily due to the presence of building materials and surfaces that absorb and re-radiate heat (like roofs and pavements), as well as a lack of vegetation, particularly trees. The UHI effect causes people in cities to have higher heat exposure than residents in less densely developed areas. Within urban landscapes, neighborhoods with more impermeable and dark colored surfaces, and fewer trees, parks, and water features, have greater heat exposure and heat related risk than urban communities with more green space and reflective surfaces. These differences in development patterns typically correspond with income and demographic disparities across the urban environment. UHI will likely compound the impacts and risks of extreme heat days and higher average temperatures resulting from climate change. In some locations, the effect could be twice as strong as the impact of global warming (Huang et al. 2019).

Tree Equity Score

The number and distribution of trees in cities in the United States, often reflects differences in race and income across city landscapes. While the amount of paved and impermeable surfaces and lack of water features and green spaces can increase the impact of temperature increases from climate change, adding more green spaces and especially trees, can have the opposite effect. Trees provide a number of critical services to cities and residents including shade, improved air quality, increased rain interception and reduced stormwater runoff, and in great enough numbers of trees

can cool ambient temperatures and reduce the impact of climate change and extreme heat on public health.

Treeequityscore.org analyzes a range of neighborhood characteristics including the existing tree canopy, population density, income, employment, surface temperature, racial demographics, age distributions, and health metrics to create a single tree equity score between 0 and 100. A score of 100 would indicate that a neighborhood has achieved tree equity.

Of the 40 census block groups included in the Tree Equity Score Municipality Report for Chino Hills, 4 have a tree equity score below 75, 30 block groups have a score below 90, 8 block groups have a tree equity score of 90 or above, and 2 have a tree equity score of 100. It is estimated that 11,215 trees would need to be planted in the 13 block groups with the lowest scores to get all census block groups to a tree equity score of at least 80. This would increase the total tree canopy of Chino Hills by 1.2% and result in numerous other annual benefits including those listed below.

Estimated Annual Service Benefits from Increasing Chino Hills's Tree Canopy by 1.2% (adding 11,215 trees):

- Carbon Sequestered: 268.1 tons.
- Runoff Avoided: 1.0 million gallons
- Rainfall intercepted: 4.8 million gallons.
- Ozone Removed: 6.3 tons.
- Particulate Matter Pollution Reduced (PM 10 and PM2.5): 1.8 tons.
- Other pollutants reduced: 1.1 tons.

The spatial distribution of Tree Equity by census block groups in Chino Hills is shown in Figure 3 below.

Figure 3 Municipality Tree Equity Score Map for Chino Hills

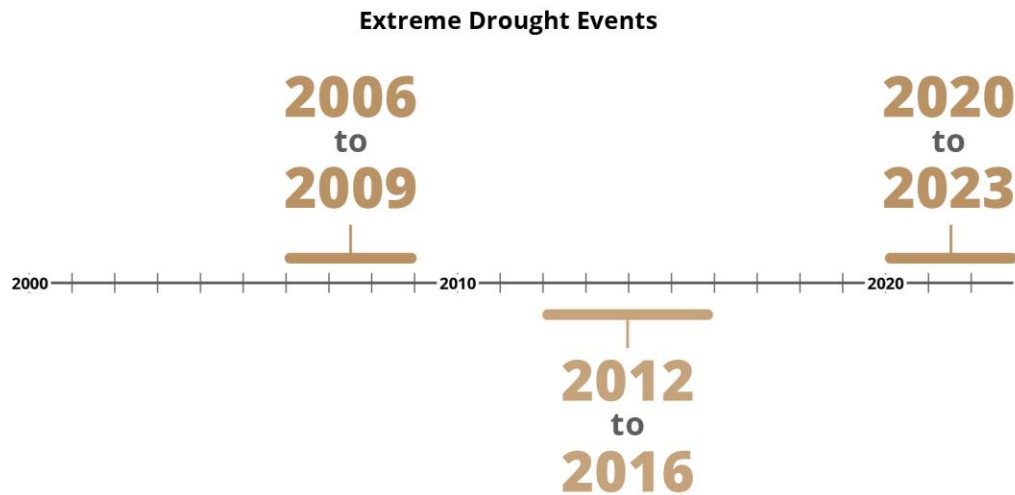
[PLACEHOLDER FOR THE MAP]



DROUGHT

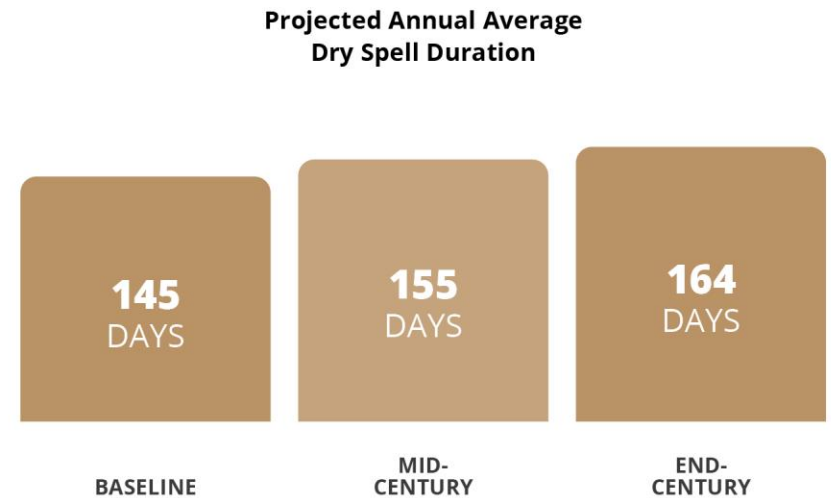
PAST

Over the past two decades, the City of Chino Hills has experienced more frequent and longer continuous droughts.



PRESENT AND FUTURE

Chino Hills is expected to experience increased drought conditions through the end of the century. There is increased likelihood that low precipitation years will coincide with above-average temperature years. The average annual maximum length of dry spell is projected to increase 19 days by the end of the century.



IMPACTS ON THE BUILT AND NATURAL ENVIRONMENT



VEGETATIVE
STRESS



WATER
SCARCITY



HABITAT
LOSS



STRAINED
WATER SYSTEM



FOOD
SECURITY



AIR QUALITY
DECLINE



MENTAL &
BEHAVIORAL
HEALTH



RESPIRATORY
ILLNESS



WILDFIRE

PAST

The frequency and intensity of wildfire has historically impacted Chino Hills over the past several decades. In October 2020 the Blue Ridge Fire burned 14,334 acres including 8,770 acres in Chino Hills State Park. The fire took 11 days to be contained, destroyed one structure and ten others were damaged.

Acres Burned by Decade
Over the Past 50 Years

Decade	City Limits Acres Burned
1940s	1,906
1960s	236
1970s	4,470
1980s	25,868
1990s	4,979
2000s	13,100
2020s	8,770

PRESENT

Wildfires can be catastrophic, damaging habitat, destroying homes and businesses, disrupting essential services, and damaging critical infrastructure. Approximately 75% of Chino Hills is located in areas of fire hazard risk.

Factors Affecting Wildfires



WEATHER



TOPOGRAPHY



VEGETATION &
FUELS

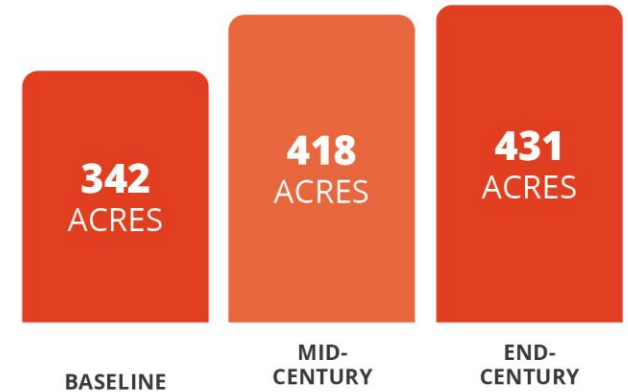


FIREFIGHTING
RESOURCES

FUTURE

Chino Hills is expected to experience an increase in the number of days with extreme wildfire risk, from 71 days annually to 138 days by mid-century and 174 days by end-century.

Projected Change in
Annual Average Area Burned



IMPACTS ON THE BUILT AND NATURAL ENVIRONMENT



WORSENING
WATER QUALITY



POWER DELIVERY
DISRUPTION



STRUCTURE &
PROPERTY DAMAGE



HABITAT
LOSS



STRAINED EMERGENCY
SERVICES



RECREATIONAL
RESOURCES

IMPACTS ON VULNERABLE POPULATIONS



PUBLIC HEALTH
& SAFETY RISKS



MENTAL &
BEHAVIORAL HEALTH



FATAL &
NONFATAL INJURY



AIR QUALITY
DECLINE



RESPIRATORY
ILLNESS



INCOME
LOSS



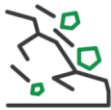
LANDSLIDES

PAST

Landslide occurrences have historically affected the City of Chino Hills and are most likely to occur during severe weather events.

Landslide Prone Area

The rocks of the Puente Formation, combined with the steepness of the terrain in the central and western portions of the City, make Chino Hills one of the most landslide-prone areas in Southern California.



PRESENT

The highest risk of landslides are in areas with steep geography, as mapped by the California Department of Conservation. Heavy rainfall often triggers surficial sliding (debris flows and mudflows) along the sides of canyons, and on steep slopes. Hill slopes composed of Puente Formation blanketed with topsoil and colluvium are more susceptible to erosion if not properly planted.

Exposed Assets

Assets	Amount Exposed
Population susceptibility to high landslide risk	22,427
Parcels at risk of landslide	6,420
Critical facilities at risk of landslide	21
Transportation and lifelines at risk of landslide	79 miles

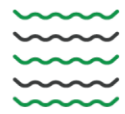
FUTURE

Triggered by extreme precipitation events or wildfires, the susceptibility of the City of Chino Hills to landslides is projected to increase as precipitation variability increases and wildfires increase in frequency, size, and severity.

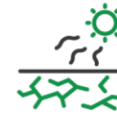
Climate Hazards Affecting Landslides



WILDFIRE



FLOODING



DROUGHT

IMPACTS ON THE BUILT AND NATURAL ENVIRONMENT



HABITAT LOSS



EROSION



STRAINED EMERGENCY SERVICES



PROPERTY DAMAGE



TRANSPORTATION ASSETS



ROADS



CRITICAL FACILITIES



LIFELINES

IMPACTS ON VULNERABLE POPULATIONS



PUBLIC HEALTH & SAFETY RISKS



MENTAL & BEHAVIORAL HEALTH



FATAL & NONFATAL INJURY



WATER-BORNE DISEASE



INCOME LOSS



FLOODING

PAST

Historically, major flood events in the City of Chino Hills are associated with heavy rains. There have been several extreme precipitation events in Chino Hills with the most severe flood occurring many decades ago in 1934. In the last 10 years, the City of Chino Hills and the San Bernardino County Flood Control District have constructed facilities which have substantially alleviated flood potential.

Historic Flooding Events

Location	Years
Peyton Drive/ Eucalyptus Ave <i>(street flooding)</i>	• 2007 • 2008 • 2010
Pipeline S/O Chino Hills Parkway <i>(street flooding)</i>	• 2003
Los Serranos <i>(street flooding various locations)</i>	• 1993 • 1995 • 1998 • 2003

PRESENT

A majority of the flood risk within the City of Chino Hills is specifically subject to inundation as a result of heavy rainfall and resulting stream and drainage canal overflows. Chino Hills contains over 9,776 acres of identified flood hazard areas. Urban areas in Chino Hills face increased flood risks due to new construction that reduces the amount of open land available to absorb rainfall and runoff, increasing the volume of water that must be carried away by waterways.

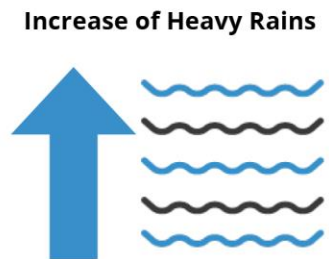
Exposed Assets

Assets	Amount Exposed
Population exposed to 100-Year flooding	816
Parcels exposed to stormwater flooding	507
Critical facilities exposed to stormwater flooding	25
Transportation and lifelines to stormwater flooding	9 miles

FUTURE

Stormwater systems are designed for a certain rain event based on historical averages. With climate change, the stormwater system could be more frequently overwhelmed when events occur that exceed the storm year design.

The frequency of heavy rain events may increase in the future, which would contribute to more frequent flooding in the City.



IMPACTS ON THE BUILT AND NATURAL ENVIRONMENT



HABITAT
LOSS



STRESSED WATER
DRAINAGES



STRAINED
EMERGENCY SERVICES



PROPERTY
DAMAGE



TRANSPORTATION
ASSETS



ROADS



CRITICAL
FACILITIES



LIFELINES

IMPACTS ON VULNERABLE POPULATIONS



PUBLIC HEALTH
& SAFETY RISKS



MENTAL &
BEHAVIORAL HEALTH



FATAL &
NONFATAL INJURY



WATER-BORNE
DISEASE



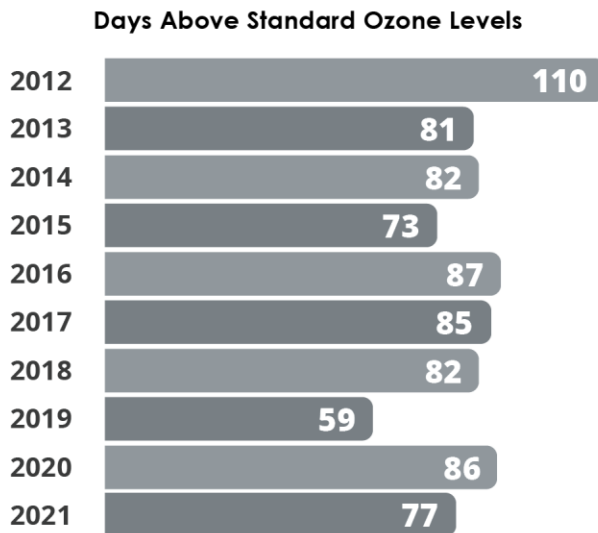
INCOME
LOSS



POOR AIR QUALITY

PAST

Historic poor air quality events coincide with regional wildfire events, periods of time without wind, extreme heat events, and extended droughts. Data over the last decade indicates an increase in days where ozone levels are above the national standard of 0.070 ppm within the region.



PRESENT

Poor air quality exposure in Chino Hills is commonly a hazard within the area. Chino Hills experiences more poor air quality days compared to other areas across the state and the region. Common types of air quality issues for Chino Hills include smog and seasonal wildfire smoke.

Types of Air Quality Hazards



DUST



SMOG



FEWER NATURAL
FILTRATIONS

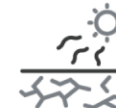


WILDFIRE
SMOKE

FUTURE

Climate change may lead to a decline in air quality regionally as well as throughout Chino Hills. Air quality is expected to worsen in Chino Hills due to extended droughts, more frequent wildfires, increased ambient temperatures, and sporadic natural filtrations of wind.

Hazards Affecting Air Quality



DROUGHT



WILDFIRE



TEMPERATURE

IMPACTS ON THE BUILT AND NATURAL ENVIRONMENT



VEGETATIVE
STRESS



WILDLIFE
STRESS



STRAINED
EMERGENCY
SERVICES

IMPACTS ON VULNERABLE POPULATIONS



PUBLIC HEALTH
& SAFETY RISKS



MENTAL & BEHAVIORAL
HEALTH



RESPIRATORY
ILLNESS

3 Sensitivity

Populations and assets are affected by climate change depending on their sensitivity to climate hazards. Sensitivity is the degree to which a species, natural system, community, asset, or other associated system would be affected by changing climate conditions (Cal OES 2020). This section identifies vulnerable populations and assets within Chino Hills. Potential impacts from climate hazards on vulnerable populations and assets are presented in the Vulnerability Analysis section. Sensitive assets are grouped in the following manner:



Vulnerable Populations



Natural and Recreational Resources



Buildings and Facilities



Infrastructure and Critical Services



Vulnerable Populations

While all people in a community will experience climate change, some may be more affected than others. For example, older adults and young children may be more at-risk to heat illness during an extreme heat event. Several factors influence sensitivity to climate hazards including an individual's health, age, and ability, societal disadvantages, inequities in access to health care, economic opportunity, education and other resources, and inequities found in basic needs and exposure to environmental stressors (Cal OES 2020).

Populations with characteristics and exposures that increase sensitivity to climate hazards should be prioritized when considering climate impacts, adopting climate resilience policies, and planning adaptation projects. In addition to facing greater exposure to and risk from climate change impacts, vulnerable populations often have fewer resources to adapt to and recover from climate change impacts.

These kinds of intersections between population characteristics and climate hazard exposure are important for understanding where there is increased risk from climate change in the community. Understanding where climate vulnerability is greater can help to prioritize adaptive capacity building and resilience planning efforts.

Following guidance from the Cal APG, populations that will likely experience disproportionate impacts from climate change were identified for Chino Hills. The city has several vulnerable populations listed in Table 3 below.

In Chino Hills, a small percentage of residents (less than 15%) are severely housing-burdened low-income households. However, when looking specifically at low-income households in the area, over half of them are experiencing severe housing burden. This means that while the problem may not be as widespread in Chino Hills as in other regions, it is still a significant issue for low-income families in the city.

Vulnerable populations making up a slightly higher percentage of the population relative to the state (less than one full percent higher) include non-white communities, older adults, individuals that are unemployed, non-English speaking individuals, and individuals with cardiovascular disease. The vulnerable populations are presented in the table below.

Table 3 Vulnerable Populations in Chino Hills

Population	Population Description	Percentage of Population or Households	State Percentage or Population or Household
Individuals with High Outdoor Exposure			
Outdoor Workers	Individuals who are employed, 16 and older, and work outdoors	5%	8%
People experiencing homelessness	Individuals who currently lack fixed, regular, and adequate housing	4**	
Individuals Facing Societal Barriers			
Linguistically Isolated*	Households with individuals who are non or limited English-speaking	56.6%	44.4%
Non-white Communities*	All individuals that do not identify as white	70%	63%
Individuals with Chronic Health Conditions or Health Related Sensitivities			
Individuals with disabilities	Individuals with access and functional needs (physical and mental)	6.9%	11.7%
Individuals with Cardiovascular Disease	Age-adjusted rate of emergency department visits for heart attacks per 10,000.	0.08	0.08
Individuals with Asthma	Percent of people with Asthma	8%	9%
Individuals with no health insurance	Individuals aged 18 to 64 years old currently uninsured	5.6%	10.7%
Older adults*	Individuals 65 years or older	16.2%	15.8%
Children*	Individuals 5 years and younger	4.7%	5.4%
Military Veterans*	Individuals who have served but are not currently serving in the US Armed Forces	2.2%	4.3%
Under-Resourced Individuals			
Isolated Individuals	Households without access to a vehicle	2.4%	7.1%
Households without a computer	Households without access to a computer.	1.7%	7%
Households without broadband internet	Households without access to broadband internet.	5.2%	13.9%
Households experiencing housing burden	Household with housing costs exceeding 30 percent of household income	9.12%	11.1%
Unemployed*	Percentage of population 16 years old and older who are unemployed	5.9%	5.3%
Renters	Housing units that are renter occupied	25%	45%
Low Income*	Individuals below the federal poverty level	7.9%	12.2%
Individuals with education attainment less than 4 years of college*	Percent of people over age 25 without a bachelor's education or higher	58.5%	63%
Source: The percentages used in this table were acquired from the California Healthy Places Index 3.0, U.S. Census, 2015-2019 American Community Survey (ACS), and CalEnviroScreen			

Population	Population Description	Percentage of Population or Households	State Percentage or Population or Household
Note: * indicates statistic from the U.S. Census, 2022 American Community Survey (ACS) 5-year estimates was used. ** City of Chino Hills 2022			

Vulnerable populations were grouped based on potential exposure to climate hazards, access to resources to prepare, cope with, or recover from climate hazards, whether individuals face societal disadvantages, or if individuals have health conditions or health sensitivities that leave them vulnerable to climate hazards. Often individuals have characteristics that make them vulnerable in a variety of ways; however, for the purpose of this assessment, they were grouped based on the sensitivity that increases their risk the most. Vulnerable populations are grouped below:

- **Individuals with High Outdoor Exposure.** Outdoor workers.
- **Under-Resourced Individuals.** Unemployed, households experiencing housing burden, individuals with educational attainment of less than 4 years of college.
- **Individuals Facing Societal Barriers.** Non-white communities, linguistically isolated.
- **Individuals with Chronic Health Conditions or Health Related Sensitivities.** Older adults, children, individuals with asthma, and individuals with cardiovascular disease.



Natural and Recreational Resources

Natural and recreational resources within Chino Hills include 44 parks and five community facilities. Chino Hills has approximately 12,000 acres of protected open space, with 3,000 acres of community-owned open space, which are maintained by the City in a natural vegetative state.

In addition, the southern portion of Chino Hills is comprised largely of Chino Hills State Park and undevelopable hillsides, and as a result, is sparsely populated, consisting of 7,366 acres of land within the City's borders is the largest California State Park located in an urban

setting. These various natural and recreational resources provide habitat, sources of community resilience, and recreation to the City. These resources are spread throughout the City and face various levels of exposure to climate hazards.



Buildings and Facilities

Climate change is expected to amplify extreme weather and climate hazards in Chino Hills. A jurisdiction's vulnerability increases when buildings and facilities are not designed, operated, and/or maintained to function effectively under extreme weather conditions or can be damaged by extreme weather conditions. The following buildings and facilities would be particularly sensitive to climate change: municipal and public buildings, educational facilities, hospitals, residential, light industrial, and commercial development, roadways and transportation facilities, active transportation routes, fire stations, and police stations.



Infrastructure and Critical Services

Within Chino Hills there is a large array of infrastructure and critical services that are vulnerable to climate change. Assets within this category include water services, fire services, emergency services, medical services, schools, utilities and major utility corridors, public transportation, roadways, and lifelines.

The City has access to a diverse portfolio of water supply sources including imported water originating in the Sacramento-San Joaquin River Delta (Bay Delta), groundwater from the Chino Basin that is produced locally by the City and purchased from local wholesalers, and recycled water provided by the Inland Empire Utilities Agency (IEUA). Recycled water is available to Chino Hills through a contract

with IEUA and is currently used for non-potable consumption (City of Chino Hills 2022).

This asset group is sensitive to climate change impacts, such as flooding of roadways, increased hospital visits during regional wildfires due to poor air quality, or increased energy demand during extreme heat events. These impacts can affect the service line ability to provide resources, by straining the existing capacity or creating conditions that prevent typical responses under normal conditions. Furthermore, infrastructure in place may not be prepared to sustain increasing and compounding hazards. For example, the sanitary sewer system may need additional lift capacity to adequately accommodate pumping wastewater for a growing population and increasing volumes of runoff from severe storm events.

4 Adaptive Capacity

Adaptive capacity is the ability to adjust to the consequences of climate change. This section summarizes the ways in which the City currently manages the negative impacts of climate change. Types of adaptive capacity include adjustments in behavior, resources, and technologies. Chino Hills has actively taken steps to increase the City’s adaptive capacity by relying on existing policies, plans, programs, and institutions that increase the City’s resilience to climate change. There are existing plans prepared by Chino Hills and by San Bernardino County such as the City of Chino Hills Hazards Mitigation Plan (2020) and the San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (2022), as well as programs,

and policies in place to mitigate the impacts of wildfire, landslide, flooding, and drought on the City’s buildings, facilities, infrastructure, and critical services, as well as to mitigate the impacts of extreme heat, drought, and wildfire on the City’s vulnerable populations.

Existing policies, plans, programs, and institutions that increase the City’s resilience to climate change impacts are organized by climate hazard and listed in Table 4.

Table 4 Program, Plans, and Policies to Manage Impacts of Climate Hazards

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
2022 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan	The MJHMP is an update of the San Bernardino County Unincorporated Area. The MJHMP presents information regarding hazards being faced by the County, the San Bernardino County Fire Protection District, the San Bernardino County Flood Control District, and those Board-governed Special Districts administered by the San Bernardino County Special Districts Department. The MJHMP describes the hazards that face the county, including wildfire, drought, extreme heat, and flooding. Specific mitigation measures to reduce hazard impacts are identified.	Flooding, Drought, Wildfire, Landslides, Extreme Heat, Air Quality
2020 Resilient IE Toolkit San Bernardino County Transportation Authority (SBCTA)	The Regional Climate Adaptation Toolkit for Transportation Infrastructure project (Resilient IE project or this Toolkit) is a collection of resources that provides data on the risk from climate-related hazards and tools and resources for developing and implementing climate adaptation and resilience strategies to reduce these risks. The Resilient IE project is a joint effort between the Western Riverside Council of Governments and San Bernardino County Transportation Authority to prepare the San Bernardino County region for the increasing risk of climate-related hazards.	Flooding, Drought, Wildfire, Landslides, Extreme Heat, Air Quality

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
	The Resilient IE Toolkit includes: • San Bernardino County Vulnerability Assessment • San Bernardino County Adaptation Strategies • SBCTA Member Community Vulnerability Profiles, which includes City-level evacuation route maps, including for Chino Hills • Risk-Based Vulnerability Assessment Pilot Findings • Climate Resilient Transportation Infrastructure Guidebook	
2018 San Bernardino County Safety Background Report	The Safety Background Report provides relevant information to identify the potential risk of death, injury, property damage, and economic and social dislocation resulting from fires, floods, earthquakes, landslides, and other hazards within San Bernardino County. This background report is a technical compilation of a wide range of topics on public safety hazards that should inform decisions to manage and reduce risks to people, property, and the environment. However, its intent is not as an all-encompassing compendium but rather an identification, analysis, and discussion of hazards in San Bernardino County to improve decisions about risks in the context of planning the future of San Bernardino County., including for Chino Hills.	Flooding, Drought, Wildfire, Landslides, Extreme Heat, Air Quality
San Bernardino County Flood Control District	The San Bernardino County Flood Control District has developed an extensive system of facilities, including dams, conservation basins, channels, and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from the major developed areas of the County. The District provides information in English and Spanish, as well as information on how to prevent erosion and how to prepare in case of flooding.	Flooding
San Bernardino Ready App (SB Ready) and Telephone Emergency Notification System (TENS)	The San Bernardino Community Preparedness App helps community members throughout the county to stay prepared and protect themselves and others should an emergency occur. Through the Telephone Emergency Notification System, the San Bernardino County Sheriff and Fire Departments send high-speed mass notifications via telephone and text messages.	Drought, Extreme Heat, Wildfire, Landslides, Flooding
StormReady Certification	San Bernardino County is StormReady certified. StormReady uses a grassroots approach to help communities develop plans to handle all types of extreme weather—from tornadoes to winter storms. The program encourages communities to take a new, proactive approach to improving local hazardous weather operations by providing	Flooding

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
	emergency managers with guidelines on how to improve their hazardous weather operations.	
2015 City of Chino Hills General Plan	The City of Chino Hills General Plan includes actions that seek to reduce risks and impacts from flooding, landslides, drought, wildfire, and air quality issues within the City. The City is working on updating its General Plan, which will further address wildland and urban fire hazards, flood hazards, climate change adaptation and resiliency strategies, and emergency evacuation routes. The update of the City General Plan is expected to be completed in early 2024 and once adopted will increase Chino Hills adaptive capacity to climate hazards.	Flooding, Landslides, Drought, Air Quality
2020 City of Chino Hills Hazards Mitigation Plan	The current HMP presents information regarding hazards being faced by the City of Chino Hills. The HMP presents mitigation measures to help reduce consequences from hazards, and outreach/education efforts within the City since 2011. Pre-identifying the local hazards provides City emergency planners a rationale for prioritizing emergency preparedness actions for specific hazards, including impacts from climate change. The City is working on updating their HMP, which will contribute to a better understanding of potential hazards due to climate change and help increase the City's resilience to climate hazards.	Flooding, Drought, Wildfire, Landslides, Extreme Heat, Air Quality
2023 City of Chino Hills Environmental Justice Existing Conditions and Policy Menu	Environmental Justice report assessed existing conditions that include: Health, Healthy Foods, Parks, Public Transportation, Libraries and Community Centers, Safe Walking and Biking, Safe and Sanitary Homes, Air Pollution, and Hazardous Materials. The report also contains a community survey conducted to gain community input regarding environmental justice issues in Chino Hills, and policies to address identified conditions. The policy menu was developed based on the findings of the existing conditions report and include policies to address existing conditions for vulnerable populations, natural and recreational resources, building and facilities, and infrastructure and critical services.	Drought, Extreme Heat, Flooding
2021 City of Chino Hills Urban Water Management Plan 2020	This plan was created in compliance with the Urban Water Management Planning Act. The plan evaluates efficient water uses, reclamation, and conservation activities. It analyzes the City's water system, water demands, and projects for future water supply capacity. The plan proposes water operation management tools to support groundwater production projects and includes sections describing climate change impacts on groundwater and imported water, the impact on the increase of water demand due to extreme heat, and provides a section for the Drought Risk Assessment.	Drought, Extreme Heat, Flooding

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
2014 City of Chino Hills Emergency Operations Plan (EOP)	This Emergency Operations Plan (EOP) addresses the City of Chino Hills' planned response to extraordinary emergency situations. It provides an overview of operational concepts and identifies components of the City's emergency management organization consistent with the requirements of the Standardized Emergency Management System (SEMS), as defined in Government Code Section 8607(a), and the National Incident Management System (NIMS), as defined by Presidential Executive Orders for managing response to multi-agency and multi-jurisdictional emergencies. In addition, the Plan provides guidance on the response to a broad range of major emergencies that may affect the City of Chino Hills. Such emergencies include earthquakes, hazardous materials emergencies, flooding, and wildfires.	Drought, Extreme Heat, Wildfire, Landslide, Flooding
Landscape Evaluation and Audit Program (LEAP)	The document provides professional recommendations to community members on changes they can make to reduce their outdoor water consumption.	Drought
Water-Wise Fire -Resistant Landscaping for Erosional Areas	The City of Chino Hills provides the community with this guide that showcase California Native plants that work well in fire and erosion prone areas to help reduce fire risk, while simultaneously lowering water needs.	Drought, Landslides, Wildfire
Read! Set! Go!	This publication from the Chino Valley Fire District, which includes Chino Hills, provides tips and tools to successfully prepare for a wildland fire, as well as guidance on retrofitting homes with ignition resistive features and helps determine how to create the necessary defensible space around homes.	Wildfire
Emergency Management Program	The City has an Emergency Management Program that enhances the City's ability to respond to and recover from the effects of natural or man-made disasters, administer the Federal and State Disaster Assistance Programs, and serve as the liaison to these and other agencies in San Bernardino County. The program includes the following: emergency preparedness training resources and programs: community informational campaign regarding preparedness, Chino Hills Auxiliary Radio Team (CHART), City staff disaster drills in conjunction with other agencies, Emergency Operations Center (EOC) preparedness, and emergency shelter, food, water, and equipment supplies.	Drought, Extreme Heat, Wildfire, Landslides, Flooding
Southern California Edison (SCE) Automated System (SCE 2022)	SCE regularly communicates with customers in the County during power outages and notifies customers when power will be restored. SCE provides customer service contact numbers for non-English speakers.	Extreme Heat, Wildfire, Flooding

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
Southern California Edison (SCE) Medical Baseline Program	SCE works with individuals with medical need for electricity (for oxygen, dialysis, etc.) to develop contingency plans. SCE regular conducts marketing for medical needs for electricity. It is aimed at customers in high fire risk areas, low-income customers eligible for free battery back-up (whole home battery), solar incentives, and others.	Extreme Heat, Wildfire

5 Vulnerability Analysis

This section describes the impacts each climate hazard has on community assets and services described in the Sensitivity section. Existing plans, policies, and programs that contribute to the adaptive capacity are summarized throughout. An impact score and an adaptive capacity score is identified for each asset by climate hazard, along with an overall vulnerability score consistent with the scoring methodology described in Vulnerability Assessment Methodology.



Vulnerable Populations

Individuals with high outdoor exposure face high exposure to outdoor conditions and are at much greater risk from various climate hazards. In Chino Hills, approximately 5 percent of residents work outdoors.

Under-resourced individuals often do not have access or the ability to afford resources needed to prepare for, cope with, and recover from climate change impacts. Households experiencing housing burden, and individuals who are unemployed or are low-income often face financial barriers when preparing for and recovering from climate change hazards. Individuals in these groups often live in homes that are less protected against climate hazards. Low-income individuals may not be able to take time off work to address health concerns either caused by or exacerbated by climate hazards. Individuals with educational attainment of less than 4 years of college usually have lower earning potential than those with a 4-year college degree. As defined by the U.S. Census Bureau, this population group does not include individuals who have attended trade schools, apprentice program, or who have attained associates

degrees. Individuals with 4-year degrees are half as likely to be unemployed than those who only have a high school degree (Association of Public and Land-Grant Universities N.d). Individuals in this group are less likely to have access to transportation, healthcare, and other basic needs. Under-resourced individuals often lack the financial resources to evacuate from a climate hazard and/or find an affordable place to evacuate to. In Chino Hills, 9.12 percent are households experiencing housing burden, 5.9 percent are unemployed, and 58.5 percent are individuals with education attainment less than 4 years of college.

Individuals Facing Societal Barriers also face additional impacts of climate change. Non-white individuals are more likely to live in high hazard risk areas and less likely to be homeowners, which leaves them vulnerable to climate hazards. If evacuation and/or advisory notices, hazard preparedness material, or governmental guidance is not provided in non-English versions, linguistically isolated individuals may not be able to prepare for, cope with, or recover from a climate hazard (Gamble et al. 2016). In Chino Hills, 56.6 percent are individuals linguistically isolated, and 70 percent are individuals who do not identify as white.

Individuals with chronic health conditions or health related sensitivities are socially and physiologically vulnerable to climate change impacts and hazards. Older adults and individuals with disabilities may have limited or reduced mobility, mental function, or communication abilities, making it difficult to evacuate during or prepare for a climate hazard event (CDPH 2020). They may also have medical needs for electricity which may be impacted during a public safety power shutoff or climate hazard event. Individuals in

these groups are more likely to have pre-existing medical conditions or chronic illnesses that may exacerbate the risk of illnesses and medical problems from climate hazards. Similarly, individuals with asthma and individuals with cardiovascular disease are more likely to experience health impacts from climate hazards because of their pre-existing conditions or diseases (PHASoCal 2022).

Children are socially and physiologically vulnerable to climate hazards with limited understandings of climate hazards and insufficient resources to independently prepare for and safely respond during a climate hazard event. Children, especially young ones, are reliant on their parental figures to ensure their health, safety, and wellbeing (CDPH 2020). Children also have vulnerable physical characteristics because they have not fully physiologically developed and are therefore more vulnerable to health effects of climate change impacts (Kenney et al. 2014). Military veterans are more likely to have chronic health complications as well as experiencing low-income or homelessness after their service, which also makes them vulnerable to preparing and responding to climate hazards (Olenick et al. 2015). In Chino Hills, 8 percent are individuals with asthma, 16.2 percent are individuals 65 years or older, and 4.7 percent are children.

Potential Impacts



Extreme Heat

Outdoor workers, including construction workers, roofers, and landscapers have an elevated risk of health impacts from extreme heat and they are often subject to strenuous work conditions where there is limited access to cooling through shade or air conditioning, increasing their heat exposure and health risks during extreme heat events. Under-resourced individuals may not be able to pay for adequate air conditioning or fans, increasing their

exposure to extreme heat. Isolated individuals do not have access to a vehicle to travel to cooling centers or move to temporary shelters during extreme heat events (Cooley et al. 2012). Under-resourced individuals are less likely to receive medical care for illnesses triggered or exacerbated by extreme heat. Households without a computer or broadband internet may not receive heat advisory warnings or governmental guidance, causing them to experience health impacts from extreme heat exposure (CDPH 2017).

Non-white communities often live in housing with insufficient protection from extreme heat events and limited or no affordable air conditioning. Linguistically isolated individuals may not be able to read heat advisory warnings or governmental guidance, potentially causing them to experience greater exposure to extreme heat (Gamble et al. 2016). The primary health impacts to these populations are heat-related illnesses, such as heat stress, heat stroke, and dehydration, which can be life-threatening (CDPH 2020). These populations may not have access to medical services to treat heat-related illnesses.

Individuals with chronic health conditions or health related sensitivities are particularly at risk to heat related illnesses during extreme heat events. Individuals with disabilities, older adults, and children may have difficulty turning on air conditioning or traveling to cooling centers during extreme heat events. Extreme heat conditions can exacerbate asthma, cardiovascular disease, certain disabilities, and other respiratory and cardiovascular conditions, potentially causing heat-related illnesses such as heat stress, heat stroke and dehydrations, which can be life threatening (CDPH 2020). Children are still physiologically developing which means that they are less able to regulate their bodies during extreme heat events (Kenney et al. 2014).

In Chino Hills, the UHI effect will most likely impact vulnerable communities in densely populated communities without access to

green spaces, open areas, or reflective surfaces. Trees can provide shade, natural cooling, and mitigate the urban heat island effect, providing numerous benefits to residents. According to Chino Hills's tree equity report, 4 of 40 block groups have a tree equity score of less than 75. The lack of tree canopy in these areas will exacerbate the urban heat island effect and increase heat inequity (Figure 3).



Drought

During periods of prolonged drought, individuals with high outdoor exposure are at risk to drought conditions and associated cascading impacts. Under-resourced individuals are more likely to experience the cost burden associated with increased water rates (Feinstein et al. 2017). These individuals may struggle to access clean and affordable drinking water which may cause dehydration and/or exacerbate underlying health conditions and illnesses (Gamble et al. 2016).

Non-white communities are at risk to drought conditions and associated cascading impacts. Individuals in these groups may face systemic and/or cultural barriers when seeking to access affordable and clean drinking water, which may cause dehydration and/or exacerbate underlying health conditions and illnesses (Gamble et al. 2016).

Individuals with chronic health conditions or health related sensitivities are at risk to drought conditions and associated cascading impacts. Prolonged drought conditions can lead to water scarcity and individuals may need to rely on poor quality water supplies. Individuals with chronic health conditions or health related sensitivities may experience negative health impacts if they become dehydrated. Children and older adults are especially at risk to dehydration as their bodies are not able to regulate as well (Kenney et al. 2014). Dehydration may exacerbate underlying health

conditions and illnesses. (California Department of Public Health 2017).

Extended drought conditions also contribute to health impacts and has the risk of contributing to utility rate increases which could be a burden for people experiencing poverty and households experiencing housing burden.

The drought that spanned water years 2012 through 2016 included the driest four-year statewide precipitation on record (2012- 2015) and the smallest Sierra-Cascades snowpack on record (2015, with 5 percent of average). The City of Chino Hills responded to the State's emergency actions and executive orders by adopting Ordinance No.13.08. This ordinance addressed the need for water conservation and detailed the restrictions and requirements of all four stages of conservation.



Wildfire

Outdoor workers may be exposed to hazardous work conditions during wildfire events and may become injured from smoke inhalation or burns. Under-resourced individuals may experience injuries or death from smoke inhalation or burns and are less likely to receive medical treatment (CDPH 2017). These individuals may have their belongings and homes damaged by a wildfire. If this occurs, under-resourced individuals are likely to suffer from the cost burden associated with losses or damage. Households without a computer or internet may not receive communications and evacuations to safely evacuate from hazard areas. Isolated individuals are vulnerable during wildfires because they do not have access to a vehicle to evacuate. Renters have limited control over home hardening and improvements that may protect against fire and smoke. Subsequently, they may experience economic and health impacts and a greater loss of belongings than homeowners (Gamble et al. 2016). Wildfire smoke locally, or

regionally, can create hazardous air quality conditions that impact public health, and vulnerable populations in particular.

Non-white communities are more likely to live in wildfire hazard zones and in housing with insufficient protection against wildfire. Linguistically isolated individuals may not be able to read wildfire or smoke advisory warnings or governmental guidance, potentially causing them to experience greater exposure to smoke and/or wildfire. Individuals in these groups may face systematic and/or cultural barriers to access resources to safely evacuate hazard areas (Gamble et al. 2016). Individuals in these groups may experience injuries or death from smoke inhalation or burns (CDPH 2017).

Individuals with chronic health conditions or health related sensitivities may experience injuries or death from smoke inhalation or burns (CDPH 2017). Older adults, military veterans, and pollution burdened individuals are vulnerable to health impacts from wildfire smoke pollutants because they are more likely to have underlying respiratory and/or cardiovascular conditions and illnesses. Children may experience respiratory health impacts from wildfire smoke because their respiratory systems are not fully developed and are sensitive to stressors. Individuals with cardiovascular disease may experience severe cardiovascular health impacts if exposed to wildfire smoke pollutants. Individuals with asthma may experience severe respiratory health impacts such as difficulty breathing if exposed to wildfire smoke pollutants. Individuals with disabilities, children, and older adults may have difficulty evacuating from wildfires, increasing the risk of health impacts from wildfire smoke inhalation or fire burns (EPA 2022).



Landslides

Vulnerable populations living in areas with high landslide risk may be subjected to disproportionate negative impacts during

landslide and debris flow events. Communities of color are more likely to be situated in wildfire scar zones or landslide prone areas. Linguistically isolated individuals and foreign-born-non-citizens may not be able to read landslide advisory warnings or governmental guidance, potentially causing missed critical evacuation information or limited ability to safely evacuate hazard areas (Gamble et al. 2016). Landslides can also impose additional financial burdens on vulnerable populations, specially under-resourced individuals, due to the high costs associated with repairing or rebuilding damaged houses.



Flooding

Outdoor workers may be exposed to hazardous work conditions during stormwater flooding events and therefore face higher risk of experiencing health impacts (CDPH 2020). Under-resourced individuals may experience injuries or death from high velocity flooding and are less likely to receive medical treatment (CDPH 2017). Individuals in these groups may experience cost burdens if their belongings and homes are damaged from floodwater inundation. Isolated individuals have limited or no access to a vehicle to evacuate flood hazard areas. Households without a computer or internet may not receive communications and emergency alerts to safely evacuate from hazard areas (CDPH 2020). Renters have limited control over home improvements that may protect against flood damage. Subsequently, they may experience economic and health impacts and a greater loss of belongings than homeowners (Gamble et. al 2016).

Non-white communities are more likely to live in flood hazard areas and in housing with insufficient protection against riverine and flooding. Linguistically isolated individuals may not be able to read flood warning or governmental guidance, potentially causing them to experience greater exposure to flooding. Individuals in these

groups may face systematic and/or cultural barriers when seeking to access resources needed to safely evacuate hazard areas (Gamble et al. 2016).

Older people and children are particularly at risk to injury and/or death from high velocity flooding (CDPH 2017). Flooding may also limit access to transportation systems, healthcare centers, and emergency response to those that are injured or in need or consistent medical care, such as those with chronic health conditions or illnesses. Children, older adults, individuals with disabilities, and individuals with chronic health conditions or illnesses may not be able to safely evacuate floodwater hazard areas.



Air Quality

Outdoor workers are disproportionately impacted by poor air quality because they are directly exposed to air pollutants for longer periods of time and during hotter parts of the day when levels of ground-level pollutants such as Ozone are higher (CDPH 2017). They may experience exacerbation or development of respiratory diseases and conditions, such as asthma and chronic obstructive pulmonary disease (COPD), and respiratory infections, which in some cases may be life-threatening (Ramin & Svoboda 2009).

Under-resourced individuals may be disproportionately impacted by poor air quality because their housing lack sufficient air filtration and they may not be able to afford supplemental air filtration equipment (Gamble et al. 2016). Individuals in these groups may experience the development or exacerbation of respiratory illnesses and are less likely to receive medical treatment (California Department of Public Health 2017).

Non-white communities are vulnerable to health impacts associated with poor air quality because their housing may lack sufficient air filtration and they may not be able to afford supplemental air filtration equipment (Gamble et al. 2016). Linguistically isolated individuals may not be able to read air quality advisory warnings or governmental guidance that are in English, potentially causing them to experience greater exposure to extreme heat (CDPH 2017).

Individuals with chronic health conditions or health related sensitivities are at risk of developing or experiencing exacerbated health impacts from poor air quality. Children are extremely vulnerable to health impacts from poor air quality because their respiratory system has not fully developed yet (CDPH 2017). Older adults, military veterans, and pollution burdened individuals are vulnerable to health impacts from poor air quality because they are more likely to have underlying respiratory and/or cardiovascular conditions. Individuals with cardiovascular disease and individuals with asthma may experience severe health impacts if exposed to poor air quality (EPA 2022).

Adaptive Capacity

Chino Hills has plans, policies and programs in place that protect vulnerable populations across all climate hazards. The level of enforceability, implementation, and efficacy varies based on the hazard type. Some of the emergency preparedness already in place in Chino Hills include emergency notifications, preparedness tips, storm preparedness, wildfire preparedness tips, as well as an emergency management notification system that informs the population on extreme heat, power outage, high wind, and flood events.

The Chino Hill Environmental Justice report (2023), provides a policy menu that address the environmental justice conditions within Chino Hills and includes policies to maintain shade trees and

landscaping that makes parks more comfortable and visually appealing while adapting to extreme heat and drought, and to pursue programs and services that assist senior, disabled and lower income households locate and remain in Chino Hills neighborhoods.

Additionally, San Bernardino County has plans, programs, and resources that enhance regional resilience or otherwise enhance Chino Hills's ability to respond to and adapt to climate change and climate hazards.

San Bernardino County, through the Extreme Weather Committee, developed the Extreme Weather – Excessive Heat Standard Operating Guidelines, which are designed to protect all of the County's population, especially the most vulnerable populations. In addition, the San Bernardino County Flood District provides information in English and Spanish on how to prevent erosion and how to prepare in case of flooding.

Plans concerning flooding and drought mainly address infrastructure resilience and water reliability and drainage, which contribute to helping vulnerable populations. Plans like the Chino Hills UWMP can serve as a platform of water assurance for vulnerable populations.

The City redesigned water bills to help residents determine their amount of water consumption. In addition, the Conservation Element of Chino Hills 2015 General Plan includes the goals, policies, and action items to Ensure Adequate Water Supply and Delivery, such as continuing to implement water conservation programs to sustain potable water sources.

The 2020 Chino Hills HMP identifies areas in the city, such as the Carbon Canyon region, where wildfires pose the highest risk to vulnerable populations.

In order to be eligible for Federal Emergency Management Agency (FEMA) grants from the Pre-Disaster Mitigation Program or the Post-Disaster Hazard Mitigation Program, local communities must prepare a local hazard mitigation plan (LHMP) and update the plan at least every five years. Chino Hills updated its LHMP in 2020 and is currently undergoing another update. This increases Chino Hill's ability to receive funds to help prevent and recover from climate hazards, as well as reduce damage and costs of disasters and increase climate resilience.

Vulnerability Score

The following table includes vulnerability scores for Vulnerable Populations in Chino Hills. Vulnerability scores are a combination of the impact and adaptive capacity score. The impact and adaptive

capacity scores are developed using a qualitative methodology outlined in the Cal APG, as seen in Table 1.

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat	High	Medium	4-High
Drought	High	High	3-Medium
Wildfire	High	Medium	4-High
Landslides	High	Medium	4-High
Flooding	Medium	Medium	3-Medium
Air Quality	Medium	Medium	3-Medium



Natural and Recreational Resources

Primary vulnerabilities for natural resources are associated with climate hazard-caused stress and physical damage to resources. Compounding climate hazards stress natural ecosystems past their ability to absorb individual climate hazards. Wildlife will seek out more conducive habitats during climate hazards such as extreme heat or drought which tend to be where people recreate (USDA 2020).

Impacts related to habitat shifts are exacerbated in densely populated and isolated open space areas which have limited opportunities for re-seeding or re-habitation from adjacent areas. Natural resources are highly vulnerable to the effects of climate change in Chino Hills.

Potential Impacts



Extreme Heat

Increased temperatures can cause vegetation stress in parks, landscaping, and the City's urban forest. Indirect impacts could include reduced carbon storage and increased tree and vegetation mortality, as well as increased watering needs and related costs. Wildlife under these conditions face impacts of heat stress and heat related illness as well as disrupted reproductive cycles, and compounding risks associated with early and extended seasonal temperature increases (Backlund 2008). Because it is seasonally warmer earlier in the year species can emerge early with no food source and potentially face a delayed cold front which increases mortality rates. Timing of seasonal warmth may not overlap with food sources and extreme heat may stress dependent

vegetation communities and wildlife (Dale, 1997, Hamerlynck 1995, Maclean 2011). Plants are more likely to experience heat stress and drying, species' habitat ranges may shift and be replaced with invasive species. Some pests can proliferate more easily with warmer temperatures (Hamerlynck 1995), and some plants and animals ill-suited to the new warmer conditions may suffer increased mortality rates. Natural resources are highly exposed to extreme heat and warm nights. Both mid- and end- of century projections depict dramatic increases in extreme heat days (CEC 2024).



Drought

Impacts from drought involve risks associated with water scarcity and availability for reliant natural resources. Drought will disrupt habitats and wildlife abilities to survive from dehydration and reliable food sources. Drought would likely increase irrigation requirements for maintaining landscaping, park facilities, and street trees, while water use restrictions would potentially prevent asset managers from meeting this increased watering demand, resulting in water-stressed vegetation, increased vegetation mortality, and potentially reducing the quality of and benefits provided by recreational resources such as open spaces and parks and the urban forest.



Wildfire

The largest direct impacts to natural resources are caused by wildfires. There is direct mortality and loss of resources and wildlife from wildfire as well as indirect mortality due to uninhabitable areas, loss of available food sources and seed bank (Backlund 2008). The severity and frequency of wildfires can exacerbate these impacts further through habitat conversions resulting in vegetation communities that no longer support the

species using that habitat and the landscape providing minimal alternative habitats (Bell et.al, Stephenson et.al 1999, Coop et. al 2020). Extreme wildfire risk days are projected to increase through the end of the century (CEC 2024). The California Department of Forestry and Fire Protection identified areas in the city that are considered to be Very High Fire Hazard Severity Zones (VHFHSZ). Figure 4 depicts the spread of VHFHSZ's bordering and fully encompassing areas with natural resources.



Landslides

Landslide susceptibility is limited and the likelihood of landslides occurring is determined by wildfire and precipitation occurring sequentially. In the event of a landslide there is potential for loss of lands and habitat, and disruption of waterbodies in areas of debris flow. There is risk around loss of topsoil and habitat conversions. Wildlife and plants face a compounding risk to landslide events because it creates both habitat displacement and increased mortality risk.



Flooding

California's Fourth Climate Change Assessment projects more extreme precipitation events will occur throughout the Los Angeles region, which may lead Chino Hills to experience more frequent flooding. In addition, heavy precipitation events could flood recreation facilities, impacting service. Additionally, flooding can reduce overall water quality through transport of pollutants including potentially hazardous materials via runoff into the water drainage system and wherever floodwaters accumulate.



Air Quality

The direct effects of air quality declines on natural resources relate to plant and wildlife health as increased air

pollutants causes stress and mortality. Impacts from air quality can further impact natural resources since air quality declines correspond with other hazards, such as droughts, compounding risks. The degradation of plant and wildlife health could impact the quality of recreational resources including open spaces and parks. Impacts from air quality can also make outdoor recreational resources dangerous or unhealthy for sensitive groups identified in the Vulnerable Populations section of this analysis.

Adaptive Capacity

There are no relevant plans, programs, or policies directly increasing the adaptive capacity of Chino Hills's natural and recreational resources to the climate hazard of extreme heat. Indirect planning exists around adaptation for natural recreational resources around flooding and drought, including the Landscape Evaluation and Audit Program, the Urban Water Management Plan, and policies encouraging or requiring drought-resistant landscaping. However, these plans do not directly address adaptive solutions for natural resources.

Related to wildfire, there are existing programs and plans on vegetation management developed by the Chino Valley Fire District that aim to minimize the threat of potential fire hazards due to combustible vegetation. The Chino Valley Fire District also has an ordinance that prohibits the accumulation of various combustible vegetation that can endanger lives and property. However, consideration of ecosystem health is not directly addressed.

During the 2012 to 2016 drought, Chino Hills identified areas of City property to replace grass with drought tolerant plants, increase the number of areas using recycled water, and worked with local water agencies to advertise and promote landscape conversions to drought tolerant landscaping. In addition, the Conservation Element of Chino Hills 2015 General Plan Update includes the goals, policies,

and action items to Ensure Adequate Water Supply and Delivery, such as promoting the use of drought-tolerant plant materials and low-water-usage irrigation systems and promoting low-water-use plantings and materials in City street medians and parkways. The 2015 General Plan, also include policies to protect Chino Hills' natural resources, for example by limiting intrusion of development into natural open spaces, and actions to promote preservation of natural features such as streams, rock outcroppings, and unique vegetative clusters within the City.

The City's current Parks, Recreation, and Open Space Master Plan has not been updated since 2007. This reduces the capacity of Chino

Hills to prevent and recover the City's natural and recreational resources from climate hazards. The City is in process of updating the Conservation Element, which would help reduce damage and costs of disasters and increase climate resilience.

In addition, according to Chino Hills Environmental Justice report (2023) over 90 percent of Chino Hills residents are within walking distance of a City or regional park. This ranks Chino Hills among the top 25th percentile of cities in California for residents within a half-mile of a park.

Figure 4 Wildfire Hazard Severity Zones in Chino Hills

[PLACEHOLDER FOR THE MAP]

Vulnerability Score for Natural Resources

The following table includes vulnerability scores for Natural Resources in Chino Hills. Vulnerability scores are a combination of the impact and adaptive capacity score. The impact and adaptive

capacity scores are developed using a qualitative methodology outlined in the Cal APG, as seen in Table 1.

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat	High	Low	5-High
Drought	High	Medium	4-High
Wildfire	High	Medium	4-High
Landslides	High	Medium	4-High
Flooding	Medium	Medium	3-Medium
Air Quality	Low	Low	3-Medium



Buildings and Facilities

Vulnerabilities within this asset category primarily concern physical exposure and damages to residential areas, commercial, and light industrial buildings, and educational facilities related to climate hazards. Impacts associated with operations of critical services are discussed under Infrastructure and Critical Services.

Potential Impacts



Extreme Heat

Increased temperatures are likely to result in minimal impact to physical structures. Indirect impacts could include an increase in cooling costs. Extreme heat could impact occupants of buildings and facilities that are not adequately weatherized for increased temperatures.



Drought

Drought will have minimal impact on the physical structures of buildings and facilities across Chino Hills.



Wildfire

The structures and buildings that occupy wildfire hazard zones are at risk of structural damage from wildfires. There are several facilities in the City's wildfire hazard zones shown in Figure 4. According to the Chino Hills HMP (2020), there are 572 residential buildings located in the VHFHSZ in Chino Hills. Existing fuels in combination with large areas of wildland urban interface (WUI) and increasing temperatures and drought conditions due to climate change are expected to increase wildfire risk for the City. Wildfires can create risk of injury, death, or financial hardship if personal property is damaged as well as physical damage to all other assets

creating cascading risks for vulnerable populations when infrastructure is damaged or off-line.



Landslides

Buildings and facilities located in the landslide risk zone are susceptible to damage in the event of a landslide event. Landslide susceptibility for Chino Hills overlaps with sloped wildfire hazard zones (CDOC 2021). Impacts to buildings and facilities as outlined in the Chino Hills HMP (2020) encompass 6,420 residential parcels, 1 hospital, and 2 schools. Figure 5 shows the landslide risk zones in Chino Hills.



Flooding

There is minimal risk to the physical structures outlined under this asset category to flooding. The Chino Hills HMP (2020) estimates that 5 residential parcels are exposed to 100-year flood.



Air Quality

The impact of reduced air quality will have a similar effect as extreme heat for buildings and facilities. The ability to filter air will greatly affect the reliant subsystems, services, and populations reliant on the buildings and facilities. The direct impact on structures is low.

Adaptive Capacity

Chino Hills has limited existing adaptive capacity to increase the weatherization of buildings and facilities throughout the City. This means that risks related to climate hazards including wildfire, extreme temperatures, flooding, and landslide are significant. However, the city does provide the community with guidance on resistant landscaping for erosional areas, which showcases some

California native plants that work well in fire and erosion prone areas to help reduce, landslide and fire risk, while simultaneously lowering water needs. As well as, the San Bernardino County Flood Control District developed an extensive system of facilities, including dams, conservation basins, channels, and storm drains to intercept and convey flood flows through and away from the major developed areas of the County, which consequently increases the resilience of Chino Hills' building and facilities against flooding.

According to the Environmental Justice report (2023), the City makes regular improvements and maintenance to public facilities to ensure their continued value to the community. The Conservation

Element of Chino Hills 2015 General Plan includes the goals, policies, and action items to Ensure Adequate Water Supply and Delivery for water resources and distribution. This includes actions to continue the master plan water supply and distribution to meet current and projected City demands and implement the water master plan policies through the City's Capital Improvement Program. The General Plan also includes action to regulate development in landslides hazard areas, and to regularly update building and fire codes. These actions would help increase the resilience of buildings and facilities during drought.

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Figure 5 Landslides susceptibility zones in Chino Hills

[PLACEHOLDER FOR THE MAP]

Vulnerability Score for Buildings and Facilities

The following table includes vulnerability scores for Buildings and Facilities in Chino Hills. Vulnerability scores are a combination of the impact and adaptive capacity score. The impact and adaptive

capacity scores are developed using a qualitative methodology outlined in the Cal APG, as seen in Table 1.

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat	Medium	Low	4-High
Drought	Low	High	1-Low
Wildfire	High	Medium	4-High
Landslides	High	Medium	4-High
Flooding	Medium	Medium	3-Medium
Air Quality	Low	Low	3-Medium



Infrastructure and Critical Services

Overall vulnerabilities associated with this asset category involve structural preparedness and service reliability in the face of climate change. This section is mainly concerned with the cascading impacts that physical damage to buildings and facilities can have on services and infrastructure, as well as disruption to the provision of critical services.

Potential Impacts



Extreme Heat

As temperatures increase, roadways, and active transportation routes are vulnerable to damages through sustained heat (Kalansky et al. 2018). Additional impacts from extreme heat are associated with increased emergency service calls which may strain medical services. Electrical infrastructure could be overwhelmed by demand and result in blackouts or energy providers could conduct power safety shutoffs to avoid impacts to electrical facilities. Power outages have significant impacts on communication networks, water conveyance, and vulnerable populations. Power outages are a cascading impact of extreme heat events, which place additional strain on infrastructure and critical services and can place additional strain on services during extreme heat events impacting the ability for emergency services to fully function.



Drought

Drought can impact water reliability and water infrastructure. All emergency services depend on water, particularly firefighters who require adequate water supply for fire suppression. Water providers within the City will encounter

increased difficulty as drought impacts general service reliability. Drought impacts can create service strain for emergency and medical services. Cracked pavements from drought compounded with extreme heat increase roadway and transportation routes maintenance needs.



Wildfire

There are some City's critical facilities located in the high and very high fire hazard severity zones that are at risk of damage and destruction caused by wildfires, including three highway bridges and 136 mileage of transportation and lifelines infrastructure. Additionally, utility lines have the potential to be damaged in high-risk locations, resulting in oil and gas leaks and power outages. Utility lines under certain high wind conditions can also trigger wildfires through downed power lines (Hall et al. 2018). Power safety shut offs in response to wildfire risk can affect service reliability of power. Increased frequency of wildfires can place strain on fire and emergency services. Evacuation routes could be disrupted during a wildfire event, limiting emergency responders and the ability for people to evacuate. Post-wildfire there are additional issues of displacement and needs for temporary shelters for uprooted communities.



Landslides

There is high landslide susceptibility along roadways and several critical facilities located in landslide risk areas in Chino Hills (Figure 5), these include 79 miles of transportation and lifeline assets. In addition, there is a risk of emergency service disruption and impacts on evacuation (CDOC 2021). Pipelines for water, electrical distribution lines, and roadways are vulnerable to landslide impacts which could occur in sloped areas that extend into wildfire zones.

According to the Resilient IE Toolkit (2020), 4 miles (7%) of evacuation routes could be impacted by fire hazards and flooding, and 35 miles (68%) of evacuation routes could be impacted by landslides.



Flooding

Impervious surfaces can impede the absorption of water and augment flooding in areas of Chino Hills. There is risk of damage from increased extreme precipitation events including erosion, transport of debris, and sediment deposition. Storm drainage and flood protection services for the City may be impacted by these events, and flooded roadways may be temporarily impassable, disrupt or delay provision of emergency services, or increase risk to road users. Water supply for fire suppression as well as wildfire-caused declines in water quality result in additional cascading impacts. The extent of the flooding associated with a 1% and 0.2% annual probability of occurrence (100-year and 500-year flood), help identify the location and extent of flooding across Chino Hills (Figure 6).



Air Quality

Higher incidence of unsafe air quality generated by increased smog, dust and wildfire smoke can create general strain on existing infrastructure and critical services through increased rates of hospitalization and emergency and medical services (CDPH, 2020).

Adaptive Capacity

The Chino Hills' water supply sources are considered to be highly reliable over the next 25 years. This reliability is due to the long-term investments that MWD has made as the primary regional

wholesale supplier, which include storage, water transfers, water banking, flexible operations, conservation, and alternate supplies. Chino Hills' groundwater supplies from the local Chino Basin are also expected to be highly reliable into the future (City of Chino Hills 2022).

The relevant existing plans, policies, and programs for Chino Hills are mainly multi-hazard based. All multi-hazard plans, programs and systems are designed to address service and infrastructure failings and contingencies. Existing planning covers mainly wildfire with some mention of flood hazards. Relevant plans and systems in place are found below:

- City of Chino Hills Hazard Mitigation Plan (City of Chino Hills 2020)
- San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan (San Bernardino County 2022)
- San Bernardino County Safety Background Report (San Bernardino County 2018)
- City of Chino Hills Urban Water Management Plan 2020 (City of Chino Hills 2021)
- Emergency Operations Plan (EOP) (City of Chino Hills 2014)
- City of Chino Hills Emergency Management Plan
- Chino Valley Fire District Read! Set! Go!
- San Bernardino County StormReady Certification
- San Bernardino Ready App (SB Ready) and Telephone Emergency Notification System (TENS)
- Southern California Edison (SCE) Automated System Notifications and Supportive Services (SCE 2022)

Cascading risks of services and power dependencies are addressed in relation to wildfire throughout these plans and programs.

Figure 6 100 and 500-Year Floodplain in Chino Hills

[PLACEHOLDER FOR THE MAP]

Vulnerability Score for Services and Infrastructure

The following table includes vulnerability scores for Services and Infrastructure in Chino Hills. Vulnerability scores are a combination of the impact and adaptive capacity score. The impact and adaptive

capacity scores are developed using a qualitative methodology outlined in the Cal APG, as seen in Table 1.

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat	High	Medium	4-High
Drought	Medium	High	2-Low
Wildfire	High	High	3-Medium
Landslides	High	Medium	4-High
Flooding	High	Medium	4-High
Air Quality	Low	Low	3-Medium

6 Conclusion

This report evaluates how climate change may impact vulnerable community members, natural resources, critical facilities, buildings, services, and infrastructure in Chino Hills. The report provides a prioritized list of vulnerable population groups and assets for which adaptation policies and programs should be developed and implemented to increase community resilience.

The City of Chino Hills' **Exposure to Climate Hazards** was analyzed through projections from the Cal-Adapt Local Climate Change Snapshot tool and regional context presented in the California Fourth Climate Change Assessment Los Angeles region report, which includes San Bernardino County. A list of asset categories with high vulnerability scores is provided on the next page. The City's exposure to wildfire and landslides were mapped in Figure 4 and Figure 5. FEMA classified floodplains were also mapped (Figure 6) across the city showing 100-year and 500-year floodplains occupying regions closest to rivers and creeks within city limits.

The City's asset groups explored in the **Sensitivity** section outlined vulnerable populations listed in Table 3, natural and recreational resources, buildings and facilities, and infrastructure and critical services.

The **Adaptive Capacity** section outlined the existing programs, plans, and policies that help the city of Chino Hills become more resilient to increased exposure to climate hazards. The vulnerability score is a combination of the impact and adaptive capacity score. In the **Vulnerability Analysis** section the impact and adaptive capacity scores are developed using a qualitative methodology outlined in the Cal APG, as seen in Table 1 and Table 2. Impact and adaptive capacity scores for each climate hazard are identified for each

sensitivity. A complete list of the population groups and asset categories with medium and high-vulnerability scores is provided below along with the following summary points.

- All outdoor workers, linguistically isolated, non-white communities, individuals with cardiovascular disease, individuals with asthma, older adults, children, households experiencing housing burden, unemployed, and individuals with education attainment less than 4 years of college are vulnerable population groups identified as highly vulnerable to the negative effects of climate change in Chino Hills. They may not have access to cooling or medical services, and heat-related illnesses can be life-threatening. Wildfires pose health and economic risks, particularly to outdoor workers, under-resourced individuals, non-white communities, and individuals with chronic health conditions. Renters and isolated individuals may also face increased risks. Children, older adults, and individuals with disabilities are especially vulnerable to wildfire smoke. High-risk areas for landslides events disproportionately affect communities of color and linguistically isolated individuals in the City. They may miss critical evacuation information due to the inability to read landslide advisory warnings or government guidance. Flooding events may affect vulnerable populations in Chino Hills since it may limit access to transportation, healthcare centers, and emergency response, potentially causing injuries, death, and damage to homes and belongings. As well as poor air quality can severely impact the vulnerable population identified in Chino Hills since they can develop or exacerbate respiratory illnesses and are less likely to receive medical treatment.

- Natural resources are highly vulnerable to extreme heat, drought, wildfire, landslides, and flooding. Vulnerability for natural resources is focused on habitat conversions and damage, mortality, and scarcity of resources for plants and wildlife. Chino Hills' natural resources are highly exposed to extreme heat. Increased temperatures can cause vegetation stress and wildlife impacts, and timing of seasonal warmth may not overlap with food sources and extreme heat may stress dependent vegetation communities and wildlife. Drought can impact water availability for natural resources and disrupt habitats and wildlife. It can also increase irrigation requirements for maintaining green spaces and street trees, potentially leading to water-stressed vegetation and reduced quality of recreational resources in the City. Wildfires cause the largest direct impacts on natural resources in Chino Hills, leading to loss of wildlife and resources. Wildfires create uninhabitable areas and loss of food sources. The frequency and severity of wildfires can convert habitats, leading to minimal alternative habitats. In Chino Hills landslides are likely to occur when wildfires and precipitation happen in quick succession. They can cause loss of land, habitat, and water disruption. Landslides also increase the risk of topsoil loss and habitat conversion. Wildlife and plants face displacement and higher mortality risk due to landslides. The Fourth Climate Change Assessment predicts that the Los Angeles region, which includes San Bernardino County, will experience more extreme precipitation events leading to frequent flooding in Chino Hills. Heavy rainfall can also impact the City's recreation facilities and reduce water quality through pollutants transported via runoff. Air pollution can harm plants and wildlife, leading to stress and death. It can compound other risks like droughts, impacting natural resources, which can further affect the quality of recreational resources such as parks, making them unsafe for Chino Hills' vulnerable populations.
- Buildings and facilities in the City are highly vulnerable to wildfires and landslides. Higher temperatures might not harm structures but could increase cooling costs. People in buildings not prepared for extreme heat could be affected. Several structures and buildings located in Chino Hills' wildfire hazard zones are at risk of damage from wildfires. Climate change is expected to increase wildfire risk, posing threats to personal property, assets, and vulnerable populations. In addition, buildings and facilities in the landslide risk zone of Chino Hills can be damaged during a landslide event. In Chino Hills, landslide risk areas overlap with sloped wildfire hazard zones. The impact of poor air quality can also impact Chino Hills' buildings and facilities. Poor air quality will have a similar effect as extreme heat for buildings and facilities. Poor air quality can affect the ability of air filtering, which would impact Chino Hills' services, and populations reliant on them.
- Infrastructure and critical facilities are highly vulnerable to extreme heat, wildfires, landslides, flooding, and poor air quality. Extreme heat can damage roadways, increase emergency service calls, cause power outages, and affect critical services in the City. The City's critical facilities in high and very high fire hazard zones are at risk of damage and destruction caused by wildfires. Frequent wildfires can strain emergency services and disrupt evacuation routes, causing displacement and temporary shelter needs for Chino Hills' affected communities. Chino Hills faces high landslide susceptibility along roadways and critical facilities. Emergency services and evacuations could also be impacted. Additionally, pipelines, electrical distribution lines, and roadways are vulnerable to landslide impacts in the City. Impervious surfaces in Chino Hills can worsen flooding and cause damage due to extreme

precipitation events. Flooded roadways can delay emergency services and increase risk to road users. Poor air quality due to smog, dust, and wildfires can strain Chino Hills' infrastructure and critical services with more hospitalizations and emergency medical services.

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Vulnerable Populations			
Extreme Heat	High	Medium	4-High
Drought	High	High	3-Medium
Wildfire	High	Medium	4-High
Landslides	High	Medium	4-High
Flooding	Medium	Medium	3-Medium
Air Quality	Medium	Medium	3-Medium
Natural and Recreational Resources			
Extreme Heat	High	Low	5-High
Drought	High	Medium	4-High
Wildfire	High	Medium	4-High
Landslides	High	Medium	4-High
Flooding	Medium	Medium	3-Medium
Air Quality	Low	Low	3-Medium
Buildings and Facilities			
Extreme Heat	Medium	Low	4-High
Wildfire	High	Medium	4-High
Landslides	High	Medium	4-High
Flooding	Medium	Medium	3-Medium
Air Quality	Low	Low	3-Medium
Infrastructure and Critical Facilities			
Extreme Heat	High	Medium	4-High
Wildfire	High	High	3-Medium
Landslides	High	Medium	4-High
Flooding	High	Medium	4-High
Air Quality	Low	Low	3-Medium

The Chino Hills Safety Element will include policies and programs to increase the resilience of the population groups and asset

categories with the highest vulnerability to climate change, as presented in this report.

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- Dale, Virginia H. First published: 01 August 1997. Photosynthetic and stomatal responses to high temperature and light in two oaks at the western limit of their range *ERIK HAMERLYNCK*1,2 and *ALAN K. KNAPP*1 1 Division of Biology, Kansas State University, Ackert Hall, Manhattan, KS 66506-4901, USA 2 Present address: Department of Biological Sciences, University of Nevada Las Vegas, 4505 Maryland Parkway, Box 454004, Las Vegas, NV 89154-4004, USA Received May 25, 1995 [https://doi.org/10.1890/10510761\(1997\)007\[0753:TRBLUC\]2.0.CO;2](https://doi.org/10.1890/10510761(1997)007[0753:TRBLUC]2.0.CO;2)
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TECHNICAL MEMORANDUM

August 23, 2024

Project# 30086

To: Denise Vo, Susan Hernandez, Kimiko Lizardi
Rincon Consultants, Inc.

From: Mike Aronson, P.E; Grace Carsky; Allison Woodworth

RE: Chino Hills Safety Element: Evacuation Analysis

Introduction

Kittelison & Associates, Inc. (Kittelison) has prepared an evacuation analysis for the City of Chino Hills, California in support of the city's General Plan Safety Element update. The evaluation considers three (3) representative evacuation scenarios and provides the city with estimates of roadway capacity constraints and travel time considerations during evacuations. The analysis helps identify locations where there is a greater potential for traffic congestion and need for additional control measures in the event of an evacuation.

This evacuation evaluation is consistent with requirements outlined in Assembly Bill (AB) 747¹ and Senate Bill (SB) 99². These laws require agencies to evaluate the resiliency of their transportation system, the capacity of evacuation routes, and identify key routes for community areas with only one access point.

The memorandum includes the following sections:

- Introduction including legislative requirements and analysis scenarios
- Methodology
- Single access neighborhoods
- Evacuation scenario findings
- Evacuation planning considerations and recommendations.

LEGISLATIVE REQUIREMENTS

Recent California legislation, including Assembly Bill (AB) 747 and Senate Bill (SB) 99, requires local agencies to review accessibility and evacuation routes when specific elements within the General Plan or other emergency planning documents are completed or updated.

¹ <https://openstates.org/ca/bills/20192020/AB747/>

² <https://openstates.org/ca/bills/20192020/SB99/>

- **Senate Bill 99** requires review and update of the Safety Element to include information to identify residential developments in hazard areas that do not have at least two emergency evacuation routes. This is intended to assist the city in identifying opportunities to improve the connectivity and resiliency of the transportation system.
- **Assembly Bill 747** requires that the Safety Element be reviewed and updated to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. This is a requirement for all Safety Elements or updates to Hazard Mitigation Plans completed after January 2022.

ROADWAY NETWORK

The City of Chino Hills is located in southwest San Bernardino County, California (Figure 1). It is bounded by the cities of Yorba Linda to the southwest, Pomona to the north, Diamond Bar and Brea to the west and Chino to the east.

State Routes

State Route 71 (SR 71) is an access-controlled state highway that runs north-south and has five ramp access points on the eastern side of the city.

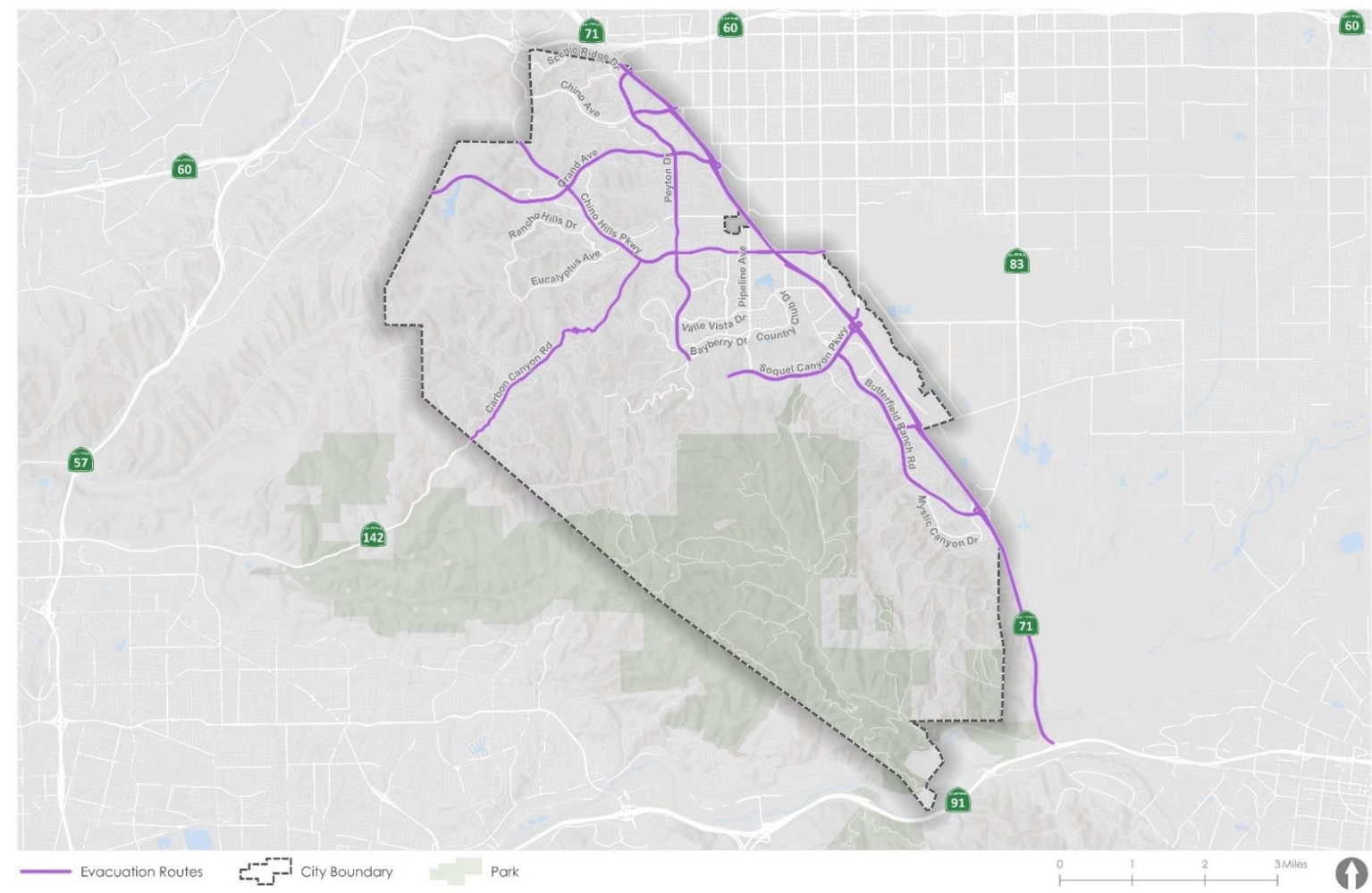
State Route 142 (SR 142) runs east-west, connecting Chino Hills to SR 71 in the east and Brea in the west. The western part of SR 142, also named Carbon Canyon Road, is a two-lane highway that runs at grade with no access control through the city. Residential communities abut Carbon Canyon Road for much of its alignment. The eastern portion of SR 142, Chino Hills Parkway, is a four-lane arterial which serves residential neighborhoods and a commercial area near SR 71.

Local Roads

There are several local routes that complement the state highways and are also likely to be used for evacuation purposes, depending on the evacuation area, including:

- Peyton Drive
- Chino Avenue
- Grand Avenue
- Chino Hills Parkway
- Soquel Canyon Parkway
- Butterfield Ranch Road

Figure 1: Chino Hills Roadway Network and Evacuation Routes



Roadway Network and Evacuation Routes
Chino Hills Safety Element Update
Chino Hills, CA

Source: Kittelson & Associates, 2024

ANALYSIS SCENARIOS

The evacuation analysis considers the following three representative evacuation scenarios:

- **Wildfire Scenario #1** – Wildfire ignites in Carbon Canyon
- **Wildfire Scenario #2** – Wildfire ignites outside Carbon Canyon and spreads towards Chino Hills
- **Earthquake Scenario #3** – Earthquake along Chino Fault in southeast area of Chino Hills

These scenarios do not represent every possible emergency that could affect Chino Hills, but they do represent the highest likelihood emergencies that may stress different parts of the road system.

Time Frames

Each evacuation scenario is compared to weekday PM peak hour traffic conditions for two time frames, base year and future year.

BASE YEAR

The base year evaluation is representative of evacuations with existing traffic levels. The available San Bernardino County travel model uses a base year of 2016. The California Department of Finance official population statistics report that 2016 population in Chino Hills (77,900) was actually higher than the current 2024 population (76,400). Therefore, the 2016 demographics are able to be used to represent current base year traffic levels.

FUTURE YEAR

The future year traffic levels include development allowable under the proposed Chino Hills General Plan, consistent with the analysis of other elements of the General Plan including the Housing Element and Circulation Element. Outside of Chino Hills, the traffic forecasts include travel that would be generated by the 2040 demographic forecasts for the entire region provided by the San Bernardino Council of Governments (SBCOG) for travel forecasting.

Methodology

Assumptions regarding travel patterns for evacuees were developed based on recent research. The following sections describe the tools and inputs used for the evacuation analysis.

EVACUATION MODELING

Travel Modeling Tools

The evacuation analysis uses the San Bernardino County Transportation Analysis Model (SBTAM) maintained by SBCOG. The current travel model was calibrated and validated for a 2016 base year and includes a 2040 future scenario with 2040 land use forecasts and transportation improvement assumptions.

The model represents all land uses in the five-county Southern California Association of Governments (SCAG) region grouped into transportation analysis zones (TAZs). The model includes a representative roadway network (generally all streets except for very local residential streets). Each road segment is coded with functional classification, number of lanes, uncongested speed, and an estimate of the typical hourly capacity. The model estimates vehicle trips generated by each land use, distributes the trips to a variety of likely destinations, and assigns each origin-destination pair to the best route. The model also assesses congestion and iteratively diverts traffic to alternative routes until congestion is balanced between all available routes.

Affected Areas

The areas that would be affected by each emergency scenario were identified based on the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zones mapping and consultation with Chino Hills emergency responders. The affected areas were overlaid with the SBTAM TAZs to identify the numbers of people that would need to be evacuated.

Time Period

Transportation activity was modeled for one worst-case time period, based on the weekday PM peak hour when non-evacuation traffic and congestion would be at its highest levels. Peak evacuation traffic was assumed to occur during this period involving the specified area within the city.

Number of Evacuation Trips

If a fire occurs during the night, most residents would be home but most employees would not be at their workplace. If a fire occurs during the workday, most employees would be at their workplace but many

residents would not be at their homes. The evacuation analysis conservatively assumes that 75 percent of residents and 75 percent of employees would need to evacuate during a fire event.

Depending on the order received, a proportion of residents, employees, and visitors will choose to evacuate. When a zone is assigned an Evacuation Order, it is assumed that 90 percent of residents, employees, and visitors will evacuate and approximately 10 percent will remain behind. When a zone is assigned an Evacuation Warning, it is assumed that 25% of residents, employees, and visitors will evacuate. The estimated factors are based on survey results from people impacted by prior fires in California in UC Berkeley's Review of California Wildfire Evacuations from 2017 to 2019.³

Based on vehicle ownership data from the United States Census American Community Survey (ACS)⁴, there are an average of 2.3 vehicles per household in Chino Hills. Therefore, the number of evacuating households is multiplied by 2.3 to estimate residential vehicles. Each evacuating employee is assumed to use one vehicle.

Evacuation Destinations

Likely evacuation destinations were identified in consultation with city staff:

- The Chino Hills Community Center is a designated evacuation center during emergency events.
- Locations in Diamond Bar (Diamond Bar High School) and Brea (Brea Community Center) were also used to estimate evacuation trips leaving Chino Hills towards the west and south.

The percentage of trips heading for each evacuation destinations were assigned based on the location and direction of the evacuation. The majority of trips were typically assigned to the nearest destination if the evacuation route would not cross the affected fire or earthquake area. However, a smaller percentage of trips from each neighborhood were assumed to want to travel in the other directions, particularly if they could reach shelter with family or friends.

The distribution of the destinations is not intended to represent a precise distribution of the routes that would be taken during an evacuation.

Roadway Capacity

Traffic congestion as measured by the demand volume-to-capacity ratio was modeled using the default average capacities for each roadway. The scenarios conservatively represent conditions without

³ This assumption is based in knowledge that there is a certain contingent of people who will not evacuate, even when under official notice. See Wong, S., Broader, J. and Shaheen, P., 2022. *Review of California Wildfire Evacuations from 2017 to 2019*. [online] Escholarship.org. Available at: <<https://escholarship.org/uc/item/5w85z07q>>

⁴ U.S. Census Bureau. "Household Size by Vehicles Available." American Community Survey, ACS 5-Year Estimates Detailed Tables, Table B08201, 2022, <https://data.census.gov/table/ACSDT5Y2022.B08201?q=b08201&g=160XX00US0613214&moe=false>. Accessed on May 2, 2024.

implementation of any evacuation strategies, such as manual traffic control or contraflow lanes, which could increase roadway capacity in one direction versus the other.

Travel Times

The travel model includes formulas which estimate how much travel speeds decrease based on the demand volume versus the capacity and the type of road. These formulas are based on the standard travel forecasting practice. Travel times for evacuation trips are estimated by identifying the best route between origins and destinations with the congested speeds, and summing the congested travel times on each road segment along the route.

LIMITATIONS

The results of this evaluation are intended to identify potential congested locations during modeled representative evacuation scenarios. These scenarios were developed based on conservative assumptions and modeling techniques that reflect current understanding of evacuation analysis. These scenarios are intended to model a potential range of different evacuation scenarios but not all possible scenarios.

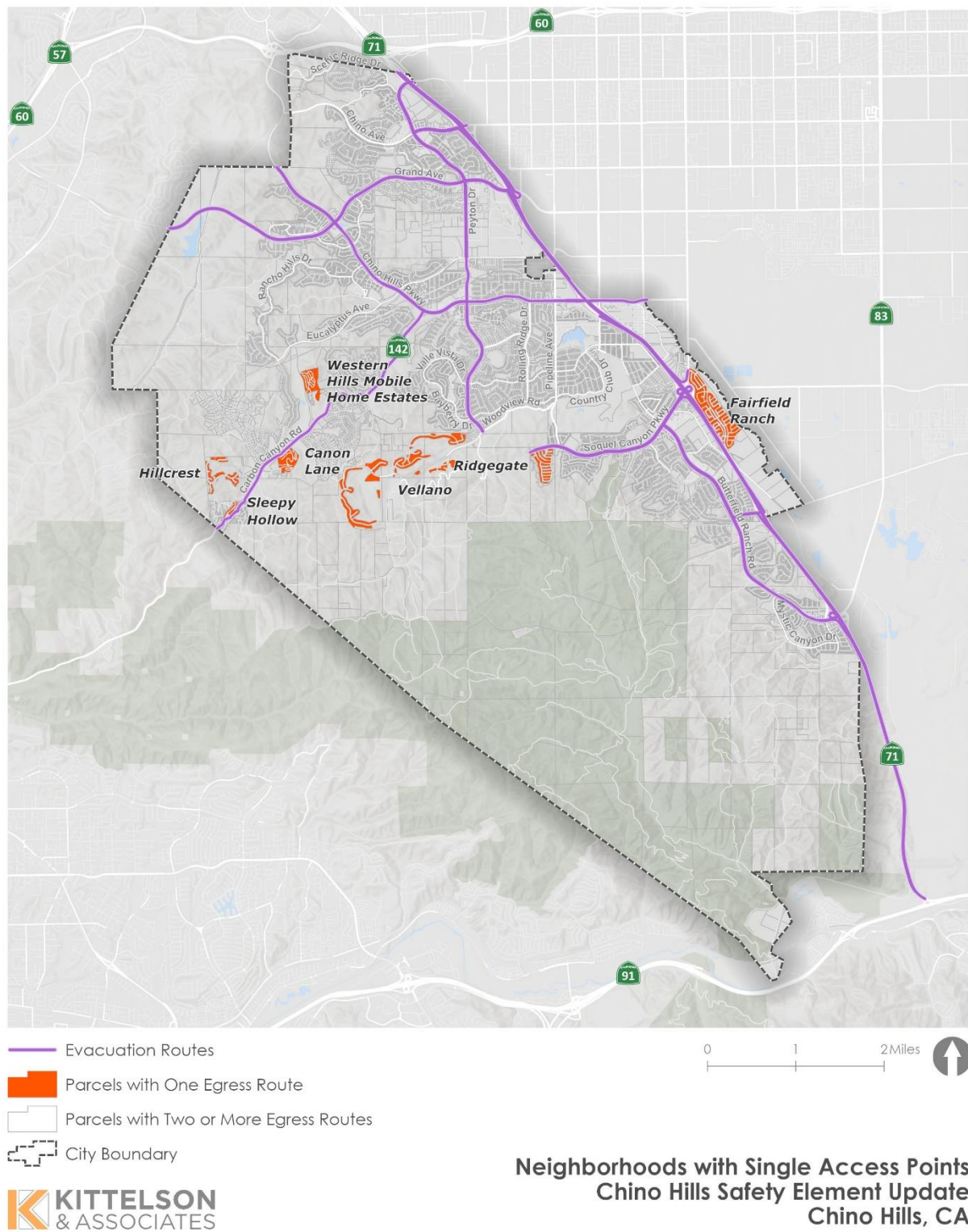
The scenarios represent potential emergencies occurring in portions of the City of Chino Hills. Actual emergencies may occur at other locations in and around the city and the specific conditions of an emergency evacuation could result in evacuation behavior that diverges from the definitions and assumptions used for this analysis. As a result, the identified scenarios and evacuation constraints represent informed estimates of the most likely potential evacuation scenario footprints and capacity constraints based on available data.

Single Access Neighborhoods

In compliance with SB 99 (Government Code Section 65302), residential neighborhoods have been identified with less than two evacuation routes located within any hazard zone defined in the General Plan Safety Element. There are seven neighborhoods in the city that have been identified as having only a single access route (Figure 2).

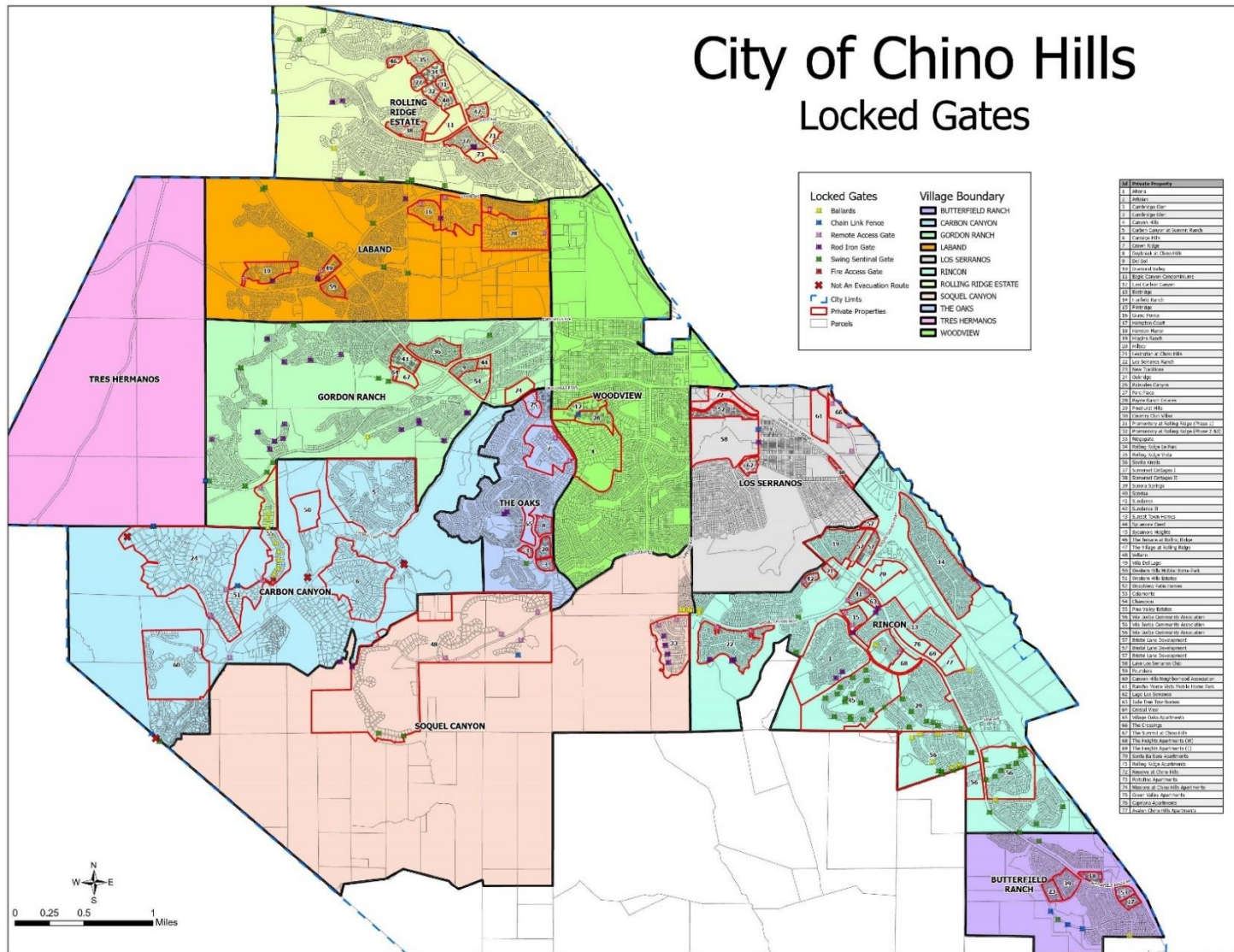
The city has also identified communities with private access and locked gates (Figure 3). These communities require additional considerations for emergency access and evacuation.

Figure 2: Neighborhoods with Single Access Points



Source: Kittelson & Associates, 2024

Figure 3: Chino Hills Villages and Locked Gates



Source: City of Chino Hills, 2024

Evacuation Analysis Results

Evacuation analysis was conducted for the analysis peak hour for conditions with no evacuation and for the three (3) different evacuation scenarios. The analysis is presented for the base year and future year.

BASELINE NO EVACUATION CONDITIONS

The PM peak analysis hour volumes were compared to road capacities for weekday conditions without an emergency evacuation event. These congestion conditions can be compared to the congestion conditions with an evacuation event to determine where additional traffic management may be needed during an emergency.

Base Year

The PM peak hour modeling for the base year without an evacuation event indicates congestion in the following locations (Figure 4):

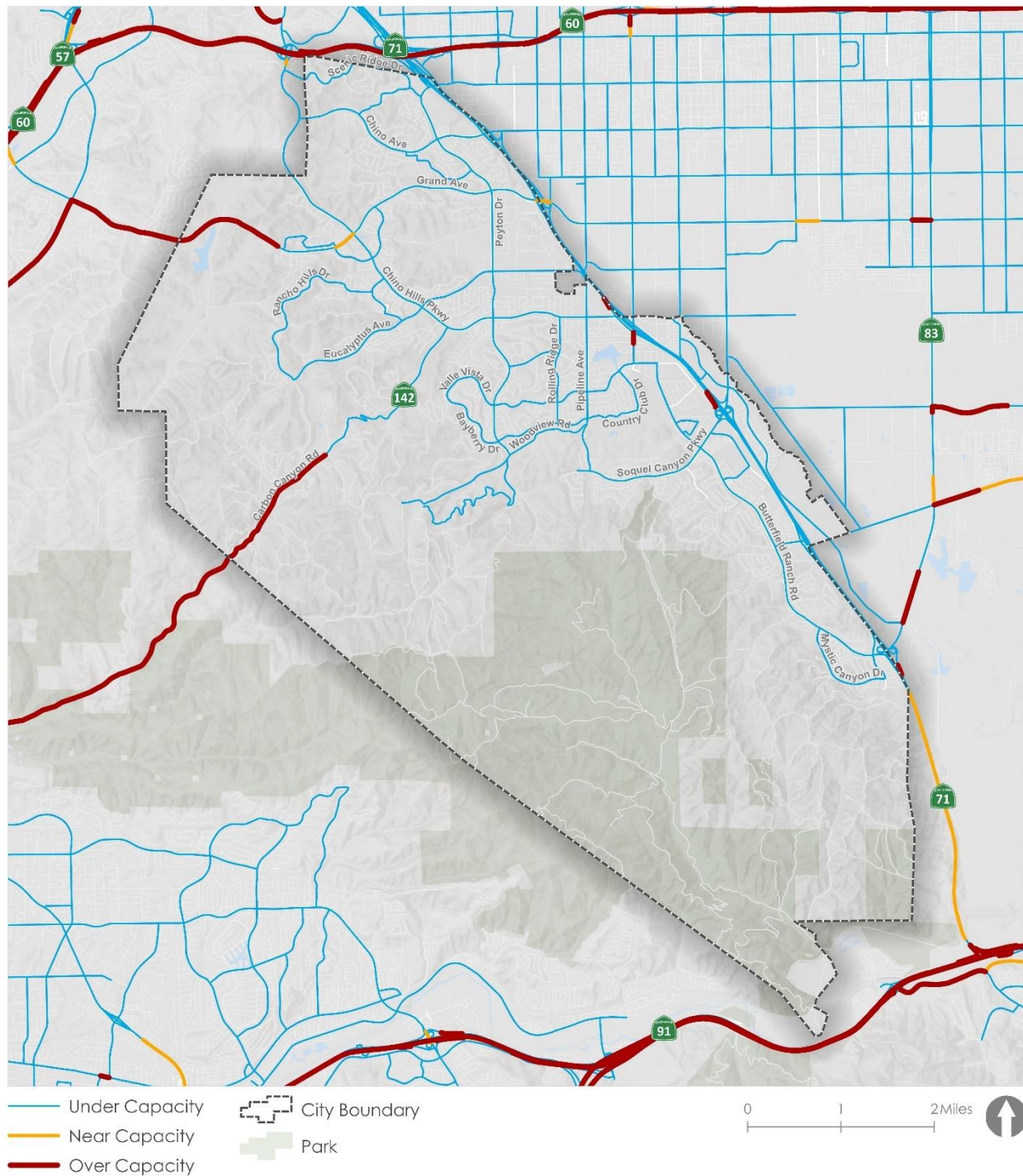
- Grand Avenue between Diamond Bar and Pleasant Hill Drive and west of Chino Hills Parkway
- Carbon Canyon Road between Brea and the Western Hills Country Club
- Several off-ramps from SR 71

Future Year

The PM peak hour modeling for the future year with the proposed General Plan and without an evacuation event forecasts congestion in the following locations (Figure 5):

- Grand Avenue between Diamond Bar and Chino Hills Parkway
- Carbon Canyon Road between Brea and the Western Hills Country Club
- Chino Hills Parkway east of Carbon Canyon Road
- Several off-ramps from SR 71

Figure 4: Base Year PM Peak Hour Congestion Locations, No Evacuation

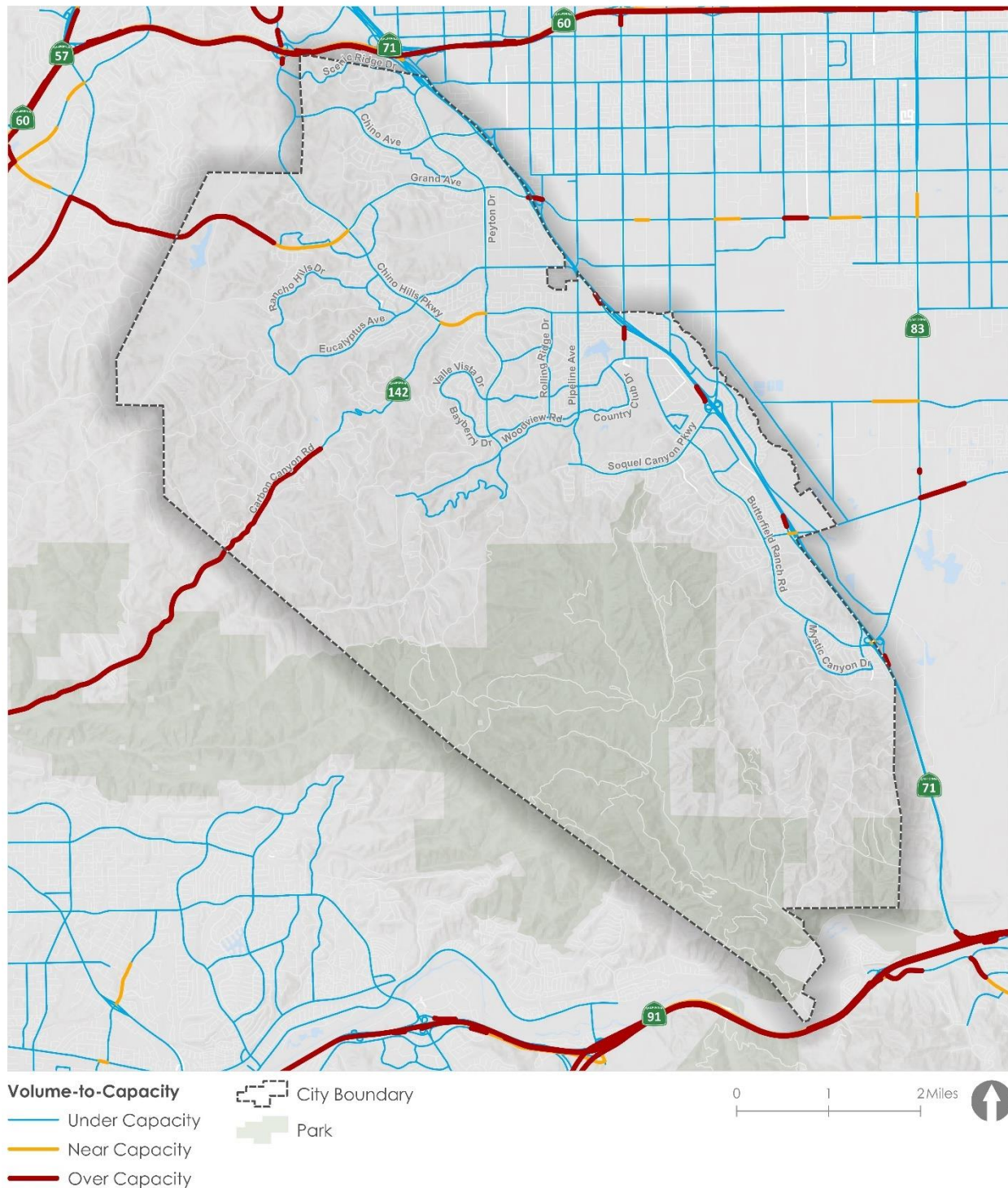


Base Year Congestion Locations (No Evacuation)
Chino Hills Safety Element Update
Chino Hills, CA



Source: Kittelson & Associates using SBTAM travel model, 2024

Figure 5: Future Year PM Peak Hour Congestion Locations, No Evacuation



Future Year Congestion Locations (No Evacuation)
Chino Hills Safety Element Update
Chino Hills, CA



Source: Kittelson & Associates using SBTAM travel model as updated by LLG Transportation Engineers and Planners, 2024

SCENARIO 1: WILDFIRE IN CARBON CANYON

Under this scenario, a fire ignites in Carbon Canyon and spreads west, initiating an evacuation order for communities in the western half of Chino Hills, communities to the south of Carbon Canyon Road in Brea, and neighborhoods west of Chino Hills State Park in Yorba Linda (Figure 6). Table 1 shows the number of households and employees in the affected area by transportation analysis zone (TAZ) as well as the total estimated evacuation trips for this scenario.

Base Year

With peak evacuation from a wildfire in Carbon Canyon in the base year, the analysis indicates over-capacity conditions on several roadways in the city as shown in Figure 7. Specifically, the roadways where demand volumes are projected to be at or exceed road capacity include:

- Grand Avenue west of Chino Hills Parkway (similar to no evacuation conditions)
- Grand Avenue west of SR 71
- Chino Hills Parkway south of SR 60
- Chino Hills Parkway west and east of Carbon Canyon Road
- Carbon Canyon Road between Brea and Chino Hills Parkway
- Peyton Drive north of Chino Hills Parkway
- Woodview Road west of Peyton Drive
- Butterfield Ranch Road

Future Year

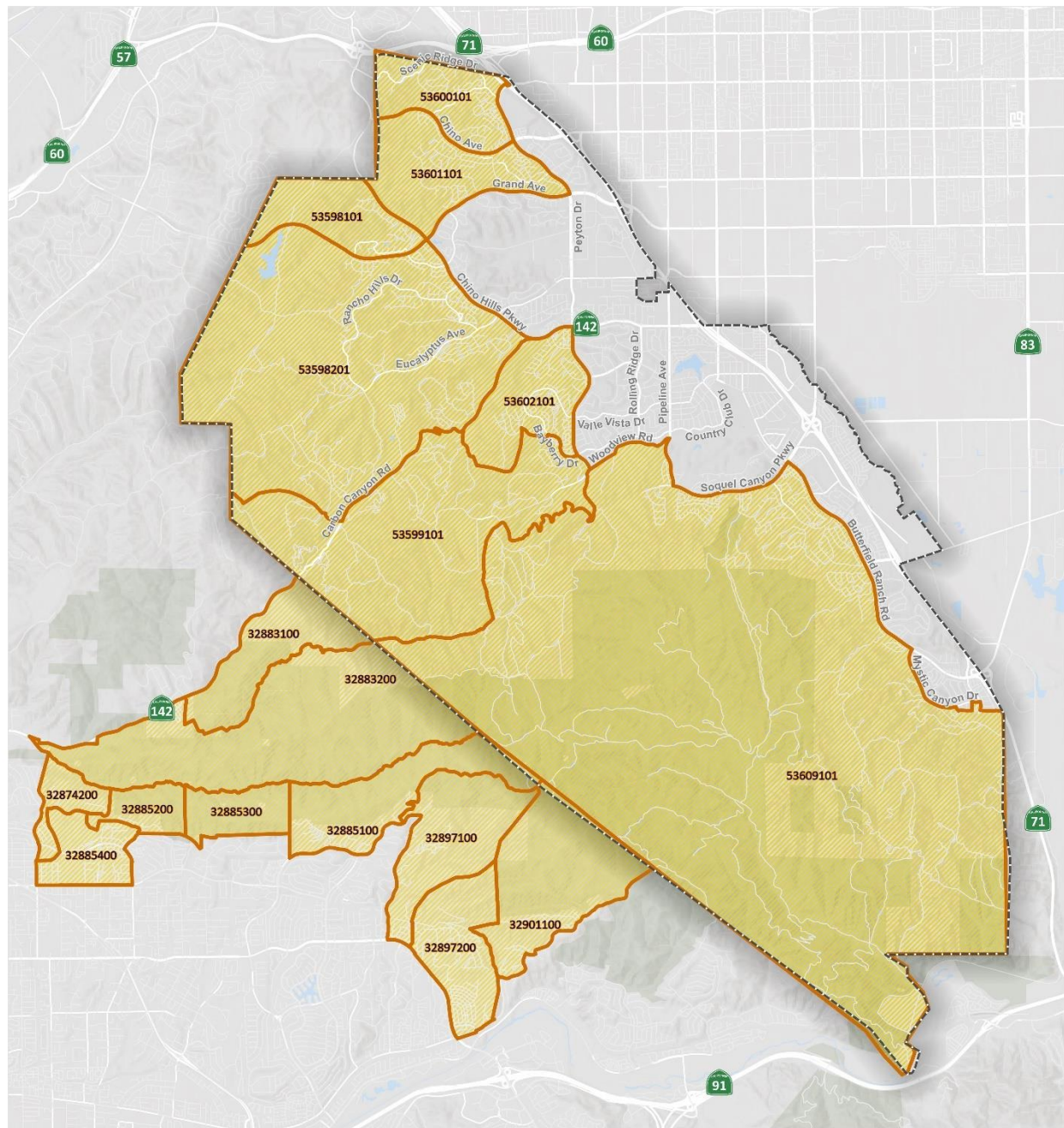
With peak evacuation from a wildfire in Carbon Canyon in the future year, the analysis predicts over-capacity conditions on several roadways in the city as shown in Figure 8. In addition to the locations listed for the base year, the roadways where demand volumes are projected to be at or exceed road capacity include:

- Additional length of Grand Avenue west of SR 71
- Eucalyptus Avenue
- Soquel Canyon Parkway near SR 71
- Additional length of Butterfield Ranch Road

Travel Times

Travel times between Chino Hills neighborhoods and various evacuation destinations are listed in Table 2. With base year traffic levels, an evacuation event would add up to six minutes to the time to reach the Chino Hills Community Center, up to 18 minutes to reach safety in Diamond Bar, and up to 10 minutes to Brea. With future year traffic levels, an evacuation event would add up to 17 minutes to the time to the Chino Hills Community Center, up to 31 minutes to Diamond Bar, and up to 17 minutes to Brea.

Figure 6: Evacuating Area, Scenario 1 Carbon Canyon Wildfire



- TAZs
- Evacuating Areas
- City Boundary
- Park

0 1 Miles

KITTELSON
& ASSOCIATES

Evacuation Scenario - Carbon Canyon Wildfire #1
Chino Hills Safety Element Update
Chino Hills, CA

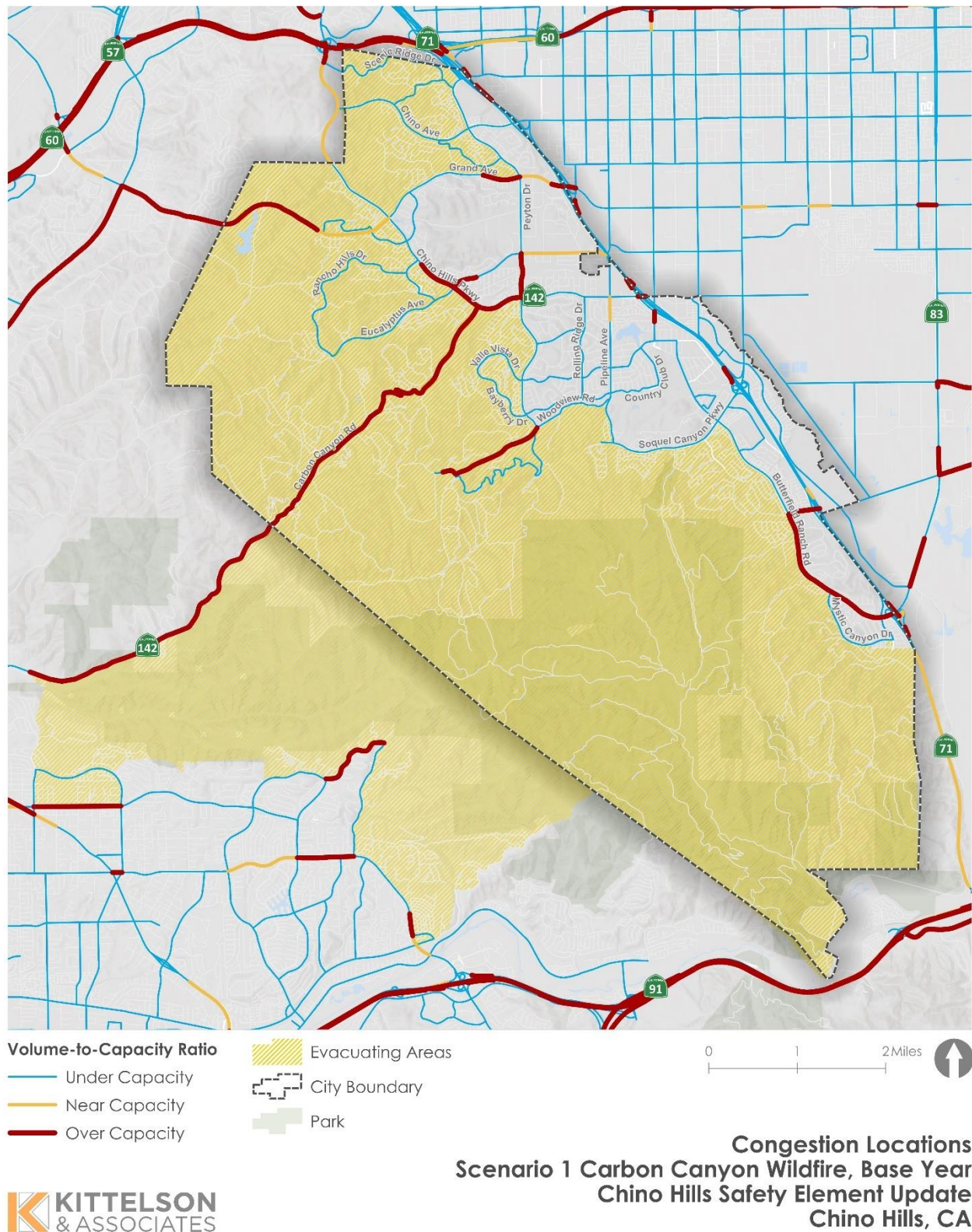
Source: Kittelson & Associates, 2024

Table 1: Affected Population and Peak Hour Evacuation Trips, Scenario 1 Carbon Canyon Wildfire

Evacuating TAZ	Base Year Households	Base Year Employment	Base Year Evacuation Trips	Future Households	Future Employment	Future Evacuation Trips
53609101	2,276	389	3,796	3,715	1,537	6,805
53599101	808	366	1,501	1,249	992	2,609
53598201	3,166	926	5,540	4,323	1,618	7,804
53602101	1,831	244	3,007	1,907	147	3,060
32901100	131	51	238	147	51	263
32897200	800	679	1,700	900	974	2,055
32874200	75	31	137	77	185	244
32885200	0	0	0	0	46	31
32885300	0	0	0	0	0	0
32885400	451	217	847	452	399	971
32883200	123	48	223	168	48	293
32883100	3	2	6	4	2	8
32885100	298	75	513	335	75	571
32897100	300	166	578	338	166	637
53598101	542	102	910	659	176	1,142
53600101	1,440	345	2,468	1,370	208	2,267
53601101	1,380	937	2,775	1,360	509	2,455

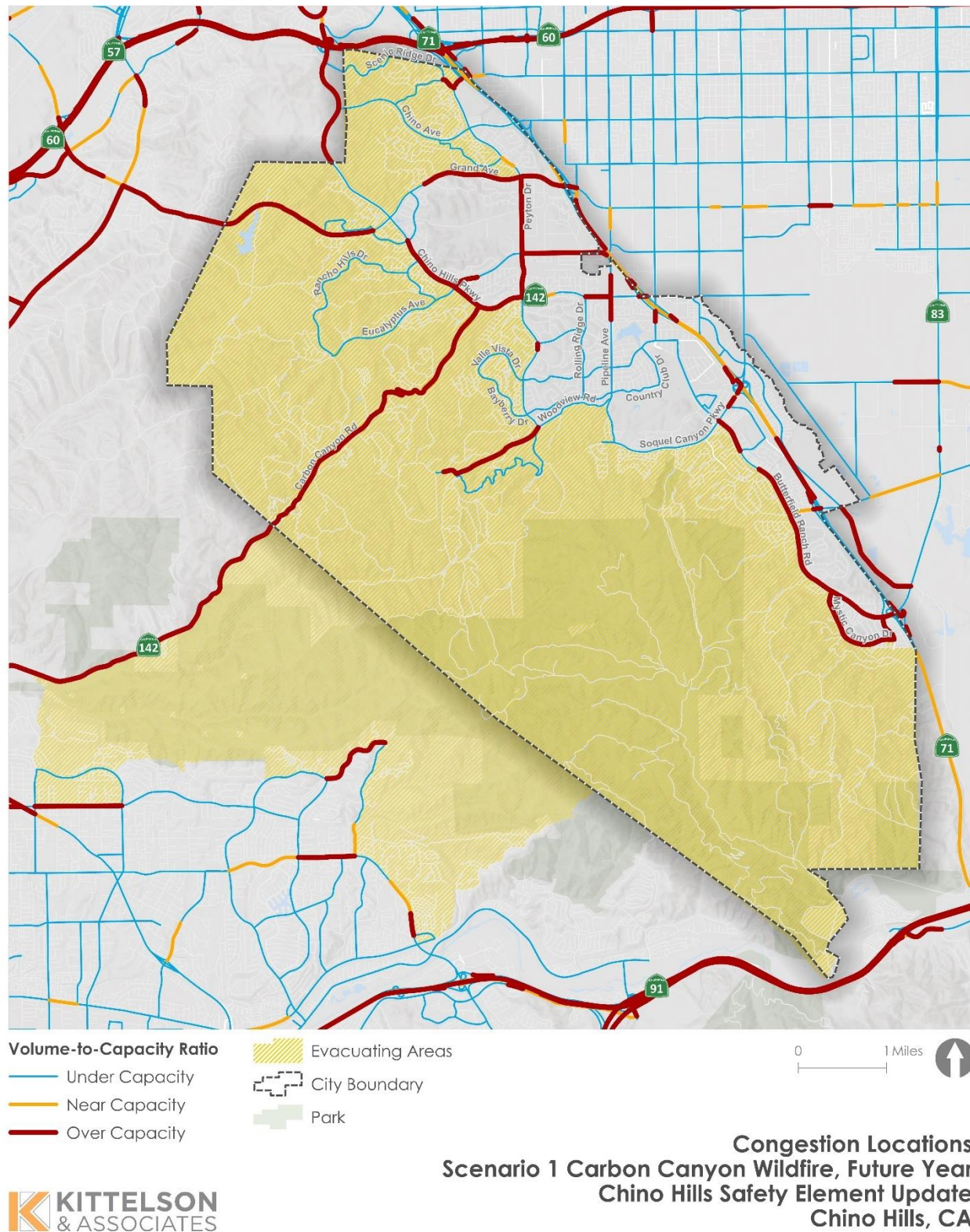
Source: San Bernardino Transportation Analysis Model; Kittelson & Associates, Inc., 2024

Figure 7: Congestion Locations, Scenario 1 Carbon Canyon Wildfire, Base Year



Source: Kittelson & Associates using SBTAM travel model, 2024

Figure 8: Congestion Locations, Scenario 1 Carbon Canyon Wildfire, Future Year



Source: Kittelson & Associates using SBTAM travel model as updated by LLG Transportation Engineers and Planners, 2024

Table 2: Travel Times (Minutes), Scenario 1 Carbon Canyon Wildfire

Origin and Destination	Base Year No Evacuation	Base Year Scenario 1	Future Year No Evacuation	Future Year Scenario 1
From Rolling Ridge Estates				
To Chino Hills Community Center	5.2	6.2	5.2	6.8
To Diamond Bar	9.0	16.2	9.4	20.7
To Brea	19.2	29.6	20.7	37.3
From Laband				
To Chino Hills Community Center	4.7	5.0	4.7	5.3
To Diamond Bar	4.7	17.2	5.0	24.0
To Brea	17.3	27.8	18.3	35.6
From Gordon Ranch				
To Chino Hills Community Center	5.1	5.1	5.1	5.1
To Diamond Bar	6.6	19.6	6.9	27.2
To Brea	17.4	23.2	17.8	29.1
From The Oaks				
To Chino Hills Community Center	4.4	7.4	4.4	7.8
To Diamond Bar	8.8	23.4	9.2	28.4
To Brea	19.4	25.8	20.1	33.2
From Carbon Canyon				
To Chino Hills Community Center	6.9	13.0	7.4	23.9
To Diamond Bar	11.4	29.0	12.2	43.4
To Brea	16.4	22.2	17.0	29.7

Source: Kittelson & Associates using SBTAM travel model, 2024

SCENARIO 2: WILDFIRE OUTSIDE CARBON CANYON

Under this scenario, a fire ignites outside Carbon Canyon and spreads east which is presumed to necessitate the evacuation order for people in northwest Chino Hills, eastern Diamond Bar, and in Brea (**Figure 9**). Table 3 shows the number of households and employees in the affected area as well as the total estimated evacuation trips for this scenario.

Base Year

With peak evacuation from a wildfire outside Carbon Canyon in the base year, the analysis indicates over-capacity conditions on several roadways in the city as shown in Figure 10. Specifically, the roadways where demand volumes are projected to be at or exceed road capacity include:

- Grand Avenue west of Chino Hills Parkway (similar to no evacuation conditions)
- Grand Avenue west of Peyton Drive
- Chino Hills Parkway between Grand Avenue and Peyton Drive
- Carbon Canyon Road between Brea and Chino Hills Parkway
- Peyton Drive north of Chino Hills Parkway
- Eucalyptus Avenue
- Woodview Road west of Peyton Drive

Future Year

With peak evacuation from a wildfire outside Carbon Canyon in the future year, the analysis predicts over-capacity conditions on several roadways in the city as shown in Figure 11. Most congestion locations would be the same as those identified for the base year. In addition to the locations listed for the base year, the roadways where demand volumes are projected to be at or exceed road capacity include:

- Additional length of Peyton Drive north of Chino Hills Parkway

Travel Times

Travel times between Chino Hills neighborhoods and various evacuation destinations are listed in Table 2. With base year traffic levels, an evacuation event would add up to nine minutes to the time to reach the Chino Hills Community Center, up to 13 minutes to reach safety in Diamond Bar, and up to 14 minutes to Brea. With future year traffic levels, an evacuation event would add up to 29 minutes to the time from Carbon Canyon neighborhoods to the Chino Hills Community Center, up to 36 minutes to Diamond Bar, and up to 22 minutes to Brea. The travel times from other Chino Hills neighborhoods to the Community Center would not be as impacted as Carbon Canyon neighborhoods under this wildfire scenario.



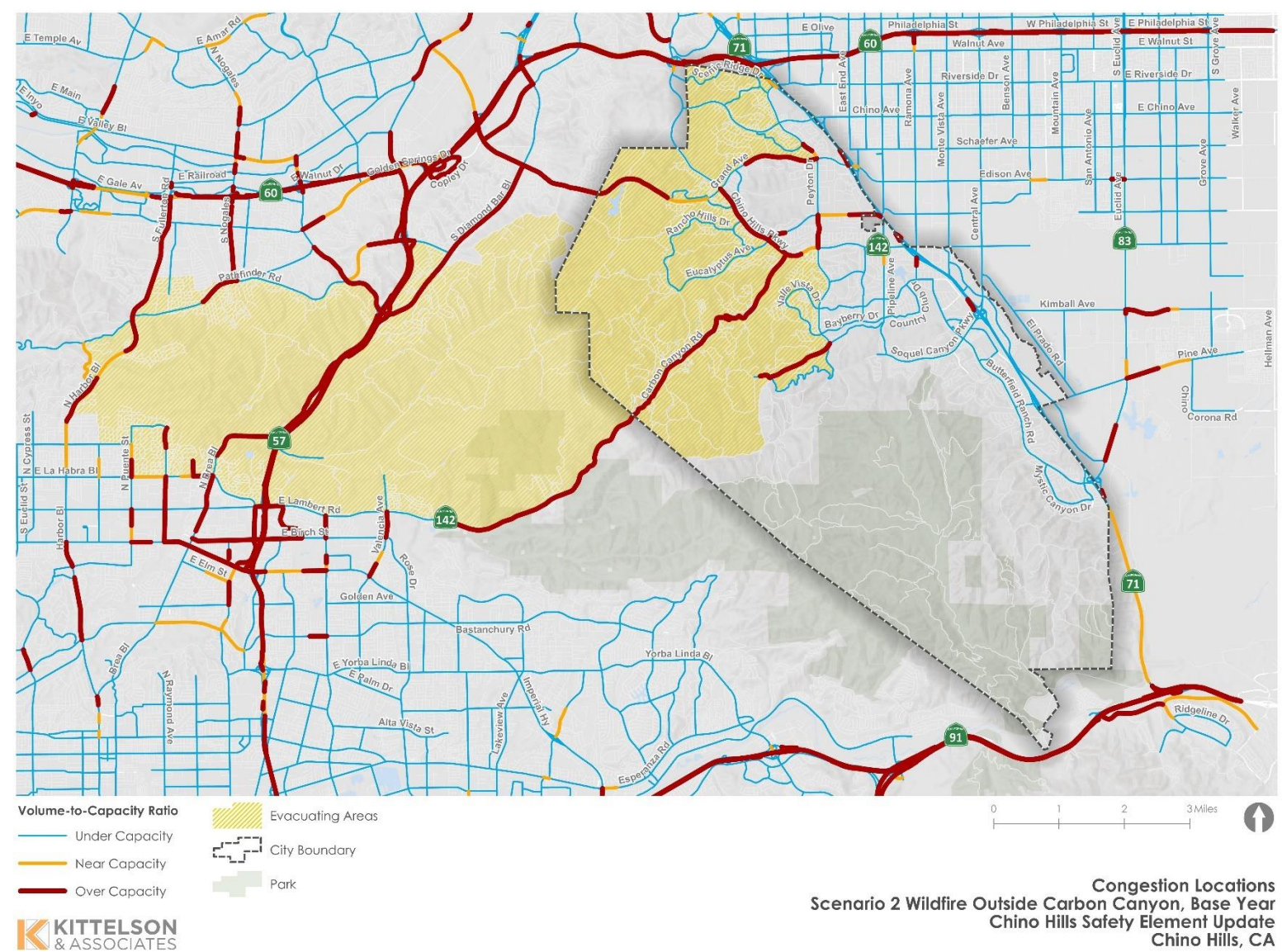
Kittelson & Associates, Inc.

Table 3: Affected Population and Peak Hour Evacuation Trips, Scenario 2 Wildfire Outside Carbon Canyon

Evacuating TAZs	Base Year Households	Base Year Employment	Base Year Evacuation Trips	Future Households	Future Employment	Future Evacuation Trips
53599101	808	366	1,501	1,249	992	2,609
22403100	1,514	1,305	3,231	1,832	1,801	4,060
22352200	666	77	1,086	698	102	1,152
22334100	1,262	221	2,108	1,282	229	2,145
22352100	1,287	248	2,165	1,346	260	2,265
53598201	3,166	926	5,540	4,323	1,618	7,804
53598101	542	102	910	659	176	1,142
53601101	1,380	937	2,775	1,360	509	2,455
53600101	1,440	345	2,468	1,370	208	2,267
53602101	1,831	244	3,007	1,907	147	3,060
22401100	643	148	1,098	749	148	1,263
32523100	446	233	850	529	247	988
32528100	646	190	1,131	882	190	1,498
32528200	849	237	1,478	1,089	237	1,851
32542100	750	231	1,320	1,024	390	1,853
32873400	348	8,721	6,427	475	8,725	6,627
32534100	866	417	1,626	1,183	685	2,299
32873200	650	318	1,224	887	610	1,789
32873100	0	0	0	0	0	0
32873300	147	109	302	201	315	525

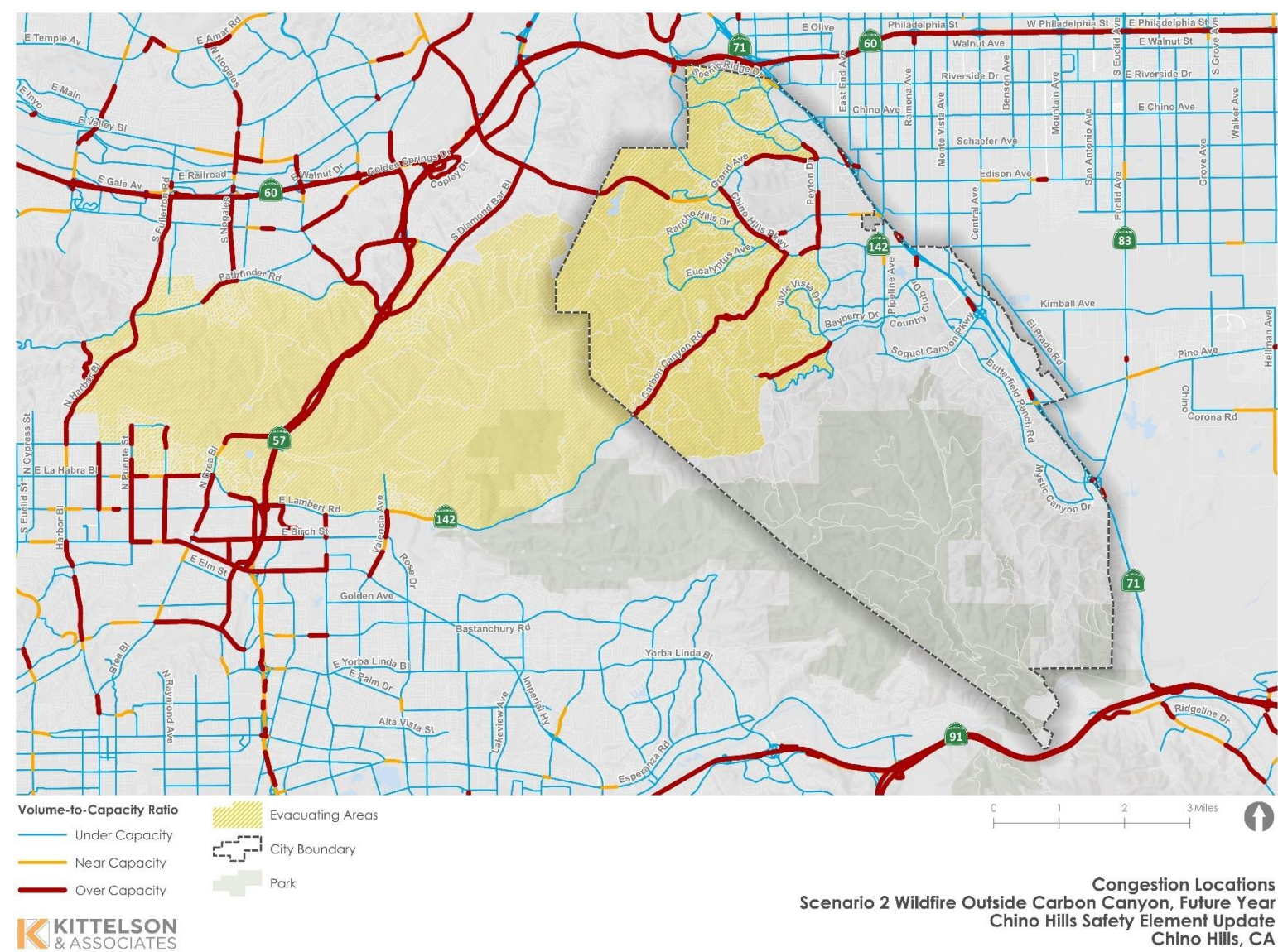
Source: San Bernardino Transportation Analysis Model; Kittelson & Associates, Inc., 2024

Figure 10: Congestion Locations, Scenario 2 Wildfire Outside Carbon Canyon, Base Year



Source: Kittelson & Associates using SBTAM travel model, 2024

Figure 11: Congestion Locations, Scenario 2 Wildfire Outside Carbon Canyon, Future Year



Source: Kittelson & Associates using SBTAM travel model as updated by LLG Transportation Engineers and Planners, 2024

Table 4: Travel Times (Minutes), Scenario 2 Wildfire Outside Carbon Canyon

Origin and Destination	Base Year No Evacuation	Base Year Scenario 2	Future Year No Evacuation	Future Year Scenario 2
From Rolling Ridge Estates				
To Chino Hills Community Center	5.2	6.5	5.2	6.8
To Diamond Bar	9.0	13.4	9.4	16.7
To Brea	19.2	28.4	20.7	36.9
From Laband				
To Chino Hills Community Center	4.7	7.2	4.7	7.6
To Diamond Bar	4.7	9.1	5.0	12.3
To Brea	17.3	28.4	18.3	36.9
From Gordon Ranch				
To Chino Hills Community Center	5.1	5.1	5.1	5.1
To Diamond Bar	6.6	11.0	6.9	14.2
To Brea	17.4	30.9	17.8	40.3
From The Oaks				
To Chino Hills Community Center	4.4	9.4	4.4	9.4
To Diamond Bar	8.8	18.1	9.2	21.4
To Brea	19.4	33.7	20.1	42.5
From Carbon Canyon				
To Chino Hills Community Center	6.9	15.8	7.4	36.0
To Diamond Bar	11.4	24.7	12.2	47.8
To Brea	16.4	30.2	17.0	39.4

Source: Kittelson & Associates using SBTAM travel model, 2024

SCENARIO 3: EARTHQUAKE

Under this scenario, an earthquake occurs along the Chino Fault (part of the Elsinore Fault Zone) necessitating the evacuation of the Los Serranos and Butterfield Ranch communities and Chino Hills State Park (Figure 12). The Southern California Earthquake Data Center states that there is no recorded recent history of an earthquake specifically on the Chino Fault, but the probable magnitude of an earthquake on the Chino Fault would be a seismic moment magnitude (similar to but not identical to the Richter scale) of 6.0 to 7.0.

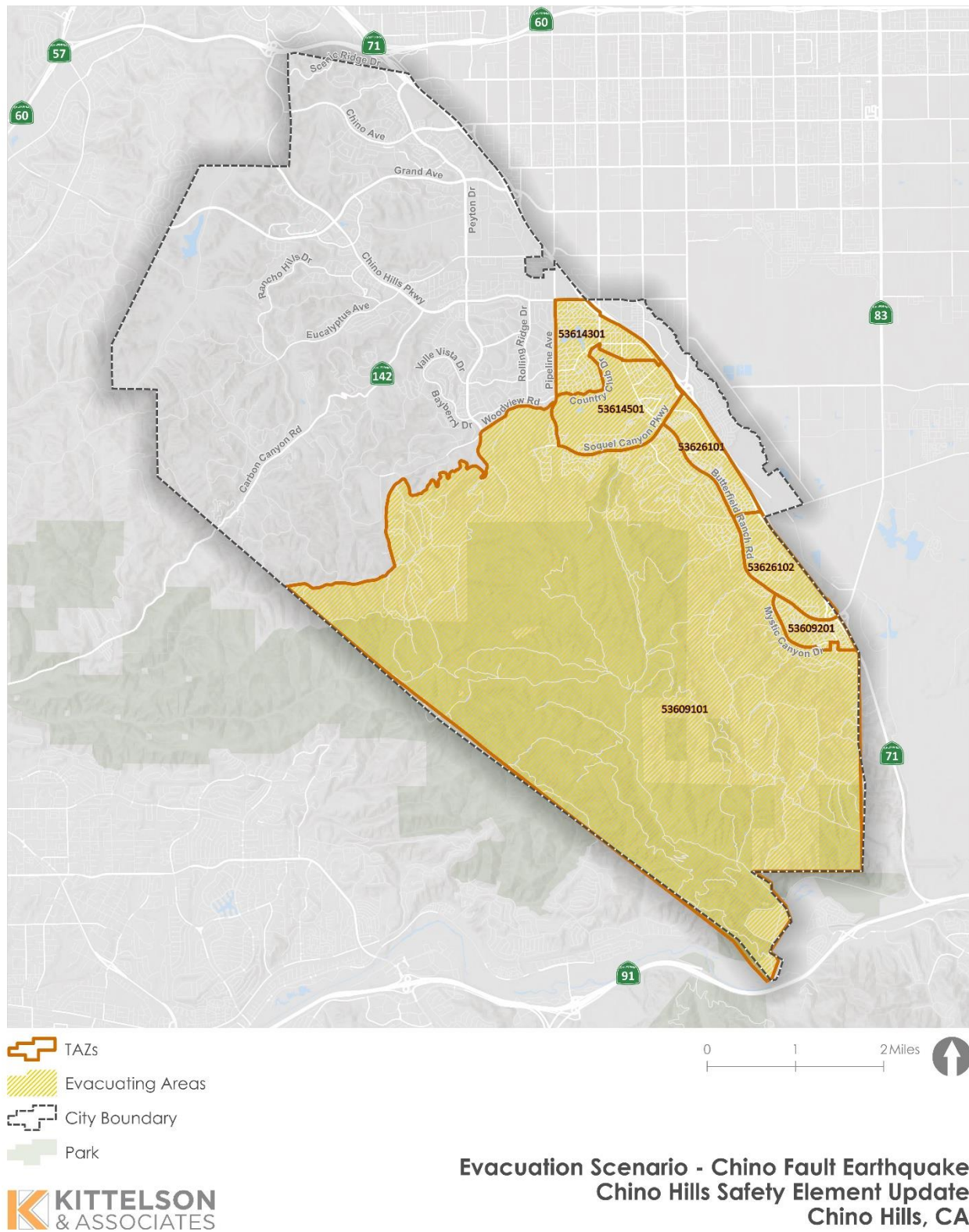
Table 5 shows the number of households and employees in the affected area as well as the total estimated evacuation trips for this scenario.

Table 5: Affected Population and Peak Hour Evacuation Trips, Scenario 3 Earthquake

Evacuating TAZs	Base Year Households	Base Year Employment	Base Year Evacuation Trips	Future Households	Future Employment	Future Evacuation Trips
53609101	2,276	389	3,796	3,715	1,537	6,805
53614501	1,044	765	2,137	1,840	954	3,501
53614301	2,214	578	3,827	2,614	213	4,202
53609201	1,171	108	1,891	1,171	91	1,879
53626101	740	419	1,432	1,667	879	3,181
53626102	607	604	1,350	961	554	1,866

Source: San Bernardino Transportation Analysis Model; Kittelson & Associates, Inc., 2024

Figure 12: Evacuating Area, Scenario 3 Earthquake



Source: Kittelson & Associates, 2024

Base Year

With peak evacuation from an earthquake along the Chino Fault in the base year, the analysis indicates over-capacity conditions on several roadways in the city as shown in Figure 13. Specifically, the roadways where demand volumes are projected to be at or exceed road capacity include:

- Grand Avenue west of Chino Hills Parkway (similar to no evacuation conditions)
- Carbon Canyon Road between Brea and the Western Hills Country Club (similar to no evacuation conditions)
- Chino Hills Parkway, most segments within Chino Hills
- Peyton Drive, most segments within Chino Hills
- Eucalyptus Avenue
- Woodview Road east of Peyton Drive
- Soquel Canyon Parkway near SR 71
- Rolling Ridge Drive
- Pipeline Avenue
- Butterfield Ranch Road

Future Year

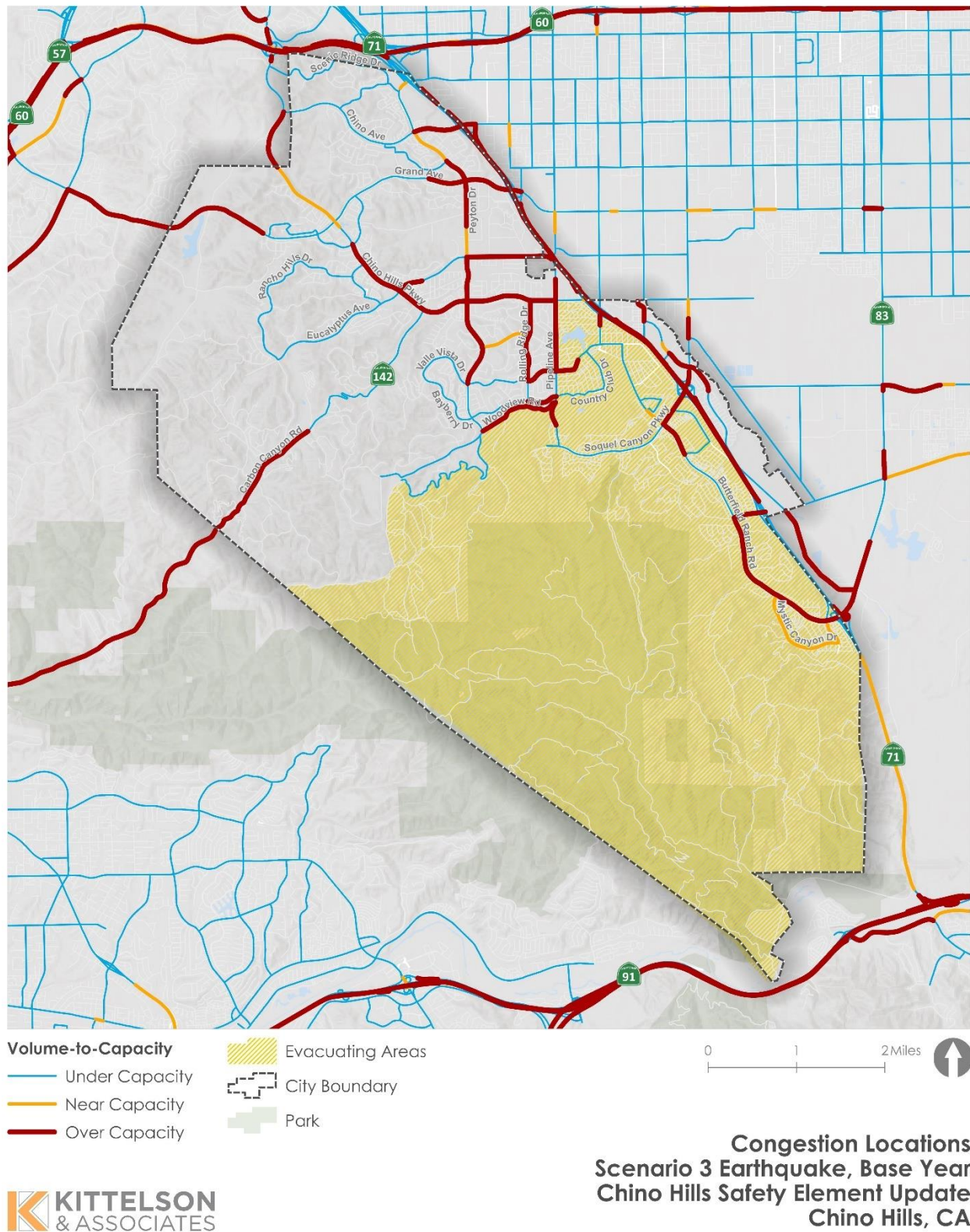
With peak evacuation from an earthquake along the Chino Fault in the future year, the analysis predicts over-capacity conditions on several roadways in the city as shown in Figure 14. Most congestion locations would be the same as those identified for the base year. In addition to the locations listed for the base year, the roadways where demand volumes are projected to be at or exceed road capacity include:

- Additional congestion on Glen Ridge Drive
- Additional congestion on Mystic Canyon Drive

Travel Times

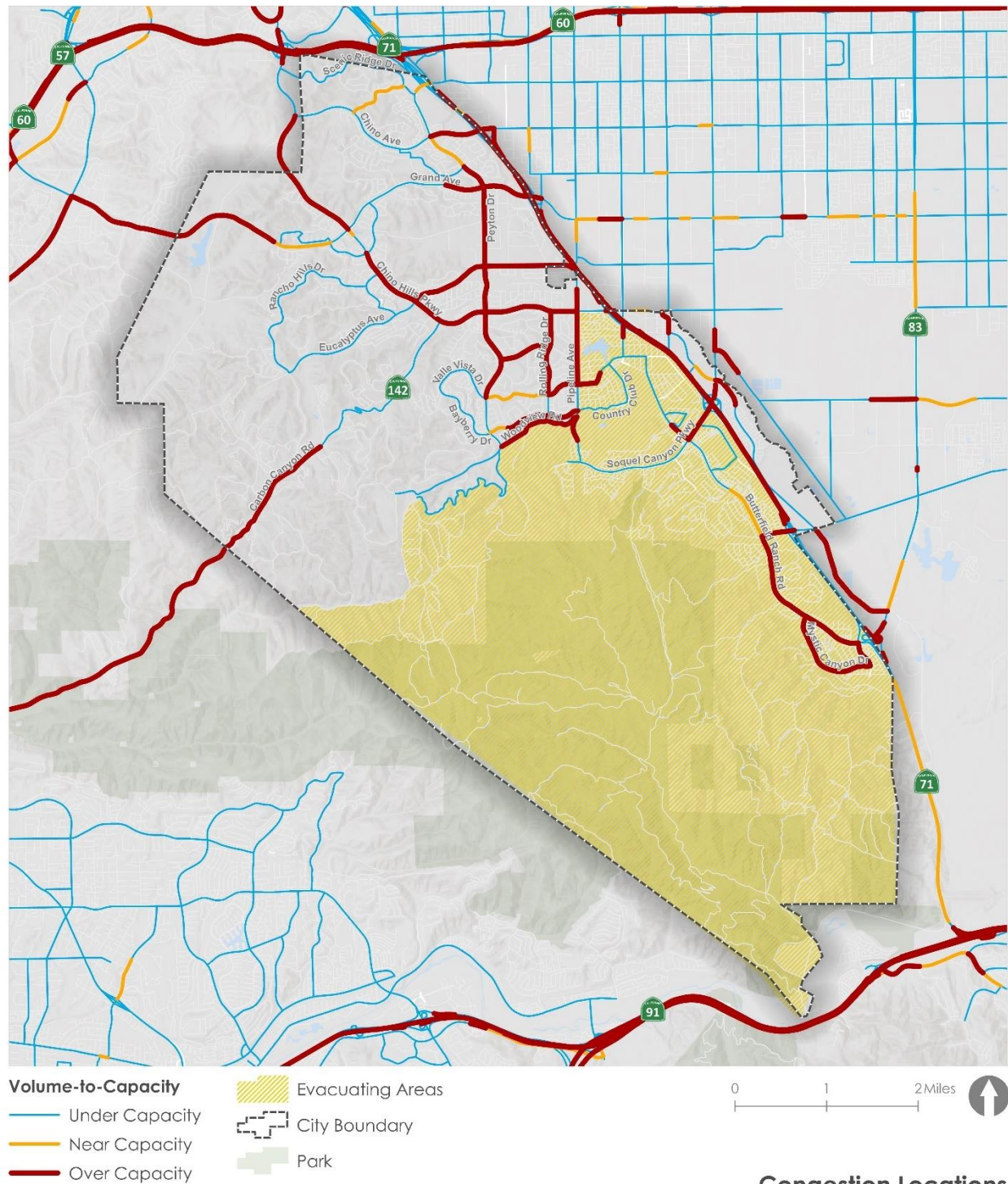
Travel times between Chino Hills neighborhoods and various evacuation destinations are listed in Table 6. With base year traffic levels, an evacuation event would add up to 39 minutes to the time to reach the Chino Hills Community Center and up to 37 minutes to reach safety in Diamond Bar. With future year traffic levels, an evacuation event would add up to 68 minutes to the time from the Butterfield Ranch area to the Chino Hills Community Center and up to 67 minutes to Diamond Bar.

Figure 13: Congestion Locations, Scenario 3 Earthquake, Base Year



Source: Kittelson & Associates using SBTAM travel model, 2024

Figure 14: Congestion Locations, Scenario 3 Earthquake, Future Year



**Congestion Locations
Scenario 3 Earthquake, Future Year
Chino Hills Safety Element Update
Chino Hills, CA**



Source: Kittelson & Associates using SBTAM travel model as updated by LLG Transportation Engineers and Planners, 2024

Table 6: Travel Times (Minutes), Scenario 3 Earthquake

Origin and Destination	Base Year No Evacuation	Base Year Scenario 3	Future Year No Evacuation	Future Year Scenario 3
From Los Serranos North				
To Chino Hills Community Center	5.9	23.5	6.0	29.4
To Diamond Bar	11.9	29.9	12.4	36.0
From Los Serranos South				
To Chino Hills Community Center	8.5	25.3	8.6	30.8
To Diamond Bar	14.5	30.3	15.0	36.2
From Rincon				
To Chino Hills Community Center	13.6	52.2	13.8	81.6
To Diamond Bar	19.8	56.8	20.7	87.0
From Butterfield Ranch North				
To Chino Hills Community Center	9.9	48.4	10.0	77.8
To Diamond Bar	16.0	53.0	17.0	83.3
From Butterfield Ranch South				
To Chino Hills Community Center	9.7	46.1	9.8	63.6
To Diamond Bar	15.9	50.4	16.7	69.0

Source: Kittelson & Associates using SBTAM travel model, 2024

Evacuation Planning Considerations

This section describes evacuation projects and strategies that may be considered to improve the capacity and resilience of the city’s roadway network to support future evacuation events. The projects and strategies were identified based on previous congestion and evacuation studies, review of recent evacuation efforts, and effective evacuation planning practices identified by US Department of Transportation (USDOT) and Federal Highway Administration (FHWA). The strategies are organized into five categories:

1. Roadway Management
2. Communications
3. Vulnerable Populations
4. Public Education
5. Resource Management

ROADWAY MANAGEMENT

This section includes infrastructure-related strategies that will aid in improving the capacity of the evacuation roadway network, which can be a challenging element in a successful evacuation. For each infrastructure-related treatment, it is necessary to consider downstream capacity limitations and identify if those limits nullify the potential benefits of the treatment as well as other competing roadway design needs to serve other functions and goals. Table 7 outlines each of these strategies and provides a brief description of the strategy and desired outcomes.

Of these strategies, the most effective for increasing evacuation capacity would be those that involve manual control of traffic combined with contra flow operations that allow evacuation on both inbound and outbound lanes of streets, combined with maintaining clear passages for emergency vehicles.

Table 7: Roadway and Intersection Capacity and Resilience Related Strategies

Strategy	Action Items
Limited contra flow on highways	Reverse one or more lanes of highway to accommodate an increased flow of traffic in one direction.
Unlimited contra flow on highways	Redirect all lanes of a designated evacuation route to accommodate rapid evacuation from a city or region.
Limited/unlimited contra flow on unlimited access arterials	Temporarily close inbound travel lanes on selected unlimited access arterials (such as parkways and boulevards) to allow outbound traffic to utilize these lanes during evacuation.

Strategy	Action Items
Closure of inbound lanes on selected roads and highways	Close inbound lanes on highways utilized for evacuation routes to prevent drivers on these routes from entering the city while evacuation is underway.
Restrict left-turn movements	Minimize left-turn movements along evacuation routes and on roads leading to evacuation routes.
Stage tow trucks	Consider how to stage tow trucks at bottleneck locations along evacuation routes to help detect and clear minor crashes and maintain traffic flows.
Adjust signal timing	Increase the green time and/or progression band for through movements leading out of an evacuation zone.
Signal operation during power outage	Install signal battery backups in case signal operations need to be maintained during a power outage. Consider using channeling devices, static signs, and coning strategies to manage intersection flow during power outage if the signals lack power.
Additional access routes	Identify and communicate with communities that have at least two access points. Prioritize adding additional access to communities which are currently served by only one or two access points.
Public Transit	Develop transportation solutions such as the use of a bus system for evacuating individuals with special needs (such as those with mobility limitations) and/or evacuating larger groups of people in fewer vehicles.
Traffic control points	Establish traffic control points (i.e., locations along designated evacuation routes with emergency management personnel) to maintain a greater degree of evacuation management. These locations could enhance the efficiency of an evacuation, reduce public confusion, and allow increased operational flexibility during an evacuation.
Vegetation clearing/management	Maintain evacuation roadways and shoulders to clear them of trees, vegetation, and debris that would block travel lanes and shoulders for evacuating and emergency operation vehicles.

COMMUNICATIONS

This section describes communication strategies that address how information may be shared among agencies, organizations, and the general public for evacuations. During an emergency evacuation event, two types of communication take place: (1) communication among entities involved in the management of response, and (2) communication between the City and the general public. Table 8 outlines each of these strategies and provides a brief description of the strategy and desired outcomes.

Table 8. Communication Strategies for Evacuations

Strategy	Description and Outcome
Establish and maintain communications	Strengthen and maintain communication among coordinating emergency event agencies. This could be achieved through systems such as the Public Information Emergency System and Emergency Satellite Communications.
Variable/Dynamic Message Signage	Use variable message board equipment and targeted installation of permanent dynamic message signs on evacuation routes to improve communication and reduce public confusion.
Traffic Control Center	Implement a traffic control center which would have up to the minute reports on traffic patterns and can communicate directly with emergency officers via broadcast media, social media, and other emergency communications channels (e.g., County Telephone Emergency Notification System and San Bernardino Ready App) to let drivers know about roadway congestion and conditions and direct them to alternate routes.
Traffic counters/CCTV cameras	Install traffic counters and/or CCTV cameras on freeways, which can help assess traffic flow, volume of vehicles evacuating, and monitor incidents during emergency evacuation events.
Highway Advisory Radio	Implement highway advisory radio to provide information regarding primary and secondary evacuation routes and incidents to the public.
Pre-defined evacuation zones	The city could consider implementing a system of pre-defined evacuation zones. Pre-defined evacuation zones can provide a common reference system for first responders and the community.

VULNERABLE POPULATIONS

This section identifies strategies specifically for evacuation of vulnerable populations.⁵ The city can use demographic data and U.S. Census data to identify vulnerable population locations and communities. City staff and emergency response teams may work with specialized organizations such as hospitals, medical associations, public service organizations, public health staff, and other providers or community groups to identify and locate relevant population segments and the types of assistance needed. Table 9 outlines considerations by need.

Table 9: Additional Steps for Evacuation of Vulnerable Populations

Special Need	Action Items/Considerations
Visually impaired	May be reluctant to leave familiar surroundings when the request for evacuation comes from a stranger. People who are blind or partially sighted may have to depend on their guide dogs and/or others to lead them to safety.
Hearing impaired	May need to make special arrangements to receive evacuation warnings. Include visual aids such as pictures or maps to reinforce key messages.
Mobility impaired	May need special assistance such as paratransit. Partner with neighboring cities/private/non-profit agencies to provide adequate paratransit services.
People without vehicles	Emphasize the importance of carpooling with neighbors or other community members. Provide information on transit routes and transit stops.
Non-English-speaking persons	Provide bilingual or multilingual materials to support communication with non-English speaking populations during evacuation.
People with medical conditions	Communicate in advance the location and availability of hospitals or facilities with emergency/life-sustaining medical equipment such as a dialysis machine.
Unhoused (Homeless) population	Arrange for food, shelter, and transportation for unhoused (homeless) population. Offer age-appropriate emergency and evacuation information to homeless children.

⁵ *Using Highways for No-Notice Evacuations: Five Planning Considerations*, FHWA, Accessed August 2022.

PUBLIC EDUCATION

Sharing information is a critical element to help educate the general public on how to prepare in advance for an evacuation. The public education strategies the city may consider include:

- Defining the meaning of different types of evacuation orders;
- Sharing how evacuation orders are declared and communicated to the public;
- Providing information on preparations to carry out in advance (such as emergency “go” kits or family evacuation plans);
- Conducting a public affair campaign(s) to distribute easy-to-read evacuation maps with alternate routes;
- Providing information on available transportation options, including for vulnerable populations; and
- Providing information on evacuation shelters and support services offered during evacuation.
- Providing regular emergency preparedness trainings in multiple languages at convenient, accessible locations.
- Building capacity of resilience hubs, CBOs, and other community groups to support community-based disaster preparedness efforts through direct or passthrough funding, grant writing support, information sharing, etc.

RESOURCE MANAGEMENT

Evacuations are resource-intensive events that require significant personnel, facilities, and equipment to implement successfully. The City should determine what resources are available as well as what resources will be needed for staff to perform their responsibilities during an evacuation successfully, which can include the following:

- Clarity on staff roles and expertise available;
- Facilities available (e.g., traffic operations center, shelters, etc.);
- Available information systems to support the evacuation (e.g., ITS, computer networks, ancillary hardware such as cameras, road sensor loops, etc.);
- Communication systems (e.g., landline, mobile phones, radio system, email, sirens);
- Vehicles/transport (e.g., staff transport, tow trucks, transit vehicles, heavy equipment); and
- Miscellaneous materials to support implementation of evacuation strategies (e.g., traffic cones, channeling devices, static signs).

If critical resource gaps are identified, the City may look to work with other evacuation entities to determine additional resources and needs. The City may also work with private sector entities to expand the resource base. For example, utilities companies may keep cell and internet services running in vulnerable communities during public safety power shutoffs. Private service companies such as ambulance operators and towing companies can provide additional assets during evacuation. These companies can clarify what is expected of them during a potential evacuation event to ensure their services are available, when needed.

Next Steps

This memorandum describes the results of the evacuation analysis as well as evacuation planning considerations and strategies to help improve the capacity and resilience of the City of Chino Hills' roadway network to support future evacuation events. This information will be used to frame supportive policies for the Safety Element update. These strategies and policies can be used to identify potential evacuation resiliency improvements throughout the City.