NOVEMBER 2022

CITY OF ROSEVILLE CALIFORNIA

Douglas-Harding Corridor Specific Plan

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Glossary

Accessory Dwelling Unit – A second home on or attached to a main home, which is usually subordinate to the main home.

Administrative Permit – A land use permit (entitlement) that is approved at the staff level, but which requires a public notice be mailed to all properties within 300 feet of the proposed project.

Affordable Housing – Housing affordable to households in the lower 50% of incomes in an area (i.e. equal to or less than the median income).

Arterial – Roads designed to carry high volumes of traffic at relatively high speeds. This is the City's highest-capacity road type.

Circulation Plan – A circulation plan is a diagram and text which display the pathways and systems people use to move through the community, including roads, transit, bikeways, and pedestrian pathways.

Commercial – Commercial uses include shopping, businesses, and a wide array of service centers, from medical to car repair.

Commercial Corridor – As used in this plan, a commercial corridor includes key roadways and the developed properties surrounding the roadways.

Community Design Guidelines – The City's Community Design Guidelines is a document originally adopted in 1995 that establishes design standards for multifamily residential, compact residential, commercial, and office and industrial development throughout the City.

Compatible – Projects that give the appearance of existing together without conflict with respect to site, architecture and landscaping design.

Conditional Use Permit – A land use permit (entitlement) that is approved by the City's Planning Commission during a public hearing. A Conditional Use Permit allows the City to include conditions on the operation of the proposed development, including conditions on the hours of operation.

Conditionally Compatible – A use that may be compatible, depending on the site and surrounding circumstances.

Crime Prevention Through Environmental Design (CPTED) – A design philosophy that seeks to reduce criminal activity through practical site design, such as through fencing, making sure line of sight is maintained, positioning windows and buildings to keep eyes on the street, and other designs.

Density – Density refers to the concentration of homes in a given area, and is calculated by dividing the number of homes per acre.

Design Guidelines – A set of policies and standards to guide site and building design within the Plan Area.

Design Review Permit – A land use permit (entitlement) that is approved by the City's Design Committee or Planning Commission during a public hearing. The

purpose of a Design Review Permit is to ensure the site and building design of a proposal is consistent with the City's design guidelines and standards.

Development Standards – Regulations that govern the size, placement, and location of structures, as well as the size of lots (parcels).

Discretionary – A discretionary action is one where the decision-maker is using judgement to determine whether to approve or deny a request. This is contrasted with a ministerial action, in which a determination is made as to whether or not an application complies with a simple or objective set of standards.

Entitlement – An entitlement is any kind of discretionary permit that an applicant must obtain prior to developing a property, constructing a building, or beginning a particular use of a property or building. Common City entitlements include Administrative Permits, Conditional Use Permits, and Design Review Permits (including Minor Design Review Permits).

Existing Conditions – The conditions of a property or area that existed at the time a development application is submitted, and prior to any development on or change of the property.

Fire Flow – The minimum pressure at which water must exit a pipe in order to provide sufficient force to be useful for fire suppression.

Frontage – The area of a property that is alongside a public street.

Funding Mechanism – A funding mechanism is any means by which one-time or ongoing funding is provided for a service or project, and can includes grants (when money is provided by the government or non-profit at no cost/interest), taxes, fees, or other income sources.

Gateway – A point along a roadway entering a city, or other defined planning area, at which a motorist gains a sense of having left the previous environs and of having entered the city or planning area.

General Plan – The General Plan is a broad, long-range policy document that guides future development within and buildout of the City. It establishes the overarching vision and goals for land use, circulation, open space, parks, public facilities, safety, and environmental quality/conservation.

Hardscape – Hard landscape materials such as pavers, rock, fountains, pathways, and other materials/structures.

Housing Element – The Housing Element is a part of the General Plan, and specifically addresses the provision of enough housing to support all members of the community, taking into consideration factors such as income, abilities, disadvantage, and access to opportunities.

Industrial – An industrial use usually involves on-site production and storage of goods, equipment, and materials.

Infrastructure – The fundamental structures and facilities needed to support buildings and communities, including roads, electrical facilities, water facilities, and sewer facilities.

Intensification – Intensification as used in this Corridor Plan generally refers to an increase in the density of buildings.

Land Use – The term land use refers to both the physical, existing use of a property and to the use permitted by the Land Use designation (see below). These should be consistent.

Land Use Designation – Land use designations are defined classes of land use, established in the City's General Plan, which define the types of uses permitted in a given area. For example, a Low Density Residential land use designation is applied to land which can be developed with homes at densities below 7 units per acre.

Land Use Inconsistency – A land use inconsistency occurs where the Land Use designation, Zone District, and/or land use are not consistent. For example, a property developed with a home but which has a Community Commercial land use designation.

Land Use Plan – A land use plan is a map of a planning area (e.g. the City or the area within a Specific Plan) that displays the land use designations applied to properties.

Mixed Use – A development where residential uses and commercial uses are included as one integrated development project. Mixed use is "vertical" where different floors of one building are residential and commercial and is "horizontal" where different buildings are residential and commercial.

Mobility – This term is used to describe the ways in which people can move through the community, and is intended to be inclusive of both automobile and non-automobile travel.

Multifamily Residential – The City defines multifamily residential as any residential development where either three or more homes are located on a single parcel or where they are developed as one project (e.g. condominiums). The Multifamily Residential zone district is R3.

Municipal Code – This is the set of regulations written and enforced by a local government, which regulates both the way in which the government is administered (personnel rules, revenue, etc) and the types of activities which are permitted within City limits (business licenses, animals, nuisance, noise abatement, etc). The Municipal Code also provides the fundamental regulations for development, including subdivisions and zoning.

Open Space – Public and private lands that are environmentally sensitive or otherwise significant (e.g. floodplain) and that are set aside for preservation.

Overlay Zone – An overlay zone is one that is added to the general Zone District (see Glossary), and indicates that there are modified or supplemental standards that apply to the property.

Permitted Use – A use that is permitted by right, and does not need either an Administrative Permit or a Use Permit. However, if the use involves construction of a new building or modification of an existing site or building, a Design Review Permit (major, minor, or modification) would still be required.

Placemaking – Designs and design processes that strengthen the connection between the community and the places they share.

Plan Area – The Plan Area is the land within the boundary of the Corridor Plan.

Primary Roadway – The main roadways that extend through (and outside) of the Plan Area.

Raised Median – A raised median is a barrier in the center of the street, which prevents vehicle traffic from crossing the midline of the street. Raised medians may include landscaping or hardscape features.

Redevelopment – Redevelopment occurs when an existing developed property is physically altered in a way that improves the property, which can include demolition and construction of a new building.

Revitalization – Restoring or refreshing an area to make it more visually appealing and user-friendly.

Residential – Residential uses include all kinds of homes, from single-family homes to apartments. In-home family daycares, small community care, and similar in-home residential support uses are also considered residential.

Shovel Ready – At a stage where workers can be employed and construction can begin.

Single-Family Residential – The City defines this as one or two primary homes on any property zoned for single-family uses. The single-family zone districts are R1 (Single-Family Residential) and RS (Small Lot Residential).

Specific Plan – A planning document that implements the General Plan, and focuses on providing more detailed goals, policies, and standards for a specific geographic area of the City.

Stakeholder – Any person or group with an interest or concern in a project, or particular issues associated with a project.

Streetscape – The streetscape is the appearance or view of the street, and includes the roadway, sidewalks, and the land/improvements alongside the sidewalks.

Technical Study – A technical study is a broad term that refers to reports or evaluations completed by an expert in a technical field.

Underutilized – An underutilized property is one which has not been developed to its maximum potential. Such properties may either include some developed area and some area that remains undeveloped, or may be developed with a building and improvements that are not heavily used (such as large parking lots that typically have few parked cars).

Unit – A unit is one home designed to be lived in by one household, whether that is a single-family home or a single apartment within a larger apartment building.

Vacant Land – Vacant land has no permanent improvements and is not currently used.

Walkability – The ability to safely and efficiently walk to a destination.

Zoning – A designation of property that determines the permitted uses and the development standards of the property. In terms of hierarchy, the overarching land use plan for the City is the General Plan, the next level of regulation is a Specific Plan (see Glossary definition), and the final (most detailed and site-specific) regulation is zoning.

Zoning Ordinance – The Zoning Ordinance is the portion of the City of Roseville Municipal Code (see Glossary definition) that regulates the permitted use and development standards of a property.

Chapter 1
Introduction

1.1 Vision

The Corridor Plan envisions Douglas and Harding Boulevards as vibrant, mixed-use corridors that serve as a gateway to the city.

Example of horizontal and vertical mixed-use development involving commercial and residential uses.

The Douglas-Harding Corridor Specific Plan (Corridor Plan) envisions Plan Area as a vibrant, mixed-use corridor that serves as a gateway to the city. The vision for the Douglas-Harding corridor is to promote an inviting and vibrant mixed-use neighborhood corridor that is sensitive to the unique characteristics of the surrounding neighborhoods, provides safe and attractive mobility connections, and where reinvestment and redevelopment provides a livable and desirable environment that promotes long-term community health and economic vitality.

In addition to the uses traditionally found within the Douglas-Harding corridor, the Corridor Plan will allow a greater range of commercial uses that are compatible with the adjacent residential neighborhoods. This will create opportunities for frontage businesses along Douglas and Harding Boulevards and support reinvestment and other improvements within the corridor. Residential land use updates reflect the current character of the neighborhoods and expand housing opportunities through infill and increased densities. Through plan implementation, there may be some residential areas that become denser and more urban along the corridor in proximity to commercial uses, with more traditional, low density homes deeper into the neighborhoods. The Corridor Plan provides streamlining for up to 200 additional residential units within the Plan Area. This will provide a diverse mix of housing opportunities within walking distance of the city's Downtown and Vernon Street districts, with pedestrian connections to the open space and trail systems.

The City will work in concert with the community to identify opportunities for growth and reinvestment in the Douglas-Harding corridor, while preserving the unique characteristics that define this established area of Roseville.

1.2 Background

In 1864, the Central Pacific Railroad came eastward towards Sacramento to build the western half of the nation's first transcontinental railroad. Their new line crossed a small existing rail line that linked the towns of Lincoln and Folsom, so this meeting spot was called the "Junction." Junction, where historic Old Town sits today, was eventually renamed Roseville. Between 1870 and 1906 small buildings, board sidewalks, a school, churches, and fraternal organizations were established creating the original downtown Roseville.

An aerial photo of Interstate 80 in 1955 (*Source: Roseville Historical Society*)

In 1908, the Southern Pacific Railroad Company moved their terminal, roadhouse, and shops from Rocklin to Roseville. The Historic Old Town and Vernon Street areas became the commercial hub of the community. From the city's founding through the World War II era, commercial activity in Roseville centered on Vernon Street and Old Town on either side of the railroad tracks. Completion of Roseville Community Hospital in 1952 followed by the Folsom Dam in 1955 and the Roseville Freeway (Interstate 80) the following year gradually shifted the population from downtown Roseville to what would soon become known as "East Roseville." Douglas Boulevard served as a connection from East Roseville and Interstate 80 (I-80) to the Downtown and was populated with small standalone restaurants and

neighborhood serving commercial uses. Roseville Square, the city's first modern commercial center, was constructed in 1961 and served as an identifiable gateway to the city. Harding Boulevard was constructed along the eastern side of the center to provide a secondary access point to the center. With the popularity of Roseville Square, Harding Boulevard construction continued from the 1970s through 1980s to the north and saw development of similar commercial buildings, motels, and gas stations. During the 1980s through the 1990s the city was also expanding its boundaries to the east, north, and west with residential subdivisions, various commercial shopping centers, and office park developments. Although Douglas Boulevard and Harding Boulevard still have an active commercial presence, many of the older properties in the area have suffered from deferred maintenance over the fifty-year life span of the corridor. The ad hoc nature of development of the corridor has also created an uneven level of infrastructure integrity.

Roseville Square was the city's first modern commercial center and served as an identifiable gateway to the city. (*Source: Roseville Historical Society*)

The Corridor Plan builds on the City's former success with the revitalization efforts in the Historic Old Town and Vernon Street.

The City adopted a revitalization strategy in 1999 to support improvements to the Historic Old Town, Vernon Street, and other aging areas of the city. This effort resulted in the adoption of the Riverside Gateway Specific Plan in 2006 and the Downtown Specific Plan in 2009. The intent of this investment was to return these areas, which to this day still serve as the center and core of the fabric of the city, to their former prominence. These efforts stimulated reinvestment in these areas, with improved streetscapes, as well as the development of new businesses and housing.

Having witnessed the success of these planning and revitalization efforts, City Council designated the creation of commercial corridor plans (for Atlantic Street, Douglas-Harding, and Douglas-Sunrise) as a Council priority in 2020, allocating funds for the preparation of these plans. Additionally, the City obtained funding through the state Planning Grants Program (SB 2, 2017) to prepare and implement these corridor plans. This presented an opportunity for the City and community to re-envision these areas, identifying potential for reinvestment and new housing, as well reconciling old, potentially outdated land uses with the current environment in these long-established areas of the city.

1.3 Plan Objectives

Plan objectives support the overall vision for the Plan Area and describe the purpose of plan implementation. These objectives reflect community input, addressing aspects of the Plan Area that are unique or well-liked by the community, areas of the corridor which could be improved upon, and potential challenges to be overcome.

Attract high-quality new development and redevelopment that is an integrated and connected part of the Plan Area.

Support new residential units within the Plan Area to create a mixed-use environment that supports local businesses.

Create an attractive, inviting, and cohesive streetscape environment.

Facilitate future upgrades to pedestrian and bicycle infrastructure to create safe connections within the Plan Area, and to the city's downtown, parks, and Miners Ravine Trail.

Encourage new business growth and reinvestment to serve the Plan Area and the greater Roseville area.

Create a compatible and harmonious relationship between residential and commercial development.

Establish regulatory mechanisms that streamline the development process for projects that promote plan objectives.

1.4 Organization

Chapter 2 Setting and Context: This chapter describes the history of the Plan Area, major factors that have influenced the design of the Corridor Plan, the existing land uses and development patterns, and the existing design and character of the Plan Area.

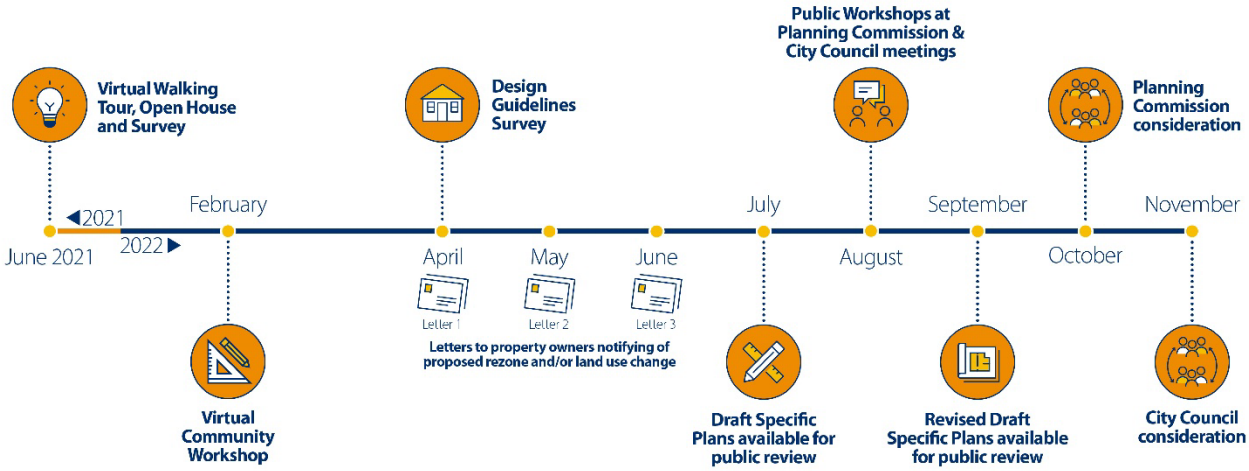
Chapter 3 Land Use: This chapter focuses on the existing and proposed land use plan for the area, with an emphasis on the land use goals and overall vision for the area, and a description of the land use designations being used in the Corridor Plan.

Chapter 4 Circulation: This chapter describes the pedestrian, bicycle, and vehicular pathways within the Plan Area, defines the vision and goals to support circulation and connectivity in the planning area, and identifies the broader circulation plan and more specific frontage and roadway characteristics for the Plan Area.

Chapter 5 Utilities and Infrastructure: This chapter describes the existing utilities and infrastructure which support the Plan Area, describes the goals to support the existing and proposed systems, and describes the plan to enhance and improve utilities and infrastructure to support the Corridor Plan.

Chapter 6 Design Guidelines: This chapter describes the design standards which will apply to residential and non-residential projects, and well as frontage improvement standards.

Chapter 7 Implementation: This chapter describes how the Corridor Plan will be applied to future development and uses within the Plan Area, including descriptions of the types of entitlements needed for development proposals, and the processes and procedures for revising or amending the Corridor Plan.



Commercial Corridors Specific Plan timeline.

1.5 Planning Process

The community outreach effort was carefully developed and began in earnest in May 2021, when the City distributed notice of the first open house for the project via mail, e-mail, the City's website, the Sacramento Business Journal, and the City's social media. Over 9,000 postcards with bright designs and graphics were mailed to everyone within the original project boundaries for all three corridors and to those within a half-mile walking distance. E-mail notices were sent to over 47,000 recipients on the City's existing e-mail lists. In the first week over 800 people visited the project website, and hundreds signed up on the project e-mail list.

The survey following a walking tour yielded a total of 648 community responses.

The open house was well-attended and intended to outline the City's objectives for the project and seek early stakeholder input to further refine the scope of the project. The open house included live polling, a question and answer session, and a community values exercise to help develop a draft vision statement for each corridor. Following the initial open house, a walking tour was launched to engage residents and community members about what they would like to see improved or added to revitalize the three targeted corridors. The tour was open from June 10 – 25, and could be taken virtually using images from key spots in the corridors, or by physically going to the key locations. Staff posted lawn signs and flyers at the locations with a QR code, which could be scanned by your phone to access the survey. The survey yielded a total of 648 community responses.

Based on feedback from the community, the next several months were spent developing materials for the project. On December 14, 2021 draft land use maps, zoning maps, and permitted use tables were posted to the project website for public review, with responses requested by January 12, 2022. Notice of these materials was sent to the project e-mail list and was posted to the project website.

Advertising materials for the Douglas-Harding Boulevard public outreach events.

A virtual workshop was held on February 10, 2022. The workshop was advertised through an e-mail to the project mailing list two weeks before and one week before the workshop, was posted to the project website, was advertised on the City's social media (Twitter, Facebook, and NextDoor), and was published in the Roseville Press Tribune. Flyers were also handed out at businesses within the corridors. The first half of the workshop focused on the proposed land use plan, and included a question and answer session that focused heavily on housing. The second half of the workshop focused on streetscapes, and included live polling to get feedback on improvement priorities and public art programs, as well as a question and answer session. The workshop was well attended and included robust community discussion.

A community design guidelines survey was launched on April 25, 2022 and was open through May 8, 2022. The survey included design imagery and asked respondents what general building design styles were appropriate for each corridor. The survey also included a streetscape improvements question asking respondents to prioritize improvements based on cost. The survey had about 300 respondents and was advertised through the project e-mail list and project website.

A letter was then sent to property owners in April 2022 informing them of proposed changes to land use and zoning. The letters were specific to individual property owners, with the Assessor's Parcel Number identified and an explanation of the proposed changes provided. The letter also encouraged property owners to call, e-mail, or write to staff with any comments or questions, and emphasized that we were still early in the process, and nothing was finalized. A second copy of the letter was sent in May 2022 to all property owners who had not responded to the first letter. The purpose of these letters was to ensure the owners of every property affected by

zoning or land use changes received property-specific notice of the proposal, and multiple copies help ensure the letter is not simply overlooked or missed.

In June 2022 a letter was sent out to every property owner and resident in each of the corridors describing the proposal to use the Special Area overlay zone for the Corridor Plans. City staff subsequently attended two community-led meetings to discuss the project and answer questions. The first meeting was held on June 30, 2022 by Support Our Local Area – Roseville (SOLA-R) from 7 p.m. to 9:30 p.m., and the second was held on July 7, 2022 as part of the Historic Sierra Vista Neighborhood Association regular meeting. Planning staff also staffed a booth at Downtown Tuesday Nights on June 28, 2022 and advertised materials about the project as well as general planning issues. Over 30 people spoke with staff over the course of the evening.

Notice of the release of the preliminary draft Corridor Plans, of the Planning Commission workshop on July 28, 2022, and the City Council workshop on August 3, 2022 was provided in a postcard to every property owner and resident in the corridors. The postcard notice was mailed on July 12, 2022 and the preliminary draft Specific Plans were published on July 14, 2022, with a request to provide feedback by August 11, 2022. Notice was also publicized on the project website, through the project e-mail list, and on the City's social media (Twitter, Facebook, and NextDoor).

Chapter 2
Setting and Context

2.1 Plan Setting

The entrance to Royer Park from Downtown Roseville.

The approximately 152-acre Douglas-Harding Corridor area (Plan Area) is within the city's Infill area and is located east of the original core of the city and the Downtown Specific Plan area (Plan Area boundary shown in Figure 2.1). The Plan Area is separated from the Downtown by older, pre-1930's residential subdivisions and by Royer and Saugstaud parks. Douglas Boulevard and Harding Boulevard are the key roadways around which the Plan Area is focused. Douglas Boulevard is a four-lane roadway with a shared center turn lane, which connects to Downtown at the western end of the Plan Area and to I-80 at the eastern end of the Plan Area. Outside of the Plan Area, Douglas Boulevard continues to the west and ultimately ends at Folsom Lake State Recreation Area. Harding Boulevard is a four-lane roadway with a shared center turn lane, which after leaving the Plan Area connects to the Galleria Mall and Highway 65 to the north and comes to an end within the Plan Area to the south.

The land surrounding Harding Boulevard is developed with commercial uses built in the 1960s, with some apartments on the western side of the road at the northern end of the Plan Area. The land surrounding Douglas Boulevard is developed with commercial uses near the intersection with Harding Boulevard, but as you move westward down the roadway the frontage includes a mix of commercial buildings, homes, and homes that have been converted to offices or other businesses. The land surrounding the Plan Area is predominantly residential neighborhoods, with homes built in the 1920s to 1940s north of Douglas Boulevard and most homes built in the 1950s and later south of Douglas Boulevard and west of Harding Boulevard.

Commercial uses along the west side of Harding Boulevard.

There are four parks within ¼-mile walking distance of the Plan Area: Saugstad Park, Royer Park, Lincoln Estates Park, and Garbolino Park. George Cirby Elementary School is located approximately ½-mile south of Douglas Boulevard, and there are several private schools within ½-mile of the Plan Area. There are connections to Miners Ravine Trail on both Douglas Boulevard and Harding Boulevard, within ¼-mile of the Plan Area boundaries; the 9-mile Miners Ravine Trail links the city's downtown to the city's eastern boundary at Sierra College Boulevard.

2.2 Factors Influencing the Corridor Plan

The Corridor Plan corrects the inconsistencies between land use and zoning, which has been a significant barrier to redevelopment.

Several key factors have had a significant influence on the development of the Corridor Plan. The Plan Area includes many properties with inconsistencies between the existing physical use, the land use designations, and/or the zoning designations. This can be a barrier to development or redevelopment, because land use entitlements may be required in order to improve a property or change its use. The area is also an important gateway to the city's Downtown and Historic Old Town, to the Galleria Mall and Highway 65 to the north, and to portions of the city east of I-80. In addition to these more regional connections, the area is characterized by the proximity of many different land uses, including residential neighborhoods, parks, trails, schools, employment, shopping, and transportation and transit connections. These conditions make the Plan Area a key area of the city to consider making mobility and walkability improvements, improvements to architectural continuity and connectivity, and establishing a clear design identity.

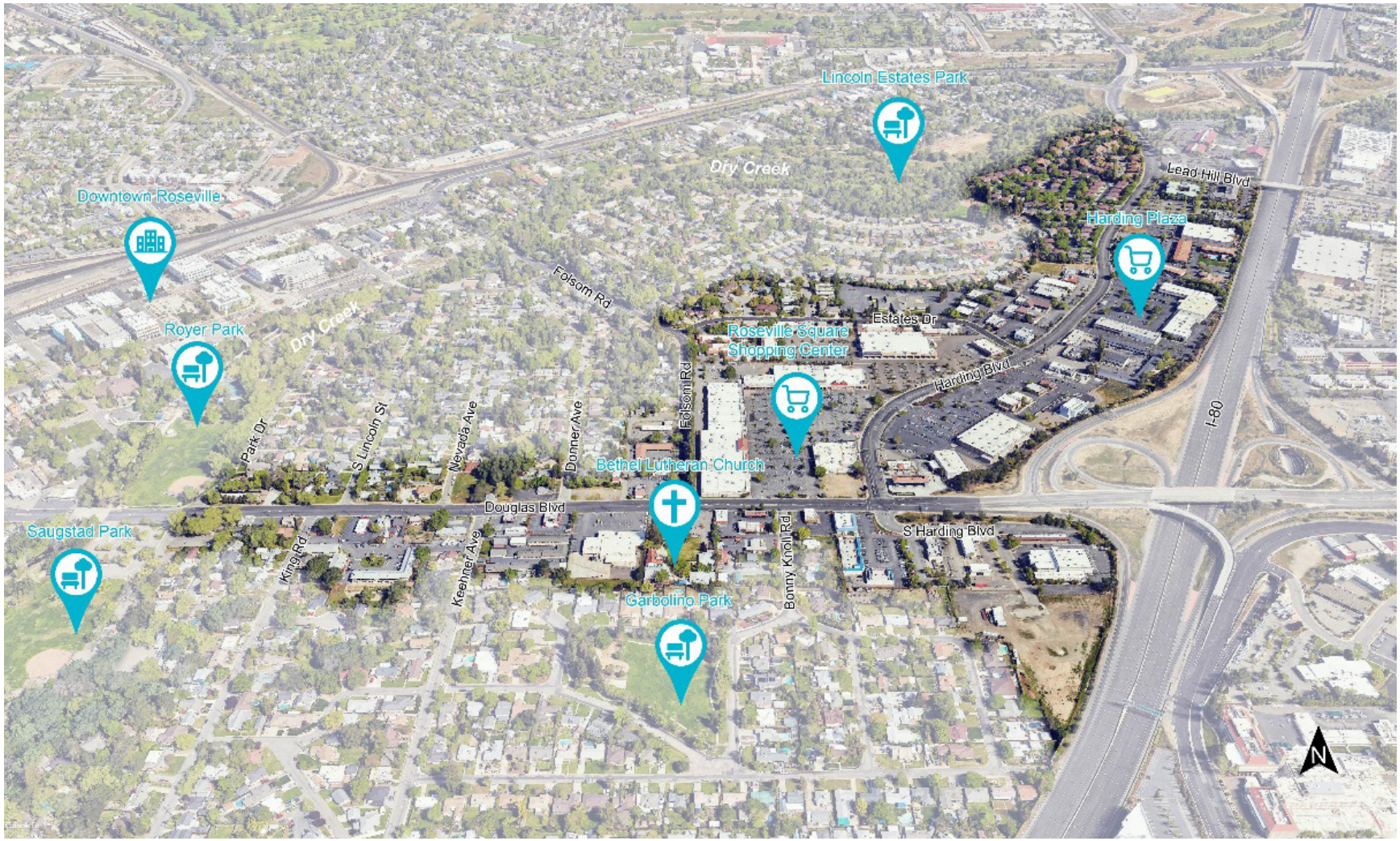


Figure 2.1 | **Douglas-Harding Plan Area with Local Context**

2.3 Existing Land Uses

The intersection of Douglas Boulevard and Harding Boulevard.

This section describes the existing land uses present prior to plan adoption. Most of the Plan Area is in commercial use, including restaurants, retail, automotive services, grocery stores and markets, and small businesses like tax preparation. The most prominent corner is the intersection of Douglas Boulevard and Harding Boulevard. The Roseville Square commercial center is located on the northwestern corner of the intersection. The center includes one free-standing building on the corner, a large parking lot, and an L-shaped one-story commercial center at the rear of the property. Businesses include two grocery stores, a pharmacy, a large outdoor sports retailer, and smaller-format retail stores and restaurants. The northeastern corner is a gas station, the southeastern corner is Caltrans property and the westbound on-ramp to I-80, and the southwestern corner is a small commercial center with restaurants, personal services (e.g., nail salon), retail, and small office uses.

The eastern frontage of Harding Boulevard includes commercial buildings set back from the roadway with large parking lots in front.

Traveling to the west from this intersection along Douglas Boulevard, the frontage is developed with smaller stand-alone, primarily one-story businesses, including drive-thru restaurants, gas stations, offices, and small-format retail stores, and eventually transitions to include single-family homes. Traveling north from the intersection on Harding Boulevard, the eastern frontage includes both large-format and small-format commercial buildings which are typically set back from the roadway with large parking lots in front. Commercial uses on the western side of Harding Boulevard are placed somewhat closer to the frontage, with either smaller parking lots or parking lots that wrap around the side of rear of the building. Commercial uses on Harding Boulevard include drive-thru and sit-down restaurants, retail, and several hotels. At the northern end of the Plan Area on Harding Boulevard, the western frontage includes apartments.

Commercial uses and oversized signage along Harding Blvd north of Douglas Boulevard.

In addition to the properties fronting Douglas Boulevard and Harding Boulevard, the Plan area includes some properties along Folsom Road and Estates Drive that are currently designated for commercial uses, high density residential uses, or medium density residential uses. These areas include businesses in small commercial buildings or residential buildings converted to commercial use, a senior living facility, and duplexes. The Plan Area also extends a short distance behind the frontage properties on Douglas Boulevard, to include properties with existing non-residential zoning or land use designations, or multi-family zoning or

land use designations. These properties include a wide variety of uses, including single-family homes, multi-family developments, small businesses, offices, and auto repair.

South of the Douglas Boulevard intersection, Harding Boulevard narrows to two lanes and becomes South Harding Boulevard. The road only extends a further 800 feet and then dead ends at a vacant property, which is included within the Plan Area. There are small commercial centers and single buildings along this corridor, with a residential neighborhood south and west of the vacant parcel.

Most of this planning area has a Community Commercial (CC) land use designation. However, there are also small areas or individual parcels with a Low Density Residential (LDR), Medium Density Residential (MDR), or High Density Residential (HDR) land use designation and parcels with a Business Professional (BP) land use designation.

Most of the area along Harding Boulevard is zoned CC (Community Commercial), though south of Douglas Boulevard is zoned GC (General Commercial). There are several smaller commercial properties located along Folsom Road and Douglas Boulevard to the west that are zoned NC (Neighborhood Commercial). Most of the residential areas are zoned R3 (Multi-Family Residential) along Douglas Boulevard (west of Folsom Road), Estates Drive, and north Harding Boulevard, though there are a few R1 (Single-Family Residential) zoned properties interspersed within these areas. There are also four PD (Planned Development) zones located within the Plan Area: PD60, PD192, PD246, and PD426. A map of the Plan Area boundary and the existing land use designations is provided as Figure 2.2 and a map of the existing zoning designations is provided as Figure 2.3.

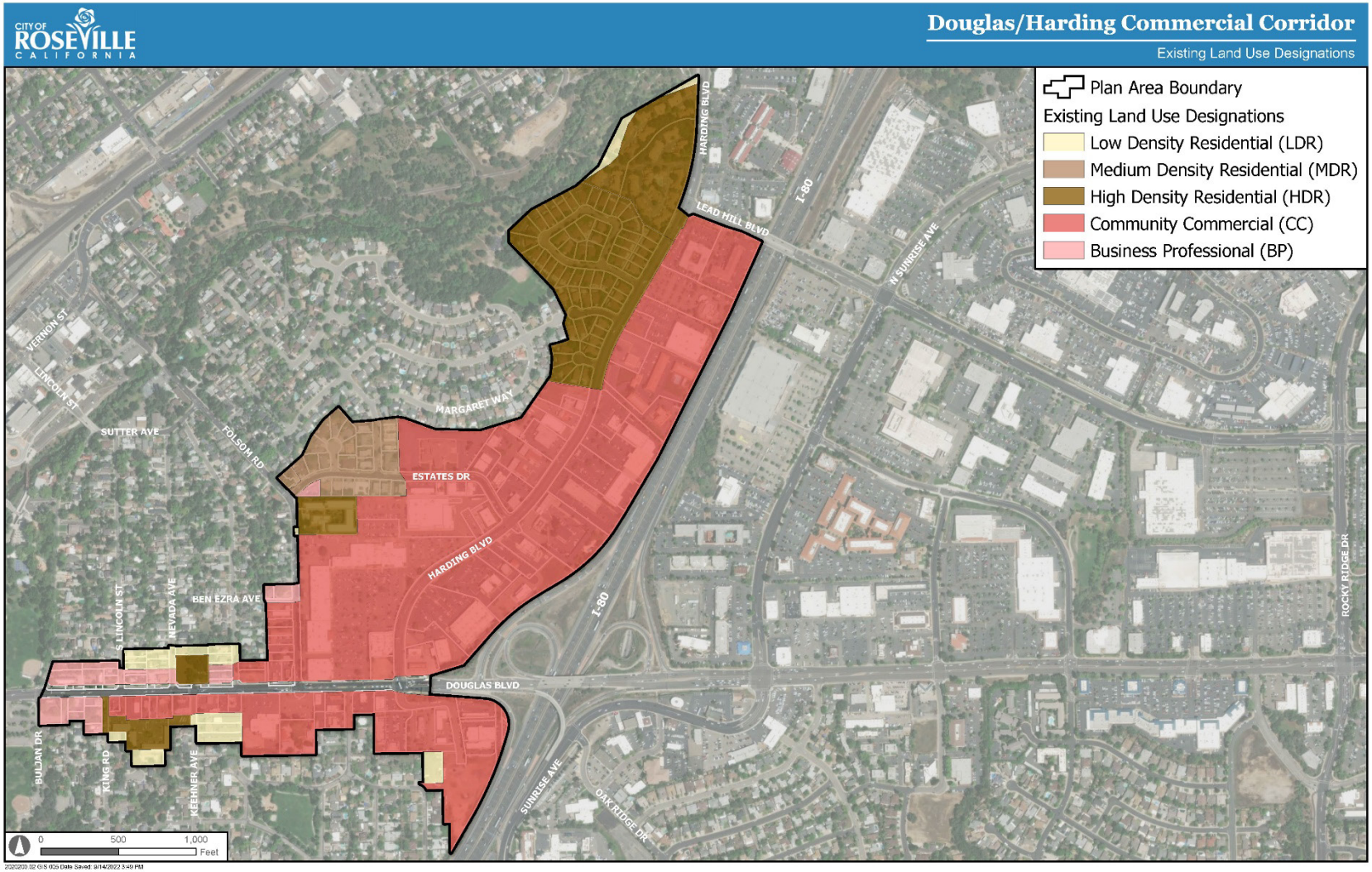


Figure 2.2 | **Existing Land Use**

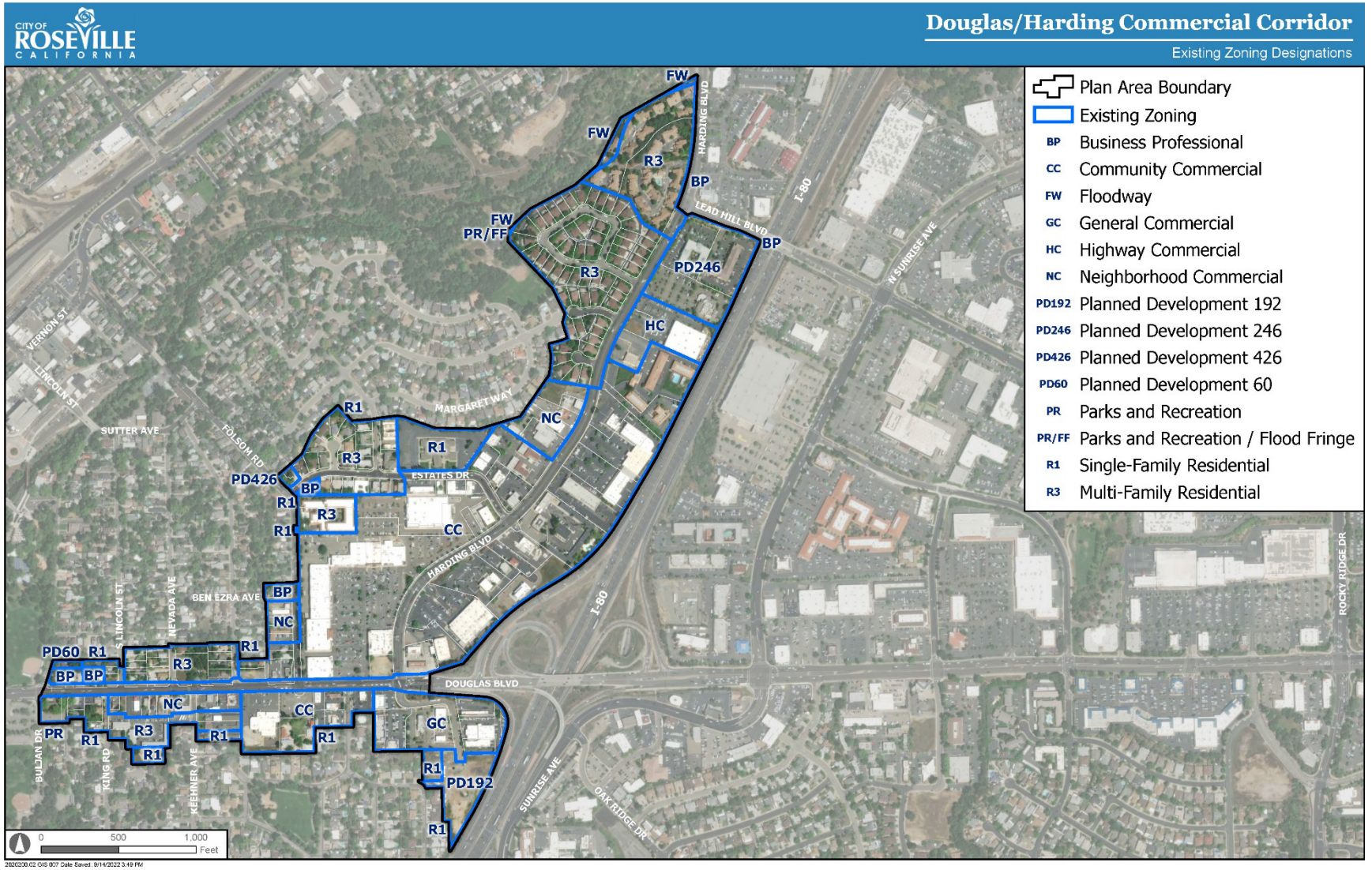


Figure 2.3 | **Existing Zoning**

2.4 Design Character

This section describes the urban design character present prior to plan adoption. Urban design characteristics and streetscape environment contribute to the vitality, desirability, and aesthetics of a place. This section discusses the existing land use characteristics, urban design components, and streetscape elements that make up the Plan Area.

2.4.1 Existing Commercial Building and Design Features – Harding Boulevard

The dominant architectural character is from building and site design trends popular in the 1960s and 1970s. This era of development was focused on designing for automobile travel and moved away from the more integrated mixed-use designs of the 1940s and earlier, instead creating separate commercial districts with large parking lots and very little landscaping. The more utilitarian architecture common for smaller commercial buildings and centers tended toward very square shapes and flat or mansard rooflines, unrelieved by variation in the façade or roof form. These buildings tend to be architecturally non-descript. The color palettes also tend to be non-descript, in part because the architecture only provides an area for body color and an area for roof trim, which minimizes the ability to use variation in color to enliven the façade. A few of the buildings and centers along Harding Boulevard have been updated, using both modern and traditional styles, but most buildings and sites have not undergone any significant updates. One building (currently a bank) has a more classical design, with a façade made of brick (painted white), regularly spaced vertical windows with shutters, and iron balconies supported by columns.

Existing bank building on Harding Boulevard with classical design features.

2.4.2 Existing Commercial Building and Design Features – Douglas Boulevard

The architectural character along this corridor changes from east to west, as the development along the eastern side of the Plan Area dates to the 1960s and later while development on the western side dates to the 1940s and earlier. However, there is an eclectic mix of design styles, both because of the original date of building construction, and because many buildings were updated or redeveloped at different time periods. Commercial design characteristics common to each decade since 1960 can be found along this corridor.

The corner of Douglas Boulevard and Harding Boulevard is the most prominent. On this corner, the Roseville Square commercial center was built in the 1960s but was updated in 2010 to include pitched roofs above the major tenant, pop-outs, and new trims, with a new color palette applied to these details. New landscaping was also installed in 2016, including additional planters with parking lot trees. Buildings on the other corners also feature some amount of detailing, with decorative stone bases, variation in the rooflines or wall planes, and other features common for commercial development and redevelopment in the 1980s and later.

The Roseville Square commercial center.

2.4.3 Existing Residential Design Features

The neighborhoods to the north of Douglas Boulevard were built in the 1940s and earlier, so while there is a wide array of design styles (inspired by Spanish, French, bungalow, cottage, and other residential designs), most of the homes share certain site and home design characteristics. Typically, the lots are narrow and deep with the front door relatively close to the sidewalk and the garage at the rear. Front porches are common and building materials lean heavily toward wood siding and brick. To the south of Douglas Boulevard the residential homes were built later, when the construction of tract homes in the ranch house style became common. Garages were no longer detached and instead of being set back, were brought forward in line with the rest of the house. The residential area on Harding Boulevard includes apartments built in the 1970s and 1980s, which use wood siding, pitched roofs, stone, and stucco.

Example of existing ranch style homes found in the Plan Area.

2.4.4 Streetscape

Sidewalks in the Plan Area are generally attached, four feet wide, and on Douglas Boulevard are rarely separated from adjacent commercial development by landscaping or other buffer areas. Utility poles and other encroachments infringe on the sidewalk in some locations. The walking environment is not comfortable, because there is no buffer between the pedestrian environment and the paved street, and in some cases the sidewalk is in between the edge of a parking lot and the street.

Existing sidewalk along Douglas Boulevard lacks adequate width, shade, and landscaping leading to an uncomfortable pedestrian environment.

Chapter 3
Land Use

3.1 Introduction

The Land Use chapter outlines a combination of regulations and strategies to achieve the community's vision and goals for the Plan Area.

This chapter of the Corridor Plan sets forth the types, locations, and intensities of land uses to be accommodated within the Plan Area and outlines a combination of strategies that will be used to help achieve the community's goals and vision for the Plan Area. The land use strategies and the proposed program of land uses reflect the input and guidance from community outreach and conditions described in Chapter 2. Since the Plan Area is an infill area that is already developed, implementation of the plan will occur mainly through individual projects. The Plan Area also contains several opportunity sites that would be expected to be developed and/or redeveloped within the 20-year time frame of this Plan. This Corridor Plan allows for the continued use and enhancement of existing uses and provides recommendations for future uses.

3.2 Land Use and Community Character Goals and Policies

The following goals reflect the future vision for the area and help to set the framework for the land use and community character strategies for the Plan Area. These goals are broad in nature, and the following sections of this chapter detail policies and strategies that will be used to achieve these goals. These goals also help to address the overall plan objectives, which were detailed in Chapter 1.

The Douglas-Harding Corridor Specific Plan will realize the land use and community character goals through a variety of land use, design, and regulatory strategies, consisting of the following primary components:

- *Revised regulations and approval processes,* intended to permit and encourage mixed-use development and multifamily development in commercial area;
- *Correcting long-standing land use discrepancies* and ensuring that land use and zoning designations are compatible to facilitate development and redevelopment throughout the corridor; and
- *Implementation of a streetscape plan,* which will help provide immediate results and visible improvements in the project area (discussed in detail in Chapter 4, Circulation).

GOAL 1: Facilitate development of a compatible mix of residential, retail, employment, entertainment, and service-oriented uses in the Plan Area. The Plan recognizes the many viable existing businesses in the area and seeks to attract compatible and supportive new uses. The mix of new development and redevelopment in the area should contain uses that serve the surrounding neighborhoods, as well as larger, regional-serving uses.

Policy 1.1: Facilitate development of new high-density housing and affordable housing, particularly on Harding Boulevard and South Harding Boulevard. New housing in the Plan Area is key to achieving several objectives. After close of business hours, the activity on Harding Boulevard decreases sharply, except for pass-through traffic. New residents within the commercial areas will provide activity on a 24-hour basis. This area of the city

is also among the lowest for the per-person generation of greenhouse gas emissions and vehicle miles traveled, because of the proximity of services, recreation, transit, and employment. In addition, the City of Roseville Housing Element establishes a goal to provide decent, safe, inclusive, and affordable housing, and has identified this area to accommodate up to 200 new high density residential units. To ensure flexibility, there are no maximum density provisions within the Plan. The ability to meet the design, parking, frontage, and other standards and guidelines of the Corridor Plan will determine the number of units which are appropriate on a given site.

Example of a multifamily, mixed-use development. The City of Roseville Housing Element has identified this Plan Area to accommodate up to 200 new high density residential units.

Policy 1.2: Promote mixed-use development. Mixed-use may be either vertical, where residential units are placed above ground-floor non-residential uses, or horizontal, where residential and non-residential uses are adjacent with integrated site design. Mixed-use development provides for activated streetscapes and centers and should be encouraged.

Policy 1.3: Facilitate development of high-quality and attractive new commercial buildings oriented to the street. To further activate the streetscape and make commercial uses in the area more accessible to pedestrians and bicycles, new commercial construction should be street-forward, with entrances visible from the street. Development standards and design guidelines in this Plan will help to ensure the quality of future development.

Policy 1.4: Incentivize and promote revitalization of existing commercial buildings. Development standards and design guidelines in this Plan encourage revitalization and redevelopment of existing property through a streamlined development process.

Policy 1.5: Allow streamlined review for projects that preserve major structural components and architectural details of buildings constructed in the 1940s or earlier. The Plan Area contains several residential and non-residential buildings that were constructed in the 1940s or earlier that are original or retain most of their historical architectural components. These historical structures contribute to the Plan Area's neighborhood character. In an effort to encourage and incentivize owners of these properties to preserve, rehabilitate, or retain as many historical and/or architectural components as possible, projects located on these properties that otherwise would not qualify are eligible to use the streamlined Administrative Permit process described in this Plan. Age of the structure alone does not determine eligibility; structures must retain significant features and details from the time period. Eligibility is determined at the discretion of the Planning Manager. Use of this incentive is voluntary at this time.

Policy 1.6: Coordinate with the United Auburn Indian Community about projects located in the Plan Area and, if areas of cultural or tribal cultural significance are identified, engage in consultation to determine appropriate treatment. To ensure good-faith coordination, the City will notify the United Auburn Indian Community of all ground-disturbing projects which use the Corridor Plan streamlining provisions and would otherwise have required a public hearing according to the Zoning Ordinance.

Policy 1.7: Parking lot and circulation designs should support the efficient use of land. The Plan Area includes many underused parking lots, drive aisles, and driveways placed along the roadway frontage. The City supports the redevelopment of these spaces with beneficial uses, including businesses, residential uses, and frontage improvements/public amenities.

Policy 1.8: Ensure affordable housing within the Specific Plan Area is consistent with the City's General Plan. The City's affordable housing policy specifies that 10% of all new housing units in the city be affordable to very low-, low-, and moderate-income households. Applying this policy on a project-by-project basis is likely to result in a piecemeal approach which only gains a few units at a time. It may also be an impediment to redevelopment, because the costs and inefficiencies inherent in developing only a few affordable units within a small multifamily project. For this reason, the City's policy will apply on a plan-wide basis, instead of on a project-by-project basis, to all three of the City's connected and related Corridor Plans: Atlantic Street, Douglas-Harding, and Douglas-Sunrise Corridor Specific Plan. All three plans combined anticipate the creation of 850 units in total. Based on the affordable housing goal of 10% a total of 85 units would be needed. These units must be constructed within the Plan Areas prior to the issuance of occupancy permits for the 400th unit in the Plan Areas.

GOAL 2: Facilitate an intensity and scale of development that is appropriate for a gateway to the city. As the gateway to Downtown Roseville, and with direct access to I-80, Downtown, Miners Ravine Trail, and multiple parks, the Plan Area is a key gateway location into the city. Currently, Harding Boulevard is developed at a fairly low intensity, with large parking lots and buildings set back from the street. The existing development pattern does not contribute to a welcoming or vibrant streetscape environment. New urban infill development and redevelopment

within the Plan Area should be of a scale and intensity that is appropriate for a pedestrian friendly, mixed-use corridor, adjacent to Downtown Roseville.

GOAL 3: Facilitate an attractive, inviting, and pedestrian-friendly environment that creates linkages to Downtown Roseville, to surrounding residential neighborhoods, to transit, and to businesses. The development pattern in the Plan Area should help to promote pedestrian and bicycle access and create or improve connections to surrounding neighborhoods and other key uses or services. This should include streetscape improvements that will enhance the pedestrian environment.

Active ground level retail, street furnishings, signage, shade, and decorative landscaping can all contribute to an attractive, inviting, and pedestrian-friendly environment.

Policy 3.1: New development and redevelopment should include non-auto accessibility as a key consideration in building orientation and site design. Friendly, accessible, and safe paths of travel should be incorporated into site design and frontage improvements.

Policy 3.2: New development and redevelopment should include public realm improvements which support non-auto accessibility. Improvements can include street furniture, bicycle parking, gathering spaces, and other improvements.

GOAL 4: Facilitate an attractive corridor with a distinct character and identity. The Plan Area represents an opportunity to create a district within the city that has a unique character and identity. The land use mix and streetscape improvements should be compatible with and complementary to the improvements in Downtown yet should also stand out as being unique to the Plan Area. This is a highly visible section of Roseville; many pass through it on the way to other destinations, making the area an important gateway to the city. High-quality development, a diverse land use mix, and an improved streetscape will greatly improve the image and livability of the area.

Policy 4.1: New development and redevelopment should include cohesive frontage and public realm improvements with a consistent design theme. The conceptual streetscape plans and design guidelines in this Plan provide direction that will help improve the overall appearance and character of the area and provide a consistent design theme.

Policy 4.2: Encourage public art[1] and consider the establishment of a public art program. Allow appropriately-designed public art on building walls, utilitarian objects (such as trash enclosures), gathering areas, and other locations to increase the vibrancy and visual interest of the Plan Area.

Public art and outdoor gathering spaces can increase the vibrancy of the area.

Policy 4.3: New development and redevelopment located on the corner of intersections with Harding Boulevard, South Harding Boulevard, or Douglas Boulevard should include a corner feature. The Design Guidelines in this Plan provide direction for corner features, which may include landscaping, landscape features, hardscape, or other improvements.

Policy 4.4: Work with stakeholders, residents, and property owners to identify funding mechanisms for delivering and maintaining streetscape improvements. The Circulation chapter of this Corridor Plan describes conceptual streetscape options to improve and beautify streetscapes in the Plan Area. The City will seek grant funding to support the implementation of public realm improvements. Other funding sources could include the establishment of a Business Improvement District (BID) and/or Lighting and Landscape District (LLD). Such districts are formed by interested property owners within a certain geographic area, in which the members agree to provide funding for specified improvements as part of a public-private partnership. The focus of a BID is on public realm improvements in commercial areas, the provision of street or other decorations, and community initiatives.

[1] Business signage is subject to the City's Sign Ordinance and/or Planned Sign Permit Program, even when the business name or other advertising is incorporated into a wall mural or other public art.

The focus of an LLD is constructing and maintaining landscaping, lighting, and related streetscape improvements.

Policy 4.5: Consider the establishment of a façade improvement program. The program would provide financial assistance to cover the cost of materials and City permit fees to property and business owners committed to enhancing the aesthetic of their buildings and the overall appearance of the streetscape.

Policy 4.6: Encourage the placement of monuments or plaques that recognize and celebrate historic sites, structures, and events, and provide opportunities for public awareness and education about historic activities associated with culturally affiliated California Native American tribes. At trailheads, parks, and other areas of opportunity, consider the inclusion of informational signs or other structures as part of planned public improvement projects. Signage, monuments, and other structures can help communicate the history of an area and help with placemaking and identity. Designs should be determined through outreach and coordination with the appropriate stakeholders. Any designs or information about California Native American tribes shall be determined through coordination with culturally affiliated California Native American tribes.

Signage, monuments and other structures can help communicate the history of an area.

GOAL 5: Establish regulatory mechanisms that streamline the development process and provide development and redevelopment incentives for projects that promote plan objectives. The Implementation chapter of this Plan describes streamlined approval processes and incentives.

3.3 Land Use Plan

There are multiple vacant properties in the Plan Area which have been difficult to develop because the parcels are small and would have required land use amendments to consolidate and approve. This occurs in part because there are many cases where the land use designation and the zoning designation are inconsistent with one another (e.g. the zoning is single-family residential while the land use is general commercial). The land use plan for the Douglas-Harding Corridor corrects these inconsistencies.

The Douglas Harding corridor is envisioned as a mixed-use commercial district with a diverse set of uses and activities.

The Plan Area is envisioned as a mixed-use commercial district, which provides for a broader mixture of land uses and activities than is currently permitted under the City's land use regulations. It should be noted that all existing uses in the Plan Area are permitted to remain as part of the Corridor Plan. However, there are a few use types that are permitted under current zoning that would no longer be permitted under the revised zoning or which would require an entitlement in order to approve as a new use. One of the main goals of this Plan is to allow for and encourage flexibility for future development and redevelopment. To allow for development flexibility, the Corridor Plan does not identify parcel-specific planned future uses. In general, commercial areas of the Corridor Plan will permit higher intensity residential uses in addition to typical commercial uses, while some areas which are currently designated for multifamily residential uses will permit live-work spaces in addition to typical residential uses.

The land use plan for the Douglas-Harding corridor is shown in Figure 3.1, below.). A map of the zoning for the Plan Area is shown in Figure 3.2. Table 3.1 below provides the acreages, allocated units, and densities at the land use block level.

The Roseville Municipal Code is the base-level implementing mechanism of the General Plan and specific plans (including the Corridor Plans), and includes detailed development standards, permitted uses, and other regulations. The Municipal Code is citywide, and the Corridor Plan modifies the permitted uses within the Multifamily (R3), Community Commercial (CC), General Commercial (GC), Neighborhood Commercial (NC), and Business Professional (BP) zone districts through the use of the Special Area (SA) overlay zone used throughout the Plan Area. The zoning regulations provided in Roseville Municipal Code Chapter 19.33, establishing the Commercial Corridor Specific Plans Special Area District, define the permitted uses. Where these regulations are silent the other regulations of Roseville Municipal Code Chapter 19 (Zoning Ordinance) control.

Table 3.1 | Douglas-Harding Corridor Land Use, Zoning, and Acreage by Parcel

Parcel	General Plan Land Use (Specific Plan Land Use)	Zoning	Acres	Original Units	Allocated Units	Density (du/ac)
DH-10	LDR (Residential)	R1/SA-DH	0.5	0	2	4.0
DH-30	HDR (Residential)	R3/SA-DH, FW	9.4	126	*	
DH-31	HDR (Residential)	R3/SA-DH, FW, PR/FF	17.1	232	*	
DH-32	HDR (Residential)	R3/SA-DH	7.2	76	*	
DH-33	HDR (Residential)	R3/SA-DH	2.2	108	*	
DH-34	HDR (Residential)	R3/SA-DH, FW	4.8	16	*	
DH-35	HDR (Residential)	R3/SA-DH	5.1	79	*	
DH-36	HDR (Residential)	R3/SA-DH	0.6	0	*	
DH-40	CC (Commercial)	CC/SA-DH	7.3		*	
DH-41	CC (Commercial)	HC/SA-DH	4.3		*	
DH-42	CC (Commercial)	NC/SA-DH	3.5		*	
DH-43	CC (Commercial)	CC/SA-DH	64.0	1	*	
DH-44	CC (Commercial)	NC/SA-DH	1.3		*	
DH-45	CC (Commercial)	NC/SA-DH	2.6	3	*	
DH-46	CC (Commercial)	CC/SA-DH	6.1		*	
DH-47	CC (Commercial)	GC/SA-DH	7.1		*	
DH-48	CC (Commercial)	CC/SA-DH	3.0		*	
DH-60	BP (Business Professional)	BP/SA-DH	0.2			
DH-61	BP (Business Professional)	BP/SA-DH	0.6	1		
DH-62	BP (Business Professional)	BP/SA-DH	0.8			
DH-100*	(additional development capacity)				200	
ROW	Right of Way		4.5			
TOTAL			**152.2**	**642**	**202**	

Notes: Acres: Gross acreage (includes right-of-way)

Original Units: Number of pre-existing, built residential dwelling units prior to the Specific Plan adoption

Density: Allocated Units / Acres

Allocated Units: Number of residential dwelling units approved/adopted by City Council

*In lieu of allocating a defined number of units for each High Density Residential parcel, Parcel DH-100 represents the additional development capacity available to High Density Residential and Commercial parcels within the Plan Area. In this case, this allocation is not the maximum allowable number of units; this is the number of units covered by the utility capacity studies included as Appendices to the Specific Plan. Any project exceeding the allocated capacity may be required to prepare additional technical studies and/or provide other environmental documentation to demonstrate sufficient capacity to support the development.

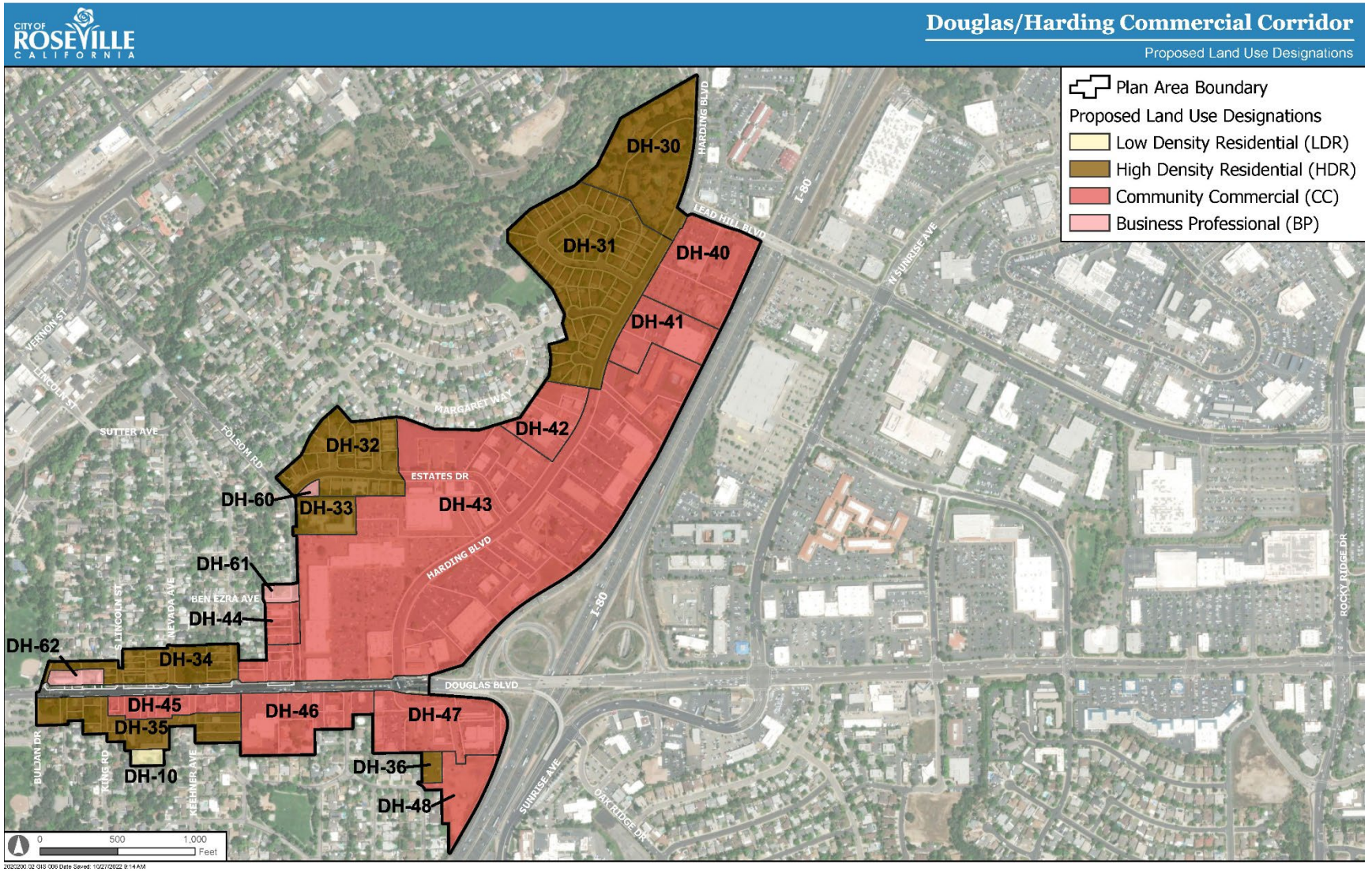


Figure 3.1 | Land Use Map

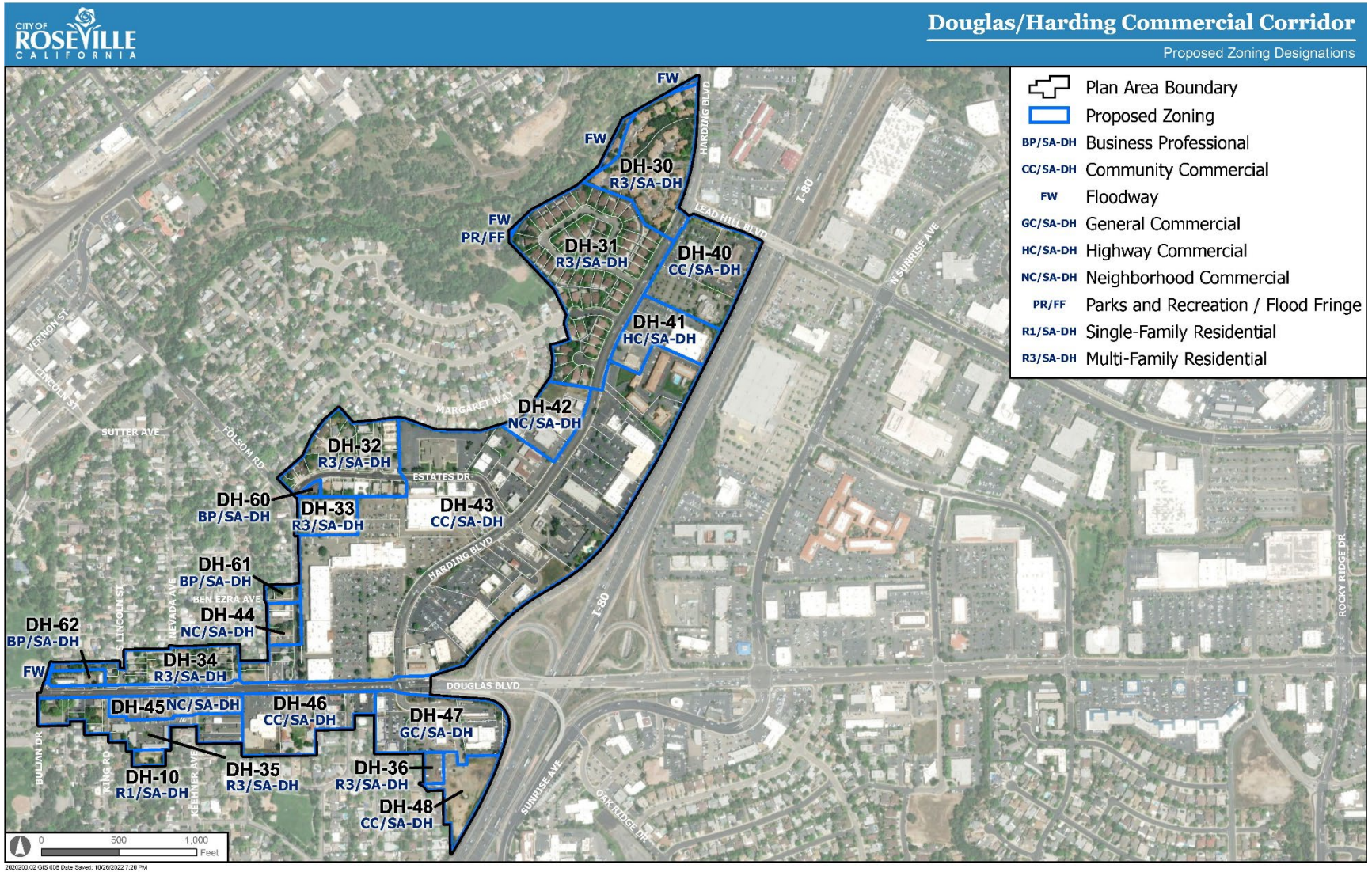


Figure 3.2 | **Zoning Map**

3.4 Land Use Designations and Zoning

The following section includes a general description of the land uses and zoning planned for the Plan Area. Descriptions of land use designations are based on the General Plan and descriptions of zoning districts are based on Roseville Municipal Code Chapter 19.33 (Zoning Ordinance) as of 2022, the original adoption date of this Corridor Plan, and are used as guidance for informational purposes only.

3.4.1 Commercial: Retail, Service, and Entertainment Uses

Throughout the planning process, community feedback identified the need for neighborhood-serving retail and service uses, as well as opportunities for indoor recreation and entertainment. The process also highlighted the importance of supporting and strengthening existing business in the Plan Area. Neighborhood-serving retail and service uses will help to create an environment that is active, vibrant, and welcoming to pedestrians, as neighborhood residents and employees will be able to walk to uses such as retail shops, restaurants, and convenience services. The uses envisioned for the Plan Area are intended to meet the everyday needs of residents and visitors and promote neighborhood walkability, and also build on the relationship of the Plan Area to Downtown Roseville. To achieve this, the Plan Area will continue to use the Community Commercial land use designation, described below, along most of the properties along Douglas and Harding Boulevards. In addition, PD zone districts were replaced by a standard zone district, such as CC, to remove the outdated and confusing PD zoning from the Plan Area.

Commercial corridors provide abundant opportunities for diverse commercial and retail uses, as well as recreation and entertainment uses.

Commercial Land Use Designations

Community Commercial (CC)

To achieve the uses listed above, the Community Commercial (CC) land use designation will be used to provide for a broad range of goods and services, primarily retail and services such as auto sales and repair, commercial childcare facilities, and secondarily professional office uses, including medical offices and clinics. These areas are to be located at intersections or adjacent to arterial roadways. The compatible implementing zones within the CC designation are: NC (Neighborhood Commercial), CC (Community Commercial), PD (Planned Development), GC (General Commercial), HC (Highway Commercial), CMU (Commercial Mixed-Use). Of these, only General Commercial and Community Commercial are located within the Plan Area, and are described below as adopted in the Roseville Municipal Code Chapter 19.33 (Zoning Ordinance) as of September 2022.

Commercial Zoning

General Commercial (GC) Zoning

The General Commercial district is intended to serve the entire community by providing areas for commercial facilities that are more of a service or heavy commercial character than are permitted in the community commercial district, and may involve outdoor display, storage or activity areas.

Community Commercial (CC) Zoning

The Community Commercial district is intended to serve the principal retail shopping needs of the entire community by providing areas for shopping centers, and other retail and service uses.

Neighborhood Commercial (NC) Zoning

The Neighborhood Commercial district is intended to be applied to properties in close proximity to residential areas providing for convenient retail and personal service facilities.

3.4.2 Office and Employment Uses

Office and employment uses help to create jobs and tax revenue, bring people to the area, and represent a captive market with the potential to support other uses, such as retail and commercial services. Employment-generating uses are envisioned particularly for Harding Boulevard. Professional offices and businesses are encouraged to locate in the Plan Area, such as insurance agencies, law offices, design firms, and small medical offices. This type of employment-generating use will also benefit from the presence of neighborhood serving retail and services, such as restaurants, drycleaners, coffee-shops, and business support services such as copy shops. These uses are supported by both the CC and Business Professional (BP) land use designations. Most of the Plan Area is designated CC, though there are a few properties located on the western end of the Plan Area that will retain the BP designation. Several properties are being amended from BP to

HDR in the western portion of the Plan Area so that they are consistent with their current R3 zoning (Multifamily Residential).

Office and employment uses help to create jobs and tax revenue, while supporting the retail uses below or nearby.

Land Use Designations

Business Professional (BP)

The BP designation supports primarily offices, including administrative, professional, and medical offices and research and development. Limited commercial uses are allowed to support users of the offices and minimize vehicle trips. The compatible implementing zones within the BP designation are BP (Business Professional) and PD (Planned Development).

Zoning

Business Professional (BP)

The Business Professional district is intended to provide locations for a wide variety of office uses and other uses which are related to and supportive of office uses.

3.4.3 Residential Uses

Residential uses in the eastern, commercial portion of the Plan Area are envisioned to be of a more urban in nature. A range of residential types are encouraged, including multifamily and single-family attached units, upper story residential units as part of mixed-use development, townhouses, flats, and live/work units. Anticipated residential projects include development of vacant sites, construction of new buildings within excess parking areas of existing commercial sites, or conversion of commercial space into residential space (including conversion of hotels/motels). High Density Residential land use designations in the Plan Area provide a minimum density of 13 units per acre but do not include a maximum density. Compliance with design guidelines and standards will determine the appropriate and feasible number of units which can be accommodated on a given site.

A range of residential types are encouraged, including multifamily housing.

Land Use Designations

High Density Residential (HDR)

The HDR land use designation provides for apartments or condominiums with multiple-story structures containing multiple attached dwelling units with densities over 13.0 units per acre. These areas are intended to be located along bicycle and transit corridors in close proximity to services This designation may be combined with commercial uses to form a mixed-use development where higher densities could be desirable and beneficial. The HDR designation allows as secondary uses public and private parks and recreation areas, natural preservation and open space areas, landscape corridors, public utility easements, schools, religious facilities, accessory dwelling units, and limited office, commercial childcare facilities, and neighborhood retail and services. The compatible implementing

zones within the HDR designation are: R3 (Multifamily Residential), RMU (Residential Mixed-Use), and PD (Planned Development). Only R3 is located within the Plan Area and is described below.

Residential Zoning Districts

R3 – Multifamily Housing

The R3, multifamily housing district is intended for a range of high density and multiple-family housing. The types of land use intended for the R3 zoning district include apartments, condominiums, townhomes, small lot cluster housing, and similar and related compatible uses.

3.4.4 Mixed-Use Development

One of the desired uses, or combination of uses, in the Plan Area is mixed-use development, incorporating a combination of retail/office, retail/residential, and office/residential uses. Multi-story buildings on the eastern side of Harding Boulevard containing a combination of uses, will help to create a highly livable district for residents, employees, and shoppers, improving convenience through walkability and access. The first story of vertical mixed-use buildings will consist of office and retail uses to help create an attractive and interesting street frontage, such as shops, restaurants, personal services, and small offices. Live/work units are also permitted.

One of the desired uses in the Plan Area is mixed-use development.

3.4.5 Parking

One of the desired goals for the Plan Area is to reduce the predominance of oversized parking lots placed along the street frontage. The Plan includes conceptual streetscape concepts and design guidelines to help redefine these spaces as development and redevelopment occurs, providing improved landscaping and pedestrian pathways, and promoting the placement of buildings toward the frontage, while continuing to ensure adequate parking is provided.

Landscaped setback between the parking lot and pedestrian/bike pathways, to help reduce the appearance of parking.

Chapter 4
Circulation

4.1 Introduction

This chapter describes the Plan Area's circulation system, including existing transit and facilities for alternative transportation. It includes an overview of the Plan Area's existing circulation system, to provide a baseline upon which to build the goals, objectives, and policies that support improvements and enhancements to the streetscape and streetscape environment. The purpose of this chapter is to describe the existing constraints and opportunities within the Plan Area, establish policies, and define improvement options. Due to their proximity, the circulation maps cover both the Douglas-Harding corridor and Atlantic corridor Plan Areas.

4.2 Existing Circulation and Conditions

Maps describing the existing circulation facilities and existing conditions were prepared for Atlantic Street and Folsom Road (including Estates Drive) and for Douglas Boulevard and Harding Boulevard (Figures 4.1 through 4.4). The Existing Circulation maps focus on existing infrastructure including:

- multi-use trails
- on-street bike lanes
- bus routes
- signalized intersections, minor intersections (where side streets have stop signs) and all-way stops
- transit stops
- major destinations (such as Roseville High School)

The purpose of these maps is to visually identify the key circulation infrastructure; the maps do not identify all infrastructure or facilities.

Existing Conditions maps focus on features and conditions which influence the mobility and streetscape environment, including:

- trails and trail access
- sidewalk access gaps, where sidewalk or certain pedestrian improvements are absent
- overhead utilities
- raised medians
- driveway locations (general)
- crosswalks
- large parking lots (more than 60 stalls)
- railroad crossings and bridges
- gateway monuments

The purpose of these maps is to display key conditions that influence paths of travel which may be relevant to future decisions about streetscape improvements.

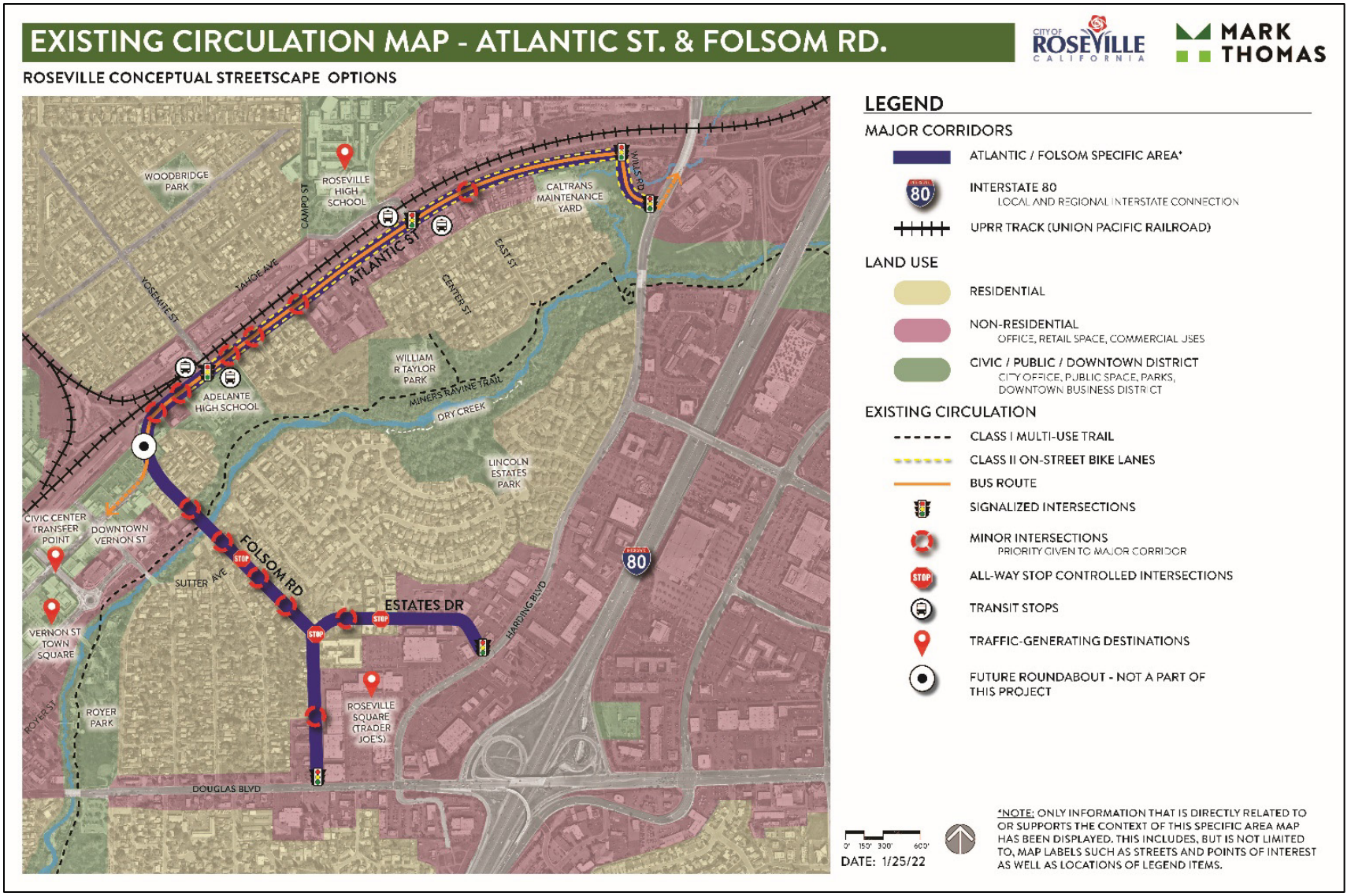


Figure 4.1 | **Existing Circulation – Atlantic Street, Folsom Road, and Estates Drive**

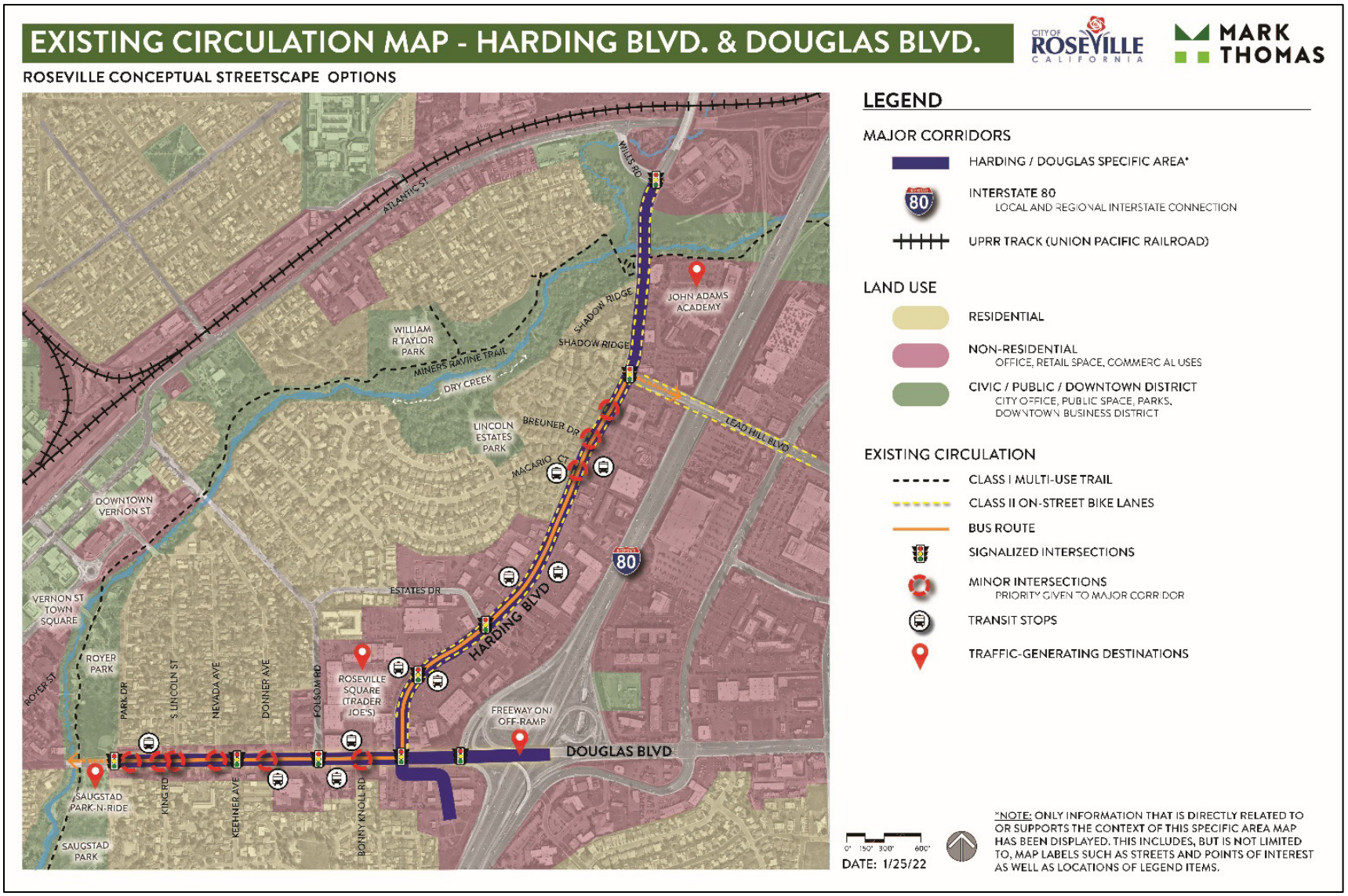


Figure 4.2 | **Existing Circulation – Douglas and Harding Boulevard**

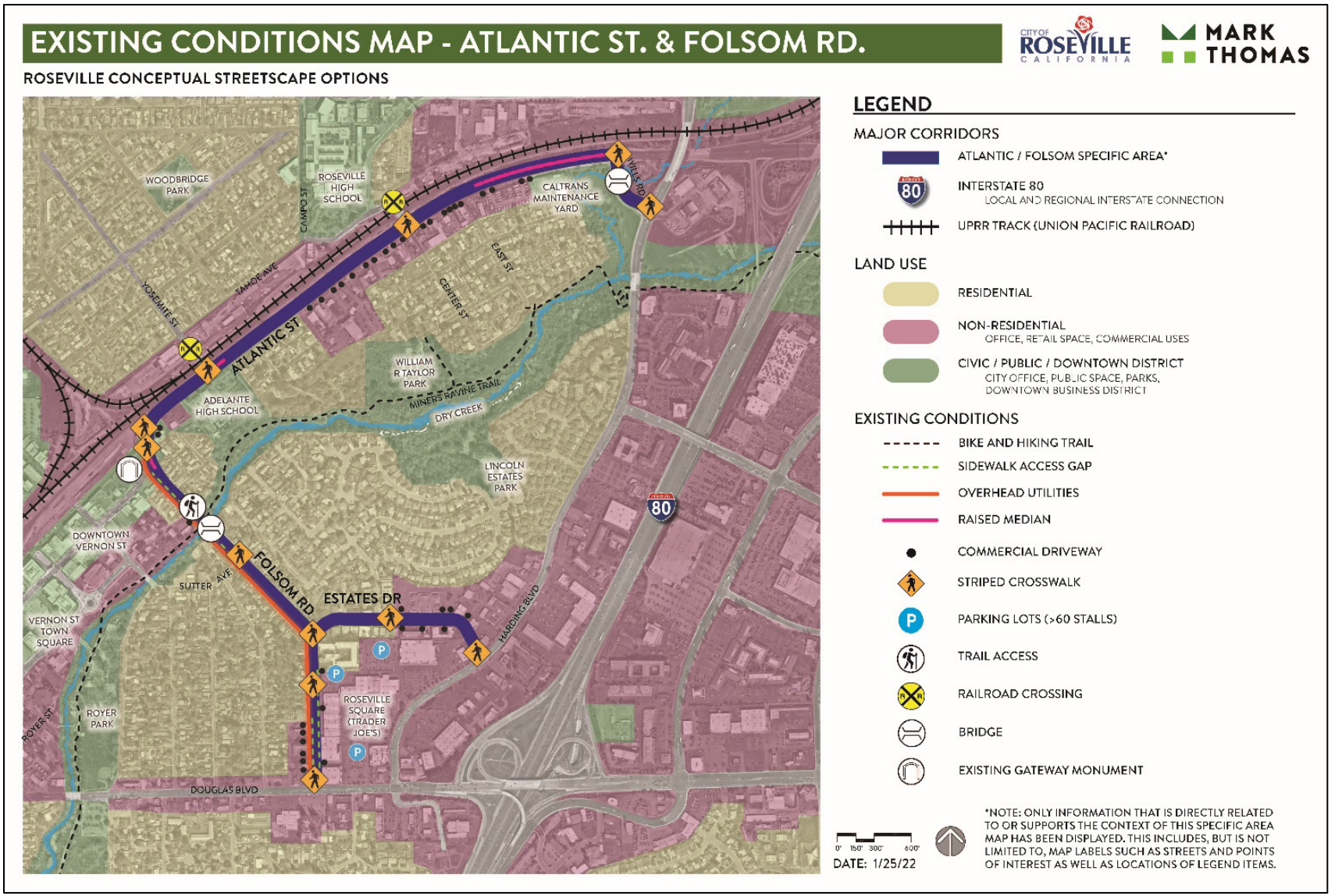


Figure 4.3 | **Existing Conditions – Atlantic Street, Folsom Road, and Estates Drive**

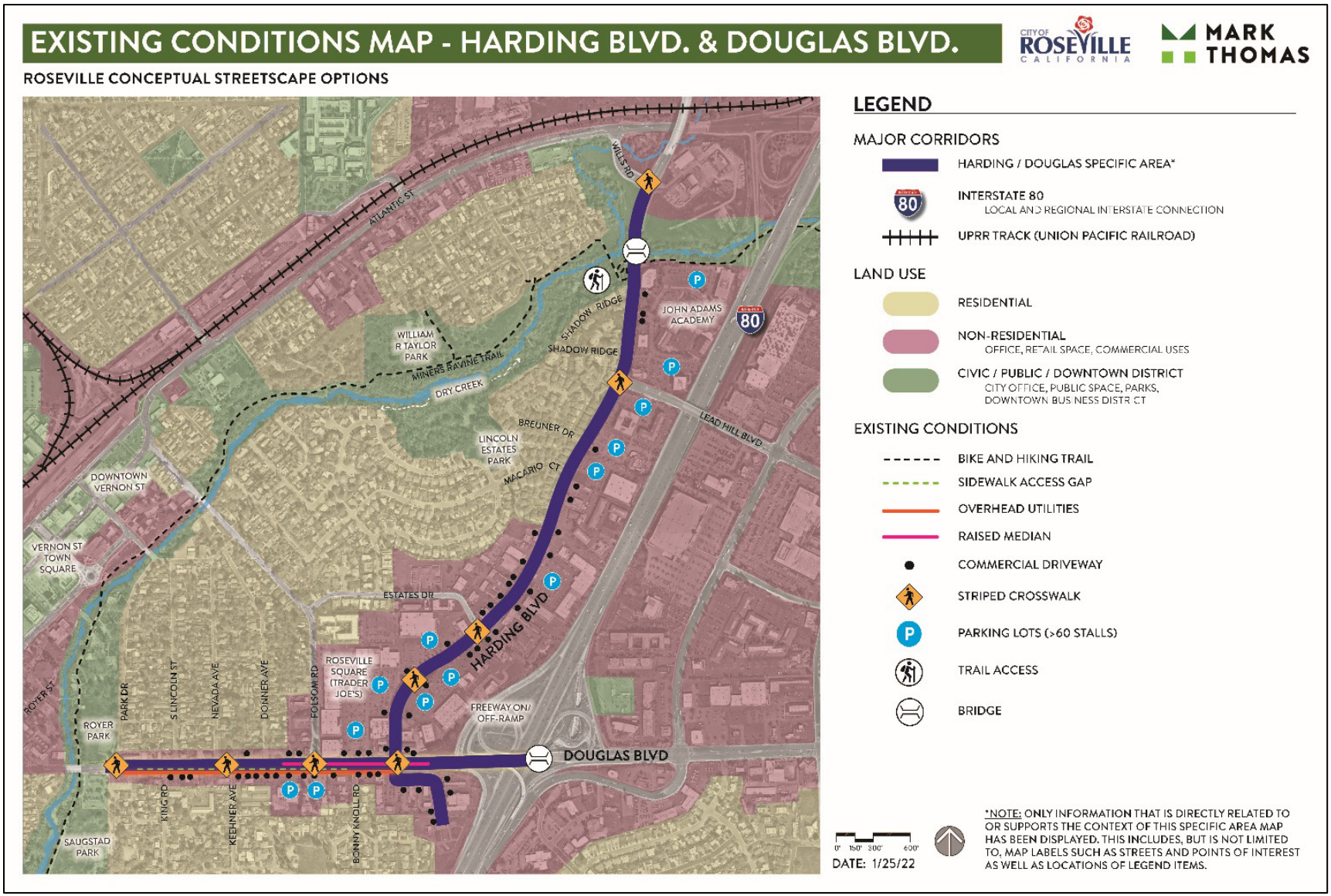


Figure 4.4 | **Existing Conditions – Douglas and Harding Boulevard**

4.2.1 Plan Area Roadways

The locations of primary roadways in and connected to the Plan Area are shown in Figures 4.1 and 4.2. The main roadways in the Plan Area are Douglas Boulevard and Harding Boulevard. Both are classified as arterials, which are designed to move large volumes of traffic at relatively high speeds through the city.

Douglas Boulevard is classified as a major arterial that runs approximately 7.5 miles east-west, ending at the intersection with Vernon Street and Riverside Avenue less than half a mile west of the Plan Area and near Folsom Lake nearly 7 miles to the east. It is one of the city's major roadways and is a major commercial corridor both within the Plan Area and east of I-80. Within the Plan Area, Douglas Boulevard is a four-lane roadway with a shared center turn lane. There are five signalized intersections on Douglas Boulevard in the Plan Area and six minor intersections. At a minor intersection, traffic on the primary roadway (Douglas Boulevard) continues to flow while the connecting side street is stop controlled.

Douglas Boulevard at Donner Avenue, looking west.

Harding Boulevard is classified as a minor arterial and runs generally north-south, terminating at a commercial property on the southern end and becoming Galleria Boulevard on the northern end, at the intersection with Wills Road. Harding Boulevard generally parallels I-80. Within the Plan Area, Harding Boulevard is a four-lane roadway with dedicated turn pockets on the segment between Douglas Boulevard and Estates Drive, and thereafter has a shared center turn lane. There are five signalized intersections on Harding Boulevard in the Plan Area and two minor intersections. One of the signalized intersections is not located at a cross street, and instead provides access to commercial centers on either side of the roadway.

Harding Boulevard at Macario Court, looking south.

The Plan Area contains two roadways classified as collectors: Folsom Road and Estates Drive, both of which are two-lane roadways. Collectors link residential and commercial districts to arterials. Folsom Road connects Douglas Boulevard to Oak Street and Vernon Street, providing a pathway into Downtown and to the Washington Boulevard underpass. Estates Road connects Harding Boulevard to Folsom Road.

The remaining roadways are classified in the General Plan as local streets, which provide direct access to residences, services, and other destinations from collector streets. Most of the local streets between Folsom Road and Douglas Boulevard are one-way streets.

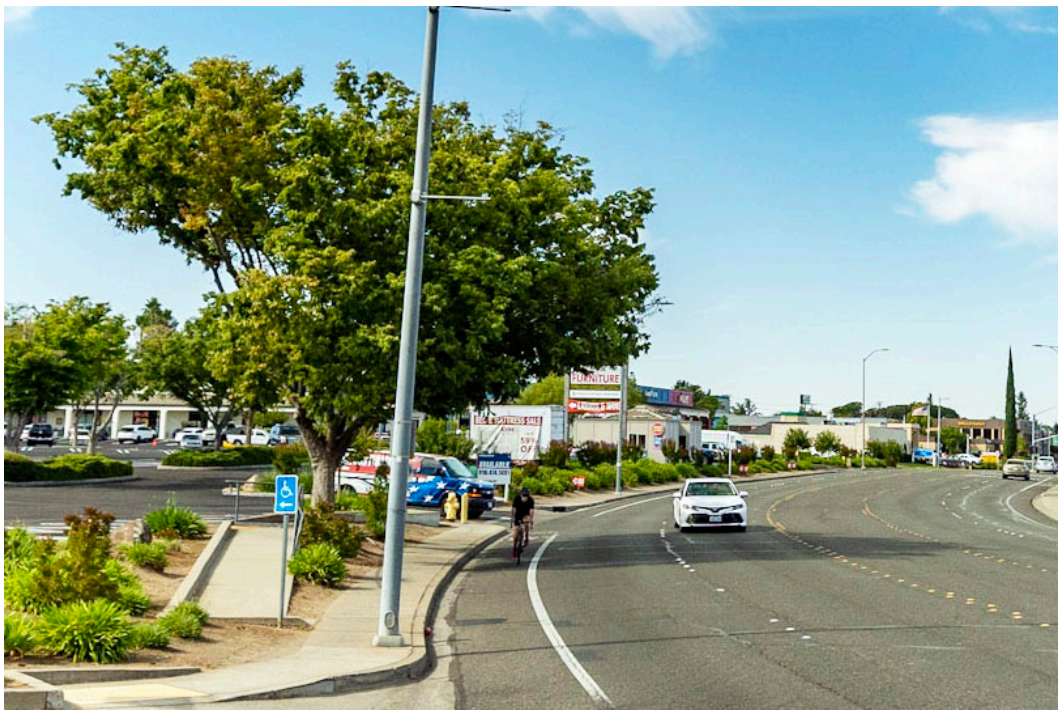
4.2.2 Bicycle System

The City of Roseville's bikeway system includes on- and off-street facilities inter-connected to form a comprehensive network of bikeways. Bicycle facilities located in or nearby the Plan Area are classified and located as follows:

- Class I Off-Street Paths – These are paved multi-use paths within their own alignment separated from streets, often located in open space areas. The nearest Class I path is the Miners Ravine Trail, located within the Dry Creek open space area. The path is not within the Plan Area but is accessible from three nearby locations: on Douglas Boulevard within Royer or Saugstad Park, on Folsom Road at Linda Drive, and on Harding Boulevard north of Shadow Ridge. The Miners Ravine Trail is more than 8 miles long and connects Downtown to the northeastern area of the city at Sierra College Boulevard. South of Douglas, the Miners Ravine Trail connects to the planned Dry Creek Greenway East Trail.

The Miners Ravine Trail at Royer Park.

- Class II On-Street Bike Lanes – Bike lanes are areas within paved streets that are identified by striping and signs for preferential (semi-exclusive) bicycle use. Class II bike lanes are typically 5 to 6 feet wide. Harding Boulevard contains Class II on-street bike lanes within the Plan Area.



A cyclist on the existing Class II bike lanes on Harding Boulevard.

The locations of these bike facilities are shown on Figures 4.1 and 4.2. The bicycle facilities on Harding Boulevard provide access to the commercial areas along the roadway, to Miners Ravine Trail, and to additional bicycle facilities on Lead Hill Boulevard (leading out of the Plan Area). There are no bicycle lanes on Douglas Boulevard. Douglas Boulevard was planned and built prior to 1950, before consideration of on-street bicycle pathways was a common practice. The existing right-of-way is only wide enough to accommodate the existing travel lanes and four-foot sidewalks.

4.2.3 Pedestrian System

Pedestrian facilities in the Plan Area consist of sidewalks, pedestrian ramps, crosswalks, and pedestrian crossing signals. Sidewalks are located on both sides of Douglas Boulevard for the entire segment located within the Plan Area, though at four feet wide they are narrower than the City's current standard of five feet, have no separating features from the roadway, and contain both utility and light poles, which may make traveling along Douglas Boulevard uncomfortable for many pedestrians.

The sidewalks on Douglas Boulevard are four feet wide, have no separating features from the roadway and contain both utility and light poles in the pedestrian path.

Harding Boulevard is similar, with four-foot sidewalks and light poles located within the sidewalks north of Douglas Boulevard. However, the Class II bike lanes located on both sides of Harding Boulevard provide some buffering from travel lanes for pedestrians. Also, unlike on Douglas Boulevard, there are large commercial parking lots alongside most of Harding Boulevard, which provide future opportunities for sidewalk separation and/or additional landscaping as part of redevelopment projects. On South Harding Boulevard, sidewalks are only located on one side of the street.

The crosswalks across Douglas Boulevard and Harding Boulevard provide one crosswalk leg across the intersection, rather than having a crosswalk on both approaches. Appropriate crosswalk locations and designs are based on an assessment of efficient travel routes to connect users to destinations, rather than based on a set rule such as minimum spacing (the distance between crosswalks). Crosswalk locations and designs are also influenced by the type of traffic control (signal, stop sign, no controls) and signal timing/coordination. The locations of striped crosswalks in the Plan Area are shown on Figure 4.3 and 4.4.

Along Douglas Boulevard the crosswalk locations provide connections across the road to key destinations, including to Royer and Saugstad Parks; George Cirby Elementary School and Garbolino Park; and commercial areas on either side of the road. Along Harding Boulevard the crosswalks primarily provide connections to the commercial centers on either side of the intersections. The crosswalks are located at the intersection with Douglas Boulevard, Roseville Square, Estates Drive, Lead Hill Boulevard, and Wills Road. There is a crosswalk at the midpoint of Estates Drive, providing access from the residential areas on the northern side of the road to the commercial areas on the southern side of the road. Finally, there are three crosswalks on Folsom Road, providing access to Downtown, Royer Park, and Miners Ravine Trail.

An existing crosswalk along Harding Boulevard.

4.2.4 Transit

The Local L bus route runs from Downtown along Douglas Boulevard, turns north on Harding Boulevard and continues through the Plan Area, and then runs east on Lead Hill Boulevard, as shown on Figure 4.1 and 4.2. This bus route connects to a bus stop in Downtown, which serves multiple routes (the A, B, and D routes) and also connects to the Sierra Gardens Transfer point which serves multiple routes (the A, B, C, E, F, and G routes). Transit users in the Plan Area can connect to most of the local routes in the city via one of these nearby stops/transfer points. As shown on Figure 4.2, there are 10 bus stops for the L-route in the Plan Area at key locations.

Existing L bus stop along Harding Boulevard.

Commuter services are provided by AM Routes 3, 7, 9, and PM Routes 1, 6, 7, 9, and 10. Adjacent to the Plan Area on Douglas Boulevard, a 91-space Park and Ride lot at Saugstad Park provides parking for commuter service into Sacramento.

The public's top three priorities for future streetscape improvements within the Plan Area are wider sidewalks, landscaping and shade, and safety improvements.

4.3 Circulation Goals and Policies

Input gathered through a series of workshops, surveys, phone calls, and emails to City staff indicated that the public's top three priorities for future streetscape improvements within the Plan Area are wider sidewalks, landscaping and shade, and safety improvements. The following goals support an enhanced circulation environment for all modes of transportation and community priorities. Goals are broad in nature and the later sections of this chapter detail strategies that will be used to achieve these goals. The goals also help to address the overall plan objectives detailed in Chapter 1.

GOAL 1: Improve the visual environment of the primary roadway corridors to establish community identity and enhance the streetscape.

Policy 1.1: Promote the history and identity of the Plan Area through consistent design themes applied to wayfinding signage, gateway monuments, public art, streetscape improvements, and other public realm improvements. There are a variety of design options for each type of improvement (e.g., crosswalks, corners, etc.) in the Plan Area. The design theme should be considered and selected as part of the first improvement project of its kind within the Plan Area, and then carried throughout as part of future improvement projects. The Design Guidelines should be used to inform the design theme selection process.

Policy 1.2: Establish community gateways designed to visually enforce the streetscape plan theme for the Plan Area. Future roadway and other capital improvement projects at or near gateway intersections (see the Opportunity Plan) should consider incorporation of design themes which reinforce the overall streetscape plan. The Design Guidelines should be used to inform this process.

Policy 1.3: Work with stakeholders, residents, and property owners to identify funding mechanisms for delivering and maintaining streetscape improvements. The Circulation chapter of this Corridor Plan describes conceptual streetscape options to improve and beautify streetscapes in the Plan Area. The City will seek grant funding to support the implementation of public realm improvements. Other funding sources could include the establishment of a Business Improvement District (BID) and/or Lighting and Landscape District (LLD). Such districts are formed by interested property owners within a certain geographic area, in which the members agree to provide funding for specified improvements as part of a public-private partnership. The focus of a BID is on public realm improvements in commercial areas, the provision of street or other decorations, and community initiatives. The focus of an LLD is constructing and maintaining landscaping, lighting, and related streetscape improvements.

The focus of a BID is on public realm improvements in commercial areas.

Policy 1.4: Encourage public art[1] on utilitarian structures. Public art placed on utilitarian objects such as trash enclosures, utility boxes, and other structures increases the vibrancy of an area and reduces the potential for graffiti on the structures.

GOAL 2: Improve the circulation environment within the Plan Area for all modes of transportation.

Policy 2.1: Provide wayfinding signage indicating the location or direction of key amenities and circulation connections, such as parks, trailheads, bus stops, and bicycle facilities. Wayfinding signage helps direct people from point to point and confirms progress along the route. Signage is also an opportunity to create or reinforce community identity through a unified design theme applied to the signs. The location of wayfinding signs should connect places of interest and promote active transportation.

Policy 2.2: Consider transportation system improvements that support choice in travel modes. The transportation system in the Plan Area is defined by existing right-of-way limits, buildings, and other factors which constrain the City's ability to make multi-modal improvements at this time. These constraints may be reduced over time as the area redevelops and the mobility environment changes. Therefore, the City will consider the feasibility of multi-modal system improvements as part of any future roadway project or circulation design project in the Plan Area.

Policy 2.3: Consider improvements to enhance the appearance and function of shared center turn lanes and medians. Enhancements may include special pavement markings, pavement treatments, landscaping, hardscaping, or other improvements, as appropriate. As funding is available, the City will determine the most appropriate location for improvements and the most appropriate type of improvement. The determination of suitability, location, and design of improvements will depend on a more detailed site- or project-specific evaluation of needs and constraints.

Policy 2.4: Consider improvements to enhance the appearance and function of crosswalks and corners. Enhancements may include special pavement markings, pavement treatments, or other improvements, as appropriate. As funding is available, the City will determine the most appropriate location for improvements and the most appropriate type of improvement. The determination of suitability, location, and design of improvements will depend on a more detailed site- or project-specific evaluation of needs and constraints.

Policy 2.5: Consider improvements to enhance the appearance, comfort, and ridership use of transit stops. Transit stops should provide a comfortable short-term waiting environment. Key features include shelter from sun and rain, a place to sit until transportation arrives, and other features that make the waiting area pleasant, such as landscaping and public art. As funding is available, the City will determine the most appropriate location for improvements and the most appropriate type of improvement. As land use within the Plan Area evolves and

[1] Business signage is subject to the City's Sign Ordinance and/or Planned Sign Permit Program, even when the business name or other advertising is incorporated into a wall mural or other public art.

becomes more supportive of alternative modes of transportation, additional transit services and facilities should be considered.

Transit stops should provide a comfortable short-term waiting environment.

Policy 2.6: Consider improvements to enhance the function and use of bicycle facilities. Bicycle infrastructure that is connected to important destinations and is comfortable and pleasant to use increases the viability of using a bicycle as an alternative mode of travel. Bicycle use promotes health by adding opportunities for physical activity, can reduce local traffic, and can help activate a corridor. Bicycle facilities can include a wide range of options that enhance bicycle use, including dedicated bicycle lanes and paths, bike racks or lockers at businesses and workplaces, and the comfort of the surrounding streetscape design where bikeways are located. As funding is available, the City will determine the most appropriate location for improvements and the most appropriate type of improvement. The determination of suitability, location, and design of improvements will depend on a more detailed site- or project-specific evaluation of needs and constraints.

Policy 2.7: Consider trailhead improvements to enhance community identity and expand trail access opportunities. Trails provide recreation and transportation corridors, connecting to parks, services, and other destinations. Trailheads are an opportunity to establish community identity through interpretive or informational signage and placemaking improvements. The contents of informational and interpretive signage should promote the history and identity of the Plan Area, in consultation with affiliated tribes, local historical societies, or other relevant cultural stakeholders.

Policy 2.8: The City will seek funding needed to underground utilities along Douglas Boulevard where utility poles are located within the sidewalk, to provide for a more pleasant and user-friendly pedestrian experience. The right-of-way on Douglas Boulevard is constrained and development is often street-forward, limiting the ability to separate or widen sidewalks. The removal of utility encroachments should be prioritized in this location, because it is the most feasible means of improving sidewalk facilities.

GOAL 3: Facilitate safe and compatible connections between neighborhoods, businesses, parks, trails, transit, and other key locations.

Policy 3.1: Minimize traffic intrusion into surrounding residential neighborhoods by avoiding new roadway connections onto existing local residential streets, to the extent reasonable. The Plan Area is surrounded by established residential neighborhoods accessed through local streets intended to support low traffic volumes. New development and redevelopment projects should avoid driveways and other connections to these local streets, when feasible, unless the new access point is located on a corner lot at the intersection of a local street and a collector or arterial.

Policy 3.2: Encourage the consolidation of commercial driveways through design review, using the City of Roseville's Design and Construction Standards to determine appropriate driveway placement and spacing. The primary roadways in the Plan Area include many closely spaced commercial driveways. These conditions hamper mobility for vehicles, bicycles, and pedestrians and can be a barrier to streetscape improvements. Consolidating driveways would reduce the number of turning movements on the roadways, thereby creating opportunities for medians or other center turn lane improvements, reducing conflicts between vehicle movements and bicycle or pedestrian travel, and improving traffic flow. Driveways should be consolidated where feasible.

Policy 3.3: Promote streetscape designs which provide traffic calming benefits and implement crime prevention through environmental design principles. Streetscape designs which promote traffic calming and crime prevention through environmental design (CPTED) can reduce speeding; create a more welcoming environment for pedestrians, bicyclists, and others; deter crime; and help create a sense of community.

Streets designs which promote traffic calming, such as curb extensions at the intersection shown here, create a safer and more welcoming environment for pedestrians.

Policy 3.4: Encourage new development in commercial districts which enhance pedestrian and bicycle access, including mixed-use projects and higher densities and floor area ratios (FARs), when appropriately designed for the context. The creation of safe and compatible connections between uses will depend, in part, on well-designed projects which provide frontage improvements, redevelop parking lots, and incorporate bicycle- and pedestrian-friendly designs.

GOAL 4: Improve the streetscape design to create a walkable community providing an attractive, comfortable, and safe environment for pedestrians.

Policy 4.1: Improve pathways, crosswalks, and intersections within the Plan Area to enhance the pedestrian environment and encourage pedestrian mobility. Sidewalks within the Plan Area are typically four feet wide, include utility and other encroachments, and are generally not buffered by landscaping. Efforts should be made to widen and/or separate sidewalks where possible, add landscape buffers, and remove encroachments. Enhanced paving designs or markings at corners and within crosswalks can also enhance identity, function, and pedestrian comfort. As frontage redevelopment occurs, careful consideration must be given to the design of the transition between updated frontage sections with widened and/or separated sidewalks and existing frontage sections with attached four-foot sidewalks.

Policy 4.2: Encourage development and redevelopment which creates plazas, gathering spaces, and other gateway features at key corners and commercial entry points. Throughout the Plan Area there are opportunities to create pedestrian-focused entries into commercial centers, particularly within centers adjacent to residential neighborhoods.

Example of a pedestrian plazas with entry features along a commercial corridor.

Policy 4.3: Provide pedestrian-scale lighting along the roadway frontage, where feasible. Freestanding luminaries shall adhere to the Roseville Electric Commercial Construction Standards Acorn Style Lights. Pedestrian-scale lighting improves pedestrian visibility and can contribute to the identity of an area. Pedestrian-scale is defined as lighting at a height of between 8 and 12 feet above grade with illumination between 0.5 and 1.0 foot-candle.

4.4 Streetscape Plan

The Corridor Plan identifies the general areas where streetscape improvements could be most beneficial or effective, to guide future improvements.

The Plan Area's location between I-80 and Downtown Roseville provides an opportunity to embrace this area as a gateway to Downtown. Opportunities Plan maps were prepared for Atlantic Street and Folsom Road (including Estates Drive) and for Douglas Boulevard and Harding Boulevard (Figures 4.5 and 4.6). These maps were developed through an analysis of the existing circulation and existing conditions maps and surveys and comments from the community. The purpose of the maps is to identify the general areas where streetscape improvements could be most beneficial or effective, given the identified constraints and conditions. The maps are intended to be used as a guide for planning future improvements but are not intended to either require or limit the specified improvements to the exact locations shown. The final determination of suitability, location, and design of improvements will depend on a more detailed site- or project-specific evaluation of needs and constraints.

The maps identify the following general opportunity areas:

- **Intersection**: These locations are opportunities for corner, crosswalk, and aesthetic/identity enhancement and treatments.
- **Transit Stop Enhancement**: These locations are opportunities for facility and aesthetic/identity enhancement and treatments.
- **Landscape/Sidewalk:** These are areas where landscaping could be enhanced where landscaping exists or where it would be beneficial to add landscaping as part of redevelopment.
- **Trailhead**: These are existing trailhead locations, important for the consideration of wayfinding signage elsewhere in the Plan Area and to create or reinforce community identity.
- **Center Turn Lane/Raised Median**: These are existing medians and center turn lanes where various improvements could be made, including the enhancement of existing landscaping, aesthetic paving, or other improvements.
- **Pedestrian Lighting**: These are areas where pedestrian-scale lighting may be appropriate, to define key pedestrian paths and enhance community identity.
- **Gateway Enhancement**: These are key entry points into the Plan Area where monuments, landscaping, or other identity enhancements may be appropriate.

Figure 4.5 | **Opportunities Plan – Atlantic Street, Folsom Road, and Estates Drive**

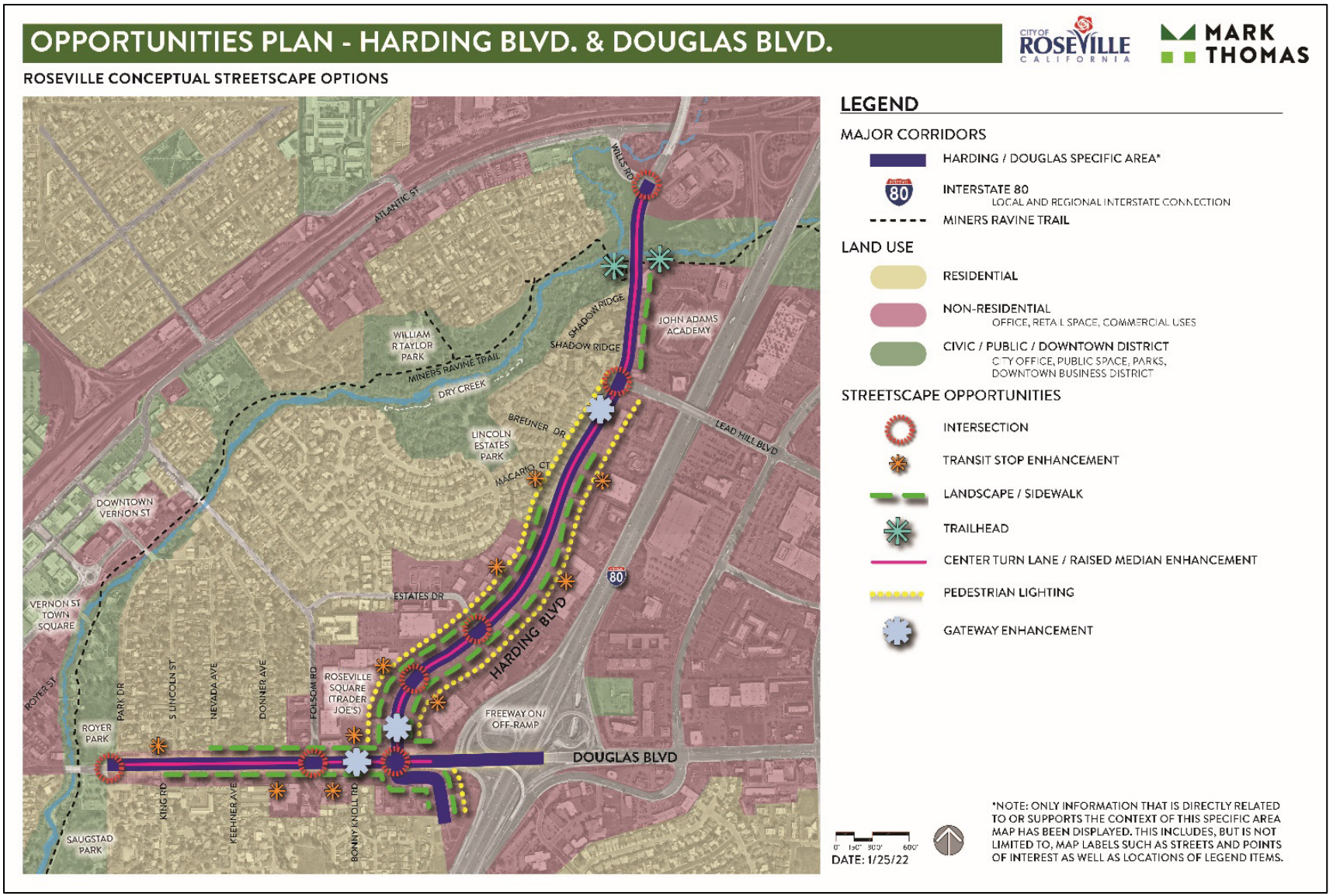


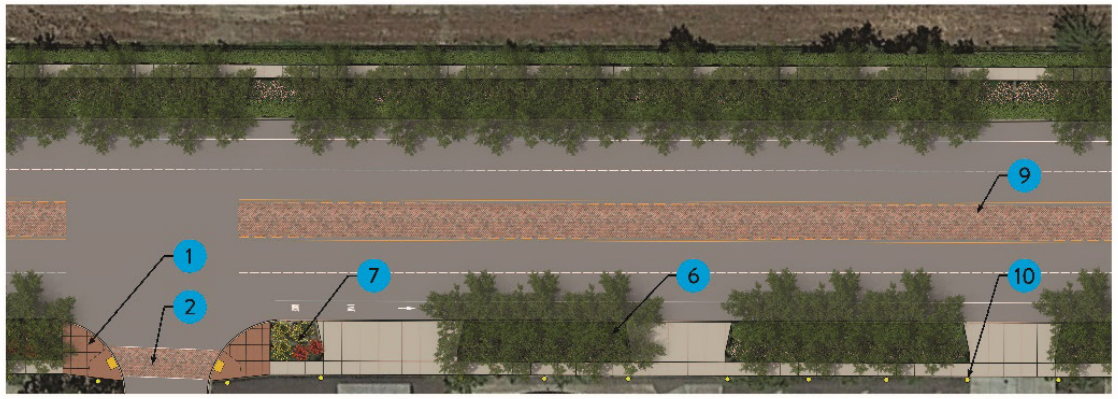
Figure 4.6 | **Opportunities Plan – Douglas and Harding Boulevard**

To supplement the Opportunity Plan maps, example streetscape sections are provided below in Figure 4.7 to identify a suite of options available for improvements. The listed improvements include a wide array of options, including improvements to corners, crosswalks, landscaping and sidewalks, center turn lanes, medians, the pedestrian environment, transit stops, and gateways. Multiple images are shown to reflect variation in the existing environment (e.g., right-of-way landscaping is currently present or absent), but any of the improvements listed on the example streetscapes may be implemented in the Plan Area. The example streetscape images are followed by a description of the improvement options, along with inspirational imagery. General cost estimates for each improvement type are included in Appendix A.

The streetscape improvement options described below would be considered, if feasible, as part of future roadway, sidewalk, and other public improvement projects. The feasibility and applicability of each option will depend on factors such as the width of the right-of-way, operational needs, and funding, which would be evaluated at the time an improvement project is being contemplated. The design theme for improvements (e.g., type and style of crosswalk improvement) should be considered and selected as part of the first improvement project of its kind within the Plan Area, and then carried throughout as part of future improvement projects. In surveys, the community indicated that the following improvements were highest priority: wider sidewalks, landscaping and shade, and safety improvements. These community priorities will be factored into the decision-making process.

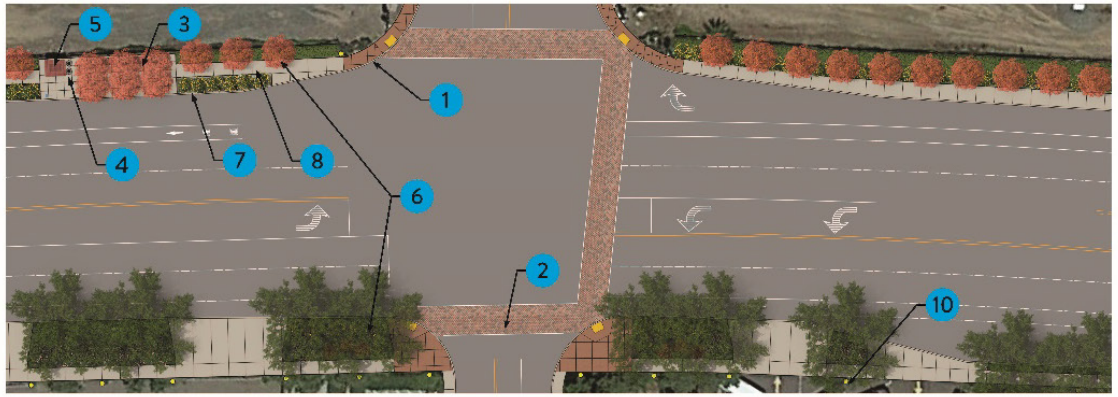
STREETSCAPES

ROSEVILLE CONCEPTUAL STREETSCAPE OPTIONS



MID-BLOCK PLAN - Example section with landscaped right-of-way

0' 10' 20' 40'



INTERSECTION PLAN - Example section with landscaped right-of-way

0' 10' 20' 40'

LEGEND

INTERSECTION

1 CORNER TREATMENTS
- Enhanced Paving
- Colored Concrete
- Stamped Concrete

2 CROSSWALK TREATMENTS
- Enhanced Paving
- Decorative Striping
- Decorative Coating

TRANSIT STOP ENHANCEMENT

3 PUBLIC ART INSTALLATION

4 SITE FURNISHINGS

5 SHELTERS/SHADE

LANDSCAPE / SIDEWALK

6 STREET TREES

7 SHRUBS / GROUNDCOVERS ENHANCEMENTS AND OTHER LANDSCAPE FEATURES

8 SEPARATED SIDEWALKS

CENTER TURN LANE

9 AESTHETIC PAVING (CENTER TURN LANE)
- Enhanced Paving
- Decorative Striping

MEDIAN

PEDESTRIAN ENVIRONMENT

10 DECORATIVE STREET LIGHTS

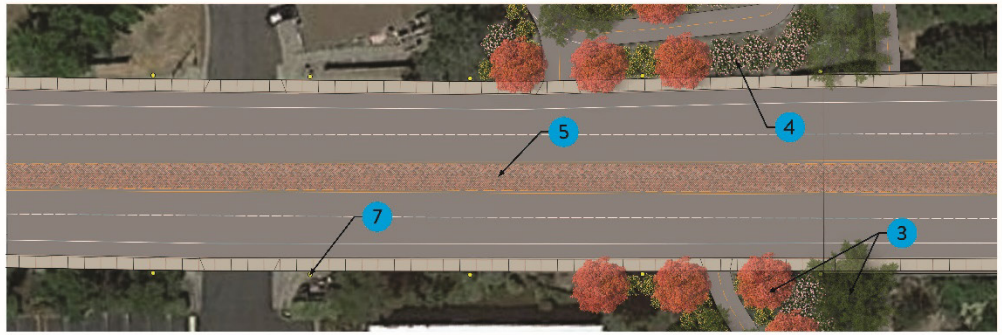
WAYFINDING/INFORMATIONAL SIGNAGE

STREET FURNITURE

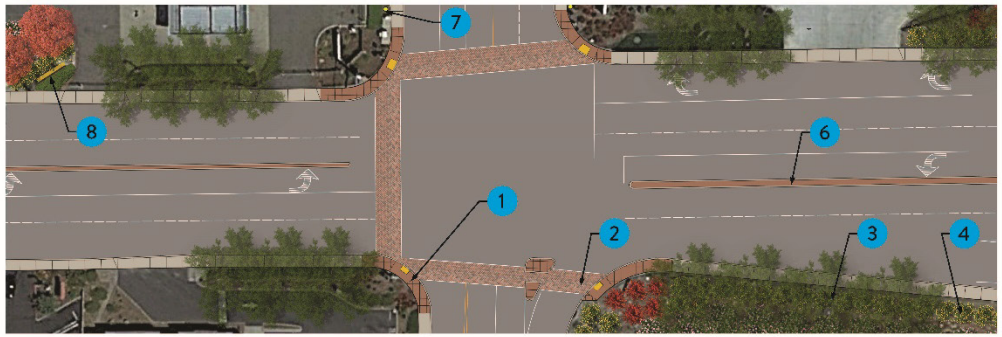
Figure 4.7 | Streetscape Options (1 of 3)

STREETSCAPES

ROSEVILLE CONCEPTUAL STREETSCAPE OPTIONS



MID-BLOCK PLAN - Example section without landscaped right-of-way



INTERSECTION PLAN - Example section without landscaped right-of-way

LEGEND

INTERSECTION

1 CORNER TREATMENTS
- Enhanced Paving
- Colored Concrete
- Stamped Concrete

2 CROSSWALK TREATMENTS
- Enhanced Paving
- Decorative Striping
- Decorative Coating

LANDSCAPE / SIDEWALK

3 STREET TREES

4 SHRUBS / GROUNDCOVERS ENHANCEMENTS AND OTHER LANDSCAPE FEATURES

SEPARATED SIDEWALKS

*By City where right-of-way exists or as part of private development

CENTER TURN LANE / RAISED MEDIAN ENHANCEMENTS

5 AESTHETIC PAVING (CENTER TURN LANE)
- Enhanced Paving
- Decorative Striping

6 MEDIAN
- Ornamental/Safety Fencing
- Landscaping
- Decorative Hardscape

PEDESTRIAN ENVIRONMENT

7 DECORATIVE STREET LIGHTS

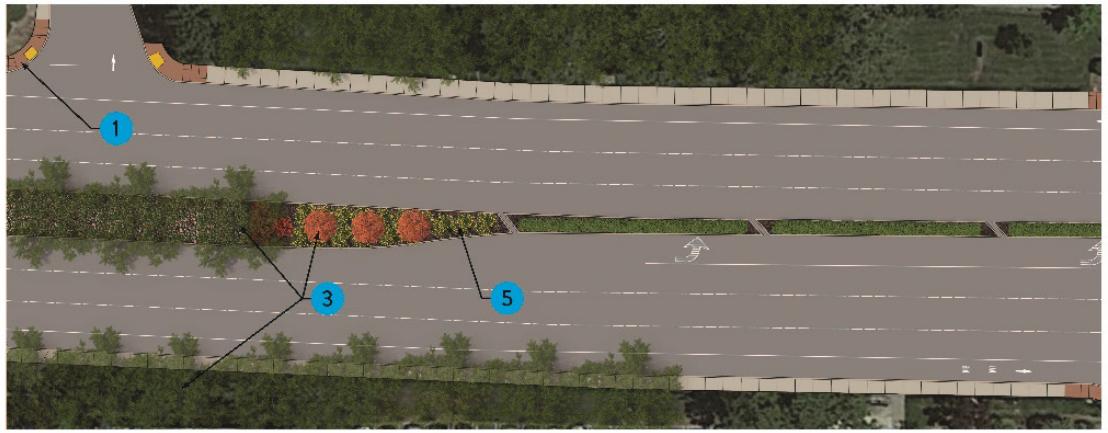
WAYFINDING/INFORMATIONAL SIGNAGE

STREET FURNITURE

GATEWAY ENHANCEMENT

8 CORRIDOR SIGNAGE MONUMENT

Figure 4.7 | Streetscape Options (2 of 3)



MID-BLOCK PLAN - Example section with planted median

0' 10' 20' 40'

LEGEND

INTERSECTION

1 CORNER TREATMENTS
- Enhanced Paving
- Colored Concrete
- Stamped Concrete

LANDSCAPE / SIDEWALK

3 STREET TREES

SHRUBS / GROUNDCOVERS ENHANCEMENTS AND OTHER LANDSCAPE FEATURES

SEPARATED SIDEWALKS

RAISED MEDIAN ENHANCEMENTS

5 MEDIAN
- Updated/Enhanced Landscaping
- Decorative Hardscape
- Monuments/Gateway Signs

Figure 4.7 | **Streetscape Options (3 of 3)**

4.4.1 Corner Treatments

Color and material variations applied to street corners reinforce the distinction between the pedestrian pathway and the road, enhancing the visual environment, and reinforcing safety. There are a multitude of corner treatment options, including enhanced paving, colored concrete, and/or stamped concrete. Refer to the Frontage Improvement Standards of the Design Guidelines chapter (Chapter 6) for additional design guidance for prominent corners.

- Enhanced Paving
- Colored Concrete
- Stamped Concrete

There are a multitude of corner treatment options including enhanced paving, shown here.

4.4.2 Crosswalk Treatments

Color, material, and striping pattern variations applied to crosswalks reinforce the distinction between the pedestrian pathway and the road, enhancing the visual environment and reinforcing safety. There are a multitude of crosswalk treatment options, including enhanced paving, decorative striping, and decorative coatings. Durability, sound attenuation, and accessibility must be considered when selecting a treatment option, because some coating or striping options may wear rapidly and need frequent maintenance or may contribute to roadway noise, or may make the ground uneven and more difficult to travel on for some users.

- Enhanced Paving
- Decorative Striping
- Decorative Coating

Color, material, and striping pattern variations applied to crosswalks reinforce the distinction between the pedestrian pathway and the road.

4.4.3 Transit Stop Enhancement

Transit stops should provide a comfortable short-term waiting environment. Key features include shelter from sun and rain, transit information signage, a place to sit until transportation arrives, and other features that make the waiting area pleasant, such as landscaping and public art applied to utilitarian structures (e.g. bus shelter or waste receptacles).

- Public Art
- Site Furnishings
- Shelters/Shade
- Transit Information Signage

Transit stops should provide a comfortable short-term waiting environment.

4.4.4 Landscape/Sidewalk

Landscaping along the public street provides both practical and aesthetic benefits. Landscaping can define the roadway edge, provide shade, contribute to community identity and streetscape attractiveness, and can make the streetscape environment more pleasant and comfortable. Other improvements include widening and/or separation of the sidewalk, where feasible. Landscaping and sidewalk improvements along the street may be provided within the right-of-way where feasible and as part of private property frontage improvements.

As frontage redevelopment occurs, careful consideration must be given to the design of the transition between updated frontage sections and existing condition frontage sections.

- Street Trees
- Shrubs, groundcovers
- Enhancement and other landscape features
- Separated sidewalk

Landscaping along the public street provides both practical and aesthetic benefits.

4.4.5 Pedestrian Environments

While landscaping and sidewalk improvements are key parts of the pedestrian environment, there are a host of other options that can also contribute to an improved pedestrian experience. Options include pedestrian-scale decorative lighting, wayfinding/informational signage, and street furniture. Pedestrian environment enhancements should use a consistent design theme.

- Decorative Street Lights
- Wayfinding/Informational Signage
- Street furniture

Options to improve the pedestrian environment include pedestrian-scale decorative lighting and street furniture.

4.4.6 Center Turn Lanes

Center turn lanes exist on both Douglas Boulevard and Harding Boulevard in the Plan Area. Improvements to the turn lanes could include the installation of medians/protected turn pockets where appropriate and could also include aesthetic pavement treatments. Also refer to the section on Medians, below. Pavement treatments in the center turn lane do not change the turn lane function but can provide both aesthetic and practical benefits. The use of decorative markings in the center turn lane can help define the boundaries of the travel lanes and provide a decorative visual break in the center of the street. Durability must be considered when selecting a treatment option, because some coating or striping options may wear rapidly and need frequent maintenance.

- Aesthetic Paving
- Median (where one does not currently exist)

Improvements to the turn lanes could include the installation of medians where appropriate.

4.4.7 Medians

A raised median is an area within the paved roadway that separates opposing travel lanes. Medians may be landscaped, hardscaped, and/or defined through barriers (bollards/fencing) and occur in varying widths. Median improvements can include updating or enhancing existing landscaping and/or hardscaping. Where they are wide enough, medians also provide opportunities for locating monuments or gateway signs. Medians can also be used to restrict undesired vehicle or pedestrian movements.

- Updated/Enhanced landscaping
- Decorative hardscape
- Ornamental/Safety Fencing
- Monuments/Gateway Signs

Medians may be landscaped and occur in varying widths.

4.4.8 Gateway Enhancement

Gateways are locations where people are entering the city or the Plan Area. In the Plan Area, gateways include Douglas Boulevard near the intersection of Harding Boulevard, and Harding Boulevard near the intersection of Shadow Ridge. Gateway enhancements can include monument signage, landscaping, hardscaping, and other landscape features (decorative rocks, lighting, etc.) that visually identify or highlight the area.

- Corridor Signage Monument

Gateway enhancements can include monument signage, landscaping, and other features that visually identify the area.

Chapter 5
Utilities and Infrastructure

5.1 Introduction

The Corridor Plan guides the future infrastructure improvements for the corridor to meet the community's needs for the next 20 years.

This chapter addresses the approach to providing adequate and, where needed, upgraded infrastructure and utilities facilities to serve existing and proposed development within the Plan Area. The Plan Area is an infill area that is already developed, but there are opportunities for redevelopment and densification. The City has identified a need for some infrastructure investments that will update aging infrastructure; bring existing, older infrastructure into alignment with modern design standards; and provide capacity to accommodate intensification of development. Each component of the infrastructure system will be designed to accommodate buildout of the Corridor Plan, including the development of additional housing and commercial space to meet the community's needs for the next 20 years. This Corridor Plan provides a comprehensive guide for future plans for the corridor that will help to visualize future changes and set the City up to be competitive for future grant funding opportunities, many of which require projects to be thoroughly planned and "shovel ready" to be considered. The system needs and proposed improvements are described in detail in the following technical studies:

- Commercial Corridors Specific Plans Sewer Evaluation, prepared by Woodward and Curran (Appendix B)
- Potable Water System Hydraulic Evaluation Update, by West Yost (Appendix C)

The technical studies considered the system impacts resulting from implementation of all three of the City's adjacent Corridor Plans: this Corridor Plan, the Atlantic Street Corridor Specific Plan, and the Douglas-Sunrise Corridor Specific Plan. This ensured that the system needs included the cumulative effects of all three plans, since they will use the same conveyance infrastructure during the same period of time.

5.2 Utilities and Infrastructure Goals

GOAL 1: Support the revitalization of the Plan Area by ensuring adequate public utilities are provided to support new development and redevelopment.

Policy 1.1: Support the maintenance, improvement, and construction of adequate infrastructure capable of supporting redevelopment, particularly high density residential development, within the Plan Area. To improve existing conditions and facilitate future development, the City will incorporate needed upgrades in future capital improvement projects and long-range plans.

Policy 1.2: Develop a funding mechanism and seek grant funding to pay for upgrades to existing utilities infrastructure to support existing and new development within the corridor. System upgrades in the Plan Area are needed to support both existing and future conditions. The City will seek grant funding and other sources of revenue to complete the necessary upgrades.

Policy 1.3: Support the undergrounding of utilities, as feasible and as funding becomes available. Undergrounding utilities will create additional space on sidewalks where utility poles and equipment are currently located, which will improve the pedestrian experience in the corridor. The undergrounding of overhead lines will also result in visual improvements to the

corridor, by removing overhead wires and obstructions from the view. Aboveground facilities can also be a constraint to development because such facilities require the maintenance of clear areas around wires and poles that reduces the developable extent of properties. Undergrounding these facilities will facilitate and lower cost barriers to development and redevelopment.

Policy 1.4. Support the extension of utility connections to development and redevelopment sites consistent with Plan goals. Utility infrastructure is available and connected to all sites within the Plan Area. The City will support new lateral connections to the existing system resulting from development and redevelopment. New connections will be required to meet the City's design and construction standards.

5.3 Utilities and Infrastructure Plan

5.3.1 Water

The existing water system within all of the corridors, including the Plan Area, is located primarily within the roadways, though some pipelines extend through commercial properties. The technical memorandum prepared by West Yost, assessed the hydraulic systems in the Plan Areas to determine whether any conveyance system improvements would be needed, either to address existing pipeline constraints or anticipated future constraints. The system was evaluated for both typical use and for fire flow, because fire flow places the highest demand on the system in terms of the minimum pressure and flow speed required. Note that all three Commercial Corridor Plan Areas were evaluated cumulatively to provide a full analysis.

The system evaluation also assumed certain projects to improve the existing conveyance system would be in place in the existing condition, because these projects are currently in the planning, design, or construction stage, or have recently finished construction. In the vicinity of the Plan Areas, this included the following:

- **Tiger Way/Union Pacific Railroad**: Abandonment of a 6-inch diameter pipeline crossing and replacement with a new 12-inch diameter connection.
- **Atlantic Street slip line**: Slip line two 12-inch diameter pipelines with 8-inch diameter pipelines and abandon one 12-inch diameter pipeline.
- **Hillcrest project**: Install 8-inch and 12-inch diameter pipelines in the neighborhood near Hillcrest Avenue. Connect existing pipelines near Evelyn Way and Folsom Road. Abandon existing 6-inch diameter pipeline at the intersection of Sunrise Avenue and Frances Drive and install three new 8-inch diameter mains.
- **I-80 crossing project**: Abandon three pipelines (5-inch, 6-inch, and 8-inch diameter) crossing I-80 and install three 8-inch diameter pipelines to reconnect and loop the system in the area.

Demand

The existing maximum demand in the Plan Area is 0.47 million gallons per day (mgd), and with the project will increase to 0.56 mgd. The future (year 2050)

system demand is forecast to be 0.66 mgd, and with the project will increase to 0.75 mgd. These figures use a unit water demand factor of 177 gpd per dwelling unit (DU) and assume the development of 200 new high density housing units in the Corridor Plan. Combined, the 850 units across the three Corridor Plans have an additional maximum day water demand of 0.30 mgd.

Fire Flow

Fire flow was determined to be the most significant constraint to new development and improvements within all three of the Plan Areas and is considered to be the controlling factor for water system upgrades in the area. To function adequately water pipes must be able to convey the maximum day water demands while maintaining a residual system pressure of 20 pounds per square inch (psi) and without exceeding a flow rate of 12 feet per second. The analysis found that to meet system demands while maintaining the necessary water pressure, some lines would need to be increased in size (diameter).

Water System Support Projects

Some improvements are necessary regardless of the Corridor Plans, while others are necessary because of the units added by the Corridor Plans. The following is a list of projects that will ultimately need to be implemented, identified as Existing System Evaluation and Existing System Plus Corridor Plan projects.

Existing System Evaluation Projects

- Upsize existing pipelines to 8-inch diameter pipelines in various sections of the Atlantic Street Plan Area, including within East, Center, Alola, and Thomas Street. (Atlantic Street Plan Area)
- Upsize existing pipelines to 12-inch diameter pipelines in Walnut and Brookview. (Atlantic Street Plan Area)
- Upsize existing pipelines to 12-inch diameter pipelines in Breuner Drive. (Douglas-Harding Plan Area)
- Upsize existing pipelines to 10-inch diameter pipelines in Jordan Drive and Smith Lane. (Douglas-Sunrise Plan Area)
- Upsize existing pipelines to 12-inch diameter pipelines in Cardinal Way. (Douglas-Sunrise Plan Area)

Existing System Plus Corridor Plan Projects

- Upsize existing pipelines to 10-inch diameter pipelines in Center Street. (Atlantic Street Plan Area)
- Upsize existing pipelines to 12-inch diameter pipelines in a 980-foot section of Cardinal Way (Douglas-Sunrise Plan Area)

As shown above, only one improvement is identified within the Douglas-Harding corridor, and it is needed regardless of the additional demands added by implementation of the Corridor Plan. The total estimated cost of system improvements is approximately $5.1 million (including permitting, engineering, and

construction), with approximately $4.1 million of those costs due to existing system improvement needs and $1 million due to the three Corridor Plans.

5.3.2 Sewer/Wastewater Facilities

The existing sewer system in the Plan Areas is located primarily within the roadways, with the major/regional pipes located in roadways and in open space. The technical memorandum prepared by Woodward and Curran assessed the sewer systems supporting the Plan Area to determine whether any conveyance system improvements would be needed, either to address existing pipeline constraints or anticipated future constraints. Sewer flows from the Plan Area are conveyed through local systems to the South Placer Wastewater Authority Dry Creek Sewer Interceptor and two trunk sewers south of Douglas Boulevard, which carry flows to the Dry Creek Wastewater Treatment Plant.

The system evaluation also assumed one project to improve the existing conveyance system would be in place in the existing condition, because this project is currently underway. This is the Pump Station 26 project, which involves capacity improvements at the pump station and downstream gravity sewers. Similarly, there are future improvements identified that are planned to be online by the time buildout of the area is reached, so these were included in the future conditions without the Corridor Plans. These projects include improvements along Eureka Road and East Roseville Parkway, as well as capacity improvements to Pump Station 25.

Demand

The sewer study evaluated demands in the existing conditions, future conditions, and a “buildout sensitivity” worst-case scenario that considered greater growth at a regional level, in Placer County and in the City’s Downtown Specific Plan. Demand in the existing condition within the Plan Area would be 0.23 mgd, in the future condition would be 0.25 mgd, and in the buildout sensitivity scenario would be 0.34 mgd.

Capacity deficiency or performance criteria are used to determine when infrastructure capacity reaches a stage where an improvement project is needed. The results of this analysis indicate that no improvements are needed in the Plan Area, and that buildout development in the Plan Area do not contribute to the need for future improvements, but in the buildout condition there are four shallow manholes located on a line serving the Douglas-Sunrise Corridor Plan that slightly exceed criteria. These manholes are located within an existing creek which has lower ground elevation, resulting in the allowable height of the manholes to be less than five feet above the crown of the gravity pipeline. Therefore, any amount of additional surcharge in these shallow manholes exceeds the five-foot freeboard standard. Under buildout conditions, with or without the Corridor Plans, the model predicts additional surcharge will be added to the main Cirby Creek Trunk A sewer, which extends to the shallow manholes; the future surcharge condition should be remedied.

The sewer study evaluated a potential solution to relieve Cirby Trunk A, which would consist of the installation of a relief sewer line to convey excess flows into Cirby Trunk B. The project is required due to buildout flows from the sewershed upstream, which includes development both in the City of Roseville as well as other South Placer Wastewater Authority partner agencies. The improvement is not

needed in the existing condition but is needed to support buildout conditions. Though the Corridor Plans do not by themselves trigger the need for the improvement, and the Douglas-Harding Corridor Plan does not contribute to the need for improvements, development in the Douglas-Sunrise Corridor Plan will contribute to cumulative surcharge conditions. The City will need to incorporate these cumulative conditions into future planning and improvement programs.

5.3.3 Stormwater

Stormwater and drainage service for the Plan Areas is provided by the City of Roseville and managed by the Public Works Department. Within the Plan Area, all stormwater and surface water is collected and conveyed into a closed system, which is maintained by the City. The Plan Area are fully developed, with a significant amount of paved or impervious area. During rainfall events stormwater runs swiftly off of these paved areas and into the city's stormwater system. Redevelopment in the Plan Area will not add significant paved or impervious area, since the area is already fully developed. On the contrary, new development and redevelopment will be required to comply with the City's stormwater design standards, which require implementation of Low Impact Development (LID) designs. LID requires the use of stormwater control designs that retain, slow, and treat stormwater runoff. Peak stormwater flows will gradually be decreased as properties within the Plan Area redevelop, because these projects will increase landscaped area and include additional stormwater control measures.

5.3.4 Electricity, Cable, and Telecommunications

Electrical services in the Plan Area are provided by Roseville Electric, while cable and telecommunications services are provided by a variety of providers. Service is primarily conveyed via overhead lines located within and directly adjacent to sidewalks throughout most of the Plan Area, including Douglas Boulevard and most of the side streets. A large segment of Harding Boulevard from the intersection with Douglas Boulevard north to the properties south of Mahan Court has underground lines. Undergrounding overhead lines on Douglas Boulevard would remove encroachments to both the physical and visual environment, by removing poles and other obstacles infringing on the sidewalk and removing overhead wires from the view. In the future, undergrounding of facilities will be assessed on an individual basis as part of a streetscape enhancement project or a private development project, due to the costs of undergrounding. Where cable and telecommunications lines share the same pole structure as the electrical lines, it is anticipated these facilities would be undergrounded as well. The cost to underground lines is estimated to be approximately $3.4 million.

5.3.5 Natural Gas

Natural gas service in the Plan Area is provided by Pacific Gas and Electric (PG&E). The gas mains are generally located within or adjacent to roadway rights-of-way. The Plan Area is serviced with a mix of line sizes. Lines extending to private property would be upgraded or improved as part of redevelopment or development projects. There is adequate gas service to support the Plan Area.

Chapter 6
Design Guidelines

6.1 Introduction

Example of a multifamily residential development facing the commercial corridor with landscaped setback and preserved mature trees within the site.

The purpose of Design Guidelines is to guide future development consistent with the vision and goals of the Corridor Plan. This chapter describes and illustrates site, building, and landscape designs that are appropriate for the Plan Area. These design elements are intended to improve the vitality of existing businesses and will help to attract additional development and redevelopment projects.

This chapter includes general design guidelines using terms like “should” and “encourage,” as well as technical standards using terms like “shall,” indicating that these standards are mandatory. The guidelines are intended to guide development over the life of the Corridor Plan, which is a 20-year period from the original adoption date, and are minimum requirements. Developers may be required to provide additional amenities to meet the goals and policies of the Corridor Plan, based on design review feedback. The Design Guidelines of this Corridor Plan supplement or modify the standards or guidelines from the City’s Community Design Guidelines and Zoning Ordinance. If certain design issues are not specifically addressed in these guidelines, then the aforementioned documents will provide further direction. The City is also amending its General Plan and Zoning Ordinance concurrently with the adoption of the Corridor Plan, in order to ensure consistency with the Plan. Should a conflict between these standards and the City’s Community Design Guidelines arise, the standards contained within this section shall govern. All other sections of the Roseville Municipal Code, including Nuisance Abatement and Sign Ordinance, shall prevail over the Design Guidelines in this chapter. This section, like the entire Corridor Plan document, may only be modified through the processes outlined in the Implementation chapter of this Corridor Plan.

The guidelines and standards found in this chapter are intended to achieve the goals and policies of the Corridor Plan. Conformance with the Design Guidelines will be determined based on an evaluation of a project’s overall consistency with

the guidelines and with the goals and policies of the Corridor Plan, not on consistency with any single guideline.

6.2 Development Standards and Design Guidelines

Design Guidelines are provided for non-residential development, mixed-use development, and residential development projects at densities of 13 units per acre or greater. Residential projects at densities below 13 units per acre are not regulated by this section. This section uses the terms “design review” and “Design Review Permit.” The term “design review” refers to the general review processes, while the term “Design Review Permit” refers specifically to the Design Review Permit approval processes.

6.2.1 Residential – Multifamily/High Density Guidelines

The Development Standards and Design Guidelines of this section apply to development and redevelopment of residential properties within the multifamily residential zone district or to projects with a residential density of 13 units/acre or greater. Deviation from these standards may be permitted, if appropriate, but projects requesting deviation are not eligible for process streamlining. A deviation may be determined to be appropriate where it allows the project as a whole to better conform to the intent and purpose of the Development Standards and Design Guidelines, and to the Corridor Plan goals and policies.

HDR-1 Building height limitations shall be consistent with the regulations of the general zone district of the parcel. Where projects are adjacent to single-family residences, building height shall be designed to blend with the surrounding structures consistent with the following requirements:

a. Buildings shall be no more than one story (not to exceed 15 feet) taller than an adjacent single-family residence for a minimum distance of 30 feet from the shared property line. This shall be referred to as the “30-foot step-back” rule.

b. Beyond the 30-foot step-back, the building may increase in height consistent with the regulations of the general zone district.

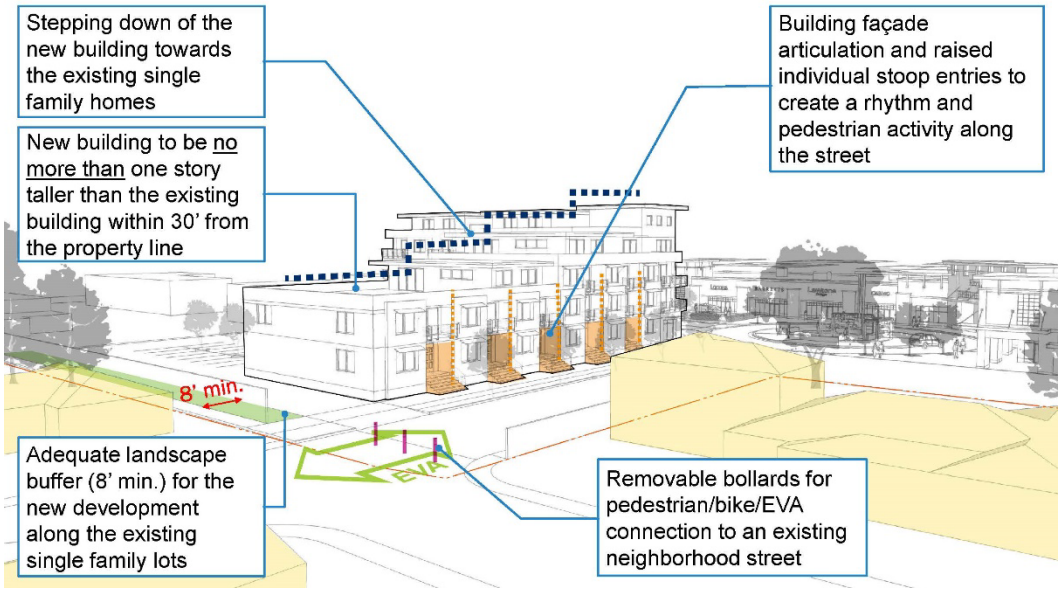
c. Architectural features, mechanical equipment, chimneys, vents, and other architectural or mechanical appurtenances on buildings may be a maximum of 15 percent higher than the applicable height limit.

HDR-2 The following setback rules shall apply:

a. Where adjacent to a single-family residence, a minimum landscaped setback of 8 feet from the shared property line shall be provided to allow for screen trees and other screen plantings.

b. Where projects are not located adjacent to parcels with a single-family residence, appropriate setbacks shall be determined based on design review, and shall include consideration of public utility easements and other factors.

Refer to the Section 6.2.3 Frontage Improvement Guidelines and Standards for additional setback requirements.



A diagram illustrating setback and stepback requirements for new residential development, to be sensitive to the existing single-story homes.

HDR-3 The following private outdoor space shall be provided. For the purposes of this standard, private outdoor space is defined as outdoor space that is usable and accessible only to the unit residents and their visitors, but not to the general public. Appropriate overall lot coverage shall be determined through design review.

a. A minimum of 40 square feet of private outdoor space per residential unit shall be provided directly connected to the unit, such as porches and balconies.

b. Alternatively, common outdoor space may be provided for all or a portion of the required private outdoor space when the following standards are met:

- The square footage of the common area is equivalent to the combined square footage of private outdoor space required for each residential unit,
- The common outdoor space is only available for use by the property residents and their guests; and
- The common outdoor space provides amenities such as a BBQ and gathering space.

Common outdoor space for resident- and guest-use only, such as shown in the above picture, may be counted towards private outdoor space requirements.

HDR-4 For properties west of the intersection of Douglas Boulevard and Folsom Road, retain or repeat three or more traditional façade components and design styles (e.g. gables, wood siding, and brick) as part of new development and redevelopment projects. Creative interpretations of traditional design styles and components are encouraged, but developments should respect the existing design styles and themes present in the area, as follows:

a. The use of traditional building materials such as unpainted brick, masonry, and wood is strongly encouraged.

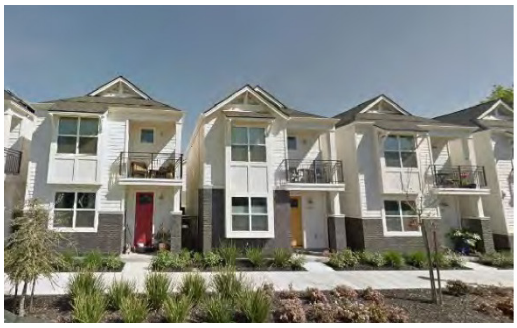
b. The use of pitched roofs, gables, and other traditional roof forms is strongly encouraged.

c. Consistent with the residential design of the area, garages should be set farther back from the street than the façade of the home.

d. No fewer than three colors should be used on a façade (including natural material colors, such as brick), and colors should be harmonious with adjacent residential buildings.

e. The use of metal shall be restricted to accessory features (e.g., balcony railing), the use of cement plaster and similar modern materials shall be minimized.

(Left) Example of brick as a primary material, with metal accents used for awnings and balcony railings. (Right) Glass may be permitted as a primary material for retail uses at the ground level of a mixed-use building.




Examples of traditional building forms and materials as a transition to existing single-family neighborhoods with similar character.

HDR-5 Porches located within 10 feet of a public sidewalk shall be elevated a minimum of two feet from the adjacent public sidewalk.

Porches located within 10 feet or a public sidewalk shall be elevated a minimum of 2 feet.

HDR-6 In addition to the standards of the citywide Community Design Guidelines, the following minimum landscaping standards shall apply to development:

a. Screen plantings shall be a minimum of 5 gallon in size to provide immediate effectiveness.

b. Trees shall be a minimum of a 15-gallon size.

c. Landscaping shall include annuals, perennials, groundcover, shrubs, trees, or other living vegetation. Design elements like planters, rocks, mulch, or similar elements are permitted when integrated as part of the landscape. Rock, bark (shredded bark is prohibited), or mulch shall be installed to a minimum depth of three inches.

6.2.2 Commercial and Mixed-Use Guidelines

The design guidelines and development standards of this section apply to all non-residential development and to vertical mixed-use projects which include residential uses. Horizontal mixed-use projects shall use these standards for the non-residential portions of site development and the residential standards for the residential portions of site development.

CMU-1 Provide a clearly marked path of pedestrian travel between the sidewalk and building entrances, using the most direct route reasonable. A direct route minimizes the distance traveled by pedestrians from surrounding residential neighborhoods to the building entry.

a. Paths should minimize routing pedestrians across driveways and drive aisles.

b. Paths should provide physical separation of the pathway from streets and drive aisles through landscaping.

CMU-2 Commercial projects should be sited, oriented, and designed to provide inviting, pedestrian-focused entries.

a. When adjacent to residential neighborhoods or when separated from a residential neighborhood by a local or collector roadway, avoid facing passive or service-oriented building sides toward the residential neighborhood to the extent feasible.

b. Where this cannot be avoided, the building shall be designed with faux storefronts, windows, screening, landscape treatments, and/or other features to appear activated.

CMU-3 Building height limitations shall be consistent with the regulations of the general zone district of the parcel. Where projects are adjacent to single-family residences, building height shall be designed to blend with the surrounding structures consistent with the following requirements:

a. Buildings shall be no more than one story (not to exceed 15 feet) taller than an adjacent single-family residence for a minimum distance of 30 feet from the shared property line. This shall be referred to as the “30-foot step-back” rule.

b. Beyond the 30-foot step-back, the building may increase in height consistent with the regulations of the general zone district.

c. Architectural features, mechanical equipment, chimneys, vents, and other architectural or mechanical appurtenances on buildings may be a maximum of 15 percent higher than the applicable height limit.

CMU-4 The following setback rules shall apply:

a. Where adjacent to a single-family residence, a minimum landscaped setback of 8 feet from the shared property line shall be provided to allow for screen trees and other screen plantings.

b. Where projects are not located adjacent to parcels with a single-family residence, appropriate setbacks shall be determined based on design review, and shall include consideration of public utility easements and other factors.

Refer to the Section 6.2.3 Frontage Improvement Guidelines and Standards for additional setback requirements.

CMU-5 Where projects occur on parcels with frontage on Douglas Boulevard, Harding Boulevard, South Harding Boulevard, or Estates Drive, new buildings shall be sited along the frontage, to provide an activated streetscape.

New buildings at a street corner shall address both streets with equal level of detail, with ground retail uses wrapping around the corner of the building.

CMU-6 Projects on corner properties at prominent intersections are community gateways and should be of the highest design quality and shall be developed consistent with standard FI-4 of the Frontage Improvement Guidelines and Standards. Prominent intersections in the Plan Area are Douglas/Harding, Douglas/Lead Hill, Douglas/Estates, and Douglas/Folsom.

CMU-7 Drive-thru lanes which are visible from the street shall be screened using walls with a minimum height of three feet. Landscaping may be used instead of or in combination with a wall but shall provide a dense hedge that provides a similar level of screening as a solid wall. This landscaping shall be maintained at all times to meet this standard.

6.2.3 Frontage Improvement Guidelines and Standards

The Design Guidelines and Development Standards of this section apply to all development and redevelopment projects occurring on parcels with frontage on the following roadways: Douglas Boulevard, Harding Boulevard, South Harding Boulevard, Estates Drive, and Folsom Road. The purpose of these Design Guidelines and Development Standards is to facilitate the implementation of the streetscape concepts found in the Circulation chapter. This section does not apply to projects limited to façade improvements. This section applies to projects which add building square footage, include ground-disturbing construction, and/or are significant tenant improvement projects, as determined by the Planning Manager.

FI-1 New development and, to the extent feasible and reasonable, redevelopment shall increase the existing sidewalk width to a minimum of 5 feet. Sidewalks shall be separated when feasible. Where separated sidewalks are installed, landscaping shall be installed between the sidewalk and the street.

FI-2 Landscaping shall be provided alongside the sidewalk.

a. Deciduous, large canopy trees (as defined by the Community Design Guidelines) shall be planted along the street, ideally 30 feet on center, to allow the tree canopies to touch at maturity.

b. A minimum planter width of eight feet shall be provided along the back of the sidewalk, or in the case of separated sidewalk may occur in two planters on either side of the sidewalk that total eight feet in width. Porches, stairs, and building entry features may extend into this landscape area. Understory planting can be ornamental and can consist of clipped hedges, flowering shrubs, and groundcovers.

c. Landscape materials should use water-conserving species and incorporate trees, shrubs, and groundcovers that harmonize with the overall landscape theme of adjacent frontages, in cases where the adjacent frontage has been updated consistent with this design guideline. Turf shall be avoided.

Formal tree plantings along the street will provide adequate shade for the pedestrian at maturity.

FI-3 Where appropriate, frontage improvements should include site furnishings.

a. Site furnishings may include short-term seating, artwork, bicycle racks, and other furnishings.

b. Furnishings should be durable and long-lasting, and the color and style should complement the architecture of the building and surrounding neighborhood.

c. Furnishings shall not impede pedestrian travel or accessibility.

FI-4 Projects on the corners of prominent intersections should be treated as community gateways and should be of the highest design quality. Prominent corners occur at the following intersections: Douglas Boulevard/Harding Boulevard/South Harding Boulevard, Douglas Boulevard/Folsom Road, Harding Boulevard/Estates Drive, and Harding Boulevard/Lead Hill Boulevard. The following standards apply to development of properties on prominent corners:

a. New or modified drive-thru lanes, gas canopies, service bays, and other utilitarian building functions shall not be located adjacent to the street or street landscape corridor and shall be located further from the street than the primary building.

b. New buildings shall be located toward the street at the back of the landscape corridor, to provide massing and visual interest to frame the intersection.

c. Landscape and hardscape elements shall be installed within the corner clip (a triangular area on the corner of a property at the intersection, which at minimum is inclusive of the clear vision triangle as defined by the Municipal Code Section 19.95.030 C), to provide an engaging corner presence. Hardscape features may include monuments, walls, pilasters, raised planters, plazas, and/or other architectural elements. Landscaping shall use a mix of shrubs and groundcover. New gasoline or fuel price signage shall not be located on the corner.

d. Passive building sides shall not be oriented toward the sidewalk or shall be designed with faux storefronts, windows, and other features to appear activated.

Example of a passive building side designed with faux storefronts, windows, and other features to appear activated.

e. No fewer than three harmonious colors should be used on a façade (including natural material colors, such as brick).

f. The use of exposed concrete masonry units (CMU) or other low-quality materials shall be avoided.

FI-5 Defined pathways shall be provided from the sidewalk to the building entrance. Pathways should provide the shortest reasonable linkage between the building entrance and bus stops, crosswalks, or other pedestrian linkages.

Pathways should provide the shortest reasonable linkage between the building entrance and sidewalk.

Chapter 7
Implementation

7.1 Introduction

The Implementation chapter provides the process for entitlements/ approvals of individual development projects as well as future changes to the Corridor Plan.

This section of the Corridor Plan describes implementation strategies related to regulatory changes, design review, and other implementing processes. The Corridor Plan is a long-term, 20-year plan that provides direction for redevelopment and new development in the Douglas-Harding corridor. The implementation of the Corridor Plan is a public-private partnership between the City of Roseville and property owners and developers who undertake improvements and projects in the Plan Area.

This Corridor Plan is a specific plan as defined by California Government Code Section 65450 et seq. Specific plans are an implementing mechanism of a General Plan. While the General Plan enacts the long-term, overarching vision for growth and development in the city, a specific plan within the city establishes overarching design standards, land uses, and infrastructure plans for the development of a specific geographic area. The City of Roseville General Plan Land Use Element states that it is the City's policy to plan for new development and reinvestment efforts through the specific plan process. The Corridor Plan, formally referred to as the Douglas-Harding Corridor Specific Plan, is consistent with the Guiding Principles for Growth and the goals and policies of the General Plan.

The Roseville Municipal Code is the base-level implementing mechanism of the General Plan and specific plans (including the Corridor Plans), and includes detailed development standards, permitted uses, and other regulations. The Municipal Code's key components are the City's Zoning Ordinance, Subdivision Ordinance, and Tree Ordinance, which are used in tandem with the Corridor Plan to implement development. The Municipal Code is citywide, and in some instances the Corridor Plan modifies the permitted uses, development standards, planning processes, and other regulations to reflect the unique identity of the Plan Area and the intent of the Corridor Plan. This is reflected by the Special Area (SA) overlay zone used throughout the Plan Area. The zoning regulations provided in Roseville Municipal Code Chapter 19.33, establishing the Commercial Corridor Specific Plans Special Area District, define the development standards, approval processes, nonconforming use regulations, and other standards applicable in the Plan Area. Where these regulations are silent the other regulations of Roseville Municipal Code Chapter 19 (Zoning Ordinance) control.

This chapter includes discussion and policy direction for the following implementation strategies and procedures:

- Entitlements and Approvals: This section describes the entitlement or approval process for development projects in the Plan Area, including new construction, redevelopment, and modification. This section also addresses non-conforming uses. The regulations governing these processes are found in Roseville Municipal Code Chapter 19.33.
- Administration, Amendments, and Revisions: This section establishes the process for making changes to the Corridor Plan.

7.2 Entitlements and Approvals

A primary goal of the Douglas-Harding Corridor Specific Plan is to simplify and streamline the development review process and remove barriers to reinvestment, particularly for high density housing and commercial reinvestment. The purpose of this section is to provide a description of the approval process for different types of development, redevelopment, and site or building modification. The regulatory entitlement and approval procedures for development in the Plan Area are found in Roseville Municipal Code Chapter 19.33. A summary description of these procedures is included below. Also refer to the Land Use chapter policy regarding tribal coordination.

Any use which would require an Administrative Permit or Use Permit, but existed on a property before this Corridor Plan was adopted, will remain legal uses.

7.2.1 Administrative Permits and Use Permits

The use tables of Roseville Municipal Code Chapter 19.33 determine whether a proposed use is allowed (principally permitted), allowed after approval of an Administrative Permit (administratively permitted), or allowed after approval of a Conditional Use Permit (conditionally permitted). For some uses the table indicates the use is P/CUP or P/A/CUP, which means the use may be principally permitted under certain conditions (usually because it is not next to residential uses), and otherwise requires an Administrative Permit or a Use Permit. The table footnotes provide the conditions for determining the permissibility of the use.

7.2.2 Design Review Process

To facilitate redevelopment and site improvement the approval processes applicable in the Plan Area provide streamlining for certain project types; project types not listed are not eligible for streamlining. This section describes the types of improvements anticipated in the Plan Area and the approval process required for each, which are defined and regulated by Roseville Municipal Code Chapter 19.33. Figures 7.1 and 7.2 provide a schematic overview of the review and approvals process for non-residential and multifamily residential projects, respectively.

Façade Improvements

Façade improvements consistent with the Corridor Plan Design Guidelines will be approved through the Minor Design Review Permit process. Façade improvements include color changes and/or the introduction of new exterior building materials (stucco, wood siding, etc.), doors, or windows; wall murals; the addition of features like awnings and lighting; or other exterior changes or exterior remodels to existing buildings or structures. The Minor Design Review Permit is an over-the-counter permit, which requires notice of the proposed change be posted on the building for 10 days. A member of the public can respond to the notice and request a public hearing. If a request for a hearing isn't received, then after the 10-day notice the permit can be approved.

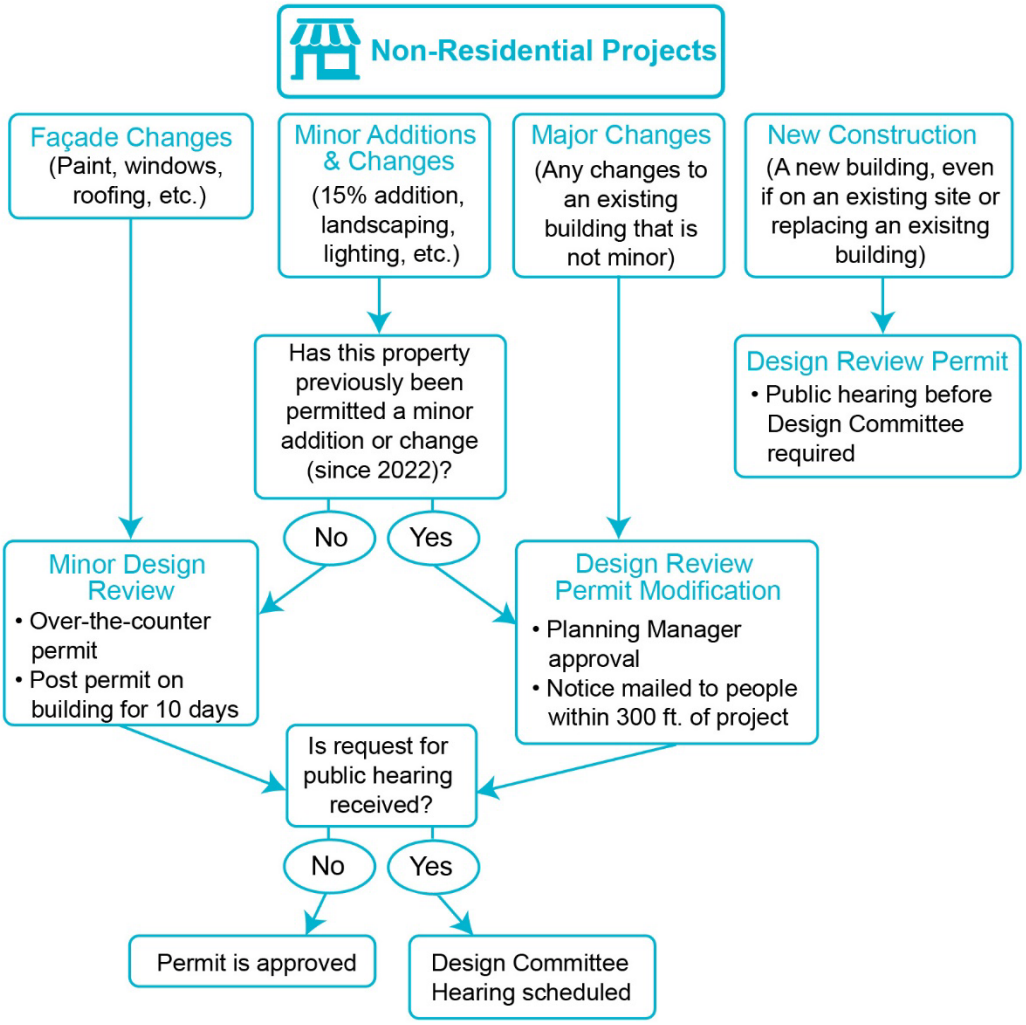


Figure 7.1 | Development Review and Approvals Process for Non-Residential Projects

Minor Additions and Minor Site Improvements – Non-Residential

To facilitate commercial property improvements, a streamlined process for small building additions and site improvements is provided. These are generally intended to cover changes to a building or site that provide an opportunity to improve the site's conformance with the Corridor Plan Design Guidelines, like adding landscaping, updating the design of a parking lot, or developing a new building entry. These minor projects will be approved through a Minor Design Review Permit. The Minor Design Review Permit is an over-the-counter permit, which requires notice of the proposed change be posted on the building for 10 days. A member of the public can respond to the notice and request a public hearing. If a request for a hearing isn't received, then after the 10-day notice the permit can be approved.

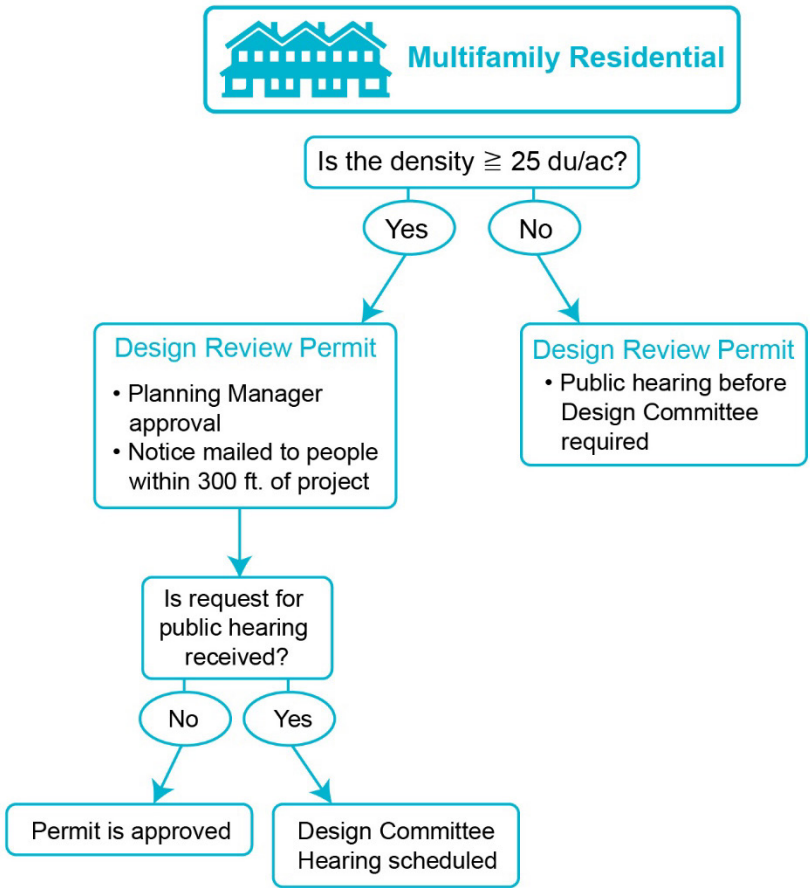


Figure 7.2 | Development Review and Approvals Process for Multifamily Residential Projects

Additions and New Construction – High Density Residential

To facilitate new high density multifamily developments a streamlined process for these developments is provided. Whether developing a vacant site or redeveloping an existing site, the project will be required to make site improvements consistent with the Corridor Plan Design Guidelines in order to be eligible for streamlining. These projects will be processed through a streamlined Design Review Permit which does not require a public hearing; however, notice must be mailed to all properties within 300 feet (per the City's standard mailing notice procedures), and if a request for a public hearing is received, then a public hearing on the project will be held. This process preserves the ability of the community to provide input on projects which are of concern, while allowing projects which do not generate concern to continue forward with the more streamlined process.

Parking Reduction

A parking reduction is a process available to commercial projects, and allows an applicant to provide less parking than the Zoning Ordinance requires for one (or both) of the following reasons:

- The commercial use is unique and documentation of the same or similar uses elsewhere shows that less parking is needed than is typical. Past examples of this include specialized medical clinics (like a dialysis center) which have a

relatively large amount of floor area to accommodate equipment and rooms, but have only a few patients in the building at a time, or for more extended periods of time. These facilities do not need as much parking as a typical doctor's office.

- The commercial property has shared parking across an entire center, so while there are fewer spaces on the commercial parcel in question, there are enough spaces within the shared center.

A parking reduction typically requires approval of an Administrative Permit in addition to any other land use permits that may be required, like a Design Review Permit. To provide streamlining, a parking reduction may be processed as part of a Design Review Permit, instead of requiring a separate Administrative Permit.

Nonconforming Uses and Buildings

The Plan Area include properties on the roadway frontage which have been in commercial use but have residential zoning. For example, 234 Donner Avenue is zoned R3 (multifamily) but contains a small office building and parking lot, making it a "nonconforming use." A nonconforming use (or building) occurs when either the use of the property or the building on the property isn't allowed by the Zoning Ordinance, or is not consistent with a setback or other standard. This often occurs because the building was developed before the City's current standards were adopted. The Zoning Ordinance generally prohibits expanding or modifying a nonconforming commercial use or a nonconforming commercial building. This means a property owner may not have incentives to maintain their property in good condition and may prevent beneficial improvements. Since there are many properties in this condition in the Plan Area the nonconforming use and building regulations applicable to the Plan Area allow expansion of use or of buildings as long as the expansion improves the property and will not create nuisance conditions for any neighboring residential properties (see Municipal Code Chapter 19.33).

7.3 Administration, Amendments, and Revisions

Proposed changes to a specific plan, such as this Corridor Plan, typically require approval of a Specific Plan Amendment (SPA). Specific Plan Amendments are processed in the same manner as the initial specific plan adoption, requiring review by the Planning Commission and action by the City Council. However, because the Plan Area will redevelop over several decades, it is anticipated that the Corridor Plan may need to respond to changing conditions and community expectations.

To provide a degree of flexibility to respond to changing conditions, the Douglas-Harding Corridor Specific Plan allows for administrative approval of Minor Revisions, including revisions to the development standards and design guidelines. The Planning Manager, or designee, shall determine whether a proposed revision is minor, and may act upon a Minor Revision administratively, as specified below. A Minor Revision may be processed and acted on administratively if determined by the Planning Manager to be in substantial conformance with:

1. The overarching vision and goals of the Corridor Plan, including applicable development standards and design guidelines;
2. The City of Roseville General Plan; and
3. The Corridor Plan environmental document.

Examples of Minor Revisions include but are not limited to:

- The addition of new or updated information that does not substantively change the Corridor Plan.
- Minor modifications to, and interpretations of, the development standards as permitted by Section 19.74.020 of the Roseville Municipal Code for Administrative Variances, if it is determined that such changes are equal to or better than the original intent of the Corridor Plan.
- Modifications to the Design Guidelines if it is determined that the design intent is maintained or improved.

Any proposed Minor Revision to the Corridor Plan may, at the sole discretion of the Planning Manager, be referred to the Planning Commission and City Council for action. Determinations and actions by the Planning Manager may be appealed to the Planning Commission. If the Planning Manager determines that a proposed amendment does not meet the above criteria, a Specific Plan Amendment (SPA) shall be required.

Appendix A

Estimate of Probable Construction Costs

ROSEVILLE CONCEPTUAL STREETSCAPE OPTIONS

Conceptual Level Estimate

prepared on: 4/20/2022

MARK THOMAS

Item #	Description	Unit	Cost
A	**Intersection**		
1.	Corner Treatments	SQFT	$45.00
2.	Crosswalk Treatments	SQFT	$25.00 to $45.00
B	**Transit Stop Enhancement**		
3.	Public Art Installation	EA	$30,000.00 to $50,000.00
4.	Site Furnishings	EA	$2,500.00
5.	Shelter/Shade	EA	$10,000.00 to $15,000.00
C	**Landscape / Sidewalk**		
6.	Street Trees	EA	$500.00
7.	Shrub / Groundcover Enhancements and Other Landscape Features	SQFT	$10.00 to $18.00
8.	Separated Sidewalks	SQFT	$25.00 to $35.00
D	**Center Turn Lane / Raised Median Enhancements**		
9.	Aesthetic Paving (center turn lane)	SQFT	$25.00 to $45.00
10.	Median	SQFT	$50.00 to $75.00
E	**Pedestrian Environment**		
11.	Decorative Street Lights	EA	$8,000.00
12.	Wayfinding/Informational Signage	EA	$2,000.00
13.	Street Furniture	EA	$2,500.00
F	**Gateway Enhancement**		
14.	Corridor Signage Monument	EA	$15,000.00 to $100,000.00
G	**Prominent Corners**		
15.	Enhanced Landscaping	EA	$50.00 to $75.00
16.	Public Art Installation	EA	$30,000.00 to $50,000.00
17.	Monuments/Landscape Features	EA	$15,000.00 to $100,000.00
H	**Utility Undergrounding**		
18.	Douglas Corridor Utility Undergrounding (West of Interstate 80)	LS	$2.9 Million to $3.4 Million

Estimate Notes

1) This estimate has been developed for the purpose of establishing an anticipated project construction budget. The items, amounts, quantities, and related information provided are based on Mark Thomas's judgment at this level of document preparation and is offered only as reference data. Mark Thomas has no control over construction quantities, costs and related factors affecting costs, and advises the client that significant variation may occur between this estimate of probable construction costs and actual construction prices.

2) Adding a 20% continecy is recommended at this conceptual stage in combination with rising inflation.

3) Planting related items, such as trees and shrub/groundcovers, includes cost for basic irrigation system (watering emitters and lateral pipe) but does not include cost for establishment and installation of irrigaiton point of connection and related appurtenances (water tap, water meter, backflow preventer, controller, master valve, etc)

4) Utility Undergrounding items do not include acquisition of right of way or easements. Undergrounding of existing utilities is not feasible for existing overhead utilties along Folsom Road and Sunrise Blvd, per assessment by Roseville Electric.

Appendix B

TECHNICAL MEMORANDUM

TO: Lauren Hocker, City of Roseville

PREPARED BY: Dylan Merlo, Woodard & Curran
Chris van Lienden, CA PE 75034, Woodard & Curran

REVIEWED BY: Gisa Ju, CA PE 31823, Woodard & Curran
Dave Richardson, Woodard & Curran

DATE: April 25, 2022

RE: Commercial Corridors Specific Plans Sewer Evaluation

The City of Roseville is proposing new specific plans to support development in three adjacent commercial corridors: Atlantic Street Corridor, Douglas-Harding Corridor, and the Douglas-Sunrise Corridor. The specific plans anticipate new residential and commercial mixed-use zones in each commercial corridor, with a significant increase in the number of multi-family residential units. **Figure 1** shows the conceptual land uses proposed for these areas.

Sewer flows from the three specific plan areas are conveyed through local sewers to the South Placer Wastewater Authority (SPWA) Dry Creek Sewer Interceptor and two trunk sewers (referred to as Cirby Creek Trunk A and B in this evaluation) near south of Douglas Blvd, which carry flows from the City and South Placer Municipal Utility District (SPMUD) to the Dry Creek Wastewater Treatment Plant (Dry Creek WWTP). The purpose of this study is to identify any potential capacity deficiencies in the sewers that the specific plan developments would cause, and develop potential improvements to mitigate those deficiencies.

This Technical Memorandum (TM) describes the approach used for the assessment, the criteria applied to estimate potential flows and identify capacity deficiencies, and the results of the modeling. To conservatively estimate potential future flows, the specific plans were evaluated collectively; that is, it has been assumed that all three specific plans will be implemented concurrently.

1. MODEL NETWORKS

A sewer model including all of the sewers in the City was recently developed as part of the 2017 City of Roseville Sewer Model Update (2017 Model Update). Subsequently, a capacity evaluation of the SPWA trunk sewers was also conducted for the 2020 South Placer Wastewater Authority Systems Evaluation (2020 Systems Evaluation), which also updated flow projections from Placer County and SPMUD (the City indicated that flow projections from the 2017 Model Update were sufficiently up to date). In addition, the 2020 Systems Evaluation proposed capacity improvements that could increase flows through the Dry Creek Sewer Interceptor under future design storm conditions. As the model used in the 2020 Systems Evaluation included only trunk sewers (including the Dry Creek Interceptor), the all-pipe model from the 2017 Model Update was updated to reflect updates from the 2020 Systems Evaluation, and used as the basis for the evaluation for this study. The modeled network, including the location of the proposed capacity improvement projects and the specific plan areas, are shown in **Figure 2**.

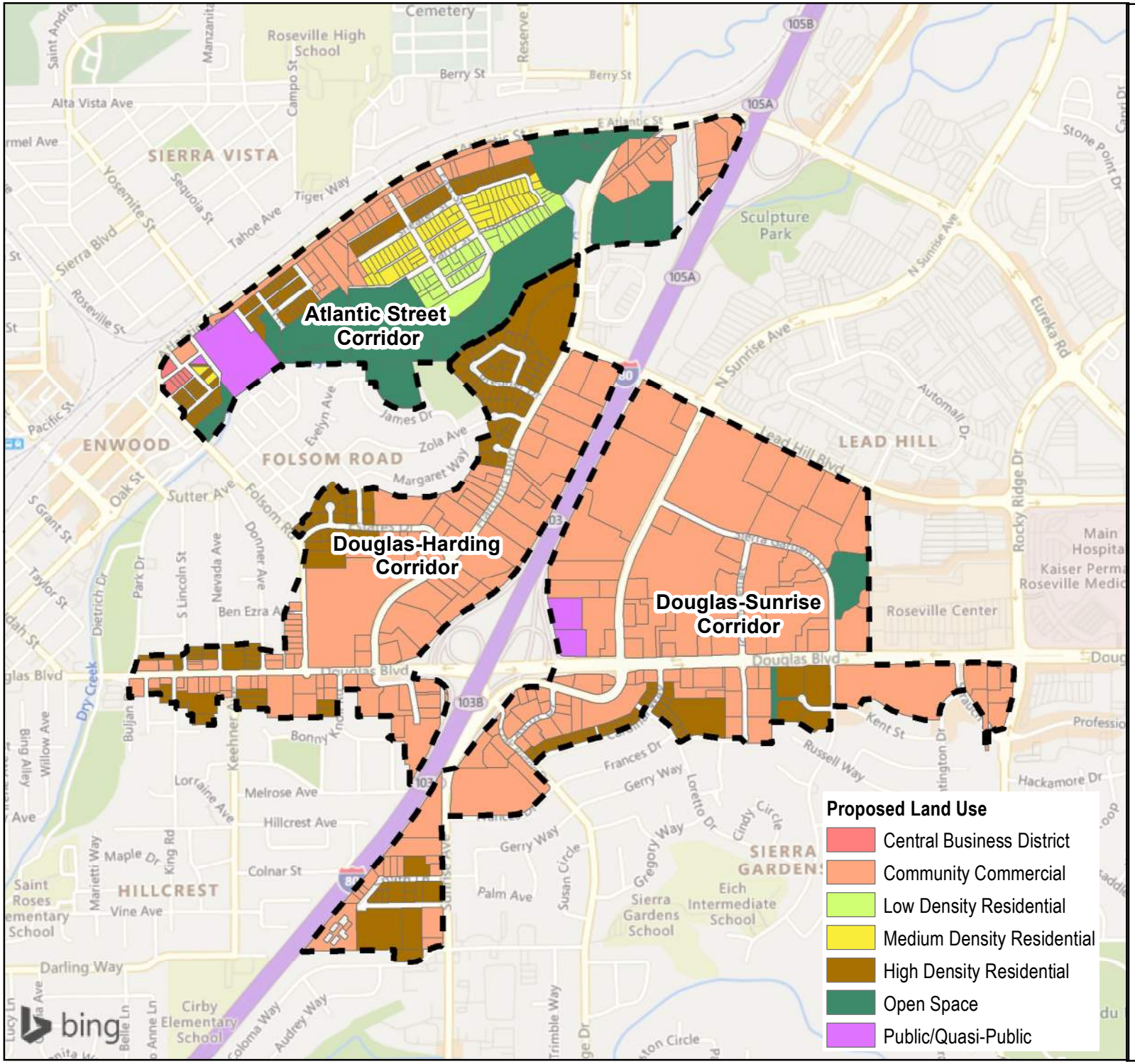


Figure 1
Conceptual Proposed Land Uses

City of Roseville
Commercial Corridors
Specific Plans
Sewer Evaluation

N

0 405 810 1,620 Feet

CITY OF ROSEVILLE CALIFORNIA

WOODARD & CURRAN

Project #: 001967.00
Map Created: August 2021

Atlantic Street Corridor

Douglas-Harding Corridor

Douglas-Sunrise Corridor

Dry Creek Interceptor

Project 3: Pump Station 25 Improvements

Project 2: Eureka Rd, E Roseville Pkwy Improvement

Dry Creek

Cirby Creek Trunk A

Cirby Creek Trunk B

Project 1: Sierra College Blvd Improvement

Project 1: Pump Station 26 Capacity Improvement

Figure 2
Proposed Specific Plans and Sewer System

City of Roseville
Commercial Corridors Specific Plans
Sewer Evaluation

- Pump station
- Wastewater treatment plant
- Regional gravity sewer
- Regional force main
- City sewer with Specific Plan flows
- Other City sewer
- Regional sewer with Specific Plan flows
- 2020 Systems Evaluation identified improvement projects
- Atlantic Coridor
- Douglas-Harding Corridor
- Douglas-Sunrise Corridor

0 500 1,000 2,000 3,000 4,000 Feet

N

Project #: 001967.00

Map Created: August 2021

Figure Exported: 8/18/2021 By: cvanlienden Using: \\woodardcurran.net\shared\Projects\0011967.00 Roseville Com Corridors Sewer Model Support\wip\C. GIS\MXDs\2 - Specific Plan Areas & Sewer System.mxd

Note that the model includes the proposed projects from the 2020 Systems Evaluation. These improvements divert flow from the trunk sewers on Old Auburn Road and Sierra College Boulevard to the north, upstream of the proposed Corridor developments. Project 1, capacity improvements at Pump Station 26 and downstream gravity sewers, was identified as an improvement needed under existing conditions. The project is anticipated to be completed in the near future and was included in the Existing Network for this study to conservatively represent flows. Projects 2 and 3, which include improvements along Eureka Road, and E. Roseville Parkway, as well as capacity improvements to Pump Station 25, were identified as improvements needed under buildout conditions, and were included in the Buildout Network.

2. BASIS OF FLOW ESTIMATES

This section describes the wastewater flow components used in the hydraulic model and the existing and projected future land uses for the service area, which form the basis for generating base wastewater flows. Design flow estimates were developed based on criteria developed for each flow component: base wastewater flow (BWF), groundwater infiltration (GWI), and rainfall-dependent infiltration and inflow (RDI/I), and confirmed through model calibration as part of the 2017 City of Roseville Sewer Model Update.

2.1 Loading Scenarios

The model network includes four loading scenarios developed for the 2017 Model Update and updated for the 2020 Systems Evaluation:

- Existing Scenario – representing sewer flows based on model calibration.
- Existing Scenario plus Drought Rebound – representing sewer flows in the existing system that would be expected after water consumption is no longer affected by drought-induced conservation.
- Buildout Scenario – representing sewer flows incorporating currently anticipated development density.
- Buildout-Sensitivity Scenario – a theoretical scenario representing higher density development in Placer County, plus intensification and redevelopment in the downtown Roseville area.

For this study, the Existing Scenario plus Drought Rebound, the Buildout Scenario, and the Buildout-Sensitivity Scenario were used to evaluate the impacts of the proposed specific plan developments. Note that the Buildout-Sensitivity Scenario assumed redevelopment and intensification of portions of all three proposed specific plan areas (**Figure 3**), based on parcel-based classifications developed for the 2009 Systems Evaluation. Unit flow factors for the parcels in the redevelopment area are summarized in **Table 1**. More detailed information on the redevelopment land uses inside the City is included in TM 9C of the 2009 Systems Evaluation. For the purpose of the Buildout-Sensitivity Scenario evaluation, the projected flows based on the specific plan land uses were compared to projected flows based on redevelopment for these areas, and the larger flows were used. Based on this comparison (see section 2.2), the Buildout-Sensitivity Scenario used the redevelopment flow projections for these areas.

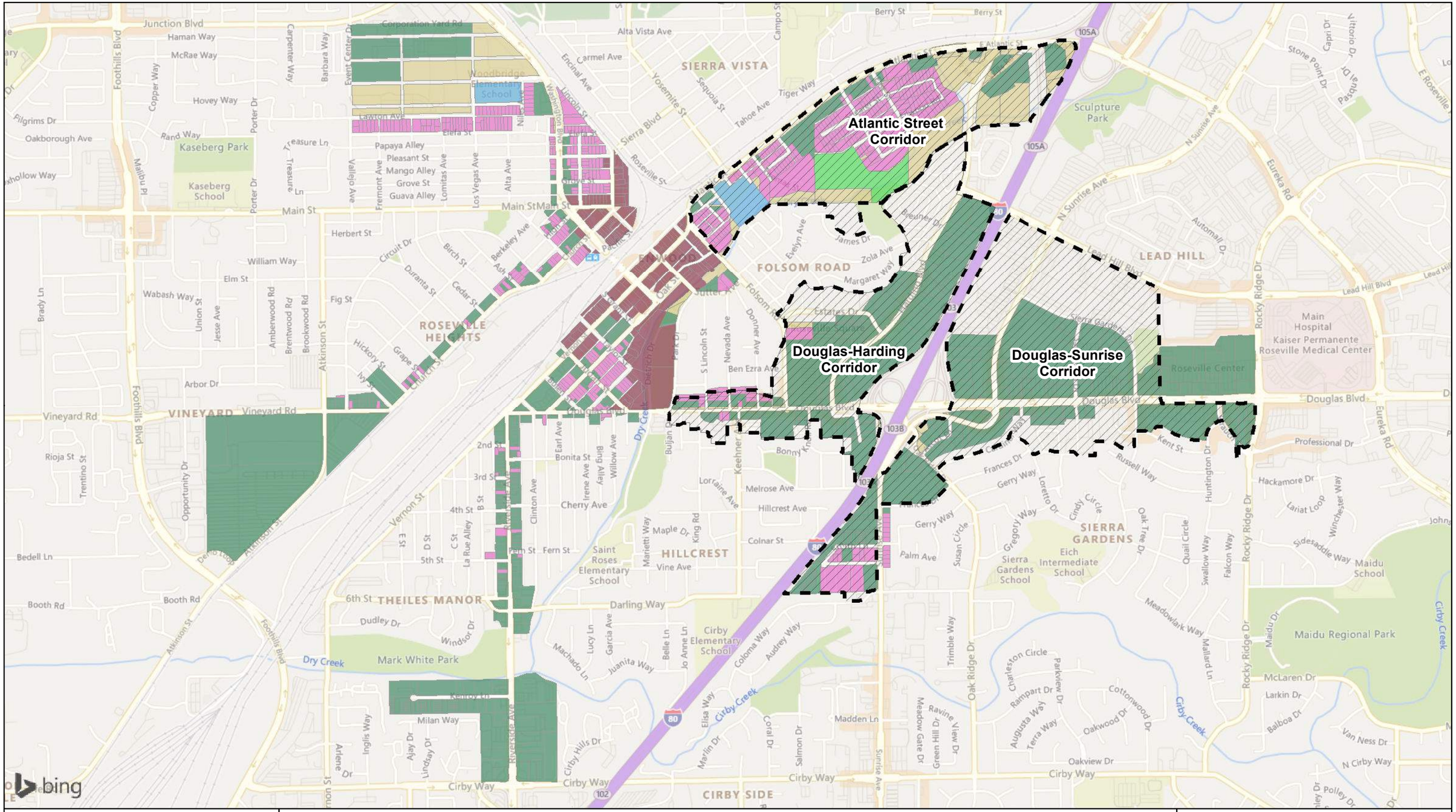


Figure 3
Buildout-Sensitivity Scenario Land Uses

City of Roseville
Commercial Corridors Specific Plans
Sewer Evaluation

Specific Plan Area

Redevelopment Land Use

- Open Space
- Parks
- Schools
- Residential Multi-Family
- Intense Commercial
- Very Intense Commercial

0 500 1,000 2,000 Feet

N

Project #: 001967.00

Map Created: August 2021

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. Data Sources: City of Roseville, RMC Water & Environment

CITY OF ROSEVILLE CALIFORNIA

WOODARD & CURRAN

Figure Exported: 8/18/2021 By: cvanlienden Using: \\woodardcurran.net\shared\Projects\001967.00 Roseville Com Corridors Sewer Model Support\wip\C. GIS\MXDs\3 - Buildout-Sensitivity Land uses.mxd

Table 1: Redevelopment Land Use Flow Factors

Corridor	Unit Flow Factor[a]
Multi-Family Residential	2,040 gpd/acre[b] OR 130 gpd/unit
Intense Commercial	2,720 gpd/acre
Very Intense Commercial	10,200 gpd/acre
Open Space	0 gpd/acre
Parks > 10 Acres	10 gpd/acre
Vacant	0 gpd/acre
Multi-Family Residential	2,040 gpd/acre[b] OR 130 gpd/unit

Footnotes:
a. Flow factors based on the 2009 *SPWA Systems Evaluation*
b. Equivalent to 17 multi-family dwelling units per acre

2.2 Flow Projection Updates

The flows for the three specific plan areas were estimated based on the projected units summarized in Table 2 below. Note that 500 of the 600 additional residential units in the Douglas-Sunrise Corridor were assigned to a proposed development at 201 North Sunrise Avenue. The additional proposed residential units were estimated using the unit factor 130 gallons per day per dwelling unit (gpd/DU) used for multi-family units in the 2017 Model Update. These loads were distributed amongst the identified residential development parcels in proportion to parcel area (acreage).

Table 2: Commercial Corridor Development

Corridor	Additional Residential Units
Atlantic Street Corridor	50
Douglas-Harding Corridor	200
Douglas-Sunrise Corridor[a]	600

Footnotes:
a. 500 of the additional residential units were assigned to a proposed development at 201 North Sunrise Avenue.

The specific plans envision redevelopment and reinvestment of commercial uses, rather than adding additional square footage. Therefore, the model does not include additional estimated commercial flows beyond what is already included for commercial development in the loading scenarios.

The sewer flows from each specific plan area for each of the modeled scenarios are summarized in Table 3.

Table 3: Modeled Dry Weather Sewer Flows

Corridor	Existing + Specific Plans (mgd)	Buildout + Specific Plans (mgd)	Buildout-Sensitivity[a] (mgd)
Atlantic Street Corridor	0.06	0.08	0.17
Douglas-Harding Corridor	0.23	0.25	0.34
Douglas-Sunrise Corridor	0.33	0.34	0.49

Footnotes:
a. Incorporates redevelopment land uses and flow factors described in Section 2.1.

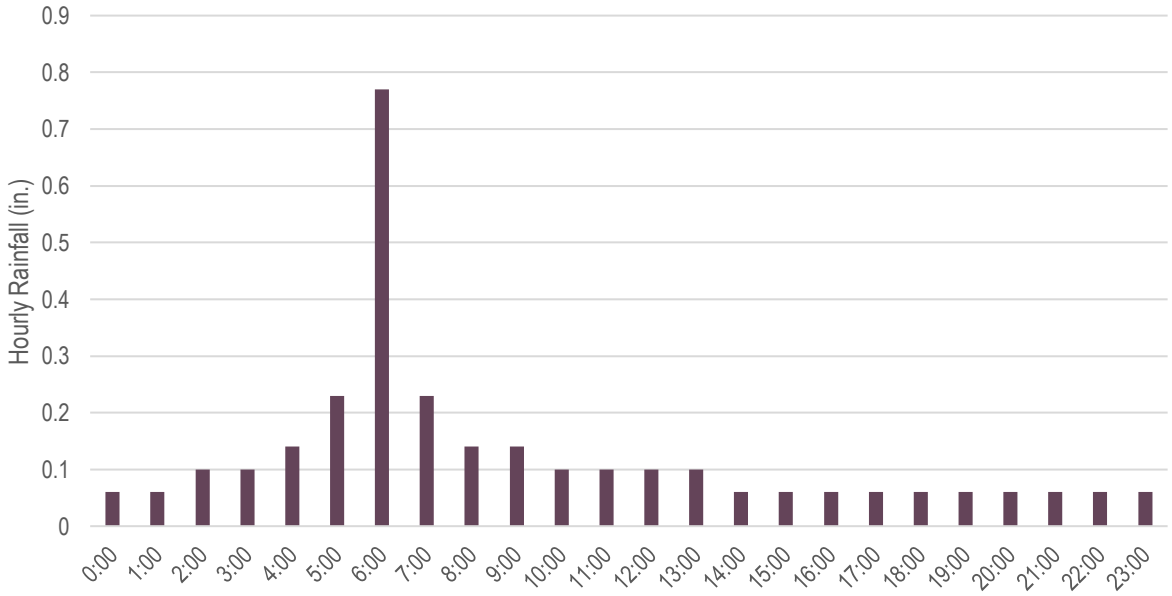
3. DESIGN CRITERA

Evaluation of system capacity was based on the design flow and capacity criteria applied in the 2020 Systems Evaluation, and summarized below. It should be noted that this methodology differs somewhat from the flow and capacity criteria in the City's design standards, which are intended for evaluation of sewers 15 inches and smaller and generally used for areas without an existing hydraulic model.

3.1.1 Design Flow Criteria

Design flows for sewer systems consist of BWF, GWI, and RDI/I. Criteria for computing existing and future BWF, GWI, and RDI/I (developed as part of model calibration) were discussed in the 2020 Systems Evaluation Report. Design RDI/I is based on a 10-year, 24-hour synthetic rainfall pattern that occurs uniformly across the entire SPWA service area. The intensity and timing of the design storm is presented in Figure 4.

Figure 4: SPWA 10-year Design Storm Event



3.1.2 Hydraulic Capacity Criteria

Capacity deficiency or performance criteria are used to determine when the capacity of a sewer pipeline or pump station is exceeded to the extent that a capacity improvement project (e.g., a relief sewer or larger replacement sewer or pump station upgrade) is required. Capacity deficiency criteria are sometimes called "trigger" criteria in that they trigger the need for a capacity improvement project. These criteria may differ from "design criteria" that are applied to determine the size of a new facility, which may be more conservative than the performance criteria. The 2020 Systems Evaluation used the following hydraulic capacity criteria:

- Surcharging up to within 5 feet of the manhole rims (ground surface) is considered acceptable under 10-year design storm peak wet weather flow (PWWF), as long as the surcharge (flow height in the manhole) does not exceed 4 feet above the top of the pipe.

- Pump stations are considered capacity deficient if the design storm PWWF exceeds the pump station capacity with the largest pumping unit out of service (firm capacity).
- Force mains with velocities exceeding 7 feet per second under PWWF may require further investigation, although would not trigger a project unless the pump station required additional capacity.

For the current study, the same criteria have been applied.

4. MODEL RESULTS

Model results indicating the locations of model-predicted surcharge are shown in Figure 4 (existing with drought rebound) and Figure 5 (buildout). Note that Figure 5 shows the results for both the Buildout and Buildout-Sensitivity senarios (i.e. there is no difference in modeled surcharge between the scenarios). Hydraulic profiles of the trunk sewers downstream of the proposed specific plan areas are presented in Appendix A.

The results indicate no significant surcharge in the sewers downstream of the Douglas-Harding and Atlantic Street Corridors, but some surcharge is predicted downstream of the Douglas-Sunrise Corridor in Cirby Creek trunk sewer A. Table 4 summarizes the surcharge extent, depth, and freeboard. As summarized in Table 4, the surcharge exceeds the criteria described above for some sewers in the Buildout and Buildout-Sensitivity scenarios. These results indicate somewhat increased surcharge compared to the surcharge reported in the 2020 Systems Evaluation. This difference is because the City recently abandoned a connection that moved sewer flow from Cirby Trunk A into Cirby Trunk B, resulting in additional flow in Cirby Trunk A.

It should be noted that four manholes on Cirby Creek trunk sewer A (B06-340, B06-341, B06-343, and B06-344) on an 18-inch sewer following a creek and adjacent to the Warren T. Eich Middle School are shallow (crown of pipe is less than 5 feet below the manhole rim). Under buildout conditions (with or without the proposed Douglas-Sunrise Corridor), the model predicts that the backup surcharge would extend to these manholes, exceeding the minimum freeboard criterion. The surcharge also exceeds maximum surcharge criteria and minimum freeboard within Cirby Trunk A. The shallow manholes are indicated in Figure 5 and indicated on the profile in Appendix A. While the Douglas-Sunrise Corridor does not trigger the capacity deficiency in any of the loading scenarios, the development would slightly increase the extent of surcharge in all scenarios.

Table 4: Surcharge downstream of Douglas-Sunrise Corridor

	Length of Throttle Surcharge (ft)	Maximum Surcharge Depth (ft) (4 ft max criterion)	Minimum Freeboard (ft) (5 ft minimum criterion)
Existing (plus Drought Rebound)	1,670	1.8	8.8
Buildout	4,250	6.2	1.0 at 4 shallow manholes (see text) 3.3 elsewhere
Buildout-Sensitivity	4,250	6.6	0.3 at 4 shallow manholes (see text) 4.4 elsewhere

5. CONCLUSIONS AND RECOMMENDATIONS

Mitigating the deficiency identified above would require relieving Cirby Trunk A. A potential improvement project has been developed that would alleviate the deficiency by installing a relief sewer to convey excess flows into Cirby Trunk B. A description of the project and an estimated capital cost of the project is included in Appendix B. As indicated, the project is estimated to cost approximately $12.4 million. The relatively high cost of the project is partially due to the depth of the sewer needed (up to 37 feet) along part of Caloma Way, likely requiring trenchless construction techniques. It is possible that project alternatives could be considered that would reduce the cost of the project and/or provide additional benefits (such as allowing abandonment of backyard sewers). Additional alternatives have not been evaluated in this study, but we recommended further study prior to implementation.

The proposed project is required due to flows from the sewershed upstream, which includes development both in the City of Roseville as well as the other SPWA partner agencies. As noted above, the improvement is not needed for existing flows, but will be required to meet buildout flows. The proposed Commercial Corridors specific plans would not by themselves trigger the need for the project but would contribute to the overall flows at buildout. Table 5 summarizes the Equivalent Dwelling Units (EDUs) contributing to the project deficiency.

Table 5: Equivalent Dwelling Units in Upstream Sewershed Contributing to Deficiency

	Equivalent Dwelling Units	Increase from Existing
Existing	19,000	
Existing + Douglas-Sunrise Commercial Corridor	19,600	+600
Buildout	23,020	+4,020
Buildout + Douglas-Sunrise Commercial Corridor	23,620	+4,620
Buildout-Sensitivity	24,334	+5,334
Buildout-Sensitivity + Douglas-Sunrise Commercial Corridor	24,994	+5,934

The model indicates that the project would be needed when the units upstream of the project reach approximately 20,700 EDUs, or about 1,700 EDUs more than existing. Note that, this will depend on I&I rates of future growth areas within Placer County. We recommended that the City perform additional studies to evaluate potential project alternatives and implement a project prior to development of 1,700 units of additional growth, or perform additional flow monitoring as development occurs to confirm the need for the project.

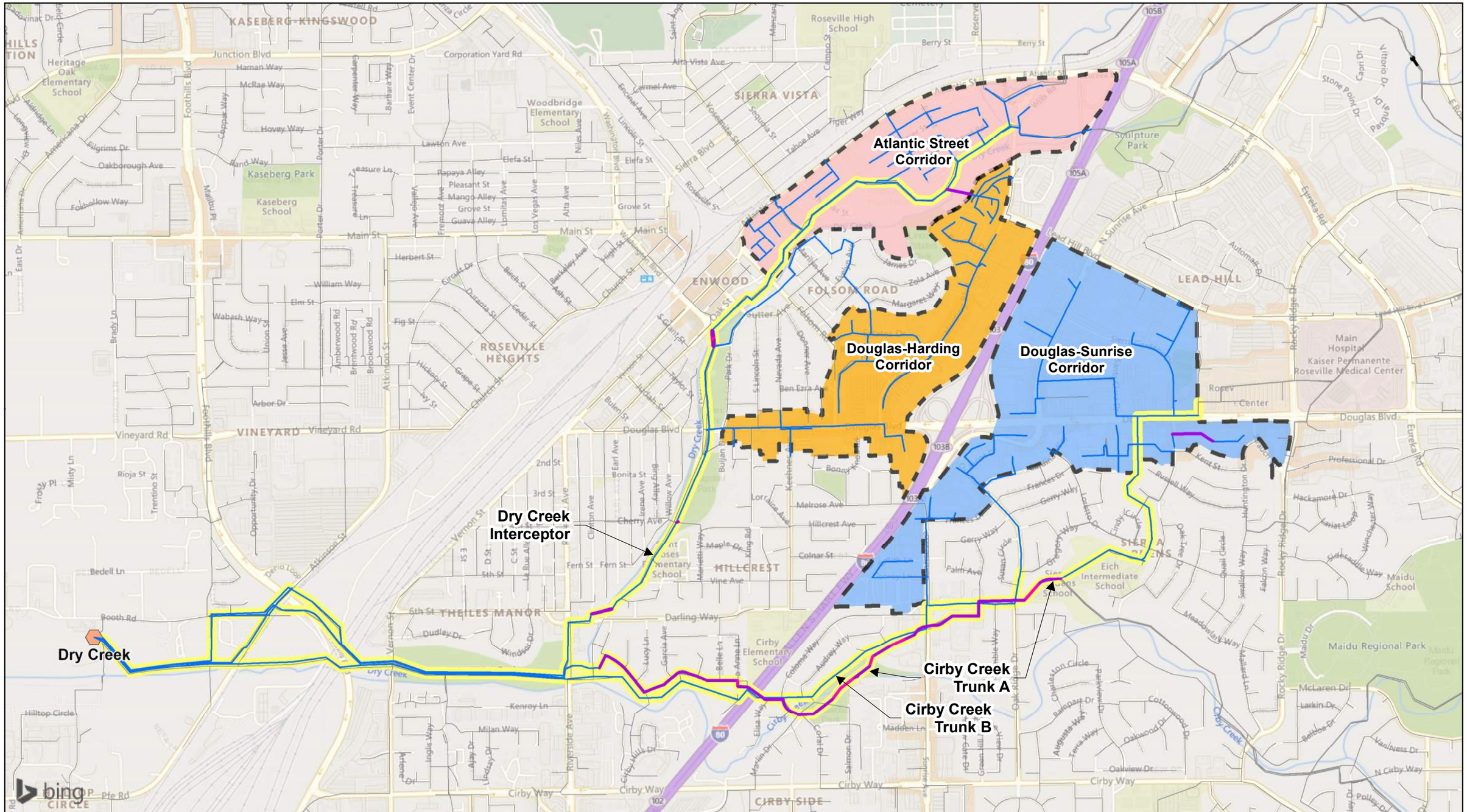


Figure 4
Model Results (Existing PWWF)

City of Roseville
Commercial Corridors Specific Plans
Sewer Evaluation

Modeled Results (sewers with Specific Plan flows only)

- Model predicted overflow
- Backwater surcharge
- Throttle surcharge
- Not surcharged
- Wastewater Treatment Plant
- Trunk sewers downstream of proposed specific plans
- Sewer not downstream of proposed specific plans
- Atlantic Coridor
- Douglas-Harding Corridor
- Douglas-Sunrise Corridor

0 375 750 1,500 2,250 3,000 Feet

N

Figure Exported: 2/11/2022 By: dmerlo Using: \\woodardcurran.net\shared\Projects\0011967.00 Roseville Com Corridors Sewer Model Support\wip\C. GIS\MXDs\4 - Rebound Model Results.mxd

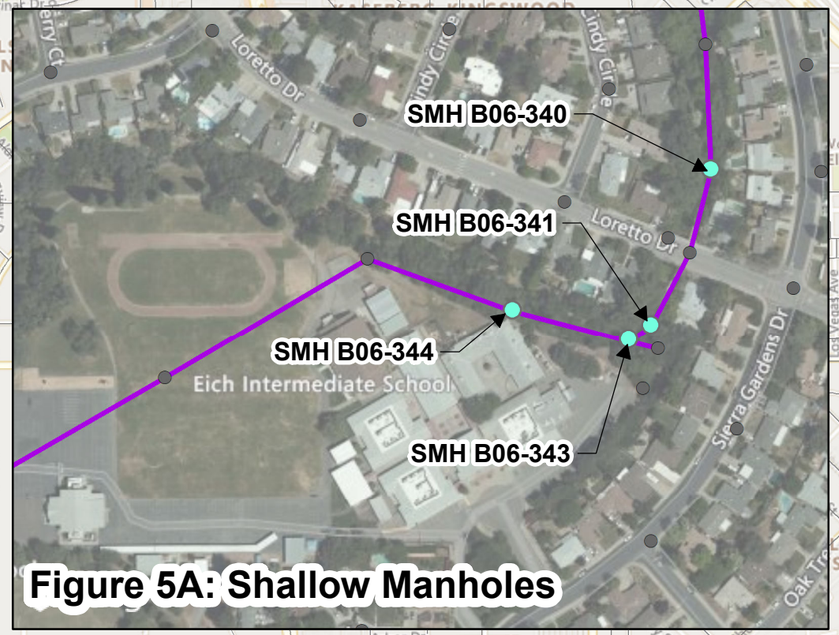


Figure 5A: Shallow Manholes

Atlantic Street Corridor

Douglas-Harding Corridor

Douglas-Sunrise Corridor

Dry Creek Interceptor

Dry Creek

See Figure 5A

Cirby Creek Trunk A

Cirby Creek Trunk B

Figure 5
Model Results (Buildout PWWF)

City of Roseville
Commercial Corridors Specific Plans
Sewer Evaluation

Modeled Results (sewers with Specific Plan flows only)

- Model predicted overflow
- Backwater surcharge
- Throttle surcharge
- Not surcharged
- Wastewater Treatment Plant
- Trunk sewers downstream of proposed specific plans
- Sewer not downstream of proposed specific plans
- Atlantic Coridor
- Douglas-Harding Corridor
- Douglas-Sunrise Corridor

0 375 750 1,500 2,250 3,000 Feet

N

Figure Exported: 2/11/2022 By: dmerlo Using: \\woodardcurran.net\shared\Projects\0011967.00 Roseville Com Corridors Sewer Model Support\wip\C. GIS\MXDs\5 - Sensitivity Model Results.mxd

APPENDIX A – HYDRAULIC PROFILES

Figure A-1: Dry Creek Interceptor Hydraulic Profile (Existing plus Specific Plans Design Storm Results)

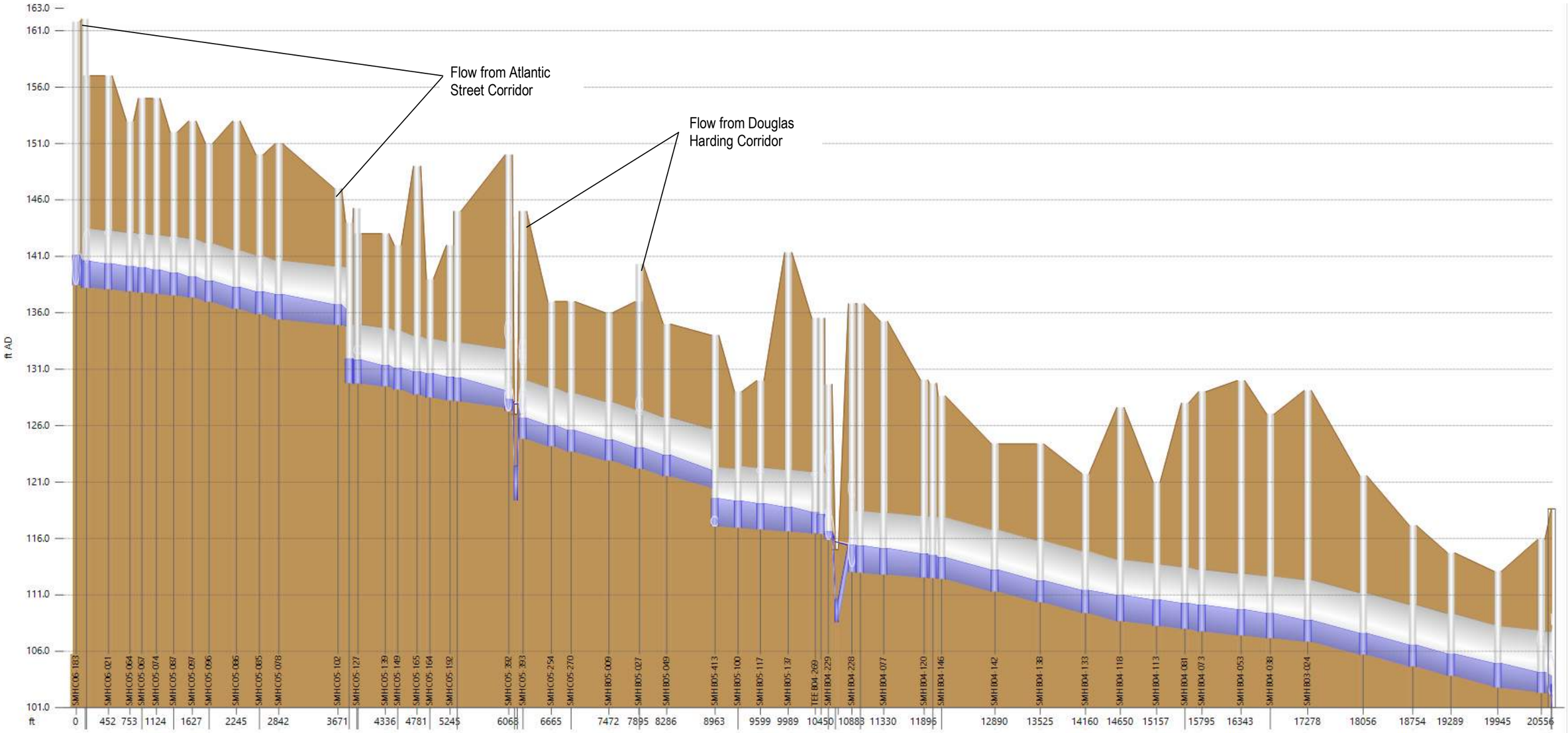


Figure A-2: Cirby Creek Trunk A Hydraulic Profile (Existing plus Specific Plans Design Storm Results)

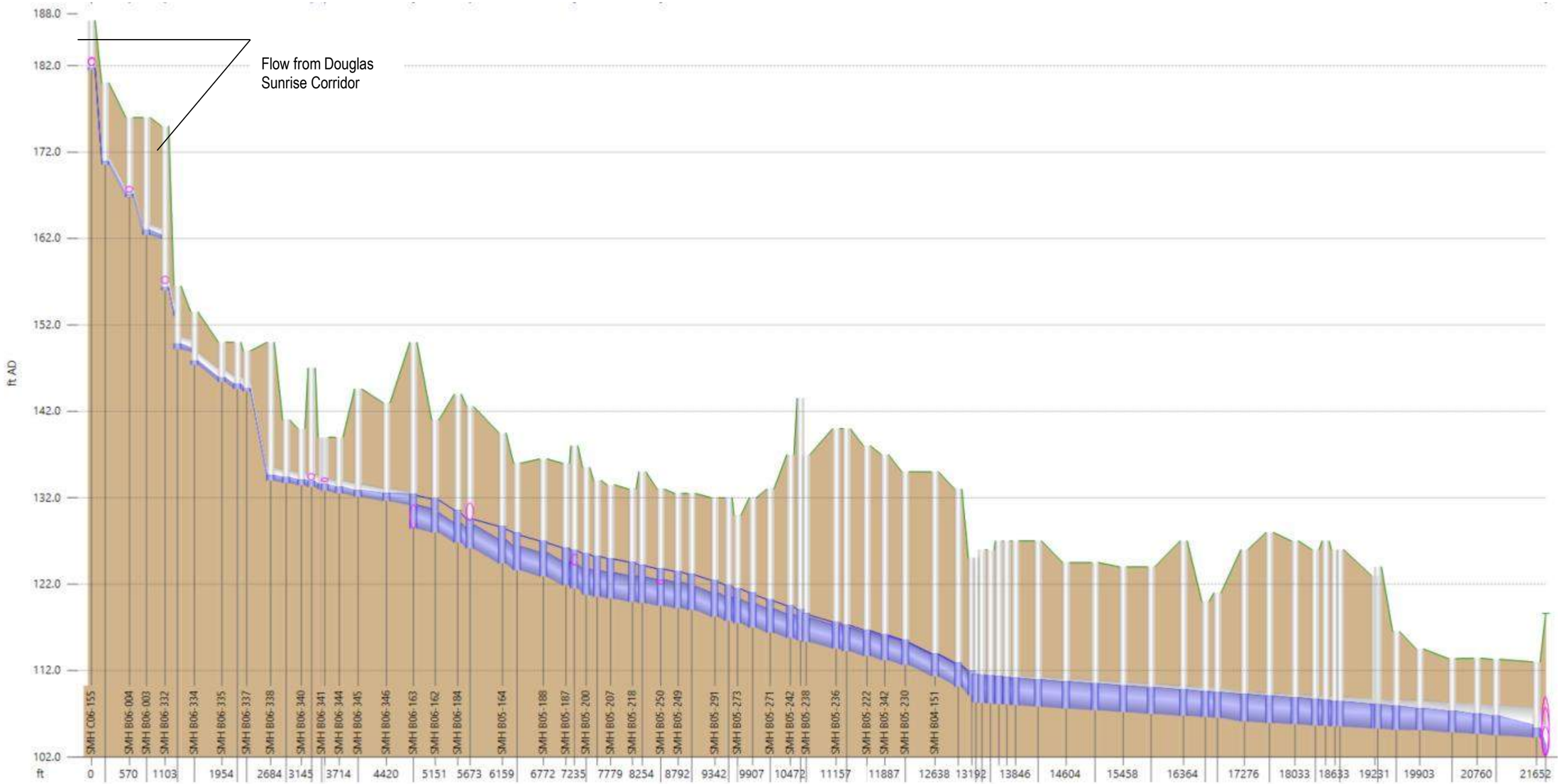


Figure A-3: Cirby Creek Trunk B Hydraulic Profile (Existing Rebound plus Specific Plans Design Storm Results)

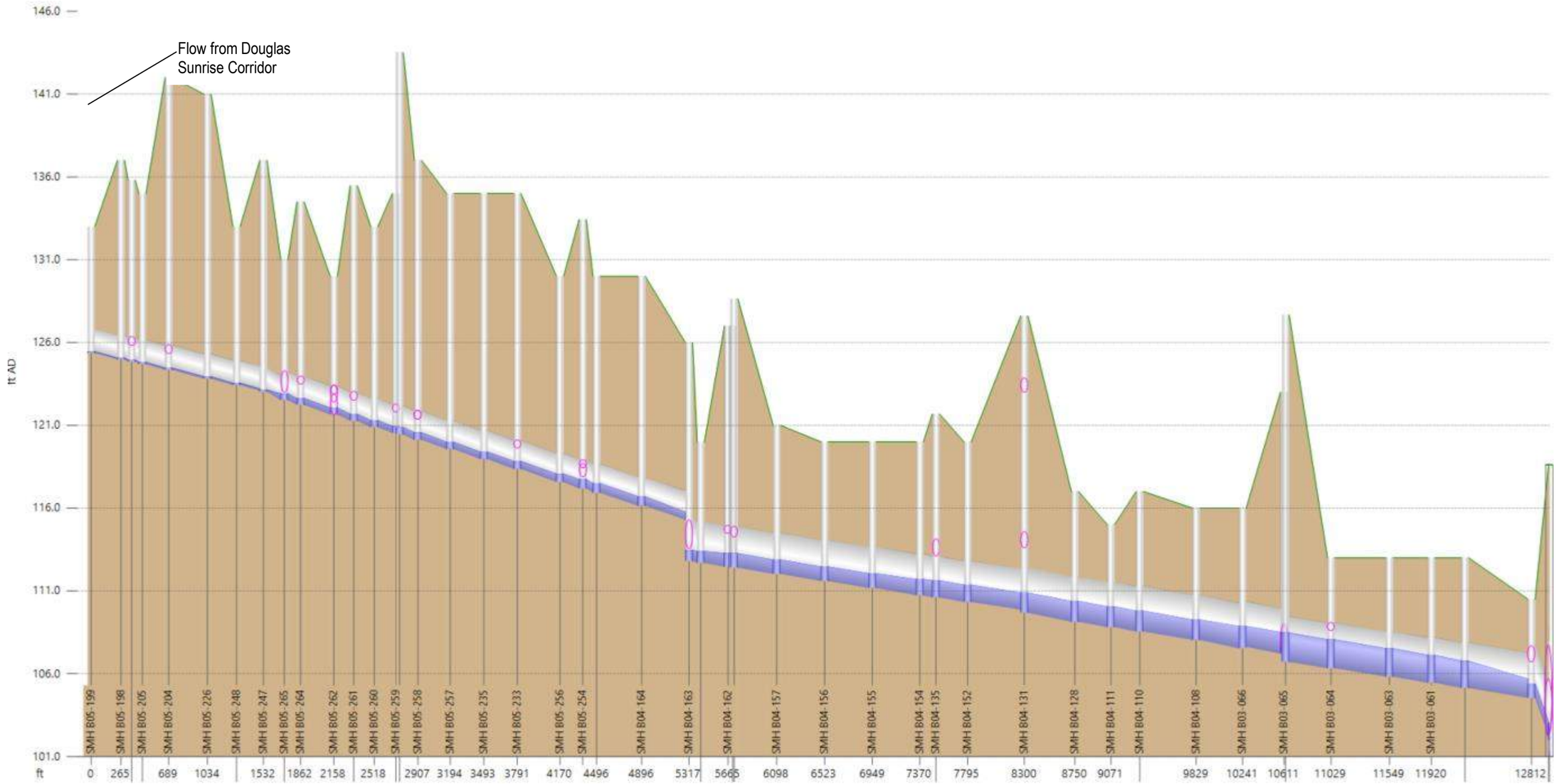


Figure A-4: Dry Creek Interceptor Hydraulic Profile (Buildout plus Specific Plans and Buildout-Sensitivity Design Storm Results)

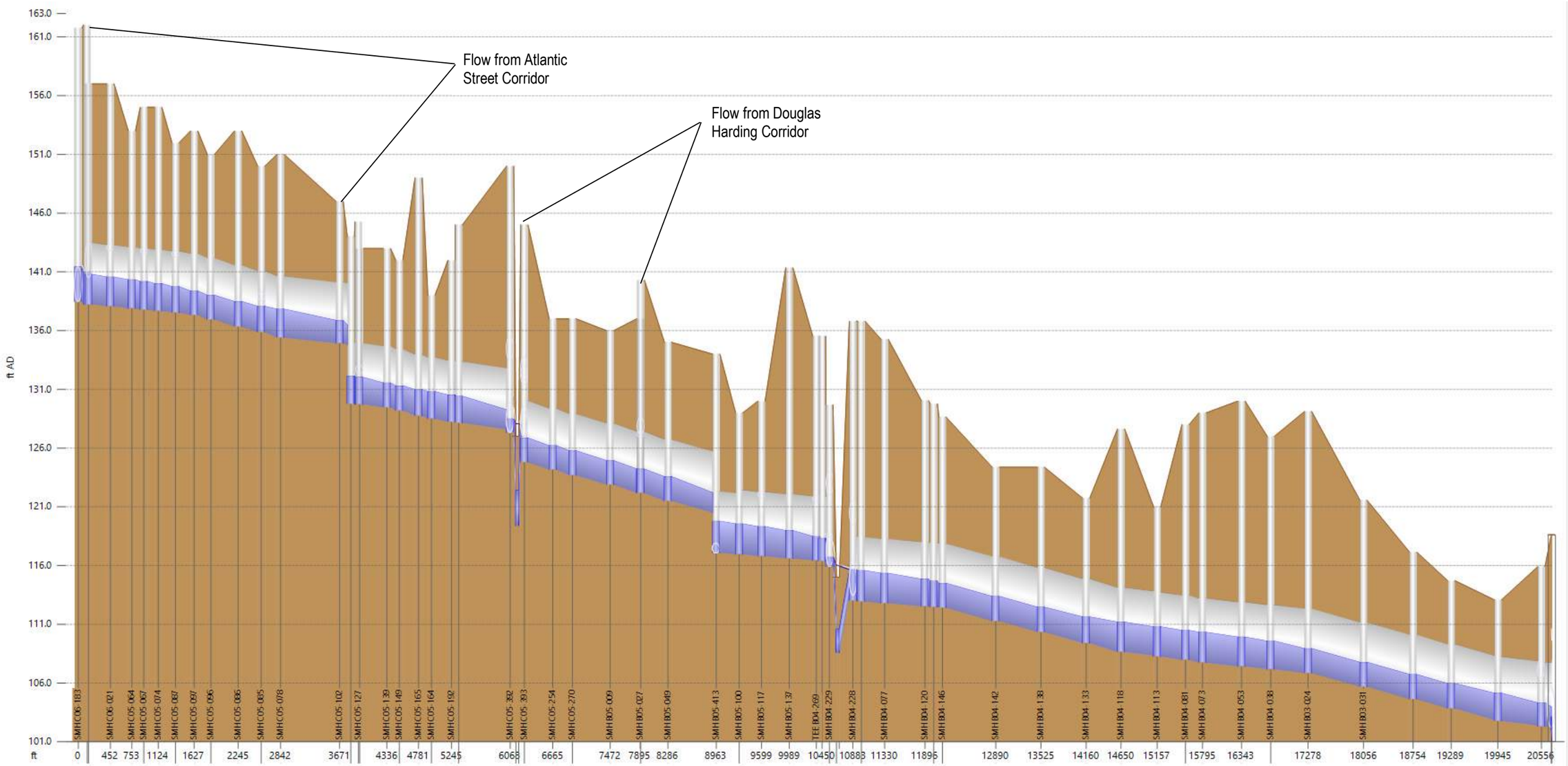


Figure A-5: Cirby Creek Trunk A Hydraulic Profile (Buildout Design Storm Results)

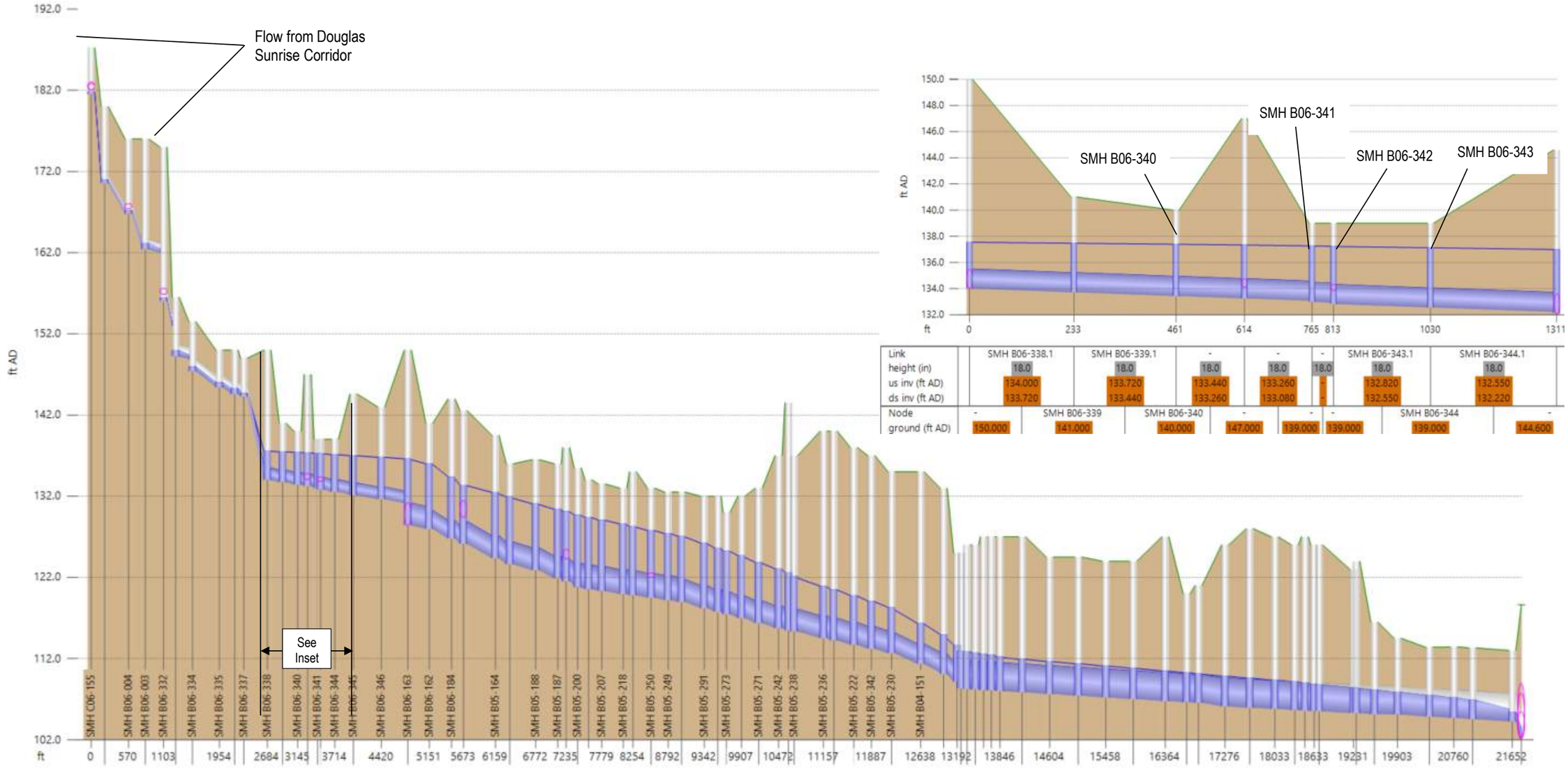
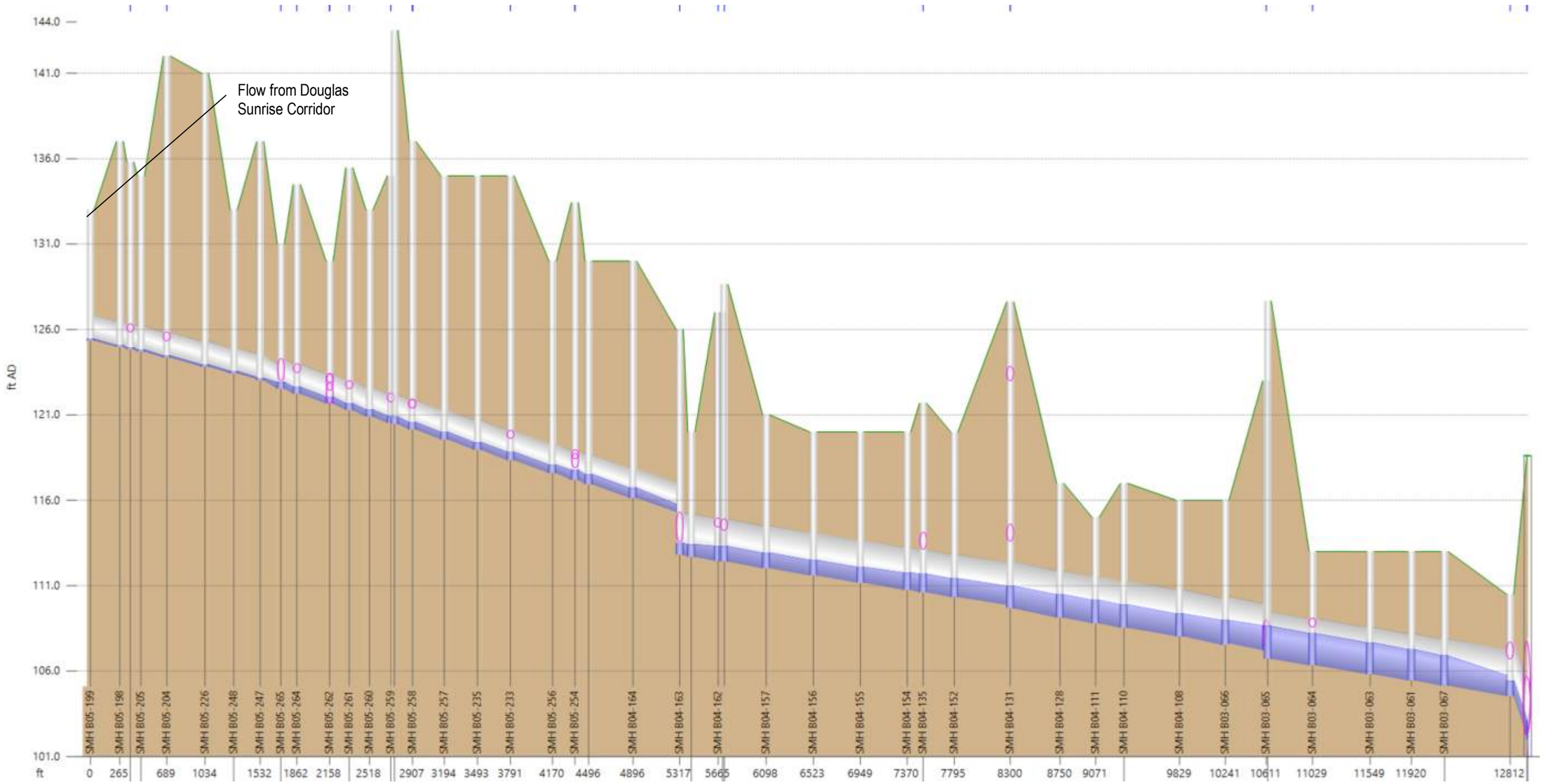


Figure A-6: Cirby Creek Trunk B Hydraulic Profile (Buildout plus Specific Plans and Buildout-Sensitivity Design Storm Results)



APPENDIX B – PROJECT DESCRIPTION AND COST ESTIMATE

Project: 1 - Cirby Creek Sewer Relief

PROJECT DESCRIPTION

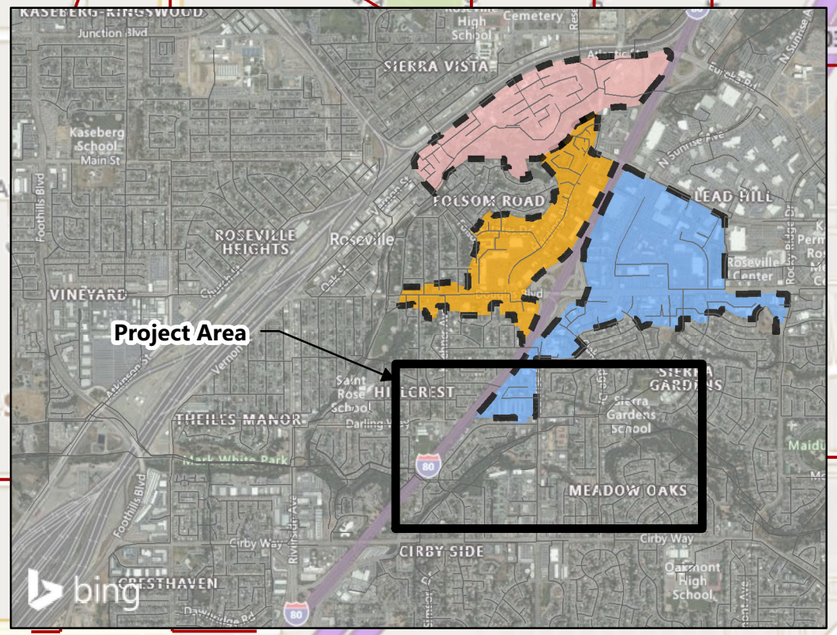
Project ID	1 - Cirby Creek Sewer Relief
Project Location	Coloma Way from east of the intersection at Sunrise Ave. to the intersection at Elisa Way
Description	Install approximately 3600 linear feet of new relief sewer to relieve capacity deficiencies associated with low lying manholes near Cirby Creek at Sierra Gardens Park and also west of Sunrise Ave and south of Coloma Way.
Estimated Capital Improvement Cost	$12,403,000
Comments	(i) Pipes are listed in order from upstream to downstream.
Assumptions	(i) Pipes deeper than 25-feet are assumed to be installed using trenchless methods. Pilot tube guided auger boring (PTGAB) was selected as the trenchless method for estimating purposes. PTGAB requires a rigid pipe to jack into place so for this reason the unit cost shown includes the estimated cost of a 24" steel casing with a 21" PVC pipe set on center and grouted in place.
	(ii) New diameter based on sizing criteria per the City of Roseville's design standards
	(iii) Cost estimates are based on CCI of 13959.14, an average of the San Francisco and 20 Cities Average for the March 2022 ENR.
Alternatives	1. Upsize existing line or parallel sewer.

PROJECT COST DETAIL

U/S MH ID	D/S MH ID	New Diameter (inches)[1]	Length (feet)	Slope (%)	Pipe Depth (feet BGL)	Pipe Capacity (mgd)	Installation Technology	Unit Cost ($/LF)	Total Cost ($)
SMH B05-164	Coloma Way-11	15	40	0.15%	10	1.61	Open-Cut	$413	$ 16,479
SMH B05-173	Coloma Way-11	15	14	7.26%	10	11.17	Open-Cut	$413	$ 5,782
Coloma Way-11	Coloma Way-10	21	319	0.12%	20	3.52	Open-Cut	$553	$ 176,309
Coloma Way-10	Coloma Way-9	21	245	0.12%	17	3.52	Open-Cut	$553	$ 135,358
Coloma Way-9	Coloma Way-8	21	225	0.12%	15	3.52	Open-Cut	$553	$ 124,457
Coloma Way-8	Coloma Way-7	21	245	0.12%	20	3.52	Open-Cut	$553	$ 135,580
Coloma Way-7	Coloma Way-6	21	488	0.12%	37	3.52	PTGAB	$1,650	$ 804,540
Coloma Way-6	Coloma Way-5	21	420	0.12%	35	3.52	PTGAB	$1,650	$ 693,000
Coloma Way-5	Coloma Way-4	21	238	0.12%	30	3.52	PTGAB	$1,650	$ 393,030
Coloma Way-4	Coloma Way-3	21	517	0.12%	27	3.52	PTGAB	$1,650	$ 853,050
Coloma Way-3	Coloma Way-2	21	543	0.12%	25	3.52	PTGAB	$1,650	$ 895,125
Coloma Way-2	Coloma Way-1	21	277	0.12%	15	3.52	Open-Cut	$553	$ 153,288
Coloma Way-1	SMH B05-262	21	20	0.12%	8	3.52	Open-Cut	$509	$ 10,386

Jacking Shaft, Assume 3	$	660,000
Receiving Shaft, Assume 4	$	680,000
Total Baseline Pipe Construction Cost	$	5,714,122
Modify Existing Manholes, Approx. 2	$	50,000
Install New Manhole, Approx. 11	$	210,000
Baseline Construction Cost:	**$**	**5,974,122**
Dewatering	$	100,000
Bypass Pumping (10% of baseline construction cost)	$	597,412
Traffic Control (10% of baseline construction cost)	$	597,412
Subtotal:	**$**	**7,268,946**
Mobilization/Demobilization (5% of subtotal)	$	363,447
Estimated Construction Cost Subtotal:	**$**	**7,632,394**
Contingencies (30% of construction subtotal)	$	2,289,718
Estimated Construction Cost:	**$**	**9,922,112**
Engineering, Administration, Legal (25% of construction cost)	$	2,480,528
Estimated Capital Improvement Cost:	**$**	**12,403,000**

(Note: Cost estimates are based on March 2022 ENR CCI of 13959.14)



18-in

Shallow Manholes

Eich Intermediate School

Sierra Gardens School

33-in

36-in

Cirby Trunk A Deficiency

Cirby Creek

Eastwood Park

MEADOW OAKS

bing

Project 1 - Cirby Creek

City of Roseville
Commercial Corridors Specific Plans
Sewer Evaluation

Proposed Manholes

Deficient Sewers

Proposed Relief Sewer

0 115 230 460 690 920 Feet

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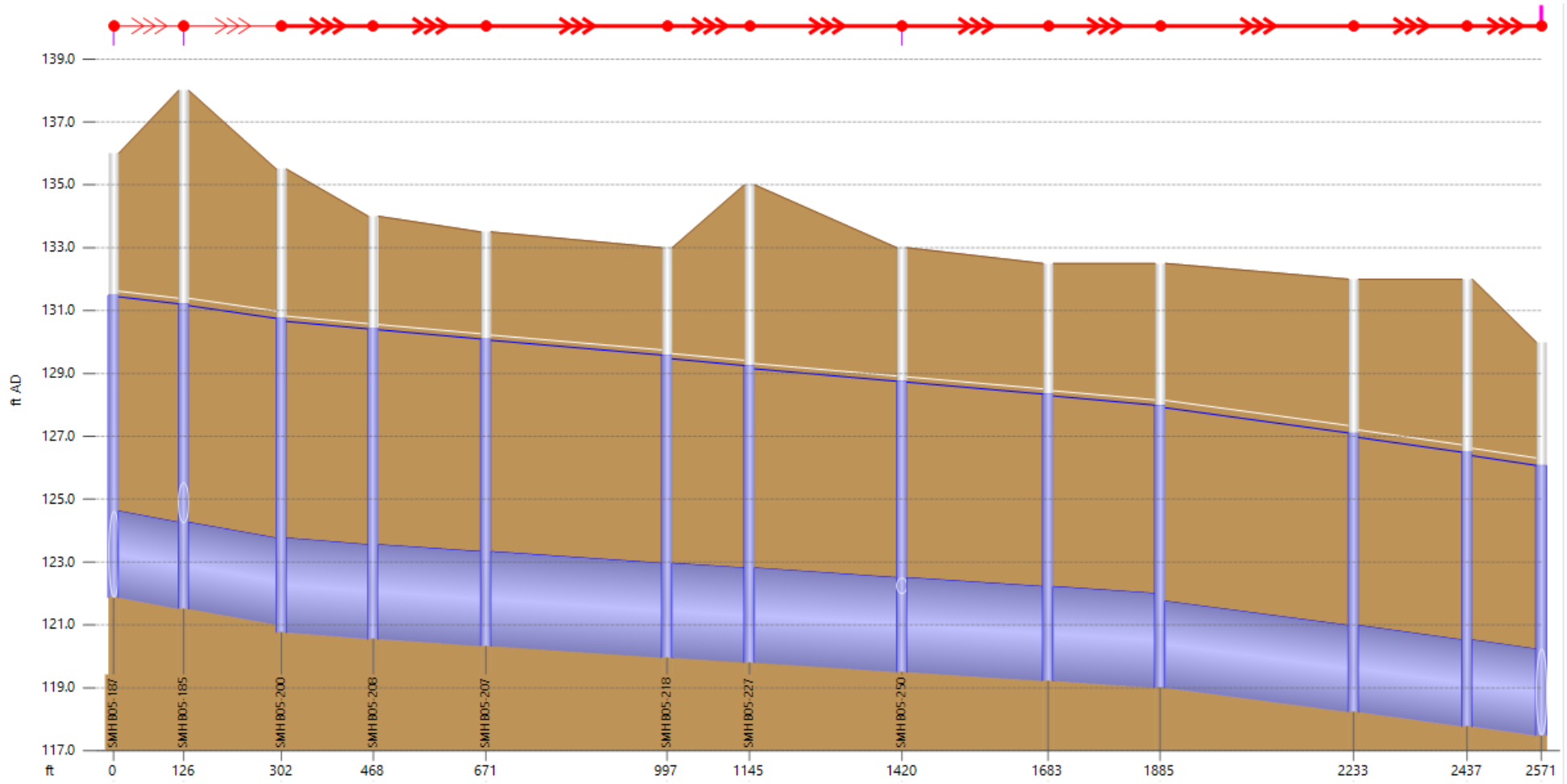
CITY OF ROSEVILLE CALIFORNIA

WOODARD &CURRAN

Figure Exported: 4/21/2022 By: dmerlo Using: \\woodardcurran.net\shared\Projects\0011967.00 Roseville Com Corridors Sewer Model Support\wip\C. GIS\MXDs\Appendix B - Project 1.mxd

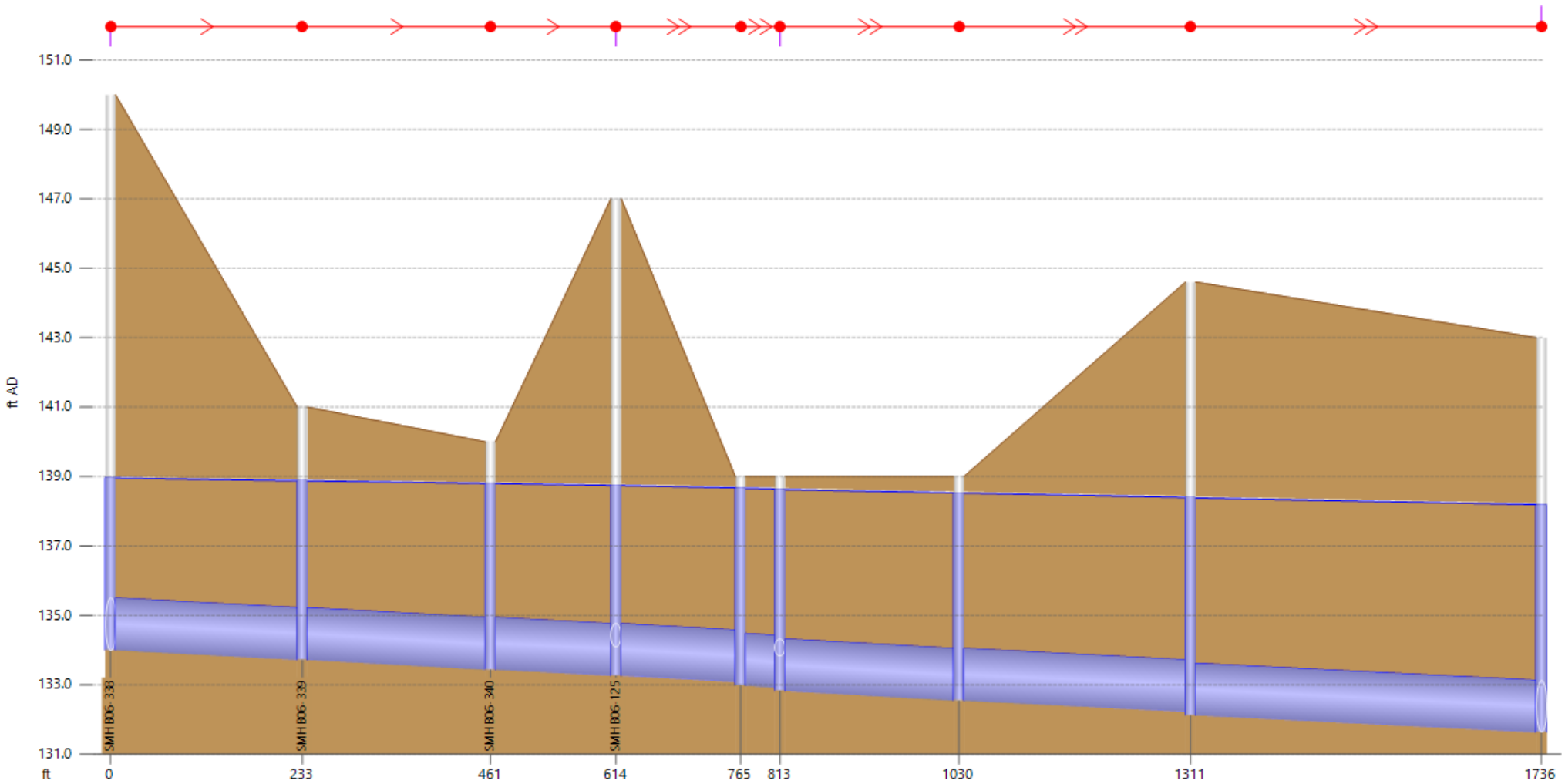
Cirby Trunk A Deficiency



Link	-	-	-	SMH B05-208.1	SMH B05-207.1	-	SMH B05-227.1	SMH B05-250.1	SMH B05-249.1	SMH B05-266.1	SMH B05-291.1	-
length (ft)	126.4	176.0	165.7	202.7	326.1	148.3	274.6	263.3	201.7	348.2	204.6	133.6
width (in)	33.0	33.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	33.0	33.0	33.0
us inv (ft AD)	121.870	121.510	120.760	120.550	120.330	119.960	119.810	119.500	119.220	119.000	118.230	117.770
ds inv (ft AD)	121.510	121.010	120.550	120.330	119.960	119.810	119.500	119.220	119.000	118.230	117.770	117.480
grad (%)	0.285	0.284	0.127	0.109	0.113	0.101	0.113	0.106	0.109	0.221	0.225	0.217
surc	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
US flow (MGD)	14.5381	16.2992	16.2991	16.2991	16.3018	16.3013	16.3011	16.3144	16.3159	16.3156	16.3154	16.3152

Node	-	-	-	-	SMH B05-207	SMH B05-218	SMH B05-227	SMH B05-250	SMH B05-249	SMH B05-266	SMH B05-291	-	-
ground (ft AD)	-	138.000	135.500	134.000	133.500	133.000	135.000	133.000	132.500	132.500	132.000	132.000	-
level (ft AD)	-	131.212	130.742	130.415	130.094	129.574	129.244	128.750	128.339	127.986	127.096	126.485	-
flood dep (ft)	-	-6.788	-4.758	-3.585	-3.406	-3.426	-5.756	-4.250	-4.161	-4.514	-4.904	-5.515	-

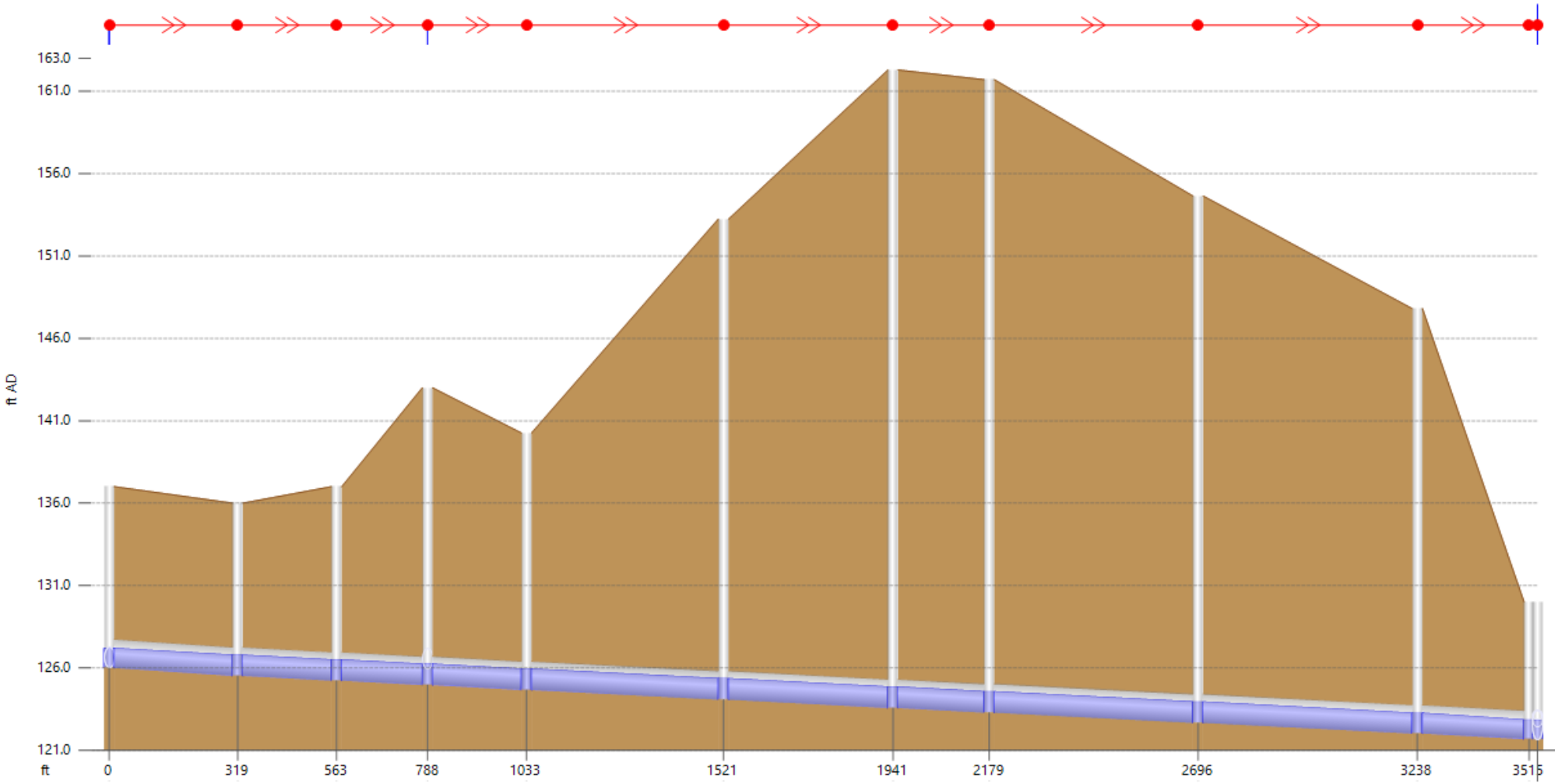
Shallow Manholes



Link	SMH B06-338.1	SMH B06-339.1	SMH B06-340.1	SMH B06-125.1	-	SMH B06-343.1	SMH B06-344.1	SMH B06-345.1
length (ft)	233.2	228.0	152.6	150.9	48.0	216.8	281.3	425.4
width (in)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
us inv (ft AD)	134.000	133.720	133.440	133.260	-	132.820	132.550	132.120
ds inv (ft AD)	133.720	133.440	133.260	133.080	-	132.550	132.220	131.630
grad (%)	0.120	0.123	0.118	0.119	0.125	0.125	0.117	0.115
surc	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
US flow (MGD)	1.2590	1.2580	1.2562	1.4268	-	1.4420	1.4407	1.4394

Node	-	SMH B06-339	SMH B06-340	SMH B06-125	-	SMH B06-343	SMH B06-344	SMH B06-345	SMH B06-346
ground (ft AD)	150.000	141.000	140.000	147.000	139.000	139.000	139.000	144.600	143.000
level (ft AD)	138.966	138.879	138.801	138.746	138.674	138.642	138.530	138.398	138.193
flood dep (ft)	-11.034	-2.121	-1.199	-8.254	-0.326	-0.358	-0.470	-6.202	-4.807

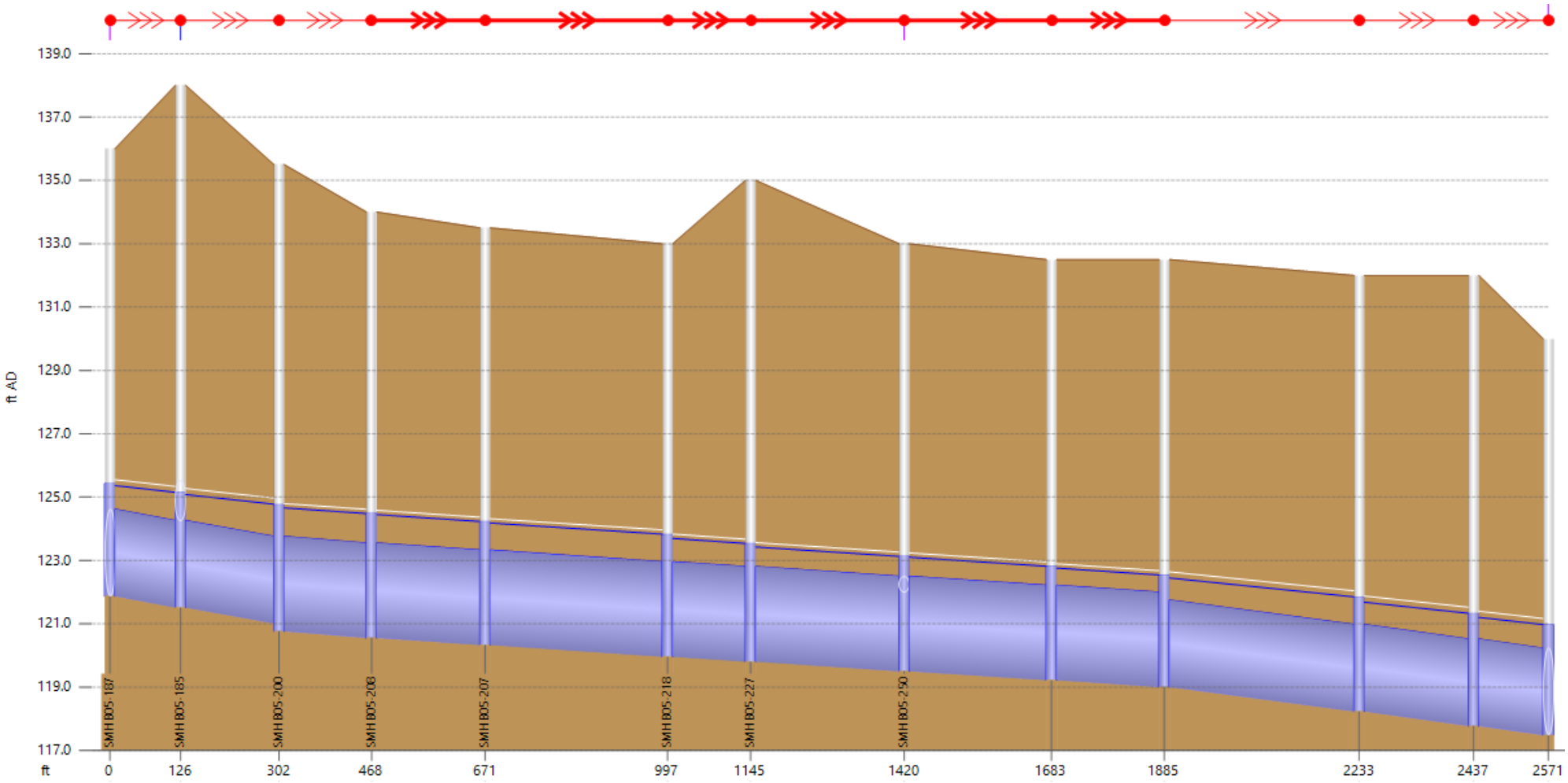
Project 1 - Cirby Creek (Proposed Relief Sewer)



Link	Coloma Way-11.1	-	-	-	Coloma Way-7.1	Coloma Way-6.1	-	Coloma Way-4.1	Coloma Way-3.1	Coloma Way-2.1
length (ft)	318.6	244.6	224.9	245.0	487.6	420.0	238.2	517.0	542.5	277.0
width (in)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
us inv (ft AD)	126.000	125.520	125.230	124.960	124.660	124.080	123.570	123.290	122.670	122.020
ds inv (ft AD)	125.520	125.230	124.960	124.660	124.080	123.570	123.290	122.670	122.020	121.680
grad (%)	0.151	0.119	0.120	0.122	0.119	0.121	0.118	0.120	0.120	0.123
surc	0.72	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.72	0.70
US flow (MGD)	3.0105	3.0104	3.0102	3.1211	3.1209	3.1205	3.1202	3.1200	3.1198	3.1195

Node	-	-	-	-	Coloma Way-7	Coloma Way-6	Coloma Way-5	Coloma Way-4	Coloma Way-3	Coloma Way-2	-
ground (ft AD)	-	136.000	137.000	143.000	140.263	153.238	162.286	161.702	154.637	147.807	-
level (ft AD)	-	126.777	126.490	126.231	125.936	125.351	124.849	124.562	123.938	123.255	-
flood dep (ft)	-9.813	-9.223	-10.510	-16.769	-14.327	-27.886	-37.437	-37.140	-30.699	-24.552	-7.155

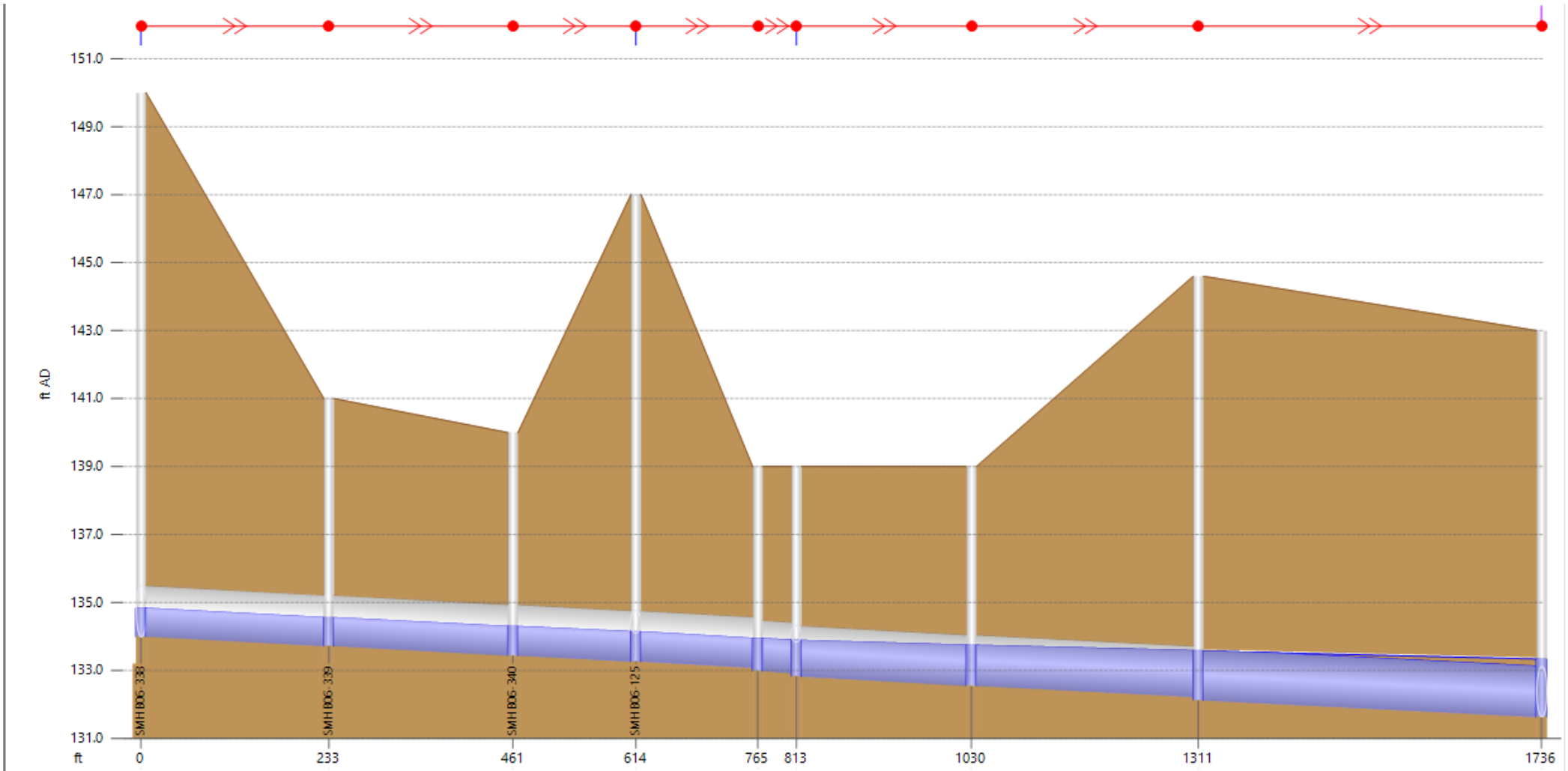
Cirby Trunk A (with proposed relief sewer)



Link	-	-	-	SMH B05-208.1	SMH B05-207.1	-	SMH B05-227.1	SMH B05-250.1	SMH B05-249.1	SMH B05-266.1	SMH B05-291.1	-
length (ft)	126.4	176.0	165.7	202.7	326.1	148.3	274.6	263.3	201.7	348.2	204.6	133.6
width (in)	33.0	33.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	33.0	33.0	33.0
us inv (ft AD)	121.870	121.510	120.760	120.550	120.330	119.960	119.810	119.500	119.220	119.000	118.230	117.770
ds inv (ft AD)	121.510	121.010	120.550	120.330	119.960	119.810	119.500	119.220	119.000	118.230	117.770	117.480
grad (%)	0.285	0.284	0.127	0.109	0.113	0.101	0.113	0.106	0.109	0.221	0.225	0.217
surc	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
US flow (MGD)	14.7792	14.8873	14.8530	14.8231	14.7886	14.7245	14.6874	14.6246	14.5446	14.4729	14.3969	14.3584

Node	-	-	-	-	SMH B05-207	SMH B05-218	SMH B05-227	SMH B05-250	SMH B05-249	SMH B05-266	SMH B05-291	-	-
ground (ft AD)	-	138.000	135.500	134.000	133.500	133.000	135.000	133.000	132.500	132.500	132.000	132.000	-
level (ft AD)	-	125.145	124.763	124.479	124.227	123.819	123.528	123.128	122.813	122.537	121.836	121.320	-
flood dep (ft)	-	-12.855	-10.737	-9.521	-9.273	-9.181	-11.472	-9.872	-9.686	-9.963	-10.164	-10.680	-

Shallow Manholes (with proposed relief sewer)



Link		SMH B06-338.1		SMH B06-339.1		SMH B06-340.1	SMH B06-125.1	-	SMH B06-343.1		SMH B06-344.1		SMH B06-345.1	
length (ft)		233.2		228.0		152.6	150.9	48.0	216.8		281.3		425.4	
width (in)		18.0		18.0		18.0	18.0	18.0	18.0		18.0		18.0	
us inv (ft AD)		134.000		133.720		133.440	133.260	-	132.820		132.550		132.120	
ds inv (ft AD)		133.720		133.440		133.260	133.080	-	132.550		132.220		131.630	
grad (%)		0.120		0.123		0.118	0.119	0.125	0.125		0.117		0.115	
surc		0.56		0.57		0.59	0.59	0.65	0.80		0.91		1.00	
US flow (MGD)		1.3680		1.3699		1.3707	1.5719	-	1.5924		1.5979		1.6058	
Node	-		SMH B06-339		SMH B06-340	SMH B06-125	-	SMH B06-343		SMH B06-344		SMH B06-345		SMH B06-346
ground (ft AD)	150.000		141.000		140.000	147.000	139.000	139.000		139.000		144.600		143.000
level (ft AD)	134.838		134.558		134.299	134.146	133.949	133.898		133.749		133.587		133.339
flood dep (ft)	-15.162		-6.442		-5.701	-12.854	-5.051	-5.102		-5.251		-11.013		-9.661

Appendix C

2020 Research Park Drive
Suite 100
Davis CA 95618

530.756.5905 phone
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westyost.com

TECHNICAL MEMORANDUM

DATE: June 17, 2022

Project No.: 415-60-22-35
SENT VIA: EMAIL

TO: Jessica Lynch, City of Roseville

CC: Lauren Hocker, City of Roseville
Tracie Mueller, City of Roseville

FROM: Chris Pittner, QISP, PE, RCE #93576
Kami Tiano, PE, RCE #84129

REVIEWED BY: Amy Kwong, PE, RCE #73213

SUBJECT: Commercial Corridors Specific Plan – Potable Water System Hydraulic Evaluation Update

This Technical Memorandum (TM) summarizes the findings and conclusions of West Yost's technical evaluation of the ability of the City of Roseville's (City) existing and 2050 potable water distribution system to serve the proposed Commercial Corridors Specific Plan development (Project). The proposed Project consists of redevelopment in the following corridors: Atlantic Street, Douglas-Harding, and Douglas-Sunrise, which will be served by the City's Pressure Zone 1 potable water system. The following sections summarize the hydraulic evaluation:

- Project Description
- Estimated Water Demand for the Project
- Planning and Modeling Criteria
- Hydraulic Model Inputs and Updates
- Evaluation Findings and Conclusions
- Planning Level Cost Estimates

It should be noted that the determination of whether adequate water supplies exist to serve the proposed Project is not included within the scope of this evaluation.

PROJECT DESCRIPTION

The proposed Project was previously evaluated by Brown and Caldwell (B&C), and the hydraulic evaluation was completed in 2021. However, the Project has been recently updated to include 450 additional residential units for a total of 850 residential units. The City requested West Yost to update the hydraulic modeling evaluation performed by B&C. The following sections document the updates performed and results from the re-evaluation.

ESTIMATED WATER DEMAND FOR THE PROJECT

Water demands for the project were estimated by West Yost using the City's adopted unit water demand factors and the updated number of dwelling units for the Project. The City's adopted peaking factors were then used to scale the projected average day demand to maximum day demand. Figure 1 and Figure 2 show the existing and proposed land use in each corridor, respectively.

The updated high density residential (HDR) dwelling units (DUs) in the three corridors include:

- Atlantic Street Corridor = 50 new HDR dwelling units
- Douglas-Harding Corridor = 200 new HDR DUs (previously 250 DUs)
- Douglas-Sunrise Corridor = 600 new HDR DUs (previously 100 DUs)

Table 1 summarizes the projected average day and maximum day demands for the Project.

Table 1. Estimated Potable Water Demand for the Project

Corridor	Land Use Category	Dwelling Units[(a)]	Unit Demand Factor[(b)]	Units of Water Use Factor	Average Day Demand, gpd[(c)]	Maximum Day Demand, gpd[(d)]
Atlantic Street	High Density Residential	50	177	gpd/DU	8,850	17,700
Douglas-Harding	High Density Residential	200	177	gpd/DU	35,400	70,800
Douglas-Sunrise	High Density Residential	600	177	gpd/DU	106,200	212,400
	Total	**850**	--	--	**150,450**	**300,900**

(a) Dwelling unit counts confirmed by the City of Roseville during project call held on March 4, 2022.
(b) Based on Section 8 in City of Roseville Design Standards (Roseville, 2022).
(c) Non-Revenue Water not included in demand calculations; assumes older unit demand factor is already conservative.
(d) Maximum day demand is equal to 2.0 times the average day demand per City of Roseville Design Standards.
DU = dwelling units
gpd = gallons per day

PLANNING AND MODELING EVALUATION CRITERIA

The planning and modeling criteria used to evaluate the proposed Project consist of the following:

- Minimum allowable service pressure is 50 pounds per square inch (psi) under normal system operating conditions.
- Maximum allowable service pressure is 100 psi under normal system operating conditions.
- Residual pressure at the flowing hydrant and at service locations throughout Zone 1 during maximum day demand plus fire flow conditions must be equal to or greater than 20 psi.
- Maximum allowable pipeline velocity for proposed pipelines is 12 ft/s during a simulated fire flow demand condition.
- Any new pipelines are modeled with a roughness coefficient (C-factor) of 130.

The required fire flows for existing (without Project) and proposed land uses (with Project) are shown on Figures 1 and 2, respectively. These fire flow requirements are based on land use category with Single Family Residential requiring 1,500 gpm fire flow; Commercial/Multi-Family (less than 10,000 square feet) requiring 2,500 gpm; and Commercial/Multi-Family (greater than 10,000 square feet) requiring 4,000 gpm.

HYDRAULIC MODEL INPUTS AND UPDATES

The City's potable water system hydraulic model was updated and calibrated by B&C in August 2020. West Yost was provided a current version of the City's potable water system hydraulic model in December 2021. As requested by City staff, the following pipeline improvements were added to the potable water system hydraulic model as part of this Project because they are currently in the planning, design, or construction phase:

- **Tiger Way Union Pacific Railroad (UPRR) crossing project**: Abandon 6-inch diameter pipeline crossing the UPRR between Atlantic Street and Tiger Way and replace with a new 12-inch diameter connection along Tiger Way between the existing 12-inch diameter pipelines from Campo Street to the end of the abandoned 6-inch diameter pipeline.
- **Atlantic Street slip line project**: Slip line two 12-inch diameter pipelines crossing Atlantic Street with 8-inch diameter pipelines and abandon one 12-inch diameter pipeline crossing the UPRR.
- **Hillcrest project**: Install various 8-inch diameter and 12-inch diameter pipelines in the neighborhood near Hillcrest Avenue. Connect existing pipelines in and crossing the alley near Evelyn Way and connect pipelines that cross at the intersection of Evelyn Way and Folsom Road. Abandon existing 6-inch diameter pipeline at the intersection of Sunrise Avenue and Frances Drive and install three new 8-inch diameter pipelines reconnecting existing mains.
- **I-80 crossing project**: Abandon three pipelines (5-inch, 6-inch, and 8-inch diameter) crossing I-80 and install three 8-inch diameter pipelines (Douglas Boulevard, Cirby Creek crossing, and South Harding to Wayne Drive) to reconnect and loop the system in this area.

For scenarios evaluating the proposed Project, the hydraulic model was also updated with the Project's projected maximum day water demand (300,900 gpd as presented in Table 1).

HYDRAULIC EVALUATION FINDINGS AND CONCLUSIONS

This section summarizes both the potable water system hydraulic evaluation results and the recommended infrastructure improvements to provide adequate service to the proposed Project. Scenarios evaluated as part of this hydraulic evaluation are under normal supply conditions and include:

- **Existing System** – No infrastructure improvements, existing (2019) maximum day demand (MDD)
- **Existing System with Project** – 2019 MDD, improvements identified for Existing System scenario, plus additional water demand for the Project
- **2050 System** – 2050 MDD, improvements identified for Existing System scenario
- **2050 System with Project** – 2050 MDD, improvements identified for existing system scenarios, plus additional water demand for the Project

Findings from Existing System Evaluation

Results from the hydraulic model indicate that minimum pressures remain above 50 psi within the vicinity of the proposed Project.

Figure 3 shows the available fire flow during MDD for the existing system while maintaining a minimum residual pressure of 20 psi. Hydraulic model results indicate that fire flow capacity is insufficient at multiple locations. Despite adequate transmission capacity throughout the Project area, excessive head losses in small diameter distribution system pipelines lead to deficient fire flow capacity (unable to meet the minimum pressure criterion of 20 psi). To address these deficiencies during fire flow conditions, existing distribution system pipelines within the area are recommended to be replaced with larger diameter pipelines as shown on Figure 4 and summarized below:

- Atlantic Street Corridor
  - **East and Center Street**: 8-inch pipes are recommended to meet pressure criterion.
  - **Alola and Thomas:** 8-inch pipes are recommended to meet pressure criterion.
  - **Walnut and Brookview**: 12-inch pipes are recommended to meet pipeline velocity criterion.
- Douglas-Harding Corridor
  - **Breuner Drive**: 12-inch pipes are recommended to meet pressure and pipeline velocity criteria.
- Douglas-Sunrise Corridor
  - **Jordan Drive**: 10-inch pipes are recommended to meet pressure criterion. This is an area where additional pipeline replacement of the existing 6-inch pipe in Santa Clara Drive would be recommended as part of the City's renewal and replacement program but would not be required to meet fire flow capacity.
  - **Cardinal Way**: 12-inch pipes are recommended in Cardinal Way to meet pipeline velocity criterion.
  - **Smith Lane**: 10-inch pipes are recommended to meet pressure criterion.

Findings from Existing System with Project Evaluation

Results from the hydraulic model indicate that minimum pressures remain above 50 psi within the vicinity of the proposed Project.

Figure 5 shows the available fire flow during MDD for the existing system including the Project and improvements from Figure 4 while maintaining a minimum residual pressure of 20 psi. Hydraulic model results indicate that fire flow capacity is insufficient at three locations due to the increase in the fire flow requirements to 4,000 gpm with the Project. To address these deficiencies during fire flow conditions, distribution system pipelines within the area are recommended to be replaced with larger diameter pipelines as shown on Figure 6 and summarized below:

- Atlantic Street Corridor
  - **Center Street**: 10-inch pipes are recommended in Center Street to serve the higher 4,000 gpm fire flow requirement under the "With Project" scenario.

- Douglas-Sunrise Corridor
  - **Cardinal Way**: 12-inch pipes are recommended in Cardinal Way to meet pipeline velocity criterion. This improvement is separated from the improvement identified for the existing water system in order to capture the cost-sharing between the developer and the City to account for the increase in flow requirements from the proposed Project.

Findings from 2050 System Evaluation

Results from the hydraulic model indicate that minimum pressures remain above 50 psi within the vicinity of the proposed Project.

Figure 7 shows the available fire flow during MDD for the 2050 system with improvements from Figure 4 while maintaining a minimum residual pressure of 20 psi. Hydraulic model results indicate that the available fire flow capacity is sufficient to meet all fire flow requirements.

Findings from 2050 System with Project Evaluation

Results from the hydraulic model indicate that minimum pressures remain above 50 psi within the vicinity of the proposed Project.

Figure 8 shows the available fire flow during MDD for the 2050 system including the Project and improvements from Figures 4 and 6 while maintaining a minimum residual pressure of 20 psi. Hydraulic model results indicate that the available fire flow capacity is sufficient to meet all fire flow requirements with the Project.

Summary of Recommended Improvements

Results from the hydraulic evaluation indicate that the City's existing water system infrastructure cannot provide adequate flows and pressures to the Project. Table 2 summarizes the pipeline improvements required to address deficiencies in each scenario. Figures 9 and 10 show the locations of the recommended pipeline improvements without and with the proposed Project, respectively.

Table 2. Summary of Pipeline Improvements

Scenario	8-inch Improvement, LF	10-inch Improvement, LF	12-inch Improvement, LF
Existing System	4,420	2,430	1,240
Existing System with Project	--	780	980
2050 System	--	--	--
2050 System with Project	--	--	--

PLANNING LEVEL COST ESTIMATES

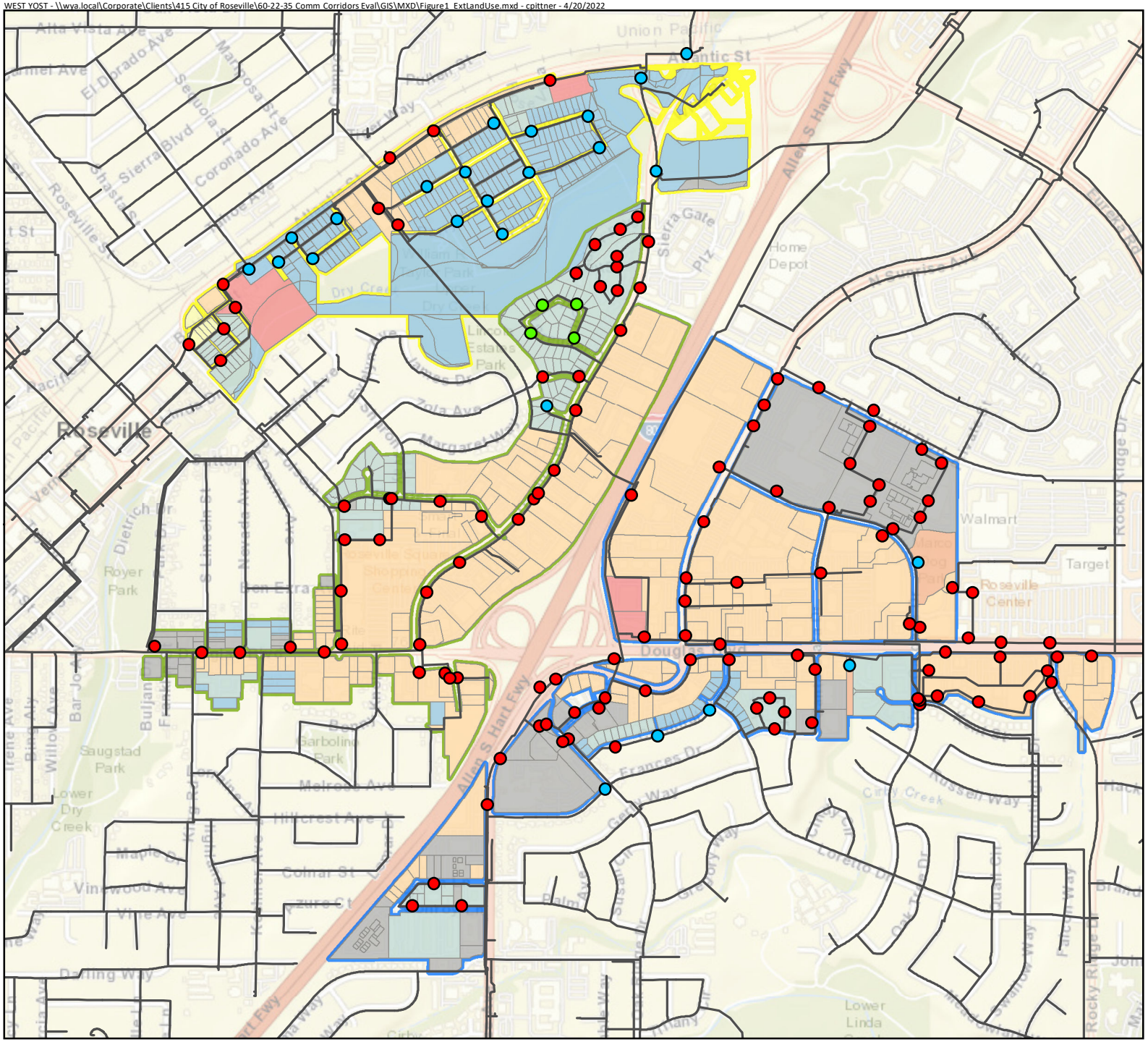
The following tables detail the estimated costs for the recommended pipeline improvements to serve the proposed Project. Table 3 shows the estimated cost for the recommended pipeline improvements to mitigate the potable water system fire flow deficiencies without the Project, and Table 4 shows the estimated cost to address fire flow deficiencies with the Project. It should be noted that pipeline unit costs are based on average costs that have been seen on recent bids for similar agencies and Construction Contingencies, Engineering, and Environmental and Permitting Allowances are based on previous planning studies.

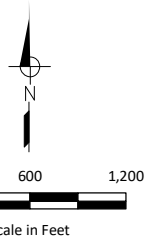
Table 3. Planning Level Cost Estimate (without Project)

Improvement	Quantity	Unit	Unit Construction Cost, dollars	Construction Cost, dollars
Upsize to 8-inch	4,420	LF	280	1,238,000
Upsize to 10-inch	2,430	LF	300	729,000
Upsize to 12-inch	1,240	LF	320	397,000
			Base Construction Cost	**$2,364,000**
			Construction Contingency (30 percent)	709,000
			Construction Cost with Contingency	3,073,000
			Project Allowances [Engineering, Environmental and Permitting] (35 percent)	1,076,000
			Total Cost	**$4,149,000**

Table 4. Planning Level Cost Estimate (with Project)

Improvement	Quantity	Unit	Unit Construction Cost, dollars	Construction Cost, dollars
Upsize to 10-inch	780	LF	300	234,000
Upsize to 12-inch	980	LF	320	314,000
			Base Construction Cost	**$548,000**
			Construction Contingency (30 percent)	164,000
			Construction Cost with Contingency	712,000
			Project Allowances [Engineering, Environmental and Permitting] (35 percent)	249,000
			Total Cost	**$961,000**





Symbology

- Existing Pipelines
- Douglas-Sunrise Corridor
- Douglas-Harding Corridor
- Atlantic Street Corridor

Fire Flow Requirement

- 1,500 gpm
- 2,500 gpm
- 4,000 gpm

Existing Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

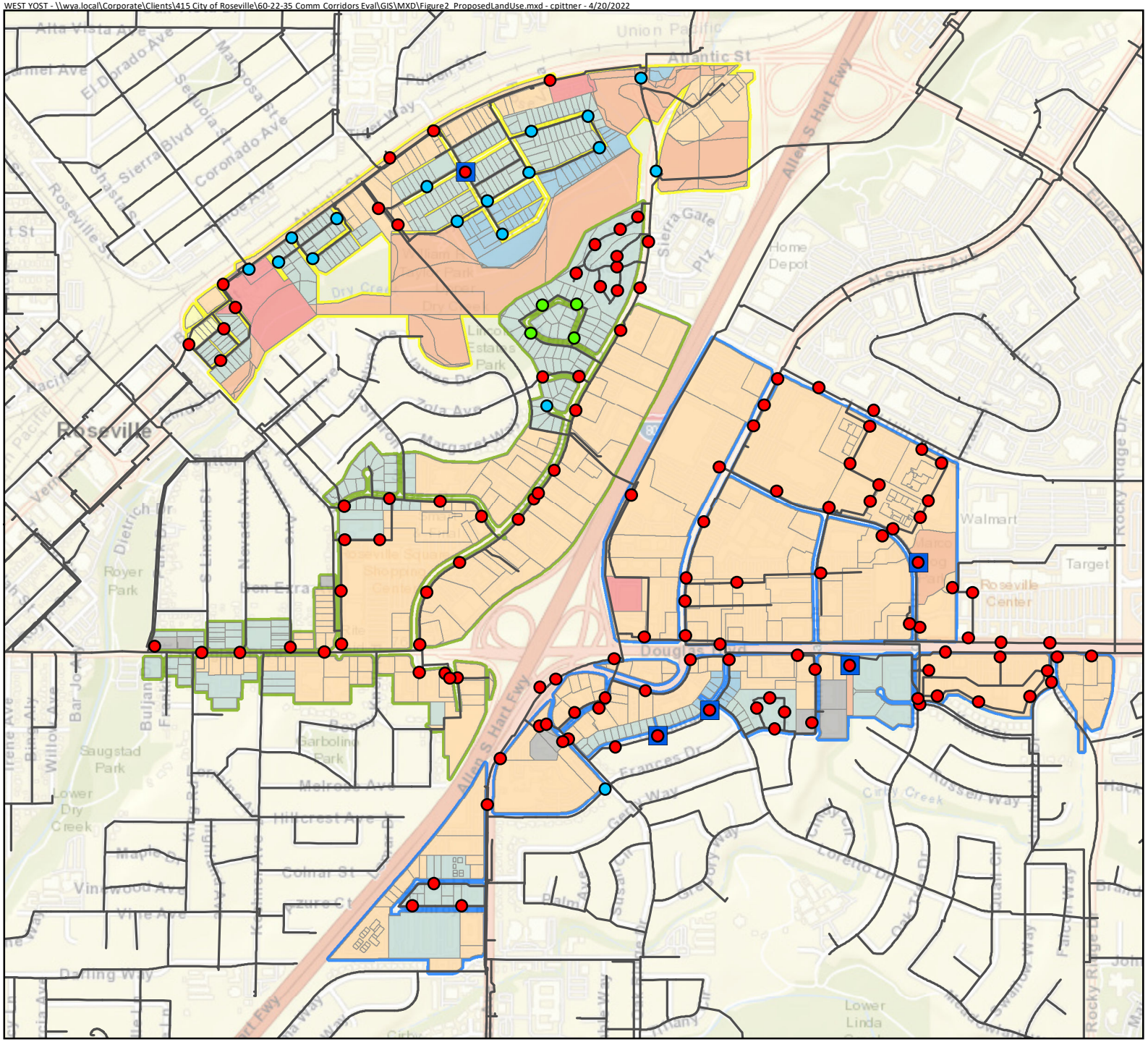
WEST YOST

Figure 1

Existing Land Use
Fire Flow Requirements

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure2_ProposedLandUse.mxd - cpittner - 4/20/2022



N

0 600 1,200

Scale in Feet

Symbology

- Existing Pipelines
- Douglas-Sunrise Corridor
- Douglas-Harding Corridor
- Atlantic Street Corridor

Fire Flow Requirement

- 1,500 gpm
- 2,500 gpm
- 4,000 gpm
- Increased to 4,000 gpm

Proposed Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

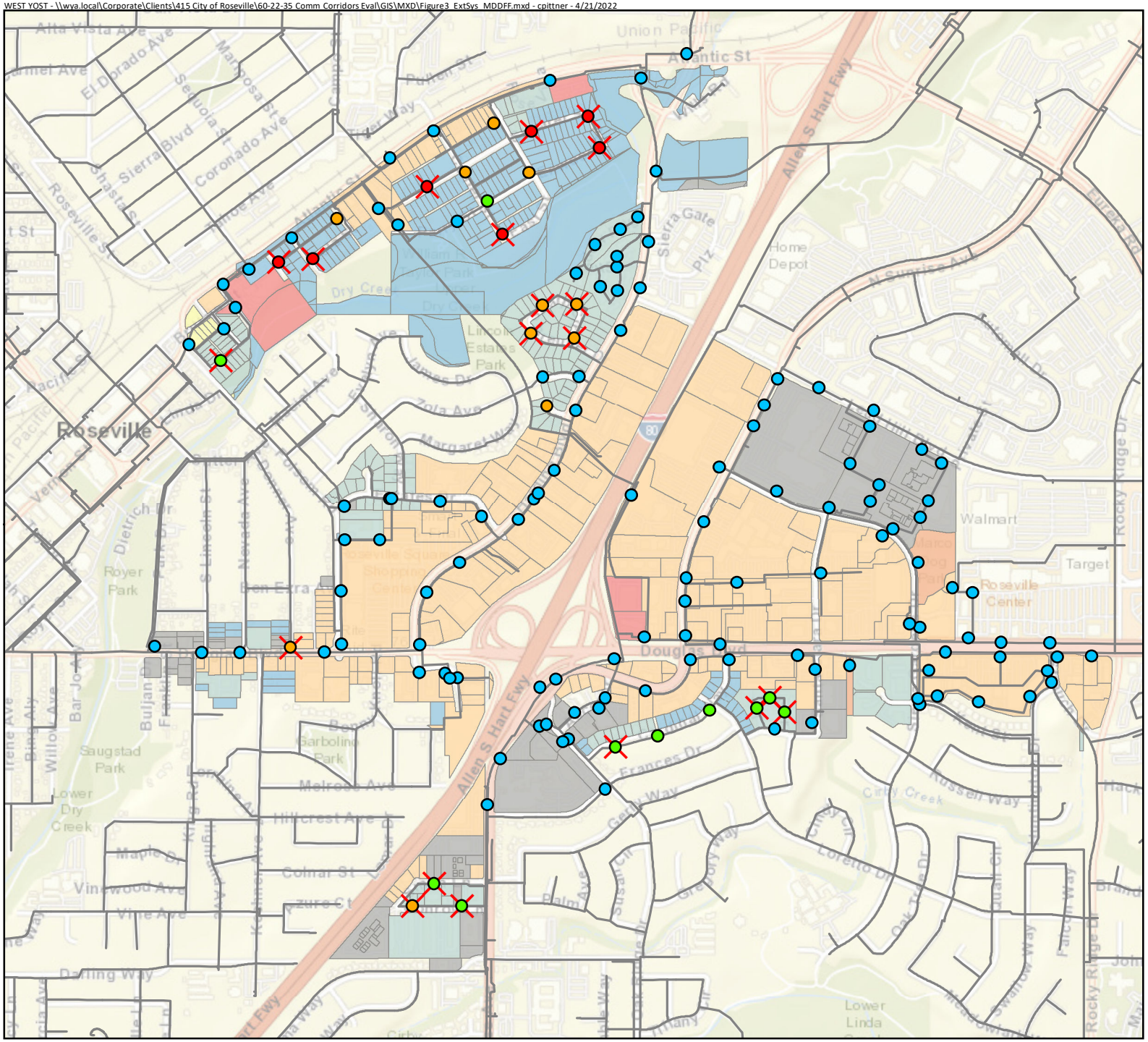
WEST YOST

Figure 2

Proposed Land Use
Fire Flow Requirements

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure3_ExtSys_MDDFF.mxd - cpittner - 4/21/2022



N

0 600 1,200

Scale in Feet

Symbology

Existing Pipelines

Available Fire Flow

- Less than 1,500 gpm
- 1,500 to 2,499 gpm
- 2,500 to 3,999 gpm
- Greater than 4,000 gpm
- Insufficient Fire Flow

Existing Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

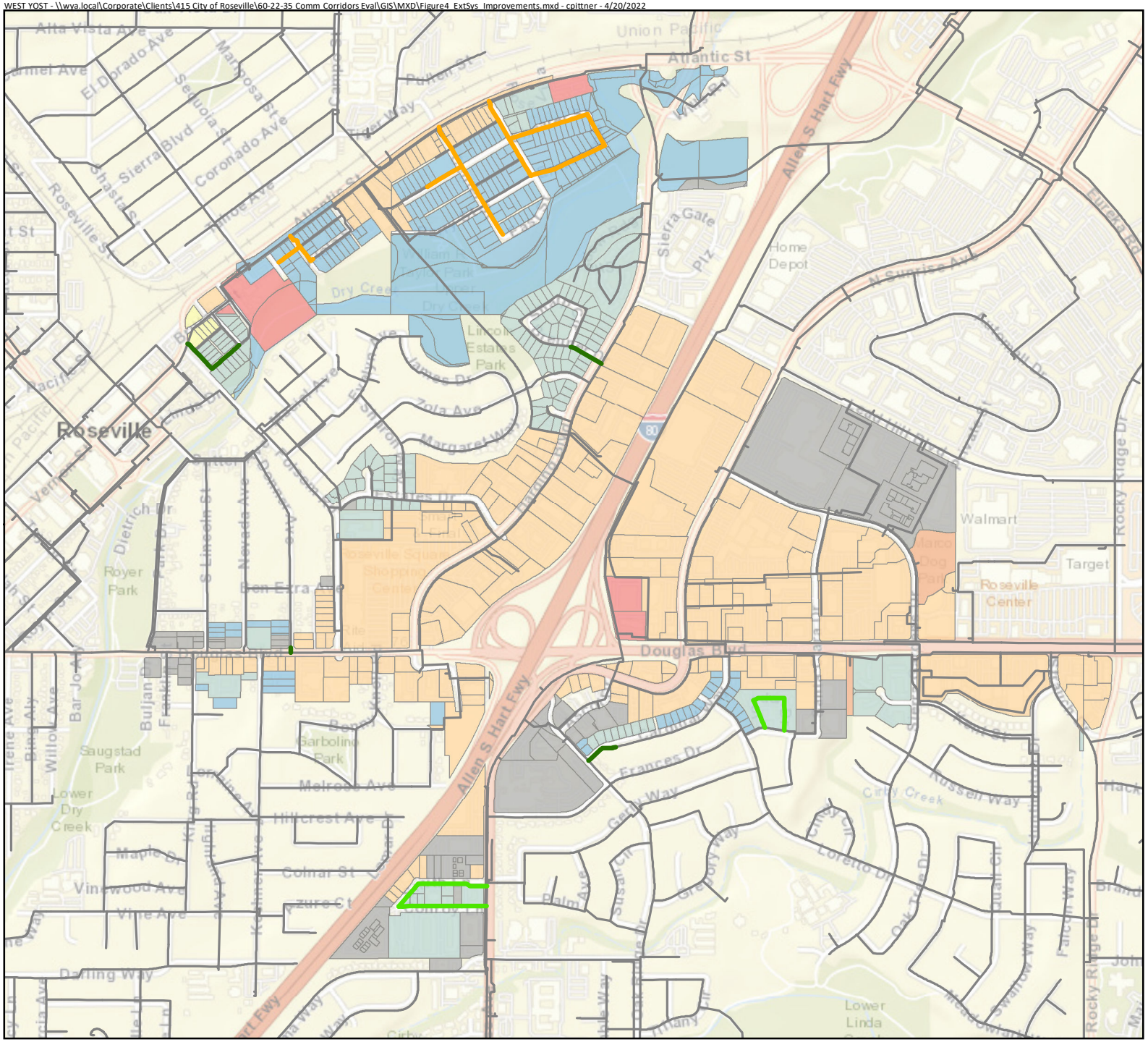
WEST YOST

Figure 3

Existing System Available Fire Flow

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure4_ExtSys_Improvements.mxd - cpittner - 4/20/2022



N

0 600 1,200

Scale in Feet

Symbology

Existing Pipelines

Pipeline Improvements

- Upsize to 8-inch
- Upsize to 10-inch
- Upsize to 12-inch

Extisting Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

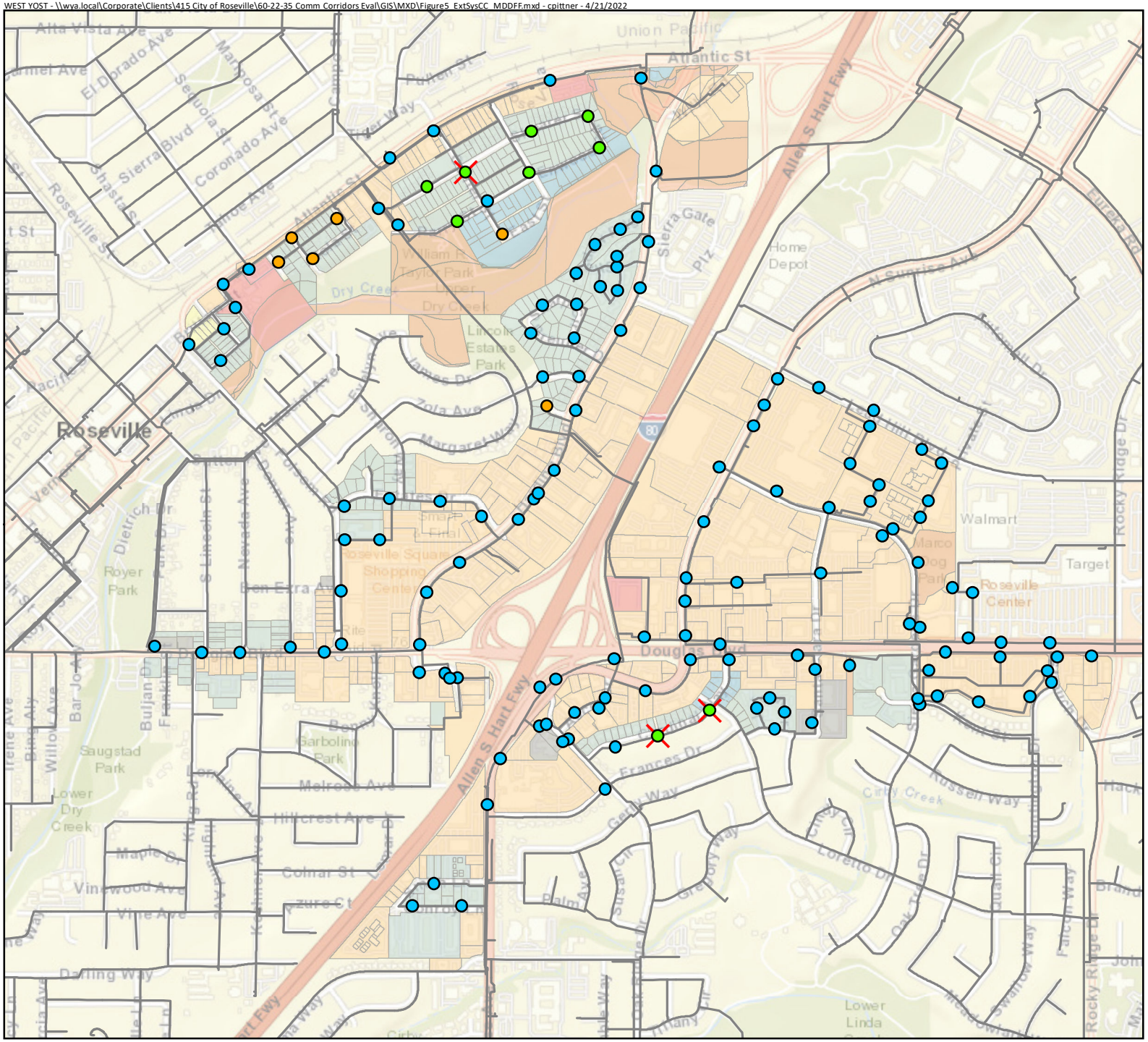
WEST YOST

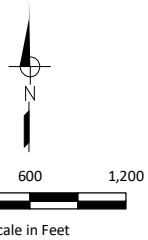
Figure 4

Existing System Pipeline Improvements

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure5_ExtSysCC_MDDFF.mxd - cpittner - 4/21/2022





Symbology

Pipelines

Available Fire Flow

- Less than 1,500 gpm
- 1,500 to 2,499 gpm
- 2,500 to 3,999 gpm
- Greater than 4,000 gpm
- Insufficient Fire Flow

Proposed Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

Notes:

1. Hydraulic model results shown include the pipeline improvements from Figure 4.

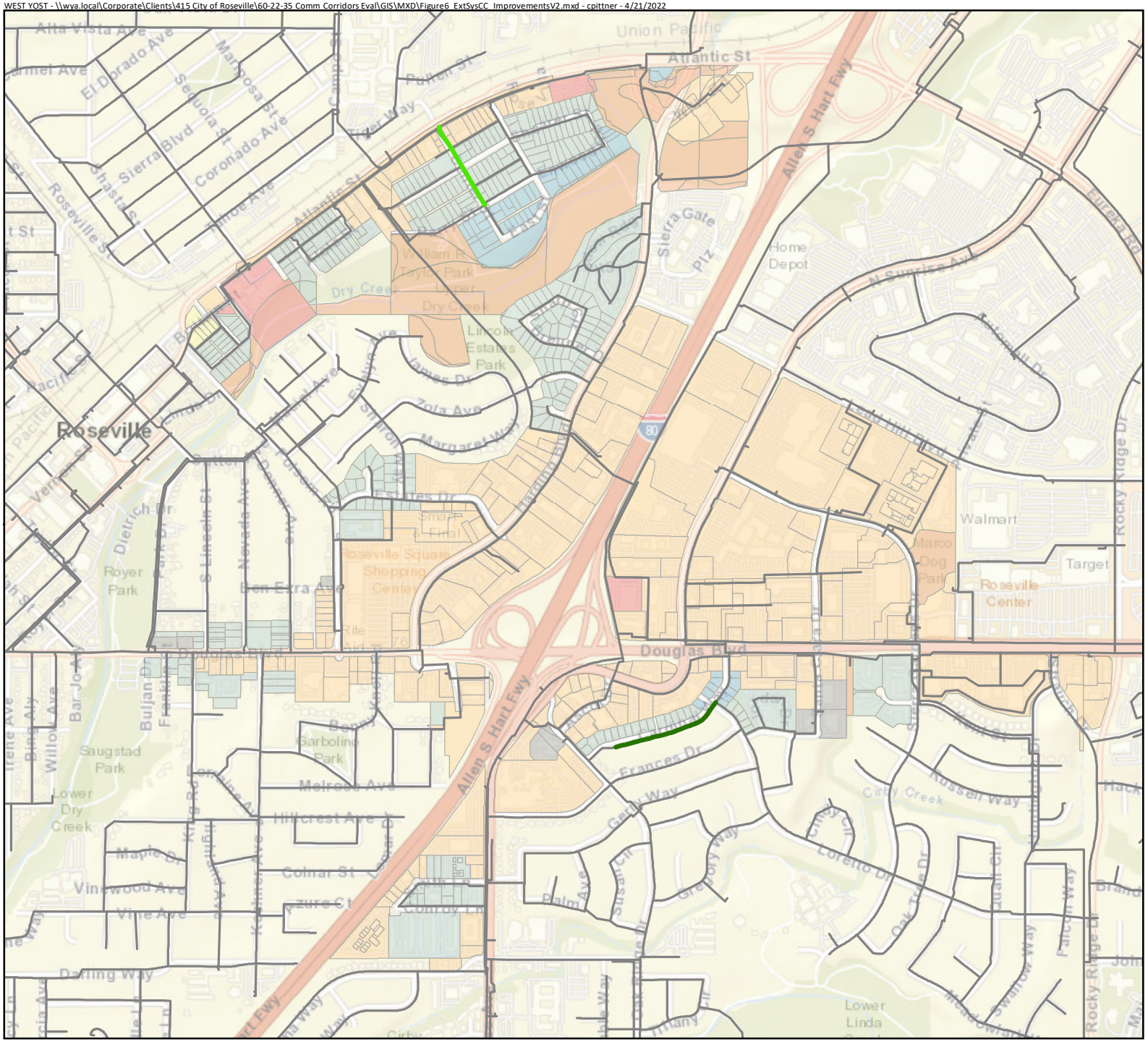
WEST YOST

Figure 5

Existing System + Corridors Available Fire Flow

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure6_ExtSysCC_ImprovementsV2.mxd - cpittner - 4/21/2022



N

0 600 1,200

Scale in Feet

Symbology

Pipelines

Pipeline Improvements

- Upsize to 8-inch
- Upsize to 10-inch
- Upsize to 12-inch

Proposed Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

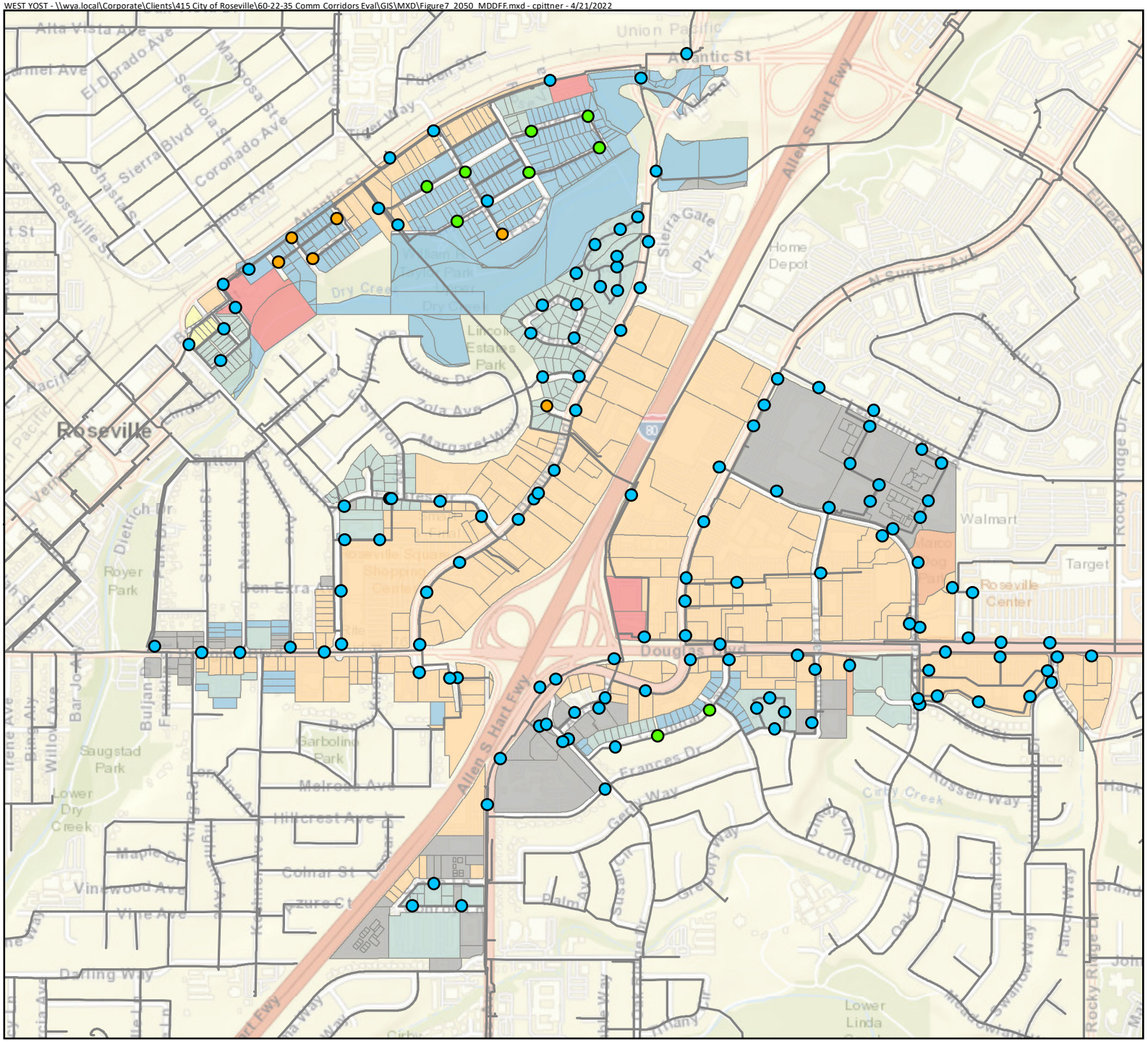
WEST YOST

Figure 6

Existing System + Corridors Pipeline Improvements

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure7_2050_MDDFF.mxd - cpittner - 4/21/2022



0 600 1,200

Scale in Feet

Symbology

Pipelines

Available Fire Flow

- Less than 1,500 gpm
- 1,500 to 2,499 gpm
- 2,500 to 3,999 gpm
- Greater than 4,000 gpm
- Insufficient Fire Flow

Extisting Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

Notes:

1. Hydraulic model results shown include the pipeline improvements from Figure 4.

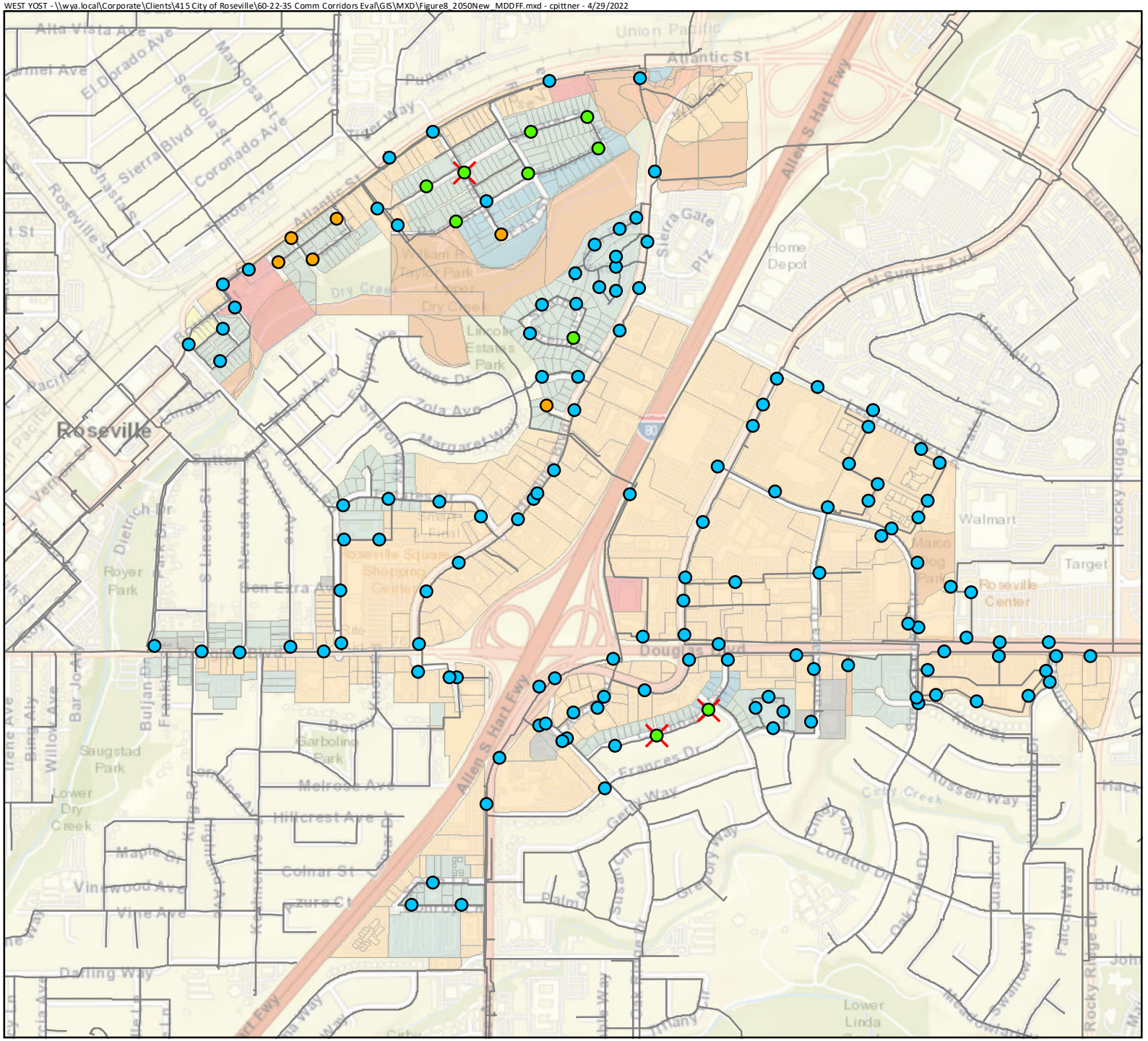
WEST YOST

Figure 7

2050 System Available Fire Flow

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure8_2050New_MDDFF.mxd - cpittner - 4/29/2022



0 600 1,200

Scale in Feet

Symbology

Pipelines

Available Fire Flow

- Less than 1,500 gpm
- 1,500 to 2,499 gpm
- 2,500 to 3,999 gpm
- Greater than 4,000 gpm
- Insufficient Fire Flow

Proposed Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

Notes:

1. Hydraulic model results shown include the pipeline improvements from Figure 4 and Figure 6.

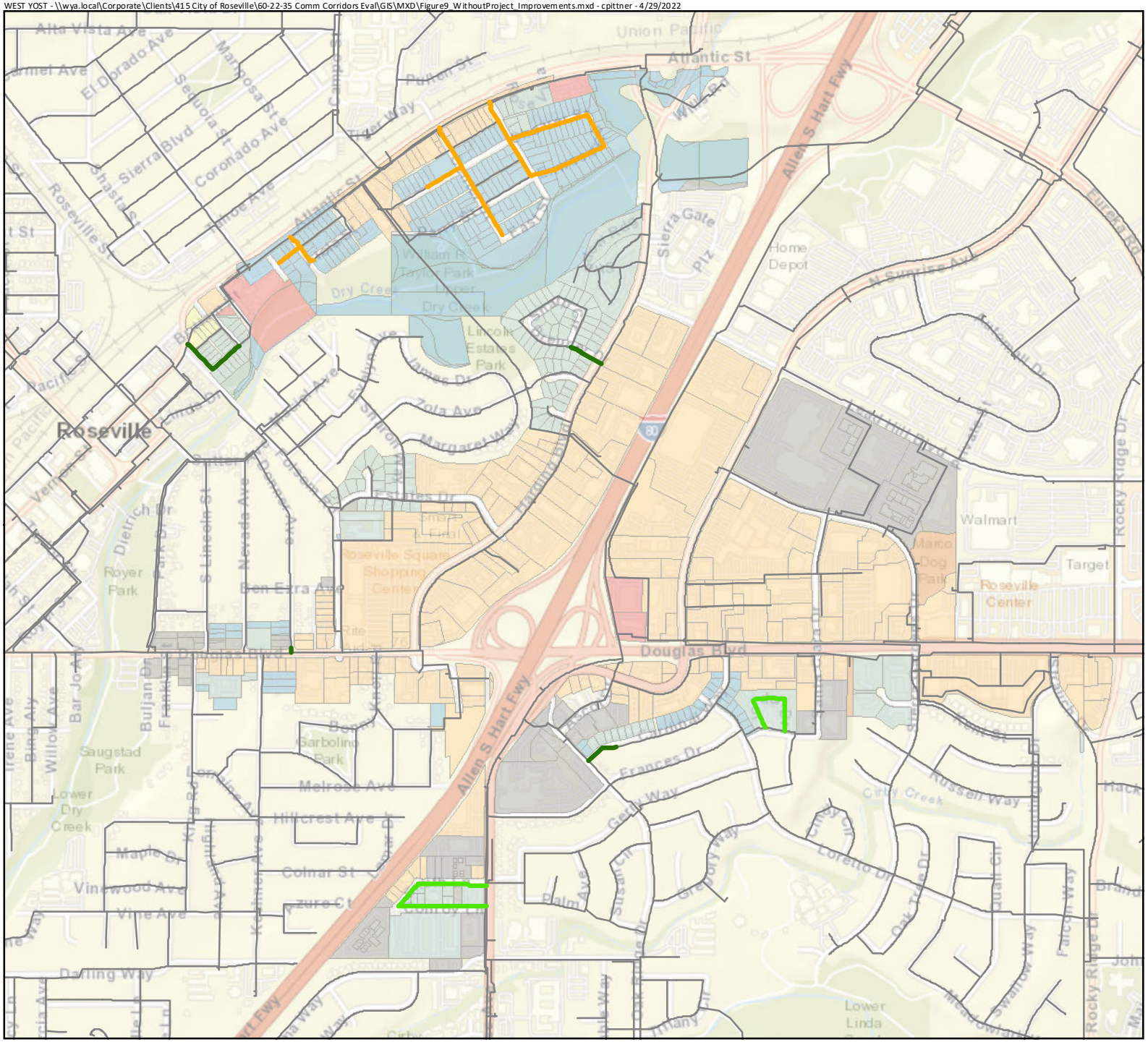
WEST YOST

Figure 8

2050 System + Corridors Available Fire Flow

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure9_WithoutProject_Improvements.mxd - cpittner - 4/29/2022



0 600 1,200

Scale in Feet

Symbology

Pipelines

Pipeline Improvements

- Upsize to 8-inch
- Upsize to 10-inch
- Upsize to 12-inch

Extisting Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

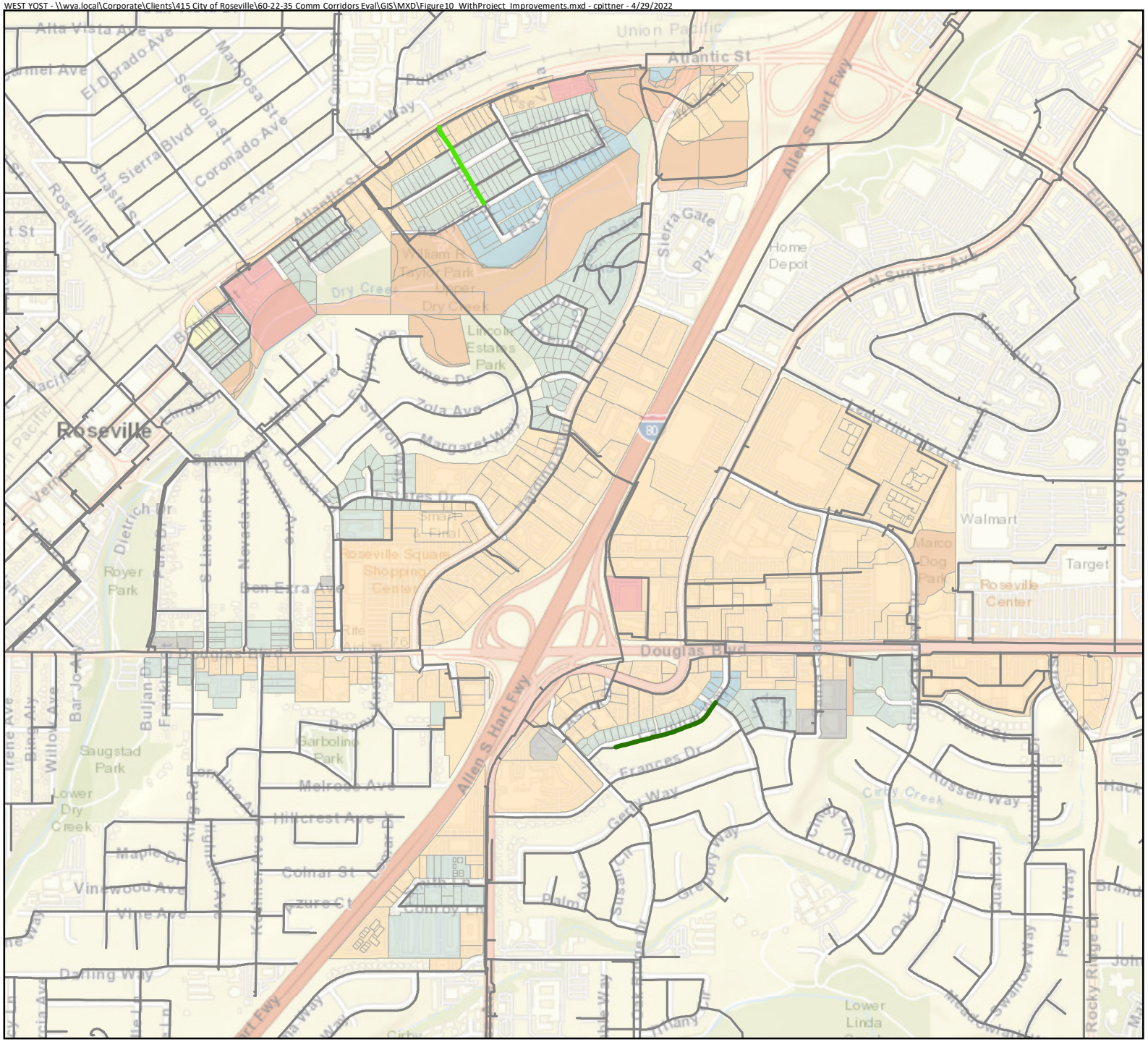
WEST YOST

Figure 9

Pipeline Improvements Without Corridors Project

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

WEST YOST - \\wya.local\Corporate\Clients\415 City of Roseville\60-22-35 Comm Corridors Eval\GIS\MXD\Figure10_WithProject_Improvements.mxd - cpittner - 4/29/2022



0 600 1,200

Scale in Feet

Symbology

- Pipelines

Pipeline Improvements

- Upsize to 8-inch
- Upsize to 10-inch
- Upsize to 12-inch

Proposed Land Use

- LDR
- MDR
- HDR
- BP
- CBD
- CC
- OS
- OS/FP
- P/QP

WEST YOST

Figure 10

Pipeline Improvements With Corridors Project

City of Roseville
Commercial Corridors SP
Hydraulic Evaluation

Technical Memorandum

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Rancho Cordova, CA 95670

T: 916-444-0123

Prepared for: City of Roseville

Project Title: Roseville Commercial Corridors Specific Plans Water Modeling Support

Project No.: 156832

Technical Memorandum

Subject: Criteria and Assumptions

Date: July 9, 2021

To: Gina McColl

From: Micaela Nino

Copy to: Melanie Holton, Tracie Mueller

Prepared by: Micaela Nino, Project Manager, P.E. CA License C90041

Reviewed by: Melanie Holton, P.E., CA License C64983

Limitations:

This document was prepared solely for the City of Roseville in accordance with professional standards at the time the services were performed and in accordance with the contract between the City of Roseville and Brown and Caldwell dated May 19, 2021. This document is governed by the specific scope of work authorized by the City of Roseville; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by the City of Roseville and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Table of Contents

List of Figures

List of Tables

Section 1: Introduction

The City of Roseville wants to evaluate the ability of its water system to properly serve proposed changes in development in the following three commercial corridors:

- Atlantic Street Corridor
- Douglas-Harding Corridor
- Douglas-Sunrise Corridor

This criteria and assumptions technical memorandum (TM) defines criteria to be used to analyze model results and recommend infrastructure improvements. This TM also documents data inputs and updates in the City's InfoWater water distribution system hydraulic model for the required analyses, including estimated water demands for each commercial corridor.

Section 2: Hydraulic Model Criteria

This section summarizes criteria used to analyze model results and recommend infrastructure improvements. Pressure, head loss, and velocity criteria used are summarized Table 1.

Table 1. Hydraulic Performance Criteria for Pipelines

Component	Criterion
Minimum Pressure [a]	50 pounds per square inch (psi) for normal operating conditions (which is assumed to include maximum day and peak hour demands) 20 psi under maximum day demand plus fire flow conditions
Maximum Pressure [a]	100 psi for normal operating conditions
Maximum Head loss [b]	10 feet per 1,000 feet of pipe (k/ft)
Maximum Velocity [b]	10 feet per second (fps)

a. *Source: Section 8- Domestic Water Supply System Design, City of Roseville Design Standards, January 2020*

b. *Industry standard*

Section 3: Model Inputs and Updates

This section summarizes data inputs and updates made to the hydraulic model for the required analyses, including estimated water demands for each commercial corridor.

3.1 Model Updates

The City's hydraulic model was updated and calibrated in August 2020. The City has constructed water infrastructure improvements as part of its capital improvements program (CIP). The following pipeline improvements were constructed after the completion of the 2020 model and were added to the model as part of this project. The locations of the improvements are shown in Figure 1:

a) **Tiger Way Union Pacific Railroad (UPRR) crossing:** Abandon 6-inch diameter line crossing UPRR between Atlantic Street and Tiger Way and replace with new 12-inch diameter connection along Tiger Way between existing 12-inch diameter pipelines from Campo Street to end of abandoned 6-inch diameter pipeline.
b) **Atlantic Street slip line:** Slip line two 12-inch diameter pipelines crossing Atlantic Street with 8-inch diameter pipelines and abandon two 12-inch diameter UPRR crossings.
c) **Evelyn Way and Folsom Road:** Connect existing pipelines on and crossing the alley near Evelyn Way, and connect pipelines that cross at the intersection of Evelyn Way and Folsom Road.
d) **Hillcrest area:** Install various 8-inch diameter and 12-inch diameter pipelines in the neighborhood near Hillcrest Avenue.
e) **I-80 crossings:** Abandon three pipelines (5-inch, 6-inch, and 8-inch diameter) crossing I-80 and install two 8-inch diameter pipelines (Douglas Boulevard and South Harding to Wayne Drive) to reconnect and loop the system in the area.

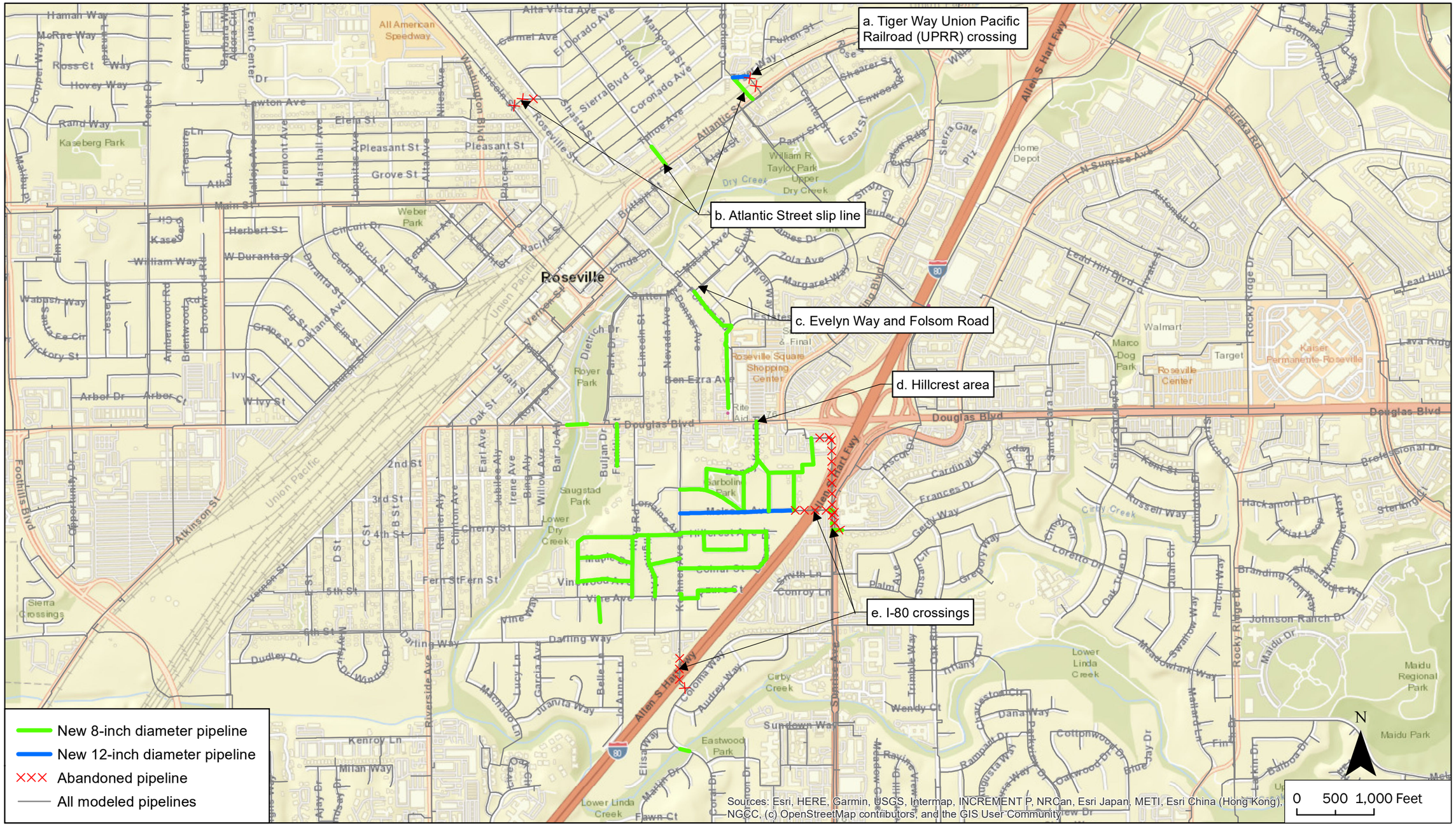

Figure 1. Model Updates

3.2 Water Demands

This section summarizes water demand estimates for each commercial corridor using proposed land uses combined with land use based unit water demand factors provided by the City.

3.2.1 Land Use Summary

Figure 2 shows existing land use and Figure 3 shows proposed land use. According to the City, each corridor will have increased water use due to following new High Density Residential (HDR) dwelling units (DUs):

- Atlantic Street Corridor = 50 new HDR dwelling units
- Douglas-Harding Corridor = 250 new HDR dwelling units
- Douglas-Sunrise Corridor = 100 new HDR dwelling units

3.2.2 Unit Water Demand Factor

A unit water demand factor of 177 gallons per day (gpd) per DU was used to calculated average day demands for the new HDR DUs. This factor is from Section 8 in Domestic Water Supply System Design, City of Roseville Design Standards (Roseville, 2020) for areas with greater than 16 DUs per acre.

3.2.3 Peaking Factors and Required Fire Flows

Peak hour demands and maximum day demands occurring in conjunction with a fire flow demand will be used to determine the hydraulic constraints on the existing water system. Based on City design standards, the average day demand to maximum day demand peaking factor is 2.0 and the maximum day demand to peak hour demand peaking factor is 1.7. Required fire flow demands by land use are listed in Table 2.

Table 2. Fire Flow Demand by Land Use

Land Use Category	Fire Flow Demand (gpm)
Residential (LDR)	1,500
Multi-Family (MDR, HDR)	4,000
Commercial, Business, Industrial, or School	4,000

Source: Section 8- Domestic Water Supply System Design, City of Roseville Design Standards, January 2020

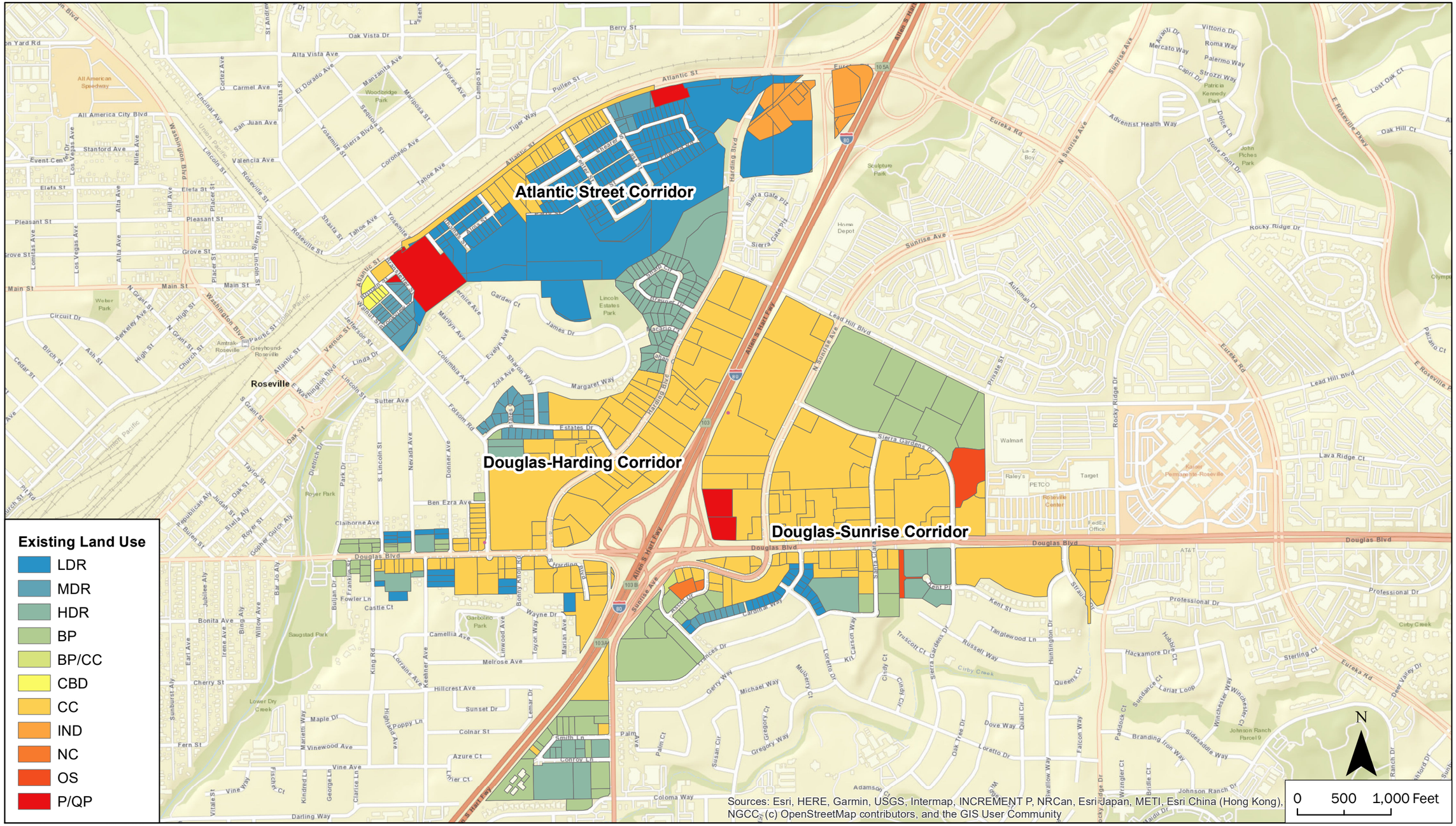

Figure 2. Existing Land Use

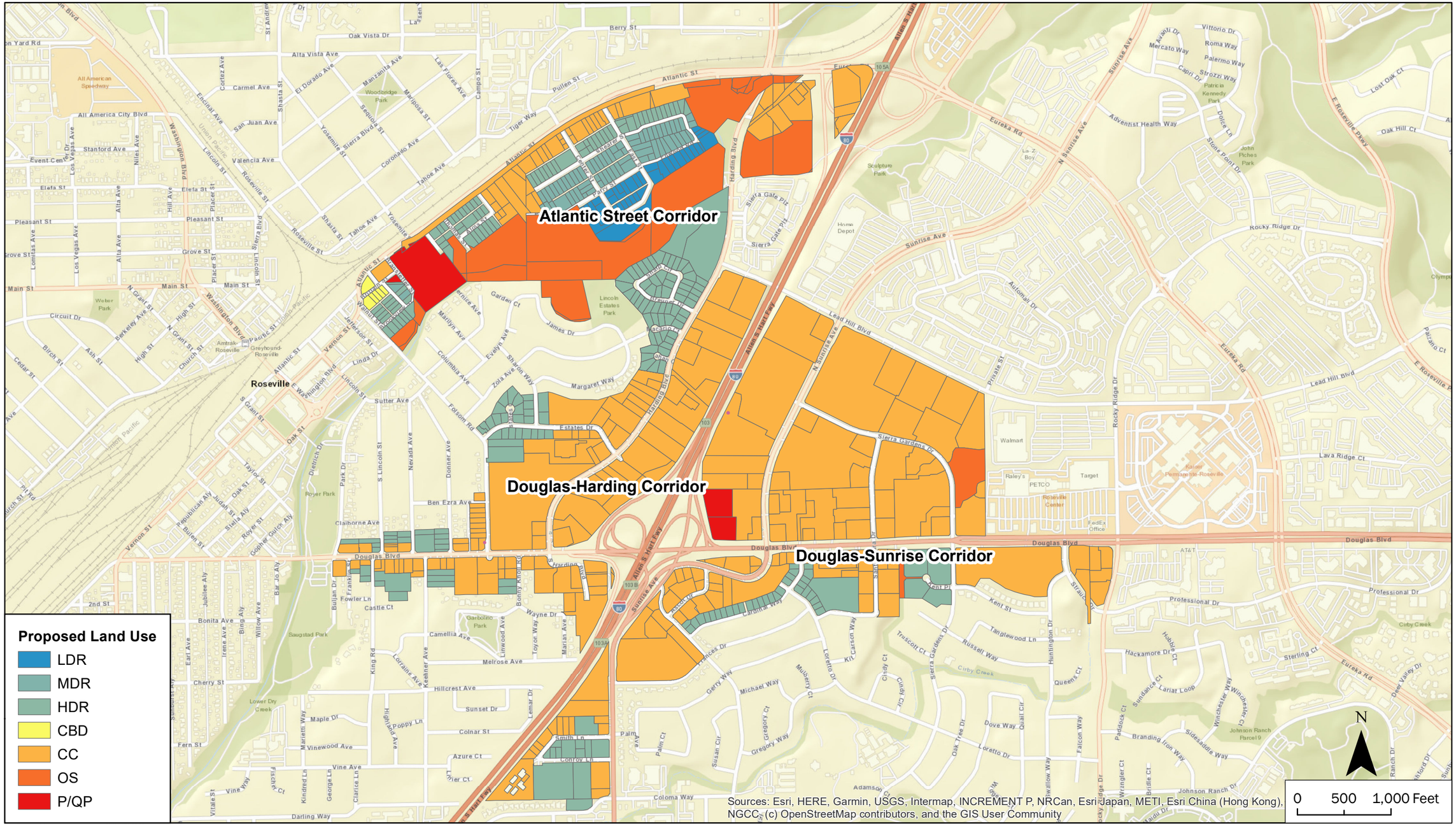

Figure 3. Proposed Land Use

3.2.4 Estimated Water Demands

The increase in water demands for each corridor was calculated using the number of DUs and unit demand factors discussed above. Table 3 summarizes the increase in water demands associated with redevelopment of the corridors.

Table 3. Increase in Water Demand Due to Redevelopment

Corridor	Land Use Categories		DUs	Unit Demand Factor (gpd/DU)	Average Day Demand (ADD) (gpd)	Maximum Day Demand (MDD) (gpd)
Atlantic Street	HDR	High Density Residential	50	177	8,850	17,700
Douglas-Harding	HDR	High Density Residential	250	177	44,250	88,500
Douglas-Sunrise	HDR	High Density Residential	100	177	17,700	35,400

The demands in Table 3 will be added to both the existing and 2050 model scenarios. Table 4 lists the demands used in this modeling analysis. The currently modeled MDD, based on year 2019 actual demand data, was extracted from the model for each corridor and is listed in Table 4. 2050 demands, based on the City's "Estimated Growth Matrix" dated October 2019 were also extracted from the model and are listed in the table.

Table 4. Demands Modeled in this Analysis per Corridor by Scenario (gpd)

Model Scenario	Description	Atlantic Street	Douglas-Harding	Douglas-Sunrise
1. Baseline Conditions	Existing modeled MDD (2019 actual)	280,552	472,272	680,043
2. Existing System Normal Scenario	Existing modeled MDD (listed first) plus the MDD associated with proposed HDR dwelling units from Table 3	280,552 + 17,700 = 298,252	472,272 + 88,500 = 560,772	680,043 + 35,400 = 715,443
3. 2050 System Normal Scenario	2050 modeled MDD (listed first and based on the City's spreadsheet titled "Estimated Growth Matrix" dated October 2019) plus the MDD associated with proposed HDR dwelling units from Table 3	582,929 + 17,700 = 600,629	660,779 + 88,500 = 749,279	1,246,094 + 35,400 = 1,281,494

References

City of Roseville, *City of Roseville Design Standards*, Section 8, "Domestic Water Supply System", January 2020.

City of Roseville, Commercial Corridors Development Standards and Regulatory Incentives.

City of Roseville, Project Maps (recent CIP drawings), provided via email from Tracie Mueller on June 9, 2021.