

Santa Cruz Downtown Plan Expansion
Draft Subsequent EIR Appendices

January 2025
SCH #: 2022090276



Appendix A

Notice of Preparation and Comment Letters

ZONING / PERMIT PROCESSING
831/420-5100 • FAX 831/420-5434
COMPREHENSIVE PLANNING
831/420-5180 • FAX 831/420-5101

INSPECTION SERVICES
831/420-5120 • FAX 831/420-5434
PLANNING ADMINISTRATION
831/420-5110 • FAX 831/420-5101

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
809 Center Street • Room 206 • Santa Cruz, CA 95060 • www.cityofsantacruz.com
Lee Butler, Director

September 16, 2022

NOTICE OF PREPARATION OF A SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

RE: Santa Cruz Downtown Plan Expansion Project

To Interested Agencies and Persons:

The City of Santa Cruz, as the lead agency, is preparing a Subsequent Environmental Impact Report (SEIR) to the Downtown Plan Amendments Final EIR that was certified in November 2018, for the expansion of the City's Downtown Plan to include a new area south of Laurel Street. Please respond with written comments regarding the scope and the content of the EIR as it may relate to your agency's area of statutory responsibility or your areas of concern or expertise. Your agency may need to use the EIR prepared by our agency when considering your permit or other approval for the project, if any is required. ***Responses are due within 30 days of the receipt of this Notice, as provided by State law.*** As such, written responses are requested to be received by 5:00 p.m. on October 17, 2022. The contact person's name and address are listed below. Please include the name and phone number of a contact person at your agency in your response.

A public scoping meeting will be held via Zoom (https://us06web.zoom.us/j/83682184844 Webinar ID: 836 8218 4844) on Wednesday, September 28, 2022 at 6:00 p.m. You or members of your agency or organization are invited to attend to provide comments on the scope and content of environmental information to include in the EIR.

1. **Project Location.** As shown in **Figure 1: Project Location**, the approximate 29-acre project area is located in downtown Santa Cruz and is generally bound by Laurel Street on the north, the San Lorenzo River on the east, Front Street on the south, and Center Street, Cedar Street and neighborhoods west of Pacific Avenue on the west. The project area is located in coastal zone and within the Beach and South of Laurel Plan Area.

   The project area currently contains a mix of developed commercial and residential land uses. Existing development includes: the temporary Kaiser Permanente Arena; various commercial retail and restaurant/bar uses, multi-family housing, and visitor-serving motels and inns.

2. **Project Description.** The proposed project consists of a series of amendments to the City's Downtown Plan by extending the boundary of the existing Downtown Plan to incorporate the

project study area and incorporate development standards and design guidelines for the study area, and other policies and standards to the City's Downtown Plan (amended January 28, 2020) that will facilitate future redevelopment of the project area. The project also includes amendments to the City's General Plan 2030, the Local Coastal Program (LCP), the Beach and South of Laurel Comprehensive Area Plan, the San Lorenzo Urban River Plan, and the Municipal Code to provide updates consistent with the proposed Downtown Plan amendments.

The proposed Downtown Plan amendments could facilitate additional development as a result of various circulation, land use and infrastructure revisions. For purposes of environmental review, the project area could potentially accommodate:

- A minimum of 1,800 housing units and 60,000 square feet (sf) of gross commercial area.
- Construction of a new approximately 180,000 sf permanent sports and entertainment arena for the Santa Cruz Warriors basketball team. The arena would contain a main event court with spectator seating for approximately 3,200 seats for basketball, and approximately 4,000 seats for concerts, performances, etc. Additional facilities would include a practice facility consisting of an additional court and training spaces, and supporting concession, retail and administrative uses.
- As shown in **Figure 2: Proposed Building Heights**, the amendments could result in increased building heights with maximum heights not to exceed one taller building of 175 feet and three buildings not to exceed 150 feet, with each height being inclusive of anticipated height increases associated with a 50% density bonus and with the taller building elements comprising only a portion of shorter podium building forms.
- As shown in **Figure 3: Existing and Proposed Circulation Improvements**, pedestrian and vehicular circulation improvements including: 1) The permanent closure of Spruce Street east of Pacific Avenue to create a new civic space that extends to and includes the San Lorenzo riverfront but does not limit access to critical utilities under Spruce Street; 2) Access or relocation of storm drain pump station at the north end of Laurel Street Extension; 3) A new service alley west of Pacific Avenue; 4) Reconfiguration of Pacific Avenue to support "flex use" parking and commercial uses within the public right-of-way; 5) Realignment of the Laurel Street Extension and adjacent city roadway and parking lot fronting the San Lorenzo levee; 6) Creation of a new civic spaces along the San Lorenzo River, Spruce Street, Front Street, and Pacific Avenue; and 7) Other miscellaneous streetscape improvements that facilitate vehicular, bike, and pedestrian mobility.
- Enhanced pedestrian connections between the Downtown and Main Beach by way of improvements to the Cliff Street overlook and stairs, and the Cliff Street right-of-way to create a new multi-modal corridor.
- Options for the location of a permanent arena facility for the Santa Cruz Warriors, with a preferred location being on the south side of Spruce Street between Pacific Avenue and Front Street.

3. **Project Applicant.** City of Santa Cruz

4. **Probable Environmental Effects of the Project.** After completing a preliminary review of the project, as described in Section 15060(d) of the CEQA Guidelines, the City has determined that a Subsequent EIR to the certified 2018 Downtown Plan Amendments EIR should be prepared to assess the potentially significant environmental impacts of the project. The EIR will include a project-level analysis associated with the Warriors Arena and associated development as shown in **Figure 4: Redevelopment Parcels**.

Because the preparation of an EIR is clearly required, an Initial Study will not be prepared. The City has identified the following possible effects of the project as topics for analysis in the EIR.

Included for Detailed EIR Analysis (Potentially Significant)	Excluded from Detailed EIR Analysis (Insignificant)
• Aesthetics • Air Quality and Greenhouse Gas Emissions • Biological Resources • Cultural Resources • Hydrology & Water Quality • Land Use & Planning • Noise • Population & Housing • Public Services, Utilities & Energy Conservation • Transportation	• Agricultural and Forest Resources • Geology & Soils • Hazards & Hazardous Materials • Mineral Resources

The following describes the anticipated environmental issues that will be addressed in the EIR.

- *Aesthetics* – Potential aesthetic impacts related to increased building heights will be addressed based in part on conceptual building massing renderings prepared as part of the Downtown Plan amendments. Potential impacts associated with substantial new night-time lighting or new sources of glare and shadows will also be addressed.
- *Air Quality and Greenhouse Gas Emissions (GHG)* – Potential impacts resulting from construction and operational emissions related to potential future development will be addressed.
- *Biological Resources* – Potential impacts to San Lorenzo River habitat and species due potential development resulting from increased building heights will be addressed.
- *Cultural Resources* – Potential impacts to archaeological and historical resources with redevelopment under the proposed plan amendments will be addressed.

- *Hydrology and Water Quality* – Exposure to flood hazards and a review of hazards due to potential San Lorenzo River flooding, tsunami inundation, climate influenced riverine flooding, climate adaptation, and sea level rise in the project area will be addressed.
- *Land Use and Planning* – Potential project conflicts with plans, policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect will be addressed.
- *Noise* – Operational noise, particularly related to predicted noise levels associated with anticipated events hosted at the proposed permanent area, will be addressed.
- *Population and Housing* – Population growth that may result from development of new housing units in study area will be addressed taking into account City growth trends and AMBAG's adopted Regional Growth Forecast.
- *Public Services, Utilities and Energy Conservation*– Fire and police protection services, schools, parks and recreation, wastewater treatment, municipal water service, and solid waste disposal will be reviewed based on potential future development that could occur as a result of the proposed amendments. Updated information regarding water supply planning will be provided to reflect any changes in water demand and supply as identified in recent City plans, including the 2020 Urban Water Management Plan. This section will also provide operational energy calculations, utilizing the CalEEMod results to address energy use..
- *Transportation* –Vehicle Miles Traveled (VMT) will be evaluated for each proposed land use and compared to existing conditions. This net change in VMT will be analyzed based on the City's adopted VMT transportation thresholds and in accordance with CEQA and state requirements. The review will address other modes of transportation in the area, including transit, pedestrian and bicycle circulation.

The City will consider the written comments received in response to this Notice of Preparation in determining whether any additional topics should be studied in the Draft EIR.

5. Contact Person:

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Department
809 Center Street, Rm. 101
Santa Cruz, CA 95060
Phone: (831) 420-5092
Email: sneuse@cityofsantacruz.com

Responses to this Notice of Preparation are due by October 17**, 2022**. Additional information regarding the project is available on the City's website at: www.cityofsantacruz.com/Downtown.

Sincerely,

Sarah Neuse
Senior Planner

Attachments:

- Figure 1: Project Location
- Figure 2: Proposed Building Heights
- Figure 3: Existing and Proposed Circulation Improvements
- Figure 4: Redevelopment Parcels



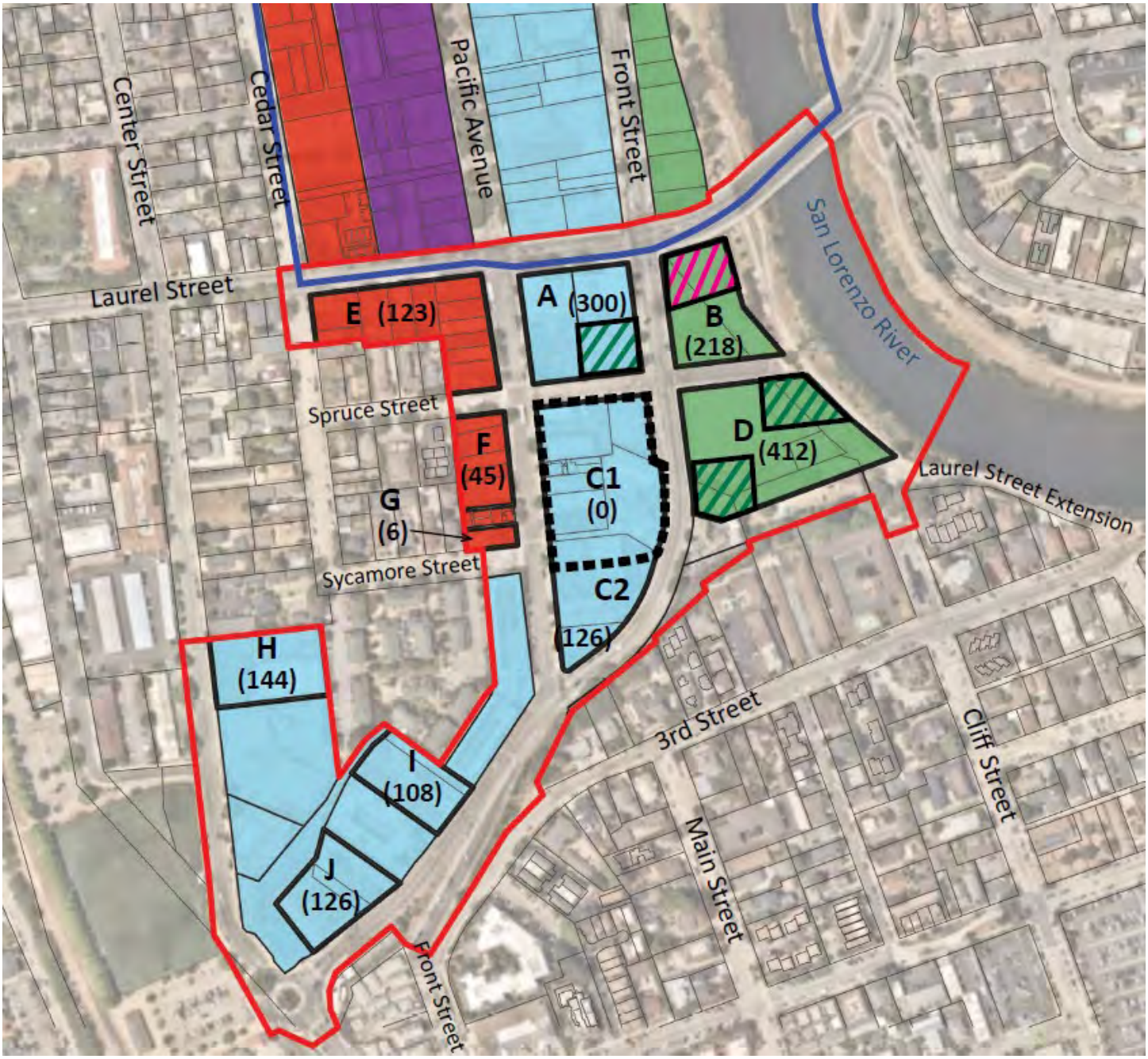
Source: Kimley-Horn, 2022

Kimley»Horn
Expect More. Experience Better

Not to scale

Figure 1: Project Location

Santa Cruz Downtown Plan Expansion Project
Draft Environmnental Impact Report



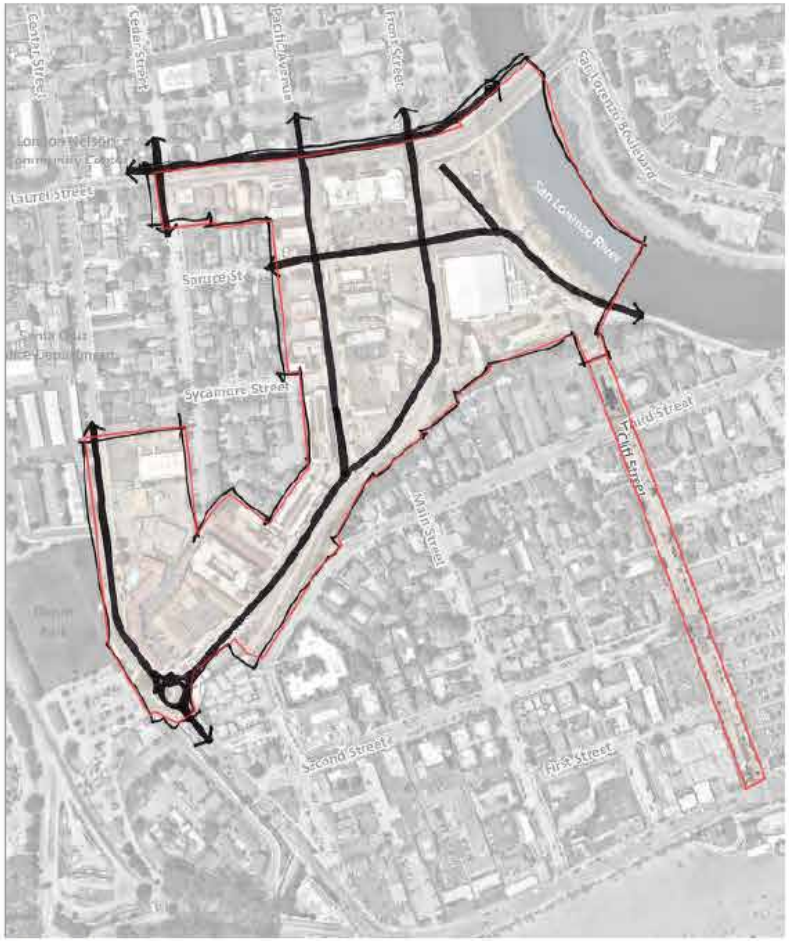
Source: Kimley-Horn, 2022

Kimley»Horn
Expect More. Experience Better.

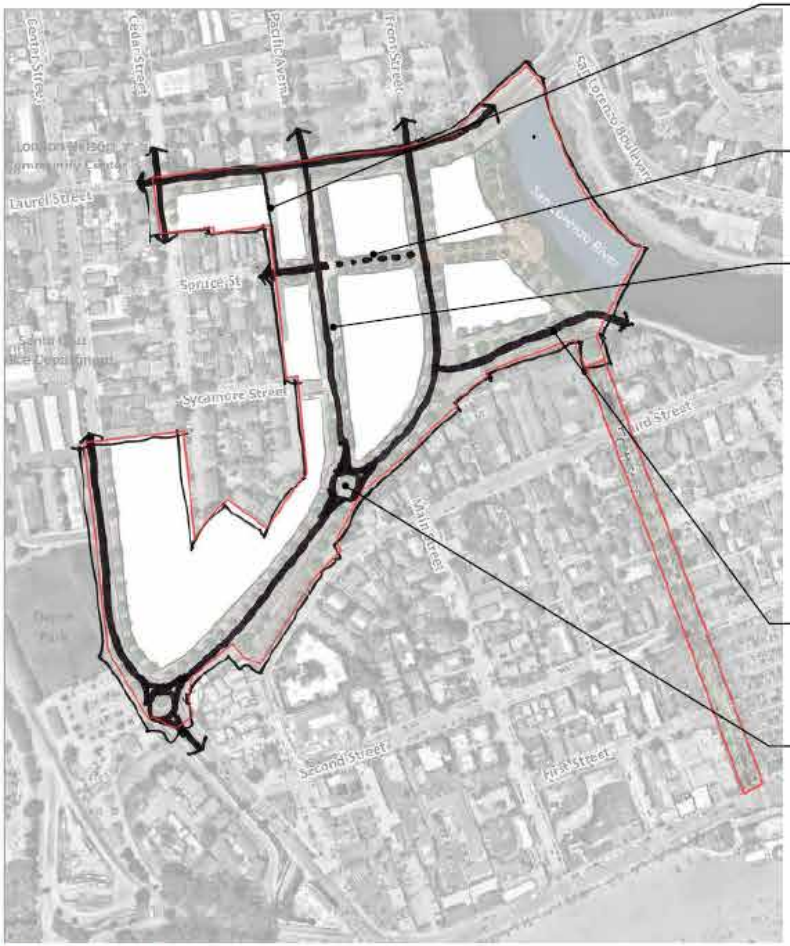
Not to scale

Figure 2: Proposed Building Heights

Santa Cruz Downtown Plan Expansion Project
Draft Environmnental Impact Report



Existing



Proposed

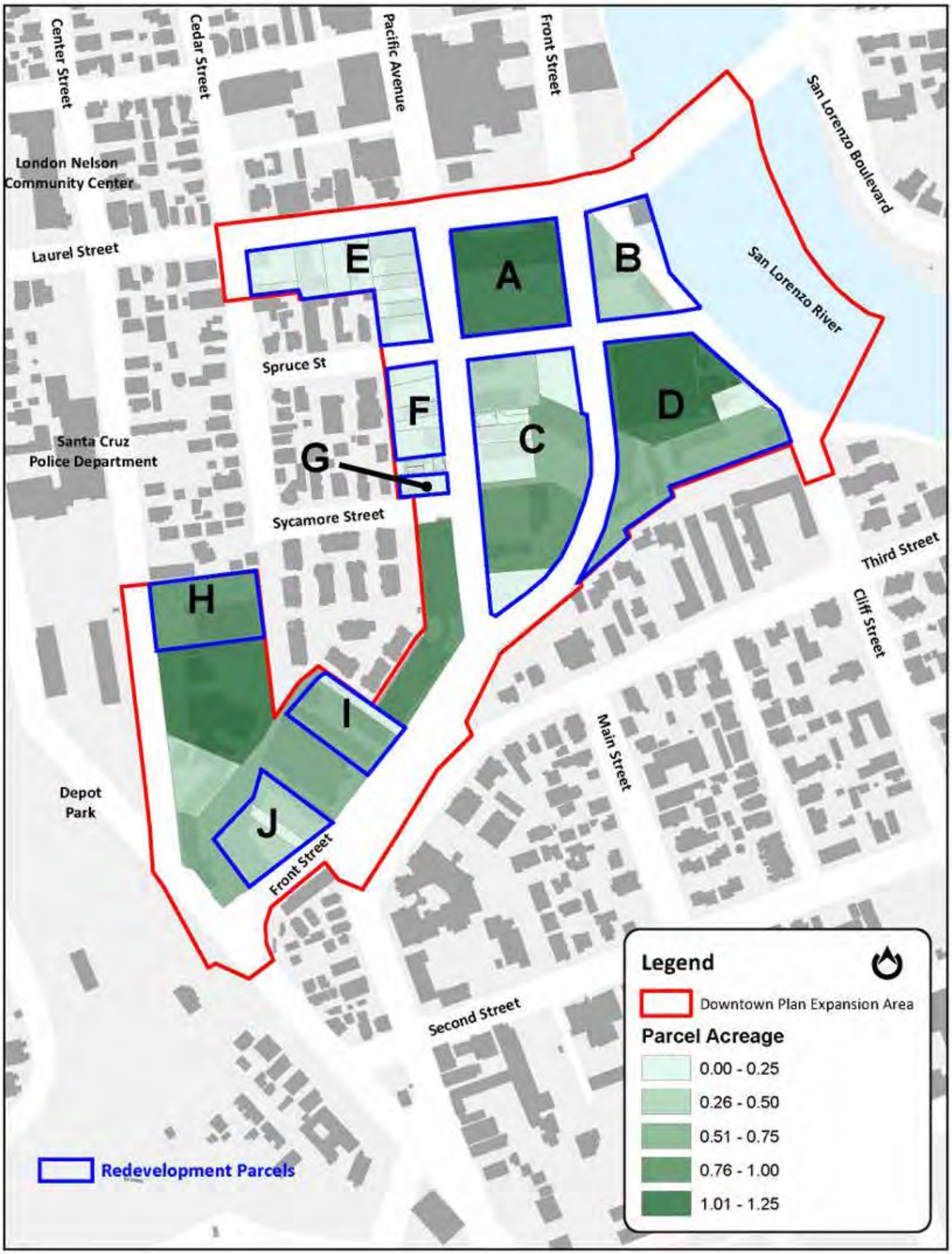
Source: Kimley-Horn, 2022

Kimley»Horn
Expect More. Experience Better

Not to scale

Figure 3: Existing and Proposed Circulation Improvements

Santa Cruz Downtown Plan Expansion Project
Draft Environmnental Impact Report



Source: Kimley-Horn, 2022

Kimley»Horn
Expect More. Experience Better

Not to scale

Figure 4: Redevelopment Parcels

Santa Cruz Downtown Plan Expansion Project
Draft Environmnental Impact Report

From:	Hultman, Debbie@Wildlife
To:	sneuse@cityofsantacruz.com
Cc:	OPR State Clearinghouse; Stumpf, Serena@Wildlife; Stokes, Wesley@Wildlife; Weightman, Craig@Wildlife
Subject:	Santa Cruz Downtown Plan Expansion-SCH2022090276
Date:	Wednesday, October 12, 2022 12:19:55 PM
Attachments:	Santa Cruz Downtown Plan Expansion-SCH2022090276-Neuse-STUMPF101222.pdf

Good Afternoon,

Please see the attached letter for your records. If you have any questions, contact Serena Stumpf, cc'd above.

Thank you,

Debbie Hultman | Associate Governmental Program Analyst
California Department of Fish and Wildlife – Bay Delta Region
2825 Cordelia Road, Ste. 100, Fairfield, CA 94534
707.815-8675 | debbie.hultman@wildlife.ca.gov

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

October 12, 2022

Ms. Sarah Neuse
City of Santa Cruz
809 Center Street, Room 102
Santa Cruz, CA 95060
sneuse@cityofsantacruz.com

Subject: Santa Cruz Downtown Plan Expansion Project, Notice of Preparation of a Draft Subsequent Environmental Impact Report, SCH No. 2022090276, City and County of Santa Cruz

Dear Ms. Neuse:

The California Department of Fish and Wildlife (CDFW) reviewed the Notice of Preparation (NOP) of a draft Subsequent Environmental Impact Report (SEIR) from the City of Santa Cruz (City) for the Santa Cruz Downtown Plan Expansion (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

CDFW is providing the City, as the lead agency, with specific detail about the scope and content of the environmental information related to CDFW's area of statutory responsibility that must be included in the SEIR (Cal. Code Regs., tit. 14, § 15082, subd. (b)).

CDFW ROLE

CDFW is a **Trustee Agency** with responsibility under CEQA pursuant to CEQA Guidelines § 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a **Responsible Agency** if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA) or Native Plant Protection Act (NPPA), the Lake and Streambed Alteration (LSA) Program, or other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources.

PROJECT DESCRIPTION AND LOCATION

The Project would extend the City's existing Downtown Plan to facilitate redevelopment of the Project area in downtown Santa Cruz. The Project could incorporate the following: 1) a minimum of 1,800 housing units and 60,000 square feet of commercial area; 2) construction of a new 180,000-square-foot sports and entertainment arena; 3) increased building heights from the existing Downtown Plan; 4) circulation

[1] CEQA is codified in the California Public Resources Code in Section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with Section 15000.

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

improvements including the closure of part of Spruce Street, creation of new civic spaces, relocation of a storm drain pump station, and other improvements; and 5) enhanced pedestrian connections between downtown and Main Beach. The Project would also include amendments to the City's General Plan 2030, the Local Coastal Program, the Beach and South of Laurel Comprehensive Area Plan, the San Lorenzo Urban River Plan, and the Municipal Code.

The Project is located in downtown Santa Cruz and is bound by Laurel Street on the north, the San Lorenzo River on the east, Front Street on the south, and Center Street, Cedar Street, and neighborhoods west of Pacific Avenue on the west. The Project would cover approximately 29 acres. The Project is located in the coastal zone and the Project area currently consists of mixed development including commercial and residential.

The CEQA Guidelines require that the SEIR incorporate a full project description, including reasonably foreseeable future phases of the Project, that contains sufficient information to evaluate and review the Project's environmental impact (CEQA Guidelines, §§ 15124 & 15378). Please include a complete description of the following Project components in the Project description, as applicable:

- Footprints of permanent Project features and temporarily impacted areas, such as staging areas and access routes.

- Area and plans for any proposed buildings/structures, ground disturbing activities, fencing, paving, stationary machinery, landscaping, and stormwater systems.

- Operational features of the Project, including level of anticipated human presence (describe seasonal or daily peaks in activity, if relevant), artificial lighting/light reflection, noise, traffic generation, and other features.

- Construction schedule, activities, equipment, and crew sizes.

REGULATORY REQUIREMENTS

California Endangered Species Act and Native Plant Protection Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in take[2] of plants or animals listed under CESA or NPPA, either during construction or over the life of the Project. If the Project will impact CESA or NPPA listed species, including but not limited to those identified in

[2] Take is defined in Fish and Game Code section 86 as hunt, pursue, catch, capture, or kill, or attempt any of those activities.

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

Attachment 1: Special-Status Species from the CNDDB within a 5-mile Radius of the Project Site, early consultation with CDFW is encouraged, as significant modification to the Project and mitigation measures may be required to obtain an ITP. Issuance of an ITP is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program.

CEQA requires a Mandatory Finding of Significance if a Project is likely to substantially restrict the range or reduce the population of a threatened or endangered species (Pub. Resources Code, §§ 21001, subd. (c), 21083; CEQA Guidelines, §§ 15380, 15064, & 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with CESA.

Lake and Streambed Alteration

CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et seq., for Project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank (including associated riparian or wetland resources); or deposit or dispose of material where it may pass into a river, lake, or stream. Work within ephemeral streams, drainage ditches, washes, watercourses with a subsurface flow, and floodplains are generally subject to notification requirements. In addition, infrastructure installed beneath such aquatic features, such as through hydraulic directional drilling, is also generally subject to notification requirements. **The Project site is adjacent to the San Lorenzo River. Any impacts to San Lorenzo River or associated riparian habitat would likely require an LSA Notification.** CDFW, as a responsible agency under CEQA, will consider the EIR for the Project. CDFW may not execute a final LSA Agreement until it has complied with CEQA as the responsible agency.

Nesting Birds

CDFW has authority over actions that may disturb or destroy active nest sites or take birds. Fish and Game Code sections 3503, 3503.5, and 3513 protect birds, their eggs, and nests. Migratory birds are also protected under the federal Migratory Bird Treaty Act.

Fully Protected Species

Fully Protected species, including those listed in **Attachment 1**, may not be taken or possessed at any time (Fish & G. Code, §§ 3511, 4700, 5050, & 5515).

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

ENVIRONMENTAL SETTING

A site-specific analysis prepared by a qualified biologist should provide sufficient information regarding the environmental setting ("baseline") to understand the Project's, and its alternative's (if applicable), potentially significant impacts on the environment (CEQA Guidelines, §§ 15125 & 15360).

CDFW recommends that a site-specific analysis provide baseline habitat assessments for special-status plant, fish, and wildlife species located and potentially located within the Project area and surrounding lands, including but not limited to all rare, threatened, or endangered species (CEQA Guidelines, § 15380). These documents should describe aquatic habitats, such as wetlands, vernal pools, and/or waters of the U.S. or State, and any sensitive natural communities[3] or riparian habitat occurring on or adjacent to the Project site, and any stream or wetland set back distances the City or county may require. Fully protected, threatened or endangered, and other special-status species and sensitive natural communities that are known to occur, or have the potential to occur in or near the Project area, include but are not limited to, those listed in **Attachment 1**.

Habitat descriptions and the potential for species occurrence should include information from multiple sources, such as aerial imagery; historical and recent survey data; field reconnaissance; scientific literature and reports; the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Consultation System; findings from positive occurrence databases such as the California Natural Diversity Database (CNDDB); the California Aquatic Resource Inventory (CARI); and sensitive natural community information available through the Vegetation Classification and Mapping Program (VegCAMP). Based on the data and information from the habitat assessment, site-specific analysis should adequately assess which special-status species are likely to occur on or near the Project site, and whether they could be impacted by the Project.

CDFW recommends that prior to Project implementation, surveys be conducted for special-status species with potential to occur, following recommended survey protocols[4] if available.

Botanical surveys[5] for special-status plant species, including those with a California Rare Plant Rank[6], must be conducted during the appropriate season, including the

---

[3] For sensitive natural communities see https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities

[4] Survey and monitoring protocols and guidelines are available at https://wildlife.ca.gov/Conservation/Survey-Protocols.

[5] Please refer to CDFW protocols for surveying and evaluating impacts to rare plants, and survey report requirements at https://wildlife.ca.gov/Conservation/Plants

[6] http://www.cnps.org/cnps/rareplants/inventory/

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

blooming period for all species potentially impacted by the Project within the Project area and adjacent habitats that may be indirectly impacted by, for example, changes to hydrology, and require the identification of reference populations. More than one year of surveys may be necessary given environmental conditions.

IMPACT ANALYSIS AND MITIGATION MEASURES

A site-specific analysis should discuss all direct and indirect impacts (temporary and permanent), including reasonably foreseeable impacts, that may occur with implementation of the Project (CEQA Guidelines, §§ 15126, 15126.2, & 15358). This includes evaluating and describing impacts such as:

- Encroachments into riparian habitats, drainage ditches, wetlands, or other sensitive areas.
- Potential for impacts to special-status species or sensitive natural communities.
- Loss or modification of breeding, nesting, dispersal, and foraging habitat, including vegetation removal, alteration of soils and hydrology, and removal of habitat structural features (e.g., snags, rock outcrops, overhanging banks).
- Permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic, or human presence.
- Obstruction of movement corridors, fish passage, or access to water sources and other core habitat features.

A site-specific analysis should also identify reasonably foreseeable future projects in the Project vicinity, disclose any cumulative impacts associated with these projects, determine the significance of each cumulative impact, and assess the significance of the Project's contribution to the impact (CEQA Guidelines, § 15355). Although a project's impacts may be less-than-significant individually, its contributions to a cumulative impact may be considerable; a contribution to a significant cumulative impact, e.g., reduction of habitat for a special-status species, should be considered cumulatively considerable.

Based on the comprehensive analysis of the direct, indirect, and cumulative impacts of the Project, the CEQA Guidelines direct the Lead Agency to consider and describe all feasible mitigation measures to avoid potentially significant impacts in the SEIR, which CDFW recommends is supported by a site-specific analysis, and mitigate potentially significant impacts of the Project on the environment (CEQA Guidelines, §§ 15021, 15063, 15071, 15126.4 & 15370). This includes a discussion of impact avoidance and minimization measures for special-status species, which are recommended to be developed in early consultation with CDFW, USFWS, and the National Marine Fisheries

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

Service. Project-specific measures should be incorporated as enforceable Project conditions to reduce impacts to biological resources to less-than-significant levels.

Fully protected species such as those listed in **Attachment 1**, may not be taken or possessed at any time (Fish & G. Code, §§ 3511, 4700, 5050, & 5515). Therefore, the SEIR supported by a site-specific analysis should include measures to ensure complete avoidance of these species.

COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the City in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on biological resources.

COMMENT 1: Riparian Setbacks

Issue: The Project has the potential to encroach into the riparian zone from development of new buildings and infrastructure near the San Lorenzo River. Encroachment in the riparian zone can negatively impact sensitive riparian species and can lead to increased pollutants and deleterious materials entering the stream.

Evidence the impact would be significant: Riparian trees and vegetation, and associated floodplains, provide many essential benefits to stream and aquatic species habitat (Moyle 2002, CDFW 2007), including thermal protection, cover, and large woody debris. Development adjacent to the riparian zone can result in fragmentation of riparian habitat and decreases in native species abundance and biodiversity (Davies et al. 2001, Hansen et al. 2005, CDFW 2007). An estimated 2 to 7 percent of California's riparian habitat remains intact and has not been converted to other land uses (Katibah 1984, Dawdy 1989). Riparian buffers help keep pollutants from entering adjacent waters through a combination of processes including dilution, sequestration by plants and microbes, biodegradation, chemical degradation, volatilization, and entrapment within soil particles. Narrow riparian buffers are considerably less effective in minimizing the effects of adjacent development than wider buffers (Castelle et al. 1992, Brosofske et al. 1997, Dong et al. 1998, Kiffney et al. 2003, Moore et al. 2005).

Recommendation: CDFW recommends the Project establish and the SEIR incorporate riparian buffer zones to limit development and vegetation clearing to outside of and away from riparian areas. CDFW is available to consult with the City to determine appropriate site-specific riparian buffers to reduce impacts to sensitive species and riparian habitat to less-than-significant. At a minimum, CDFW recommends a 50-foot riparian buffer as measured from the top of streambank to the nearest Project infrastructure.

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

COMMENT 2: Impervious surfaces

Issue: The Project could increase impervious surfaces at the Project site with the addition of roads and buildings. Impervious surfaces, stormwater systems, and storm drain outfalls have the potential to significantly affect fish and wildlife resources by altering the hydrograph of natural streamflow patterns via concentrated run-off.

Evidence the impact would be significant: Urbanization (e.g., impervious surfaces, stormwater systems, storm drain outfalls) can modify natural streamflow patterns by increasing the magnitude and frequency of high flow events and storm flows (Hollis 1975, Konrad and Booth 2005).

Recommendations to minimize significant impacts: CDFW recommends that storm runoff be dispersed rather than concentrated to a stormwater outfall or other receiving waters. CDFW recommends implementation of low impact development (LID) and the use of bioswales and bioretention features to intercept storm runoff. CDFW also recommends incorporating permeable surfaces throughout the Project to allow stormwater to percolate in the ground and prevent stream hydromodification (see https://www.usgs.gov/science/evaluating-potential-benefits-permeable-pavement-quantity-and-quality-stormwater-runoff?qt-science_center_objects=0#qt-science_center_objects).

COMMENT 3: Artificial Lighting

Issue: The Project has the potential to increase artificial lighting from addition of buildings and other development. Artificial lighting often results in light pollution, which has the potential to significantly and adversely affect fish and wildlife.

Evidence the impact would be significant: Night lighting can disrupt the circadian rhythms of wildlife species. Many species use photoperiod cues for communication such as bird song (Miller, 2006), determining when to begin foraging (Stone et al., 2009), behavior thermoregulation (Beiswenger, 1977), and migration (Longcore and Rich, 2004).

Recommendations to minimize significant impacts: CDFW recommends eliminating all non-essential artificial lighting. If artificial lighting is necessary, CDFW recommends avoiding or limiting the use of artificial lights during the hours of dawn and dusk, when many wildlife species are most active. CDFW also recommends that outdoor lighting be shielded, cast downward, and does not spill over onto other properties or upwards into the night sky (see the International Dark-Sky Association standards at http://darksky.org/) and limited to warm light colors with an output temperature of 2700 kelvin or less.

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

ENVIRONMENTAL DATA

CEQA requires that information developed in EIRs and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNNDB online field survey form and other methods for submitting data can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Plantsand-Animals.

FILING FEES

CDFW anticipates that the Project will have an impact on fish and/or wildlife, and assessment of filing fees is necessary (Fish & G. Code, § 711.4; Pub. Resources Code, § 21089). Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW.

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP to assist the City in identifying and mitigating Project impacts on biological resources. If you have any questions, please contact Serena Stumpf, Environmental Scientist, at (707) 337-1364 or Serena.Stumpf@wildlife.ca.gov; or Wesley Stokes, Senior Environmental Scientist (Supervisory), at Wesley.Stokes@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EE486...

Erin Chappell
Regional Manager
Bay Delta Region

Attachment 1: Special-Status Species from the CNDDB within a 5-mile radius of the Project Site

ec: State Clearinghouse (SCH No. 2022090276)

REFERENCES

Beiswenger, R. E. 1977. Diet patterns of aggregative behavior in tadpoles of *Bufo americanus*, in relation to light and temperature. Ecology 58:98–108.

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

Brosofske, K.D., J. Chen, R.J. Naiman, and J.F. Franklin. 1997. Harvesting effects on microclimatic gradients from small streams to uplands in western Washington. Ecological Applications 7:1188-1200.

Castelle, A.J., C. Conolly, M. Emers, E.D. Metz, S. Meyer, M. Witter, S. Mauermann, T. Erickson, and S.S. Cooke. 1992. Wetlands buffers use and effectiveness. Adolfson Associates, Inc., Shorelands and Coastal Zone Management Program, Washington Department of Ecology, Olympia, WA. Pub. No. 92-10.

CDFW. 2007. California wildlife: conservation challenges. California Department of Fish and Game, Sacramento, CA.

Davies, K.F., C. Gascon, and C.R. Margules. 2001. Habitat fragmentation: consequences, management, and future research priorities. Pages 81-97 in: M.E. Soule and G. H. Orians, (eds.) Conservation Biology: Research Priorities for the Next Decade. Island Press, Washington, DC.

Dawdy, D.R. 1989. Feasibility of mapping riparian forests under natural conditions in California. pages 63-68 in: Proceedings of the California Riparian Systems Conference. GTR PSW-110. Davis, CA.

Dong, J., J. Chen, Brosofske, K.D., and R.J. Naiman, 1998. Modeling air temperature gradients across managed small streams in western Washington. Journal of Environmental Management 53:309-321.

Hansen, A. J., R. L. Knight, J. M. Marzluff, S. Powell, K. Brown, P. A. Gude, and K. Jones. 2005. Effects of exurban development on biodiversity patterns, mechanisms, and research needs. Ecological Applications 15:1893-1905.

Hollis, G. 1975. The effect of urbanization on floods of different recurrence interval. Water Resources Research 11:431-435.

Katibah, E.F. 1984. A brief history of riparian forests in the Central Valley of California. Pages 23-29 in: R.E. Warner and K.M. Hendrix (eds) California riparian systems: ecology, conservation and productive management. University of California Press, Berkeley, CA.

Kiffney, P. M., J. S. Richardson, and J. P. Bull. 2003. Responses of periphyton and insects to experimental manipulation of riparian buffer width along forest streams. Journal of Applied Ecology 40:1060-1076.

Konrad, C.P. and D.B. Booth. 2005. Hydrologic changes in urban streams and their ecological significance, paper presented at American Fisheries Society Symposium, American Fisheries Society

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

Longcore, T., and C. Rich. 2004. Ecological light pollution - Review. Frontiers in Ecology and the Environment 2:191–198.

Miller, M. W. 2006. Apparent effects of light pollution on singing behavior of American robins. The Condor 108:130–139.

Moore, R. D., D. L. Spittlehouse, and A. Story. 2005. Riparian microclimate and stream temperature response to forest harvesting: a review. Journal of the American Water Resources Association 41:813-834.

Moyle P.B. (2002). Inland fishes of California. University of California Press. Berkeley, CA.

Stone, E. L., G. Jones, and S. Harris. 2009. Street lighting disturbs commuting bats. Current Biology 19:1123–1127. Elsevier Ltd.

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

Attachment 1: Special-Status Species from the CNDDB within a 5-mile Radius of the Project Site

Scientific Name	Common Name	Status
Birds		
Agelaius tricolor	tricolored blackbird	ST
Athene cunicularia	burrowing owl	SSC
Charadrius nivosus nivosus	western snowy plover	FT, SSC
Coturnicops noveboracensis	yellow rail	SSC
Cypseloides niger	black swift	SSC
Elanus leucurus	white-tailed kite	FP
Laterallus jamaicensis coturniculus	California black rail	SE
Riparia riparia	Bank swallow	ST
Fish		
Eucyclogobius newberryi	tidewater goby	FE
Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	FT
Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	FE, SE
Amphibians		
Aneides niger	Santa Cruz black salamander	SSC
Dicamptodon ensatus	California giant salamander	SSC
Rana boylii	foothill yellow-legged frog	SE
Rana draytonii	California red-legged frog	FT, SSC
Mammals		
Antrozous pallidus	pallid bat	SSC
Corynorhinus townsendii	Townsend's big-eared bat	SSC

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

Scientific Name	Common Name	Status
Dipodomys venustus venustus	Santa Cruz kangaroo rat	S1[7]
Lasiurus cinereus	hoary bat	
Taxidea taxus	American badger	SSC
Reptiles		
Emys marmorata	western pond turtle	SSC
Invertebrates		
Bombus caliginosus	obscure bumble bee	ICP
Bombus occidentalis	western bumble bee	ICP
Cicindela hirticollis gravida	Sandy beach tiger beetle	S2
Cicindela ohlone	Ohlone tiger beetle	FE
Coelus globosus	globose dune beetle	S1S2
Danaus plexippus pop. 1	monarch - California overwintering population	FC, ICP
Lytta moesta	moestan blister beetle	S2
Meta dolloff	Dolloff Cave spider	S3
Polyphylla barbata	Mount Hermon June beetle	FE
Trimerotropis infantilis	Zayante band-winged grasshopper	FE
Plants		
Arctostaphylos andersonii	Anderson's manzanita	CRPR[8] 1B.2

[7] The state rank (S-rank) refers to the imperilment status only within California's state boundaries. S1 = Critically Imperiled; S2 = Imperiled; and S3 = Vulnerable. More information on conservation status ranks is available in *CDFW's Special Animals List* (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline).

[8] CRPR 1B plants are considered rare, threatened, or endangered in California and elsewhere. Further information on CRPR ranks is available in CDFW's *Special Vascular Plants, Bryophytes, and Lichens List* (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline) and on the California Native Plant Society website (https://www.cnps.org/rare-plants/cnps-rare-plant-ranks).

DocuSign Envelope ID: 4492A17F-4C15-471F-A8B6-EAA7E2213DB8

Scientific Name	Common Name	Status
Arctostaphylos silvicola	Bonny Doon manzanita	CRPR 1B.2
Arenaria paludicola	marsh sandwort	FE, SE
Campanula californica	swamp harebell	CRPR 1B.2
Carex saliniformis	deceiving sedge	CRPR 1B.2
Chorizanthe pungens var. *hartwegiana*	Ben Lomond spineflower	FE, CRPR 1B.1
Chorizanthe robusta var. *robusta*	robust spineflower	FE, CRPR 1B.1
Dacryophyllum falcifolium	tear drop moss	CRPR 1B.3
Erysimum teretifolium	Santa Cruz wallflower	FE, SE
Fissidens pauperculus	minute pocket moss	CRPR 1B.2
Holocarpha macradenia	Santa Cruz tarplant	FT, SE
Horkelia cuneata var. *sericea*	Kellogg's horkelia	CRPR 1B.1
Horkelia marinensis	Point Reyes horkelia	CRPR 1B.2
Microseris paludosa	marsh microseris	CRPR 1B.2
Monardella sinuata ssp. *nigrescens*	northern curly-leaved monardella	CRPR 1B.2
Monolopia gracilens	woodland woollythreads	CRPR 1B.2
Pentachaeta bellidiflora	white-rayed pentachaeta	FE, SE
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcornflower	CRPR 1B.2
Plagiobothrys diffusus	San Francisco popcornflower	SE
Trifolium buckwestiorum	Santa Cruz clover	CRPR 1B.1

FE = federally listed as endangered under the Endangered Species Act (ESA); FT = federally listed as threatened under ESA; FC = candidate for federal listing under ESA; SE = state listed as endangered under CESA; ST = state listed as threatened under CESA; CE= candidate for state listing as threatened or endangered; FP = state fully protected under Fish and Game Code; SSC = state species of special concern; ICP = state invertebrate of conservation priority; CRPR = California rare plant rank

From: Bjornstad, Christopher@DOT
To: sneuse@cityofsantacruz.com
Subject: Santa Cruz Downtown Plan Expansion Comment Letter
Date: Monday, October 17, 2022 2:05:07 PM
Attachments: image001.png
Santa Cruz Downtown Plan Expansion NOP Comment Letter.pdf

Good afternoon,
Please see the attached comment letter for the Santa Cruz Downtown Plan Expansion NOP. Let me know if you have any questions.
Thanks,
Chris Bjornstad
Associate Transportation Planner
Land Development Review Liaison-North
Caltrans District 5
(805) 835-6543



California Department of Transportation

CALTRANS DISTRICT 5
50 HIGUERA STREET | SAN LUIS OBISPO, CA 93401-5415
(805) 549-3101 | FAX (805) 549-3329 TTY 711
www.dot.ca.gov

October 17, 2022

SCr-1-Var.
SCH#2022090276

Sarah R Neuse
Senior Planner
City of Santa Cruz
809 Center St, Room 101
Santa Cruz, CA 95060

COMMENTS FOR THE NOTICE OF PREPARATION (NOP) – SANTA CRUZ DOWNTOWN PLAN EXPANSION, SANTA CRUZ, CA

Dear Ms. Neuse:

The California Department of Transportation (Caltrans), District 5, Development Review, has reviewed the Santa Cruz Downtown Plan Expansion NOP which consists of a series of amendments to the City's Downtown Plan by extending the boundary of the existing Downtown Plan and incorporating development standards and design guidelines for the study area, and other policies and standards that will facilitate future redevelopment of the project area. Caltrans offers the following comments in response to the NOP:

1. Caltrans supports local development that is consistent with State planning priorities intended to promote equity, strengthen the economy, protect the environment, and promote public health and safety. We accomplish this by working with local jurisdictions to achieve a shared vision of how the transportation system should and can accommodate interregional and local travel and development. Projects that support smart growth principles which include improvements to pedestrian, bicycle, and transit infrastructure (or other key Transportation Demand Strategies) are supported by Caltrans and are consistent with our mission, vision, and goals.

2. Please submit to us a travel demand analysis that provides a vehicle miles traveled (VMT) analysis resulting from the proposed project. With the enactment of Senate Bill (SB) 743, Caltrans is focusing on transportation infrastructure that supports smart growth and efficient development to ensure alignment with State policies using efficient development patterns, innovative travel demand reduction strategies, multimodal improvements, and VMT as the primary transportation impact metric.

3. Employing VMT as the metric of transportation impact Statewide will help to promote greenhouse gas (GHG) emission reductions consistent with SB 375 and can be achieved through influencing on-the-ground development. Implementation of this change will rely, in part, on local land use decisions to reduce GHG emissions associated with the transportation sector, both at the project level, and in long-term plans (including general plans, climate action plans, specific plans, and transportation plans) and supporting Sustainable Community Strategies developed under SB 375. In addition to any site-specific access or safety concerns with the project, it is likely that the Caltrans correspondence will focus attention on meeting overall VMT reducing goals.

4. Projects that result in automobile VMT per capita above the threshold of significance for existing (i.e. baseline) city-wide or regional values for similar land use types may indicate a significant impact. If necessary, mitigation for increasing VMT should be identified. Mitigation should support the use of transit and active transportation modes.

Thank you for the opportunity to review and comment on the proposed project. If you have any questions, or need further clarification on items discussed above, please contact me at (805) 835-6543 or email christopher.bjornstad@dot.ca.gov.

Sincerely,

Christopher Bjornstad

Chris Bjornstad
Associate Transportation Planner
District 5 Land Development Review

From:	McCreary, Gavin@DTSC
To:	SNeuse@cityofsantacruz.com
Cc:	Kereazis, Dave@DTSC; OPR State Clearinghouse
Subject:	Santa Cruz Downtown Plan Expansion
Date:	Friday, October 14, 2022 6:12:05 AM
Attachments:	Santa Cruz Downtown Plan Expansion.pdf

Ms. Neuse,

Please see the attached comments for the Santa Cruz Downtown Plan Expansion.

Thank you.

Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826
(916)255-3710
Gavin.McCreary@dtsc.ca.gov

Department of Toxic Substances Control

Yana Garcia
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Gavin Newsom
Governor

SENT VIA ELECTRONIC MAIL

October 14, 2022

Ms. Sarah Neuse
City of Santa Cruz
809 Center Street
Santa Cruz, CA 95060
SNeuse@cityofsantacruz.com

NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT FOR SANTA CRUZ DOWNTOWN PLAN EXPANSION – DATED SEPTEMBER 16, 2022 (STATE CLEARINGHOUSE NUMBER: 2022090276)

Dear Ms. Neuse:

The Department of Toxic Substances Control (DTSC) received a Notice of Preparation of an Environmental Impact Report (EIR) for the Santa Cruz Downtown Plan Expansion (Project). The Lead Agency is receiving this notice from DTSC because the Project includes one or more of the following: groundbreaking activities, work in close proximity to a roadway, presence of site buildings that may require demolition or modifications, and/or importation of backfill soil.

DTSC recommends that the following issues be evaluated in the Hazards and Hazardous Materials section of the EIR:

1. A State of California environmental regulatory agency such as DTSC, a Regional Water Quality Control Board (RWQCB), or a local agency that meets the requirements of Health and Safety Code section 101480 should provide regulatory concurrence that EIR is safe for construction and the proposed use.
2. The EIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment

should be evaluated. The EIR should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.

3. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil DTSC, recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the EIR.

4. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers*.

5. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to DTSC's 2001 *Information Advisory Clean Imported Fill Material*.

DTSC appreciates the opportunity to comment on the EIR. Should you choose DTSC to provide oversight for any environmental investigations, please visit DTSC's Site Mitigation and Restoration Program page to apply for lead agency oversight. Additional information regarding voluntary agreements with DTSC can be found at DTSC's Brownfield website.

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,



Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

From:	Graeven, Rainey@Coastal
To:	Sarah Neuse
Cc:	Ford, Kiana@Coastal
Subject:	Downtown Expansion Plan NOP Comments
Date:	Tuesday, October 18, 2022 5:00:56 PM
Attachments:	Comments on Santa Cruz Downtown Expansion Plan NOP 10.18.22.pdf

Hi Sarah,

Please find our comments on the Downtown Expansion Plan NOP. Feel free to get in touch with any questions.

Rainey

CALIFORNIA COASTAL COMMISSION
CENTRAL COAST DISTRICT
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
PHONE: (831) 427-4863
FAX: (831) 427-4877
WEB: WWW.COASTAL.CA.GOV

October 18, 2022

Sent Electronically
Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Department
809 Center Street, Room 201
Santa Cruz CA 95060
sneuse@cityofsantacruz.com

Subject: Notice of Preparation (NOP) of a Draft Supplemental Environmental Impact Report (SDEIR) for the Santa Cruz Downtown Plan Expansion Project

Dear Ms. Neuse:

Thank you for the opportunity to provide comments on the Notice of Preparation (NOP) for the Draft Supplemental Environmental Impact Report (DSEIR) for the proposed Santa Cruz Downtown Plan Expansion Project. We appreciate the opportunity for early coordination and solicitation of input for what will amount to a major transformation of the lower downtown area, including significant opportunities for re-envisioning, enlivening, and better connecting the Riverwalk with Downtown and the City's most popular and heavily visited coastal areas. It is our understanding that the project intends to facilitate significant residential and commercial development in the lower Downtown area, including to help meet housing needs identified in the most recent Regional Housing Needs Assessment, with a focus on sustainable and concentrated growth. Notably, the proposed project can help advance state and local sustainability measures including improved coastal access and recreation, mobility, environmental conditions, safety, and economic vitality and health, with an aim toward reducing Vehicle Miles Traveled (VMTs) and greenhouse gas (GHG) emissions. We recognize that a project of this nature invariably raises some questions and issues, and we appreciate that the CEQA process can help identify and address such questions and issues, provide a forum for public discussion, and develop materials to help facilitate the forthcoming Local Coastal Program Amendment (LCPA) and coastal development permit (CDP) processes. With that in mind, we offer the following comments to consider in the development of the DSEIR.

Project Description/Location
The proposed project consists of a series of amendments to the City's Downtown Plan with accompanying amendments to the Local Coastal Program (LCP), the Beach and South of Laurel Comprehensive Area Plan, and the San Lorenzo Urban River Plan. The proposed project aims to guide and facilitate the future redevelopment of the lower river-adjacent area in downtown Santa Cruz. Specifically, the proposed project area covers approximately 29 acres, and is generally bound by Laurel Street on the north, the San

Lorenzo River on the east[1], Front Street on the south, and Center Street, Cedar Street and the neighborhoods west of Pacific Avenue on the west.

Per the NOP, the proposed project could potentially accommodate: 1) a minimum of 1,800 housing units; 2) 60,000 square feet of gross commercial area; and 3) a new approximately 180,000 square foot permanent sports and entertainment arena for the Santa Cruz Warriors basketball team (consisting of a main event court with spectator seating for approximately 3,200 seats for basketball and approximately 4,000 seats for events, as well as a separate practice facility, a concession area, and retail and administrative uses). Additional details regarding the proposed building heights and circulation elements are discussed further below.

Maximum Building Height Allowance (MBHA)
The proposed amendments would allow for significant increases to the maximum allowable building height, particularly in the portion of the project south of Laurel. The proposed project would provide for a 175-foot MBHA on the corner of Laurel Street and Front Street immediately adjacent to the San Lorenzo River/Laurel Street Bridge and a 150-foot MBHA for three buildings (two buildings between Front Street and the San Lorenzo River and one building on the western side of Front Street). All other MBHAs would be limited to 50-85 feet with a 75-foot MBHA for buildings sites between San Lorenzo River and Front Street, a 75, 85-foot[2] MBHA for buildings between Front Street and Pacific and lower Front/Center streets, and a 50-foot MBHA for buildings between Laurel and Sycamore streets along Laurel and lower Pacific Avenue.

Pedestrian/Bicycle/Vehicle Circulation Improvements
The proposed project would also entail significant circulation improvements, including notably the permanent closure of Spruce Street east of Pacific Avenue that “extends to and includes the San Lorenzo riverfront”; enhanced pedestrian connections between the Downtown and Main Beach including improvements to the Cliff Street overlook/stairs and the creation of a new multi-modal corridor along Cliff Street; and the creation of new “civic spaces” along the San Lorenzo River and Spruce/Front streets and Pacific Avenue.

DSEIR Alternatives Analysis
The NOP describes the proposed project only (i.e., it does not offer descriptions of any project alternatives including the no-project alternative or project alternatives with

[1] The project area as shown in Figure 1 on page 6 of the NOP includes most, but not all of the Laurel Street Bridge and a portion of the San Lorenzo River itself. It is not clear from the NOP how the proposed project seeks to modify this area; however, it should be noted that depending on the scope and location of development ultimately proposed in this area, some portion of a project may fall within Commission’s retained jurisdiction, and thus would be subject to a CDP issued by the Commission with the Coastal Act as the standard of review and the LCP as supplemental guidance.

[2] Figure 2 on page 7 of the NOP indicates buildings heights of “75, 85 feet” for this area. The DSEIR should clarify whether the intention is to allow a range of heights between 75-85 feet depending upon whether certain criteria are met, if the intention is to allow maximum of 75 or 85 feet depending on the CEQA review process, etc.

greater/lesser MBHAs). The DSEIR should detail a range of project alternatives and provide corresponding environmental impact analyses for each alternative.

In considering potential alternatives, previously circulated project materials included proposed flex zoning heights/sites with MBHAs of up to 145 feet, 185 feet, and 225 feet. The NOP includes slightly reduced MBHAs (with MBHAs reduced to 175 feet and 150 feet for the tallest buildings). Nevertheless, the proposed MBHAs invariably raise public viewshed questions including because the proposed MBHAs would be a significant departure from and increase to existing downtown buildings heights (and a significant departure from and increase to buildings heights from recently entitled projects). Based on the information we have currently, we are not in a position to comment further past suggesting that it will be important for the DSEIR and related materials to thoroughly evaluate the proposed height/massing increases, including versus alternatives that maintain existing heights, that apply heights similar to recently entitled projects, and that ensure massing overall aligns with the coastal resource standards of the LCP/Coastal Act and gives special attention to coastal resource needs (e.g., considers alternatives where there may be a range of massing provisions including some lower and some higher than existing).

We recommend that the DSEIR include visual simulations (of alternative allowances for buildings as seen from the street and river/levee), as well as visual simulations of the river side improvements and any public recreational access improvements/connections to aid in public participation and project development. It will also be important to articulate in the update and DSEIR process the ways in which such massing provisions relate to the Downtown Plan as a whole, including the project benefits and improved coastal access amenities. It is our hope that the forthcoming DSEIR will provide more details for us to be able to draw conclusions on coastal resource issues, including visual resource protection and public recreational access/connectivity, and we will have more input at that point.

Probable Environmental Impacts

The NOP indicates that the proposed project will require DEIR evaluation of impacts in the following key environmental categories: aesthetics, air quality/GHG emissions, biological resources, cultural resources, hydrology/water quality, land use and planning, noise, population and housing, geology/soils, VMTs, GHG emissions and climate change related impacts, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, public services, utilities, and energy conservation, transportation, recreation, transportation/circulation, and tribal cultural resources. The list identified appears encompassing enough to frame project related impacts and appropriate mitigations, including in terms of potential alternatives to avoid identified impacts. We offer the following additional comments for DEIR consideration on these points.

The proposed project seeks to facilitate urban infill development/redevelopment in the lower river-adjacent Downtown area. Because the project area is immediately adjacent to and includes a portion of the lower San Lorenzo River and surrounding floodplain areas, it is imperative that the DSEIR consider climate change-induced flooding/sea level rise (SLR) scenarios and habitat resources/impacts (i.e., impacts from the

development itself (e.g., shading, noise, fill, etc.) and habitat impacts that may be incurred over the course of the development's lifespan in light of anticipated SLR/flooding scenarios and the inability for such habitats to migrate and/or be accommodated). Accordingly, it is incumbent on the DEIR to appropriately evaluate the appropriate SLR/flooding scenarios[3] and any resources, and consistent with the Coastal Act and the LCP, to avoid impacts to them, and where impacts are unavoidable, to provide adequate mitigation for those impacts. Certain resources may also qualify as environmentally sensitive habitat areas (ESHA)[4] or wetlands,[5] and such resources are governed by very specific allowed uses and allowed impact requirements. As a general rule, impacts are required to be avoided in such areas (if uses are allowed in the first place) and their required buffers, and the DEIR should evaluate options to do so. If any impacts are anticipated under other options, they too should be clearly identified, and mitigations identified.

In closing, we appreciate the opportunity for early engagement and input. We look forward to continuing to work with City staff on the Santa Cruz Downtown Plan Expansion Project, and we thank you for your consideration of these comments. Please do not hesitate to contact me about these comments or to discuss the project further.

Sincerely,

DocuSigned by:
Rainey Graeven
AFF4284CEEB54EA...

Rainey Graeven
District Supervisor
Central Coast District
California Coastal Commission

cc: California Office of Planning and Research (SCH# 2022090276)

[3] Under the State of California Sea-Level Rise Guidance, 2.3 and 3.3 feet of sea level rise is predicted by 2100 for the low risk aversion scenario (with the lower number representing a low emission scenario and the higher number representing a high emission scenario) and 5.5 and 6.9 feet of sea level rise is predicted for the medium-high risk aversion scenario (with the lower number again representing a low emission scenario and the higher number representing a high emission scenario). In addition, if any critical infrastructure (i.e., bridges, roads, etc.) are proposed, the H++ scenario should also be evaluated and considered. At a minimum, the various sea level rise scenarios should be analyzed and considered alongside flooding/groundwater level data mapping tools.

[4] Defined by the Coastal Act and the LCPs to include "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

[5] Pursuant to the Coastal Act and LCP's one-parameter definition, as opposed to the U.S. Army Corps of Engineers' three-parameter definition.

From:	Alyssa Barnes
To:	sneuse@cityofsantacruz.com
Cc:	sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; sbrown@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmyers@cityofsantacruz.com
Subject:	Stop the Skyscrapers
Date:	Sunday, October 16, 2022 10:41:38 PM

Hello City Planners,
I am a 35 year resident of Santa Cruz and currently live near downtown. I oppose the building of skyscrapers in our city.

Among my many concerns are the large water use these buildings would create. We are in a time of drought and water uncertainty, and we are continually asked to curb our water usage. An environmental impact report on the water usage needed for buildings of this size would be imperative.

Santa Cruz is a place of nature and beauty and our many trees and natural resources are what makes living here a joy. 15 and 17 story buildings would impact the landscape in a negative way through shadowing the living plant life and the many species that are provided for by those plants. As we go forward finding ways to meet the needs of our human community it is important to consider all life that is impacted. Our bird and tree populations dont have a voice in this picture and I would like to speak for them by saying this is a bad idea.

While I understand the necessity for housing, I would urge a more careful and cautious approach to creating it. Let's keep the integrity of Santa Cruz by honoring our current zoning approach and not building outsized giants in our midsts.
Sincerely,
Alyssa Barnes
Neary St
Santa Cruz, CA

From: Frank Barron
To: Sarah Neuse
Cc: City Council
Subject: Scoping Comments for Downtown Plan Expansion Project EIR
Date: Sunday, October 2, 2022 3:30:33 PM

October 2, 2022

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Dept.
809 Center Street, Rm. 101
Santa Cruz, CA 95060
Email: sneuse@cityofsantacruz.com

Re: Scoping Comments for Downtown Plan Expansion Project EIR

Dear Ms. Neuse,

Thank you for the opportunity to provide scoping comments for the Draft Downtown Plan Expansion Project Subsequent Environmental Impact Report (EIR). As you know, one of the main purposes of the California Environmental Quality Act (CEQA) is to provide decision making bodies (in this case the City Council) with the information they need to responsibly make land use decisions. EIRs are intended to be "**full disclosure**" documents that identify, analyze, and recommend possible mitigations for, ALL of a project's potentially significant impacts, so that all the cards are on the table for the City Council to evaluate when making big, irreversible land use decisions like this one. This project will be the biggest, most impactful, land use change in the city's history. Yet, it is shocking how few city residents even know about it. And almost no one, of the many city residents I've spoken to, is supportive of the project once they find out what it entails, particularly the proposed 17 and 15 story skyscrapers. Given the magnitude of this project, in order to allow the City Council to make a responsible decision, this EIR must go beyond the bare minimum analysis required for critical issues such as impacts to traffic congestion and water supply.

With the foregoing in mind, please ensure that the EIR addresses the following issues:

Project Description:

The project description does not accurately reflect the action of the City Council designating a preferred alternative and directing that an EIR be prepared. The motion approved by the Council stated that the project density would be a “minimum of 1,600 units". The EIR Notice of Preparation (NOP) indicated that there would be a minimum of 1,800 units. This needs to be corrected in the Draft EIR. Please also make this correction in the NOP and re-issue and re-circulate the NOP to clarify this error. The recirculated NOP should also include axonometric depictions of the proposed "preferred alternative" project with one 17-story building and three 15-story buildings, similar to the ones that were included in the "Development Scenarios" document presented to the City Council on 6/14/22, showing the proposed potential bulk and height of buildings from various angles/directions. These would give the public a much better idea of the magnitude of what is being proposed. It was somewhat misleading to not include them in the NOP originally, and this is another reason the NOP should be revised and recirculated.

Alternatives Analysis:

Please include in the analysis of the "No Project" Alternative (i.e., the "Baseline Scenario" described in the "Development Scenarios" document/powerpoint presentation that was presented to the City Council on June 14, 2022, Agenda Item #30), a calculation of the maximum potential building heights and housing unit counts assuming maximum utilization of all potential affordable housing density bonuses, which allow buildings to exceed existing height limits and floor area ratios (FARs) if they include a sufficient number of below-market rate housing units.

In addition to the "No Project" Alternative, the EIR should analyze an alternative based on the "Baseline Scenario" existing height limits and FARs, assuming maximum utilization of all potential density bonuses, that incorporates the proposed new arena and other neighborhood improvements proposed in the "preferred alternative" project. Such an alternative would still include a substantial number of housing units (approx. 1,200 units) in 5 to 8 story buildings (i.e., the existing 35-48 ft. height limits plus increased height/FAR that must be allowed under the State Density Bonus law if affordability requirements are met), and would meet most project objectives without the need for 15 and 17 story towers.

Aesthetics:

The aesthetic impact analysis should include impacts to views towards the downtown from the top of Beach Hill as well as views from along the San Lorenzo River.

Air Quality and Greenhouse Gas (GHG) Emissions:

The EIR must evaluate busy weekend and weekday emissions from the traffic congestion that will be created and exacerbated by the proposed project in combination with all other anticipated development within the City, including anticipated/probable UCSC growth. The traffic circles on Front St. and by the wharf, and surrounding streets, are already gridlocked on many weekends, and Laurel St. through the project area is already heavily congested during weekday commute periods (especially when UCSC is in session).

Biological Resources:

The EIR must address potential bird strike and other impacts caused by having one 17 story and three 15 story buildings directly adjacent to a major bend in the San Lorenzo River corridor, as this flyway is heavily used by numerous avian species, including State and Federally-listed endangered ones. The EIR also needs to analyze the shading impacts of these towers on the wildlife in the San Lorenzo River, and acceptability of shading, bird strike and other impacts under the California Coastal Act.

Hydrology and Water Quality:

As climate change progresses, sea level will rise and areas that are currently behind the levee and outside the 100-year floodplain will SOON no longer be so. The EIR should analyze this issue using worst case sea level rise projections, as the worst case climate change scenarios are increasingly becoming the likely-case scenarios.

The proposed project (as described in the City Council agenda packet for 6/14/22, Item #30)

includes the placement of a large wedge of earthen fill next to the river levee in order to gradually bring the grade up to meet and be even with the top of the levee. The EIR must address the potential impact of placing this large amount of fill on the displacement of flood waters in the event of a large levee-topping flood, the potential frequency of which will increase as sea-level rises, and large storm frequency and intensity increases in the coming years and decades. This proposed fill will displace floodwaters in the event of a large flood, causing other areas in the floodplain to experience higher flood flows than they would if the fill were not there. The EIR should quantify the increased floodwater heights, due to this fill and other proposed development (i.e., from this project and other proposed projects), in the rest of the San Lorenzo River floodplain, and adjacent areas, in the event of the 100, 200 and 500-year floods, assuming a 3 to 6 foot sea level rise, which scientists believe is likely in coming decades. As a mitigation measure the project should be revised to not include any such fill.

Population and Housing:

The EIR should specify (or at least estimate) the number of below market-rate "affordable" housing units that will be built as part of the project, by income category (i.e., "above-moderate", "moderate", "low", "very low" and "extremely low"), and specify (or estimate) the ratio of "for sale" units to rental apartment units.

The EIR also needs to fully analyze and mitigate the impact on the City's affordable housing crisis of demolishing the affordable housing development to re-align Laurel Street Extension. This should include a detailed analysis of the number of current residents who would be displaced by the project as well as the availability of relocation opportunities. Potential replacement housing sites should be evaluated for
feasibility. A mitigation measure should require that replacement housing be available prior to or concurrent with the re-alignment of Laurel Street Extension.

The EIR also needs to analyze the number of housing units that are allowed under the current General Plan, including accessory dwelling units (ADUs) and the likely number of new units resulting from SB 9, and whether the proposed 1,800 (or 1,600) units are required to meet the new Regional Housing Needs Allocation (RHNA) targets. A similar analysis should be included when considering the cumulative impacts of the proposed project.

The EIR also needs to analyze the potential impacts of displacing current residents, especially lower income residents, that would result from constructing the 1,800 (or 1,600) units proposed by the NOP and to include mitigation measures to reduce the impact. This analysis should include a detailed survey of existing residents to, as a minimum, identify the number of affordable units that would be lost under the Plan's build-out. This analysis should also evaluate the impact of the potential loss of the affordable units on the City's affordable housing stock.

The EIR also needs to evaluate the potential displacement and gentrification of areas within the South of Laurel area that is likely to result from the Project. Rather than rejecting this concern as too speculative the EIR needs to consider the experience in other communities where similar projects were implemented.

The EIR should also include an analysis of the housing cost impacts (for both rentals and "for sale" units) of the project. Will the addition of up to 1,600 more units really make a dent in the

area's high housing costs? Many people are under the assumption that it will, but the EIR should examine the issue by analyzing the demand for housing in Santa Cruz from outside the area, particularly by high income Silicon Valley workers who will be enticed to move here if such units are made available. It seems likely that the demand for housing here from high income workers outside the area will overwhelm the supply increases being proposed, and thus addition of more units will not solve or even partially ameliorate the housing cost crisis we are experiencing.

Public Services, Utilities and Energy Conservation:

The EIR must fully evaluate the project's impact on the city's water supply, taking into account all anticipated future growth in the city's water service area and likely supply constraints due to drought conditions. Unfortunately, the 2020 update of the city's Urban Water Management Plan (UWMP) does not properly take these factors into account and cannot be relied upon for this analysis. For example, the UWMP makes the faulty assumption that the worst case 5-year drought the city is likely to ever face was the 1973-1977 period, a stretch that includes two abnormally wet years (1973 and 1974), one normal rainfall year (1975), and only two dry years (1976 and 1977). It uses that 5-year "worst case drought scenario" period as the basis to paint an overly rosy picture of the city water supply's ability to withstand a major drought. Moreover, the housing unit growth projection used in the 2020 UWMP does not take into account AMBAG's recent Regional Housing Needs Allocation (RHNA) of some 3,750 new units by 2031, let alone future RHNA growth mandates. Thus, the UWMP **overestimates** the amount of water available during a major extended drought, and **underestimates** the level of growth the city is likely to experience in the near and long term future. The graphs presented in the UWMP, showing that only the last year of a hypothetical "worst case scenario" 5-year drought is problematic, are **highly misleading**. Therefore, the EIR must provide an updated water supply analysis that takes into account these shortcomings of the 2020 UWMP, with a more realistic worst case scenario long term drought analysis, and updated growth projections in the city's water service area, including anticipated/likely UCSC growth and current and future RHNAs (i.e., beyond 2031). The City Council needs a truthful and accurate water supply analysis, more reliable than the highly misleading 2020 UWMP, before approving a project of this magnitude.

Because we already experience water use restrictions and cutbacks in dry years (including this year), and are already conserving more water per household than anyone in the state, it is likely that a desalination plant (and/or other expensive supply augmentation infrastructure) will be needed to accommodate the existing and anticipated development (including the new RHNA construction goal of some 3,750 units by 2031). The EIR should include an economic impact analysis that estimates how much individual residential water rate payers in the city will be charged monthly to pay for the desal plant (and/or other infrastructure) needed to accommodate the proposed and anticipated growth. These are things we as citizens need to know before the City Council makes large irreversible land use decisions like the one being proposed with this Downtown Plan Expansion.

Transportation:

The Vehicle Miles Traveled (VMT) analysis should include potentially significant impacts during the summer and on weekends. This analysis should also be provided as part of the evaluation of cumulative impacts. There also needs to be a separate VMT and parking analysis of the increased trips to the proposed relocated arena. Mitigation measures such as shuttles,

bus passes to season ticket holders, and other Transportation Demand Management (TDM) measures should be evaluated. The VMT analysis should also fully evaluate and account for the number of Silicon Valley and other SF Bay Area workers who will move to Santa Cruz and become long distance commuters when the proposed new housing becomes available to them.

In addition to analyzing VMT impacts, and despite CEQA no longer requiring roadway segment and intersection Level of Service (LOS) analyses, the EIR should nevertheless evaluate the potentially significant congestion impacts to roadways throughout the city, especially to the traffic circles on Front St. and by the wharf (especially on summer weekends), and to Laurel St. (especially on weekday rush hour peak periods during the UCSC school year). Even though such a LOS analysis is not required by CEQA, the city's General Plan (GP) does require the city to "Acknowledge and manage congestion" (GP Goal M3.1) and to "Strive to maintain the established 'level of service' D or better at signalized intersections" (GP Goal M3.1.3), so at a minimum a thorough analysis of the project's LOS impacts should be completed concurrently separate from the EIR. The proposed project will greatly exacerbate the already near gridlock traffic conditions the aforementioned areas are already experiencing at peak times and these project impacts should be evaluated and disclosed in the EIR so that the City Council has this information prior to their consideration of project approval. The EIR should fully address impacts to traffic congestion from the proposed project and each of the alternatives (plus other anticipated projects/growth), including during peak summer weekend and weekday rush hour periods, with the realistic assumption that most of the new residences will have the same number of cars as multi-family residences in Santa Cruz do currently. It would be improper to assume a lower automobile ownership rate than what we see now. We don't have a robust transit system such as exists in places like New York or San Francisco, so we should realistically assume a higher private vehicle ownership and use rate than places like that. The EIR should evaluate the need for and costs of traffic mitigations, and how those costs will be paid. Even though CEQA does not require traffic congestion created by a project to be analyzed in an EIR, it does not prohibit it either (it only prohibits LOS reductions from being considered a "significant" impact), and since the city's General Plan requires the addressing of LOS impacts, it would be **highly irresponsible** for the City Council to approve a project that adds up to 1,800+ new housing units in such a small area without full knowledge of the traffic impacts it will create. Therefore, the EIR (or a concurrent separate LOS study) should fully analyze traffic congestion created by the project (in addition to VMT), in conjunction with that created by other anticipated growth/projects in the area (including UCSC growth).

Similarly, the EIR should evaluate the potentially significant parking impacts of the project, and should assume a realistic automobile ownership rate when it comes to providing the needed parking. Multi-family developments are generally undersupplied in parking spaces, resulting in residents having to park their vehicles on-street throughout the neighborhood. This is already a huge problem in the South of Laurel neighborhood around large multi-family developments such as the Cypress Point apartments at the end of Felix St. The EIR needs to make realistic assumptions about the need for parking and where parking will occur if not enough spaces are provided by the new development.

Public Safety:

The EIR needs to analyze the potentially significant impacts of increased traffic and congestion, resulting from the proposed new development, on public safety through evaluation

of traffic accidents (esp. involving pedestrians and bicycle riders), and first responder response times, with comparative analysis of similar areas.

Recreation:

The potentially significant recreational resource impacts of the project should be evaluated in the EIR, in particular the impact of adding up to 1,800 new housing units on parks (e.g., added people dangerously parking along Hwy. 1 outside of Wilder Ranch SP) and already dangerously overcrowded surf breaks (e.g., Steamer Lane).

Geology and Soils:

Even though the NOP states that "Geology and Soils" do not need to be addressed in the EIR, the fact that a 17-story habitable structure and three 15-story habitable structures are proposed to be built on alluvial fill, buildings that will experience significant shaking in the event of a large earthquake, indicates that this is an area of inquiry that deserves thorough evaluation in the EIR.

Hazards and Hazardous Material:

Similarly, even though the NOP states that "Hazards and Hazardous Materials" do not need to be addressed in the EIR, it is clear that there are seismic hazards to the occupants of the 17 and 15 story towers (esp. those on upper floors) and flooding hazards to properties and people in the floodplain created by the proposed project. The EIR should include full evaluations of all such potentially significant hazards.

Thank you for this opportunity to comment on the NOP for the proposed Downtown Plan Extension Subsequent EIR. I look forward to seeing the concerns raised above being addressed in the Draft EIR.

Sincerely,

Frank Barron, AICP
110 Tree Frog Lane
Santa Cruz, CA 95060

cc: City Council

From: Frank Barron
To: sneuse@cityofsantacruz.com
Cc: citycouncil@cityofsantacruz.com
Subject: Additional EIR Scoping Comments for Downtown Plan Expansion Project
Date: Friday, October 14, 2022 1:48:05 PM

October 14, 2022

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Dept.
809 Center Street, Rm. 101
Santa Cruz, CA 95060
Email: sneuse@cityofsantacruz.com

Re: Additional Scoping Comments for Downtown Plan Expansion Project EIR

Dear Ms. Neuse,

Thank you for the opportunity to provide additional scoping comments for the Draft Downtown Plan Expansion Project Subsequent Environmental Impact Report (EIR)(in addition to the comment letter I provided on Oct. 2, 2022). A few more concerns have come to mind in the last couple weeks. Please ensure that the EIR also addresses the following:

General Comment:

The EIR should confirm that the city's 2012 General Plan update, and any recent zoning ordinance changes, do not apply within the project area inside the Coastal Zone boundaries (i.e., almost all of the project area), since the 2012 General Plan has not yet been submitted to the Calif. Coastal Commission for consideration as a Local Coastal Program Land Use Plan update. Therefore, the previous 1994 General Plan should still govern in most of the project area. Please also include a project area map showing the Coastal Zone boundary.

Alternatives Analysis:

Please include, as component of each of the alternatives analyzed (including the "preferred" and "no project" alternatives), the assumption that all of the proposed housing units will be smaller sized housing units (e.g., 400-800 sq. ft.), so as to minimize the height and floor area ratios (FARs) needed to achieve numeric housing unit/density targets. These smaller "efficiency units" and "luxury efficiency units", if properly designed, can provide more than adequate living space for residents, and can likely eliminate the need for buildings over 5-7 stories, while meeting the project objective of 1,600 new housing units.

Public Services, Utilities & Energy Conservation:

The EIR should evaluate the impacts to emergency services, particularly given the current "at capacity" status of the fire department and their lack of ladders high enough to reach tall multi-story buildings.

The EIR should also fully evaluate the project's impact (accounting for all possible cumulative growth) to the city's solid waste disposal facility, including a capacity analysis of the city dump.

Hazards and Hazardous Materials:

As I mentioned in my previous comments, the EIR should fully evaluate the increased flood levels due to proposed fill in the project area from any flooding in the San Lorenzo River floodplain in event of flood waters exceeding leveed channel capacity (taking worst case projected sea level rise into account). It should also evaluate the costs of this increased level of flooding to other structures and infrastructure in or adjacent to the floodplain, including the mitigation cost of raising existing habitable structures throughout the floodplain to a flood-safe elevation.

The EIR should also fully evaluate tsunami hazard potential, especially given the recently updated tsunami hazard analysis released by the Calif. Geological Survey. It should also evaluate the increased tsunami hazard to other structures and infrastructure that would result from the project's proposed wedge of fill (to raise grade level) and other structures that could displace floodwaters, and fully evaluate the costs of increased damages from these higher flood/tsunami water levels that could result from the project.

Population and Housing:

The EIR should provide an analysis of why the city's "fair share" Regional Housing Needs Allocation (RHNA) construction goal of 3,736 new housing units for the 2023-31 planning period is **5 times higher** than it was for the previous (current) planning period, but the Monterey Bay area's regional allocation from the state was **only 3 times higher** than last time. Why did the City of Santa Cruz agree to take on far more than its "fair share" of the regional housing need (without any push back or appeal)?

The EIR should also analyze, and provide an estimate of, the percentage of the new housing units that will likely be occupied by higher income people choosing to move here from elsewhere, as opposed to providing new housing opportunities for those already here. In particular, a jobs/housing balance estimate should be made of how much of the housing need required by Silicon Valley employment will be provided by the project here in Santa Cruz.

Also, since some members of the public presume that the project's added housing will help to resolve the city's housing crisis for the poorest members of society, the EIR should evaluate how the project will impact and benefit the city's unhoused population.

Temporary Impacts:

As a construction phase EIR mitigation, all sidewalks should remain open to pedestrian use, unlike the current situation at the new building going up at the former Taco Bell site on Laurel and Front. New buildings constructed in cities such as San Francisco and New York always make provisions for publicly accessible covered sidewalks adjacent to construction sites. There is no reason why that shouldn't be the case here.

Thank you again for providing the opportunity to provide these additional EIR scoping comments, supplementing those I submitted previously on Oct. 2, 2022.

Sincerely,

Frank Barron, AICP
110 Tree Frog Lane
Santa Cruz, CA 95060

cc: City Council

From:	Isabel Bjork
To:	sneuse@cityofsantacruz.com
Cc:	sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; sbrown@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject:	Re Downtown Expansion Plan
Date:	Monday, October 17, 2022 2:41:23 PM

Dear Ms. Neuse,

I am writing to provide my comments for the Downtown Plan Extension Project Subsequent Draft Environmental Impact Report. I live in Beach Hill. I support many aspects of the Downtown Plan Extension Project, and overall think the area targeted would benefit from mindful development.

I have concerns about the height of some of the proposed builds (17 and 15 stories buildings) and consequent population density. The increased population density will impact access to and from the area, with knock-on negative impacts on residents and visitors who cannot get in and out as needed. I have experienced personally and know of neighbors who have experienced significant problems reaching the hospital when loved ones need urgent care, or home when in need of getting back to care for young children, senior citizens or a disabled relative. At present, access is challenging due to extreme congestion during weekends and summer months. Adding significant residential capacity at the base of Beach Hill, right at one of the key exit arteries, will aggravate an already difficult situation, unless careful planning as to maintaining (and ideally expanding) accessible transportation corridors takes place. An addition of ~4000 new residents also may impact public services, including capacity of police, ambulance, fire, garbage, water and delivery services, for new and existing residents in the area. It is likely to impact the quality of life and safety for people living and working in the area. A detailed evaluation as to how to address these issues is needed before moving forward.

Bringing more housing to Santa Cruz is clearly important, and I support the general direction of such efforts. It's not clear to me how many of the proposed 1800 units will be low income and how many will be at market rate. It is important to assess the impact of the Downtown Plan Extension Project on existing low- and medium-income housing, so that rent increases are minimized as much as possible, and available housing options are maximized for people in need.

Thank you for your work, and for the opportunity to submit comments.

Best regards,

Isabel Bjork

919 3rd St.
Santa Cruz, CA 95060
bjork.isa@gmail.com

From: Philip Boutelle
To: sneuse@cityofsantacruz.com
Subject: Downtown Plan Expansion EIR Scoping Comments
Date: Wednesday, September 28, 2022 7:45:41 PM

Hi Sarah,

Great presentation tonight. A few comments on the EIR prep for downtown expansion:

- Please limit the transportation analysis to VMT, and not LOS. Don't include weekends; we will never solve car traffic to the Boardwalk, but we can provide alternative connections.
- In the transportation analysis, can you include a scenario where all on-street parking on Pacific and Front is removed and replaced with protected bike lanes?
- I'm concerned about the new roundabout at Pacific and Front; hoping that this is analyzed as a single lane roundabout only (safer for all users).
- In the transportation/VMT analysis, is it possible to include these developments with no parking (which they are allowed to do under AB 2097)? Or with some kind of parking maximum?
- In the transportation analysis, can you document whether reducing the design speed of Front and Pacific to 20 mph would have any impacts (versus what I assume will be 25 mph baseline)?
- The project boundary includes some of the Laurel/San Lorenzo/Broadway bridge. Can the transportation analysis include any impacts from if one lane of car traffic was removed and that space used for protected bike lanes on either side of the street? This request includes all sections of Laurel included in the project scope.
- Please include reopening and revitalizing the pedestrian path that goes from 3rd and Main Street to Front/Pacific
- Please ensure that there are reasonable bike connections from the riverwalk to the new Spruce St area, as well as adequate/secure/accessible bike parking.

Also, can you please clarify: would the improved Cliff Street connection be only a ped connection? Is there an intent to make this a car connection? Are there amenities that can be included so it is accessible to cyclists?

Thank you,
-Phil Boutelle

From:	Mark Buxbaum
To:	Sarah Neuse
Cc:	IDA Santacruz
Subject:	Comments for Scoping meeting for Downtown Extension Project
Date:	Monday, October 17, 2022 10:58:45 AM
Attachments:	image.png

Dear Sarah Neuse,

Please accept the following as comments from the Santa Cruz Chapter of the International Dark-sky Association (Santa Cruz IDA) for inclusion and study in the city's draft Environmental Impact Report (DEIR) for the Downtown Extension Project.

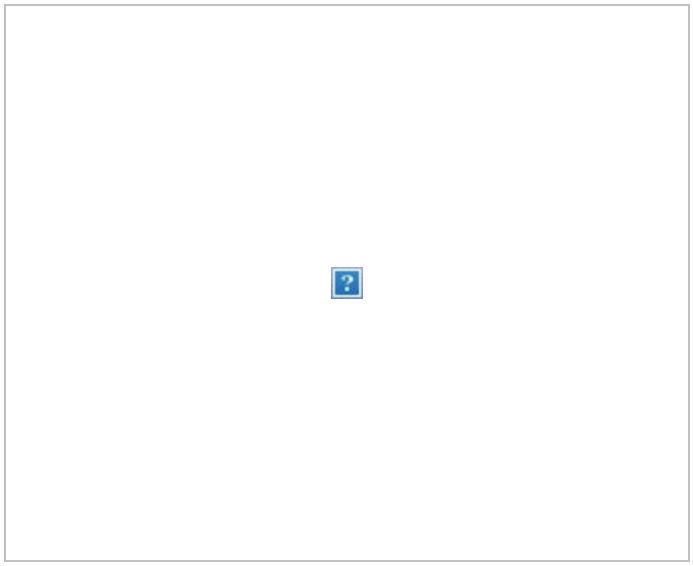
Biological Impact Study

- Assess the impact of artificial light at night on the fish, insects, amphibians, and birds of the San Lorenzo River from the multi-story buildings' accumulative lighting. This assessment must include endangered species.

- Assess the effects of the proposed tall, lighted buildings on migratory and residential sea and terrestrial birds, including those traveling between the San Lorenzo River and Neary Lagoon.

- Assess the effects of artificial light at night on the health (disruption of circadian rhythms) of the nearby residents.

- Assess the effects on birds and insects of entertainment lighting projected on building facades.



Source: https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/1540-9295%282004%29002%5B0191%3AELP%5D2.0.CO%3B2

Aesthetics Impact Study

- Assess how additional artificial light at night will impact those who enjoy viewing the night sky.

October 12, 2022

Sarah Neurse, Senior Planner

City of Santa Cruz Planning and Community Development Office

809 Center Street, Rm 101

Santa Cruz, Ca 95060

Re: Comments re Scoping and Content of City of Santa Cruz Downtown Plan Expansion Project EIR

Dear Ms. Neurse,

Aesthetics:

I would like to see significant environmental analysis done not only on the increased shadow this project will create on our city sidewalks but also on our city open spaces, parks, San Lorenzo River and the River Walk. The analysis should take into consideration the impacts shadow causes on public park and other outdoor spaces – like changes in use patterns etc. In addition, the kind of large towers proposed also can create significant wind affects on our city sidewalks, open space and parks. Both the shadow and wind effects in this area could greatly impact the surrounding communities of lower income and minority residents – thereby creating even more issues of equity and fairness. In addition, the Coastal Commission places significant importance on creating pedestrian promenades that connect residents with the water (i.e San Lorenzo River). In the proposed project heights – height flex zones of 150 ft to 175 ft along or close to the river are identified. These potential towers would block all sun for the Riverwalk and for the San Lorenzo River for significant distances. What are the aesthetics impacts of this for residents and visitors but also the ecological impacts of this on the River, its flora and fauna and the animals the River supports?

Air Quality and Greenhouse Gas Emissions:

I would like to see analysis comparing the use of concrete for construction with other kinds of construction materials that create less CO2 emissions and the associated cost benefit analysis of the various options and the carbon footprint associated with all potential buildings and operations for the project area. I would also like a thorough discussion of how this downtown expansion is in keeping with the City's recently adopted Climate Resilience Plan. Also, in this category "operational emissions" are noted. I believe this will need to include all vehicle emissions having to do with the expansions build out and with its ongoing operation once construction is completed. This obviously will need to include all traffic impacts

Transportation:

Recently, residential/mixed use projects in the area have been approved with minimal or no traffic study at all. Given the project's scope it appears that Pacific will remain an important thru-fare into the traffic circle at the Wharf. Nearby Level of Service for traffic is already at E ("unstable flow, operating at

capacity. Flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to maneuver in the traffic stream….Any incident will create serious delays"). A reasonable traffic study for a project of this scope should update traffic estimates in the existing Downtown Plan and also update all recently approved downtown projects (and those in the pipeline for approval) traffic studies so residents and local businesses have a more complete picture of how this proposed expansion will absolutely alter their abilities to move whether on bike, bus or car from the westside to downtown or to mid town or to the east side.

Population and Housing:

I would like for the EIR to examine potential deed restrictions on 20 percent of the proposed units for a combination of Section 8 housing and for dedication to our homeless population. A recent survey of our City's homeless reported that 27% of the population is homeless due to high rents. This would be an opportunity to correct homelessness once and for all. If the City and State are allowing significant density bonus allotments for housing – it should be City policy that any residential project proposed in this area have deed restrictions for the homeless and for Section 8.

Under Project Objectives, I would like to see added the following: "8. Create a community of climate resilience with the use of solar and wind for energy generation, the recycling of gray water, and building techniques that meet and exceed any Green Building standards at the time of construction."

For objective 3, I would like to see specifically how downtown, the river and the beach areas are "better connected" due to this project in this objective. Frankly, from what I am seeing about transit recirculation, I do not see how any of the streets identified in this project area will become an improved pedestrian corridor from downtown to the river or the beach area.

For objective 5, I would like to see specific City services delineated – like "improved maintenance and cleanliness of City parks and open spaces" and "expansion of our City recycling program with appropriate trash, recycling and compost containers provided at all City parks and open spaces and throughout the Downtown."

Please list all the landowners of the parcel identified in the project scope and any and all developers that the landowners may be working with.

Thank you for you time and consideration. I look forward to a robust DEIR!

Charlene Clarke

227 Oregon Street, 95060

From: mikelimarcus
To: sneuse@cityofsantacruz.com
Subject: Downtown Expansion Plan
Date: Monday, October 17, 2022 3:31:18 PM

I am writing to comment on the Downtown Expansion Plan currently up for Council consideration.
I urge you to consider the following points in regard to proceeding with the DEP and its EIR as presently configured:

Project Description: the motion before Council needs to be aligned with the EIR Notice of Preparation (1600 minimum units v 1800 min units)

Alternatives Analysis: please require an analysis of the maximum height and unit count under the maximum usage of affordable housing density bonuses as allowed by state law; also require the EIR to analyze an alternative plan under Baseline Scenario utilizing existing height and Floor Area Ratios, that quill still yield enough units (approx 1200) that will meet project requirements.

Aesthetics: impacts on views from Beach Hill and along the San Lorenzo River should be analyzed.

Air Quality and Greenhouse Gas (GHG) Emissions: the EIR must evaluate impacts to air quality from increased holiday, weeknd, and weekday traffic congestion due to increased residents from this and other proposed projects.

Biological Resources: the EIR must address potential bird strike and other impacts caused by having one 17
story and three 15 story buildings directly adjacent to the San Lorenzo
River; the EIR also needs to analyze the shading
impacts of these towers on the wildlife in the San Lorenzo River, in relation to the California Coastal Act.

Hydrology and Water Quality: the EIR should
analyze sea level rise and flooding using worst case sea level rise projections, as the worst case climate change scenarios are increasingly becoming the likely-case scenarios; of particular concern is the proposed earthen wedge fill that could significantly impact other adjacent areas in the event of major flooding.

Population and Housing: the EIR should specify the number of below market-rate affordable housing units that will be built as part of the project, by income category (i.e. above-moderate, moderate, low, very low; and extremely low), and specify the ratio of for sale units to rental apartment units.
The EIR also needs to fully analyze and mitigate the impact on the City's affordable housing crisis of demolishing the affordable housing development to re-align Laurel Street Extension including a detailed analysis of the number of current
residents who would be displaced by the project as well as the availability of relocation opportunities. Potential replacement housing sites should be evaluated for
feasibility. Mitigation should require that replacement housing be available
prior to or concurrent with the re-alignment of Laurel Street Extension.

The EIR also needs to analyze the number of housing units that are allowed under the current General Plan, including accessory dwelling units (ADUs) and the likely number of new units resulting from SB 9, and whether the proposed 1,800 (or 1,600) units are required to meet the new Regional Housing Needs Allocation (RHNA) targets. A similar analysis should be included when considering the cumulative impacts of the proposed project.

The EIR also needs to analyze the potential impacts of displacing current residents, especially lower income residents, that would result from constructing the 1,800 (or 1,600) units proposed by the NOP and to include mitigation measures to reduce the impact. This analysis should include a detailed survey of existing residents to, as a minimum, identify the number of affordable units that would be lost under the Plan's build-out. Analysis should also evaluate the impact of the potential loss of the affordable units on the City's affordable housing stock.

The EIR also needs to evaluate the potential displacement and gentrification of areas within the South of Laurel area that is likely to result from the Project. Rather than rejecting this concern as too speculative the EIR needs to consider the experience in other communities where similar projects were implemented.

The EIR should also include an analysis of the housing cost impacts (for both rental and for sale units) of the project. Will the addition of up to 1,600 more units really make a dent in the area's high housing costs? The EIR should analyze the demand for housing in Santa Cruz from outside the area, particularly by high income Silicon Valley workers who will be enticed to move here if such units are made available. Demand for housing here from high income workers outside the area could likely overwhelm supply increases being proposed, and thus will not solve or even partially ameliorate the housing cost crisis we are experiencing.

Public Services, Utilities and Energy Conservation: EIR must fully evaluate the project's impact on the city's water supply, taking into account all anticipated future growth in the city's water service area and likely supply constraints due to drought conditions as the 2020 update of the city's Urban Water Management Plan (UWMP) does not properly take these factors into account. The UWMP overestimates the amount of water available during a major extended drought, and underestimates the level of future growth The EIR must provide an updated water supply analysis that takes into account the shortcomings of the 2020 UWMP, with a more realistic worst case scenario long term drought analysis.

The EIR should include an economic impact analysis that estimates how much individual residential water rate payers in the city will be charged monthly to pay for the desal plant (and/or other infrastructure) needed to accommodate the proposed and anticipated growth.

Transportation: the Vehicle Miles Traveled (VMT) analysis should include potentially significant impacts during the summer and on weekends. There also needs to be a separate VMT and parking analysis of the increased trips to the proposed relocated arena. including full analysis and evaluation of the number of Silicon Valley and other SF Bay Area workers who will move to Santa Cruz and become long distance commuters when the proposed new housing becomes available to them.

The city's General Plan (GP) requires the city to "Acknowledge and manage congestion" (GP Goal M3.1) and to "Strive to maintain the established level of service D or better at signalized intersections" (GP Goal M3.1.3), so at a minimum a thorough analysis of the project's LOS impacts should be completed concurrently separate from the EIR.

Public Safety: the EIR needs to analyze the potentially significant impacts of increased traffic and congestion, resulting from the proposed new development, on public safety through evaluation of traffic accidents (esp. involving pedestrians and bicycle riders), and first responder response times, with comparative analysis of similar areas.

Geology and Soils: the fact that a 17-story habitable structure and three 15-story habitable structures are proposed to be built on alluvial fill, buildings that will experience significant shaking in the event of a large earthquake, indicates that this is an area of inquiry that deserves thorough evaluation in the EIR.

Hazards and Hazardous Material: it is clear that there are seismic hazards to the occupants of the 17 and 15 story towers (esp. those on upper floors) and flooding hazards to properties and people in the floodplain created by the proposed project. The EIR should include full evaluations of all such potentially significant hazards.

Finally, I highly recommend you see Frank Bannon's letter to Council for more detailed and thoughtful, specific comments on this project.

Thank you for this opportunity to comment on the NOP for the proposed Downtown Plan Extension Subsequent EIR. I look forward to seeing the concerns raised above being addressed in the Draft EIR.

Mike Curtis
108 Pearl St
Santa Cruz

From: Adam Doblo
To: sneuse@cityofsantacruz.com
Subject: Proposed Downtown Expansion Plan
Date: Monday, October 17, 2022 9:45:49 PM

Hi,
I would like to add my voice to the no doubt deafening chorus you've already received regarding this project.

While it is clear that some redevelopment is required for the subject area, it is also clear that the scope and scale of the proposed project is not inline with the character of the city.

As a resident of the Beach Hill community, I am extremely concerned at the impact this will have on our historically important area. The idea of skyscrapers towering over an historic beach community does not seem to match the values the city should be trying to promote.

Quite apart from the aesthetic impact, little to no thought appears to have been given to the already chronic traffic issues which plague the area. We are already in a situation where this entire area feels like it is under seige on any given weekend. Local members of the community will actively avoiding visiting this area for fear of being dragged into the maw of everpresent traffic.

I also do not understand how we are proposing to deal with the water needs of all this additional housing. Yes, we are among the most efficient users of this limited resource in the country. That being said, Easter remains a finite resource and one that appears to be becoming more so every year.

I know my neighbors are submitting far more detailed and wide ranging requests than my own. I did, however, want to add my voice to theirs and request that these issues be thoroughly examined as part of the impact study.

Thanks

Adam Doblo
924 3rd St
--
Adam Doblo
(cell) 408.429.0084

From:	Keresha Durham
To:	sneuse@cityofsantacruz.com; Justin Cummings; Sandy Brown; Donna Meyers; Martine Watkins; rgolder@cityofsantacruz.com; sjohnson-kalihari@cityofsantacruz.com; sbrunner@cityofsantacruz.com
Subject:	Scoping Comments for Downtown Plan Expansion Project EIR
Date:	Monday, October 17, 2022 4:59:37 PM

Re: Scoping Comments for Downtown Plan Expansion Project EIR

Dear Ms. Neuse and City Council Members,

Thank you for seriously analyzing and addressing these conflicts listed below for this project. In analyzing, as required, *p*lease apply all relevant provisions of these important documents:

- City Climate Action Plan
- City General Plan,
- Local Coastal Program,
- adopted Active Transportation Plan,
- Safe Routes to School Plan,
- Regional Transportation Plan, and

related documents with regard to the following objective areas:

A. **OBJECTIVE: ADDING HOUSING CAPACITY & CONFLICTS:**

1. **WATER DEMAND**:
   We are in the third year of a severe drought and Santa Cruz relies on surface water from creeks and rivers. Our water supply will continue to decrease as the Climate Emergency continues. How will you provide water for the total number of people who live in these new units?
   Please double and triple the number of people per bedroom in market rate housing since there is a common pattern/solution of workers in Santa Cruz

needing to pack 2 bedroom apartments with 4 to 6 people in order to afford the market rate rent.
Our community has voted down building a toxic desal plant for many good reasons so how can you supply water now?

2. **LEVEE STABILITY & EVACUATION**:
The proposed area or South of Laurel area is next to the river and only about 15 feet above sea level. This area has flooded before and the danger of flooding and fires are increasing every year with our extreme weather. Have you checked the levee stability and height to prevent floods? How would you evacuate thousands of people from this area during a flood or any other emergency when you only have one main artery of Mission Street to leave the city?

3. **LIQUEFACTION IN EARTHQUAKE ZONE**:
This area is part of the river valley with soft soil and sand. During the last major earthquake and due to liquefaction, my small one-story home that is on similar, alluvial soil rolled as if it was made of rubber and was on the water.. Are tall buildings appropriate in this area? Can this area safely support buildings of 17 stories -or over 3 times the maximum height of buildings in our present downtown? Can you evaluate the geology to ensure what is a safe height?

4. **IMPACT OF NOISE & POLLUTION ON SENSITIVE AND ENDANGERED SPECIES** The river in this area and lagoon nearby are home to over 200 bird species and endangered vertebrates and invertebrate species. Can you analyze the impact of tall edifices affecting migration routes, mating/nesting and killing birds? Evaluate the loud noise from cars, humans and their pollution of the wildlife of this important estuarine ecosystem?

5. **IMPACT OF LIGHT POLLUTION**:
A recent Harvard Study shows bright light at night is linked to breast cancer in women and other health problems. Link to Study here: Bright LED lights have been studied and shown to disturb the circadian rhythm of wildlife as well. Can you evaluate the impact of more urban light? What lights are least disruptive?

6. **TRAFFIC & VEHICLE MILES TRAVELED PROBLEMS**
I am familiar with this area since I commute by bike through this area at least twice a day on my way to and from work. It is already very congested with high-speed traffic

crossing town and to and from the beach area. Transportation is the number contributor to the Climate Crisis in our area and How many cars will be added to this area since the majority of residents have one car per person (students almost always bring a car even if we wish people did not own or bring a car.) . Please evaluate how you can decrease the vehicle miles traveled since this is and calm or slow traffic with the additional traffic? What will be the impact of increased traffic congestion since many studies have shown that we cannot build our way out of traffic?

7. **AIR QUALITY:**

Tall buildings will act as a physical barrier and will not allow the coastal air to flow freely into the city or into residences. Please evaluate the impact this project will have on the existing quality of air for residents.

8. **DARK STREETS & LACK OF SUNSHINE**

Seasonal Affective Disorder (link to disorder) causes people to be depressed if they do not get enough light during the day. Front Street and this project is creating a dark canyon on the street. Please evaluate the impact of having the apartments and streets in dark shadow most or all of the day.

B) OBJECTIVE: ECONOMIC OPPORTUNITIES FOR WORKERS

1.

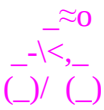
SOCIAL EQUITY

Where will the current neighbors who fill this neighborhood go? Many of the people in this area are already living in low-income apartments and can walk to work. We have an extreme lack of affordable housing in Santa Cruz and people travel long distances from Salinas and Watsonville to work the lowest paid jobs in downtown and Santa Cruz since they cannot afford the rent. We really do not need more market-rate housing or housing for second homes. There is an insufficient affordable housing component to the proposed project. How will you ensure that affordable units go to people who work and live in the nearby area? How many disabled, and low-income residents will be displaced? How can you provide for those who actually work in Santa Cruz and need housing so they do not drive long-distances (which adds

to the Climate Crisis and Traffic congestion nightmares we have.)

Sincerely,
Keresha J Durham
Environmental Activist of 31 years
Resident of Santa Cruz for 41 years
School Teacher for 35 years

--
Keresha Durham~ educator, environmentalist
"care-sha"



For a quality future for all living things, the earth needs small families

Balance population with finite natural resources

From: Babs Fahrney
To: Sarah Neuse; Sonja Brunner; Martine Watkins; Sandy Brown; Justin Cummings; Renee Golder; Shebreh Kalantari-Johnson; Donna Meyers
Subject: Skyscrapers in Santa Cruz?! Don"t destroy our city!
Date: Monday, October 17, 2022 5:08:52 PM

To anyone....everyone who has anything to do with the proposed Skyscraper project:

I cannot believe that this project has gotten as far along as it has!

- **Where is the water coming from?** I'm already having to cut back on water consumption and yet, the city thinks it's OK to put in up to 1800 units? Show me where we are getting the water from? **I want the report.**
- **Flooding**: To build a 17 story or 15 story...or even 10 story building in such close proximity to the San Lorenzo River and to each other (so far there are at least 3 skyscapers planned?) means a whole lot of cement. What happens when the SLR overflows? That water will spill over the banks and up Laurel to my property which is already in a flood zone. Is my Flood Insurance premium going to go up? Or get cancelled because the city wants to push satisfy developers? **Show me the report that shows this is not an issue**?
- **Soil Stability: Show me the report that shows me what is going to happen in an earthquake**.
- **Wildlife:** What is the impact that these buildings are going to have on our valuable wildlife? Bird Migrations? Birds crashing into buildings isa real thing. **Show me the study that proves that it won't be an issue.**
- **Shade & Wind:** Have any of you ever walked around downtown Sf? Ever been to Chicago? NO SUNLIGHT. WINDY. COLD. Why do I even need to ask for a report on what this project will do. **But I want to see a report.**

Unfortunately, due to illness, I'm late in getting this email to you. This is not an exhaustive list of my concerns regarding this project. The fact that the city would even consider this outrageous project shows me that there is another agenda at work here.

Sincerely,

Babs Fahrney
111 Shelter Lagoon Dr
Santa Cruz, Ca 95060
510 978 6496

From: Lira Filippini
To: Sarah Neuse; Santa Cruz City Council
Subject: Downtown Plan Expansion - EIR Scoping
Date: Monday, October 17, 2022 4:07:20 PM

Many areas of environmental concern have been submitted with accompanying requests for associated study in the EIR.

I have not been able to read all of them and I assume I can't add anything new. But on this day, the anniversary of the earthquake, I want to specifically request that the following be studied for this specific area where very tall buildings are being proposed, including how they can affect each other in a period of seismic activity:

1. proximity to faults and seismic activity of each fault
2. hydrology
3. hydrogeology
    1. type of soil at different depths, how that holds water or is affected by water
    2. type of soil and how it behaves in seismic activity
        1. does this type of soil make it prone to liquefaction? This is specifically being requested as its own study/report, not relying on the city's current liquefaction zone map which is insufficient. The current map only looks at proximity to water and does not include liquefaction due to soil type and whether it is loose and unconsolidated, etc...
    3. size of buildings being proposed, typical weight of such buildings, and how that size and weight of building behaves on this type of hydrogeology during seismic activity
4. population proposed for how many square miles?
    1. this number of people in an evacuation, and its effect on traffic and evacuation routes, including time it would take to evacuate the number of residents under the current general plan land use designation, versus time it would take with the proposed residential density.

Thank you,
Lira Filippini

From: Isabel Gilman
To: sneuse@cityofsantacruz.com
Subject: Downtown Expansion Plan
Date: Monday, October 10, 2022 2:02:39 PM

Dear Ms.Neuse,
I am a long term resident of the lower west side, having purchased a home here in 1976. I am well aware that I am extremely privileged because that option is no longer available to so many local residents. I understand that the City needs to grow and provide housing. However, building four skyscrapers in the heart of our small town is profoundly misguided. The traffic congestion crossing town is already unmanageable. How could that many new residents be accommodated in an already overburdened space? Our public transportation system is already inadequate. How will these tower residents get to work? Where will they shop for food and basic supplies? Where will children go to school?
In 19th century Paris Baron Haussmann engaged in a massive urban renewal project that razed medieval Paris. The extravagance and scale of it was roundly criticized. However, he had an eight story limit on the height of buildings within the City, and he created modern Paris, one of the most beautiful and functional cities in the world. To this day skyscrapers are only built outside the city limits. If skyscrapers were truly the only solution to our housing problems, then they should be on the way out of town, on Mission Street Extension, for example. We are not a metropolis; we are a small town.
Thank you for your work and attention to this matter, Isabel Gilman

825 Pelton Ave.
Santa Cruz 95060

Get Outlook for iOS

From:	Gillian Greensite
To:	Sarah Neuse
Subject:	[CAUTION: Verify Sender Before Opening!] Comments for Scoping DEIR
Date:	Monday, October 17, 2022 11:16:57 AM
Attachments:	For DEIR Downtown Expansion Project.docx

Hi Sarah,

Attached is my submission. When you can, would you confirm receipt? Some folks have had trouble with city-bound emails.
Thanks!

Gillian

October 16th 2022

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Department
809 Center St. Room 101
Santa Cruz, CA
Email: sneuse@cityofsantacruz.com

Re: Scoping Comments for Downtown Plan Extension Project EIR

Dear Ms. Neuse,

The following are my comments submitted for the Downtown Plan Extension Project Subsequent Draft Environmental Impact Report (DEIR). Thank you for your careful consideration.

Project Objectives:

1. This objective should be augmented with a statement that recognizes the physical limits of the site and impact on existing neighborhoods so it reads: **Increase the total number of housing units that can be built in the City by adding capacity for multi-family housing within limits imposed by existing neighborhoods and site carrying capacity.**

3. This objective ignores the fact that there are distinct demographic differences between the people who go downtown and the people who go to the beach. Decades of trying to achieve this commercial goal have failed because class and cultural differences have been ignored. Replace this with an evidence-based study of the potential to achieve this objective before committing resources to what may be unviable.

Aesthetics:

1. Assess impacts of the cumulative effect of new lighting generated from the tall buildings, the commercial establishments, the entertainment venues including light shows projected on building facades on the quality of the visibility of the night sky.
2. Assess the impact on views from Beach Hill and of Beach Hill.

Biological Resources:

1. Assess the impacts of project build-out on bird flight pathways between the San Lorenzo River and Neary Lagoon.
2. Specify what type of bird-safe design methods will be used on all glass surfaces as is required. Specify that mirrored surfaces will be prohibited.
3. Assess the impact of the new afternoon shade from the tall structures on bird habitat as well as insects and amphibians. Some fish prefer shade while other aquatic creatures do not.

4. Assess the cumulative impacts of new lighting on insects and birds. Consider mitigations that include dimming and shut-off.

Population & Housing:

1. Realistically, 80% at least of the 1800 units of housing will be market-rate. Assess the impact of this new market-rate housing on the AMI (Area Median Income.) Assess how this projected increase in AMI will raise rent levels for any affordable housing in this project.
2. Assess the impact of this project on existing low-income housing near or in the project area, specifically rent increases and displacement numbers.

Public Services:

1. Assess the capacity of existing fire and police to accommodate a potential increase of 4000 new residents in the project area. Specify the numbers of increased personnel needed to maintain level of service.
2. Assess the impact of a potential increase of 4000 residents on the capacity of existing city parks and open space.
3. Assess the impacts on all of the above from an increase in tourists and visitors, anticipated from the Objectives.
4. Assess the increased need for parking from a new Arena/Event center and from the increase in residential population.
5. Assess the impact of door- to -door deliveries (servicing the new residents) on the capacity of existing roads and new sidewalks. Add to the assessment the increased foot traffic from visitors and residents.
6. Assess the ability of emergency vehicles (police, fire, ambulance) to access the beach area, Wharf and Boardwalk during summer weekends when traffic currently is grid-locked at the roundabouts. Assess this taking into account the additional traffic generated by 4000 new residents as well as increased commercial and visitor- serving establishments in the project area.

Transportation:

1. Assess the increase in VMT from the thousands of residents of the lower westside who will divert away from this area due to gridlock and travel to and from their homes via Mission St.
2. Factor in the delivery vehicles who currently use this route to make deliveries to the Wharf and Beach area, who will divert to Mission St. or California and then Bay St. to avoid gridlock.
3. While VMT is required under CEQA, that law allows congestion to be studied if there are local conditions that warrant such study. Such conditions exist in the project area. Currently, the roundabout within the project area is grid-locked on summer weekends. Assess the congestion that will be aggravated by this project and fully mitigate. One mitigation is to re-divert beach-going traffic away from the project area so that the increase in traffic can be spread-out between Ocean St. and Front St. Consider a Boardwalk parking entrance and exit at the back as well as the existing

front entrance to avoid the current situation of inbound Boardwalk traffic needing to navigate two congested round-abouts.

Respectfully submitted,

Gillian

Gillian Greensite
gilliangreensite@gmail.com

From: Judi Grunstra
To: Sarah Neuse
Subject: Downtown Extension Plan EIR Scoping
Date: Friday, October 14, 2022 5:39:06 PM

Hello Sarah,

I have many concerns with this project and I hope my comments are in an acceptable format.

Aesthetics

The notion that somehow tall buildings will create a distinctive skyline that will draw people to the area is pure speculation and not in accord with what people like about Santa Cruz! Building heights taller than those in the General Plan should not be permitted. I believe that is 8 stories. You (planners) have an opportunity to shape these blocks into a truly livable mini-community in accord with principles set out by organizations such as Strong Towns and Congress for the New Urbanism.

New Urbanism is a planning and development approach based on the principles of how cities and towns had been built for the last several centuries: walkable blocks and streets, housing and shopping in close proximity, and accessible public spaces. In other words: ***New Urbanism focuses on human-scaled urban design. (CNU.org)***

The city must do extensive studies on shadows cast by buildings of heights higher than 8 stories. I don't believe this subject has been included in the Objective Standards, other than perhaps regarding setbacks of upper stories. If buildings of 15 and 17 stories are anticipated, they should be subject to community consensus, under the Objective Standards.

Air Quality

Intensive construction will affect air quality and must be measured. Traffic will undoubtedly also effect air quality and Greenhouse Gas Emissions. There must be studies of car trips anticipated to all events that might be scheduled in the Arena, year round.

Noise

Noise of increased traffic from cars, buses, motorcycles, other motorized transit must be studied, and noise from events. Noise during the Arena events as well as crowd noise as people arrive and leave the event. That could be very disturbing to the new residents of the neighborhood. Noise from other activities (bars, events in the planned public spaces) should also be anticipated and mitigated, as laid out in an EIR.

Public Services and Utilites

Police & Fire - Sports events seem to bring out a number of rowdy fans. Add alcohol

to that, with undoubtedly more places to consume alcohol, both in the Arena and in the general area, and there will be more calls for police services. Restrictions should be put in place to limit the number of alcohol outlets, including bars and restaurants.
There are undoubtedly impacts on fire and emergency services in this very densified area, with limited roadways. These must be part of the EIR.

Water, wastewater systems, electrical, broadband, roadways. The EIR must address how this project impacts those essential city services, including how they will be paid for.

Population
New housing for families will require services that do not currently exist in the Downtown Plan Extension area.
Schools - where will children attend schools? Do our schools have the capacity to add hundreds of new students? How will the students get to school? Buses? Individual car trips?
Shopping for daily needs - A "food desert" is an area more than 1 mile from the nearest supermarket or large grocery store. The closest grocery stores to the Downtown Extension are Safeway, Trader Joe's and New Leaf Markets.

Transportation
Consider a project that is mainly a pedestrian zone. Only residents of the area should be allowed to enter via private automobile.
Visitors and event attendees should be directed to park at a remote parking area, and be transported via shuttle to the Downtown Extension.

I have long envisioned a parking structure on the large parking lot of the County Building on Ocean Street that could serve the County building as well as downtown Santa Cruz. Perhaps the EIR could investigate the costs and operation of this, and contrast that with the cost and negative environmental impact of building a parking structure in the Downtown Extension area. It could be a joint venture between the county, city, Warriors, and even the Beach Boardwalk company. We simply must find a way to relieve the terrible traffic in our streets and especially near the beach.

As for the Project Objective of creating new economic opportunities for local businesses and workers, there should be an absolute minimum number of national chain restaurants or franchise businesses. The city could create one or more business incubator facilities, low-rent artist studios, especially for women and under-represented groups. Also, a Food Hall could be really popular. Capitalize on Santa Cruz's history of being a pioneer in the world of organic and healthy foods. Perhaps this is not within the EIR scope.

Thank you.

Judi Grunstra
220 McMillan Dr.
Santa Cruz 95060

From:	Kathy Haber
To:	sneuse@cityofsantacruz.com
Cc:	Kathy Haber
Subject:	Downtown Expansion project
Date:	Thursday, September 29, 2022 11:20:49 AM

Hello Ms Neuse, I attended the ZOOM last night but did not raise my hand. I felt that the 3 excellent speakers, Jillian, Frank and Susan, represented my views. Much better, in fact, than the pro-developent majority on the CCouncil. I want to add on to what they said.

The Council recently passed a climate action policy. I believe that the DEP does not conform with it in regard to sea level rise. The EIR must address the issue of sea level rise. since the proposed buildings will be in a traditional flood plain. Just because, due to the levee and pumps, it has been removed from Flood Zone designation, does not mean that the area won't be inundated when the sea level goes up. How is this addressed in the new city climate policy? This threat must be addressed in the EIR.

Thank you for your patient attention to all these pesky details,

Kathy Haber, Shelter Lagoon

From:	Kathy Haber
To:	sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; sbrown@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com; sneuse@cityofsantacruz.com
Subject:	Downtown Expansion Plan
Date:	Friday, October 14, 2022 7:33:52 PM

Hello Councilmembers,

I am writing to ask that you reconsider the problematic plan to intensely develop the area south of Laurel. I live nearby on Blackburn St and am very concerned about the degradation my neighborhood will experience if this plan goes through. Parking, traffic, and inadequacy of resources and infrastructure are primary concerns. Also of concern is the very low elevation above sea level of the proposed buildings.

The Council recently passed a Climate Action Policy. I believe that the DEP does not conform with it, in regard to sea level rise. The EIR must address the issue of sea level rise. since the proposed buildings will be in a traditional flood plain. Just because, due to the levee and pumps, it has been removed from Flood Zone designation, does not mean that the area won't be inundated when the sea level goes up. How is this addressed in the new city climate policy? This threat must be addressed in the EIR. The EIR must address the conflicts between the DEP and the Climate Action Plan as regards sea level rise and development on very low elevation land.

Sincerely, Kathy Haber

From: tutti hacking
To: sneuse@cityofsantacruz.com
Subject: re: Proposed Buildings are TOO HIGH in Downtown Expansion Plan
Date: Sunday, October 16, 2022 8:04:45 PM

Dear Ms. Neuse,
I am a long-time Santa Cruz resident and property owner, having attended UCSC in the 1980s. I have seen my community change to something that is barely recognizable! Massive, tall building projects going up everywhere downtown is NOT FEASIBLE!

First, building 15 story and 17 story buildings will be an eyesore and not in conformity with community values.

Second, and perhaps most importantly, SEA LEVEL RISE IS REAL! Perhaps you don't follow the latest news - the Thwaites Glacier, also known as the "Doomsday Glacier," is melting at a rate not before seen, and what scientists describe as unprecedented, with the real possibility of a 10 FOOT SEA LEVEL RISE. The Thwaites Glacier in Antarctica is the size of Florida and has lost contact with the seafloor, meaning it is melting from below as the oceans warm. The glacier is retreating at a rate of **1.3 MILES** per year, "a rate double what they predicted between 2011 and 2019." (https://www.washingtonpost.com/climate-environment/2022/09/06/thwaites-doomsday-glacier-antarctica-disintegrating/) Given that all estimates of sea level rise have been vast **underestimates**, it would be the height of folly to invest in such heavy infrastructure when the downtown area WILL BECOME INHABITABLE in just a few years. The sewage treatment center will become inundated, and residents will pay the price of relocating it to higher ground. PLEASE, DO NOT MOVE FORWARD WITH INFRASTRUCTURE IN AREAS THAT WILL SOON BE UNDERWATER.

I am not crazy, or uninformed. I am an attorney (currently in retirement) and with that high level of education, I take climate change and sea level rise very seriously. I care about my city. While housing is in demand, it would behoove this Planning Department to make **exceptional** incentives for **residents** to build more housing on their own properties, rather than hand over real estate projects to out-of-the-area developers for profit.

Thank you for considering my opinion.

Sincerely,
Tutti Hacking
209 Morrissey Blvd.
Santa Cruz, CA 95062

From: bikerick@att.net
To: Sarah Neuse
Cc: City Council
Subject: Scoping Comments for Downtown Plan Expansion Project EIR
Date: Thursday, October 13, 2022 11:11:58 AM

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Dept.
809 Center Street, Rm. 101
Santa Cruz, CA 95060

Re: Scoping Comments for Downtown Plan Expansion Project EIR

Dear Ms. Neuse,

In analyzing, as required, "*would the project [i.e., implementation of the Downtown Plan Expansion]:*

a. *Conflict with an applicable program plan, ordinance or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*"

please apply all relevant provisions of the City General Plan, Local Coastal Program, adopted Active Transportation Plan, Safe Routes to School Plan, Regional Transportation Plan, and related documents with regard to the following:

1. Pacific Ave from Laurel to lower Front: This segment of Pacific lacks bike lanes, but is a major connecting route to and from Downtown and not too challenging to bike. The proposal is for shared street and flex zones with diagonal parking to support commercial uses within the right of way. Bicyclists will be adversely affected in various ways. The area that they can bike in will be reduced. When the street is temporarily closed bikes may not be able to pass through and will have to find alternative routing. Future bike lanes will be precluded. Vehicles backing out of diagonal parking spaces will have a difficult time seeing cyclists, leading to potential crashes. The best mitigation is to eliminate on-street parking and install bike lanes. If parking is to remain, it should not be diagonal; if it must be diagonal, then it should be back in. If the street is to be temporarily closed, the best mitigation is to still allow bikes through; an alternative would be to retain a bike access corridor through the closure.

2. Pacific Ave at Front intersection, by 555 Pacific: Pacific below Front and then Front Street have bike lanes. This intersection is not entirely bike friendly, especially going east on Pacific before it curves north at the intersection with Front St – it's hard to make a left turn into on-coming traffic and dicey to go straight onto Front Street due to motor vehicles coming down the Front Street hill. The proposal is for a roundabout at this intersection. Bicyclists may benefit or be adversely impacted, depending on how the roundabout and its approaches are configured. At the nearby roundabouts, bike lanes terminate before the roundabout and cyclists are funneled into the traffic lanes – these are challenging to ride through. The best mitigation is to consult the literature to find and then emulate the most bicycle-friendly roundabout design.

3. Front St to the River levee: Currently bikes can access the levee through Spruce St/ Laurel Street

extension, although the connecting pathway from street to levee is quite steep and narrow. The proposed plan is for a more gradually graded pedestrian plaza – so far, I have not seen anything in this plaza proposal about bikes. They will be adversely impacted if bikes are not allowed on this plaza or its use will, as a practical matter, preclude bikes. The best mitigation is to fully allow bikes; an alternative would be to designate a corridor through this new plaza for bike access; another possible alternative is a nearby convenient replacement location for a levee to Front Street bike-ped only connection.

4. Cliff Street and River levee connection: The stairs leading from Laurel Street extension to Cliff Street obviously cannot be biked on and besides this corridor is very steep for bikes. Cyclists going to the Beach and Beach Hill along Laurel Street extension can leave the street or levee pathway at the intersection with Third Street. However, cyclists riding down Third Street from Beach Hill cannot legally turn left onto the end of Laurel Street extension to access the pathway. Cliff Street itself is one of the only streets that allows northbound travel from Beach Street, but lacks bike lanes. The proposed project includes unspecified Cliff Street enhancements. Depending on how they are designed they can either improve or adversely impact bicycle access. The best mitigation measure would be to install bike lanes along the entire length of Cliff Street. Signage and striping is also necessary at the Beach Street intersection to allow cyclists riding down Cliff Street to access the two-way Beach Street bikeway. Signing and striping and possibly some redesign of the intersection at Third and Laurel Street extension are necessary to allow cyclists traveling from Cliff, then west along Third St. to turn left onto the River levee pathway.

5. Spruce Street: This street currently does not have much traffic and, although lacking bike lanes, is fairly low stress to bike on. It is used by cyclists to access the aforementioned levee connection and to access the popular Bike Church. The proposed project is for temporary street closures. Bicyclists will be adversely impacted if bikes will not be allowed during such closures. The best mitigation is to either fully allow bikes; an alternative would be to keep open a corridor of this for bike access during closures.

Also, an illustrated street cross section shows diagonal parking on this street. As discussed above, this would adversely impact cyclists.

6. Bike Church: Speaking of the Bike Church, it provides an invaluable service to bicyclists and potential bicyclists in terms of free or affordable repairs, supplies, and bikes. The proposed plan is for a tall building on its current site. The likely impact is the end of the Bike Church and, hence, reduced ability for the city to meet its commitment to bicycling. The best mitigation is to ensure that the Church has at least comparable convenient space and rent somewhere and that any required move does not materially disrupt its functioning.

7. All streets in the plan area: All streets in the area are bikeable, many segments have bike lanes. The proposed project is for vastly increased density, including some very tall buildings with not much more frontage than a typical home or two. The residents and employees of these buildings will generate a substantial increase in various types of construction and then service trips. [Please consult sources that can help quantifiably predict what this impact will be.] These construction and service vehicles need a place to park. Bicyclists will be adversely impacted if they park in or preclude

existing or future bike lanes [bike lanes have been closed north of this area for similar construction activities], or park in the part of the roadway where cyclists would most likely be riding or stop, or park so as to obstruct the normal flow of traffic so that it is forced to veer into the path of cyclists. The best mitigation is, of course, to reduce the intensity of the proposed development. Other mitigations include having ample, designated places for construction and service vehicles to park outside of bicycle lanes or, where there are no lanes, the most logical place where cyclists would ride. However, the drawback of this measure is that service drivers often ignore these directives and then do not get ticketed. Thus, another mitigation would be to have parking officers and the new building's parking attendants or security guards enforce such rules and to penalize service and construction companies that violate the loading and parking rules.

In conclusion, the analysis should address not only the noted specifics but the overall effectiveness and performance of the bicycle transportation system in light of city policies to support and increase bicycling. For example, as an eastside resident I bike through this area often to access the waterfront, West Cliff Drive and westside destinations. Except during peak weekends, there is not a lot of traffic in this area. Bicycling is generally convenient and non-stressful; as examples, a cyclist can fairly easily maneuver around any obstacles and move into traffic lanes to make left turns and without much delay. When I envision the proposed development resulting from the plan and the resultant vehicular movements, I visualize bicycling been less convenient and more challenging and stressful. The City will likely have more difficulty in achieving its policy objectives with regard to bicycling. This may well be an unmitigable impact, but partial mitigation would be to comprehensively plan for and implement a robust bicycle transportation network.

Similarly, in analyzing the required VMT (vehicle miles travelled as a result of the proposed plan), guidance notes that bicycling by the new residents and employees reduces VMT. Again, it is one thing to show some bike lanes and bicycle accessible paths, it is another to design an entire system that new residents, employees, and business patrons will perceive as safe, convenient and motivating to use. Additionally, it is one thing to provide some on-site bike parking and perhaps a bike rental or bike owner subsidy program, it is another to design, locate and operate these in a manner that the new residents and employees perceive to be safe and convenient. As an example, there is ample bike parking at the current arena, but it is on the side of the building away from the entrance and does not appear very secure. Without a serious, systematic approach to encouraging and facilitating bicycle usage, VMT reductions cannot be assumed.

Finally, in deriving an alternative project for analysis, as required, one could incorporate a more visionary transportation system that is more favorable to bicycle and other non-auto modes pursuant to city, regional and state policies and plans. This is admittedly challenging given the need to provide for a connection to the waterfront area. But, in terms of bicycling, what if there could be a continuation of the river levee pathway down to and across the study area connecting to the pathway through Depot Park and then to the forthcoming rail trail? And, what if the internal circulation system and the scale and design of development favored cyclists (and pedestrians) and limited motor vehicles? Please offer an alternative that accomplishes such objectives.

Thanks in advance for seriously addressing these significant transportation impacts in the Downtown Plan Expansion Project EIR.

Rick Hyman
Santa Cruz

From:	Laura Lee
To:	Sarah Neuse
Subject:	To the Downtown Expansion Project EIR committee: A Call for UNDERSTANDING AND INSPIRATION
Date:	Sunday, October 2, 2022 6:46:41 PM

Thank you for the Zoom meeting regarding the plans for the downtown expansion. There is much to be contemplated before decisions are made.

You asked for suggestions: One effective idea is to erect tall poles with colored flags that readily show the heights of the 15 and 17 story buildings, and location sites planned for the lower downtown areas. Let us SEE WHAT IS GOING TO HAPPEN TO THE SANTA CRUZ SKYLINE and TOWN DENSITY. The box-like construction now underway on Pacific and Front Streets is already shaking peoples' heads. Why so massive? And, why more of the same?

So many are perplexed and deeply concerned about how this new development commercializes our town but DOES NOT serve city residents and tourists. The reason people choose to live and vacation here is for the natural beauty and charm of Santa Cruz. Plans for a big arena and high-rise buildings are antithetical to our town. Over-building like LA and San Diego is NOT what we want. Visitors who come from cities mired in congestion want a reprieve from these conditions, not more of the same.

Moreover, hearing city planners downplay the water shortage is an obvious and illogical misstep. With the ongoing drought, so many additional residential and commercial endeavors will certainly increase unnecessary demand on water usage. Our valuable food supply is dependent on the area's resources. Best to feed people at less cost than to place more strain on our water supply. This enormous construction, on top of the very large building sites already underway, requires a significant amount of water. And let's not ignore that several additional years of construction will continue to bog down this area with more noise, detours, and congestion.

Then there are the homeless people scattered throughout town who continue to frustrate residents and visitors. What are your answers to those looking out of their high-rise windows at the conclave of human beings living in tents with so little resources for cleanliness and waste?

SO, WE ASK, **"What do we want from city planners?"** We say universally, safe, quiet, and cleaner neighborhoods with opportunity to take in the scenery with the diverse tress and wildlife, and to enjoy open spaces such as the San Lorenzo River walkway. Yes, beautify the riverwalk by adding colorful native vegetation and additional art installations. BUT DO NOT over-commercialize any places including the river front which surely will result in more congestion with additional strain to all city services. And please DO NOT IGNORE the impact on the migratory patterns of wildlife between Neary Lagoon, the river, and its adjacent land. Respect for all creatures is part of the ethos of Santa Cruz.

FORGET old school high-rise designs. Delve into forward thinking city planning! The September 4th, TV show 60 Minutes (CBS, Season 54 Episode 55) highlighted the award-winning non-profit Architectural Firm, Model Architecture Serving Society (MASS) **https://massdesigngroup.org** **Please investigate these ideas and others to refurbish and reimagine existing structures.** This is the best form of green construction and keeps the skyline unobstructed by additional storied

buildings. Worldwide, cities are being reshaped by the impact of climate change and cultural shifts. **Let's do more here!** Thankfully, parts of this plan do add bike paths and walkways to integrate various neighborhoods.

Instead of building a new arena, our beautiful civic auditorium needs upgrading. Although some might like the idea of a larger arena, most people recognize the consequences of a larger stadium in our small downtown: more traffic bottlenecks, noise, and a costly strain on our resources and the environment.

Most importantly, please address adding housing from a balanced and more nuanced way. Spread out development among varying neighborhoods. There is no need to put so many new units in one small area which will further deter ease of movement. And why displace low income and disabled people from their homes? Look for solutions that adapt spaces for homes while consciously improving current circumstances.

OUR JOB AS LOCALS is to organize to oppose shortsighted proposals and place guard rails around ambitious desires. As reiterated on the September 28th ERI meeting, our choice is to lessen the existing traffic congestion, pollution and judiciously use water resources. Obviously, we do need to find ways to ease movement between adjacent counties. Central coast residents already resist driving to downtown for entertainment and shopping due to heavy traffic. Perhaps building parking lots tucked away along Highways 1 and 17 and provide public transportation to advance electric shuttles and high-speed rail is a viable solution.

Let's be REAL: the benefit for the proposed over-development is clearly NOT FOR THE RESIDENTS OF SANTA CRUZ or for those wanting a fun and refreshing place to visit. A shift in thinking is imperative. The astonishing reports on hurricane Ian demonstrate the relevance of preparedness with emphasis on infrastructure and emergency services. As many of us recall the trauma and loss of the Loma Prieta earthquake, it is essential for the city council and its consultants to pay more attention to reinforcing buildings and manifesting responsible projects. Why does anyone believe that 15 and 17 story buildings are beneficial to the resilience and longevity of Santa Cruz?

We are blessed to live in this celebrated vacation destination! The grandeur of redwoods, the long stretch of the magnificent coastline, the area's history, and the gifts of the Monterey Bay Marine Sanctuary offer unending pleasure for hiking, ocean sports, sightseeing and recreation. **YES,** let's be inspired and curious about improving Santa Cruz!. Move away from the proposed vision of over-building and commercializing for the benefit of developers and the heirs. Santa Cruz city and county residents want the council and planners to hear deeply their concerns and opposition. We need to think wholistically, and act with reverence for our interconnectedness with each other, the environment, its habitat, and the resources affected by climate change.

Thank you for your service.

Sincerely,
Laura Lee, Downtown Resident

From:	Carol Long
To:	sneuse@cityofsantacruz.com; sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; jcummings@cityofsantacruz.com; sbrown@cityofsantacruz.com; stoptheskyscrapers@gmail.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Cc:	scpel; Santa Cruz Progressive Alliance; SCCAN
Subject:	Santa Cruz Downtown Plan Expansion Project
Date:	Saturday, October 15, 2022 12:39:09 PM

I join Frank Barron and Susan Monheit and, I hope, others, in stating that the number of proposed units in the NOP (Notice of Preparation) of the EIR should be corrected from 1,800 to the 1,600 specified in the city council motion, and the NOP recirculated.

These are my further comments on the proposed development, and a correction to the first one, which was on the **Aesthetics of the developmen**t: Only one of the projected buildings appears to be wider than it is tall; even so, this does result in a massif comparable to the buttes in western North Dakota's Badlands in Theodore Roosevelt National Park.

Unlike the awe-inspiring Badlands, this project's buildings' combined mass dwarfs the surrounding cityscape in a bizarre and gloomy manner, literally--meaning actually--throwing their surroundings into shadow.

Biological Resources

The proposed four buildings for housing and commercial development would alter the San Lorenzo River ecosystem with deep shade and endanger the river's ecosystem and fish, already stressed by climate change, drought, and overfishing.

The buildings' great height and mass also mean certain death for at least thousands of resident and migratory birds drawn to the river, the shore, and birding hotspot Neary Lagoon, all in the project area. Almost a billion birds are killed by collisions with buildings annually in the United States, most by tall buildings.
https://urbanbird.org/reducing-bird-strike-mortality/

So far: the damage by the project to our scenic cityscape, to the atmosphere of our neighborhood, and to the ecosystems of land and sea would be considerable, not only because of the buildings themselves but because of the steep increase in human population density and the increase in traffic and traffic congestion. The impacts to the environment include many not even considered nor mitigated in the EIR, including the fish, bird, and other wildlife and plant life mortality from shading of the river and birds' collisions with the buildings, but also the general environmental effects on the city and the rural area surrounding Santa Cruz.

Water and Agricultural Resources

The demand on our water supply is not adequately assessed nor mitigated in the EIR. As pointed out by Frank Barron, American Planning Association professional member, the worst climate change scenarios are becoming the most likely, and the city's Urban Water Use Management Plan's (UWUMP) use of a baseline "worst case" 1973-1977 drought scenario is not adequate. A new analysis of water supply and

demand, especially in view of UCSC's growth plans, is needed for a basis to assess the project's impact on our water supply, our ground water aquifer, and agricultural land., considering sea level rise and saltwater aquifer intrusion.

Baseline Scenario Alternative

A Baseline Scenario alternative, with **existing height limits and FARs**, that incorporates the arena and other proposed neighborhood improvements, should be included as a Preferred Alternative, allowing up to 1,200 new units.

Parking and Traffic Impacts

Even though CEQA doesn't require traffic and parking impact impact assessments, the city should
do these analyses because they are needed.

Provision of Affordable Housing

I am skeptical that people who now reside in Santa Cruz would get the majority of market rate housing built anywhere in the city. A study should be made of how out-of-area demand for housing will affect the ability of the project to ease the housing crisis in Santa Cruz, and another study on how the destruction of present low-income housing along Front Street for the project will diminish the project's ability to relieve demand for low-income housing The number of market, moderate to low and very low income housing units that will be built needs to be specified and adhered to, if the project is to be competently assessed.

Hydrology and Water Quality

According to the EIR, a large amount of fill would be placed next to the levee in order to bring the grade up to the top of the levee; this would constitute a significant flood hazard and should be taken out of all project plans. In view of current estimates of 3-6 feet of sea level rise in the coming decades,100, 200, and 500-year flood plan contingencies should be incorporated into all project alternatives.

Thank you for seriously considering my feedback and that of all concerned citizens and neighbors.

Carol Long
Neary Lagoon neighborhood resident

From:	Carol Long
To:	sneuse@cityofsantacruz.com; sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; jcummings@cityofsantacruz.com; sbrown@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Cc:	santa-cruz-progressive-email-list@googlegroups.com; Santa Cruz Progressive Alliance; SCCAN; stoptheskyscrapers@gmail.com
Subject:	Santa Cruz Downtown Plan Expansion Project
Date:	Saturday, October 15, 2022 9:41:17 AM
Attachments:	Bismarck Capitol Bldg .jpg Capitol bismarck.jpg

This is a comment on the above named project and the city's
"Subsequent Environmental Impact Report
(SEIR) to the Downtown Plan Amendments Final EIR,...certified in November 2018."
https://www.cityofsantacruz.com/home/showpublisheddocument/90740/637988532645930000

The project according to this report will include, among other things, one building up to "175 feet and three buildings not to exceed 150 feet."

This means that all four proposed buildings (excluding the amphitheater) will be 2.5 to 3 times as tall as Beach Hill top (about 60' above the beach), and the tallest of the new buildings (175') more than 100' above Beach Hill top.

The images (below signature) of the 21-story Bismarck, N.D., state capitol shows how a similar skyscraper looks next to the surrounding urban terrain with building heights similar to our Santa Cruz Beach Area neighborhood. While this may be majestic for a state Capitol above the fruited plain, it is grotesque in our historic neighborhood, with mostly up to two story buildings.
Multiply by four, and add that the buildings in this project look as wide as they are tall in the project drawings..

I'll comment on other aspects of the project in another email.

Thank you.

Carol Long
south Chestnut Street resident, Santa Cruz Beach Area





From:	Carol Long
To:	sneuse@cityofsantacruz.com; sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; jcummings@cityofsantacruz.com; sbrown@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject:	Assess & Mitigate These Impacts : Santa Cruz Downtown Plan Expansion Project
Date:	Sunday, October 16, 2022 9:54:31 AM
Attachments:	Bismarck Capitol Bldg .jpg Capitol bismarck.jpg

Referring to all previous comments I sent to you yesterday (in several emails) about Aesthetics, Biological Resources,
Water and Agricultural Resources, Parking and Traffic, Provision of Affordable Housing, Hydrology and Water quality,
and my request that the Baseline Scenario Alternative as allowed under the city's 1994 Coastal Plan,
be the Preferred Alternative,
incorporating only existing height limits and FAR, and limiting housing units to 1,200;*

Please assess the impacts of all the project alternatives on these aspects of our city and county, and propose effective mitigations of all impacts.

To these concerns I add another economically and aesthetically crucial one:
Please assess & mitigate if possible
that the project's buildings, including the residential/commercial, with one at 175 feet high and three others at 150',
plus the amphitheater
may alter our viewshed, permanently **blocking our view of the Santa Cruz Mountains from Beach Hill,**
the entire south of Laurel project area, and even from the Main (Cowell) Beach.

*I have made my request for a change of the Baseline Alternative to conform to Santa Cruz' 1994 Coastal Plan on this fact: that the city's 2012 General Plan changes were never submitted to nor approved by the California Coastal Commission, and therefore the height and other limits in Santa Cruz City's 1994 Coastal Plan are the only legal basis from which to design any development project.

----- Forwarded Message -----
From: Carol Long <cjlong3@sbcglobal.net>
To: sneuse@cityofsantacruz.com <sneuse@cityofsantacruz.com>; sbrunner@cityofsantacruz.com <sbrunner@cityofsantacruz.com>; mwatkins@cityofsantacruz.com <mwatkins@cityofsantacruz.com>; jcummings@cityofsantacruz.com <jcummings@cityofsantacruz.com>; sbrown@cityofsantacruz.com <sbrown@cityofsantacruz.com>; rgolder@cityofsantacruz.com <rgolder@cityofsantacruz.com>; skalantari-johnson@cityofsantacruz.com <skalantari-johnson@cityofsantacruz.com>; dmeyers@cityofsantacruz.com <dmeyers@cityofsantacruz.com>
Cc: "santa-cruz-progressive-email-list@googlegroups.com" <santa-cruz-progressive-email-list@googlegroups.com>; Santa Cruz Progressive Alliance <scruzpa@googlegroups.com>; SCCAN <scruz-can@lists.riseup.net>; stoptheskyscrapers@gmail.com <stoptheskyscrapers@gmail.com>
Sent: Saturday, October 15, 2022 at 09:40:55 AM PDT
Subject: Santa Cruz Downtown Plan Expansion Project

This is a comment on the above named project and the city's
"Subsequent Environmental Impact Report
(SEIR) to the Downtown Plan Amendments Final EIR,...certified in November 2018."
https://www.cityofsantacruz.com/home/showpublisheddocument/90740/637988532645930000

The project according to this report will include, among other things, one building up to "175 feet and three buildings not to exceed 150 feet."

This means that all four proposed buildings (excluding the amphitheater) will be 2.5 to 3 times as tall as Beach Hill top (about 60' above the beach), and the tallest of the new buildings (175') more than 100' above Beach Hill top.

The images (below signature) of the 21-story Bismarck, N.D., state capitol shows how a similar skyscraper looks next to the surrounding urban terrain with building heights similar to our Santa Cruz Beach Area neighborhood. While this may be majestic for a state Capitol above the fruited plain, it is grotesque in our historic neighborhood, with mostly up to two story buildings.
Multiply by four, and add that the buildings in this project look as wide as they are tall in the project drawings..

I'll comment on other aspects of the project in another email.

Thank you.

Carol Long
south Chestnut Street resident, Santa Cruz Beach Area





From:	Nancy Maynard
To:	city of santa cruz city council; sbrunner@cityofsantacruz.com; Martine Watkins; sbrown@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; dmeyers@cityofsantacruz.com; sKalantari-Johnson@cityofsantacruz.com; sneuse@cityofsantacruz.com
Subject:	Dense mega developments... no. no no..15 and 17 story ...no
Date:	Wednesday, October 5, 2022 1:05:23 PM

These new 15 and 17 story buildings are a really bad idea.
This does not improve the neighborhood. It will not create a sense of community.
I live very near these proposed buildings.
The noise and air quality while building will be unbearable.
After built they will feel like verticle housing for livestock. Traffic will be terrible . With a officecpark feel.
We were presented with 8 story not long ago. Now 15 or 17...

This idea will ruin our town... people who can will leave... you will lose very good people.
This will appeal to short term residents, not people who will give stability to our town...who want to stay for years.
Do not use our tax dollars to do this.

Nancy Maynard

From:	Sarah Neuse
To:	Sarah Neuse; sneuse@santacruzca.gov
Subject:	Fwd: Draft Downtown Plan Expansion Project(
Date:	Monday, October 17, 2022 3:39:17 PM
Attachments:	DOWNTOWN EXPANSION PLAN.pdf

---------- Forwarded message ---------
From: **Jane Mio** <jmio@earthlink.net>
Date: Mon, Oct 17, 2022 at 3:22 PM
Subject: Fwd: Draft Downtown Plan Expansion Project(
To: Sarah Neuse <sarahneuse@gmail.com>

Hello Sarah,

Here is my e-mail that didn't go through to you & hopefully this one will succeed.
Thank you so much for your quick, helpful response!
jane

> Begin forwarded message:
>
> **From:** Jane Mio <jmio@earthlink.net>
> **Subject: Draft Downtown Plan Expansion Project(**
> **Date:** October 17, 2022 at 2:28:39 PM PDT
> **To:** sneuse@cityofsantacruz.com
> **Cc:** Sonja Brunner <sbrunner@cityofsantacruz.com>, mwatkins@cityofsantacruz.com, Sandy Brown <sbrown@cityofsantacruz.com>, jcummings@cityofsantacruz.com, Renee Golder <rgolder@cityofsantacruz.com>, skalantari-johnson@cityofsantacruz.com, dmeyers@cityofsantacruz.com
>
> Dear Ms Neuse,
>
> I thank you and your co-workers for being able to submit my comments for an in-depth EIR.
>
> Please confirm that you received my comment submission since there have been issues recently with City staff receiving external mail.
>
> Thank you very much,
> Jane Mio

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Dept. 809 Center Street, Rm. 101
Santa Cruz, CA 95060
Email: sneuse@cityofsantacruz.com

October 17, 2022

Dear Ms Neuse,

Thank you for the chance to submit my comments for the Draft Downtown Plan Expansion Project(DEP).

General Comment:
Having lived in Santa Cruz since 1972 I am able to share this experience: the shade of current construction of project on Front St./Pacific Ave. lowers the temperature at the Laurel/Front intersection noticeably. Furthermore the project is slowly robbing the public of the open sky view, which creates a claustrophobic sensation.
These observations raise the following questions:

1. Why is the DEP increasing the building height of the Downtown Plan at this extreme rate?
2. Why is it reasonable to increase the downtown population by 5.03% of the entire 65,558 city population?
3. Why are the DEP impacts not assessed in regard to the all the other planned downtown projects?
4. What is the population increase percentage of the combined DEP and Downtown Plan?
5. How is the the DEP is fulfilling the City' goal 'Health in All Policy' in consideration of the below facts?

According to new research by construction blog Bimhow, the construction sector contributes to 23% of air pollution, 50% of the climatic change, 40% of drinking water pollution, and 50% of landfill wastes. In separate research by the U.S. Green Building Council (USGBC), the construction industry accounts for 40% of worldwide energy usage, with estimations that by 2030 emissions from commercial buildings will grow by 1.8%.
https://gocontractor.com/blog/how-does-construction-impact-the-environment/

BIOLOGICAL RESOURCES:
The EIR has to address why and how the Downtown Expansion Plan(DEP) is justified next to the important San Lorenzo River(SLR) waterbody, which is a city/county Natural Resource.
Santa Cruz Land Use 4.1.1 Environmental Setting:
https://www.cityofsantacruz.com/home/showpublisheddocument/22466/635418232770030000
Appropriate land uses adjacent to open spaces: LU3.11.2

The EIR has to provide scientific data that evaluates cumulative impacts on the SLR environment, which clarifies

- how the DEP in combination w/the Downtown Plan avoids harming/damaging the San Lorenzo River fauna & flora, including the 122 bird species in the 1,9 river urban stretch. Specific attention must be given to the protected/endangered species such as the steelhead, tide-water goby, Bald Eagle and the migratory birds since the SLR is in the Pacific Flyway.
- how the abrupt environmental changes for the the SLR aquatic/land fauna and flora ecosystems ~ due to the DEP development projects ~ avoid the cumulative effects of day shade, night light pollution, day temperature change due to building shade.
- how the loss of currently uncovered soil impacts neighboring ecosystems and consequently the health of humans and the SLR habitats.

The EIR needs to address how the Downtown Expansion Plan will mitigate the Park & Recreation Plan 2.4 'Existing Conditions' C. Level of Service Assessment: *The City's standard is to provide neighborhood parks at a ratio of 2.0 acres per 1,000 people, with a service radius of 1/2 mile. The City's goal for community parks is 2.5 acres per 1,000 people, with a service radius of 1.5 miles. LOS goals were not established for regional parks, open spaces, beaches, and facilities.The City is currently underserved for neighborhood and community park space. To meet existing goals, a total of 67 acres of parks would need to be created to meet the forecasted population growth associated with the City of Santa Cruz General Plan 2030 growth estimates.*

TRANSPORTATION:
The Downtown Plan intends to expand its reach with the Downtown Expansion Plan(DEP). Therefore the EIR has to evaluate the Downtown Expansion Plan traffic study in its relation/combination with the Downtown

Plan traffic findings since the combined plans will impact the entire downtown traffic. The merged findings of the impacts will avoid fragmented/isolated traffic mitigations that will cause drivers to idle in traffic jams &/or drive extra miles to evade downtown traffic thus add Climate Change greenhouse gases to the Santa Cruz air.
The traffic study also needs to include safe, quick emergency exit routes for this planned residential population increase and the arena attendants.

The DEP EIR intends to exclude analysis of crucial CEQA categories thus denying policy-makers and the public to form factual, well informed decisions.

Geology and Soils:
It behooves the DEP EIR to address the Geological and Soil impacts since the steep development increase is planned close to the San Lorenzo River levee, which hasn't performed according to the Corps of Engineers 100 year flood prognosis. It is vital that the levee structure is evaluated based on the most recent data to prove the levee is of sound structure to accommodate soil displacement /vibration drilling, heavy increase of planned building mass, soil removal. Since these activities are known to cause soil erosion the thorough EIR soil analysis will guarantee that soil and levee structure are able to withstand erosion problems of the DEP developments. The Soil, Geological study will avoid potential lawsuits should unsafe soil issues occur for developers and neighbors due to the DEP development activities, permitted by City Council based on staff's EIR data.

HAZARDS AND HAZARDOUS MATERIALS
NOISE:
The population increase of approx. 3,330 residents due to the DEP development will increase the noise level in that area. According to the Lookout 10/16 article the 3,000 seat arena plans to have 100 night events a year, which amounts to over 8 events a month. This will further add to the noise increase in the DEP area. The 2030 General Plan Chapter 8 "Hazards, Safety, and Noise" states the noise impacts and lists GOAL HZJ ~ Noise levels compatible with occupancy and use.
The EIR has to show a comparison of current & future DEP noise levels and how the increased noise level is aligned with the General Plan goals and the City's Health in All Policies.
https://lookout.co/santacruz/wallace-baine/story/2022-10-16/santa-cruz-warriors-new-stadium-performing-arts-downtown-development?utm_source=ActiveCampaign&utm_medium=email&utm_content=Sunday+Reads%3A+A+Santa+Cruz-sized+Chase+Center+%26+the+mayoral+candidates&utm_campaign=Sunday+Reads&vgo_ee=OJh8Qu8zoOBagurhmgnk0SBAWaAotQkn8fTjdS3g5M8%3D

Lighting:
Chapter 8 of the 2030 General Plan addresses Light pollution and its effects on urban and open space land. Under GOAL HZ5 "Minimal light pollution" is clearly stated that the City is tasked to *'Consider appropriateness of lighting when reviewing proposed development or renovation of parks and recreation facilities.',* which includes *' Investigate the merits of a “dark sky ordinance” and the standards and enforcement efforts required.'*
The EIR has to include data how the DEP is effectively including these light pollution goals.
Scientific articles about light pollution impacts on humans, flora and fauna are available here:
https://santacruzdarksky.org/index.php/news/page/2/

Sincerely,

Jane Mio
215 Mountain View Ave.
Santa Cruz, Ca. 95060

From:	Susan Monheit
To:	Sarah Neuse
Cc:	Sonja Brunner; Martine Watkins; Sandy Brown; Justin Cummings; Renee Golder; Shebreh Kalantari-Johnson; Donna Meyers; Save Neary Lagoon; StopTheSkyscrapers SantaCruz; Save Santa Cruz
Subject:	[CAUTION: Verify Sender Before Opening!] EIR Scoping Comments, Downtown Expansion Plan - Building Height Shadow Impacts (Part 3)
Date:	Friday, October 14, 2022 12:11:52 AM
Attachments:	EIR Scoping Comments_Building Height_Sunlight Study (pt 3).docx

Dear Ms. Nesue,

Thank you for the opportunity to submit comments on the proposed Downtown Expansion Plan Project (Project) for analysis and study direction, in preparation of the Project Environmental Impact Report (EIR). The EIR is a public disclosure document that at its best, will allow the public to understand the true costs associated with this Project. The EIR also seeks to mitigate identified impacts to less than significant levels. The comments in this letter, focus on the **impacts of building height and resulting shadow**.

Please see comments below:

PROJECT ALTERNATIVES

EIR Action:

Please create well developed Project Alternatives in the EIR with maximum building heights of 5 and 8 stories, to give City Council reasonable alternatives to choose from, which have significantly lower impacts than the proposed Project with massive 15 and 17-story buildings. In Europe, high density buildings, surrounded by ample, lovely outdoor spaces and landscaping are achieved by having small dwelling units. If we/the City Council is actually seeking to address the housing crisis which Santa Cruz is experiencing, we must first recognize that we are NOT facing a luxury, second home housing crisis for people who live in Silicon Valley/San Jose. We are facing an AFFORDABLE housing crisis for people who live and work in the City of Santa Cruz.

Background:

We (collectively the citizens of Santa Cruz and it's City Council) have the opportunity to meet the Regional Housing (RHNA) demand allocation, and the 1600 units proposed by the Downtown Expansion Plan Project (Project) creating beautiful, high-end, affordable, efficient dwellings within building heights already approved of by the existing City General Plan if dwelling size is minimized. Instead of having spacious suburban size housing in apartments of 1200 sqft or larger, create efficient small dwellings of 400 sqft (studio) and 700 sqft (1-bedroom) units, like those proposed in the 831 Water Street Project.

Studies have shown that once a building is taller than 4-stories, people begin to dissociate from their surroundings, and community. Their empathy and compassion diminishes proportionally with increasing building height. Above the fourth floor it becomes difficult to recognize faces or expressions of people on the street, to hear or understand pedestrians, to keep an eye on strangers or to notice odd or threatening behavior. Isolation caused by increasing distance from the ground, can lead to indifference and a lack of empathy. Some have called it "vertical sprawl." This vertical disconnect, and right-to-light laws and values, are two reasons why building heights in Europe are so often limited to 7 stories or less. I personally prefer 5 stories or less.

FYI, a typical apartment building with 2-bedroom apartments (or condos) can easily achieve 15 units per story per acre. So a 5-story building with ground floor commercial can achieve 60 residential units per acre (the top 4 stories), which is very high density for a small American town; and also what you find everywhere in Europe, in cities big and small.

Typically the ground-floor story of commercial space is 15ft high, and each residential story above is 12ft high. So a typical mixed-use 5-story building will be 63ft, or a little taller if it has a pitched roof. Mansard roofs are the best architectural trick for making a 5-story building look and feel like a 4-story one.

We NEED to design our City for PEOPLE who will live in them, and not around machines and cars. Please take a look at Jan Gehl's book: Cities for People. Making the outside environment healthy, inviting, and a place where people can connect, will make our city vibrant and successful. 15 and 17-story skyscrapers will not. Please, build buildings on a human scale.

RIGHT TO LIGHT

Building Height Shadow/Sunlight Study

Building heights of 175 and 150 feet outlined in the proposed Downtown Expansion Plan dwarf any building currently existing in the City of Santa Cruz. The physical impacts from having buildings of this height and width, and multiple buildings of this magnitude grouped together in the small area south of Laurel Street on Front Street, are massive, permanent and irrevocable.

It is likely that the shadow cast from these buildings will create microclimates on the ground that will permanently change the environment on the street and in the surrounding area. The area immediately north of the proposed skyscraper buildings will likely never experience solar radiation and sunlight. In their shadow, other buildings and/or river wildlife habitat will experience colder climate, winds, perhaps mold growth, and change in species distribution to only those organisms that can tolerate cold. Sunlight (solar fuel) will not reach these areas and photosynthesizing plant life will not grow well, if at all. What will it be like for people on the ground?

EIR Action:

In light of the massive, permanent and irrevocable impacts that loss of light, solar radiation, and solar fuel will bring, plus impacts from refracted light bouncing back and forth off and between the proposed towering buildings in the Downtown Expansion Plan, it is prudent and necessary to conduct a thorough **Building Height Shadow/Sunlight Impact Study** as part of the proposed Downtown Expansion Plan EIR.

Please include analysis of the following aspects, issues, and potential impacts, along with adequate mitigation to reduce these impacts to less than significant levels in your analysis:

- Conduct a sun/shadow study for building height scenarios of 5, 10, 15, and 17-stories;
- Conduct spatial **climate modeling** to analyze and graphically show the area of shadows cast from all four buildings, and the percentage of time each square foot of surrounding land will be in shadow resulting from the 5, 10, 15 and 17-story buildings scenarios. Graphically illustrate duration of shadow in each square foot surrounding the proposed buildings, by

making shaded area pixels darker in proportion to the amount of shade they receive. Analysis of shadow impact should be completed for at least a one-week duration for a minimum of two seasonal points - summer solstice and winter solstice. Additionally spring or fall equinox time points could be added. 3-D graphical representations of the shadow cast at these times of year should be created and shared with the public. **Temperatures** in the shadows cast over street & sidewalk cement and river water habitat should be calculated for winter and summer solstice periods.

- Including calculations of the likely short-term and long-term cumulative economic and environmental impactson all users/uses/properties that will experience shadow and loss of direct sunlight (and a colder, darker city) due to the proposed building heights scenarios.
- Ensure that the shadow/sunlight study measures the economic and environmental impact of all affected public spaces, green spaces, properties and property values, foot traffic, micro-climates, obstructed views (nature, sunset, ocean, hills, existing skyline and landmarks, temperatures, wind, quality of life.
- The study must measure the economic and environmental impact on **citizens'** sense of well-being, **mental and physical health**, tourism, storefronts, experiential retail, and access to (or lack thereof) solar power and heat.
- The study must measure the economic and environmental impacts of shadow duration to wildlife that live in the San Lorenzo river habitat, and wildlife that migrate annually, seasonally, and daily between the river habitat and other wildlife areas such as Neary Lagoon Wildlife Refuge.
- The study must measure the economic and environmental impact of blinding reflected light, bouncing off of and between the four skyscraper buildings.
- Impacts to current passive solar light/heat, and **future** passive and active solar power potential loss must be calculated. Loss of these abilities constitute “take” and “harm” and must be assigned a monetary value.
- Potential impacts on trees, proposed landscaping, and future urban forest, from shadow must be analyzed, and assigned an economic value so harm or loss can be assessed and compared with monetary benefits of the project in a Cost-Benefit Analysis. Shadows hamper the ability of trees, plants, flowers, and the urban forest to grow. **Light is fuel for the urban forest**. Calculate the impact and assign a dollar cost to loss of light fuel.
- Include the annual impacts as well as the seasonal impacts on all users of the affected spaces, including the entire Santa Cruz residential, commercial, institutional, and visitor populations.
- Assign a dollar cost to current and future values and opportunities impacted by shadow and loss of direct sunlight to individual commercial, residential, recreational and institutional properties. (There are numerous, readily available studies and books that can help inform this shadow study).

- Include mitigation and compensation strategies to offset the negative impacts on commercial, residential, recreational and institutional properties.
- An economic and health benefit premium has been placed on access to sunlight, which has proven to have a calming and warming affect, improving mood, health, productivity, retail sales (experiential retail) and rental/leasing prices and rates. Estimate the cost impacts given the loss of sunlight and solar radiation scenarios for multiple 5, 10, 15 and 20-story buildings.
- Taller buildings have a psychological affect of shorter, colder, darker days, which conflicts with City branding of "Surf City **sun** and fun".
- Direct sunlight is plant fuel, passive heating and lighting which conserves fuel and energy, and reduces greenhouse gas emissions. Estimate the utility cost impact from loss of solar fuel for current and future active solar heat/power opportunities.
- Tall buildings can block direct sunlight to gardens, decks, bedrooms, kitchens, rooftops, parks, store fronts, sidewalks, etc. Please estimate the dollar cost impact from loss of sunlight and radiation due to building height for all four building height scenarios.
- "**Valuing Sunshine**" and other studies have concluded that losing an hour of sunlight can reduce property values by several percentage points. This is a significant economic impact (**a taking of value** from neighboring residential, commercial, institutional and recreational properties) that should be fully disclosed; and a dollar amount must be assigned to this taking of value, for meaningful disclosure, public involvement and fully-informed decision-making on the part of the City Council.
- What would it cost to compensate neighboring properties for diminished property values and future opportunities? Who will pay for the compensation, how, and when?
- A Pigouvian tax (a tax on a market transaction that creates a negative externality, or an additional cost, borne by individuals not directly involved in the transaction) could be imposed on the developer of say 3.0% of the market value of an impacted property for each lost hour of direct sun (an actual tax value would need to be determined from more research). If the levy is worth it to the developer, it proceeds with the project, pays the tax, and the money is distributed to the harmed parties. This policy has the advantage of being relatively simple and straightforward, and the tax burden will fall heavier on those building taller or bulkier structures. This could be an annual, on-going tax/payment...or a 50-year cumulative projected loss and lump sum settlement.
- Please acknowledge in the study that it is widely recognized that shade from trees and plants (urban forest) is superior to shade from structures, because plants, trees and the wildlife they attract offer multiple environmental benefits beyond shade, improved air quality, reduction of heat island effect, CO2 uptake, rainfall interception and evaporation, particulate pollution deposition, no reflected or "blinding" light, and aesthetics to name a few.

In summary, due to the excessive height, length and width dimensions of the proposed housing component of the Downtown Expansion Plan, above and beyond anything currently existing in the

City or currently allowed by the City's General Plan, a study to determine the true cost and extent of detrimental impacts from permanent loss of sunlight to city streets and surrounding wildlife habitat in the San Lorenzo River is essential. The study must look at spatial deprivation of sunlight, solar radiation, solar fuel, and reflective impacts of all four buildings singularly, and cumulatively. Impacts of sunlight "take" to current and FUTURE environs, and the resulting impacts on current and future economic opportunities must also be analyzed.

Thank you for your time, thoughtful consideration and thorough analysis of the impacts outlined above. I look forward to seeing them addressed in the Downtown Expansion Plan EIR.

Sincerely,
Susan Monheit
110 Shelter Lagoon Drive
Santa Cruz, CA. 95060

Cc: City Council
SaveNearyLagoon (Community Group)
STOP the Skyscrapers (Community Group)
Santa Cruz Organizing Circles (Community Groups)

EIR SCOPING COMMENTS - DOWNTOWN EXPANSION PLAN - Building Height Shadow Impacts (Part 3)

October 14, 2022

Dear Ms. Nesue,

Thank you for the opportunity to submit comments on the proposed Downtown Expansion Plan Project (Project) for analysis and study direction, in preparation of the Project Environmental Impact Report (EIR). The EIR is a public disclosure document that at its best, will allow the public to understand the true costs associated with this Project. The EIR also seeks to mitigate identified impacts to less than significant levels. The comments in this letter, focus on the **impacts of building height and resulting shadow**.

Please see comments below:

PROJECT ALTERNATIVES

EIR Action:

Please create well developed Project Alternatives in the EIR with maximum building heights of 5 and 8 stories, to give City Council reasonable alternatives to choose from, which have significantly lower impacts than the proposed Project with massive 15 and 17-story buildings. In Europe, high density buildings, surrounded by ample, lovely outdoor spaces and landscaping are achieved by having small dwelling units. If we/the City Council is actually seeking to address the housing crisis which Santa Cruz is experiencing, we must first recognize that we are NOT facing a luxury, second home housing crisis for people who live in Silicon Valley/San Jose. We are facing an AFFORDABLE housing crisis for people who live and work in the City of Santa Cruz.

Background:

We (collectively the citizens of Santa Cruz and it's City Council) have the opportunity to meet the Regional Housing (RHNA) demand allocation, and the 1600 units proposed by the Downtown Expansion Plan Project (Project) creating beautiful, high-end, affordable, efficient dwellings within building heights already approved of by the existing City General Plan if dwelling size is minimized. Instead of having spacious suburban size housing in apartments of 1200 sqft or larger, create efficient small dwellings of 400 sqft (studio) and 700 sqft (1-bedroom) units, like those proposed in the 831 Water Street Project.

Studies have shown that once a building is taller than 4-stories, people begin to dissociate from their surroundings, and community. Their empathy and compassion diminishes proportionally with increasing building height. Above the fourth floor it becomes difficult to recognize faces or expressions of people on the street, to hear or understand pedestrians, to keep an eye on strangers or to notice odd or threatening behavior. Isolation caused by increasing distance from the ground, can lead to indifference and a lack of empathy. Some have called it "vertical sprawl." This vertical disconnect, and right-to-light laws and values, are two reasons why building heights in Europe are so often limited to 7 stories or less. I personally prefer 5 stories or less.

FYI, a typical apartment building with 2-bedroom apartments (or condos) can easily achieve 15 units per story per acre. So a 5-story building with ground floor commercial can achieve 60 residential units per acre (the top 4 stories), which is very high density for a small American town; and also what you find everywhere in Europe, in cities big and small.

Typically the ground-floor story of commercial space is 15ft high, and each residential story above is 12ft high. So a typical mixed-use 5-story building will be 63ft, or a little taller if it has a pitched roof. Mansard roofs are the best architectural trick for making a 5-story building look and feel like a 4-story one.

We NEED to design our City for PEOPLE who will live in them, and not around machines and cars. Please take a look at Jan Gehl's book: Cities for People. Making the outside environment healthy, inviting, and a place where people can connect, will make our city vibrant and successful. 15 and 17-story skyscrapers will not. Please, build buildings on a human scale.

RIGHT TO LIGHT

Building Height Shadow/Sunlight Study

Building heights of 175 and 150 feet outlined in the proposed Downtown Expansion Plan dwarf any building currently existing in the City of Santa Cruz. The physical impacts from having buildings of this height and width, and multiple buildings of this magnitude grouped together in the small area south of Laurel Street on Front Street, are massive, permanent and irrevocable.

It is likely that the shadow cast from these buildings will create microclimates on the ground that will permanently change the environment on the street and in the surrounding area. The area immediately north of the proposed skyscraper buildings will likely never experience solar radiation and sunlight. In their shadow, other buildings and/or river wildlife habitat will experience colder climate, winds, perhaps mold growth, and change in species distribution to only those organisms that can tolerate cold. Sunlight (solar fuel) will not reach these areas and photosynthesizing plant life will not grow well, if at all. What will it be like for people on the ground?

EIR Action:

In light of the massive, permanent and irrevocable impacts that loss of light, solar radiation, and solar fuel will bring, plus impacts from refracted light bouncing back and forth off and between the proposed towering buildings in the Downtown Expansion Plan, it is prudent and necessary to conduct a thorough **Building Height Shadow/Sunlight Impact Study** as part of the proposed Downtown Expansion Plan EIR.

Please include analysis of the following aspects, issues, and potential impacts, along with adequate mitigation to reduce these impacts to less than significant levels in your analysis:

- Conduct a sun/shadow study for building height scenarios of 5, 10, 15, and 17-stories;
- Conduct spatial **climate modeling** to analyze and graphically show the area of shadows cast from all four buildings, and the percentage of time each square foot of surrounding land will be in shadow resulting from the 5, 10, 15 and 17-story buildings scenarios. Graphically illustrate duration of shadow in each square foot surrounding the proposed buildings, by making shaded area pixels darker in proportion to the amount of shade they receive. Analysis of shadow impact should be completed for at least a one-week duration for a minimum of two seasonal points - summer solstice and winter solstice. Additionally spring or fall equinox time points could be added. 3-D graphical representations of the shadow cast at these times of year should be created and shared with the public. **Temperatures** in the shadows cast over street & sidewalk cement and river water habitat should be calculated for winter and summer solstice periods.
- Including calculations of the likely short-term and long-term cumulative economic and environmental impactson all users/uses/properties that will experience shadow

and loss of direct sunlight (and a colder, darker city) due to the proposed building heights scenarios.

- Ensure that the shadow/sunlight study measures the economic and environmental impact of all affected public spaces, green spaces, properties and property values, foot traffic, micro-climates, obstructed views (nature, sunset, ocean, hills, existing skyline and landmarks, temperatures, wind, quality of life.
- The study must measure the economic and environmental impact on **citizens'** sense of well-being, **mental and physical health**, tourism, storefronts, experiential retail, and access to (or lack thereof) solar power and heat.
- The study must measure the economic and environmental impacts of shadow duration to wildlife that live in the San Lorenzo river habitat, and wildlife that migrate annually, seasonally, and daily between the river habitat and other wildlife areas such as Neary Lagoon Wildlife Refuge.
- The study must measure the economic and environmental impact of blinding reflected light, bouncing off of and between the four skyscraper buildings.
- Impacts to current passive solar light/heat, and **future** passive and active solar power potential loss must be calculated. Loss of these abilities constitute "take" and "harm" and must be assigned a monetary value.
- Potential impacts on trees, proposed landscaping, and future urban forest, from shadow must be analyzed, and assigned an economic value so harm or loss can be assessed and compared with monetary benefits of the project in a Cost-Benefit Analysis. Shadows hamper the ability of trees, plants, flowers, and the urban forest to grow. **Light is fuel for the urban forest**. Calculate the impact and assign a dollar cost to loss of light fuel.
- Include the annual impacts as well as the seasonal impacts on all users of the affected spaces, including the entire Santa Cruz residential, commercial, institutional, and visitor populations.
- Assign a dollar cost to current and future values and opportunities impacted by shadow and loss of direct sunlight to individual commercial, residential, recreational and institutional properties. (There are numerous, readily available studies and books that can help inform this shadow study).
- Include mitigation and compensation strategies to offset the negative impacts on commercial, residential, recreational and institutional properties.
- An economic and health benefit premium has been placed on access to sunlight, which has proven to have a calming and warming affect, improving mood, health, productivity, retail sales (experiential retail) and rental/leasing prices and rates. Estimate the cost impacts given the loss of sunlight and solar radiation scenarios for multiple 5, 10, 15 and 20-story buildings.
- Taller buildings have a psychological affect of shorter, colder, darker days, which conflicts with City branding of "Surf City **sun** and fun".
- Direct sunlight is plant fuel, passive heating and lighting which conserves fuel and energy, and reduces greenhouse gas emissions. Estimate the utility cost impact from loss of solar fuel for current and future active solar heat/power opportunities.
- Tall buildings can block direct sunlight to gardens, decks, bedrooms, kitchens, rooftops, parks, store fronts, sidewalks, etc. Please estimate the dollar cost impact from loss of sunlight and radiation due to building height for all four building height scenarios.

- "**Valuing Sunshine**" and other studies have concluded that losing an hour of sunlight can reduce property values by several percentage points. This is a significant economic impact (**a taking of value** from neighboring residential, commercial, institutional and recreational properties) that should be fully disclosed; and a dollar amount must be assigned to this taking of value, for meaningful disclosure, public involvement and fully-informed decision-making on the part of the City Council.
- What would it cost to compensate neighboring properties for diminished property values and future opportunities? Who will pay for the compensation, how, and when?
- A Pigouvian tax (a tax on a market transaction that creates a negative externality, or an additional cost, borne by individuals not directly involved in the transaction) could be imposed on the developer of say 3.0% of the market value of an impacted property for each lost hour of direct sun (an actual tax value would need to be determined from more research). If the levy is worth it to the developer, it proceeds with the project, pays the tax, and the money is distributed to the harmed parties. This policy has the advantage of being relatively simple and straightforward, and the tax burden will fall heavier on those building taller or bulkier structures. This could be an annual, on-going tax/payment...or a 50-year cumulative projected loss and lump sum settlement.
- Please acknowledge in the study that it is widely recognized that shade from trees and plants (urban forest) is superior to shade from structures, because plants, trees and the wildlife they attract offer multiple environmental benefits beyond shade, improved air quality, reduction of heat island effect, CO2 uptake, rainfall interception and evaporation, particulate pollution deposition, no reflected or "blinding" light, and aesthetics to name a few.

In summary, due to the excessive height, length and width dimensions of the proposed housing component of the Downtown Expansion Plan, above and beyond anything currently existing in the City or currently allowed by the City's General Plan, a study to determine the true cost and extent of detrimental impacts from permanent loss of sunlight to city streets and surrounding wildlife habitat in the San Lorenzo River is essential. The study must look at spatial deprivation of sunlight, solar radiation, solar fuel, and reflective impacts of all four buildings singularly, and cumulatively. Impacts of sunlight "take" to current and FUTURE environs, and the resulting impacts on current and future economic opportunities must also be analyzed.

Thank you for your time, thoughtful consideration and thorough analysis of the impacts outlined above. I look forward to seeing them addressed in the Downtown Expansion Plan EIR.

Sincerely,
Susan Monheit
110 Shelter Lagoon Drive
Santa Cruz, CA. 95060

Cc: City Council
SaveNearyLagoon (Community Group)
STOP the Skyscrapers (Community Group)
Santa Cruz Organizing Circles (Community Groups)

From:	Susan Monheit
To:	Sarah Neuse
Cc:	Sonja Brunner; Martine Watkins; Sandy Brown; Justin Cummings; Renee Golder; Shebreh Kalantari-Johnson; Donna Meyers; StopTheSkyscrapers SantaCruz; Save Neary Lagoon; Josh B.
Subject:	[CAUTION: Verify Sender Before Opening!] EIR Scoping Comments for Downtown Expansion Project (Part 2)
Date:	Thursday, October 13, 2022 1:16:57 PM
Attachments:	SM_Scoping Comments Pt2_Usual categories.docx

October 14, 2022

Dear Ms. Nesue,

Thank you for the opportunity to submit comments on the proposed Downtown Expansion Plan (Project) for analysis and study direction, in preparation of the Project Environmental Impact Report (EIR). The EIR is a public disclosure document that at its best, will allow the public to understand the true costs associated with this Project. The EIR also seeks to mitigate identified impacts to less than significant levels. I am submitting my comments in three sections. Below are comments on the usual group of impacted areas. My comments specific to the impacts of building heights will follow.

Please see comments below:

GENERAL COMMENTS

I request that all analysis of impacts in this EIR be conducted for a range of building height scenarios where applicable. The EIR will contain a Preferred Project, and Project Alternatives. The impact analysis conducted by the EIR should evaluate impacts for the range of Alternative Project scenarios. In the live-recorded scoping session, I asked for alternative project scenarios that have maximum building heights of 5 and 8 stories. I ask that the impacts delineated below be analyzed for project alternatives with 5, 10, 15 and 17-story scenarios.

Without impact analysis for lower-level buildings, the City Council will not be able to make a truely informed decision on which alternative to move forward with.

PROJECT DESCRIPTION:

The project description does not accurately reflect the action of the City Council designating a preferred alternative. The motion approved by the Council stated that the project density would be a "**minimum of 1,600 units**". The EIR Notice of Preparation (NOP) indicated that there would be a minimum of 1,800 units. This needs to be corrected in the Draft EIR. Please also make this correction in the NOP and re-issue and **re-circulate the NOP to clarify this error**. Please include graphic drawings of the proposed preferred alternative project, showing increased building height from the ground floor, or horizontal perspective.

AGRICULTURAL IMPACTS

The Santa Cruz Mid-County aquifer is already over drafted and impacted by seawater intrusion. (See 12 ft sign at the gate of the Neary Lagoon Water Treatment Plant). If groundwater resources are

used as a water source for the proposed Downtown Expansion Plan, agricultural impacts should be assessed. The potential exists that if over drafted groundwater aquifers are used as a water source for this Project, and the aquifers extends under local farmland (i.e. Pogonip area), further over drafting of the aquifer could result in land subsidence and the compaction of fertile agricultural soils, rendering them unviable.

EIR Action: The Downtown Expansion Plan EIR should address the potential for harm to agricultural resources from further over drafting of Santa Cruz groundwater aquifers.

The following should be addressed by a **Groundwater Aquifer Study**:

- Land subsidence;
- Compaction of agricultural soils and continued soil viability;
- Saltwater intrusion deeper into the groundwater aquifer and its impact to freshwater plants in the soils above.

BIOLOGICAL RESOURCES

This EIR should analyze impacts to biological resources for Project building scenarios of 5, 10, 15 and 17-storieswith block-long and block-wide aspects. This analysis should include:

- Impacts to fish and wildlife in the San Lorenzo River from potentially permanent changes to micro-climate and habitats caused by shading from the proposed buildings - particularly 15 and 17-story building scenarios;
- The acceptability of these impacts under the California Coastal Act should be analyzed and disclosed;
- Impacts to birds which migrate twice daily between the San Lorenzo River habitat and Neary Lagoon Wildlife Refuge must be evaluated.;
- Seasonal and annual impacts to migrating birds that utilize the river habitat, and may strike the buildings should be evaluated;
- The potential for invasive plant and animal species to colonize disrupted habitats particularly in the cooler micro-habitat of shadow from the towering buildings should be analyzed.

CLIMATE CHANGE

Continuing climate change will tend to exacerbate the following environmental elements: a) saltwater intrusion into coastal groundwater aquifer resources; b) higher flood water from storm surge; c) higher high-tides with extended splash zone impacts and d) increasing sea level elevations.

This EIR should conduct a **climate change study** that analyzes flooding potential in the Project area under conservative, deteriorating climatic conditions such as sea level rise. USGS flood modeling maps have been developed that show flood inundation areas with increasing climate change. We have just seen hurricane IAN in Florida push massive amounts of water in front of it (much more than anticipated), resulting in high flood inundation at landfall. The perfect (nightmare) storm would

be created when (1) storm-surge at (2) high-tide, combined with (3) sea level rise. A climate change study modeling the impacts of these three forces coming together is the scenario that should be evaluated, for conditions expected in 30 years, 50 years and 100 years. UC Davis College of Agricultural and Environmental Sciences has a group experienced in this type of climate change modeling studies that could be a resource for the City of Santa Cruz.

ENVIRONMENTAL JUSTICE/ SOCIAL JUSTICE

The proposed Downtown Expansion Plan will displace XXX residents in the existing low low-income/disabled housing development located on Front Street next to the Temporary Warriors stadium. The EIR needs to fully analyze and mitigate the impact to the City's affordable housing crisis, of demolishing existing affordable housing development to proceed with the proposed Project. The number of residents that will be displaced needs to be determined in the EIR, and acceptable, feasible alternative housing found for these people BEFORE any demolition begins.

GEOLOGY / SOIL STABILITY / LEVEE STABILITY STUDIES

The EIR should conduct geological and soil stability studies, to determine and evaluate underlying bedrock and soil ability to support the three massive block long 15-story buildings and 17-story building proposed. The Downtown Expansion Plan area is located in the alluvial floodplain of the San Lorenzo River, near the beach River mouth. California is subject to frequent and severe earthquakes that can cause liquefaction of unconsolidated alluvial soils.

Santa Cruz must NOT skimp on geologic studies for the proposed Plan expansion. Skimping on geologic studies resulted in the leaning tower of San Francisco, (the Millennium Tower) built on insufficient foundation and unstable soils. Foundations for buildings of this massive dimension must be extremely deep and anchored in bedrock.

Geologic Study Investigations must include:

- Analysis for a building scenarios that are 5, 10, 15, and 17-story (185 ft) tall;
- An analysis of core drill materials to depths adequate to anchor massive 5, 10, 15, 17 and 22-story block-long and block-wide buildings;
- An analysis of the strength, friability, and load bearing stability of each geologic strata found in core drills;
- A calculated depth of excavation required to anchor foundations for four 5, 10, 15 and 17-story buildings;
- Soil core sampling, and analysis of potential damage (collapse) of fragile soils with sea water **intrusion caused by excavations;**

Levee Stability Study

- A separate study must be dedicated to the current and ongoing stability of the San Lorenzo River Levee. The impacts of excavation for each tower individually, and the cumulative impacts of excavation for all four structures simultaneously MUST be analyzed and adequately mitigated to avoid damage to and ensure ongoing **stability of the adjoining river levee**.

- A worst-case scenario must be developed for the potential impacts of the river Levee breach or collapse, the spatial area at risk of flood water inundation - and to what depths, and cost impacts to businesses and residential property owners in the potential breach flood path.

  This analysis should address a variety of seasonal and weather scenarios, which result in various levels of levee soil saturation (and stability), and river levels (i.e. assume a conservative wet winter water-year scenario when river levels would be highest).

HAZARDOUS MATERIALS

The proposed site for the Downtown Expansion Plan overlays an area with historically industrial usage. Auto service/repair and other industries may have contaminated soil and groundwater in the Project area. Soil and groundwater sampling should be conducted to assess the potential for heavy metals, hazardous volatile organic chemicals, and carcinogenic chemical exposure to residents in the Project area. Please include the following in the EIR analysis:

- A summary of site investigation findings should be presented in the Hazardous Material section of this EIR;
- Costs and timelines for potentially needed soil and groundwater remediation should be developed and presented in this EIR;
- Acreage of potential contaminated soil excavation and removal to hazardous landfill will be informed by soil sampling investigations;
- Cost for any hazardous landfill use should be calculated and included in this EIR.

NOISE

Noise impacts of the proposed 1600 housing units, associated traffic, and proposed multi-purpose Arena must be evaluated in this EIR. Studies of noise (in decibels) coming from other similar-sized arenas with the same proposed uses should be applied to neighborhoods near the site of the proposed arena to evaluate the impact of sporting events and rock concerts on neighboring residents, and wildlife. What will be the additional noise impact of an additional 3500+ new residents to the South of Laure neighborhood?

PUBLIC SERVICES & INFRASTRUCTURE

The EIR must analyze the impact of 1600 new residents concentrated in the small south of Laurel neighborhood, on City services such as police, fire fighters, ambulances, and mental health workers. Wear and tear on city streets and the cost and frequency of repaving and repairing city streets should be calculated. The ability of the City wastewater treatment plan to handle the additional wastewater and sewage from 1600 new dwellings and the cost for facility upgrades or expansions must be calculated. The cost of City servants such as fire-fighters, and police must be calculated. The inadequacy of existing infrastructure such as medical facilities must be defined and calculated. Does the Santa Cruz school system have the capacity to handle the anticipated influx of children from the additional 1600 new housing units? What is the cost of building new or expanding existing school facilities? What is the cost of hiring additional teachers, who cannot afford to live in the City of Santa

Cruz?

RECREATION AND PARKS

The impact of potentially 3500+ more people utilizing existing parks and beach facilities must be analyzed in the EIR.

TRAFFIC

Traffic is already critically impacted in the proposed Downtown Expansion Plan area, especially on weekends when tourists from San Jose, the Bay Area, and beyond flood to Santa Cruz's beaches. The EIR should look at evacuation impacts of all the additional citizen density in case of emergencies such as fire, earthquake, tidal waves, on the City's already gridlocked streets. The EIR should calculate the additional greenhouse gas impact from the additional cars that 1600 units will bring to the South of Laurel area. The EIR should analyze the pedestrian and cyclist safety issues with an additional 1600 to 3500 cars trying to move around the area on a daily basis. The EIR really should, even if it is no longer required by the normal EIR process, **analyze traffic congestion** that the proposed Expansion Plan will create, and the wear and tear on mental health of our citizens under further exacerbated traffic gridlock pressure resulting from the proposed Plan Expansion.

There needs to be a separate vehicle-miles-traveled (VMT) analysis of the increased trips to the proposed relocated arena. Mitigation measures such as shuttles, bus passes to season ticket holders, and other TDM measures should be evaluated. The VMT analysis should include potential impacts during the summer and on weekends. This analysis should also be provided as part of the evaluation of cumulative impacts.

Thank you for your time, thoughtful consideration and analysis of these impacts. I look forward to seeing them addressed in the Downtown Expansion Plan EIR.

Sincerely,
Susan Monheit
110 Shelter Lagoon Drive
Santa Cruz, CA. 95060

Cc: City Council
SaveNearyLagoon
STOP the Skyscrapers
Community Organizing Circles

EIR SCOPING COMMENTS FOR PROPOSED DOWNTOWN EXPANSION PLAN (Part 2)

October 14, 2022

Dear Ms. Nesue,

Thank you for the opportunity to submit comments on the proposed Downtown Expansion Plan (Project) for analysis and study direction, in preparation of the Project Environmental Impact Report (EIR). The EIR is a public disclosure document that at its best, will allow the public to understand the true costs associated with this Project. The EIR also seeks to mitigate identified impacts to less than significant levels. I am submitting my comments in three sections. Below are comments on the usual group of impacted areas. My comments specific to the impacts of building heights will follow.

Please see comments below:

GENERAL COMMENTS

I request that all analysis of impacts in this EIR be conducted for a range of building height scenarios where applicable. The EIR will contain a Preferred Project, and Project Alternatives. The impact analysis conducted by the EIR should evaluate impacts for the range of Alternative Project scenarios. In the live-recorded scoping session, I asked for alternative project scenarios that have maximum building heights of 5 and 8 stories. I ask that the impacts delineated below be analyzed for project alternatives with 5, 10, 15 and 17-story scenarios.

Without impact analysis for lower-level buildings, the City Council will not be able to make a truely informed decision on which alternative to move forward with.

PROJECT DESCRIPTION:

The project description does not accurately reflect the action of the City Council designating a preferred alternative. The motion approved by the Council stated that the project density would be a "**minimum of 1,600 units**". The EIR Notice of Preparation (NOP) indicated that there would be a minimum of 1,800 units. This needs to be corrected in the Draft EIR. Please also make this correction in the NOP and re-issue and **re-circulate the NOP to clarify this error**. Please include graphic drawings of the proposed preferred alternative project, showing increased building height from the ground floor, or horizontal perspective.

AGRICULTURAL IMPACTS

The Santa Cruz Mid-County aquifer is already over drafted and impacted by seawater intrusion. (See 12 ft sign at the gate of the Neary Lagoon Water Treatment Plant). If groundwater resources are used as a water source for the proposed Downtown Expansion Plan, agricultural impacts should be assessed. The potential exists that if over drafted groundwater aquifers are used as a water source for this Project, and the aquifers extends under local farmland (i.e. Pogonip area), further over drafting of the aquifer could result in land subsidence and the compaction of fertile agricultural soils, rendering them unviable.

EIR Action: The Downtown Expansion Plan EIR should address the potential for harm to agricultural resources from further over drafting of Santa Cruz groundwater aquifers.

The following should be addressed by a **Groundwater Aquifer Study**:

- Land subsidence;
- Compaction of agricultural soils and continued soil viability;
- Saltwater intrusion deeper into the groundwater aquifer and its impact to freshwater plants in the soils above.

BIOLOGICAL RESOURCES

This EIR should analyze impacts to biological resources for Project building scenarios of 5, 10, 15 and 17-stories with block-long and block-wide aspects. This analysis should include:

- Impacts to fish and wildlife in the San Lorenzo River from potentially permanent changes to micro-climate and habitats caused by shading from the proposed buildings - particularly 15 and 17-story building scenarios;
- The acceptability of these impacts under the California Coastal Act should be analyzed and disclosed;
- Impacts to birds which migrate twice daily between the San Lorenzo River habitat and Neary Lagoon Wildlife Refuge must be evaluated.;
- Seasonal and annual impacts to migrating birds that utilize the river habitat, and may strike the buildings should be evaluated;
- The potential for invasive plant and animal species to colonize disrupted habitats particularly in the cooler micro-habitat of shadow from the towering buildings should be analyzed.

CLIMATE CHANGE

Continuing climate change will tend to exacerbate the following environmental elements: a) saltwater intrusion into coastal groundwater aquifer resources; b) higher flood water from storm surge; c) higher high-tides with extended splash zone impacts and d) increasing sea level elevations.

This EIR should conduct a **climate change study** that analyzes flooding potential in the Project area under conservative, deteriorating climatic conditions such as sea level rise. USGS flood modeling maps have been developed that show flood inundation areas with increasing climate change. We have just seen hurricane IAN in Florida push massive amounts of water in front of it (much more than anticipated), resulting in high flood inundation at landfall. The perfect (nightmare) storm would be created when (1) storm-surge at (2) high-tide, combined with (3) sea level rise. A climate change study modeling the impacts of these three forces coming together is the scenario that should be evaluated, for conditions expected in 30 years, 50 years and 100 years. UC Davis College of Agricultural and Environmental Sciences has a group experienced in this type of climate change modeling studies that could be a resource for the City of Santa Cruz.

ENVIRONMENTAL JUSTICE/ SOCIAL JUSTICE

The proposed Downtown Expansion Plan will displace XXX residents in the existing low low-income/disabled housing development located on Front Street next to the Temporary Warriors stadium. The EIR needs to fully analyze and mitigate the impact to the City's affordable housing crisis, of demolishing existing affordable housing development to proceed with the proposed Project. The

number of residents that will be displaced needs to be determined in the EIR, and acceptable, feasible alternative housing found for these people BEFORE any demolition begins.

GEOLOGY / SOIL STABILITY / LEVEE STABILITY STUDIES

The EIR should conduct geological and soil stability studies, to determine and evaluate underlying bedrock and soil ability to support the three massive block long 15-story buildings and 17-story building proposed. The Downtown Expansion Plan area is located in the alluvial floodplain of the San Lorenzo River, near the beach River mouth. California is subject to frequent and severe earthquakes that can cause liquefaction of unconsolidated alluvial soils.

Santa Cruz must NOT skimp on geologic studies for the proposed Plan expansion. Skimping on geologic studies resulted in the leaning tower of San Francisco, (the Millennium Tower) built on insufficient foundation and unstable soils. Foundations for buildings of this massive dimension must be extremely deep and anchored in bedrock.

Geologic Study Investigations must include:

- Analysis for a building scenarios that are 5, 10, 15, and 17-story (185 ft) tall;
- An analysis of core drill materials to depths adequate to anchor massive 5, 10, 15, 17 and 22-story block-long and block-wide buildings;
- An analysis of the strength, friability, and load bearing stability of each geologic strata found in core drills;
- A calculated depth of excavation required to anchor foundations for four 5, 10, 15 and 17-story buildings;
- Soil core sampling, and analysis of potential damage (collapse) of fragile soils with sea water **intrusion caused by excavations;**

Levee Stability Study

- A separate study must be dedicated to the current and ongoing stability of the San Lorenzo River Levee. The impacts of excavation for each tower individually, and the cumulative impacts of excavation for all four structures simultaneously MUST be analyzed and adequately mitigated to avoid damage to and ensure ongoing **stability of the adjoining river levee**.
- A worst-case scenario must be developed for the potential impacts of the river Levee breach or collapse, the spatial area at risk of flood water inundation - and to what depths, and cost impacts to businesses and residential property owners in the potential breach flood path.

  This analysis should address a variety of seasonal and weather scenarios, which result in various levels of levee soil saturation (and stability), and river levels (i.e. assume a conservative wet winter water-year scenario when river levels would be highest).

HAZARDOUS MATERIALS

The proposed site for the Downtown Expansion Plan overlays an area with historically industrial usage. Auto service/repair and other industries may have contaminated soil and groundwater in the Project area. Soil and groundwater sampling should be conducted to assess the potential for heavy metals, hazardous volatile organic chemicals, and carcinogenic chemical exposure to residents in the Project area. Please include the following in the EIR analysis:

- A summary of site investigation findings should be presented in the Hazardous Material section of this EIR;
- Costs and timelines for potentially needed soil and groundwater remediation should be developed and presented in this EIR;
- Acreage of potential contaminated soil excavation and removal to hazardous landfill will be informed by soil sampling investigations;
- Cost for any hazardous landfill use should be calculated and included in this EIR.

NOISE

Noise impacts of the proposed 1600 housing units, associated traffic, and proposed multi-purpose Arena must be evaluated in this EIR. Studies of noise (in decibels) coming from other similar-sized arenas with the same proposed uses should be applied to neighborhoods near the site of the proposed arena to evaluate the impact of sporting events and rock concerts on neighboring residents, and wildlife. What will be the additional noise impact of an additional 3500+ new residents to the South of Laure neighborhood?

PUBLIC SERVICES & INFRASTRUCTURE

The EIR must analyze the impact of 1600 new residents concentrated in the small south of Laurel neighborhood, on City services such as police, fire fighters, ambulances, and mental health workers. Wear and tear on city streets and the cost and frequency of repaving and repairing city streets should be calculated. The ability of the City wastewater treatment plan to handle the additional wastewater and sewage from 1600 new dwellings and the cost for facility upgrades or expansions must be calculated. The cost of City servants such as fire-fighters, and police must be calculated. The inadequacy of existing infrastructure such as medical facilities must be defined and calculated. Does the Santa Cruz school system have the capacity to handle the anticipated influx of children from the additional 1600 new housing units? What is the cost of building new or expanding existing school facilities? What is the cost of hiring additional teachers, who cannot afford to live in the City of Santa Cruz?

RECREATION AND PARKS

The impact of potentially 3500+ more people utilizing existing parks and beach facilities must be analyzed in the EIR.

TRAFFIC

Traffic is already critically impacted in the proposed Downtown Expansion Plan area, especially on weekends when tourists from San Jose, the Bay Area, and beyond flood to Santa Cruz's beaches. The EIR should look at evacuation impacts of all the additional citizen density in case of emergencies such as fire, earthquake, tidal waves, on the City's already gridlocked streets. The EIR should calculate the additional greenhouse gas impact from the additional cars that 1600 units will bring to the South of Laurel area. The EIR should analyze the pedestrian and cyclist safety issues with an additional 1600 to 3500 cars trying to move around the area on a daily basis. The EIR really should, even if it is no longer required by the normal EIR process, **analyze traffic congestion** that the proposed Expansion Plan will create, and the

wear and tear on mental health of our citizens under further exacerbated traffic gridlock pressure resulting from the proposed Plan Expansion.

There needs to be a separate vehicle-miles-traveled (VMT) analysis of the increased trips to the proposed relocated arena. Mitigation measures such as shuttles, bus passes to season ticket holders, and other TDM measures should be evaluated. The VMT analysis should include potential impacts during the summer and on weekends. This analysis should also be provided as part of the evaluation of cumulative impacts.

Thank you for your time, thoughtful consideration and analysis of these impacts. I look forward to seeing them addressed in the Downtown Expansion Plan EIR.

Sincerely,
Susan Monheit
110 Shelter Lagoon Drive
Santa Cruz, CA. 95060

Cc: City Council
SaveNearyLagoon
STOP the Skyscrapers
Community Organizing Circles

From:	Susan Monheit
To:	Sarah Neuse
Cc:	Sonja Brunner; Martine Watkins; Sandy Brown; Justin Cummings; Renee Golder; Shebreh Kalantari-Johnson; Donna Meyers
Subject:	[CAUTION: Verify Sender Before Opening!] Addendum to Water Resource Scoping Comments on D.E.P. EIR
Date:	Monday, October 17, 2022 4:01:40 PM
Attachments:	SM_EIR Scoping Comments_ WATER Resources (pt 1).docx

Good Afternoon Ms. Neuse,
When submitting my EIR scoping comments for the Downtown Expansion Plan (DEP) I did not mention my professional experience in the subject area. I believe my background will lend weight and credibility to my comments requesting an evaluation of existing water resources that serve the City of Santa Cruz, and what additional water sources may need to be developed in order to support the proposed 1600 housing units in the proposed DEP, and the overall RHNA allocation for our City.

My career in Environmental Management spanned 30 years. In March 2022, I retired from the State Water Resources Control Board, Division of Water Rights, where as Unit Chief for Water Quality Certification (WQC) staff, I oversaw the relicensing of hydropower projects throughout California. This work included identification of project impacts, mitigation, and the allocation of surface water among many competing users.

In the Division of Water Rights, oversaw surface water releases from major dams into California's rivers and streams during one of the most acute droughts in recent history (2013-2015). During this time the division also enacted the Sustainable Groundwater Management Act (SGMA) due severe over drafting of groundwater in the Central Valley, resulting in extreme land subsidence. For these reasons, it is unbelievable to me that the position of the Planning Department in the City of Santa Cruz is that the City has all the water it needs to build seemingly unlimited housing units without any analysis or evaluation of the current water supply's ability to meet this expanded use base.

The dramatic scope of changes to the City of Santa Cruz, and impacts from massive building and densification proposed for the South of Laurel area are enormous and irrevocable. I look forward to working with you as this planning process unfolds, to ensure that what comes to fruition is a vision of what the citizens of Santa Cruz want, and not simply the vision of a big entertainment franchise with dollar signs in their eyes.

Sincerely,
Susan Monheit
Retired Water Regulator

SCOPING COMMENTS FOR THE DOWNTOWN EXPANSION PLAN EIR

October 11, 2022

Dear Ms. Neuse,

Thank you for the opportunity to submit comments on the proposed Downtown Expansion Plan Project (Project) for analysis and study direction, in preparation of the Project Environmental Impact Report (EIR). The EIR is a public disclosure document that at its best, will allow the public to understand the true costs associated with this Project. The EIR also seeks to mitigate identified impacts to less than significant levels. Please see comments below:

PROJECT DESCRIPTION:

The project description does not accurately reflect the action of the City Council designating a preferred alternative and directing that an EIR be prepared. The motion approved by the Council stated that the project density would be a "minimum of 1,600 units". The EIR Notice of Preparation (NOP) indicated that there would be a minimum of 1,800 units. This needs to be corrected in the Draft EIR. Please also make this correction in the NOP and re-issue and re-circulate the NOP to clarify this error. The recirculated NOP should also include axonometric depictions of the proposed "preferred alternative" project with one 17-story building and three 15-story buildings, similar to the ones that were included in the "Development Scenarios" document presented to the City Council on 6/14/22, showing the proposed potential bulk and height of buildings from various angles/directions. These would give the public a much better idea of the magnitude of what is being proposed. It was somewhat misleading to not include them in the NOP originally, and this is another reason the NOP should be revised and recirculated.

CONFLICTING MANDATORY STATE LAWS REQUIREMENTS (RHNA & SGMA)

Above we have discussed the regional housing mandates (RHNA) for the City of Santa Cruz. At the same time, the State of California also mandates that groundwater be managed in a way that protects the sustainability of groundwater resources. The California Sustainable Groundwater Management Act (SGMA) requires local agencies to adopt sustainability plans for priority groundwater basins.

How will these two competing State mandates affect the proposed Project? **An environmental policy analysis of these two potentially conflicting State Laws should be included in this EIR**. Do the State mandated RHNA allocations for the City of Santa Cruz conflict with State required Sustainable Groundwater Management Act (SGMA) mandates?

WATER RESOURCES

There are two or three sources of water for the City of Santa Cruz. According to the City's website:

1) Ninety-five percent of Santa Cruz's water supply comes from local surface waters. The San Lorenzo River makes up 47% of our supply. Other flowing sources include Majors Creek, Laguna Creek and Liddel Spring, which account for 32% of our supply; and

2) Five percent comes from groundwater.

Both these water sources are impacted by drought. The City can only sustain adequate delivery to its population if ongoing (i.e. permanent) water conservation and restrictions are in place. Sustainable, adequate, high quality water supply is essential to the quality of life in Santa Cruz.

EIR Analysis: In this EIR, please quantify the anticipated water use of 1600-1800 new housing units, and identify the water source that will meet this need.

SURFACE WATER RESOURCES

Background:

The City of Santa Cruz's website states: "*The county uses about 17 billion gallons of water each year. About half of that water is used for agriculture. The remainder is used by residents, businesses, governments and others.* ***Santa Cruz County is in "severe" drought****, according to the National Integrated Drought Information System". Jul 30, 2022*

Water restrictions have been imposed on residents of Santa Cruz, and its Citizens are asked to conserve water use on an ongoing basis. Terry Thompkins, Deputy Director /Operations Manager of Santa Cruz Water Department states in an online department video that essentially all of Santa Cruz City's water supply comes from rainfall, that is captured in Loch Lomond Reservoir, and that the consumption rate of the City of Santa Cruz is greater than the reservoirs storage capacity (3.3 billion gallons of water use per year vs. 2.8 billion gallons of water captured). This means that the City of Santa Cruz will ALWAYS be in restriction and conservation mode. How can the City propose to build new housing units when it does not have enough water - even in a good water year, to provide adequate, sustainable water supply to its current residents - let alone supply water in current [and anticipated to continue] drought conditions?

In the January 23, 2014, issue of TIME/Science magazine, an article titled: Hundred Years of Dry: How California's Drought Could Get Much, Much Worse, B. Lynn Ingram, a paleoclimatologist at the University of California, Berkeley, has looked at rings of old trees in the state, which helps scientists gauge precipitation levels going back hundreds of years. She stated: "If you go back thousands of years, you see that droughts [in California] can go on for years if not decades, and there were some dry periods that lasted over a century…".

EIR Analysis:

1. Sustainable, high quality, water sources for the 1600-1800 units proposed in the Downtown Expansion Plan Project MUST be identified and analyzed in the Project EIR.
2. If additional water resources are to be developed to meet the water needs of the proposed Project, the impacts resulting from the development of these water sources (such as desalination) must also be analyzed in this EIR.

No dwelling units should be built if there is insufficient water to support them. With aging infrastructure for the City's only water supply reservoir, continuous water supply reliability issues, and competing wildlife and agricultural needs, it is NOT a given that Santa Cruz's current water supplies can support development of the size proposed.

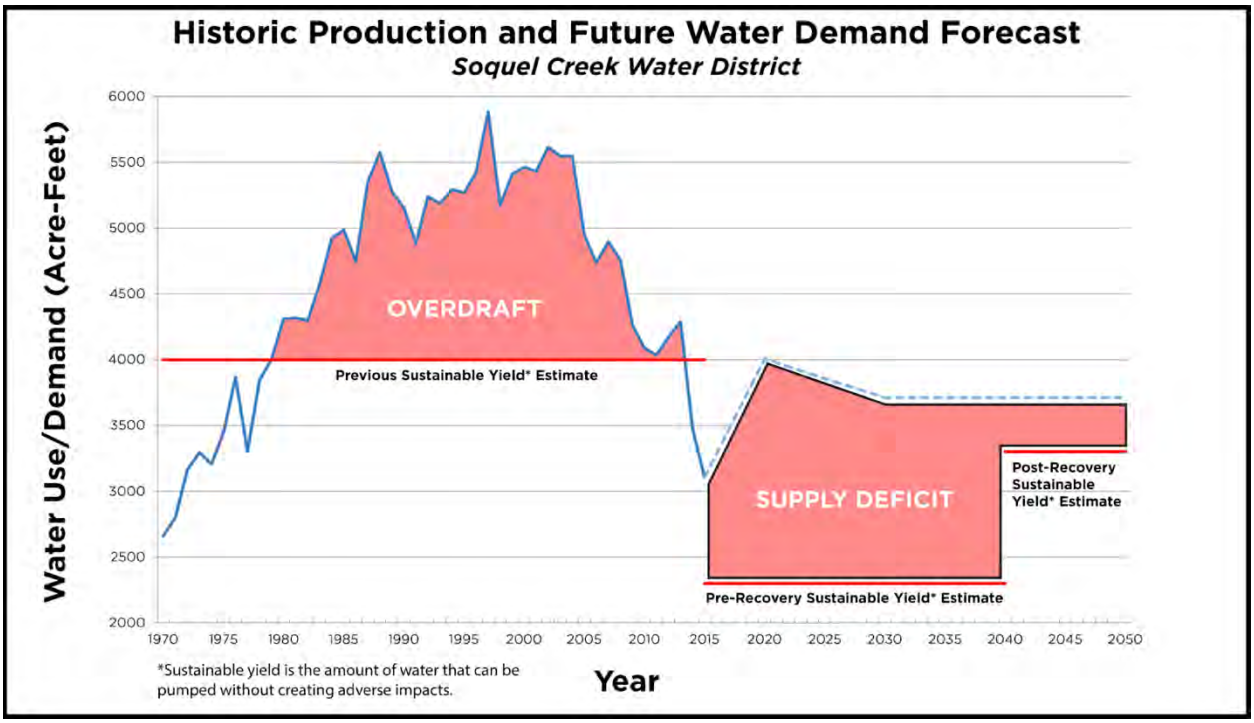
GROUNDWATER RESOURCE IMPACTS

Mid-County groundwater resources are already overdrafted, causing saltwater intrusion. With continuing climate change and increasing sea level rise, saltwater intrusion will only get worse. A sign currently located at the gate to the Santa Cruz Wastewater Treatment Plant at Neary Lagoon reads:

> *The State of California has designated the Santa Cruz Mid-County Groundwater Basin as **critically overdrafted and seawater intrusion is occurring** at the coastline…*

Continued overdrafting of groundwater aquifers causes soil subsidence, which in turn can compact fertile agricultural soils into dead clay pans, and disconnect roadways from cement overpasses. These impacts from overdrafted groundwater aquifers occurred regularly in California's central valley during the 1950's and again in the more recent five year drought (beginning 2014), serving as the final impetus for enacting California's Sustainable Groundwater Management Act (SGMA).

Below is a graph presented by the Soquel Creek Water District which represents "pumping from their area, and which is expected to reflect overall basin groundwater conditions of overdrafted groundwater supply".



What is the likelihood that overdrafting of the county's groundwater aquifers to supply water for this Project will result in ground subsidence, and loss of agricultural soil viability in adjoining farmland as happens in the Central Valley of California?

EIR Analysis:

If groundwater is identified as a water source for the Project, a study of **groundwater sustainability and the potential for over drafting impacts on local agricultural farm land** must be done , to address agricultural water resources, and subsidence, and sustainable conditions from good farming soil.

CUMULATIVE WATER DEMAND IMPACTS

The impact of water demand from this Project and other planned and proposed housing developments must be addressed in a cumulative impact analysis in this Project EIR. The analysis must look at the water demand of all proposed and projected housing developments in the City of Santa Cruz over the next RHNA cycle from 2023-2031.

EIR Analysis:

A cumulative impact analysis of this Project, together with all currently proposed and anticipated future housing development projects (needed to meet 2022-2031 RHNA allocations for the City) should be analyzed, presented, and mitigated in this EIR.

Thank you for your time, thoughtful consideration and analysis of these impacts. I look forward to seeing them addressed in the Downtown Expansion Plan EIR.

Sincerely,

Susan Monheit
110 Shelter Lagoon Drive
Santa Cruz, CA. 95060

From:	Susan Monheit
To:	Sarah Neuse; Sonja Brunner; Martine Watkins; Sandy Brown; Justin Cummings; Renee Golder; Shebreh Kalantari-Johnson; Donna Meyers
Cc:	Babs Fahrney; Susan Monheit; Christian Kemper; Claudia Kemper; gwinna@putzport.com; Joan-E Rizzuto; ebnerjw@outlook.com; k2pnp2k@gmail.com; Sauteile@gmail.com; llc@got.net; shelley@watermarkh2o.com; Mick Merrell; Nancy Hardy; Sandra Ivany; Sandy Stobbe; Sharon Lawson; vilma siebers; Hang Do and Wills Tuthill; Mike Curtis; Julia & Sameh; nyun8@ucsc.edu; Amanda VanLoan; Frank & Denise; Lori.ganzer@gmail.com; Marisa Sarazen; myambro@gmail.com; jarcarvera4@gmail.com; wjwaller@ualr.edu; djjeffrey12309@gmail.com; yoshirizvi@mac.com; Rebecca Supplee; Quin Roland
Subject:	Scoping Comments for the Downtown Expansion Plan EIR
Date:	Tuesday, October 11, 2022 5:22:39 PM

Dear Ms. Nesue,

Thank you for the opportunity to submit comments on the proposed Downtown Expansion Plan Project (Project) for analysis and study direction, in preparation of the Project Environmental Impact Report (EIR). The EIR is a public disclosure document that at its best, will allow the public to understand the true costs associated with this Project. The EIR also seeks to mitigate identified impacts to less than significant levels. This comment letter focuses specifically on the issues of water availability.

Please see comments below:

PROJECT DESCRIPTION:

The project description does not accurately reflect the action of the City Council designating a preferred alternative and directing that an EIR be prepared. The motion approved by the Council stated that the project density would be a “minimum of 1,600 units". The EIR Notice of Preparation (NOP) indicated that there would be a minimum of 1,800 units. This needs to be corrected in the Draft EIR. Please also make this correction in the NOP and re-issue and re-circulate the NOP to clarify this error. The recirculated NOP should also include axonometric depictions of the proposed "preferred alternative" project with one 17-story building and three 15-story buildings, similar to the ones that were included in the "Development Scenarios" document presented to the City Council on 6/14/22, showing the proposed potential bulk and height of buildings from various angles/directions. These would give the public a much better idea of the magnitude of what is being proposed. It was somewhat misleading to not include them in the NOP originally, and this is another reason the NOP should be revised and recirculated.

CONFLICTING MANDATORY STATE LAWS REQUIREMENTS (RHNA & SGMA)

Above we have discussed the regional housing mandates (RHNA) for the City of Santa Cruz. At the same time, the State of California also mandates that groundwater be managed in a way that protects the sustainability of groundwater resources. The California Sustainable Groundwater Management Act (SGMA) requires local agencies to adopt sustainability plans for priority groundwater basins.

How will these two competing State mandates affect the proposed Project? Do the State mandated RHNA allocations for the City of Santa Cruz conflict with State required Sustainable Groundwater Management Act (SGMA) mandates?

- EIR Analysis: An environmental policy analysis of these two potentially conflicting State Laws should be included in this EIR.

WATER RESOURCES

There are two or three sources of water for the City of Santa Cruz. According to the City's website:

> 1) Ninety-five percent of Santa Cruz's water supply comes from local surface waters. The San Lorenzo River makes up 47% of our supply. Other flowing sources include Majors Creek, Laguna Creek and Liddel Spring, which account for 32% of our supply; and
>
> 2) Five percent comes from groundwater.

Both these water sources are impacted by drought. The City can only sustain adequate delivery to its population if ongoing (i.e. permanent) water conservation and restrictions are in place. Sustainable, adequate, high quality water supply is essential to the quality of life in Santa Cruz.

- EIR Analysis: In this EIR, please quantify the anticipated water use of 1600-1800 new housing units, and identify the water source that will meet this need.

SURFACE WATER RESOURCES

Background:

> The City of Santa Cruz's website states: "*The county uses about 17 billion gallons of water each year. About half of that water is used for agriculture. The remainder is used by residents, businesses, governments and others.* ***Santa Cruz County is in "severe" drought****, according to the National Integrated Drought Information System". Jul 30, 2022*
>
> Water restrictions have been imposed on residents of Santa Cruz, and its Citizens are asked to conserve water use on an ongoing basis. Terry Thompkins, Deputy Director /Operations Manager of Santa Cruz Water Department states in an online department video that essentially all of Santa Cruz City's water supply comes from rainfall, that is captured in Loch Lomond Reservoir, and that the consumption rate of the City of Santa Cruz is greater than the reservoirs storage capacity (3.3 billion gallons of water use per year vs. 2.8 billion gallons of water captured). This means that the City of Santa Cruz will ALWAYS be in restriction and conservation mode. How can the City propose to build new housing units when it does not have enough water - even in a good water year, to provide adequate, sustainable water supply to its current residents - let alone supply water in current [and anticipated to continue] drought conditions?
>
> In the January 23, 2014, issue of TIME/Science magazine, an article titled: Hundred Years of Dry: How California's Drought Could Get Much, Much Worse, B. Lynn Ingram, a paleoclimatologist at the University of California, Berkeley, has looked at rings of old trees in the state, which helps scientists gauge precipitation levels going back hundreds of years. She stated: "If you go back thousands of years, you see that droughts [in California] can go on for years if not decades, and there were some dry periods that lasted over a century…".

- EIR Analysis:

1. Sustainable, high quality, water sources for the 1600-1800 units proposed in the Downtown Expansion Plan Project MUST be identified and analyzed in the Project EIR.

2. If additional water resources are to be developed to meet the water needs of the proposed Project, the impacts resulting from the development of these water sources (such as desalination) must also be analyzed in this EIR.

No dwelling units should be built if there is insufficient water to support them. With aging infrastructure for the City's only water supply reservoir, continuous water supply reliability issues, and competing wildlife and agricultural needs, it is NOT a given that Santa Cruz's current water supplies can support development of the size proposed.

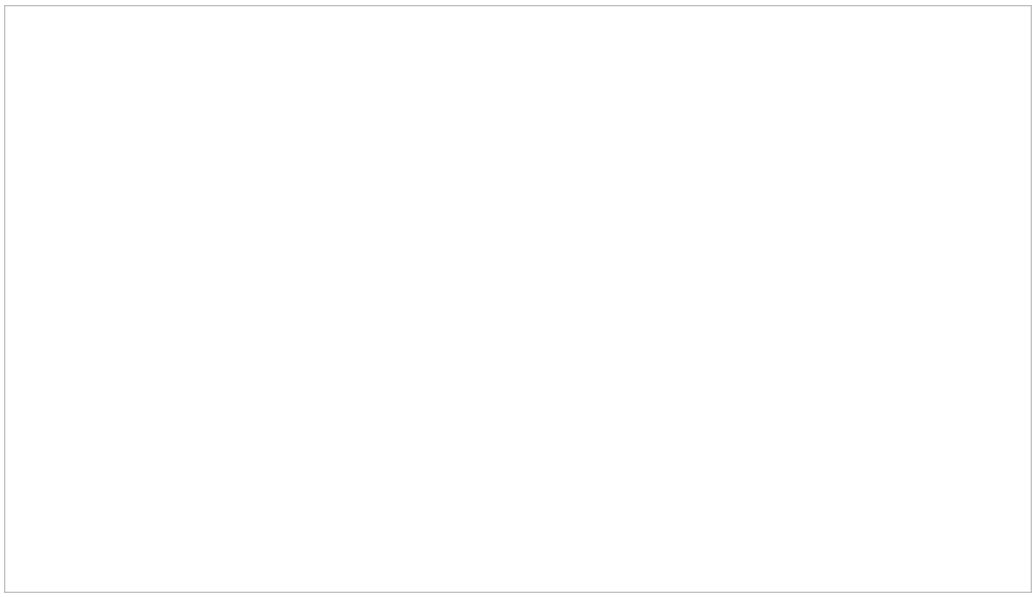
GROUNDWATER RESOURCE IMPACTS

Mid-County groundwater resources are already overdrafted, causing saltwater intrusion. With continuing climate change and increasing sea level rise, saltwater intrusion will only get worse. A sign currently located at the gate to the Santa Cruz Wastewater Treatment Plant at Neary Lagoon reads:

> *The State of California has designated the Santa Cruz Mid-County Groundwater Basin as **critically overdrafted and seawater intrusion is occurring** at the coastline…*

Continued overdrafting of groundwater aquifers causes soil subsidence, which in turn can compact fertile agricultural soils into dead clay pans, and disconnect roadways from cement overpasses. These impacts from overdrafted groundwater aquifers occurred regularly in California's central valley during the 1950's and again in the more recent five year drought (beginning 2014), serving as the final impetus for enacting California's Sustainable Groundwater Management Act (SGMA).

Below is a graph presented by the Soquel Creek Water District which represents "pumping from their area, and which is expected to reflect overall basin groundwater conditions of overdrafted groundwater supply".



What is the likelihood that overdrafting of the county's groundwater aquifers to supply water for this Project will result in ground subsidence, and loss of agricultural soil viability in adjoining farmland as happens in the Central Valley of California?

- EIR Analysis:

  If groundwater is identified as a water source for the Project, a study of **groundwater sustainability and the potential for over drafting impacts on local agricultural farm land** must be done , to address agricultural water resources, and subsidence, and sustainable conditions from good farming soil.

CUMULATIVE WATER DEMAND IMPACTS

The impact of water demand from this Project and other planned and proposed housing developments must be addressed in a cumulative impact analysis in this Project EIR. The analysis must look at the water demand of all proposed and projected housing developments in the City of Santa Cruz over the next RHNA cycle from 2023-2031.

- EIR Analysis:

  A cumulative impact analysis of this Project, together with all currently proposed and anticipated future housing development projects (needed to meet 2022-2031 RHNA allocations for the City) should be analyzed, presented, and mitigated in this EIR.

Thank you for your time, thoughtful consideration and analysis of these impacts. I look forward to seeing them addressed in the Downtown Expansion Plan EIR.

Sincerely,

Susan Monheit
110 Shelter Lagoon Drive

Santa Cruz, CA. 95060

From:	Joshua Muir
To:	sneuse@cityofsantacruz.com
Cc:	sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; sbrown@cityofsantacruz.com; Justin Cummings; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject:	Commenting on Downtown Expansion Plan
Date:	Monday, October 17, 2022 5:01:57 PM

Thank you Sarah and fellow planners involved-

The Downtown Expansion Plan must address the needs of a community of residents, with hopes of creating more liveable neighborhoods that integrate needs for work, food, and access to our natural landscapes. Goals should include:

Maximizing pedestrian and bicycles access with mid-block alleys and connections to the levee not just for residents of the new developments, but the rest of us living in the neighborhood.

- Include in the plan the rebuilding of so-called "Sketch Path" pedestrian connector between Front Street at the base of Pacific Avenue and Third Street on Beach Hill.

- Maintain alleyways like the one that connects the Mill to Pacific Avenue (and Beach Hill Auto parks cars on...)

- Improve pedestrian and bicycle crossing of Front Street at Spruce to make it more efficient and safer to access the levee (If realigned as proposed, maintain current access for pedestrians and cyclists at Spruce with improvements)

Implement Dark Sky lighting ordinances: all future development should reduce lighting to levels that provide vision without glare. Low, down-cast lighting. City should move to retrofitting all city lighting to reduce light pollution.

Reduce building heights: The proposed zones and building heights in the plan read more as pipe-dreams and should be brought into perspective. Enormous concrete buildings and major increases in traffic do not serve the lower downtown community.

Build for people and the neighborhoods: The Plan does not at this point take into account any local culture let alone geography. Affordable housing is a priority. Providing services is a priority. The River is a priority.

I am not opposed to a permanent Warrior's Stadium, but it is not at the top of my list of problems this City needs to address.

Thank you and Good Luck-

Joshua Muir
203 Cedar St
Santa Cruz, CA 95060
--
Joshua Muir
muirjoshua@gmail.com

Frances Cycles

From: nelson333@baymoon.com
To: sneuse@cityofsantacruz.com
Subject: S.C. Downtown Plan Expansion, EIR - NOP comments
Date: Monday, October 17, 2022 9:01:43 PM

Hello,

I'd like to offer the following comments, questions, and concerns for consideration in the Draft EIR.

1. Hydrology
— What are the hazard exposures newly established by intensive development in this quite low-lying area of Santa Cruz next to the San Lorenzo River, facing extreme river discharge events combined with sea level rise and higher storm surge?
— NOAA forecasts potential sea level rise of 4 to 8 inches in California just in the next 30 years. The rate of sea level rise is accelerating. Ref. (1)
— Megafloods fed by atmospheric river events are now understood to occur historically at repeated intervals in central coastal California, and climate change is predicted to make such floods more destructive, combined with more development unwisely located in harm's way. Ref. (2)
— Risks to below-grade infrastructure from groundwater intrusion, as well as above-grade flooding, should be considered.
— How may climate-change-induced "hot drought" and potentially decades-long drought affect City of Santa Cruz water supply, and how will the proposed development affect demand on water supply?

References
1. https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html#step1
2. Scientific American, January 2013, pp. 64-71, and https://www.scientificamerican.com/article/atmospheric-rivers-california-megaflood-lessons-from-forgotten-catastrophe/

2. Transportation
— How may new requirements for and implementation of transformative-level bicycle-friendly facilities in both new residential and new non-residential projects help bring down vehicle miles traveled by cars and trucks?
I am referring not to adding crowded, physically challenging, and unappealing bike-packing rooms in multiresidential projects, but instead appealing, roomy, convenient, and amenity-rich bicycle facilities at ground level in residential and non-residential buildings, substituted for larger car-parking facilities, plus all other innovative bike-friendly systems such as larger-capacity elevators allowing residents to bring bicycles up to in-residence storage rooms, e-bike charging stations, bike maintenance stands and tire pumps, plus spaces for extended-length cargo bikes, bikes with side baskets, bike trailers, child trail-a-bikes, other kid-carrying outfits, shared bikes for residents, and so on.

3. Land Use, Planning, Neighborhood Compatibility
— What may be the impacts of such large scale new development on the existing residents of the residential neighborhood generally to the west of the project area?

Sincerely,

Jack Nelson
Professional land use planner and environmental planner, retired
(831) 429-6149
127 Rathburn Way
Santa Cruz, CA 95062

From:	Peter Nelson
To:	sneuse@cityofsantacruz.com
Cc:	sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; sbrown@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject:	downtown expansion plan
Date:	Monday, October 17, 2022 7:53:09 PM

Dear Ms Neuse:

I am writing regarding the City's downtown expansion plan and the potential environmental impacts associated with increased building heights and the increased number of units associated with these buildings. I expect that the EIR will address multiple, potentially significant issues; I'm addressing four of these in particular, though others are also important.

- aesthetics: 4 very tall buildings (three 15-story towers + one 17-story tower) will have a monumental and deleterious impact on the character of our downtown. The shadows cast by these buildings alone is a serious cause for concern.
- biological: buildings of this height represent a serious impediment to bird flight (foraging, local movement patterns), will significantly increase the incidence of bird strike, and will compromise the ecology of the lower San Lorenzo River riparian area. Height aside, the associated lighting will affect bird, bat and insect ecology.
- water use: the addition of 1800 additional units (200 more than the motion approved by the Council) will increase demand on declining and limited water resources. Where is the water going to come from and at what cost to aquatic ecosystems?
- low-income housing: provisions for affordable housing in Santa Cruz are badly needed, but how many units will be "affordable" and how will "affordable" be defined.

Thanks,
Peter Nelson, PhD

From:	Sarah Olson
To:	Sarah Neuse
Subject:	To Sarah Neuse
Date:	Sunday, October 16, 2022 10:00:43 PM

Dear Sarah,
Do you not care about idling cars backed up while people try to get to the Santa Cruz main beach, boardwalk, and wharf? I know you care about the environment. How do you expect two 15-story buildings and one 17-story building with over 1000 units with so many people in a small area not to not clog the main access to these very important tourist destinations our city needs for their tax base?

Anywhere in Santa Cruz, 17-story or 15-story buildings are not appropriate. Respectfully, we do not have the roads to accommodate that type of density. There are other towns throughout California that are fighting the new RHNA numbers. Why isn't our city council active to try to lessen this by building 100% affordable housing? It is interesting that our city would like to put money into providing for the Warriors Basketball team but not put in money for 100% affordable units. We have enough market-rate housing. Santa Cruz needs housing for low-income and very low-income existing residents. This is an important matter. You will never satisfy all the housing for the number of people that would like to live in Santa Cruz and that does not mean making those that live here which are those you are to represent miserable by adding more high density, traffic, and lessening our water supply. We already have enough market-rate units in the pipeline. Please do your job and represent the residents of Santa Cruz.
Respectfully,
Sarah Olson

From:	Vivienne
To:	sneuse@cityofsantacruz.com; sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; jcummings@cityofsantacruz.com; sbrown@cityofsantacruz.com; stoptheskyscrapers@gmail.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject:	I am opposed to the Santa Cruz Downtown Plan Expansion Project for the sake of the birds, environment and quality of life for most of us....
Date:	Saturday, October 15, 2022 9:51:47 PM

To Whom It May Concern:

I am opposed to the Santa Cruz Downtown Plan Expansion Project for the sake of the birds, environment and quality of life for most of us….

To add enormously tall building/s (17 stories when even 8 look huge and imposing) to the area by the river and close to downtown will hurt the birds, animals, fish, other living beings that live near and in the river.

Shade over the surrounding area is troubling, the need for more water where it is already in scarce supply, and transportation and traffic are problems…and the imbalance of adding enormously tall buildings that will be an eyesore for many years to come.

It seems that climate change is being ignored if this building project proceeds. We need to be doing all we can to keep Santa Cruz built within limits of water, light, energy use, transport etc…

My belief is that all new housing needs to be for local low-paid workers, as there are multiple problems with relying on commuters to provide services in retail settings and service roles. We do not need additional housing for wealthier workers and currently non-local people.

I am saddened that Santa Cruz, where I have lived since 1975, is becoming unattractive and congested downtown and I ask that you reconsider what “quality of life” means for current residents before creating a giant eyesore that impacts us all and the wildlife too. As a bird lover I know that there are birds nesting along the San Lorenzo River and at Neary Lagoon that are threatened by this proposed development.

Sincerely,
Vivienne Orgel

www.rustandindigo.com
aviva2@baymoon.com

From:	Ron Pomerantz
To:	Sarah Neuse
Subject:	[CAUTION: Verify Sender Before Opening!] Scoping questions to include in the EIR for the Downtown Plan Extension
Date:	Tuesday, October 11, 2022 3:38:03 PM
Attachments:	Scoping EIR to Planning Dept.docx

Good day Ms. Neuse and Environmental Planners.

The impacts on the look and feel of Santa Cruz are profound with the pending Downtown Plan Extension proposal having 1800+ housing units, 60,000 square feet of commercial space, a new 3200-4000 seat arena, and rerouting of streets on a mere 15 acres! This is reminiscent of the City "Father's" plans in the 1960's to run crisscrossing freeways through the city, build a Hilton Hotel and Convention Center in what is now Lighthouse Field, create Miami Beach West along West Cliff with high rise hotels, and demolish old neighborhoods in the name of "urban renewal" modernization. All these proposed massive developments in the City along with annexing what is now Wilder Ranch for a twin city of 27,000 and build a nuclear power plant in Davenport. Imagine if this development planning came to fruition?! With this history in mind it feels like Santa Cruz is once again being opened up by Administration and Staff, with Council's complicity, to gentrification. Creating a developer's dream to build with minimal constraint, and as little public participation as possible. We face this renewed gentrification process in the name of providing housing, when the bottom line is make big profits for land speculators and developers and seemingly little concern what the impacts are on residents and Community.

If the Downtown Plan Extension is approved in the proposed form a greenlight will be given to proceed post haste on the demolition Santa Cruz's core as we know it. I hope the Scoping Process is able to make clear the proposed Downtown Plan Extension is excessive. At most it cannot exceed the existing Downtown Plan due to environmental constraints as well as undermining the character and community values.

Questions to investigate and analyze in the EIR scope and content:

- What is the effect during construction of the 15 and 17-story buildings on the flora and fauna of the San Lorenzo River ecology? What's the impact on traffic and congestion? Air quality? Same questions when the roads are realigned and then operational?

- Once the construction is completed what will the impact of these buildings be on the view shed? Solar access? What the wind tunnel effects of the new buildings? Air quality? What are the impacts on the San Lorenzo River ecology? Same questions when the completed realigned road(s) are put into use?

- If underground parking is built, 24-hour pumping will be necessary. What is the effect of pumping on the groundwater? On the river system? On land subsidence?

- Can the City legally not allow the 50% density bonus on top of the of the proposed height limits?

- Project Objectives #5 is "Generate new tax revenue to support City services." The great majority of projects to be built are reported to be housing. Do housing projects cost more for

the City to provide the infrastructure and services than taxes generated by new residents? Is it realistic that the can City meet Project Objective #5?

- How will the Downtown Plan Extension Plan's projects be able to accommodate the pending effects of Climate Disruption in this area? Please include the potential sea level rise, effects of floods, and earthquake liquifaction potential in the EIR analysis.

- Along with the flood analysis please investigate 100-year and 500-year flooding changes. What effect(s) will this have on the levy and the potential for its failure? Will the levy need to be rebuilt? How will the future developments have to be protected?

- What data do you have that supports reduced traffic and congestion when the development area is within ½ mile of a transit center? How will traffic and parking be accommodated and at what environmental and financial costs?

- What is the carbon footprint to build 15 and 17 story concrete structures?

- Can the Climate Action Plan be met with the proposed scale of development? What mechanism(s) will be used to assure our Climate Action Plan is met or exceeded?

- What is the impact on the Santa Cruz Water system to supply the estimated 1800 new residents and unknown number of businesses? Will a desalination system be needed to supplement supply? Why or why not? Will additional storage capacity be needed? Why or why not?

- Another of the Project Objectives is #7: "Incorporate a permanent Warrior's Arena into the plan." How will such a project affect the quality of life for nearby residents? What are the noise impacts when the stadium is operational? How will the traffic and parking be affected? How will air quality be effected? Will new multi-level parking structure(s) be located in the Downtown Plan Extension area to accommodate the Arena? If so Where will they be built and who will pay?

- Were storm sewers sized and engineered to accommodate increased hardscape and population expansion, especially with pending Climate disruption and the projected more intense rainfall events?

- Were sanitary sewers sized and engineered to accommodate increased population expansion?

-What are the cumulative impacts of the Downtown Plan Extension along with all the other approved and pending developments on traffic, parking, water, sewer, city services, and emergency services.

- If the Downtown Plan Extension were analyzed as merely a part of the existing Downtown Plan with maximum 7 story projects, would the potential impacts change relative to 15 and 17-story projects?

- Another Project Alternative is "Create opportunities for public amenities and infrastructure including parks, the Santa Cruz Riverwalk trail, or other spaces for community use." Where will the open space and parks be located and how will the developments affect the access and sunlight?

- Can the City legally not allow the 50% density bonus per State law on top of the of the

proposed height limits? If the City could not legally make this requirement what effect would that have on the myriad of impacts these proposed developments would have in the Downtown Plan Extension?

- What tree coverage and density will be required in the area of the Downtown Plan Extension?

- Excluded from the “Detailed EIR Analysis” as “insignificant” is Geology & Soils and Hazards & Hazardous Materials. I would request due to past body and paint shops, that is already known in the area, that thorough soil testing will be done in the proposed area? A historic study of what other industrial businesses were in this area that could have left hazardous wastes in the soil must also be required. Is this the case? Systematic testing should be done if the study identifies businesses that may have left harmful wastes behind. Will this be done? I don’t understand how an adequate EIR can be done without a geology and soils component. Not only to know if possible hazardous wastes remain in the soil, but to identify effects of sea level rise and earthquakes on new developments.

- What efforts will be made to create Community and an attractive environment?

Thank you for your time and thorough EIR process.

Ron Pomerantz

831-239-5542

From:	Marla Reckart
To:	sneuse@cityofsantacruz.com
Cc:	sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; sbrown@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject:	Downtown Plan Expansion Project EIT
Date:	Tuesday, October 11, 2022 10:01:43 PM

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Dept.
809 Center Street, Rm. 101
Santa Cruz, CA 95060
Email: sneuse@cityofsantacruz.com

Dear Ms. Neuse,

I appreciate the opportunity to communicate my concerns for the Draft Downtown Plan Expansion Project Subsequent Environmental Impact Report (EIR). I have been a resident of Santa Cruz for years, currently live on Beach Hill and would like to voice my concerns.

I am not opposed to developing the South of Laurel downtown area, and actually most of my neighbors and myself welcome it, as the area has been depressed in many ways for some time. I also support a new arena for Kaiser Permanente, and am very excited to keep them in our community. The idea of Spruce street changing to a more pedestrian walkway to the river, and beautifying Cliff street as a walkway to the Boardwalk is charming.

However, this project Is a huge undertaking and will change the skyline permanently. It will be the most impactful land use change in the city's history, particularly the proposed 17 and 15 story skyscrapers. The EIR analysis needs to be much more in depth regarding critical issues such as impacts to traffic congestion, water supply, and essential services. I have noted that not many citizens appear aware of this, and was in conversation with a local fireman the other day regarding the impact. He said the fire department is at full capacity now, and has neither the equipment (think tall ladders), nor the manpower to cover buildings of this size. I am sure the police department will also have some concerns.

Beach Hill is a historical neighborhood and will be in the shadow of these skyscrapers, which will significantly change the historical character of the neighborhood. Besides blocking any views, the skyscrapers will be able to see directly into the homes of the families on 3rd street. There also seems to be minimal, if any setback from the street edge, further cramping the area. In addition, our neighborhood has unsuccessfully tried to engage the department of transportation and/or city council for years to solve the traffic congestion issue here,

particularly on weekends in the summer. At times it can take over an hour to drive from downtown to our homes. Additional residents will make the congestion unbearable without a comprehensive traffic plan that includes West Cliff drive, Bay street, the parking at the Boardwalk, and access to the Beach. I see none of that in the current EIR.

Lastly, the EIR also needs to analyze the number of housing units that are allowed under the current General Plan, including accessory dwelling units (ADUs) and the likely number of new units resulting from SB 9, and whether the proposed 1,800 (or 1,600) units are required to meet the new Regional Housing Needs Allocation (RHNA) targets. I am not convinced that all of these additional units are needed, given the amount of units that are currently approved, and the amount of building that is occuring. A similar analysis should be included when considering the cumulative impacts of the proposed project.

Thank you for this opportunity to express my concerns regarding the proposed Downtown Plan Extension Subsequent EIR. I look forward to seeing these issues addressed in future planning.

Sincerely,

Marla Reckart

1017 3rd street

Santa Cruz, CA 95060

From: webmaster@cityofsantacruz.com on behalf of City of Santa Cruz
To: Neuse, Sarah
Subject: Email contact from City of Santa Cruz
Date: Friday, October 7, 2022 2:24:38 PM

Message submitted from the <City of Santa Cruz> website.

Site Visitor Name: Carol Reid
Site Visitor Email: carolonland@hotmail.com

Sarah,
Re: South of Laurel. I believe the plan developers are unrealistic in the amounts of commercial space being added. Retail has struggled in this area even before Covid. I've watched commercial spaces on Laurel remain untenented. I've seen doorways of unoccupied spaces become sleeping alcoves for homeless. If housing is needed in the city that's what should be built not excess commercial space.
Who will visit all the new shops. Currently in speaking with neighbors, and friends what I hear is "We won't go downtown " Tourists may visit downtown but many are only here for the day and the beach. They're barely enough to keep the main downtown businesses open.
The plan has opening up the river levee area.. No one I know will go to the levee due to feeling unsafe there. There's been work toward attracting locals but it's never been effective due to the homeless. That's a reality that shouldn't be overlooked.
Lastly the fact that the city could approve some 15 to 17 story buildings is appalling. Walking today from the wharf towards depot park I could see the crane currently in use on Front street. I don't know how tall it is but I think it's in the 17 story range. Might be worth looking at it from different streets and imagine an entire building that tall.
. Neighbors who went to your earlier community outreach say what is now proposed is far greater in scope than what they initially were told and are appalled.
In our area when development happened years ago we were assured that our street would not be subject to increased traffic and commercial traffic, because there would be mitigation measures. Now we have both and when a commercial truck bombs down my street my house shakes. So much for city promises. It was before your time working for the city but maybe it's worth you knowing what area residents have experienced.
Thanks for your consideration of my thoughts.

From: Marcy Rode
To: Sarah Neuse
Subject: Downtown Plan Expansion Project EIR
Date: Monday, October 17, 2022 9:57:10 PM

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Dept.
809 Center Street, Rm. 101
Santa Cruz, CA 95060
Email: sneuse@cityofsantacruz.com

Re: Scoping Comments for Downtown Plan Expansion Project EIR

Dear Ms. Neuse,

Thank you for the opportunity to provide scoping comments for the Draft Downtown Plan Expansion Project Subsequent Environmental Impact Report (EIR). I have no background in city planning or development, but feel compelled to comment on a project which will so significantly impact my and my family's daily quality of life. We have just moved to Beach Hill (before learning of this project) this summer. We chose our home for its views of the Santa Cruz mountains, sunsets, and spacious/private feeling. All this will be lost when a monolithic building towers over our home from across the street. We do not oppose development in the proposed area; we are very hopeful it will be done in a respectful manner which fits in with downtown Santa Cruz. and its surrounding neighborhoods.

I am told EIRs are intended to be "full disclosure**"** documents that identify, analyze, and recommend possible mitigations for all of a project's potentially significant impacts, so that the City Council can make the best choices regarding this historic big, irreversible land use decision. I am concerned so few few city residents have heard about the project. When they do, almost no one is supportive of the project once they find out what it entails (especially the tall buildings).

Given the significance of this project, I feel the following must be addressed in a transparent manner using accurate contemporary data:

Project Description:

The project description does not accurately reflect the action of the City Council designating a preferred alternative and directing that an EIR be prepared. The motion approved by the Council stated that the project density would be a “minimum of 1,600 units". The EIR Notice of Preparation (NOP) indicated that there would be a minimum of 1,800 units. This needs to be corrected in the Draft EIR. Please also make this correction in the NOP and re-issue and re-circulate the NOP to clarify this error. The recirculated NOP should also include axonometric depictions of the proposed "preferred alternative" project with one 17-story building and three 15-story buildings, similar to the ones that were included in the "Development Scenarios" document presented to the City Council on 6/14/22, showing the proposed potential bulk and height of buildings from various angles/directions. These would give the public a much better idea of the magnitude of what is being proposed. It was

somewhat misleading to not include them in the NOP originally, and this is another reason the NOP should be revised and recirculated.

Alternatives Analysis:

Please include in the analysis of the "No Project" Alternative (i.e., the "Baseline Scenario" described in the "Development Scenarios" document/powerpoint presentation that was presented to the City Council on June 14, 2022, Agenda Item #30), a calculation of the maximum potential building heights and housing unit counts assuming maximum utilization of all potential affordable housing density bonuses, which allow buildings to exceed existing height limits and floor area ratios (FARs) if they include a sufficient number of below-market rate housing units.

In addition to the "No Project" Alternative, the EIR should analyze an alternative based on the "Baseline Scenario" existing height limits and FARs, assuming maximum utilization of all potential density bonuses, that incorporates the proposed new arena and other neighborhood improvements proposed in the "preferred alternative" project. Such an alternative would still include a substantial number of housing units (approx. 1,200 units) in 5 to 8 story buildings (i.e., the existing 35-48 ft. height limits plus increased height/FAR that must be allowed under the State Density Bonus law if affordability requirements are met), and would meet most project objectives without the need for 15 and 17 story towers. I my discussions with other Santa Cruz residents, all have said they would support the development under these terms.

Aesthetics and shadows:

The aesthetic impact analysis should include impacts to views towards the downtown from the top of Beach Hill as well as views from along the San Lorenzo River. Current depictions are viewed from unrealistic (likely purposefully misleading) angles which do not have comparison landmarks depicted for perspective.
Many neighborhoods surrounding this development are likely to lose direct sunlight and have views only of the high-rise structures. This will change the microclimate/temperature of these areas, both indoors and out.

Air Quality and Greenhouse Gas (GHG) Emissions:

The EIR must evaluate busy weekend and weekday emissions from the traffic congestion/prolonged idling that will be created and exacerbated by the proposed project in combination with all other anticipated development within the City, including anticipated/probable UCSC growth. The traffic circles on Front St. and by the wharf, and surrounding streets, are already gridlocked on many weekends, and Laurel St. through the project area is already heavily congested during weekday commute periods (especially when UCSC is in session).

Noise Pollution:
The increase in concerts, professional sports, truck deliveries, crowds, outdoor dining/events and vehicular traffic/idling will significantly increase the amount of noise coming from this area and impacting quality of life for the surrounding residents. This needs to be studied in an honest and

realistic manner with plans made on how this impact can best be mitigated.

Biological Resources:

The EIR must address potential bird strike and other impacts caused by having one 17 story and three 15 story buildings directly adjacent to a major bend in the San Lorenzo River corridor, as this flyway is heavily used by numerous avian species, including State and Federally-listed endangered ones. The EIR also needs to analyze the shading impacts of these towers on the wildlife in the San Lorenzo River, and acceptability of shading, bird strike and other impacts under the California Coastal Act.

Hydrology and Water Quality:

As climate change progresses, sea level will rise and areas that are currently behind the levee and outside the 100-year floodplain will SOON no longer be so. The EIR should analyze this issue using worst case sea level rise projections, as the worst case climate change scenarios are increasingly becoming the likely-case scenarios.

The proposed project (as described in the City Council agenda packet for 6/14/22, Item #30) includes the placement of a large wedge of earthen fill next to the river levee in order to gradually bring the grade up to meet and be even with the top of the levee. The EIR must address the potential impact of placing this large amount of fill on the displacement of flood waters in the event of a large levee-topping flood, the potential frequency of which will increase as sea-level rises, and large storm frequency and intensity increases in the coming years and decades. This proposed fill will displace floodwaters in the event of a large flood, causing other areas in the floodplain to experience higher flood flows than they would if the fill were not there. The EIR should quantify the increased floodwater heights, due to this fill and other proposed development (i.e., from this project and other proposed projects), in the rest of the San Lorenzo River floodplain, and adjacent areas, in the event of the 100, 200 and 500-year floods, assuming a 3 to 6 foot sea level rise, which scientists believe is likely in coming decades. As a mitigation measure the project should be revised to not include any such fill.

Population and Housing:

The EIR should specify (or at least estimate) the number of below market-rate "affordable" housing units that will be built as part of the project, by income category (i.e., "above-moderate", "moderate", "low", "very low" and "extremely low"), and specify (or estimate) the ratio of "for sale" units to rental apartment units.

The EIR also needs to fully analyze and mitigate the impact on the City's affordable housing crisis of demolishing the affordable housing development to re-align Laurel Street Extension. This should include a detailed analysis of the number of current residents who would be displaced by the project as well as the availability of relocation opportunities. Potential replacement housing sites should be evaluated for feasibility. A mitigation measure should require that replacement housing be available prior to or

concurrent with the re-alignment of Laurel Street Extension.

The EIR also needs to analyze the number of housing units that are allowed under the current General Plan, including accessory dwelling units (ADUs) and the likely number of new units resulting from SB 9, and whether the proposed 1,800 (or 1,600) units are required to meet the new Regional Housing Needs Allocation (RHNA) targets. A similar analysis should be included when considering the cumulative impacts of the proposed project.

The EIR also needs to analyze the potential impacts of displacing current residents, especially lower income residents, that would result from constructing the 1,800 (or 1,600) units proposed by the NOP and to include mitigation measures to reduce the impact. This analysis should include a detailed survey of existing residents to, as a minimum, identify the number of affordable units that would be lost under the Plan's build-out. This analysis should also evaluate the impact of the potential loss of the affordable units on the City's affordable housing stock.

The EIR also needs to evaluate the potential displacement and gentrification of areas within the South of Laurel area that is likely to result from the Project. Rather than rejecting this concern as too speculative the EIR needs to consider the experience in other communities where similar projects were implemented.

The EIR should also include an analysis of the housing cost impacts (for both rentals and "for sale" units) of the project. Will the addition of up to 1,600 more units really make a dent in the area's high housing costs? Many people are under the assumption that it will, but the EIR should examine the issue by analyzing the demand for housing in Santa Cruz from outside the area, particularly by high income Silicon Valley workers who will be enticed to move here if such units are made available. It seems likely that the demand for housing here from high income workers outside the area will overwhelm the supply increases being proposed, and thus addition of more units will not solve or even partially ameliorate the housing cost crisis we are experiencing. Lastly, what will the impact be on property owners adjacent to the proposed development? My guess is those who had wonderful views and privacy, but lost them both, will have properties worth significantly less than prior to construction.

Public Services, Utilities and Energy Conservation:

The EIR must fully evaluate the project's impact on the city's water supply, taking into account all anticipated future growth in the city's water service area and likely supply constraints due to drought conditions. Unfortunately, the 2020 update of the city's Urban Water Management Plan (UWMP) does not properly take these factors into account and cannot be relied upon for this analysis. For example, the UWMP makes the faulty assumption that the worst case 5-year drought the city is likely to ever face was the 1973-1977 period, a stretch that includes two abnormally wet years (1973 and 1974), one normal rainfall year (1975), and only two dry years (1976 and 1977). It uses that 5-year "worst case drought scenario" period as the basis to paint an overly rosy picture of the city water supply's ability to withstand a major drought. Moreover, the housing unit growth projection used in the 2020 UWMP does not take into account AMBAG's recent Regional Housing Needs Allocation (RHNA) of some 3,750 new units by 2031, let alone future RHNA growth mandates. Thus,

the UWMP **overestimates** the amount of water available during a major extended drought, and **underestimates** the level of growth the city is likely to experience in the near and long term future. The graphs presented in the UWMP, showing that only the last year of a hypothetical "worst case scenario" 5-year drought is problematic, are **highly misleading**. Therefore, the EIR must provide an updated water supply analysis that takes into account these shortcomings of the 2020 UWMP, with a more realistic worst case scenario long term drought analysis, and updated growth projections in the city's water service area, including anticipated/likely UCSC growth and current and future RHNAs (i.e., beyond 2031). The City Council needs a truthful and accurate water supply analysis, more reliable than the highly misleading 2020 UWMP, before approving a project of this magnitude.

Because we already experience water use restrictions and cutbacks in dry years (including this year), and are already conserving more water per household than anyone in the state, it is likely that a desalination plant (and/or other expensive supply augmentation infrastructure) will be needed to accommodate the existing and anticipated development (including the new RHNA construction goal of some 3,750 units by 2031). The EIR should include an economic impact analysis that estimates how much individual residential water rate payers in the city will be charged monthly to pay for the desal plant (and/or other infrastructure) needed to accommodate the proposed and anticipated growth. These are things we as citizens need to know before the City Council makes large irreversible land use decisions like the one being proposed with this Downtown Plan Expansion. Changes in water usage should also include anticipated use by the new Warriors arena; if it is anticiapted that over 200 events will be held here anually with thousands attending each event (many anticipated from out of town), this will add significantly to consumption of water.

This development will also increase strains on city services such as garbage collection and street cleaning. Additional staff will likely be needed to fulfill these roles.

Transportation:

The Vehicle Miles Traveled (VMT) analysis should include potentially significant impacts during the summer and on weekends. This analysis should also be provided as part of the evaluation of cumulative impacts. There also needs to be a separate VMT and parking analysis of the increased trips to the proposed relocated arena. Mitigation measures such as shuttles, bus passes to season ticket holders, and other Transportation Demand Management (TDM) measures should be evaluated. The VMT analysis should also fully evaluate and account for the number of Silicon Valley and other SF Bay Area workers who will move to Santa Cruz and become long distance commuters when the proposed new housing becomes available to them.

In addition to analyzing VMT impacts, and despite CEQA no longer requiring roadway segment and intersection Level of Service (LOS) analyses, the EIR should nevertheless evaluate the potentially significant congestion impacts to roadways throughout the city, especially to the traffic circles on Front St. and by the wharf (especially on summer weekends), and to Laurel St. (especially on weekday rush hour peak periods during the UCSC school year). Even though such a LOS analysis is not required by CEQA, the city's General Plan (GP) does require the city to "Acknowledge and manage congestion" (GP Goal M3.1) and to "Strive to maintain the established 'level of service' D or

better at signalized intersections" (GP Goal M3.1.3), so at a minimum a thorough analysis of the project's LOS impacts should be completed concurrently separate from the EIR. The proposed project will greatly exacerbate the already near gridlock traffic conditions the aforementioned areas are already experiencing at peak times and these project impacts should be evaluated and disclosed in the EIR so that the City Council has this information prior to their consideration of project approval. The EIR should fully address impacts to traffic congestion from the proposed project and each of the alternatives (plus other anticipated projects/growth), including during peak summer weekend and weekday rush hour periods, with the realistic assumption that most of the new residences will have the same number of cars as multi-family residences in Santa Cruz do currently. It would be improper to assume a lower automobile ownership rate than what we see now. We don't have a robust transit system such as exists in places like New York or San Francisco, so we should realistically assume a higher private vehicle ownership and use rate than places like that. The EIR should evaluate the need for and costs of traffic mitigations, and how those costs will be paid. Even though CEQA does not require traffic congestion created by a project to be analyzed in an EIR, it does not prohibit it either (it only prohibits LOS reductions from being considered a "significant" impact), and since the city's General Plan requires the addressing of LOS impacts, it would be **highly irresponsible** for the City Council to approve a project that adds up to 1,800+ new housing units in such a small area without full knowledge of the traffic impacts it will create. Therefore, the EIR (or a concurrent separate LOS study) should fully analyze traffic congestion created by the project (in addition to VMT), in conjunction with that created by other anticipated growth/projects in the area (including UCSC growth).

Similarly, the EIR should evaluate the potentially significant parking impacts of the project, and should assume a realistic automobile ownership rate when it comes to providing the needed parking. Multi-family developments are generally undersupplied in parking spaces, resulting in residents having to park their vehicles on-street throughout the neighborhood. This is already a huge problem in the South of Laurel neighborhood around large multi-family developments such as the Cypress Point apartments at the end of Felix St. The EIR needs to make realistic assumptions about the need for parking and where parking will occur if not enough spaces are provided by the new development.

Public Safety:

The EIR needs to analyze the potentially significant impacts of increased traffic and congestion, resulting from the proposed new development, on public safety through evaluation of traffic accidents (esp. involving pedestrians and bicycle riders), and first responder response times, with comparative analysis of similar areas.

A large assisted-living care center is located on top of Beach Hill and ambulances are frequently summoned to this location. How will they reach them in a timely manner during peak traffic hours? Also, are our fire departments equipped to handle high-rise fires? Special trucks and ladders, as well as additional equipment, will likely be required.

Recreation:

The potentially significant recreational resource impacts of the project should be evaluated in the EIR, in particular the impact of adding up to 1,800 new housing units on parks and popular beaches and surfing areas.

Geology and Soils:

Even though the NOP states that "Geology and Soils" do not need to be addressed in the EIR, the fact that a 17-story habitable structure and three 15-story habitable structures are proposed to be built on alluvial fill, buildings that will experience significant shaking in the event of a large earthquake, indicates that this is an area of inquiry that deserves thorough evaluation in the EIR.

Hazards and Hazardous Material:

Similarly, even though the NOP states that "Hazards and Hazardous Materials" do not need to be addressed in the EIR, it is clear that there are seismic hazards to the occupants of the 17 and 15 story towers (esp. those on upper floors) and flooding hazards to properties and people in the floodplain created by the proposed project. The EIR should include full evaluations of all such potentially significant hazards.

Thank you for this opportunity to comment on the NOP for the proposed Downtown Plan Extension Subsequent EIR. I look forward to seeing the concerns raised above being addressed in the Draft EIR.

Sincerely,

Marcy Rode
924 3rd Street
Santa Cruz, CA 95060

From:	Roland Saher
To:	Sonja Brunner; Martine Watkins; Sandy Brown; Justin Cummings; Renee Golder; Shebreh Kalantari-Johnson; Donna Meyers; sneuse@cityofsantacruz.com
Subject:	EIR on skyscraper
Date:	Sunday, October 16, 2022 10:39:22 AM

I strongly urge you to have the impacts of the proposed skyscraper on Laurel assessed and mitigated comprehensively and adequately, including the issue of water (where will the needed water come from? What will be the effects of drawing on the SC aquifer?), sunlight and shade on the surrounding areas, the increasing possibility of flooding(climate change!), traffic, noise and infrastructure.
Roland Saher

From:	james sandoval
To:	sneuse@cityofsantacruz.com
Subject:	Scoping Comments for Downtown Plan Expansion Project SEIR
Date:	Monday, October 17, 2022 10:51:48 PM
Attachments:	Downtown Expansion EIR NOP Scoping Comments-14Oct2022.pdf

---

Dear Sarah,

The attached letter details my scoping comments for the Downtown Plan Expansion Project's Subsequent Environmental Impact Report, which are due today.
Please confirm this letter is received and accepted by the City.

Sincerely,
Jim Sandoval
510-610-9301

October 14, 2022

Sarah Neuse, Senior Planner
City of Santa Cruz Planning and Community Development Dept.
809 Center Street, Rm. 101
Santa Cruz, CA 95060

SUBJECT: Scoping Comments for Downtown Plan Expansion Project SEIR

Dear Ms. Neuse,

Please find the following scoping comments for the *Draft Downtown Plan Expansion Project Subsequent Environmental Impact Report* (SEIR). These comments are in addition to the comments I conveyed verbally at the September 28, 2022, public scoping meeting for the SEIR.

Aesthetics

Beach Hill's elevation along the Downtown/Third Street-side is approximately 50'-55'. The elevation of the proposed development area is approximately 20'. Thus, the *shortest* proposed buildings along Front Street would have a rooftop elevation of approximately 105' (i.e., 4-5 stories above Beach Hill). This will substantially change the character of our neighborhood, including impacts to the scenic vistas from and towards Beach Hill, privacy, glare, and afternoon sunlight (i.e., the sun sets behind the Upper Westside/Bonny Doon half the year). At least 52 homes, townhomes, and apartment units on Third Street will be impacted.

The Project SEIR should consider mitigations to soften the building heights closest to Beach Hill and other impacted neighborhoods such that scenic vistas can be maintained, and the shadowing impacts minimized.

Please also assure the Project SEIR considers mitigations to protect the quality of life of adjacent neighborhoods and to protect the historic Beach Hill neighborhood's character and quality, including the aesthetic impact of blocking scenic vistas of Beach Hill from areas around Santa Cruz, including Downtown, the San Lorenzo River bridges and levees, the Westside and Upper Westside, etc. As noted in the City's *Beach and South of Laurel Plan*, "Some of the most attractive and picturesque views into the Beach Area are from the entry bridges towards Beach Hill with the river in the foreground." These scenic vistas of Beach Hill were beautifully portrayed from the Downtown and river perspectives in Project consultant Bill Wiseman's drone video and photography footage of the existing Project site during his presentations at the 6/14/22 City Council Meeting and the 9/28/22 public scoping meeting for the SEIR.

Please assure the SEIR maintains the *Beach and South of Laurel Plan*'s Objective for Beach Hill: "Preserve the historic quality of the Beach Hill subdistrict, enhance its historic residential quality and <u>maintain its prominence within the built environment</u>."

The southern white face of the existing Kaiser Permanente Arena reflects the morning sun into my living room and onto the deck outside my dining room where I eat breakfast and read. The glare has been an annoyance, especially the first five to seven years the arena was built. Luckily in recent years, weatherization and seagull guano on the arena, and tree growth between the arena and my home on Beach Hill, have lessened the impact of the glare. If I'm experiencing annoying glare, my neighbors along the Downtown edge of Beach Hill most certainly are as well. Building 75'-175' buildings in the Project area adjacent to Beach Hill has the potential to create a new source of substantial glare from the reflected sun most of day, including the hours approaching sunset in the winter months when the sun sets more to the south. **The SEIR needs to include measures to prevent glare upon the properties on Beach Hill and other areas in the glare-zone of the Project. These new sources of glare will adversely affect the daytime views of Beach Hill residents.**

These same 75'-175' buildings will also create new sources of nighttime light pollution into the homes of the same Beach Hill residents and create an invasion of privacy into our homes (and vice versa) by the new residents in Floors 5-17 of the Project buildings along Front Street and the 300- and 400-blocks of Pacific Avenue that will tower over Beach Hill homes. **The SEIR needs to include measures to prevent new sources of light pollution and invasion of privacy into the dwelling homes and outdoor spaces of Beach Hill residents. Both will adversely affect nighttime views of Beach Hill residents.**

Noise

As stated in the 6/14/22 City Council agenda packet for the Project, the SEIR will include a technical noise study to estimate operational noise emission from a set of anticipated events hosted at the proposed arena. Kimley-Horn's 7/7/21 Scope of Work for the Downtown Plan Expansion states, "A brief field survey during daytime hours will be conducted to measure existing outdoor ambient sound pressure level (SPL) measurements at up to a total of seven (7) on-site and nearby off-site measurement locations, thus collecting data to quantify and help characterize baseline acoustical conditions for the project vicinity. (These are likely to be comparable to measurement locations reported in the aforementioned SFMI study.)"

The SFMI noise studies on the existing KP Arena measured existing outdoor ambient SPL measurements (i.e., background noise-levels) at locations and times that differed from the basketball game used to measure SPL after the KP Arena was built. In other words, the background measurements included measurements on Laurel Street during rush hour traffic, whereas the basketball game was measured at night on the Beach Hill cliff above the arena (near the Cliff St. Stairs) and included a timeframe before, during and after the basketball game. Since evening noise at the Beach Hill measuring location is much quieter before and after games than vehicular traffic at the Laurel Street location during rush hour and other times of day, the post-construction arena noise study concluded there to be less noise in the surrounding neighborhoods during a basketball game than there is when no basketball game is

occurring in KP Arena. This was how the decision-makers concluded that the noise complaints from Beach Hill residents and other neighborhoods were unfounded.

PLEASE assure that the SEIR noise study for the proposed arena utilizes appropriate measurement locations (i.e., not next to a busy street, but among nearby residents in direct earshot to the arena) and takes the SPL measurements during a timeframe that loud events (e.g., rock concerts) would likely occur (i.e., about 8-11 p.m.).

Transportation

The Project's location is proposed in a zone of Santa Cruz that has reached gridlock during the tourist season and has heavy traffic on weekdays, especially when UCSC students are in session. For example, if I leave my home after 11am on a summer Saturday to go to Shoppers' Corner or San Lorenzo Lumber, it takes me about one hour to get home. I'm not exaggerating. I've had to park Downtown and walk home with my groceries after sitting in traffic for 45 minutes. The same is true for my weekend guests.

Traffic Analysis

California Code of Regulations, Title 14 § 15064.3 defines "vehicle miles traveled" (VMT) as *the amount and distance of automobile travel attributable to a project.* As required by 14 § 15064.3, VMT will be evaluated for the Project and compared to existing conditions. This net change in VMT will be analyzed based on the City's adopted VMT transportation thresholds and in accordance with CEQA and state requirements.

Given the state's new approach of analyzing a project's transportation impacts through VMT, Level of Service analysis is no longer required and is optional. As you know, *Level of Service (LOS) is a term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety.*

If the City cares about the quality of life of its existing residents, and the future residents it hopes to attract by the Project, it is imperative that LOS be studied in the SEIR, including the impacts caused by the severe existing conditions of traffic congestion and the cumulative impacts the Project and other planned projects in the Downtown, Beach Area, and other parts of Santa Cruz (e.g., Ocean St. corridor, Westside) will have on traffic, air quality, public safety, etc.

Make sure to utilize peak summer and holiday weekend summer traffic in the SEIR's traffic analysis. And please take this opportunity to develop a plan to divert beach-visitor vehicular traffic away from this area so the redevelopment can thrive. VMT may discourage some new residents from driving, but it will not keep out-of-town beach visitors from clogging up the Project area with their cars.

The Project will develop 1,800 housing units, 60K SF of commercial space (ground floor) and a new 4,000 seat, 180K SF sports and entertainment arena with approximately 200 events per

year within buildings ranging in 4-16 stories (i.e., 50'-175') in height. Most of the housing structures units between 75'-175' (7-17 stories) will have ocean views over Beach Hill between from the 5th story and above. These housing units will certainly continue the trend of attracting high-salaried Silicon Valley workers to Santa Cruz to purchase or rent these attractive units near the beach and add to the congested commute traffic in Santa Cruz and on Highway 17.

The Project also includes enhanced pedestrian connections that will connect the Downtown and Main Beach with the purpose of increasing economic development of the Downtown and Beach Area with tourist patronage.

The VMT analysis needs to factor-in the realistic amount and distance of automobile travel resulting from the new residents the Project will attract that work in the Bay Area, along with the additional vehicle trips generated by the additional tourists and arena patrons the Project will generate Downtown and in the Beach Area.

Additionally, with 200 arena events per year, the analysis should consider the "perfect storm" scenarios, which could be a regular occurrence in the summer—e.g., What would the traffic be like during Friday evening rush hour that includes a sold-out concert at the arena and a popular band at the Beach Boardwalk beach concert stage?

14 § 15064.3(b)(1) states: *Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor* [defined as a corridor with fixed route bus service intervals no longer than 15 minutes during peak commute hours] *should be presumed to cause a less than significant transportation impact.*

The Project is within one-half mile of the Santa Cruz Metro Center. The 17 Express offers service to Downtown San Jose every 25 to 90 minutes. Although this service is a nice alternative for residents that work in Downtown San Jose, it hardly meets the transit demand for the vast number of Santa Cruz residents commuting to other parts of the sprawling Silicon Valley and Bay Area. Thus, if the 17 Express increased service to every 15 minutes, it will not encourage transit ridership to the Bay Area owing to the additional time and expense required to catch connecting buses, light rail, rideshares, and/or trains to workplaces located all over Silicon Valley and beyond. **Accordingly, it's imperative that the City evaluate the Project for the number of new residents living in the Project area that will commute in vehicles to the Bay Area, and the resulting VMT and GHG impacts.**

The SEIR should also study the number of Bay Area residents that will travel to many of the 200 events planned for the arena and the VMT generated by them. The only transit option for them is the 17 Express. Since the 17 Express's last bus departing Santa Cruz for Downtown San Jose is at 8:35/8:40 pm., transit is not a practical option for Bay Area residents traveling home from evening events at the arena.

14 § 15064.3(b)(1) states: *Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.*

The City should consider a solution to prevent existing tourist traffic from "gridlocking" the Project area to decrease the VMT in the Project area compared to existing conditions. This would increase the likelihood that the Project's transportation impact will be less than significant. For example, synchronized traffic signals on Ocean Street and the development of an Ocean Street bridge that crosses the San Lorenzo River and directs Ocean Street tourist traffic directly to the Boardwalk's Third Street parking lot area should be studied and strongly considered. If the City is going to "think big" by enabling the Project, why not think bigger and concurrently solve the City's biggest traffic problem? It would also reduce the greenhouse gasses (GHG) currently generated by idling gridlocked vehicles traveling to/from the Boardwalk, Santa Cruz beaches, and the Wharf. A solution like this is much more feasible than developing rail transit from Santa Clara County. A bridge could also have the value-added benefit of enhancing the environment of South Ocean, Beach Flats, and Beach Hill residents that endure the transportation gridlock and the associated fossil fuel and GHG emissions.

Emergency Access

As we know, the existing tourist traffic gridlock creates significant delays for emergency services vehicles to reach the Main Beach Area, including the South Ocean, Beach Flats, Beach Hill, and South of Laurel (Project area) neighborhoods, and the Boardwalk and Wharf. The gridlock would also make it impossible for residents and tourist to evacuate from Beach Area neighborhoods during a large emergency, such as a tsunami or fire. **The SEIR should analyze this problem and offer viable mitigations.**

Project Study Area

About 10-15 years ago, the City closed off the footpath adjacent to 1012 Third Street, which links Beach Hill to Downtown Santa Cruz. Beach Hill residents miss that path because it offered a convenient way to walk Downtown. Redesigning the path to be accessible again would be a nice value add for Beach Hill residents and future residents in the Project area.

Please include the old footpath in the Project Study Area. It will make the Downtown Expansion Area quickly accessible to Beach Hill residents and it would make the Wharf and the West Cliff pathway more quickly accessible to Project area residents.

Sincerely,

Jim Sandoval, PE
910 Third Street
Santa Cruz, CA 95060

From: Pauline Seales
To: sneuse@cityofsantacruz.com
Subject: Downtown Expansion Project
Date: Sunday, October 9, 2022 7:52:40 PM

Please add "Sea Level Rise" to the list of concerns. The south of Laurel area will be affected by flooding starting twice a month within the next 10-25 years - certainly during the life of the buildings. Despite excellent work by Tiffany Wise-West city planners are completely ignoring this coming problem. A better use of the area would be as a "sponge park" to absorb flood waters and protect the downtown.
Please get back to me if you have questions.
Pauline Seales
Santa Cruz Climate Action Network

From:	Irana Shepherd
To:	Sarah Neuse
Cc:	StopTheSkyscrapers SantaCruz
Subject:	Proposed Downtown Plan
Date:	Thursday, October 13, 2022 2:54:03 PM

Oct, 13, 2022

Dear Ms. Neuse,

I am a long-time resident and business owner in Santa Cruz, I want you to know I am vehemently opposed to the Downtown Expansion Plan in its current form.

I am opposed to buildings above 8 stories and high density units.

The lack of water alone is reason enough to limit building:

Santa Cruz is in a severe drought* https://data.ydr.com › drought › california › santa-cruz-county › 06087.

There are many other important reasons to limit expansive building-environmental,

social and economic, and I urge you to see that the EIR will do an analysis of the

real impacts of all scenarios.

Sincerely,
Irana Shepherd
82 Blackburn #212
Santa Cruz, CA 95060

*

From: Rebecca Supplee
To: sneuse@cityofsantacruz.com
Subject: Downtown Expansion Scoping Document for the EIR
Date: Saturday, October 15, 2022 1:53:12 PM

Dear Ms. Neuse,
I would like to ensure that the following items are addressed in the EIR for the Santa Cruz Downtown Expansion:
1) Biological Resources- The impact of the height and location of the proposed structures should be closely studied regarding their impact on local and migratory birds. The location of the very tall and lighted structures, near the bird habitats of the San Lorenzo River, Neary's Lagoon and beach areas will most likely negatively impact foraging, migrating, and reproduction, of local bird populations.

2) Transportation - Because of the increased congestion that will result from the high density of this proposal in an already congested area during the summer months, the VMT should include increase miles traveled by those on the lower Westside, lower Ocean St., and the Seabright that need to travel across town, and will be forced to travel around the area to avoid the increased congestion.

3) Public Services - Most importantly, the EIR should address the public safety impacts that the increased congestion will have on emergency responders' ability to access the area, including the Boardwalk and local beaches. There used to be public fireworks on Main Beach every 4th of July. One year there was a stabbing and at least one person died because the area was so congested that emergency responders could not get to the Boardwalk area. That is the reason that public firework displays no longer happen on the 4th of July in Santa Cruz. The vehicle density as a result of an increased capacity Warrior's stadium, high housing density, in addition to the existing beach and Boardwalk traffic, has to be evaluated as to the impacts that increased congestion will have on the ability of emergency responders to access the area quickly.

Thank you for your consideration,
Rebecca Supplee
135 Lennox St.
Santa Cruz, CA 95060

From:	Jeanne Thompson
To:	StopTheSkyscrapers SantaCruz; sneuse@cityofsantacruz.com
Cc:	Sonja Brunner; Martine Watkins; Sandy Brown .; Justin Cummings; Renee Golder; Shebreh Kalantari-Johnson; Donna Meyers
Subject:	Downtown Expansion Plan
Date:	Monday, October 17, 2022 2:01:16 PM

To Whom it May Concern…

I was so shocked and disappointed to hear of this proposed development for downtown Santa Cruz. I have been a Santa Cruz resident for almost 44 years now, and I live and work downtown. I can only imagine what our sweet town would become it this outrageous proposal actually comes to fruition.

We already have issues with traffic congestion, water use, safety, noise and an ongoing strain on our resources and environment. We do not need more problems, but rather need solutions for the problems we already have, such as empty commercial buildings, homelessness, poorly planned streets, and unsafe neighborhoods. The issues are much bigger than just making money for a few elite developers and the city. I hope that you rethink this very carefully, consult with other small town city councils, and choose wisely for all residents, before moving forward... or I am ashamed to say I live in Santa Cruz, after all these years.

Jeanne Thompson

On Oct 14, 2022, at 5:34 PM, StopTheSkyscrapers SantaCruz <stoptheskyscrapers@gmail.com> wrote:

Hello Neighbors!

The **DEADLINE** is fast approaching (Monday **OCTOBER 17**) for sending comments on the proposed Downtown Expansion Plan.

Tell the City what IMPACTS YOU think the Project will have
and ASK THEM TO ANALYZE THE IMPACT.
[ie. **No water**, **sunlight/shadow impacts**, flooding, **traffic**, noise, **infrastructure**...].

Email Sarah Neuse, City Planner at: **sneuse@cityofsantacruz.com**
and **cc: your friends, us** (STOPtheSkyscrapers@gmail.com)**, and each City Council member individually** [emails addresses at bottom].

Example comment letters attached that address main categories.

Best,
Susan Monheit
Stop-the-Skyscrapers

- Info: Notice of preparation for EIR .
- See **Scenario 3**: DEVELOPMENT SCENARIO drawings!

City Council Members
sbrunner@cityofsantacruz.com
mwatkins@cityofsantacruz.com
sbrown@cityofsantacruz.com
jcummings@cityofsantacruz.com
rgolder@cityofsantacruz.com
skalantari-johnson@cityofsantacruz.com
dmeyers@cityofsantacruz.com
<SM_Scoping Comments Pt2_Usual categories.docx><Frank B Comments EIR Scoping (pt 1).docx><Frank (pt 2) EIR Scoping Comments_Downtown Expansion Plan.pdf>

From: Elizabeth Traugott
To: sneuse@cityofsantacruz.com
Subject: Comments for downtown expansion plan EIR
Date: Saturday, October 15, 2022 6:17:38 PM

Sarah Neuse, Senior Planner

City of Santa Cruz Planning and Community Development Dept.

809 Center Street, Rm. 101

Santa Cruz, CA 95060

Email: sneuse@cityofsantacruz.com

Re: Scoping Comments for Downtown Plan Expansion Project EIR

Dear Ms. Neuse,

Thank you for the opportunity to comment on the Draft Downtown Plan Expansion Project Subsequent Environmental Impact Report (EIR

Providing low income housing is crucial as we move forward, and I hope that much more such housing will be built. However, I have several concerns about the size of the Project in its current form.

The EIR should consider the extent to which uncapping the height limits on buildings that are currently in place will change the nature of Santa Cruz and turn the town into a city. The likely outcome of such a change is fewer tourists and therefore lower revenue from them. Residents who have a special place in their hearts for Santa Cruz are also likely to move elsewhere.

The EIR should also consider the impact on traffic. I live on Third Street. In the summer and many weekends during the rest of the year there is total gridlock. What factors are being considered to mitigate the effect on traffic of adding the large number of units proposed?

We are asked to minimize water use because of the drought. What measures will be taken to ensure that water use meets Santa Cruz' standards and does not penalize residents in the neighborhood?

The proposed building project will destroy current low income housing for several people. What plans are there for relocating them? Will they have priority for the new housing?

Finally, the EIR should conduct a thorough environmental safety study. I understand that the plan is to build housing on alluvial fill. This could be catastrophic in a major earthquake such as the Loma Prieta earthquake in 1989.

I look forward to seeing the concerns raised above being addressed in the Draft EIR.

Sincerely

Elizabeth Traugott

917 Third St

Santa Cruz

CA 95060

cc. City Council

From:	Sarah Wolfsen
To:	sneuse@cityofsantacruz.com
Cc:	sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; sbrown@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject:	Downtown Plan Expansion Project EIT Comments
Date:	Monday, October 17, 2022 8:18:46 PM

Dear Ms. Neuse,

I would like to voice my concerns for the Draft Downtown Plan Expansion Project Subsequent Environmental Impact Report (EIR). My husband is a lifelong resident of Santa Cruz and we recently moved back (6 years ago) to live on Beach Hill.

I welcome the development plan surrounding a new arena (any changes to the lower Pacific area is welcome), but as I previously wrote to the council, I am concerned about the height of the buildings currently proposed. I understand that with the current zoning and density additions (hopefully this is the right phrasing here) that 7 story buildings can be built in this location. I wonder if, coupled with the potential City ADU additions, this might meet the City's requirements for the next few years for new housing requirements. The city is proposing the new build to accommodate 1,800 (or 1,600) units to meet the new Regional Housing Needs Allocation (RHNA) targets. I would ask that an analysis should be included comparing what is currently allowable vs. what you are proposing when considering the cumulative impacts of the proposed project.

I am not opposed to changing to the character or "feel" of the downtown area (I am NOT a zero growth person), however, this project is so far away from the skyline that I would expect from a city this size. I am guessing that your team is trying to get the best "bang for your buck" by trying to build it all in one spot (and avoid the inevitable neighbor pushback from each neighborhood that you propose to build in) but this project is just **too much in one location.** Our neighborhood is already impacted by bad traffic, especially during the summer months, an increase of hotels, and Warriors game nights. It will be unsustainable if this large a project were to be seen to fruition. Not to mention the impact that it would have on our historic neighborhood. I would like to see a study or reporting from local historical societies of this change so that we can better see the effect on our neighborhood. Just to note, our property is not adjacent to the building (i.e. on the edge of the hill) but any building higher than 7 stories would cast not

only a shadow on our street but also change the look and feel of the entire neighborhood.

Thank you for this opportunity to express my concerns. I look forward to seeing these issues addressed in future planning.

Sincerely,

Sarah Wolfsen
911 3rd Street, SC 95060

From: Chris Zegers
To: sneuse@cityofsantacruz.com
Cc: sbrunner@cityofsantacruz.com; mwatkins@cityofsantacruz.com; jcummings@cityofsantacruz.com; rgolder@cityofsantacruz.com; sbrown@cityofsantacruz.com; skalantari-johnson@cityofsantacruz.com; dmeyers@cityofsantacruz.com
Subject: Scoping comments :Ruining of Downtown Expansion project
Date: Monday, October 17, 2022 4:45:18 PM

To Ms. Neuse and Santa Cruz City Council,

Thank you for the opportunity to submit comments on the proposed Downtown Expansion Plan Project (Project) for analysis and study direction, in preparation of the Project Environmental Impact Report (EIR). The EIR is a public disclosure document that at its best, will allow the public to understand the true costs associated with this Project. The EIR also seeks to mitigate identified impacts to less than significant levels. The comments in this letter, address the issues of water, traffic, noise, alternative transportation and safety.

In analyzing, as required, "would the project [i.e., implementation of the Downtown Plan Expansion]:

a. Conflict with an applicable program plan, ordinance or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?"

please apply all relevant provisions of the City General Plan, Local Coastal Program, adopted Active Transportation Plan, Safe Routes to School Plan, Regional Transportation Plan, and related documents with regard to the following:

All streets in the plan area: All streets in the area are bikeable, many segments have bike lanes. The proposed project is for vastly increased density, including some very tall buildings with not much more frontage than a typical home or two. The residents and employees of these buildings will generate a substantial increase in various types of construction and then service trips. [Please consult sources that can help quantifiably predict what this impact will be.] These construction and service vehicles need a place to park. Bicyclists will be adversely impacted if they park in or preclude existing or future bike lanes [bike lanes have been closed north of this area for similar construction activities], or park in the part of the roadway where cyclists would most likely be riding or stop, or park so as to obstruct the normal flow of traffic so that it is forced to veer into the path of cyclists. Currently, Laurel and Front Street is a total disaster for pedestrians and cyclists, it is safer to avoid this area as auto traffic is too aggressive and unsafe. I challenge you to get out of your cars for a month and commute by bike, bus and foot to get a feel of what it is like to commute outside of your car before you have us suffer under restricted bike lanes and more traffic which these projects will create. Better yet, please study the affects that these population increasing projects will have on alternative transportation and the need for transportation justice we need in the community.

The elephant in the room, water.

Please study the impact that this proposed plan will have on water supply. As you all are aware, California just entered into a new water year on October 1. The previous three year period from 2020 to 2022 is the driest on record going back to 1896, this according to drought.gov.
Where do you plan to get water for not only current residences but the increase in population, all the new housing units, hotel rooms, arena, retail space and restaurants? Therefore I ask that you study water resources and where the water will come from for the litany of projects on your agenda. last I looked, the Carlsbad desal plant cost $1billion to build and $50 million dollars a year to operate (Desalination's Future in California Is Clouded by Cost and Controversy | KQED) and maintain. Just the water issue alone should cause you to pause on this project, simply put, there is not enough water during this climate emergency that we are currently in.
This is certainly not a complete list, as other items that needed to be studied include:

- Anthropological sensitive sites (river levee).
- Air quality
- Social & Environmental justice
- Traffic and parking
- Emergency evacuations
- Geology on liquefaction zones
- Building in a flood plane
- Increased city services (currently having strike issues with current service staff)
- Garbage and recycling (where is all the extra trash and recycling going)
- Daylight Shadows created by proposed towers
- Displaced residents and businesses
- Killing of heritage trees and species that rely on them

Please study these areas of concerns as trying to build our way out of a perceived housing crisis and putting money into out of town investment ad developer firms is not a smart solution. Please follow the Santa Cruz City plan that was developed so that our town maintains it charm and does not turn into Los Angeles-San Francisco-San Jose-by-the Sea.
Please Respond in Kind that you received this letter.
Respectfully,
Chris Zegers

-

When possible, ask the City to conduct studies. Studies may be needed to analyze impacts, such as soil stability studies, water resource studies, traffic, noise, environmental justice studies e

Downtown Plan Expansion | City of Santa Cruz

Project page for the expansion of Santa Cruz's Downtown Plan into the neighborhoods south of Laurel Street.

4. Downtown Expansion Plan DEVELOPMENT SCENARIO

--
Keresha Durham~ educator, environmentalist
"care-sha"



For a quality future for all living things, the earth needs small families

Balance population with finite natural resources

- EIR Topics_DOWNTOWN EXPANSION PROJECT.docx
  14.7kB

- . CUMULATIVE IMPACTS OF PAST, PRESENT AND FUTURE PROJECTS, in South of Laurel, downtown, etc.

- Reply
- ,
- Reply All
- or
- Forward

Send

Appendix B

Proposed Plan and Ordinance Text Amendments



Appendix 8
South of Laurel Area

Public Review Draft - January 2025



Table of Contents

8.1 Introduction 2

8.1.1 Context and Background 2

8.1.2 South of Laurel Area Objectives and Guiding Principles 6

8.2 South of Laurel Area Development Plan 8

8.2.1 Development Plan Overview 8

8.2.2 SOLA Redevelopment Parcels 11

8.3 Private Property Development 13

8.3.1 Introduction 13

8.3.2 Allowed Uses 13

8.3.3 Development Standards and Design Guidelines 13

8.3.4 Anti-Displacement Policy 13

8.3.5 Downtown Density Bonus 13

8.4 Public Spaces 14

8.4.1 The Role of Public Spaces 14

8.4.2 Community Spaces 16

Introduction 16

Spruce Street Plaza 20

Santa Cruz Riverwalk 24

Pacific Avenue 28

Front Street 29

Laurel Steet Extension 30

Pacific Avenue / Front Street Roundabout 31

Arena 32

8.4.3 Streetscape and Circulation 34

Introduction 34

Pedestrian and Bicycle Circulation 36

Streetscape Design 41

Street Types 57

8.5 Sustainability and Resiliency 74

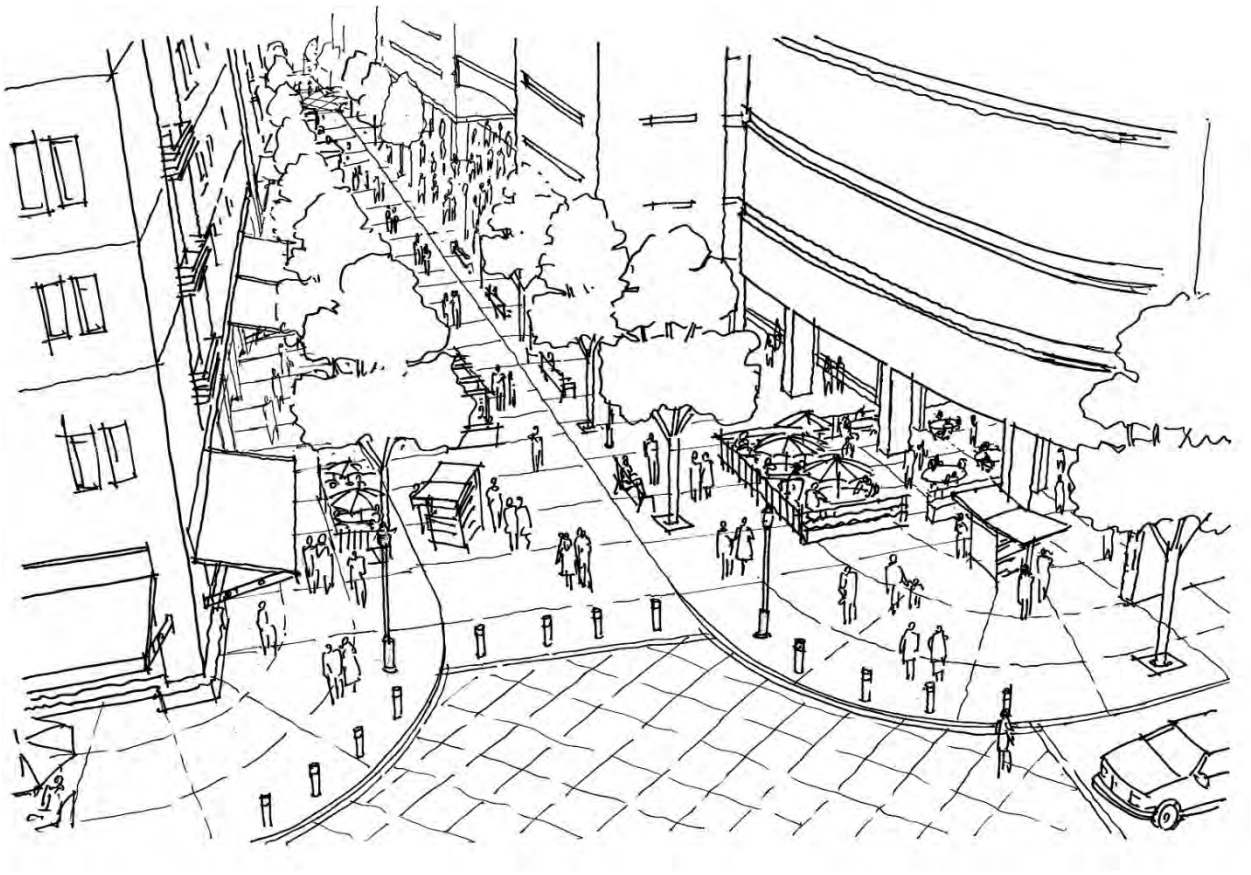
8.5.1 Sustainability and Resiliency Policies 76

Citywide Plans 76

Santa Cruz Municipal Code Sections 76
8.6 Infrastructure and Public Services 77
8.7 Implementation 79
8.7.1 Financing Plan 79
8.7.2 Potential for Special-Purpose Financing Districts 80
8.7.3 Ongoing Funding for Public Services and Facilities 80
8.7.4 Land Dedication for Public Realm and Utility Infrastructure 81
Property Owner Coordination 81
Timing of Dedication 81

List of Figures

Figure 8.1-1 South of Laurel Area District 3
Figure 8.2-1 SOLA Conceptual Plan 9
Figure 8.2-2 SOLA Redevelopment Blocks 12
Figure 8.4-1 Community Spaces 17
Figure 8.4-2 Existing and Proposed Circulation 19
Figure 8.4-3 Existing Bike Circulation 37
Figure 8.4-4 Proposed Bike Circulation 38
Figure 8.4-5 Proposed Pedestrian Circulation 39
Figure 8.4-6 Gateways and Nodes 52
Figure 8.4-7 Beach Connectivity Conceptual Plan 54
Figure 8.4-8 Cross-Sections Key Map 58
Figure 8.4-9 Laurel Street Between Cedar Street and Pacific Avenue (1) 61
Figure 8.4-10 Laurel Street Between Pacific Avenue and Front Street (2) 62
Figure 8.4-11 Front Street Between Laurel Street and Spruce Street (3) 63
Figure 8.4-12 Front Street Between Spruce Street and Laurel Street Extension (4) 64
Figure 8.4-13 Pacific Avenue at Hill (5) 65
Figure 8.4-14 Center Street at Depot Park (6) 66
Figure 8.4-15 Pacific Avenue South of Laurel Street (7) 67
Figure 8.4-16 Spruce Street Between Pacific Avenue and Front Street (8) 68
Figure 8.4-17 Spruce Street Plaza (9) 69
Figure 8.4-18 Laurel Street Extension (10) 70
Figure 8.4-19 Cliff Street Between Third Street and Trinity Street (11) 71
Figure 8.4-20 Cliff Street Between First Street and Beach Street (12) 72
Figure 8.4-21 Santa Cruz Riverwalk (13) 73
Figure 8.5-1 FEMA Flood Hazard in the SOLA 75
Figure 8.6-1 Existing Infrastructure 78



Conceptual Rendering of Spruce Street Plaza,
connecting Pacific Avenue and the Santa Cruz Riverwalk.

8.1 Introduction

This appendix describes the development policies and objectives for the South of Laurel area (the SOLA), the fifth district of the Santa Cruz Downtown Plan. It includes policies, development standards, and design guidelines to guide future planned public space improvements including circulation for cars, bikes, and pedestrians, streetscape and open space, beach connectivity and implementation. Development of housing and commercial structures on private property is governed by the standards, policies and design guidelines for the South of Laurel Area found in Chapter 4 of the Downtown Plan.

8.1.1 Context and Background

As shown in Figure 8.1-1 South of Laurel Area District, the area consists of approximately 29 acres in downtown Santa Cruz and is generally bound by Laurel Street, the San Lorenzo River, Front Street, and Center Street. This neighborhood is located in the Coastal Zone and was formerly part of the Beach and South of Laurel Plan Area.

South of Laurel contains a variety of commercial and multi-family residential land uses. This includes the temporary Kaiser Permanente Arena, various ground-floor commercial retail, food service, and entertainment uses, multi-family housing, and at-grade paved parking lots with associated areas of landscaping.



Figure 8.1-1 South of Laurel Area District





The SOLA is also located adjacent to residential uses to the west, including the multi-family Sycamore Street Commons, which are located in the Neighborhood Conservation Overlay District (NCOD, Santa Cruz Municipal Code Chapter 24 Part 31).

Being located between the downtown and the Beach Area, the neighborhood serves an important role in linking these two areas. This link includes Front Street and Pacific Avenue, the Laurel Street Extension, and the steps to Beach Hill from the Santa Cruz Riverwalk toward Cliff Street and down to the Beach Area (including the Santa Cruz Beach Boardwalk, Main Beach, the Santa Cruz Wharf, the Beach Flats, and the neighborhood of Beach Hill).

The San Lorenzo River bends from a southerly to easterly direction here providing particularly scenic views of the San Lorenzo River, the Laurel Street Bridge, the San Lorenzo Riverside Gardens Park and the surrounding neighborhood on the east side of the San Lorenzo River.

Relevant City planning documents that influence future development in this southern-most neighborhood of the Downtown:

- General Plan 2030 (2012)
- Local Coastal Program (1994)
- Downtown Site Furnishing Standards (2022)
- Community-wide Climate Action Plan for 2030 (2022)
- San Lorenzo Urban River Plan (2003)
- Riverfront and Lower Pacific Design Guidelines & Development Incentives (2010)
- City of Santa Cruz Active Transportation Plan (2017)

- Santa Cruz Municipal Code
- Various infrastructure master/management plans



South of Laurel Today

8.1.2 South of Laurel Area Objectives and Guiding Principles

The following objectives provide the basis for guiding the future development in the SOLA, consistent with the City's General Plan.

- Increase the total number of housing units that can be built in the City by adding capacity for multi-family housing.
- Better connect downtown with the San Lorenzo River and Beach Areas, in order to:
    - Give the community better access to the river and beach.
    - Help visitors see more of Santa Cruz, including its local businesses and entertainment destinations.
- Work with the Santa Cruz Warriors to establish design standards and use allowances that accommodate potential development of a permanent arena.
- Generate new tax revenue for the City.
- Create new economic opportunities for local businesses and workers.
- Create opportunities for public amenities and infrastructure including parks, the Santa Cruz Riverwalk trail, or other spaces for community use.



A street-width plaza is envisioned.

Based on community and stakeholder feedback, the following guiding principles are designed to re-enforce and further articulate these objectives.

1. Create an active, inviting, safe and comfortable place for residents and visitors of all ages.
2. Encourage the development of affordable housing to the greatest extent feasible.
3. Through creative urban design, distinctive architecture, high-quality urban amenities, and appropriately scaled public gathering spaces, support change in the South of Laurel Area to create a regional destination for residents and visitors.
4. Maximize opportunities for outdoor dining and ground floor retail uses, particularly along Pacific Avenue and Spruce Street.
5. Create an integrated bike and pedestrian network with appropriate wayfinding throughout the neighborhood, helping visitors and residents access the Beach, San Lorenzo River, and downtown.
6. Create a neighborhood with well-designed public spaces and amenities that enhances the pedestrian experience and complements and integrates with the greater downtown and adjacent neighborhoods.
7. Plan for a total of 1,600 residential units.
8. Provide 20% of the total number of units (320 units) built as permanent below market-rate affordable housing, inclusive of a 50% density bonus.
9. To accommodate the City's future affordable and market-rate housing needs, support and accommodate the construction of higher-density building elements on Blocks A, B, C and D that are strategically designed to relate to the riverwalk and public spaces and create an interesting and varied skyline.
10. Preserve view corridors in building layout and landscaping, particularly in relation to the San Lorenzo River.
11. Use distinctive architectural and design features at key nodal points and gateways to the SOLA.
12. Create vitality in design that integrates and encourages pedestrian and bicycle connectivity with the downtown and surrounding neighborhoods.
13. Create building transitions, setbacks, landscaping, and other design features to minimize development impacts on existing residential uses in the Neighborhood Conservation Zone.
14. Encourage the use of a development agreement, memorandum of understanding, or other contracts between developers and the City on development applications that include larger parcels and/or more than one block, to help guide future development requirements and plan for community benefits.
15. Maintain and/or improve existing infrastructure commensurate with future development.

8.2 South of Laurel Area Development Plan

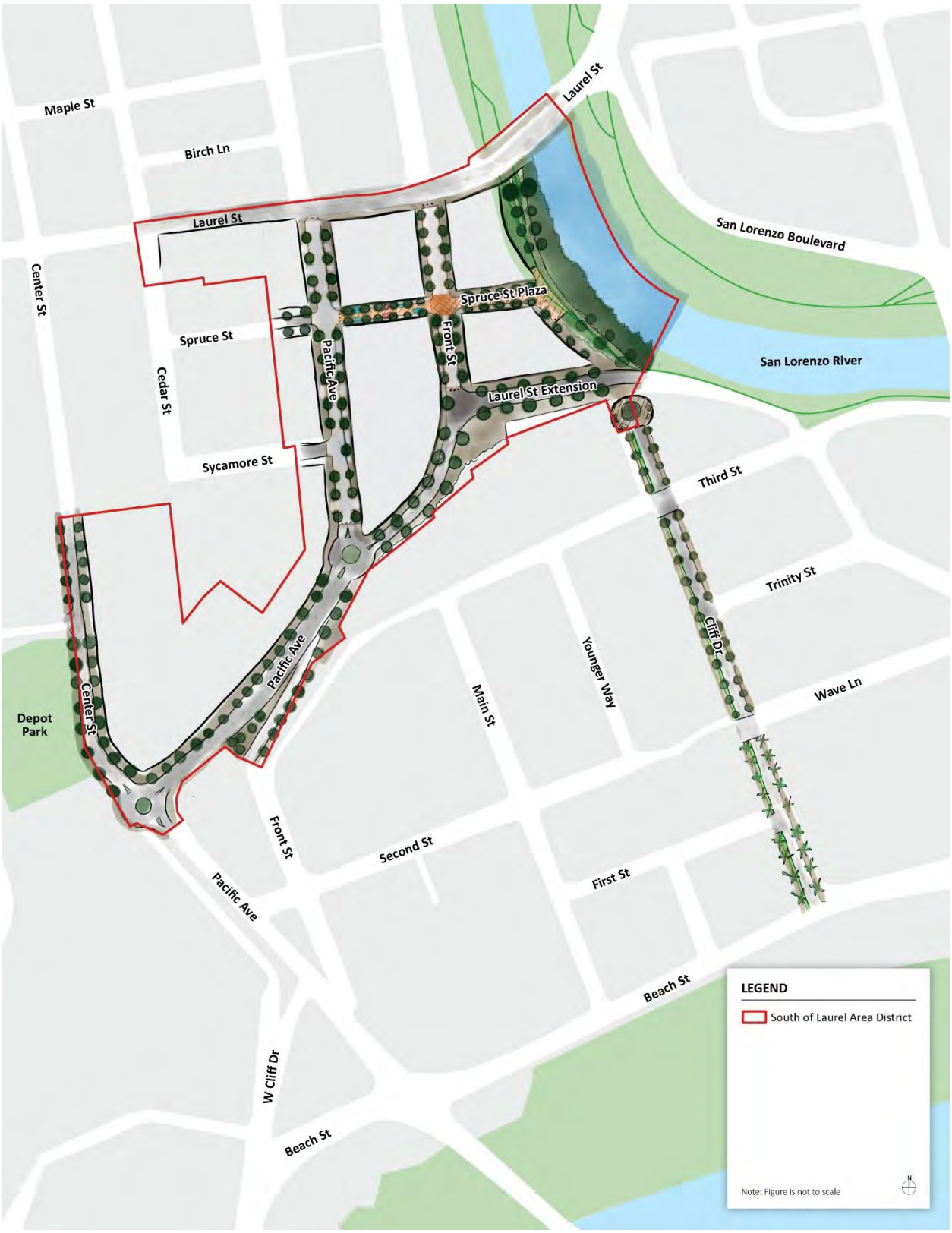
8.2.1 Development Plan Overview

As stated in the Guiding Principles above, the SOLA can be redeveloped over time to achieve community goals relating to housing, mobility, economic development and recreation.

As further described below and illustrated in Figure 8.2-1 SOLA Conceptual Plan and Figure 8.4-2 Existing and Proposed Circulation, redevelopment of the SOLA creates the opportunity for the realignment and reconfiguration of the circulation pattern to improve connectivity to the Santa Cruz Riverwalk and San Lorenzo River, create an enhanced public streetscape, and improve connectivity to the Beach Area.



Figure 8.2-1 SOLA Conceptual Plan



As an anchor to this neighborhood, a new arena for the Santa Cruz Warriors is envisioned on Block C between Front Street and Pacific Avenue or on Block D between Front Street and the Santa Cruz Riverwalk, both south of Spruce Street (See Figure 8.2-2 SOLA Redevelopment Blocks). This arena will have a capacity of approximately 3,200 fixed seats for sporting events and approximately 4,000 fixed and temporary seating for other events such as musical concerts or shows. Ancillary uses include a practice court, locker/team support facilities, food service/merchandising, and administrative support services. Complimenting and supportive of the new arena, a series of public realm improvements are envisioned that will create new significant community gathering spaces, particularly along Spruce Street, Pacific Avenue, and the Santa Cruz Riverwalk.

This concept requires closing Spruce Street to vehicular traffic from Front Street if the arena is developed on Block D, and from Pacific Avenue if the arena is developed in Block C, to the Santa Cruz Riverwalk to create a public plaza (Spruce Street Plaza). This would coincide with relocating the Laurel Street Extension to the south, along the base of Beach Hill. Additionally, to strengthen the connection between the downtown and the beach, a number of mobility improvements are identified, including rebuilding the steps from the Santa Cruz Riverwalk up to Cliff Street and improving the streetscape (sidewalks, street trees, lighting) from the top of Cliff Street south to the Beach Area.



A pedestrian plaza connects commercial and residential uses.

8.2.2 SOLA Redevelopment Parcels

Redevelopment potential is typically understood to be a result of existing building age and intensity of use, parcel size, ownership status. Based on these factors, and to help communicate future development principles and concepts, Blocks A through H have been identified as likely to redevelop within the next 15 to25-years, as shown in Figure 8.2-2 SOLA Redevelopment Blocks. This plan does not dictate the timing of any specific development, and the City cannot require the development of specific uses on specific sites. This plan sets the parameters under which redevelopment may take place and creates allowances for the types of uses and levels of vitality the City wants to encourage.

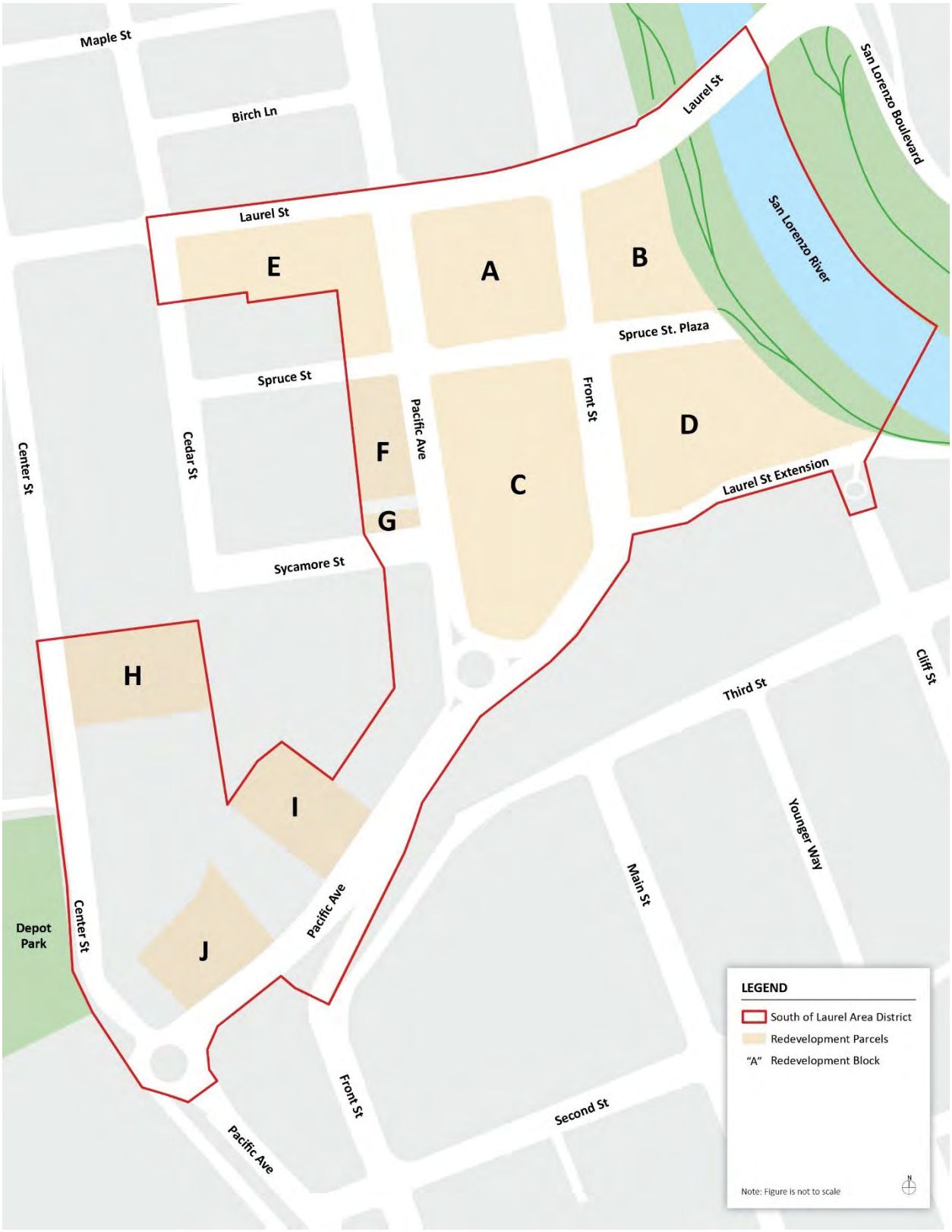
The amount and type of development allowed in this neighborhood has been planned consistent with the Objectives and Guiding Principles found in Section 8.1.2 of this Appendix. Increasing the amount of housing and commercial space that can be created, as well as identifying sites appropriate for the development of a multiuse arena are the defining features of private property development in this area. The development regulations that will govern the private development in the area are addressed in Section 8.3 - Private Property Development.





Outdoor gathering spaces.

Figure 8.2-2 SOLA Redevelopment Blocks



8.3 Private Property Development

8.3.1 Introduction

Development of the area's Private Realm will be shaped by the following form-based design standards and design guidelines, defining building form first by maximum height. Setback regulations, followed by a variety of mass reduction strategies shall be used to further define building form. Wide sidewalks are required in building setbacks where active ground floor uses occur to contribute to a neighborhood with vibrant pedestrian zones and gracious, well-framed community spaces.

8.3.2 Allowed Uses

For a description of Prohibited Uses, Accessory Uses, Temporary Uses, and Additional Regulations – Ground Floor Uses, see Chapter 4 Development Standards and Design Guidelines, Section A: All Central Business Districts Land Uses.

8.3.3 Development Standards and Design Guidelines

All buildings shall conform to the development standards and design guidelines as described in Chapter 4 Development Standards and Design Guidelines.

8.3.4 Anti-Displacement Policy

The City is working to expand anti-displacement policies such as the current local preference policy in SCMC 24.16.045 consistent with all relevant state and federal laws, as expanded by SB 649 (2022) with a focus specifically on households at elevated risk of displacement, and development proposals will be subject to those standards from the time they take effect following future City Council action. Additionally, state regulations (i.e., California Health and Safety Code - Section 17975-17975.10 :: Article 2.5. Tenant Relocation Assistance and California Civil Code – Section 1946.2) require one-to-one replacement of existing housing units currently or recently occupied by lower income households, in conjunction with relocation expenses and first right of refusal requirements for existing tenants.

8.3.5 Downtown Density Bonus

For a description of the Downtown Density Bonus available to properties in the SOLA, see Chapter 4 Development Standards and Design Guidelines, Section K: South of Laurel Area Development Standards.

8.4 Public Spaces

8.4.1 The Role of Public Spaces

The community's development fabric is composed of two distinct, yet inter-related components: public spaces and private property development. The public spaces consist of the publicly owned street rights-of-way and open space such as parks (i.e., the San Lorenzo Riverfront), and public plazas, courtyards, and alleys. The private property is made up of privately-owned areas, in large part developed with buildings and associated improvements, and can be more limited in accessibility to the public.

Public spaces set a stage on which community life unfolds. The design of streets, the plaza, and other public spaces will help determine much of what this neighborhood becomes over time. With thoughtful design and careful programming, streets and public spaces can address complex challenges relating to mobility, economic vitality, greening strategies, and community activities.

From the perspective of community identity, enhanced public spaces provide a way to establish this area as a neighborhood that is an integral component of the greater downtown. The public spaces and private property development interact and relate to one another, and both components are necessary to create successful, lively, engaging places to meet community needs.



Appropriately scaled pedestrian pathways with landscaping.

Public space plays a critical role in the SOLA's character and function, serving overlapping roles, including:

- **Circulation and Access**. The public street rights-of-way provide for circulation within and through the community – accommodating pedestrians, bicycles, and buses, in addition to vehicles.
- **Development Framework**. The public street rights-of-way provide the fundamental structure that contains and organizes incremental redevelopment into a cohesive whole.
- **Public Open Space**. In addition to parks and plazas, public street rights-of-way, including public sidewalks, can play an important role as public open space—allowing for light, air, landscaping within developed areas, and serving as the "living room" for community life—places where people meet, interact, and linger.
- **Visual Character**. The physical design of the public realm and the design elements such as landscaping, art, and infrastructure is critical in generating a sense of place and creating a welcoming atmosphere for all users.



Multi-use plaza for community events.

For the SOLA, the following section covering ideas and requirements for the public realm is organized accordingly; Community Spaces, Streetscape and Circulation.

8.4.2 Community Spaces

Introduction

Community spaces in this neighborhood include existing and planned public streets and the Santa Cruz Riverwalk, all designed to accommodate public gatherings and events such as pre- and post-arena events, holidays and festivals events, and informal gatherings. As shown in Figure 8.4-1 Community Spaces and described below, primary community spaces include Spruce Street (the Spruce Street Plaza), the Santa Cruz Riverwalk, and Pacific Avenue. Secondary community spaces include Front Street, the Laurel Street Extension, the Pacific Avenue / Front Street Roundabout, and the arena.

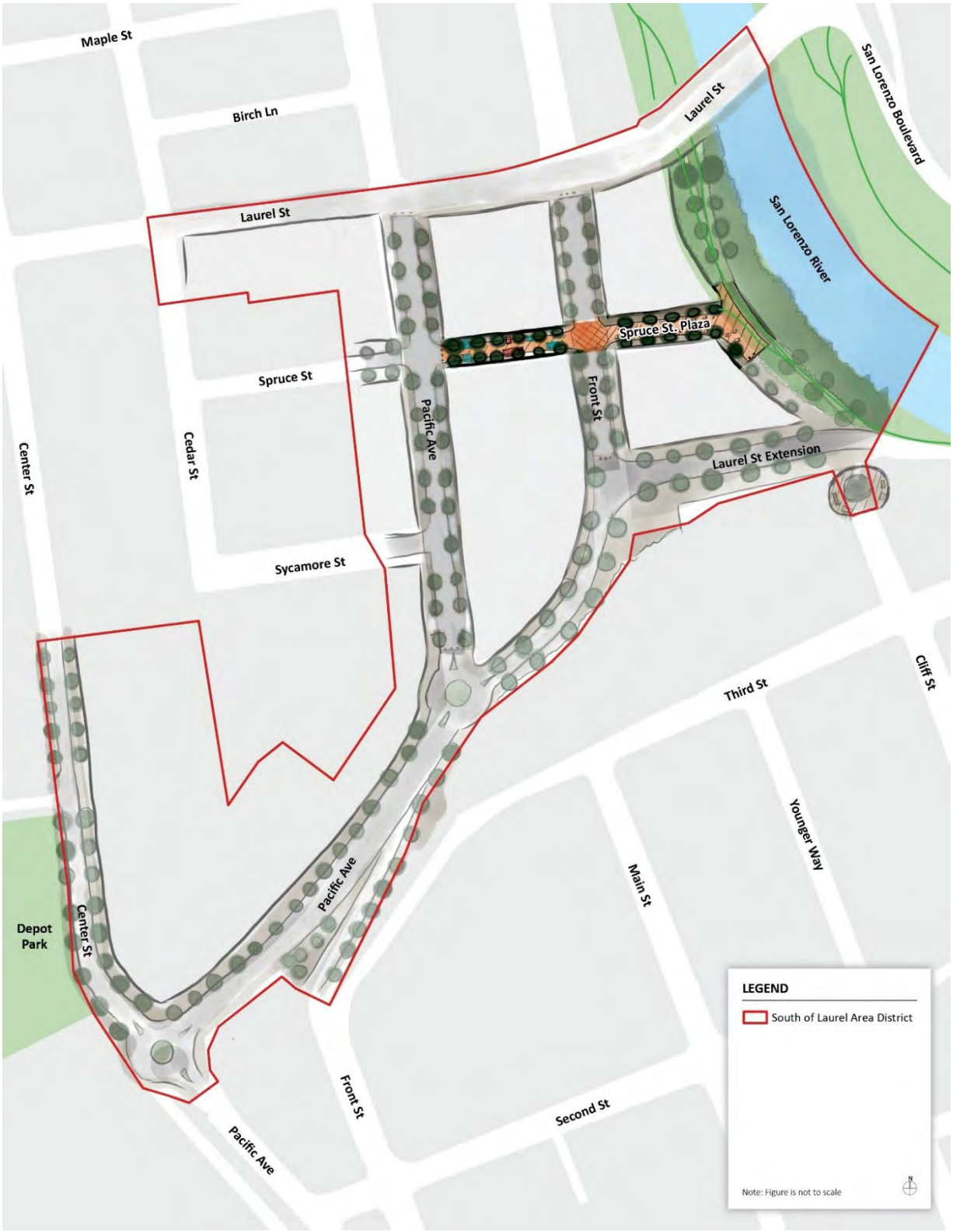
Cross-sections for the public rights of way are described and shown in Section 8.4.3 Streetscape and Circulation / Street Types.



Activated and inviting public spaces.



Figure 8.4-1 Community Spaces

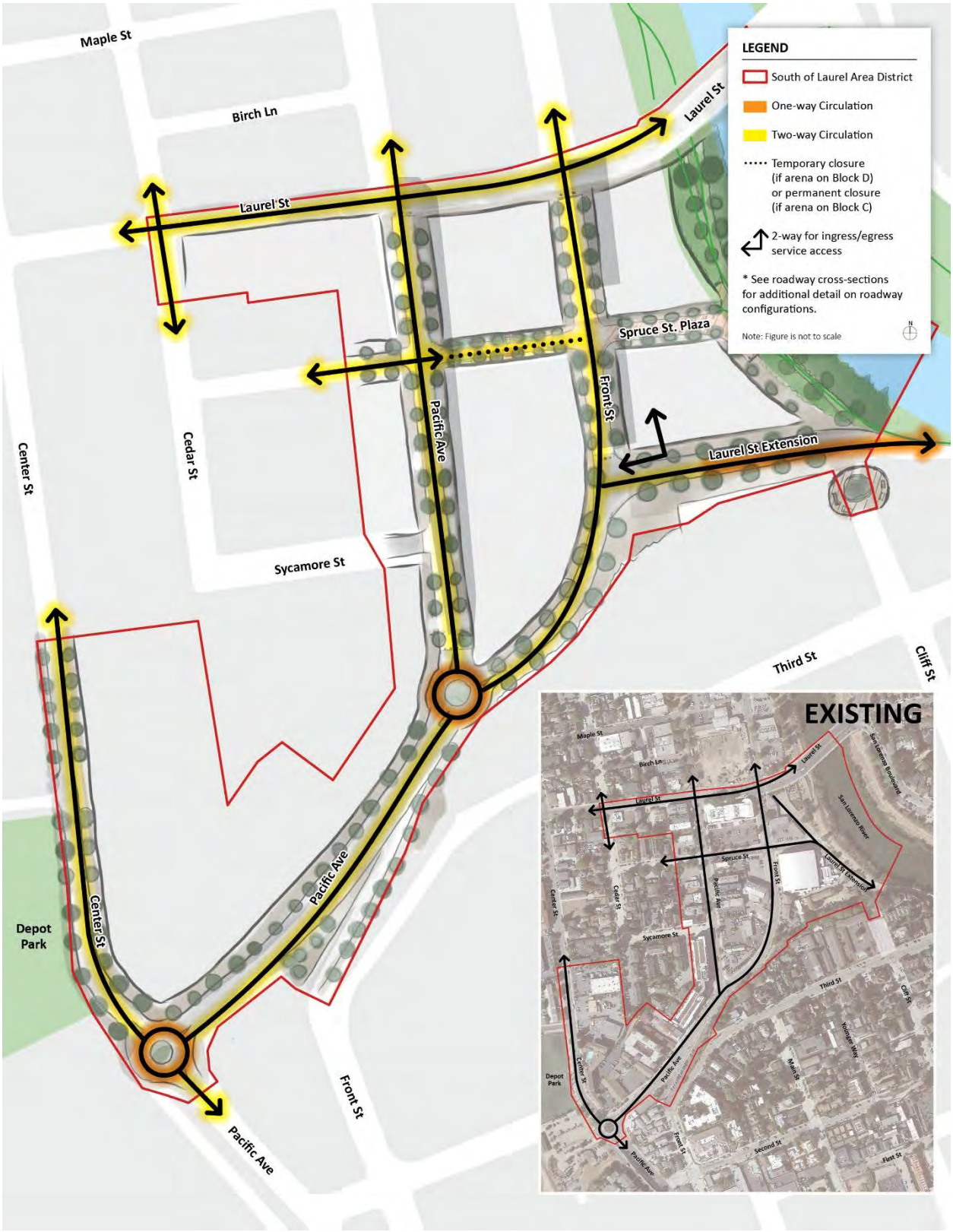


As shown in Figure 8.4-2 Existing and Proposed Circulation, the following roadway changes are envisioned as part of the creation of the community spaces as shown in Figure 8.4-1 Community Spaces:

- Create a new Spruce Street Plaza along Spruce Street by permanently closing Spruce Street to vehicular traffic east of Front Street to the Santa Cruz Riverwalk. Emergency, maintenance, and delivery vehicle access shall be maintained through the use of removable barriers or bollards.
- To create better opportunities for the public to engage with the San Lorenzo River, realign the connection to Laurel Street Extension to the base of Beach Hill, just north of the Cliff Street stairs. This improvement can only be initiated after existing residents and support facilities have been relocated, consistent with City policies and State law.
- Consider removing the existing surface parking and northern end of the existing Laurel Street Extension, creating a more developable Block B. Permanent access to the City Pump Station No. 1 will be maintained at an alternative location to ensure adequate access.
- Construct a new roundabout and associated pedestrian and bicycle improvements at the southern convergence of Pacific Avenue and Front Street.
- As redevelopment proceeds, the City will further evaluate and discuss with the community the possibility of closing Spruce between Pacific and Front Street to auto traffic.

A discussion of these public improvements follows. The narrative discussion and associated polices for each area shall be considered in association with the streetscape polices described in Section 8.4.3. Streetscape and Circulation, below.

Figure 8.4-2 Existing and Proposed Circulation



Spruce Street Plaza

Spruce Street is envisioned to become an active public plaza for community gathering, outdoor dining, and a non-vehicular connection to the Santa Cruz Riverwalk. It will also serve as an important "front door" to the permanent arena. As new development takes place, and as soon as the roadway realignment of Laurel Street Extension is completed, Spruce Street will be closed to automobile traffic east of Front Street and reserved for pedestrians and bicycles.



Public space for pre- and post-arena events.

This concept requires closing Spruce Street to vehicular traffic from Front Street if the arena is developed on Block D, and possibly from Pacific Avenue if the arena is developed in Block C, to the Santa Cruz Riverwalk to create a public plaza (Spruce Street Plaza). This would coincide with relocating the Laurel Street Extension to the south, along the base of Beach Hill. Improvements should include enhanced paving, clustered seating areas, one or more sculptural art features, street trees, bike racks, high-quality trash and recycling receptacles, permanent and removable bollards, and wayfinding signage. If feasible, the Spruce Street Plaza will be designed to meet the top of the levee at grade. Amenities will be incorporated to accommodate outdoor dining and include appropriately spaced electrical outlets and other features supportive of civic activities such as vendor kiosks, tree lighting, etc.



Ground-floor retail that activates the public realm.



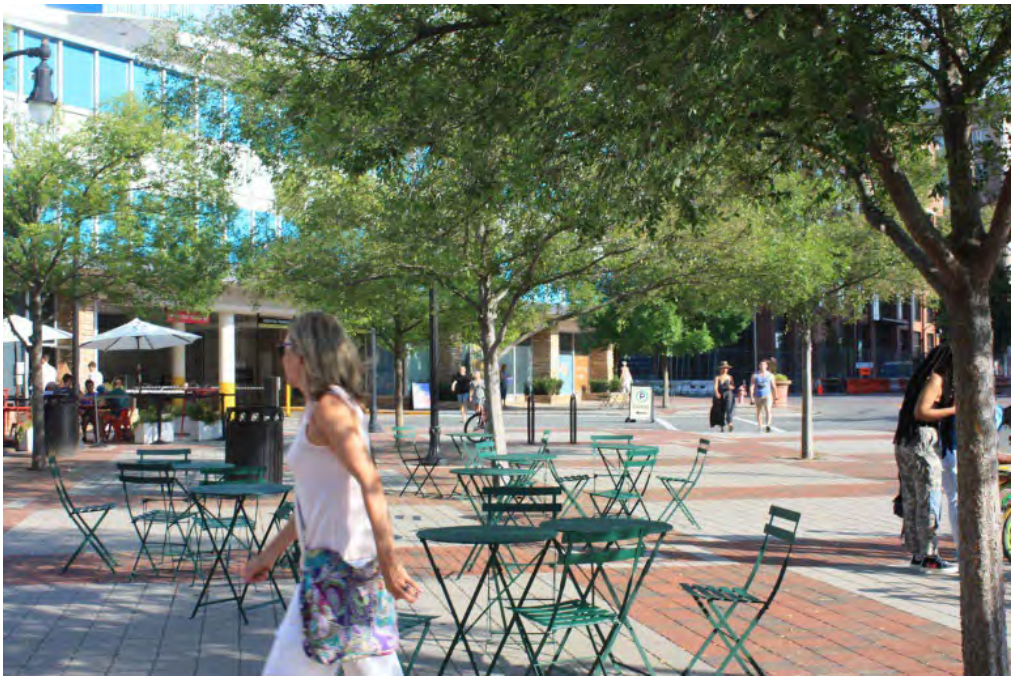
Conceptual rendering of Spruce Street Plaza looking east from Front Street.

The following policies shall apply to future development of the Spruce Street Plaza:

- Utilize the public right-of-way and building setbacks to create a seamless and unencumbered pedestrian connection on Spruce Street from Front Street (and potentially from Pacific Avenue if the arena is constructed on Block C) east to the Santa Cruz Riverwalk that is permanently closed to vehicular through traffic. Where not permanently closed, allow temporary street closures for special events.
- When the street has been closed to through traffic, create a dynamic public space suitable for pre- and post-arena events and informal congregation, as well as community events such as seasonal festivals and celebrations, outdoor markets, food-truck gatherings, etc.
- When the street has been closed to through traffic, incorporate high-quality hardscape materials and finishes such as pavers or bricks, extensive seating, special lighting, an interactive art feature(s), and other entertainment-focused amenities.
- Prior to development of the Spruce Street Plaza and improvements to the Riverwalk, the City and any adjacent private developers shall collaborate with the community to develop a specific landscape design plan for the plaza and riverwalk in this area,

identifying location and design of all relevant infrastructure elements and finishes, as well as the location of any significant features and spaces intended to engage visitors to the space, and assigning maintenance responsibility for all elements.

- Include public art in a meaningful way by working with the City Arts Commission. Spaces for performing arts, as well as the installation of interactive art, should be considered as part of a design plan, to be prepared prior to build-out of the Spruce Street Plaza.
- Require greater building setbacks at the intersections of the plaza and Front Street and Pacific Avenue to increase the amount of ground-level public gathering space.
- Because the intersections of Spruce Street with Pacific Avenue and Front Street serve as important gateways, special design features and space for art could be incorporated at both of these intersections. See also Section 8.4.3. Streetscape and Circulation / Gateways and Nodes, below.
- Incorporate appropriate infrastructure (i.e., electrical outlets) located to support a variety of event functions.
- Whether publicly and/or privately maintained, portions of the plaza space shall be made available for private outdoor restaurant use.



Informal and flexible gathering spaces.

- Ongoing maintenance of the plaza and any considerations around access control shall be addressed between the relevant City Departments and any adjacent property owners prior to development entitlements.
- Building massing on Spruce Street and adjacent streets could be designed to accommodate special lighting effects (e.g., 3-D image projection) and well as large-screen illumination / projection. As an extension to this theme, the incorporation of interactive lighting through sculptural features, streetscape lighting and furniture, etc. is strongly encouraged.
- The City shall retain maintenance access to underground utilities in the existing Right-of-Way. Landscaping, art elements and programming described in the design plan must accommodate needs for sufficient clear space for entry, exit, and operation of necessary equipment for maintenance of these underground utilities.



An appropriately sized plaza that supports community events.

Santa Cruz Riverwalk

Located at the eastern terminus of Spruce Street, the Santa Cruz Riverwalk provides an important public access linkage for non-vehicular access north to the rest of the downtown, and south to the Beach Area.

The policies below guide future redevelopment fronting the Santa Cruz Riverwalk to promote river-oriented mixed-use development that is activated with restaurants, public gather spaces, benches, and other public amenities, and provides direct pedestrian access to the Santa Cruz Riverwalk.

New development adjacent to the Santa Cruz Riverwalk should be consistent with recommendations identified in the *River/Front & Lower Pacific Design Guidelines & Development Incentives* (May 2010), and the *San Lorenzo Urban River Plan* (2003), and comply with any applicable U.S. Army Corps of Engineers requirements.

To improve access and better utilize land adjacent to the Santa Cruz Riverwalk, the City's surface parking lot north of Spruce Street (Block B) and the Laurel Street Extension south of Spruce Street (east side of Block D) should be vacated as part of any future development. This will allow a higher and better use of the land and improve visual and physical connections to the San Lorenzo River.

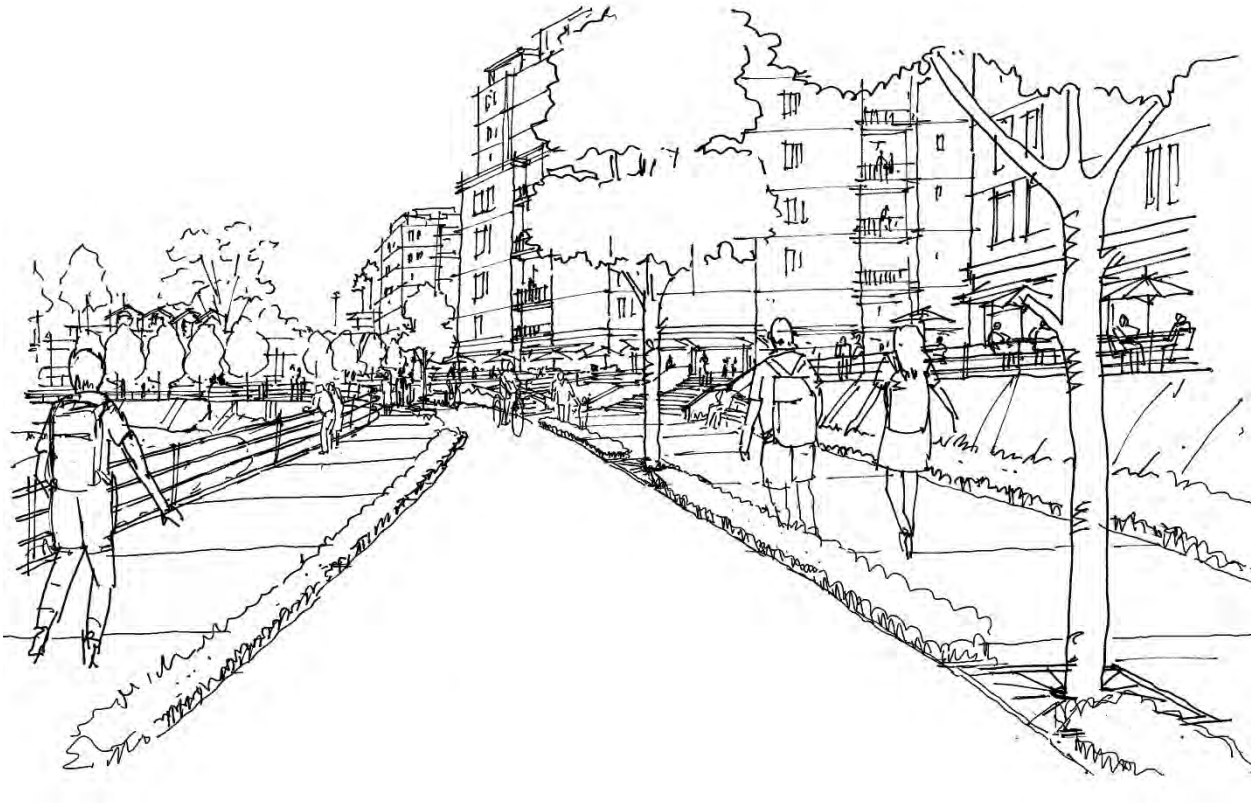
Creative design solutions should also be considered to create a public space at the northern end of Block B while maintaining equipment access to the crucial infrastructure that is City's Pump Station No. 1. This could include cooperation between private developers on the southern portion of the block and the City, to negotiate an exchange of land that will allow access to the



Santa Cruz Riverwalk today.

pump station from the northern end of the block on the Front Street frontage, in exchange for some portion of the existing City parking facility on the east side of the block, the creation of additional public space which accommodates maintenance access as part of the gateway treatment at the corner of Laurel and Front, enhanced landscaping, murals and other artistic treatments of the equipment, and educational signage about the City's flood control systems. Furthermore, building design and pedestrian connection to the adjacent Laurel Street Bridge should be distinctive to create a positive gateway experience into the downtown.

Improvements to the Riverwalk could include enhanced sidewalk paving, viewpoints showcasing the San Lorenzo River, extensive seating, and low-profile landscaping with an emphasis on native plants. Improvements should be designed in coordination with the adjacent private property owners and the U.S. Army Corps of Engineers to provide a coordinated design response with the appropriate level of public benefits and amenities.



Conceptual rendering looking south along the Santa Cruz Riverwalk.

The following policies shall apply to redevelopment of the Santa Cruz Riverwalk:

- Incorporate hardscape and landscape amenities along the Santa Cruz Riverwalk that are inviting and attractive. Features should include seating areas, a small public gathering space at the intersection of the Riverwalk and Spruce Plaza, or adjacent to a new arena (if arena is built on Block D), artwork, and interpretive signage (referencing local history and culture).
- Provide pedestrian access to the Santa Cruz Riverwalk from adjacent buildings.
- Maintain solar access to the Santa Cruz Riverwalk to the greatest extent feasible.
- Through interpretive signage and other means, create awareness and education regarding the natural habitat features of the San Lorenzo River corridor.
- Telecommunications and energy utilities shall be located underground. Where other utility structures must be located above ground (i.e., pump station), incorporate aesthetically appropriate screening (e.g., wood fencing, stone wall, etc., no chain link fencing) to minimize their visual presence.
- Incorporate wayfinding signage, landscaping, paving and consistent design treatments along the Santa Cruz Riverwalk to create a visual and physical connection to the planned Spruce Street Plaza. See also 8.4.3 Streetscape and Circulation / Signage below.



Conceptual rendering looking west from the east side of the San Lorenzo River.

- Prior to development of the Spruce Street Plaza and improvements to the Santa Cruz Riverwalk, the City and any adjacent private developers shall collaborate with the community to develop a specific landscape design plan for the plaza and riverwalk in this area, identifying location and design of all relevant infrastructure elements including pavers, railings, planters, landscaping materials, benches or other seating, bike, pedestrian, and wheelchair-accessible paths of circulation; location of any significant features such as performance space, water features, sculpture, play equipment, or other elements intended to engage visitors to the space, and assigning maintenance responsibility for all elements.
- Reconstruct the stairs and adjacent open space connecting the Santa Cruz Riverwalk and Beach Hill, exploring options for possibly incorporating public art, improving stability on the stair surface, adding pedestrian scale lighting as necessary, and exploring options for seating taking advantage of the public view from the top of the stairs.



An example of an activated riverfront adjacent to an urban area.

Pacific Avenue

Serving as an extension to the existing Pacific Avenue retail and entertainment corridor north of Laurel Street, Pacific Avenue is envisioned to be an active and vibrant mix of retail, entertainment and residential uses that serves as linkage between the downtown and the Beach Area and serve as an anchor to the permanent arena and the greater SOLA neighborhood.



An example of sidewalk dining.

The following policies shall apply to future redevelopment of Pacific Avenue:

- Incorporate traffic control features (e.g., removable bollards, "curb less" or "flush" curbs) to allow Pacific Avenue to be periodically closed for community events, outdoor dining, and other civic activities.
- Incorporate a "shared curb space" on the west side of Pacific Avenue to accommodate drop-off / pickup vehicles (particularly if the arena is located on Block C).



Pacific Avenue today.

- Design sidewalks to accommodate outdoor restaurant use.
- Streetscape improvements should include enhanced sidewalk paving, street trees including planting beds surrounded by decorative fencing (as currently present at the north end of Pacific Avenue) benches, bike racks, and high-quality trash and recycling receptacles.

See also Section 8.2.2 Community Spaces / Arena discussion below if the arena is developed on Block C.

Front Street

Front Street shall be maintained as a street that accommodates through traffic for automobiles, transit, bicyclist, and trucks travelling between downtown and the Beach Area, with a greater focus on automobile traffic in contrast to the proposed changes to Pacific Avenue.

The following policies shall apply to future redevelopment of Front Street:

- Ground floor commercial uses are envisioned to include uses that service the adjacent residents and community at large.
- A curb management program should be instituted to provide shared curb space that accommodates drop-off/pickup vehicles near the arena.
- Vehicular access to buildings shall be consolidated to locations where turn lanes are available. (see cross section)

See also Section 8.4.2 Community Spaces / Arena discussion, below.



Existing arena and Front Street today.

Laurel Steet Extension

Laurel Street Extension shall be re-aligned to the south end of Block D along the toe of Beach Hill prior to reconstruction of the Spruce Street Plaza. This new street will maintain one-way access from Front Street to Beach Hill and Beach Flats; and will provide "back of house" two-way access to any new development on this block, either the new arena or other mixed-use buildings.

The following policies shall apply to future development of the Laurel Street Extension:

- The re-alignment shall occur only after the relocation of residents and closure of the Front Street Residential Care facility (owned by Santa Cruz County and managed by Front St. Inc.), located at 126 Front Street, consistent with all relevant City and state regulations.
- At such time that the Front Street Residential Care facility has been successfully relocated, the City and the County shall conduct an interagency transfer to establish the Laurel Street Extension right-of-way, making the remainder public parcel less than one-half acre in size and thereby exempting it from the surplus land act.
- Improvements should include sidewalk paving on the north side of the street, street trees, and appropriate lighting.
- In coordination with Beach Hill residents and business owners, the City will periodically review options for limiting cut-through traffic from the downtown to Beach Hill.

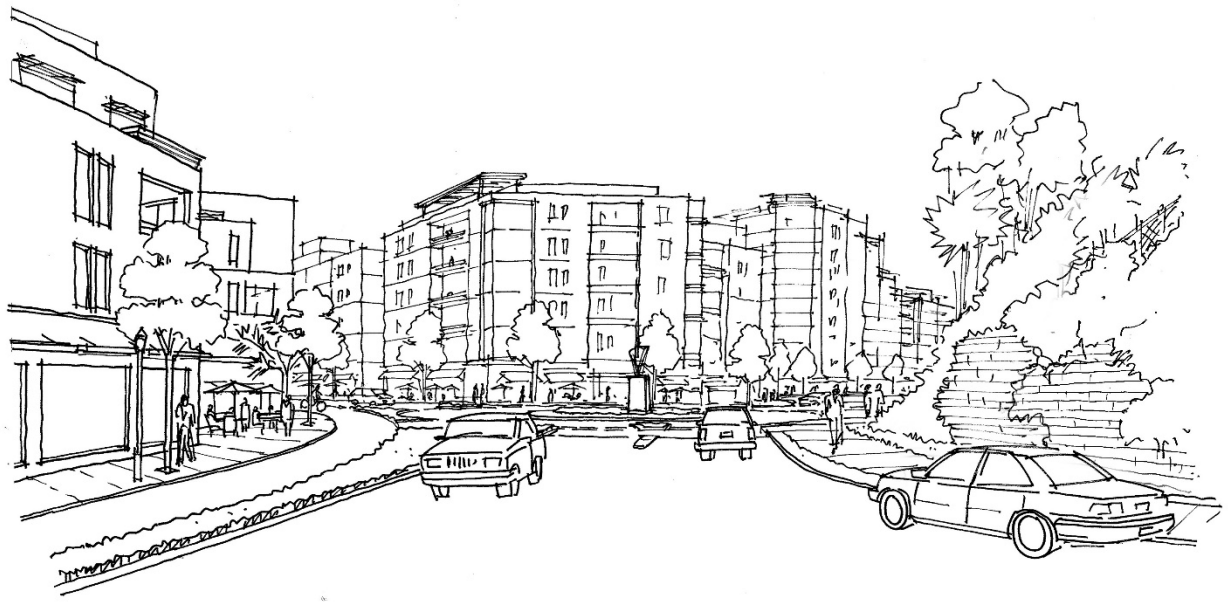


An example of a narrow one-way street that is amenable to vehicles, pedestrians and bicyclists.

Pacific Avenue / Front Street Roundabout

A new roundabout is envisioned for the intersection of Pacific Avenue and Front. The following policies shall apply to its design and construction:

- Provide separated one-way bike lanes and pedestrian crossings.
- As a gateway to the SOLA and downtown, incorporate a significant art sculpture, tree, or other monument as a centerpiece of the roundabout.
- Incorporate pavers, landscaping, and other design features to create a memorable gateway experience into the SOLA.
- The City shall work with adjacent affected private landowners regarding a land dedication trade for the additionally needed right-of-way.
- Construction of the new roundabout is envisioned to occur concurrently with redevelopment of the southerly end of Block C, or as Capital Improvement Planning allows.



Conceptual rendering looking north toward proposed Pacific Avenue / Front Street Roundabout.

Arena

As an anchor to the neighborhood a new multipurpose sports and entertainment arena is envisioned on Block C between Front Street and Pacific Avenue and south of Spruce Street or Block D, between Front Street and the Santa Cruz Riverwalk, the site of the current temporary arena . While privately owned and operated, the arena is included as a “public space” based on its unique land use and function.

The new arena is planned to have the capacity of approximately 3,200 fixed seats (e.g., for basketball games), and approximately 4,000 fixed and temporary seating for other entertainment events such as musical concerts. Ancillary uses include a secondary practice court, locker/team support facilities, food service/merchandising, and administrative support services. This would replace the existing 35,000 sf. temporary arena with 2,475 fixed seats and 3,100 fixed and temporary seating for other entertainment events.

The Santa Cruz Warriors will be the main tenant. There will be additional college, high school and youth sporting events and tournaments (e.g., basketball, volleyball etc.), and other similar competitive sport uses.

The new arena may also host the Santa Cruz Symphony as well as other entertainment performances (i.e., musical concerts, comedy shows, etc.). The arena will also have the capability to host conventions, corporate events, trade shows, galas, community and civic events, and other similar events.



Santa Cruz Warriors basketball game.

The new arena is envisioned as a marquee building opening onto a new Spruce Street Plaza and incorporates durable, high-quality materials (e.g., brick, stone, steel, glass, etc.) to serve as a distinctive architectural landmark to the downtown area. The Santa Cruz Warriors could consider the use of large-format digital screens and/or image projection on the arena building façade to promote sporting and other entertainment events. The developers of the arena will be encouraged to incorporate interactive art sculpture(s) located in the Spruce Street Plaza near the entrance of the arena as a component of community engagement. Finally, the arena building should evaluate options for curving, chamfering, or stepping back a corner of the arena building to create a larger public space at the adjacent intersection with either Pacific Avenue Front Street, or the Santa Cruz Riverwalk, to emphasize that space as a destination and gateway.

As a part of event programming, consider opportunities to collaborate with community organizations such as the Bike Church to provide bicycle valet service, in addition to public bike racks adjacent to the arena facility.

See also Section 8.4.2 Community Spaces / Spruce Street Plaza discussion, above, as well as Downtown Plan *Chapter 4 Development Standards and Design Guidelines*.



An example of an arena using high-quality materials and finishes. (Washington Mystics Entertainment and Sports Arena)

8.4.3 Streetscape and Circulation

Introduction

The streetscape and pedestrian realm is the community public space where people of all ages move and interact. It is a critical space that supports the pedestrian access to/from the SOLA neighborhood, supports the entertainment and retail focus, and makes it easy for people to navigate the area.



Wide pedestrian sidewalk with seating and landscaping.

The Downtown Plan area north of Laurel Street, particularly along Pacific Avenue, has a strong sense of place and an appealing pedestrian environment that has been created through streetscape elements like lighting, street trees, wide sidewalks, seating, and outdoor eating areas. The concept for the SOLA is to extend these existing features and create a lively mixed-use neighborhood, with a focus on entertainment and visitor uses, that is anchored by a new arena with a high-quality streetscape that is based on the familiar and beloved elements of Pacific Avenue. These tried and tested street features will help to meet the objective of creating an integrated (inside/outside) entertainment experience that will attract visitors at all times of day, and whether or not they are attending a specific event at the arena. The aim is to create family-friendly environments where users of all ages feel safe and welcome.



Urban density with pedestrian- and bike-friendly public realm.

The streets will be designed to be safe and comfortable for walking, bicycling, and shared mobility; will provide for convenient access to transit and local destinations; and to support community activity. Ample sidewalks will be created that provide continuous path of pedestrian travel and provide space for trees, outdoor dining, bicycle parking, and landscape, as appropriate. Traffic lanes will be designed to accommodate yet slow traffic flows, reduce pedestrian crossing distances, and create human-scaled environments, maintaining ease of flow for all mobility modes and civic activities.

Design of the streetscape will incorporate a "complete streets" approach that prioritizes creation of a truly multi-modal transportation system. This is consistent with the City's General Plan goals and policies that encourage providing infrastructure and design features into street design that are safe, comfortable, and convenient for walking, bicycling and public transportation.

The following policies apply to all streetscape features:

- Assure that new development along Front Street supports transit use and work with Santa Cruz Metro to ensure that roadway improvements are transit compatible.
- Accommodate shuttles and ride-share pickup and drop off zones that promote shared-transit options such as shuttles, car share, rideshare, and/or other alternative-mobility options by incorporating designated places for pick-up and drop off, aka shared curb space.
- Install high visibility crosswalks on Laurel Street, Front Street, and Pacific Avenue to make the crosswalks more visible to both pedestrians and motorists.
- Service driveways should be screened from view from public roadways to the greatest extent possible but of sufficient width and vertical clearance to allow for large vehicle access, such as garbage trucks and delivery vehicles. Driveways are not allowed along Pacific Avenue or within the Spruce Street Plaza east of Front Street.

See also the latest version of the City's *Downtown Site Furnishing Standards*.

Pedestrian and Bicycle Circulation

Redevelopment of private property in the SOLA will expand and significantly enhance opportunities for pedestrian and bicycle circulation that is integrated within the broader circulation network.

As shown in Figure 8.4-3 Existing Bike Circulation, the existing bike network consists of bike lanes on the arterial streets with the exception of Pacific Avenue which is designated as a bike route.

As shown in Figure 8.4-4 Proposed Bike Circulation, the bike network within the SOLA will be expanded to include separated bike lanes on Laurel and Front Streets, the Laurel Extension, along Pacific Avenue (south of the new Front/Pacific roundabout), and Center Street.

As shown in Figure 8.4-5 Proposed Pedestrian Circulation, sidewalks will be widened through SOLA, including the creation of a new sidewalk and multi-use path along the realigned Laurel Street Extension. A portion of Spruce Street will become a public plaza, and the Santa Cruz Riverwalk will be improved with wider pathways and gathering spaces to support users of all ages.

Design elements like on-street parking, curb bulb-outs, and lane markings (e.g., sharrows, bike boxes) will encourage safe, mixed vehicle and bike movement.







Examples of pedestrian and bicycle improvements and amenities.

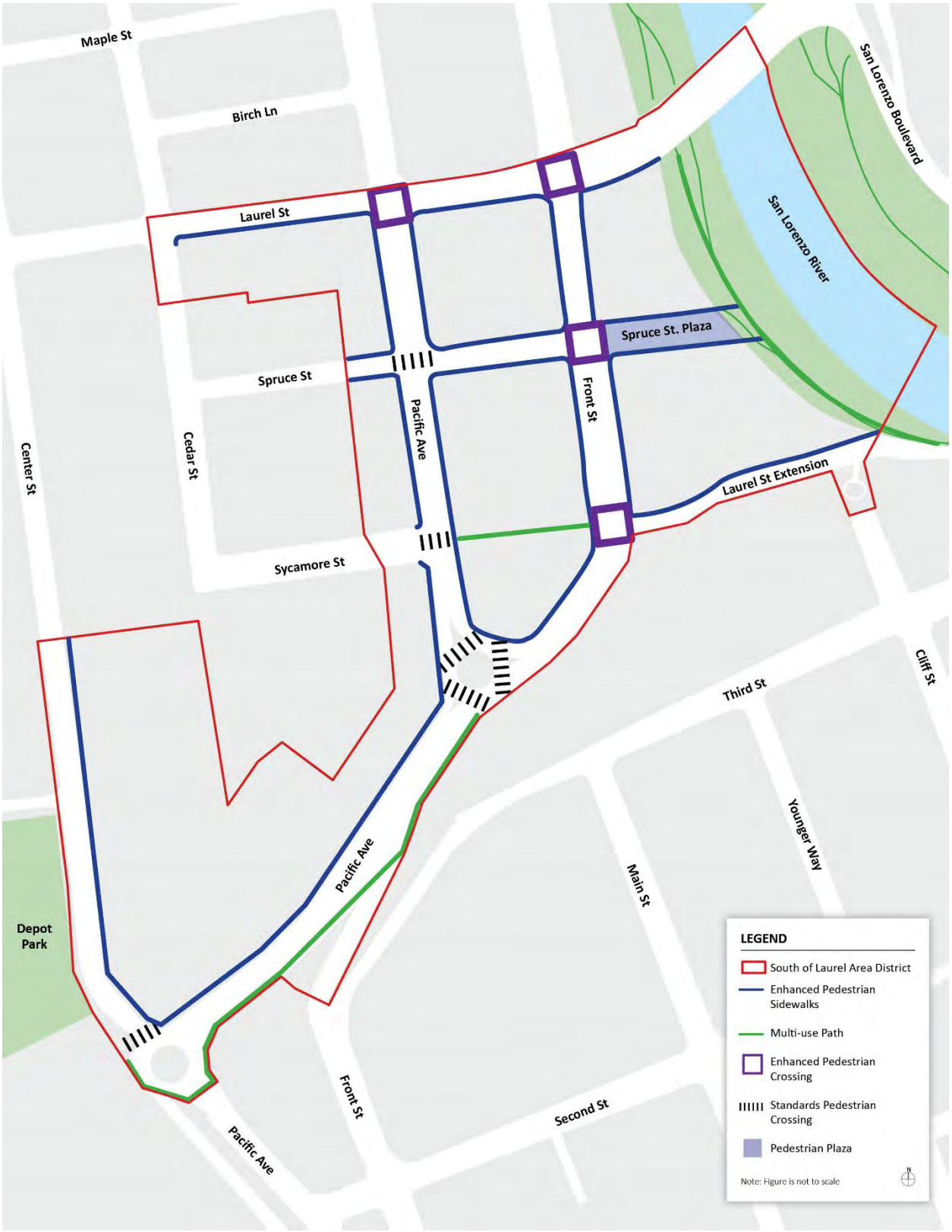
Figure 8.4-3 Existing Bike Circulation



Figure 8.4-4 Proposed Bike Circulation



Figure 8.4-5 Proposed Pedestrian Circulation



The following policies apply to pedestrian and bicycle circulation:

- Provide a network of connections for pedestrian and bicyclist including sidewalks, crosswalks, separated bike lanes, bike lanes, and multi-use consistent with that shown in Figure 8.4-4 Proposed Bike Circulation and Figure 8.4-5 Proposed Pedestrian Circulation.
- Facilitate pedestrian circulation within and adjacent to the SOLA to minimize automobile trip generation.
- Improve walkability by Incorporating mid-block crossings where block length exceeds 300'.
- In the event of significant redevelopment on redevelopment Block C, incorporate a pedestrian lane connecting Pacific Avenue and Front Street , in line approximately with Sycamore St and the relocated Laurel Street Extension.
- Provide short-term bicycle parking at grade level that is conveniently located near key destinations to serve bicyclists.
- Provide long-term bicycle parking in parking lots and parking structures that serve employees and others who generally stay for longer periods of time.
- Consider options for event-based bike valet service, potentially in collaboration with local community organizations such as the Bike Church.
- Create a bike circulation network connected to the existing and planned greater downtown bicycle network.
- Dedicate sufficient space to rights of way to support sidewalk-separated bike lanes where appropriate, as indicated in the roadway cross sections below. Additional dedication may be required at intersections.
- Create and seamless connection between the levee path and roadway bike and pedestrian facilities. Ensure that bikes and pedestrians can pass one another in a safe manner.



Example of a separated bike lane.

Streetscape Design

In addition to community spaces policies described above, the following streetscape design polices are required to make streets suitable for pedestrians and bicyclists with the same care given to motorists. They shall be incorporated where appropriate as part of future development projects or through the City's Capital Improvement Program.

Streetscape treatments and street furnishings should be designed to create a sense of place and encourage public gathering and interaction. Streetscape furnishings on Pacific Avenue and Front Street will follow the recommendations identified in the City's *Downtown Site Furnishing Standards.* Furnishings, lighting, and landscape elements in the Spruce Street Plaza may also conform to these existing standards or may incorporate other furnishings to create a unique identity; based on review and approval by the City.

As shown in the respective street sections described below in Street Types, the use of curb zones shall be incorporated into the streetscape. The curb zone is generally a four-foot-wide buffer on the sidewalk at the curb edge. In addition to accommodating streetscape infrastructure such as light poles, seating, signage, trash receptors, landscaping, etc., they provide a buffer from vehicles and thereby improve pedestrian safety, while also creating a sense of enclosure to the roadway, potentially helping to calm automobile traffic and reduce speeds.

The curb zone also provides room for vehicular driveways to slope up gradually from the street to the sidewalk without the use of accessibility ramps in the sidewalk.

ADA parking standards shall be required for all public streets, consistent with City standards.



Example of a curb zone (Matthew Thompson Architect).

The following polices shall apply to all streetscapes:

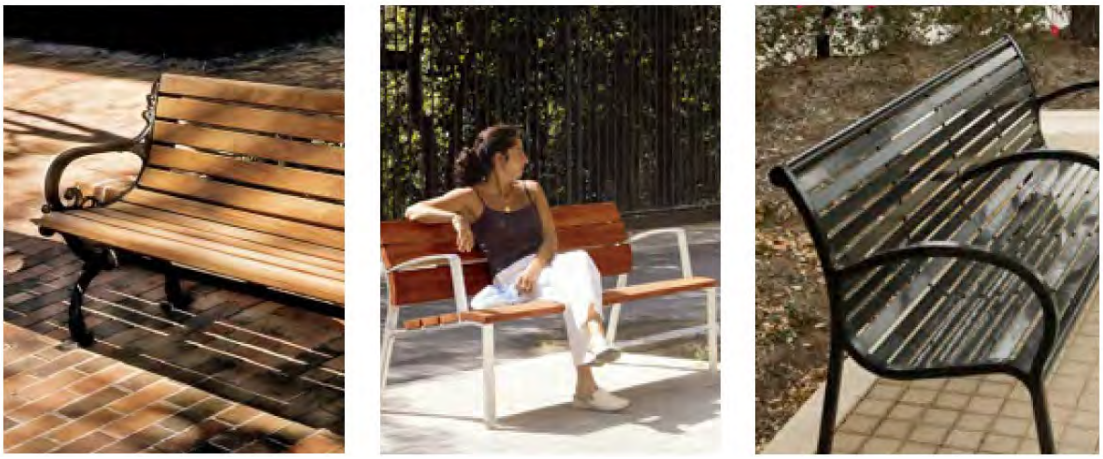
Street Furnishings

- Locate street furnishings in the curb zone and adjacent to buildings to maintain a minimum 8-foot pedestrian clear zone for walking.
- Outdoor dining shall be permitted in outdoor extension areas in the sidewalk and/or curb zone, in accordance with the allowances of SCMC 24.12.192.
- Use removable outdoor dining furnishings that are coordinated in their design and are made of durable high-quality materials that can withstand constant use and exposure to the elements. Furnishing may include, but not limited to; seating, tables, trash/recycle receptacles, service carts and pedestrian barriers.



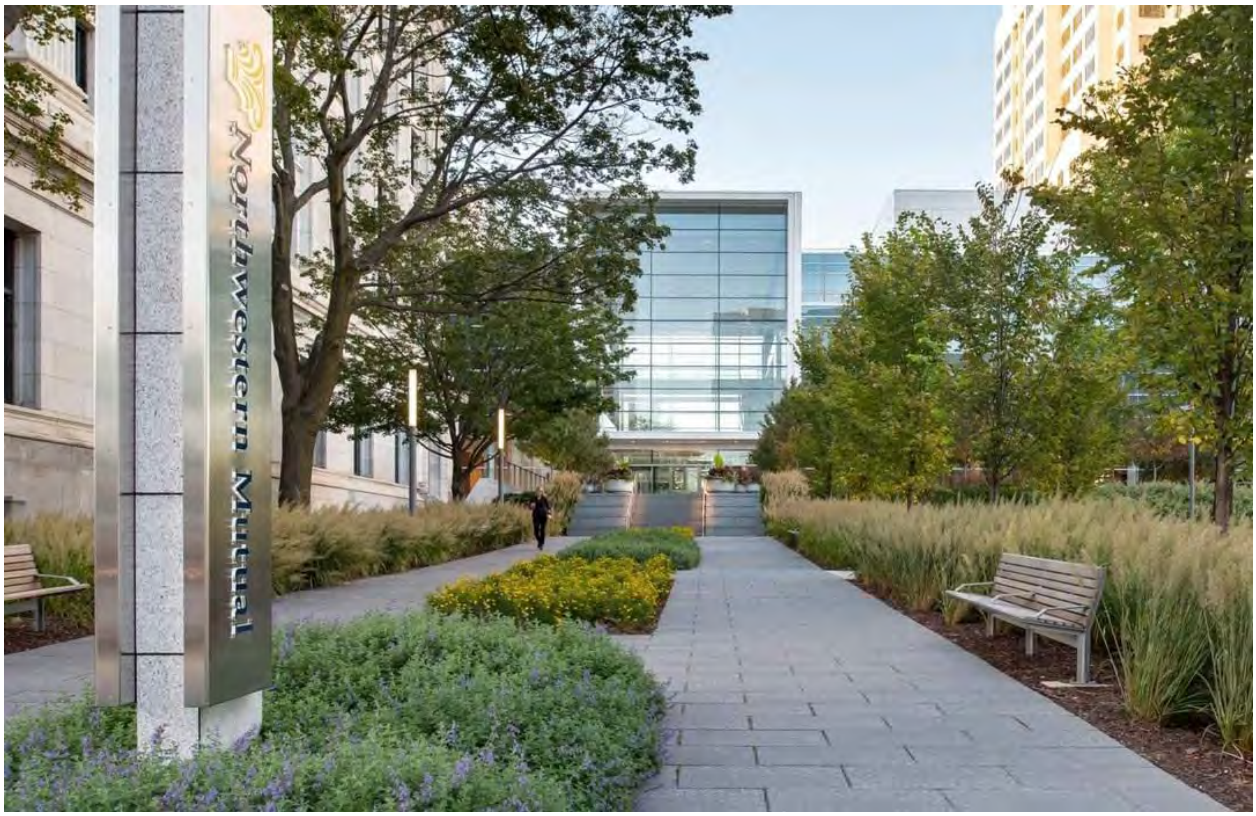
Example of raised landscape planter on Pacific Avenue today.

- Umbrellas and outdoor heating devices are permitted on sidewalks provided they do not obstruct pedestrian mobility.
- Use high quality free-standing planters that will withstand adverse weather and attempts at vandalism.
- Bicycle parking should be placed frequently and located to avoid conflicts with pedestrian flow.



Examples of traditional wood & steel, wood slat, and metal powder coated benches.

- Provide innovative, efficient, and attractive designs for bike parking areas such as stacked racks etc.
- Evaluate the efficacy of porous pavers, pervious paving techniques, or other viable Low Impact Development (LID) techniques for stormwater infiltration in this neighborhood.
- In compliance with the *Street Tree Master Plan*, provide adequate soil volume in all tree planting spaces to foster healthy root growth for street trees. Innovative use of subgrade structural elements and suspended paving is encouraged to provide sufficient soil volume while accommodating pedestrian traffic.
- Consider use of accent paving to highlight important places such as building entrances, tree planting spaces, pedestrian street crossings, and separation between bicycle and pedestrian uses.
- Construct ground-level utility access doors using accessibility compliant, slip resistant surfaces that are flush with adjacent paving and attractively incorporated into the design of the pavement.
- Streetscape features, including street trees, furnishings, etc. should be constructed consistent with the design standards as described in the City's *Downtown Site Furnishings Standards* and the *Street Tree Master Plan and Approved Street Tree List*, or as otherwise permitted by the City.



Example of high-quality pedestrian pathway with pavers, seating, landscaping and signage.

Landscaping

Adjacent to public roadways landscaping should generally be limited to street trees and raised or protected permanent planting beds. Tree Species should be selected from the City's Approved Street Tree List or governing Area Plan. In general, landscaping should include the following objectives:

- Provide appropriate shade according to solar orientation, seasonality, and streetscape function.
- Require minimal maintenance.
- Be native to the Santa Cruz region, and/or drought resistant.
- Be consistent in height and tree canopy spread with other street trees in the downtown.
- Consistent with City standards, incorporate Low Impact Development (LID) techniques for sustainable stormwater management such as pervious pavement and bioretention or biofiltration planters, where site conditions allow.

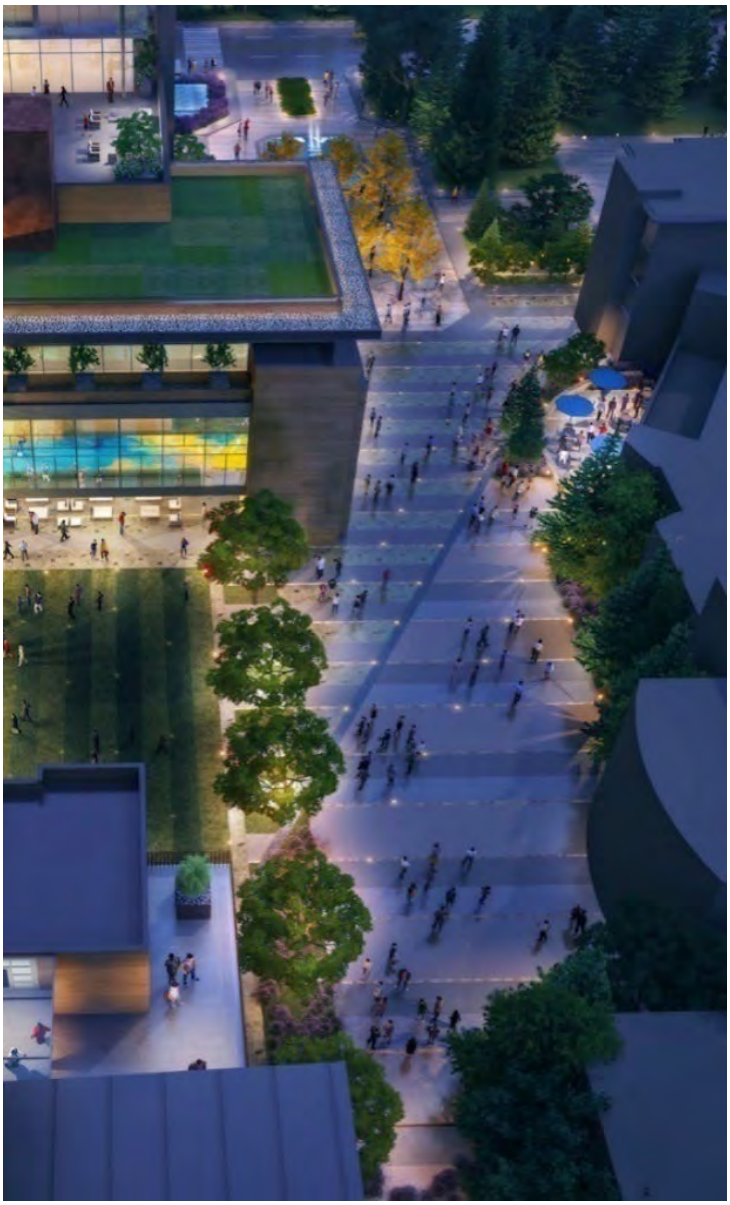
All landscaping plans shall be approved by City staff (including the Parks and Recreation Department) prior to installation.



Example of a high-quality sidewalk with pavers, hard-edge landscaping, and outdoor dining.

Lighting

- Lighting fixtures should direct illumination downward to minimize light impacts on surrounding areas. Up-lighting, spot-lighting, and decorative color lighting may be appropriate for prominent buildings, signage, landscaping, and other features.
- Marquee lighting, digital screens, etc. are allowed so long as they do not cause excessive glare or spillover into adjacent areas.
- As determined by the City in consultation with adjacent neighborhoods, it may be appropriate to limit the luminosity of certain lighting or signage, and/or provide structural or vegetative screening from sensitive uses.
- Incorporate special low-intensity lighting (possibly with programable functionality) along key pedestrian corridors (e.g., the Santa Cruz Riverwalk, Pacific Avenue, Front Street, and Cliff Street) that serve to improve pedestrian safety and create visual wayfinding cues that link the downtown to the Beach Area.



Conceptual image of pedestrian-friendly lighting suitable for an entertainment district.

- Bollard lighting is encouraged to illuminate walkways and gathering spaces, while avoiding spillover into adjacent areas.
- Consider opportunities to incorporate site lighting into hardscape elements such as steps, railings and paving to illuminate the pedestrian areas.
- Seasonal lighting (e.g., holiday display) is allowed on Pedestrian-Oriented Streets (defined below), including the Spruce Street Plaza, Pacific Avenue, and the Laurel Street Extension.



Example of appropriately-scaled bollard lighting along pedestrian pathway.



Example of an interactive illuminated art installation.

Artwork

- Include public art installations, including interactive sculpture features, as part of public spaces and the streetscape.
- Foster opportunities to extend existing art and culture festivals by incorporating options for lighting, electrical outlets for performances/ amplification and space for art installations and events, (e.g., MAH's *Frequency: A Festival of Light, Sound & Digital Culture*) in the SOLA that serves as a draw for residents and visitors.
- Consider options to incorporate interactive art features, night-sky compatible low-intensity illumination, three-dimensional image projection, and other means to create opportunities for public engagement and entertainment.
- The City should work with the Arts Commission and local artists to encourage various and emerging forms of art including digital media, sculpture, painting, murals, digital displays, performance art, and other forms of artistic expression.
- Locate art in prominent places within primary pedestrian corridors such as the Spruce Street Plaza, the Santa Cruz Riverwalk, and Pacific Avenue.
- Public art may include a historical display or local historical interpretive works.



Signage

- All signage should be designed consistent with the wayfinding signage system utilized throughout the City or should be graphically complementary to the architectural aesthetic of the environment.
- Signage shall be implemented through compliance with Municipal Code Chapter 24.12 Community Design, Part 4 Advertising Devices, Signs, and Billboards, which includes a Master Sign Program under Section 24.12.317 Master Sign Program.



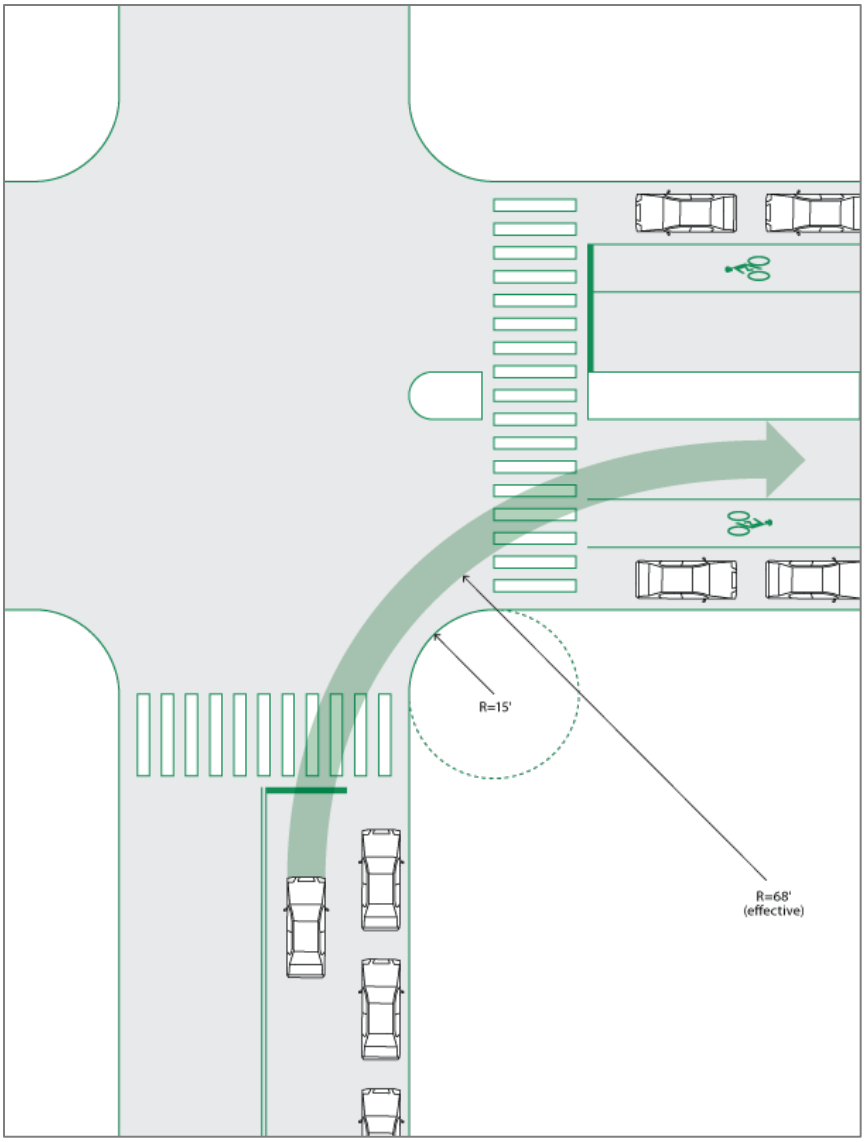




Intersections

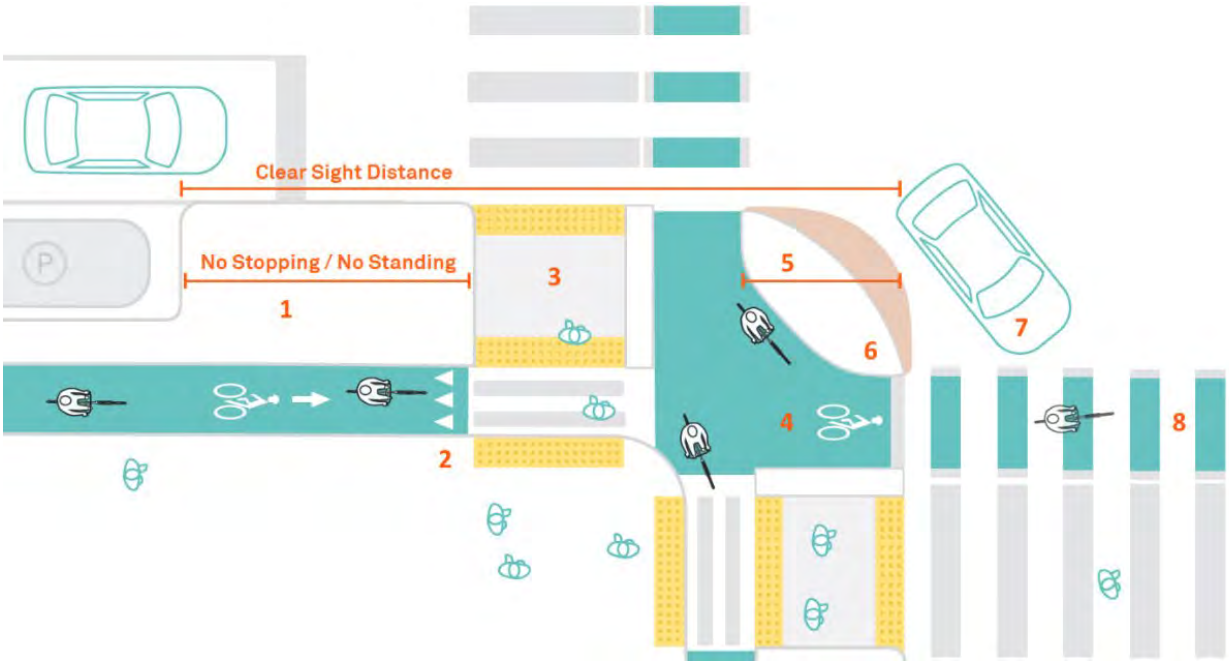
Intersections are a critical aspect of street design as the point where motorist, bicycle, and pedestrian movements converge. Successful intersection design should address all mobility and safety goals and enhance the public realm.

Corner radii directly impact vehicle turning speeds and pedestrian crossing distances. Minimizing the size of a corner radius is critical to creating compact intersections with safe turning speeds (15 mph or less). Where existing intersections are reconstructed, or for new intersections, the corner radii should not exceed 15 feet, where appropriate.



Illustrative example of appropriate intersection geometry (NACTO, Urban Street Design Guide)

- Major Intersections will be designed with pedestrian and bicyclist connectivity, convenience and safety by including design guidance from NACTO. Intersection features may include leading pedestrian intervals, accessible pedestrian signals, protected intersections, and pedestrian scrambles among other appropriate interventions.
- On east-west side streets and Pacific Avenue use raised intersections or crosswalks to prioritize pedestrians.
- Consider enhanced paving or other visually distinctive features to highlight the pedestrian connections across Front Street, where raised intersections would interfere with bus transit.



Illustrative example of appropriate intersection geometry (NACTO, Urban Street Design Guide.)

Gateway and Nodes

A gateway is an entrance or gathering place which acts as a transition between different spaces. It typically signifies the arrival point at a destination. The goal of a gateway is to create a sense of arrival and a positive image of the place.

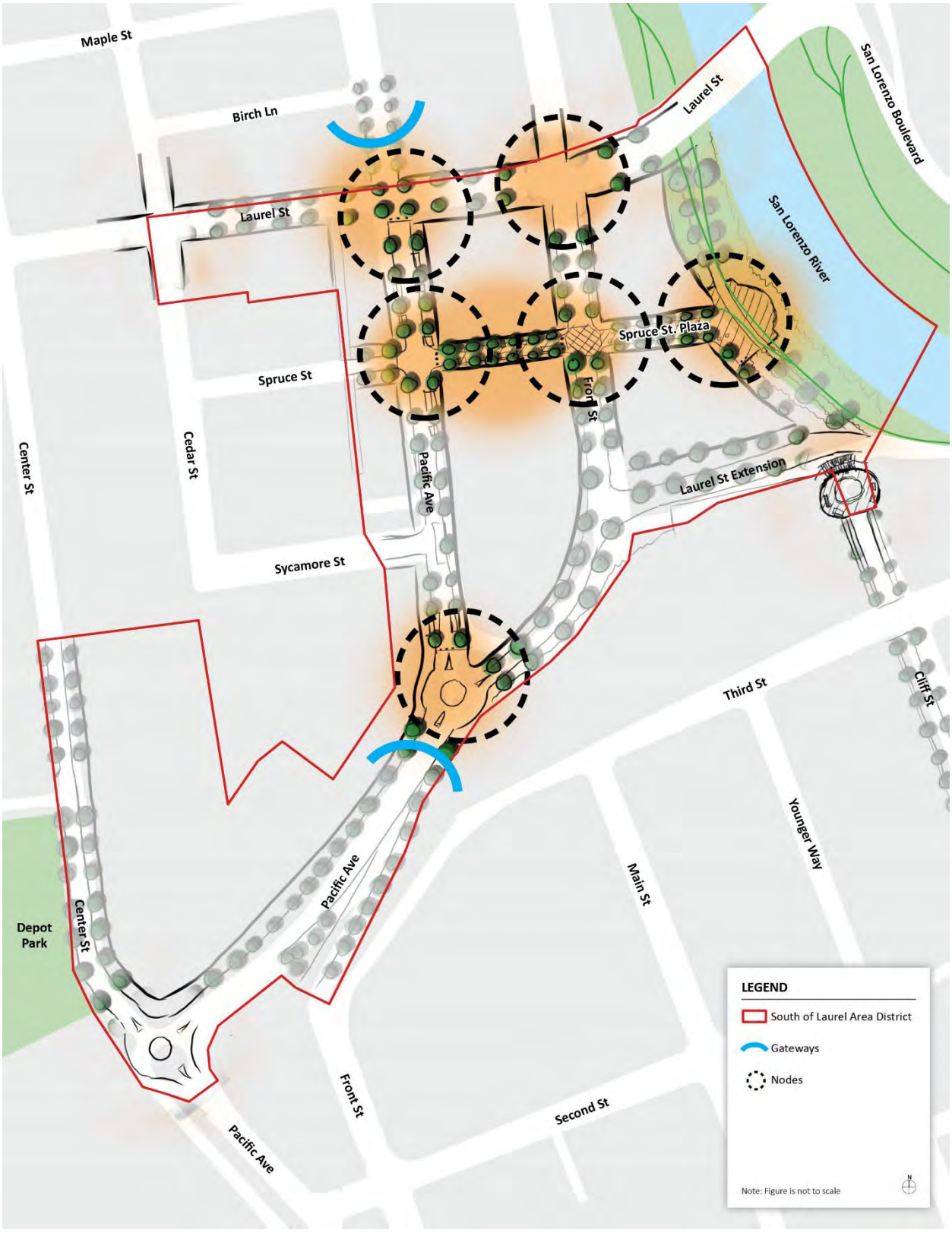
As shown in Figure 8.4-6 Gateways and Nodes, a significant gateway is recommended at the intersection of Pacific Avenue and Spruce Street, as well as the newly proposed roundabout at the convergence of Pacific Avenue and Front Street. Visual methods to create the gateway could include an arch or vertical column element, landscaping, special pavement treatment, etc.

As shown in Figure 8.4-6 Gateways and Nodes, nodes are spaces that are designed to create a sense of place and are effective in wayfinding. They can include signage, sculptural art features, special lighting, benches, etc. Recommended nodal points include the intersections of Pacific Avenue and Front Street, the Santa Cruz Riverwalk at the terminus of the Spruce Street Plaza, and at a point along the re-aligned Laurel Street Extension adjacent to the rock hillside of Beach Hill. A node is also identified at the lookout at the top of stairs and northerly terminus of Cliff Street.



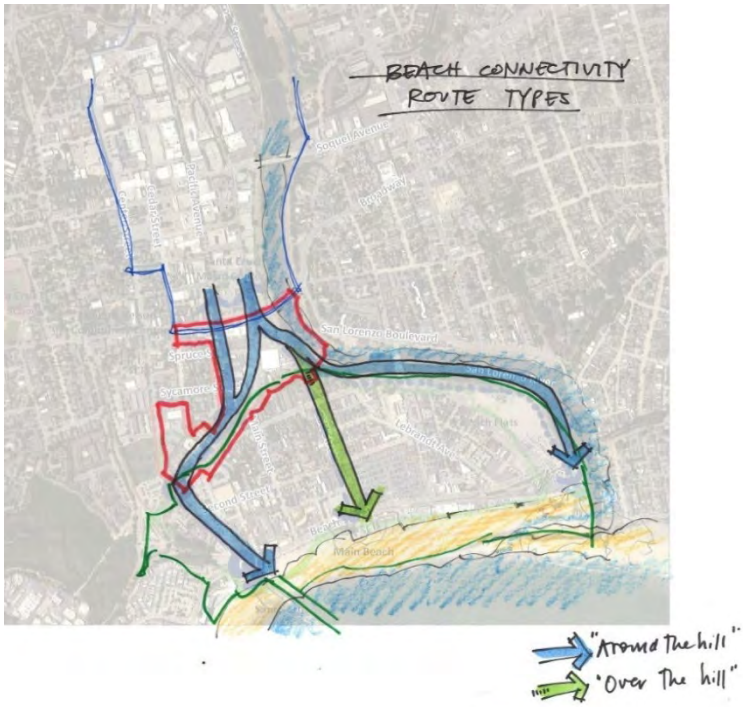
Example of district gateway signage.

Figure 8.4-6 Gateways and Nodes



Beach Connectivity

One of the primary objectives of the Downtown Plan is to improve connectivity between the downtown and the beach. This linkage is important for economic reasons as a significant number of visitors come to the Beach Area, but do not frequent the downtown. Additionally, better pedestrian and bicycle linkages can help to reduce traffic congestion, especially during the busy summer tourist season.



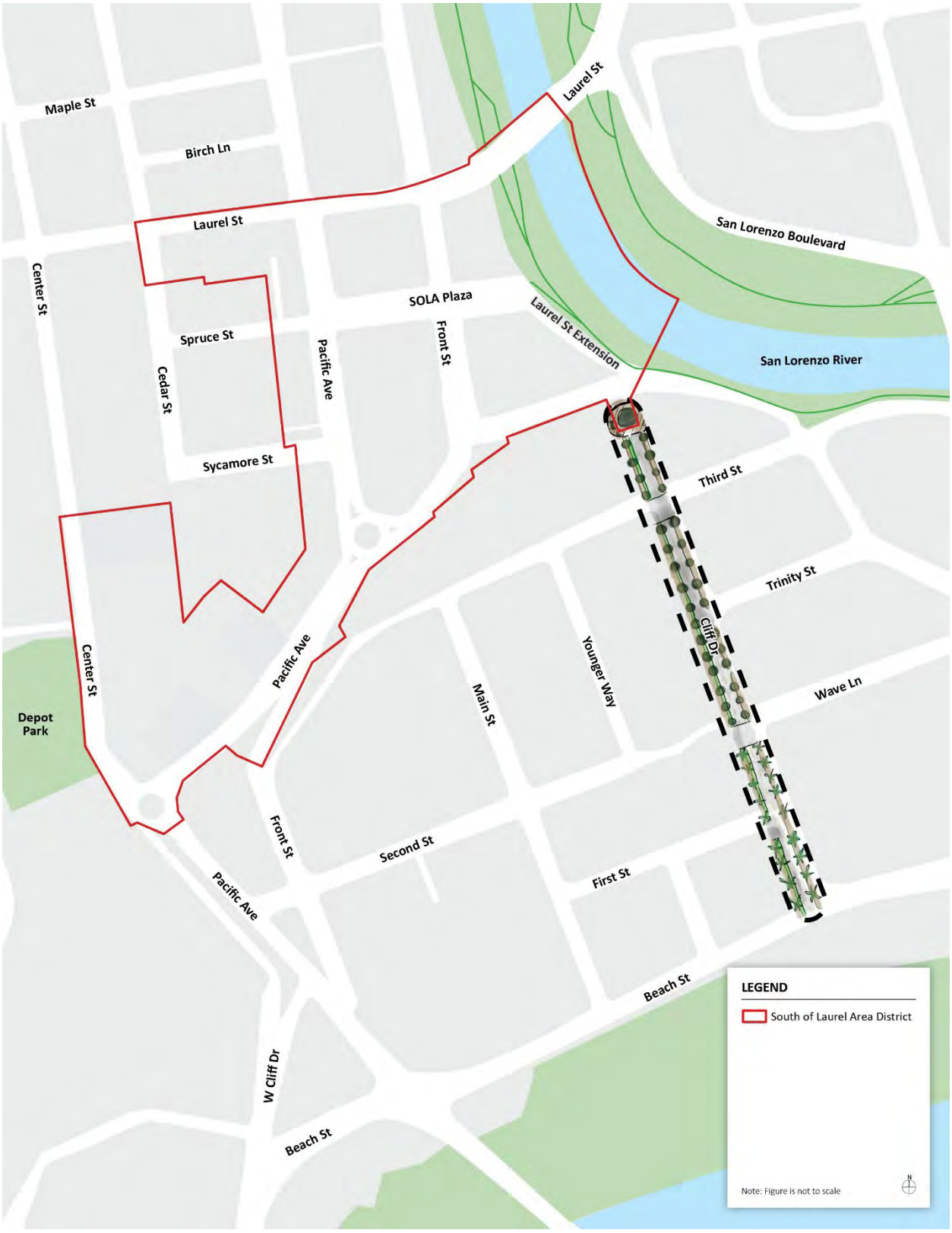
Given the topography, pedestrians and bicyclists must either go over or around Beach Hill. The multi-use Santa Cruz Riverwalk provides access to Liebrandt and Riverside Avenues to the Santa Cruz Boardwalk. Pacific Avenue also provides pedestrian and bicycle access to the beach and Municipal Wharf. However, both routes, while flat, are circuitous and not pedestrian/bike friendly.

To improve non-vehicular connectivity, this plan recommends re-construction of the Cliff Street stairs, creating a new vista lookout at the top of the stairs and improving Cliff Street from the lookout to Beach Street. See Figure 8.4-7 Beach Connectivity Conceptual Plan.



Looking north from the top of Cliff Street stairs.

Figure 8.4-7 Beach Connectivity Conceptual Plan



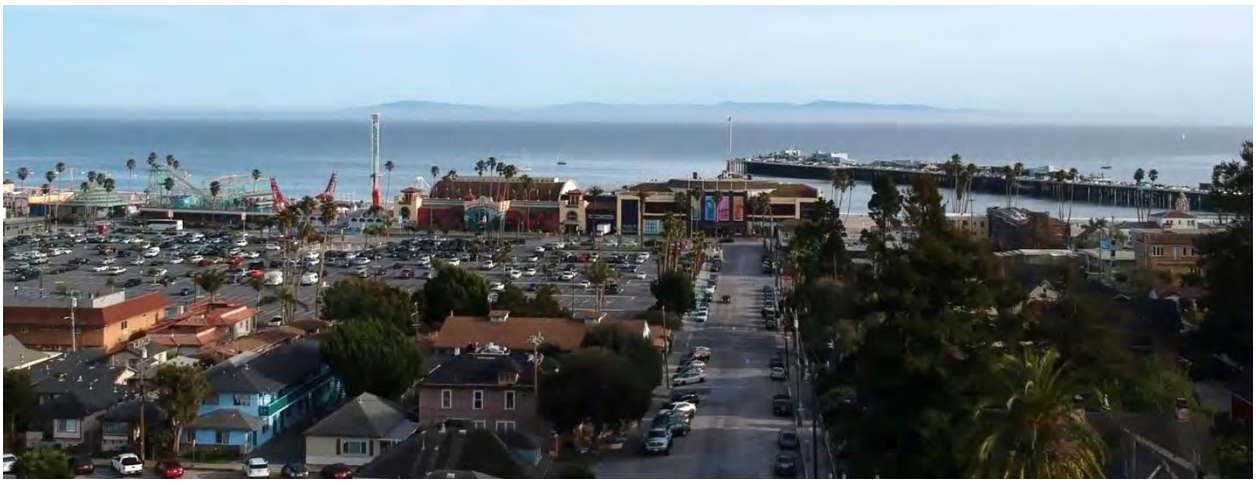
The following policies shall apply when designing and constructing new infrastructure to improve beach connectivity.

- Redesign the Cliff Street stairs and adjacent public property with a new stairway, lighting, landscaping, and signage to encourage pedestrian and bike access (e.g., a bike ramp on the stairs) to Cliff Street and the Beach Area.
- Create a new public viewpoint at the northern end of Cliff Street that capitalizes on views of the San Lorenzo River, downtown, and the Santa Cruz Mountains.
- Prepare a streetscape plan for the Cliff Street corridor that considers the following:
    - Reconfigure the roadway travel lanes and parking configuration on Cliff Street to create a more consistent and safer circulation pattern.



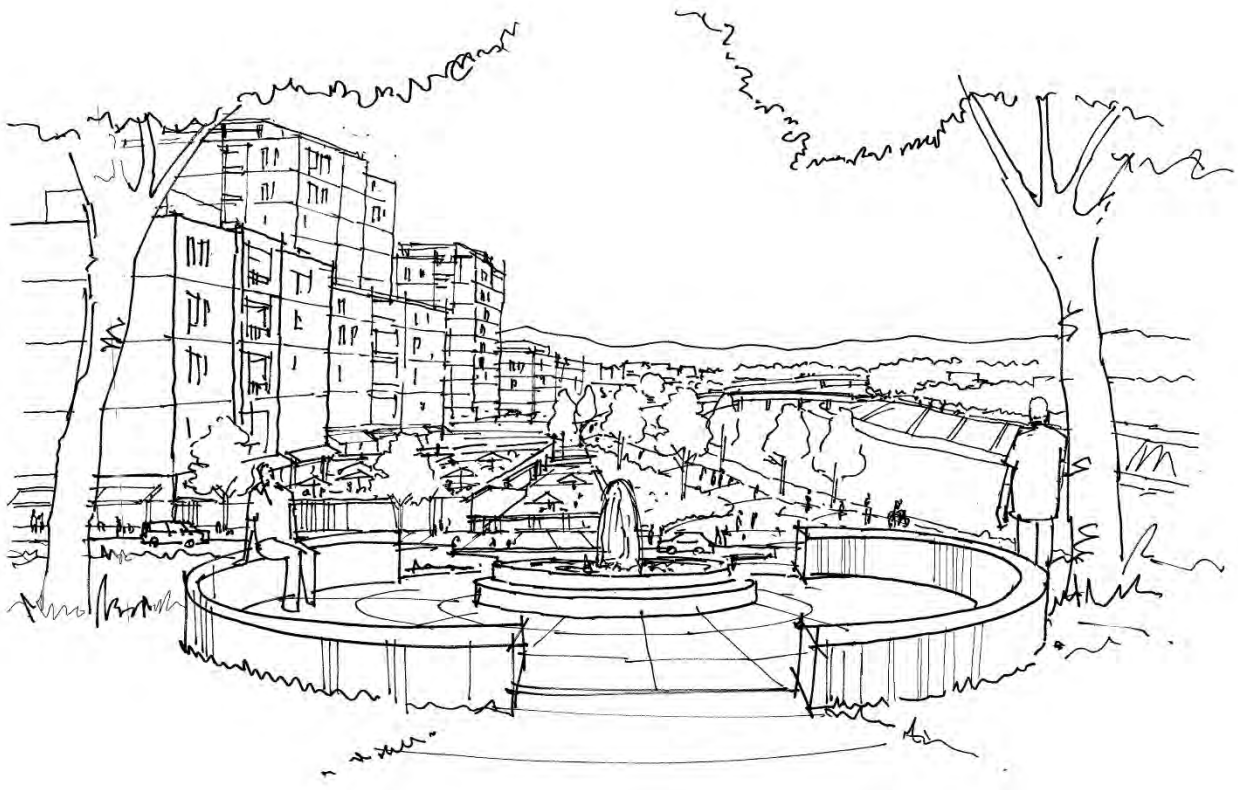
Cliff Street stairs.

    - Construct "bulb-outs" or other similar traffic calming methods to enhance pedestrian safety along Cliff Street at the intersections of Third, Trinity, Second, and First Streets.
    - Install street trees with similar stature and form and a consistent landscape palette along Cliff Street to create a "boulevard" effect and thereby improve the street's visual appearance.



- Incorporate signage and street lighting to improve pedestrian wayfinding and safety.
- Underground the dry utility services.

Work with property owners to improve pedestrian and bicycle circulation along lower Pacific Avenue (south of Front Street). Improvements should include reducing the number of curb cuts, improving sidewalks and crosswalks for safer pedestrian mobility, landscaping, installing street lighting on the east side of lower Pacific Avenue (south of Depot Park), and landscaping.



Conceptual rendering looking north from the top of the Cliff Street stairs.

Street Types

Defining the character and configuration of public streets within the SOLA t will help to establish a high-quality public realm that accommodates all types of mobility create high-quality public spaces and enhance wayfinding.

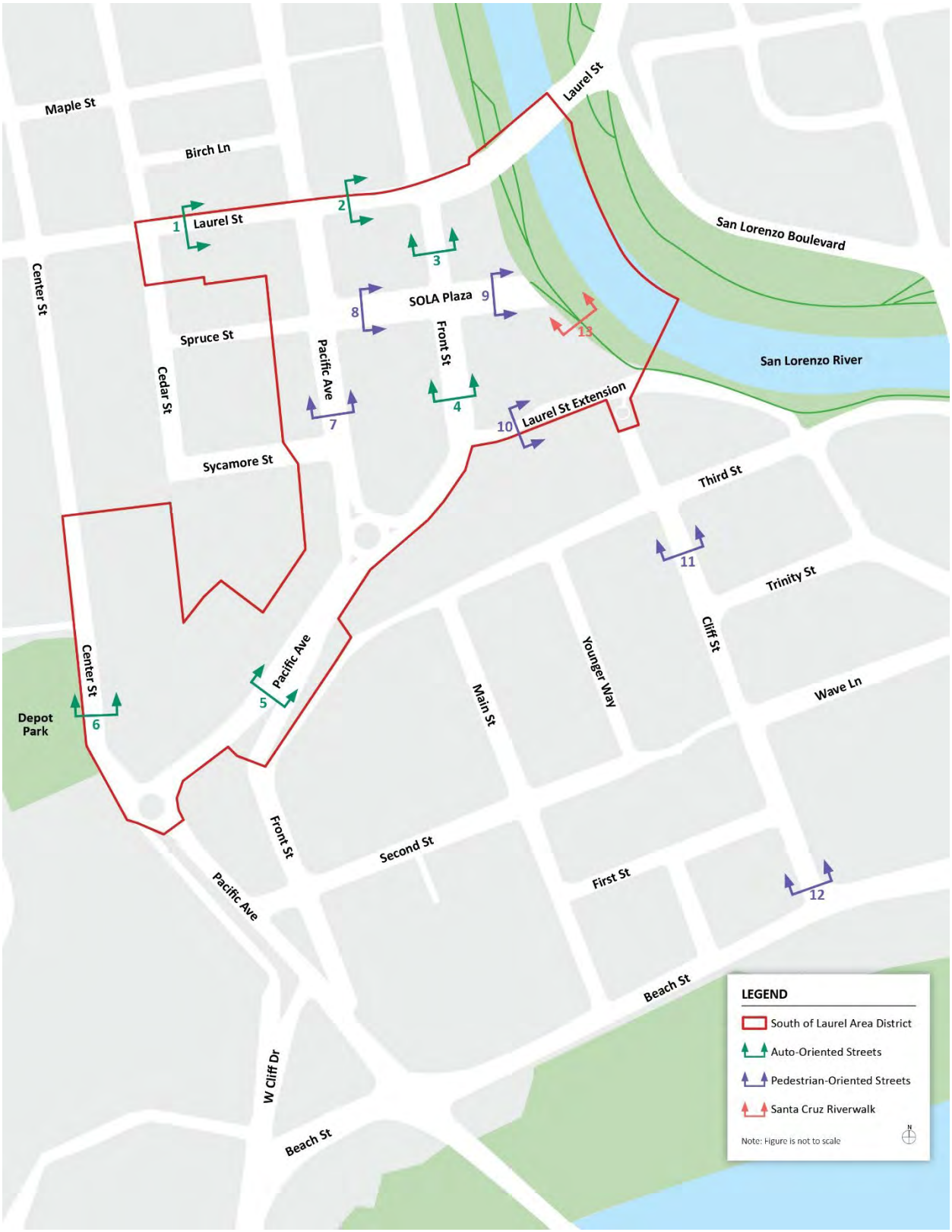
Two street types are described below, namely: 1) Multimodal Streets and 2) Pedestrian-Oriented Streets. Cross-sections for each street type are shown below, and their locations are identified in Figures 8.4-8 Cross-Sections Key Map.

The following roadway cross-sections used to determine the required dedications for public rights of way when new development or redevelopment is proposed within the SOLA. The allocation of space within the established right of way width may shift over time and along the length of a given roadway section based on evolving community needs and shifts in travel behavior. Additional dedication for right of way may be required at intersections.



Example of wide sidewalk with seating.

Figure 8.4-8 Cross-Sections Key Map



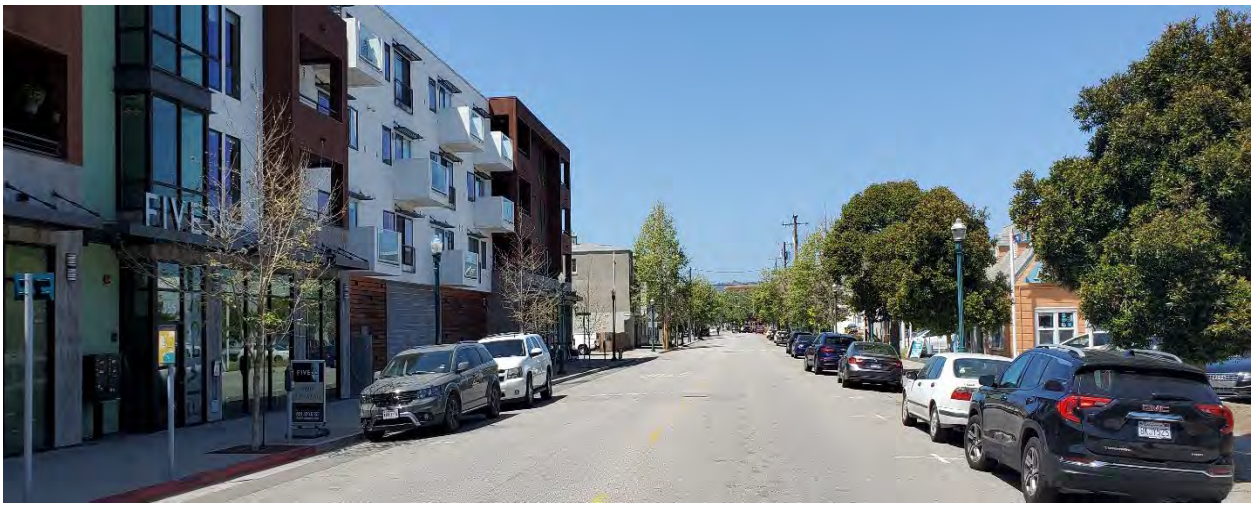
Multimodal Streets

Through corridors support higher volumes of vehicular traffic and transit while also accommodating pedestrians and bicyclists. Within the SOLA these include Laurel Street, Front Street, Lower Pacific Avenue, and Center Street. These roadways generally incorporate separated bike lanes, 6'-12' sidewalks, street trees, and pedestrian-scale lighting. Conceptual cross sections for each street are shown in Figures 8-4-9 through 8.4-14.



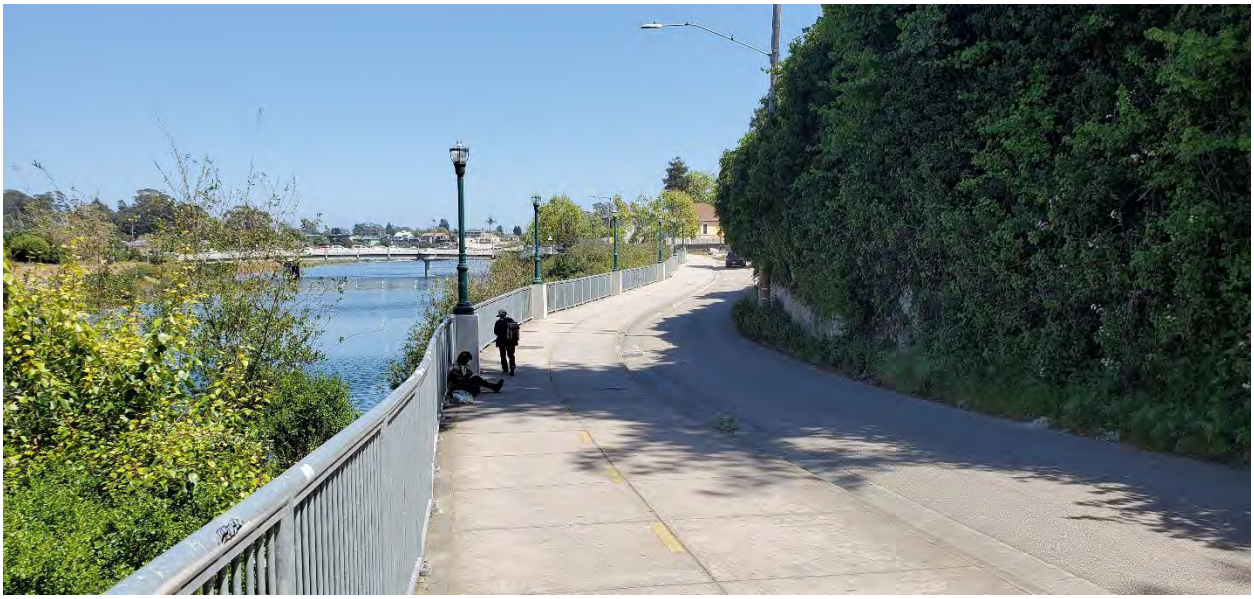
Pedestrian-Oriented Streets

Pedestrian-oriented streets generally support one lane of traffic in each direction, parking, and wide sidewalks. With in the SOLA, these include portions of Pacific Avenue, Spruce Street, and Cliff Street, as well as the Santa Cruz Riverwalk. With lower and slower traffic volumes, these roadways may use paint-only bike lanes, sharrows, 6'-16' sidewalks with space for outdoor dining and retail extension areas where appropriate, and additional street furnishing as appropriate. Conceptual cross sections are shown in Figures 8.4-15 through 8.4-20.



Santa Cruz Riverwalk

The Santa Cruz Riverwalk supports non-vehicular travel along the San Lorenzo River. A cross-section of the Santa Cruz Riverwalk within the boundary of this portion of the Downtown Plan Area is shown in Figure 8.4-21.



View looking southeast of Santa Cruz Riverwalk and Laurel Street Extension.

Figure 8.4-9 Laurel Street Between Cedar Street and Pacific Avenue (1)

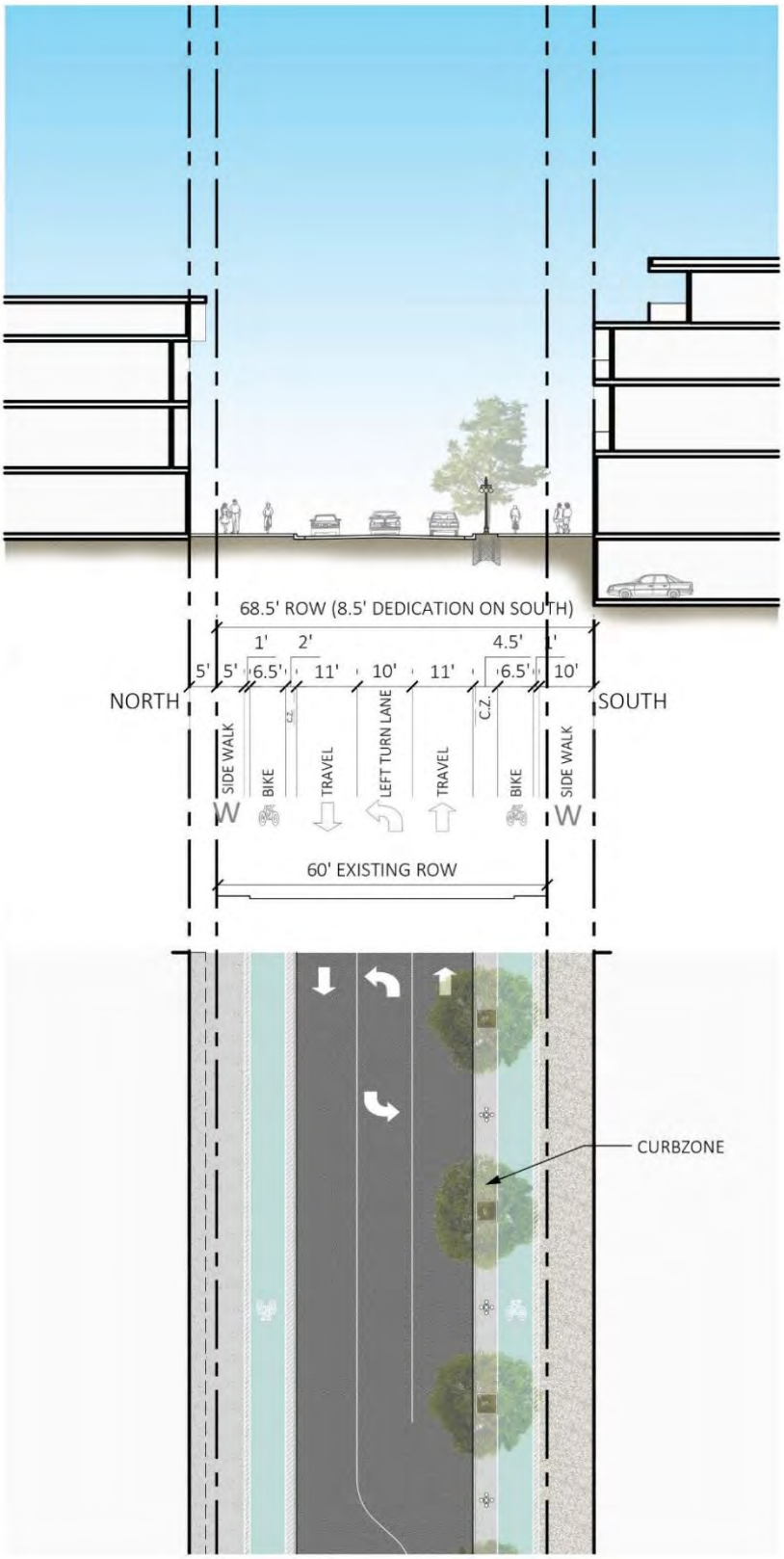


Figure 8.4-10 Laurel Street Between Pacific Avenue and Front Street (2)

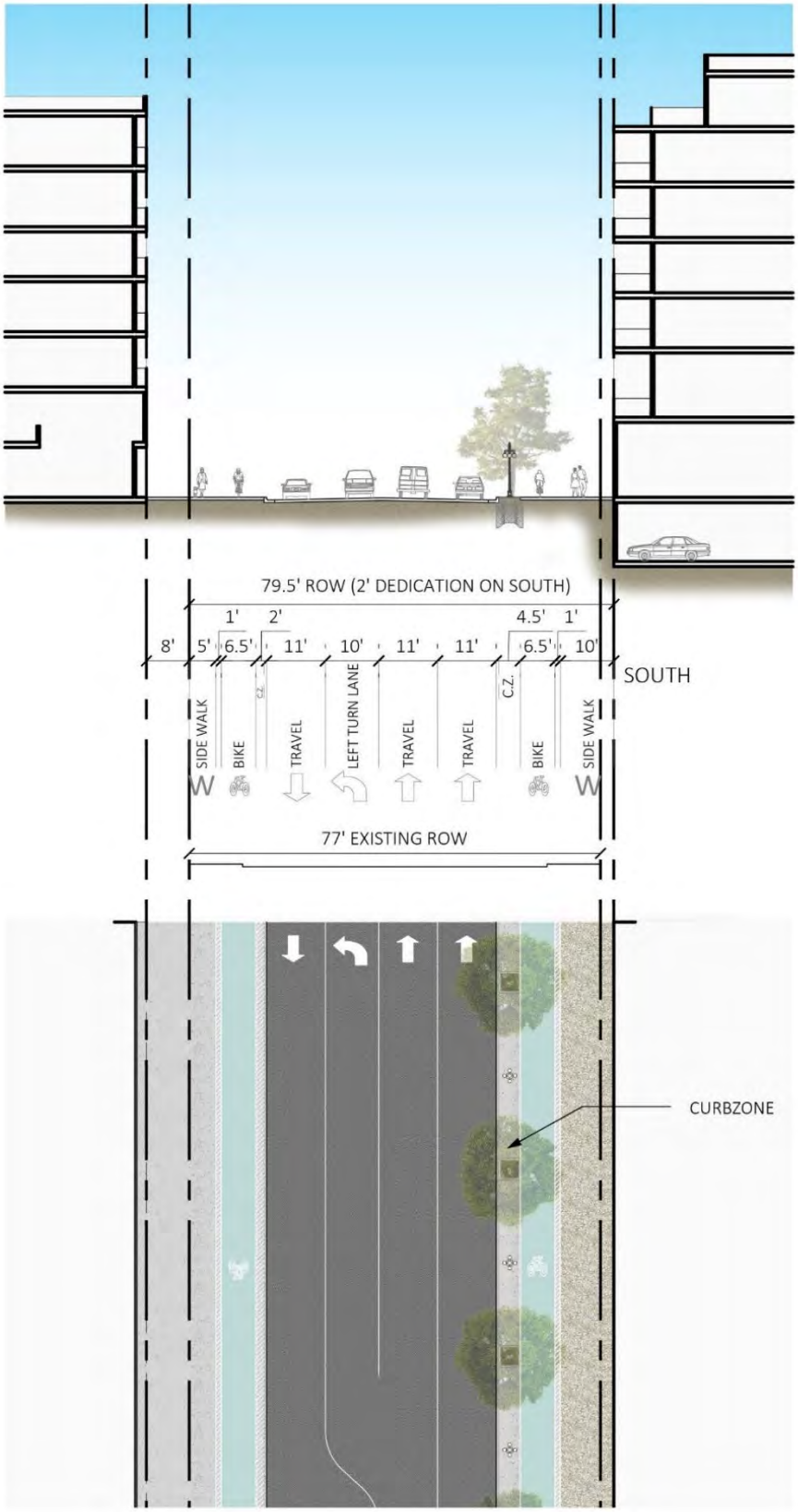


Figure 8.4-11 Front Street Between Laurel Street and Spruce Street (3)

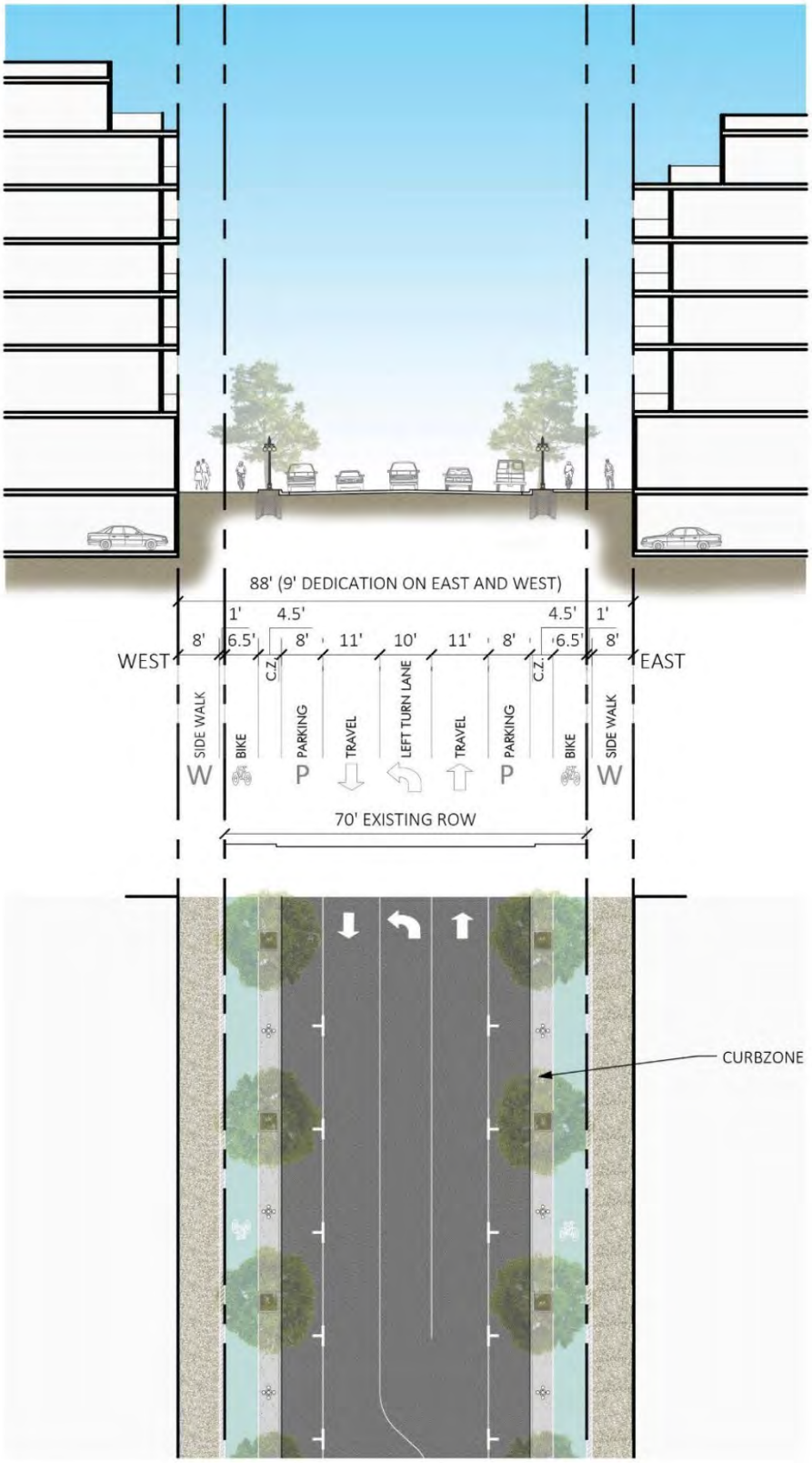


Figure 8.4-12 Front Street Between Spruce Street and Laurel Street Extension (4)

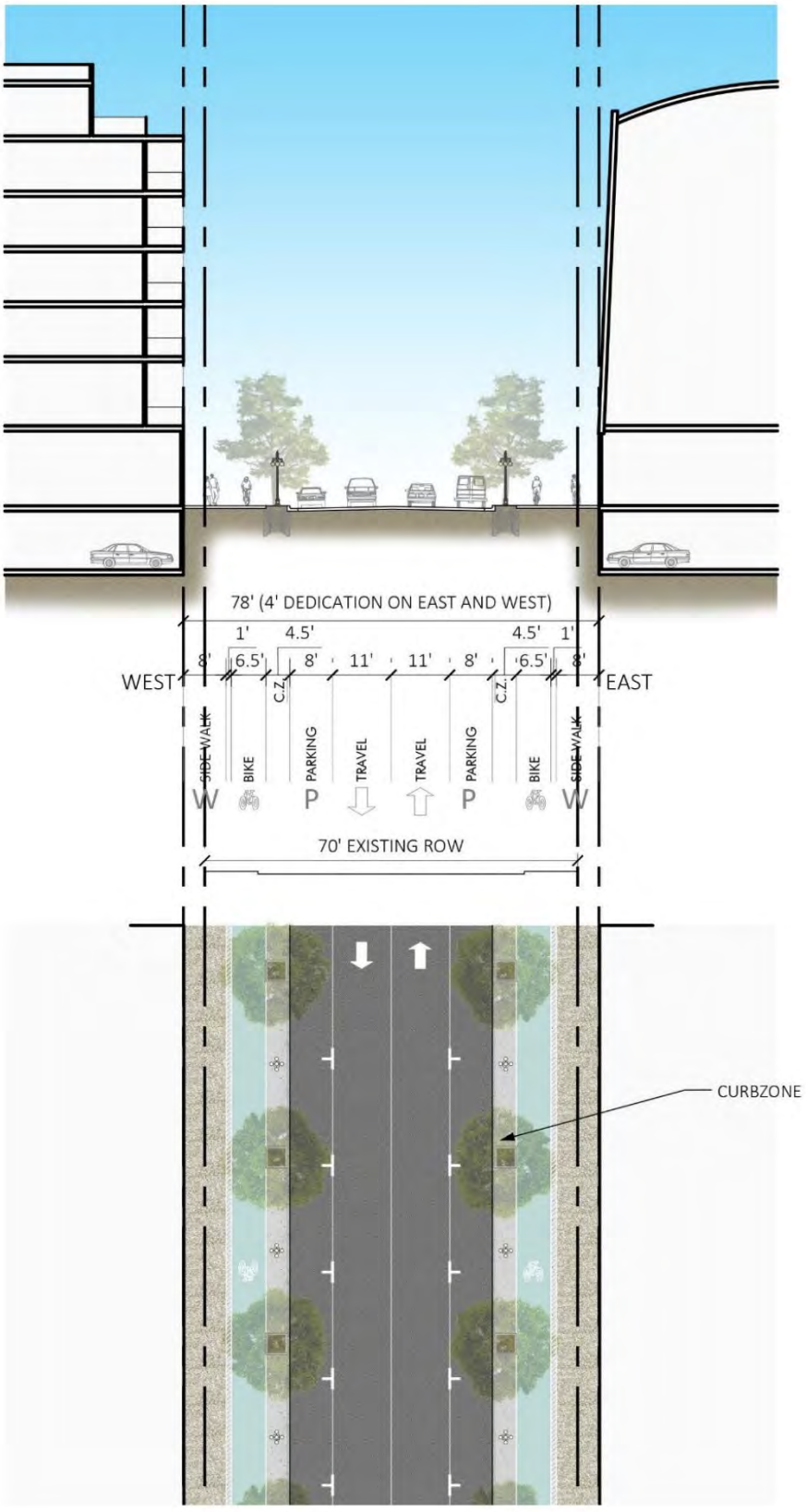


Figure 8.4-13 Pacific Avenue at Hill (5)

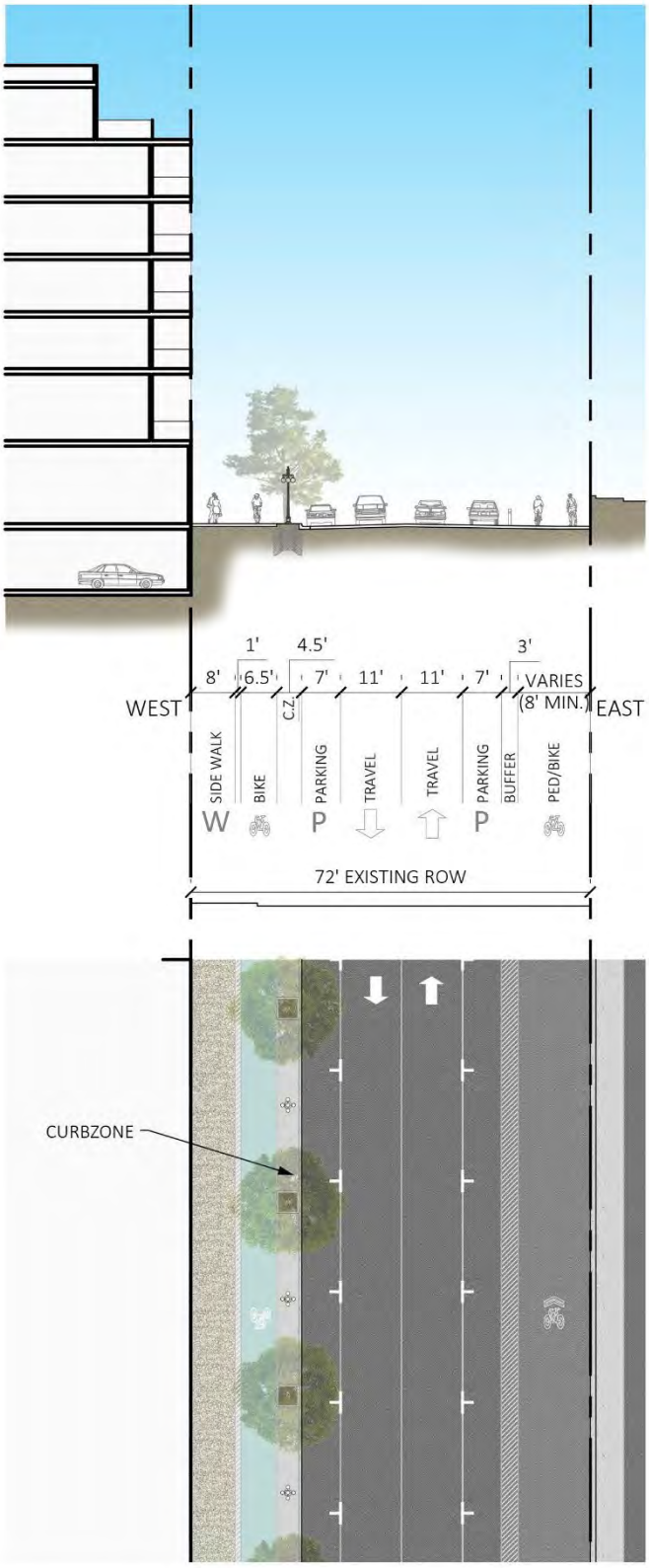


Figure 8.4-14 Center Street at Depot Park (6)

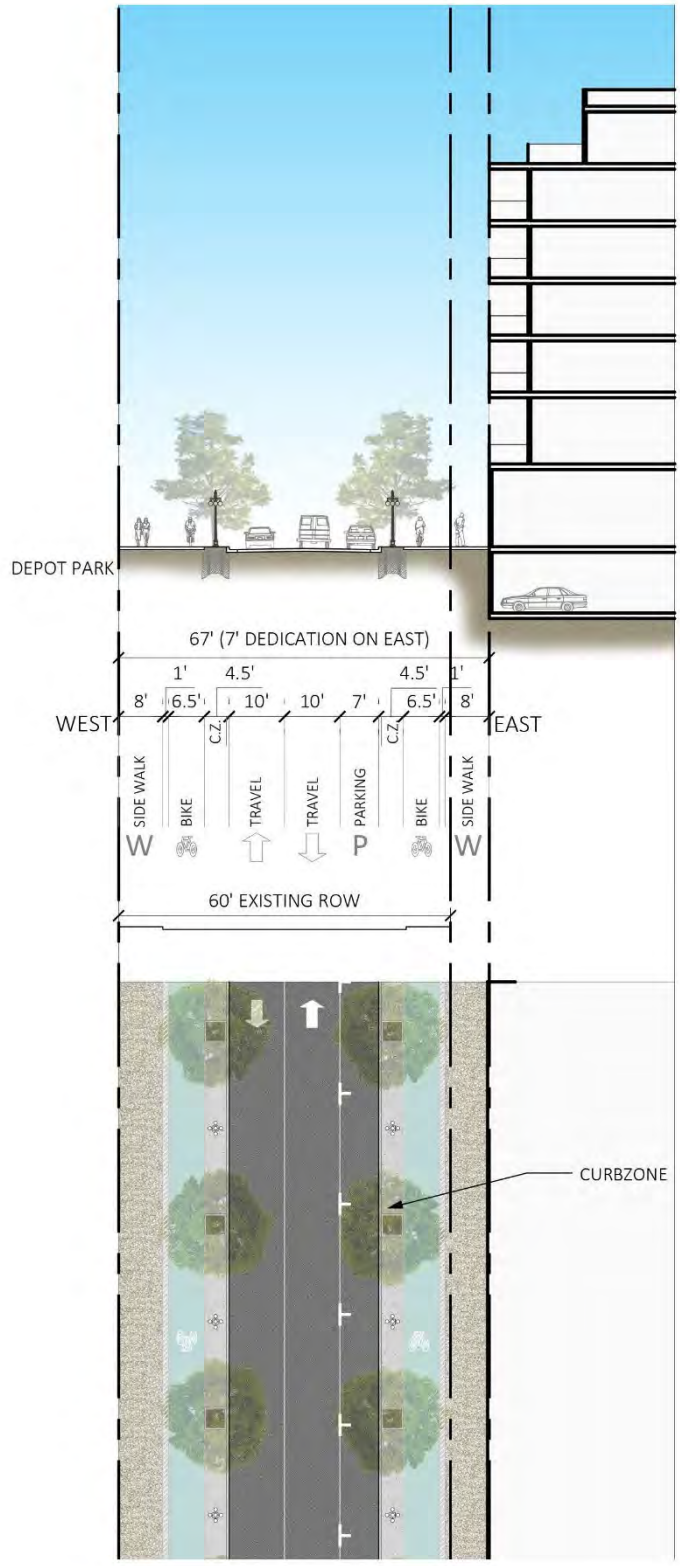


Figure 8.4-15 Pacific Avenue South of Laurel Street (7)

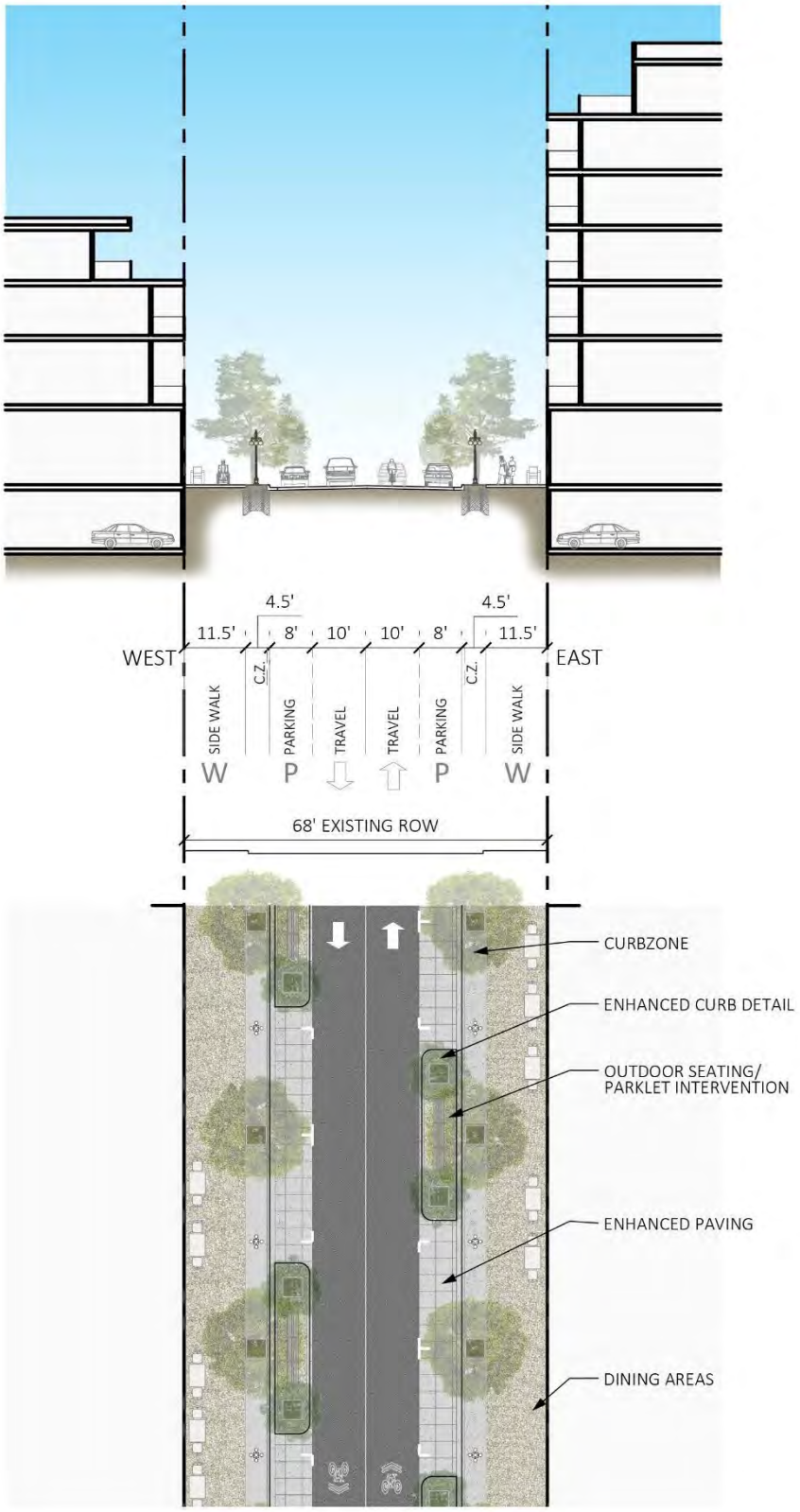


Figure 8.4-16 Spruce Street Between Pacific Avenue and Front Street (8)

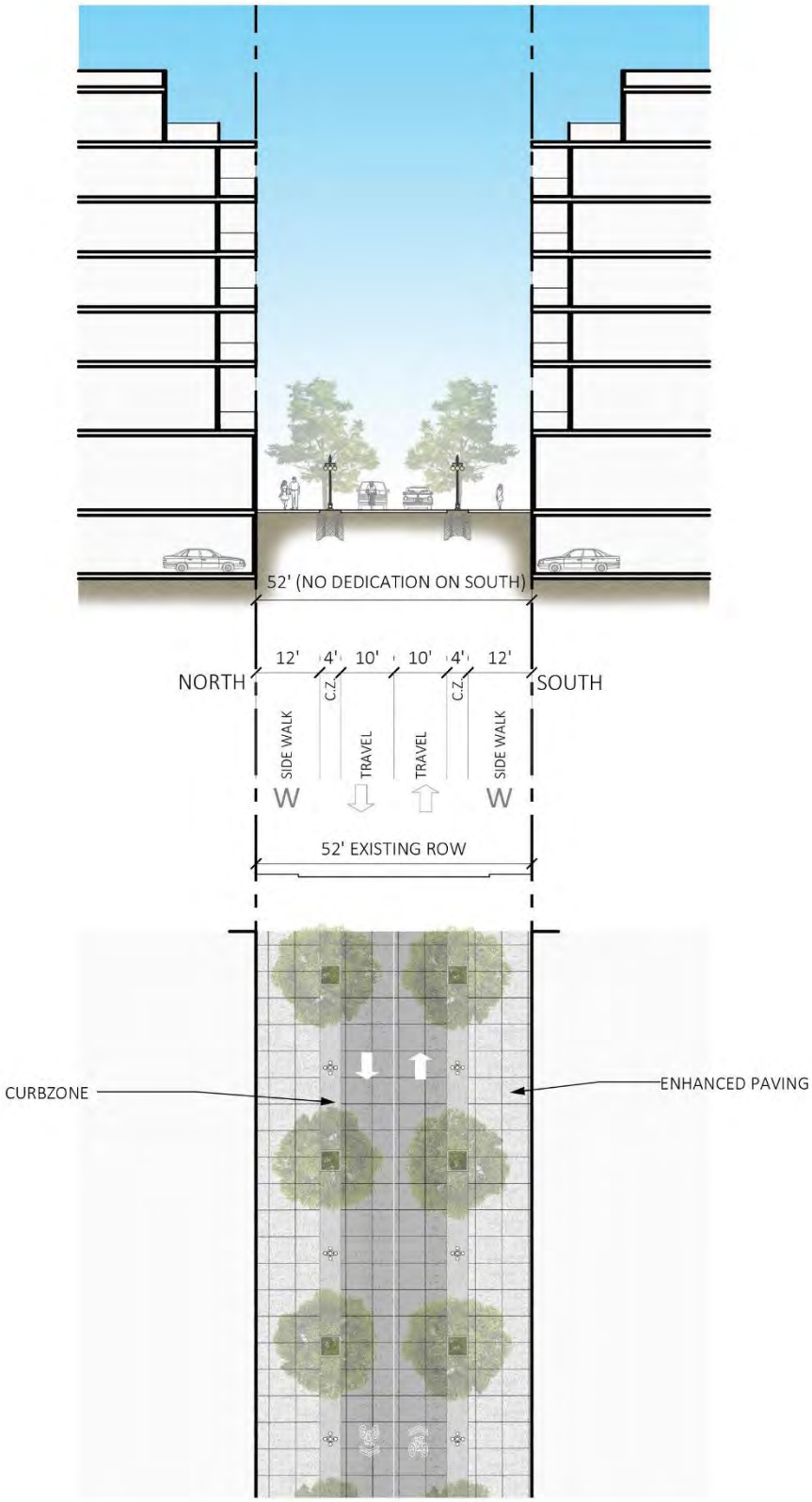


Figure 8.4-17 Spruce Street Plaza (9)

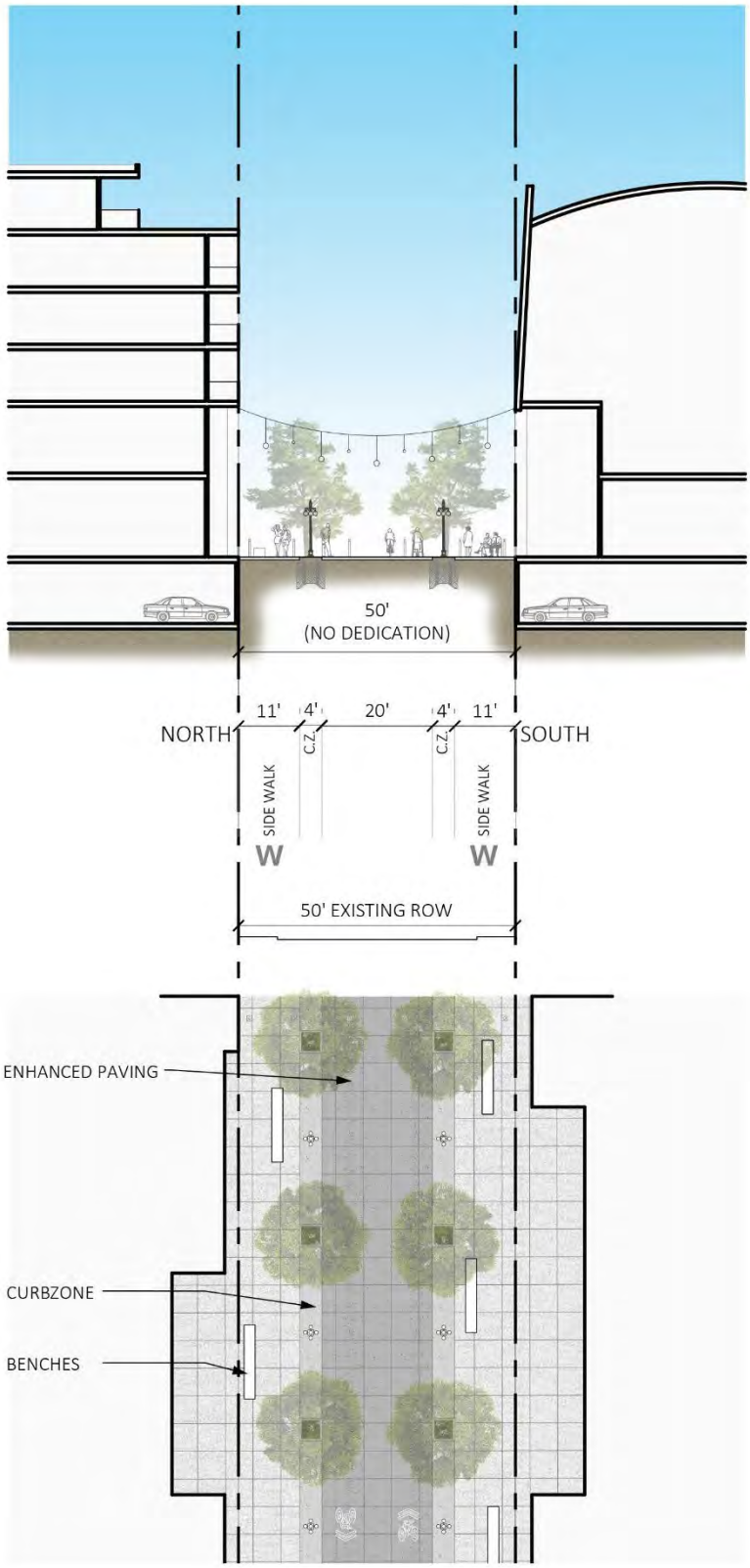


Figure 8.4-18 Laurel Street Extension (10)



Notes:

1. Two-way access permitted from Front Street to first driveway providing ingress/egress service access to Block D.
2. As an optional design, the intersection of Front Street and the Laurel Street Extension may need to be designed at 90-degrees to address potential sight clearance requirements.

Figure 8.4-19 Cliff Street Between Third Street and Trinity Street (11)



Figure 8.4-20 Cliff Street Between First Street and Beach Street (12)

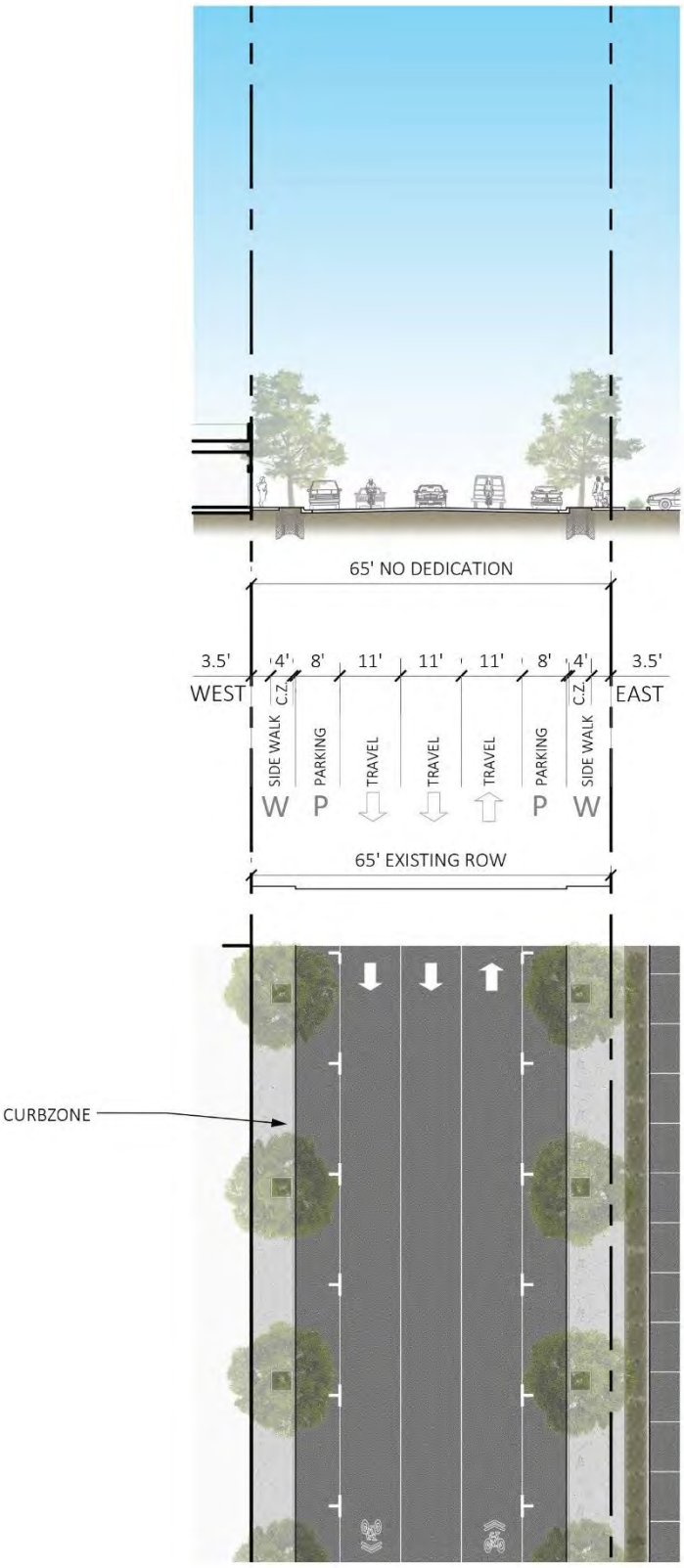
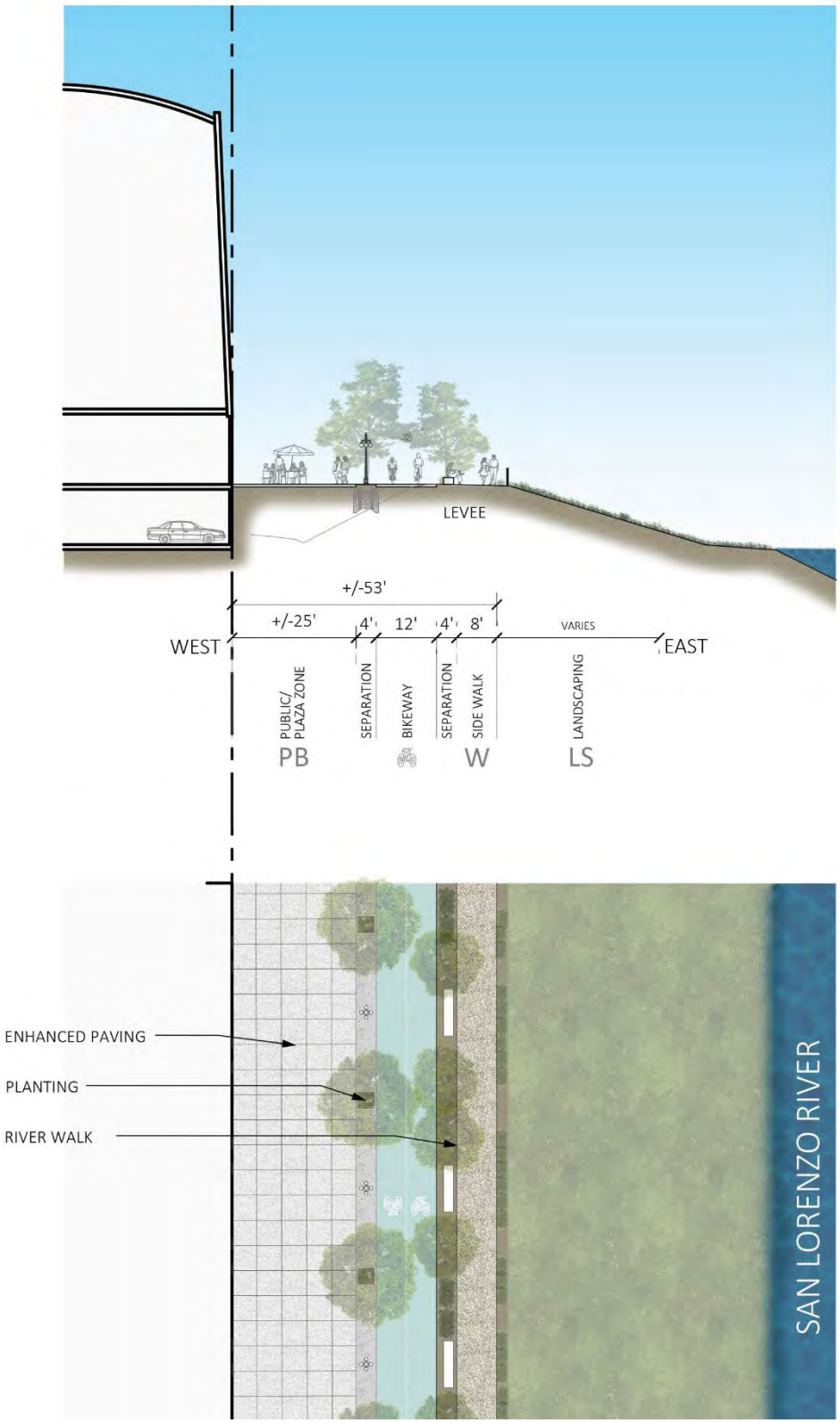


Figure 8.4-21 Santa Cruz Riverwalk (13)



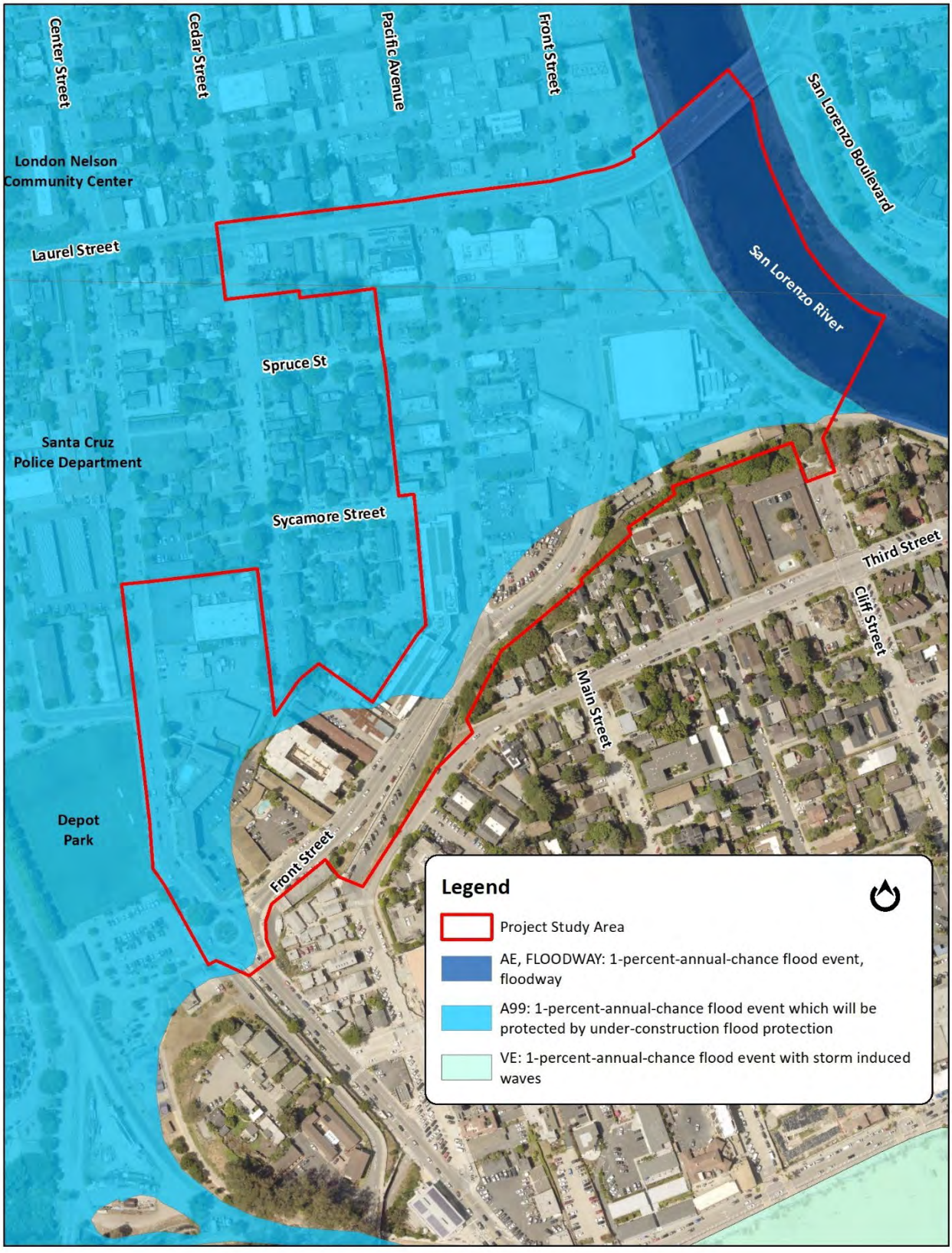
8.5 Sustainability and Resiliency

Consistent with the City's General Plan, Community-wide Climate Action Plan for 2030, and other policy documents including the requirements of the CALGreen Building Standards Code and the City's Green Building Program, future development in the SOLA will incorporate a range sustainability features intended to reduce energy and greenhouse gas emissions, promote water-use efficiency, and minimize waste. The area will also be built as required to withstand the potential for inundation, since the project area, like much of the Downtown, is located within the flood areas mapped by the Federal Emergency Management Agency (FEMA) as shown in Figure 8.5-1 FEMA Flood Hazard in the SOLA. All new development in this area will be required to comply with the standards for floodplain development as established by the California Building Standards Code and the most updated mapping data published by FEMA.

Being located adjacent to the San Lorenzo River, future development will also need to carefully consider and minimize any potential adverse biological and hydrologic effects including water quality, aquatic and riparian plant and animal species, and migratory birds. The Environmental Impact Report will carefully evaluate the potential for any such effects and mitigation measures will be incorporated as necessary.



Figure 8.5-1 FEMA Flood Hazard in the SOLA



8.5.1 Sustainability and Resiliency Policies

The City of Santa Cruz has a long-standing commitment to environmentally sound development and many existing policies and plans support the City's long-term resilience to a changing climate. The 2030 General Plan includes this statement regarding sustainability of Land Use choices in the City:

> *Environmental quality, land uses, and development are inexorably linked. By providing for the city's continued economic growth and high quality of life without compromising the needs of future generations, sustainable land uses respond to environmental values widely held in the community.*
>
> *At the heart of [the City of Santa Cruz 2030 General Plan] is sustainable development. In its broadest sense, it promotes harmony among people and between humanity and nature. Also, because development cannot subsist on a deteriorating environmental or economic base, sustainable development maintains or enhances economic opportunity and community well-being, while protecting and restoring the natural environment upon which people and economies depend.*

Consistent with these sentiments and City of Santa Cruz policy, all new development in the South of Laurel Area shall be consistent with relevant and applicable City plans and policies. Those relevant policies include, but are not limited to:

Citywide Plans

- The *Community-wide Climate Action Plan for 2030* (2022, as amended)
- *The Citywide Creeks and Wetlands Management Plan* (2006, as amended)
- *Local Coastal Program* (1992, as amended)

Santa Cruz Municipal Code Sections

- Green Building Program, as codified in SCMC Chapter 24.15
- Water Waste Prohibition, as codified in SCMC Chapter 16.02
- Water-Efficient Landscaping standards, as codified in SCMC Chapter 16.16
- Bird-Safe Building Design standards, as codified in SCMC Subsection 24.12.127
- Environmental Resource Management including specifically Drainage Control standards and Floodplain Management regulations as codified in SCMC Chapter 24.14

8.6 Infrastructure and Public Services

Implementation of the SOLA plan will require the construction of infrastructure and provision of public services and utilities in accordance with the development program described in Section 8.2 SOLA Development Plan.

As shown in Figure 8.6-1 Existing Infrastructure, the City of Santa Cruz owns and operates potable water, sanitary sewer and storm drainage in the SOLA. The City of Scotts Valley and the Santa Cruz County Sanitation District also own and operate underground sanitary sewer utilities that pass through this area. Dry utilities (e.g., electrical, natural gas, communications) are provided by the respective utility providers.

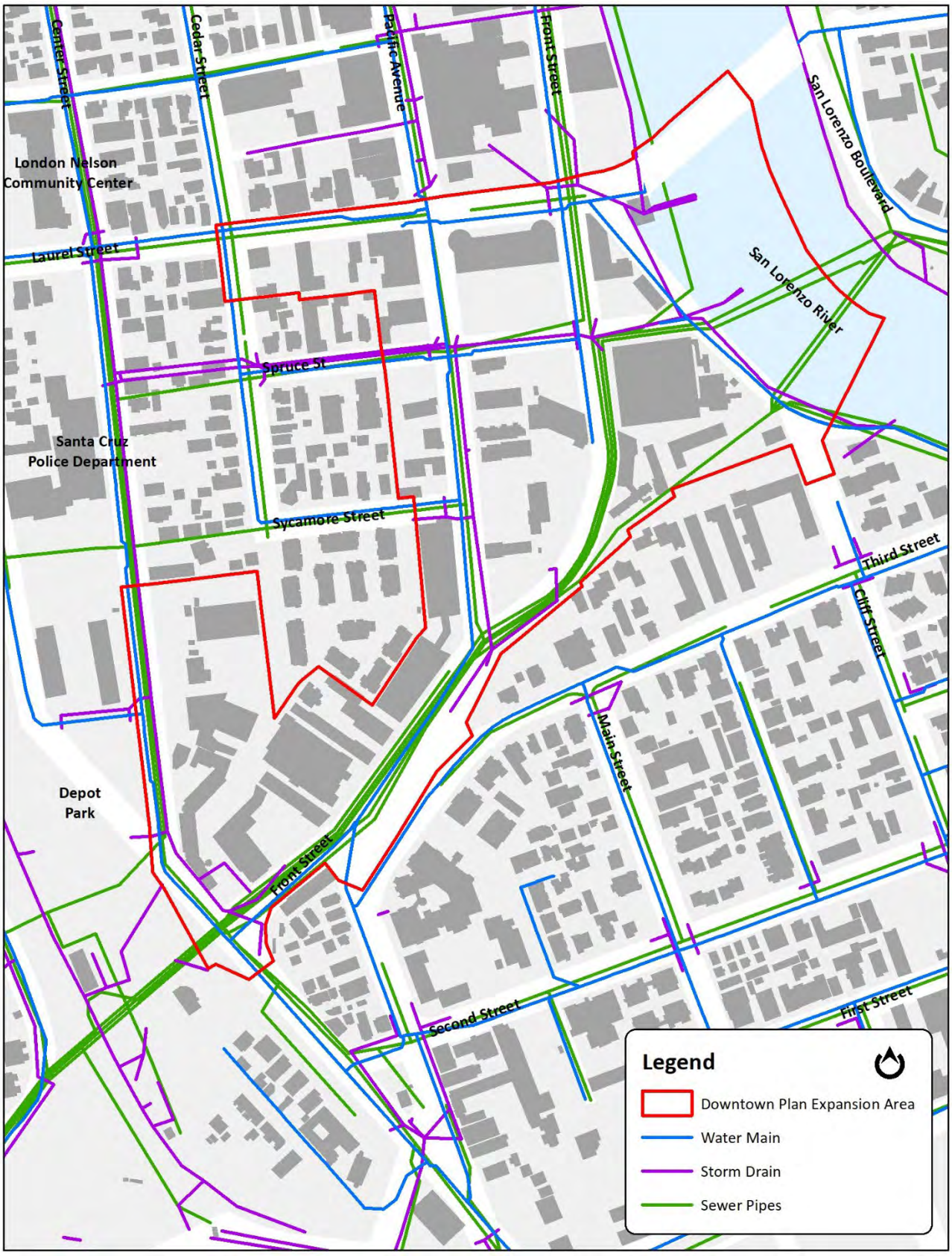
Redevelopment in the SOLA will create additional demand for water, sewer, electricity, gas and communications services. Infrastructure, services and utilities should be designed to meet the standards of the City of Santa Cruz and other utility agencies with oversight authority.

Following the approach described in Section 8.7 Implementation, the City and respective property owners and developers shall collaborate to fund and implement infrastructure improvements . Underground utilities should be included as part of street development where feasible. Specific requirements regarding timing and sizing of some infrastructure, such as on-site electrical needs, will be determined by the City as part of the development review process for each development application.

In particular, a significant amount of underground infrastructure extends along the ROW on Spruce Street. This includes a stormwater pump station at the easterly edge, adjacent to the San Lorenzo River which importantly provides stormwater drainage for the entire Downtown, as well as significant sanitary sewer facilities belonging to the City of Scotts Valley and to the Santa Cruz County Sanitation District.

Relevant public services, including police and fire protection, are provided by the City of Santa Cruz. Any increased demand on public services associated with implementation of this Plan shall be financed through development fees and the payment of annual property taxes associated with new development.

Figure 8.6-1 Existing Infrastructure



8.7 Implementation

This section addresses the actions that are necessary to support the desired features of this plan by the City of Santa Cruz, other agencies, and future project applicant(s) to achieve the goals and objectives as described above.

8.7.1 Financing Plan

Public improvement costs will be funded through a variety of funding mechanisms and resources. Appropriate funding sources will reflect the specific nature of the public improvement required as well as funding availability, timing, beneficiaries, and other factors.

New development will be required to make contributions that improve public infrastructure in ways that promote alternative transportation modes (walking, biking & transit), promote environmental sustainability (green infrastructure and green building performance), and provide for orderly and attractive change within the SOLA over time.

New development is expected to improve adjacent streets, dedicate land for the creation of new streets and public spaces, make fair-share contributions through the methods mentioned in the following sections or others, or possibly pay infrastructure impact fees for downtown improvements to create and improve streets and public spaces.

Specifically, development will contribute toward build-out of community amenities such as:

1. Spruce Street Plaza from Front Street to Riverwalk
2. New Roundabout at Pacific Avenue/Front Street/Third Street
3. Raised crossings on Pacific Avenue
4. Utility Upgrades
5. Existing and required new traffic signal equipment
6. Spruce Street Plaza from Pacific Avenue to Front Street [1]

Unless otherwise negotiated with the City, for example as part of a fair share contribution towards future improvements, development projects will be required to include build-out of improvements on all public frontages, specifically:

1. Sidewalks
2. Bike Facilities

[1] This section of roadway may or may not be built out as a public plaza, depending on future development and the location of the Arena.

3. Riverwalk Improvements
4. Utility upgrades or relocations
5. Undergrounding of any aerial utilities

8.7.2 Potential for Special-Purpose Financing Districts

The City retained the consulting firm Kosmont Companies to evaluate the feasibility of various forms of financing districts to assist in addressing existing and potential future infrastructure needs. One specific tool that was evaluated in detail was enhanced infrastructure financing districts (EIFDs).

EIFDs can employ tax increment financing (TIF) as a form of value capture, where a lead agency (such as the City) designates a boundary around specific parcels (i.e., the "TIF district") positioned for new development or investment. The assessed property value within the TIF district is "frozen" at the time of formation as the "baseline" of assessed value for the TIF district. Over time, as new development or investment occurs and new property value is added to properties within the TIF district, participating taxing entities such as the City and County can dedicate all or a portion of the new incremental property tax from values above the baseline ("property tax increment") to the TIF district with a dedicated purpose, such as of funding infrastructure. The property tax increment may be used on a pay-as-you-go basis or leveraged in the form of bond issuances.

Very importantly, TIF districts do not create a new or increased tax, nor do they encumber any existing agency revenues or resources. Much of the potential benefit for the City in utilizing TIF as part of an EIFD would be to potentially attract matching funding from another taxing entity such as the County, increase scoring for third party grant funding, and to induce private sector funding for infrastructure that can be partially or wholly reimbursed by the EIFD. EIFD's can fund a variety of infrastructure and public improvement costs, such as mobility improvements, utility capacity enhancements, flood control, parks and open space, and other infrastructure.

If the City ultimately implements an EIFD, an Infrastructure Financing Plan would be prepared that outlines the specific funding arrangement, targeted facilities to be funded, relevant fiscal impacts, and other details. The Infrastructure Financing Plan would be noticed publicly and then a series of public meetings and hearings would be convened to vet the proposed plan, including an opportunity for public protest. The typical formation process for an EIFD is approximately 12 to 18 months.

8.7.3 Ongoing Funding for Public Services and Facilities

The primary source of ongoing funding for the City's public services and facilities is tax revenue that accrues to the City's General Fund. This revenue comes from property taxes, user fees, sales taxes, and transient occupancy taxes, among others.

If the City determines that additional funding is required to support non-standard features such as plazas, stormwater treatment facilities, pedestrian-oriented lighting, special paving, wayfinding signage, and others, these features should be privately funded and maintained through a maintenance agreement as a condition of approval.

Financing districts such as EIFDs (discussed above) would additionally have capacity on an ongoing basis to fund maintenance of public facilities, in addition to initial capital expenditures. In some cases, funding capacity for ongoing maintenance and services are augmented with tools such as community facilities districts (CFDs) and business improvement districts (BIDs). Such tools are not being contemplated at this time, but would involve a public outreach and hearing process, including approval by relevant landowners and/or businesses.

8.7.4 Land Dedication for Public Realm and Utility Infrastructure

The creation of new or expanded public streets and open spaces will rely on the dedication of land by property owners, including the City, typically as part of development.

Property Owner Coordination

- The City should work diligently with the respective property owners and developers for orderly creation of street rights-of-way and public space, while maintaining development feasibility on adjacent parcels. During the development review process, the City will contact affected property owners to discuss land dedication expectations and potential for land development on the remaining parcel.
- The City will work with property owners/developers to adjust property lines or assemble land, where the location of public streets, in-ground infrastructure, flood control infrastructure, and public spaces might result in parcel remnants that are too small to develop effectively.

Timing of Dedication

- Land for future streets and public space shall be dedicated as a condition for development approval, as determined above and as shown on the respective street cross-section as shown in Section 8.4.3 Streetscape and Circulation / Street Types
- The location of private alleys and walkways with public access and the option to place utilities in a public access easement if needed shall also be established at the time of development approval.
- Interim improvements should be provided within established easements for public access. The City may purchase additional easements, where such an access or utility easement is not already present and where the City finds that an interim improvement is essential to downtown's circulation network. The phasing of the roadway network may also require interim roadway measures to be constructed to ensure viable emergency vehicle access.

A. ALL CENTRAL BUSINESS DISTRICTS LAND USES

All new construction shall require approval of a Design Permit, regardless of type of use.

1. Prohibited Uses

The uses described in subsection (a) below, are deemed inconsistent with the goals, policies and objectives of the Downtown Plan and are, therefore, prohibited within the Downtown Plan (Plan) portion of the Central Business District as either a stand-alone use or an accessory or temporary use. Such uses that lawfully existed within the Plan area prior to the adoption of this provision are deemed non-conforming and may continue only at the same location at the same intensity or less for a period of no more than 20 years from the effective date of the Zoning Ordinance amendment (October 10, 2000), after which time the use shall be completely removed or converted to a conforming use. The uses described in subsection (b) below shall be deemed a public nuisance and shall be immediately abated according to the provisions of the Zoning Ordinance or other applicable City Codes or Ordinances.

Uses that are prohibited within any of the Downtown Plan subdistricts.

a. Uses not permitted include, but are not limited to, the following: medical and recreational cannabis provider dispensaries; rent, sales or service of automobiles, trucks, recreational vehicles, motorcycles or trailers; sale of firearms; general advertising signs; sale of alcoholic beverages for off-site consumption requiring ABC liquor license Numbers 20 or 21 (liquor stores), with the exception of the sale of alcohol for off-site consumption that is clearly incidental to other principally permitted uses, that represents less than fifteen percent of the total shelf space in the business, and that complies with the operational criteria specified in Table 4-1 of Chapter 4, herein, inclusive of the additional regulations referenced in said table; drive-up facility; or drive-through facility.

b. Nuisance Activities. No use, even though listed as a permitted use or otherwise allowed, shall be permitted which, by reason of its nature or manner of operation, is deemed by the Zoning Administrator to be creating a condition that is hazardous, noxious, or offensive through the emission of odor, fumes, smoke, cinder, dust, gas, vibration, glare, refuse, water-carried waste, or excessive noise. Such use shall be subject to violation abatement procedures, which may result in revocation of the use permit.

2. Accessory Uses

Accessory uses, as defined in Section 24.22.013 of the Zoning Ordinance, shall be limited to the use of no more than one quarter (¼) of the total floor area occupied by the permitted use.

3. Temporary Uses

Temporary uses, as defined in Section 24.22.879 of the Zoning Ordinance, shall be limited to the following activities and standards:

a. The following activities if they are sponsored by a government entity or an organized group of businesses, property owners or residents of the CBD:
   i. Neighborhood, District or Citywide-oriented carnival, circus, street fair, exhibition, celebration or festival;
   ii. Booth for educational, charitable, patriotic or welfare purposes;
   iii. Open air sale of agricultural products, including seasonal decorations.
   iv. Open air sporting event;
   v. Arts or crafts sale or artistic performance event; or
   vi. Surface parking open to the public.

b. The following activities if they secure the proper permits, if applicable, from City agencies: Parades, civic events, and advertised citizen gatherings.

DRAFT

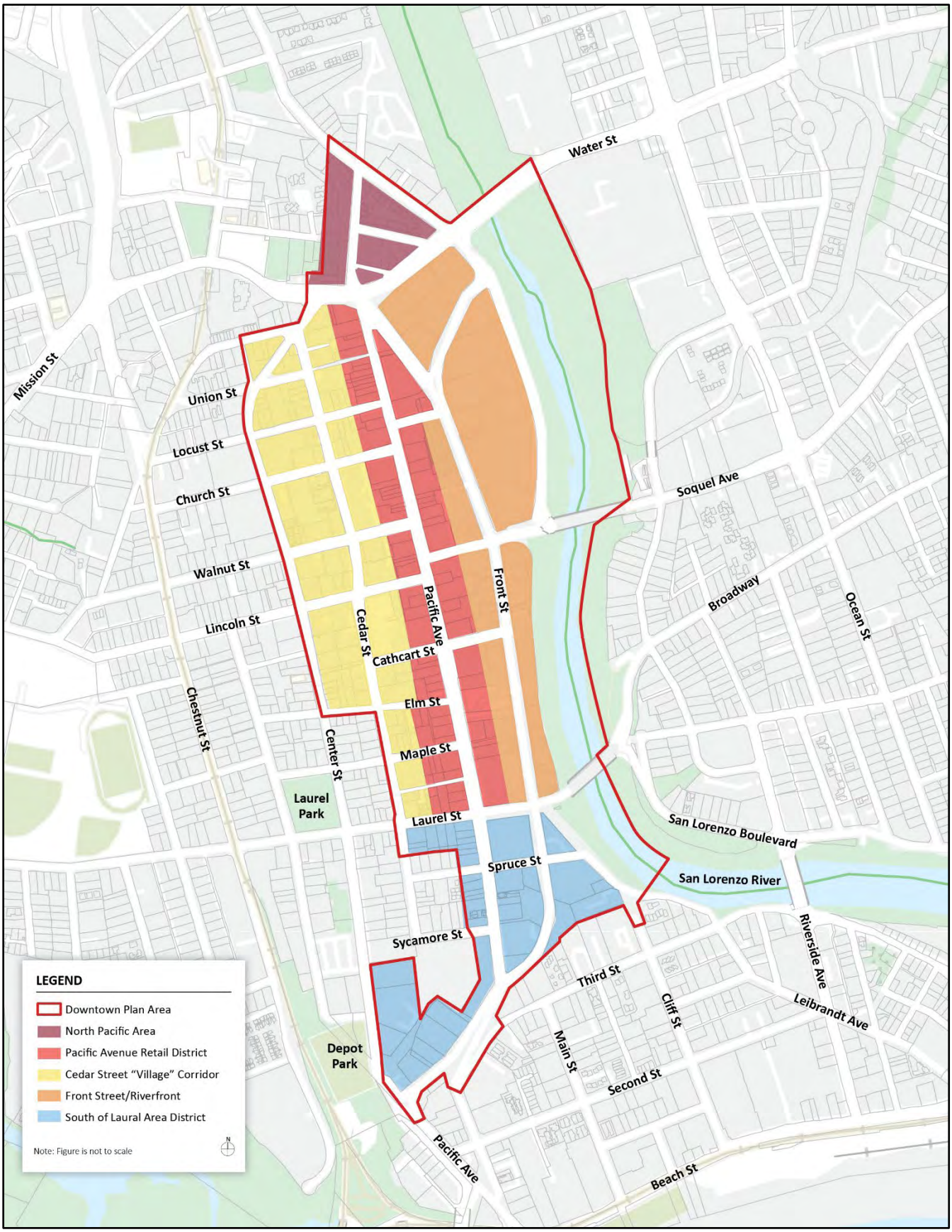


Figure A-1: Complete Downtown Plan Boundary and Subareas

TABLE 4-1: Central Business Districts Use Allowances — Ground Floor (Street Level)						
P = Principally Permitted A = Administrative Use Permit S = Special Use Permit "—" = Not Permitted						
Use Categories	*Pacific Avenue Retail*	*Front Street Riverfront*	*Cedar Street Village*	*North Pacific*	*South of Laurel*	*Additional Regulations*
Residential						
Community Care Residential Facility	P	P	P	P	P	(1)
Dwellings, Multiple and Townhouse, lobbies, leasing offices, and associated uses	A	A	A	A	A	(2)
Dwellings, One-Family & Two-Family	—	—	P	—	—	(2)
Dwellings, Flexible Density Unit Housing	A	A	A	A	A	(2)
Dwellings, SRO Single Room Occupancy Housing	A	A	A	A	A	(2)
Family Day Care Homes, Small or Large, in existing residential units	—P	P	P	P	—P	(1)
Supportive and Transitional Housing	A	A	A	A	A	(2)
Supportive and Transitional Housing, in existing residential units	P	P	P	P	P	(1), (2)
Commercial						(3)
Banks and Financial Institutions	A	P	A	P	A	(4)
Business Support Services	A	P	P	P	A	
Eating and Drinking Establishments						
- Bar, Tavern	A	A	S	A	A	(5)
- Brewpubs	A	A	A	A	A	(5)
- Bona Fide Restaurant	P	P	P	P	P	(5)
- Tasting Rooms	A	A	A	A	A	

DRAFT

TABLE 4-1: Central Business Districts Use Allowances — Ground Floor (Street Level)						
P = Principally Permitted A = Administrative Use Permit S = Special Use Permit "—" = Not Permitted						
Use Categories	*Pacific Avenue Retail*	*Front Street Riverfront*	*Cedar Street Village*	*North Pacific*	*South of Laurel*	*Additional Regulations*
- Breweries, Distilleries and Wineries	A	A	A	A	A	(6)
General Market	P/A	P/A	P/A	P/A	P/A	(7)
Hotels / Motels	A	P	A	P	A	(8)
Instructional Services - Schools, Business and Technical	A	A	A	A	P	(9)
Live/Work Quarters	A	A	A	A	A	(10)
Nightclubs and Live Entertainment	S	S	S	S	S	(11)
Offices, Professional	A	A	A	P	A	(12)
Parking Facilities, Surface and Structured	A	A	A	A	A	(13)
Personal Services						
- General Personal Services	A	A	A	P	A	(14)
- Health/Fitness Studio	A	P	P	P	A	(15)
Retail Sales	P/A	P/A	P/A	P/A	P/A	(7), (16), (19)
Sports/Multipurpose Arena	-	-	-	-	S	(20)
Theaters~~/Commercial Entertainment, Arcade, Billiard Hall~~and Recreational, Experiential, or Commercial Interactive Venues and other Indoor Recreation Uses	P	P	A	P	P	(19)
Thrift Stores/Pawn Shops	P/A~~S~~	P/A~~S~~	P/A~~S~~	P/A~~S~~	P/A~~S~~	(7), (16), (17), (19)
Institutional and Community Facilities (3)						
Community/Religious Assembly	A	A	A	A	A	

DRAFT

TABLE 4-1: Central Business Districts Use Allowances — Ground Floor (Street Level)						
P = Principally Permitted A = Administrative Use Permit S = Special Use Permit "—" = Not Permitted						
Use Categories	*Pacific Avenue Retail*	*Front Street Riverfront*	*Cedar Street Village*	*North Pacific*	*South of Laurel*	*Additional Regulations*
Day Care Centers	A	A	A	A	A	
Government Buildings	P	P	P	P	P	
Medical Centers and Clinics	A	A	A	A	A	(12)
Museums/Galleries/Cultural Institutions	A	A	A	A	A	(18)
Social Service Centers	A	A	A	A	A	
Industrial and Other						
Artist Studio	A	A	A	A	P	
Bakery, microbrewery, handicrafts or similar light manufacturing and assembly use associated with retail sales/services	P	P	P	P	P	
Other Similar Uses as Determined by the Zoning Administrator to be consistent with the purpose of the subdistrict	P/A/S	P/A/S	P/A/S	P/A/S	P/A/S	

Additional Regulations – Ground Floor Uses.

(1) Community Care Residential Facilities. Facilities with fewer than 7 persons are principally permitted uses in the Cedar Street Village District. Facilities with 7 or more persons require approval of an Administrative Use Permit (AUP). Supportive and Transitional Housing facilities are allowed with only those restrictions that apply to similar residential uses.

(2) Multi-Family Housing. (Including Single-Room Occupancy, Supportive and Transitional Housing, and Flexible Density Unit Housing projects subject to standards set forth in SCMC 24.12.) In all districts where multi-family housing requires an AUP, common residential lobbies for upper-level residences are allowed at ground level with active ground level common spaces publicly visible. In the Pacific Avenue Retail District and along Pacific Ave and Spruce St in the South of Laurel Area, residential lobbies and leasing offices shall cumulatively be a maximum of 30 feet in width across the building frontage or a maximum of 15 percent of the building frontage, whichever is less, for a depth of 75 feet from Pacific

Avenue or Spruce Street/Spruce Street Plaza. Amenity spaces are prohibited in these areas on the ground floor. In the South of Laurel Area, the Pacific Avenue Retail District, and the Front Street Corridor, ground floor area shall not be used for private building amenities including gyms, mailrooms, meeting space, or other areas reserved exclusively for building residents and their guests within 20 feet of any street frontage. No first story or ground-level residential units are allowed along a public right-of-way in the Downtown Plan area, unless otherwise specified below. Within the Cedar Street Village, ground-level residential uses are permitted on the side streets west of Cedar Street and also along Center Street. Direct access between individual townhouse units and the street are strongly encouraged through the use of porches and front "stoops". In the Front Street/Riverfront Corridor and North Pacific Area, first floor units are permitted when elevated above the sidewalk level 5 feet. For Front Street/Riverfront Corridor, allow for ground level residential uses provided that such uses are internal to a block and do not face Front Street, Laurel Street, Cathcart Street, Soquel Avenue, River Street, North Pacific, or any public pedestrian paseo or lane. Individual housing unit entrances with direct access to Front Street are prohibited within 60 feet of Front Street from Soquel Avenue to the intersection with Pacific Avenue ~~and Laurel Streets~~ and along the frontages of all public passageways between Front Street and the Riverwalk including the Spruce Street Plaza.

(3) Commercial and Non-Residential Uses. These uses adjacent to public passageways in the Front Street/Riverfront Corridor shall be accessible from Front Street and the Riverwalk.

Large Non-Residential Ground-Level Uses. These uses exceeding sixteen thousand (16,000) gross square feet per single-tenant/establishment require approval of ~~a Special~~ an Administrative Use Permit (~~SUP~~ AUP) by the City ~~Council~~ Zoning Administrator ~~after review and recommendation by the Planning Commission~~. This section shall not apply to the Arena facility in the South of Laurel Area District. In addition to the findings for ~~SUP~~ AUP issuance required under Section 24.08.050, ~~a SUP~~ an AUP required by this subsection shall not be issued unless the following additional criteria, findings and conditions related to the public benefits provided by the proposed project are made by the hearing body. ~~by the City Council.~~

1. The use adds a desired, “targeted” business to the Downtown, which would serve to diversify the Downtown Plan area ground-level business base;
2. The use provides a public benefit and contributes to an appropriate balance of local or non-local businesses. For the purposes of this finding, it shall be presumed that local businesses serve to sustain the authenticity and unique retail character of the downtown business mix. However, non-local businesses may add to retail draw and contribute to overall downtown vitality in certain circumstances;
3. The use contributes to an appropriate balance of small, medium and large-sized businesses in the downtown area to diversify the ground-level business mix; to insure the maintenance of the “Santa Cruz” identity, unique character and authenticity; to seek to reduce economic “leakage” of sales out of the City and County; and to induce local investment and employment to the downtown area;
4. The design of the façade of the proposed use meets the design standards and guidelines of the Downtown Plan and is not restricted by corporate standardized or trademarked exterior design, signage, materials, color or other visual treatments;
5. The proposed use would be a good neighbor and contribute to the community life of the downtown by participating in such community activities as: (1) Membership in

downtown merchant, resident, neighborhood improvement organizations and/or assessment districts; (2) to the greatest extent feasible, hiring local residents; and (3) hosting or participating in downtown festivals, fairs, benefit events and similar neighborhood activities; and

6. If applicable, all food and/or beverage service activities shall be conducted in accordance with the following "good neighbor operating procedures" for such uses.
   i. Sufficient trash and recycling receptacles shall be provided and shall be regularly maintained;
   ii. All debris boxes shall be screened and kept on the premises in a designated or approved location;
   iii. The operator shall be responsible for cleaning the sidewalk within fifty (50) feet horizontal distance from the premises during the hours of operation to maintain the sidewalk free of paper, spillage or other litter; and
   iv. Noise, glare and odors shall be contained within the premises so as not to be a nuisance to neighbors. Under no circumstance shall the ventilation outlets or motors cause emission of objectionable odors or noise directed toward neighbors.

(4) Banks and Financial Institutions. These uses may be allowed when there is no other bank within the contiguous block.

(5) Eating and Drinking Establishments. All uses within this category shall be subject to City and State alcohol regulations. When applicable, all fast food and/or beverage establishments (defined in the Zoning Ordinance) shall be conducted in accordance with the "good neighbor" operating procedures listed in Section 3.f.

(6) Breweries, Distilleries and Wineries. These manufacturing uses are allowed in these districts only when they contain at least 25% of floor area devoted to retail and/or tasting of the product manufactured on the premises. Street-oriented active store frontage is required.

(7) Sale of Alcohol for Offsite Consumption. Retail establishments with the Department of Alcoholic Beverage Control license numbers 20 and 21 including general markets may sell alcohol for offsite consumption with approval of an administrative use permit if the sale of alcohol is clearly incidental to other principally permitted uses and represents less than fifteen percent of the total shelf space in the business; the business conforms with Section 24.12.1106(10) of the Santa Cruz Municipal Code; the hours of alcohol sales are limited to 7:00 a.m. to 12:00 a.m.; security mitigations approved by the Police Department to help prevent theft and sale of alcohol to minors, including but not limited to the potential for requiring alcohol to be located where it can be monitored by store personnel or security cameras, are provided; and single-serving alcohol containers other than beer are not provided for sale. This exception to the prohibition on single-serving alcohol containers does not include malt liquor, which remains prohibited.

Existing businesses that were approved to sell alcohol for offsite consumption prior to the enactment of the operational criteria are not required to obtain new administrative use permits but are required to comply with the operational criteria by October 10, 2020.

If the sale of alcohol for offsite consumption use is determined by the Planning or Police Departments to be a nuisance or to otherwise frustrate the intent of the Downtown Plan, the

DRAFT

City may initiate proceedings to revoke to the right to sell alcohol per Section 24.12.1112 and Title 4 of the Santa Cruz Municipal Code.

(8) Hotels/Motels. These uses are allowed as principally permitted uses along the east side of Front Street. No hotel rooms are allowed the ground level frontages or along the Riverwalk level frontage.

(9) Instructional Services - Schools, Business and Technical. Schools and studios for arts and crafts, photography, music and dance provided that such establishments are not located along Pacific Avenue frontage or east-west street frontage north of Laurel Street. A Special Use Permit is required (1) when located along Pacific Avenue frontage or (2) if located along east-west street frontage, provided the following conditions are met:

7. Any such establishment will not occupy more than 50 linear feet of frontage space;
8. Such establishment is compatible with nearby residential uses;
9. Such space is in compliance with the storefront and façade design and development standards; and
10. Such space is capable of being converted into retail use in the future.

These uses are permitted in the South of Laurel Area District subject to all other relevant storefront and building design standards.

(10) Live/Work Quarters. This use is not permitted within 50 feet of Pacific Avenue north of Sycamore. The residential component of a Live/Work space shall not be located on the ground level, unless the residence is located in the interior of the lot; i.e., the non-residential component of the space must have frontage on the public right-of-way or publicly accessible passageway. The non-residential component of the space must have a minimum frontage depth of ~~30~~ 20 feet. These uses shall also comply with the Building Façade and Storefront Standards and Guidelines for each district.

(11) Nightclubs, Establishments Providing Live Entertainment. These uses with stage/performance areas greater than 80 square feet or permitting dancing, and establishments serving alcoholic beverages not ancillary to food service will be considered for the ground level, subject to the following operating conditions:

a. Acoustical studies indicating that such uses can achieve the City's existing noise abatement standards;
b. The provisions of Part 12 of the Zoning Ordinance (for High Risk or Low Risk Alcohol Outlets) are met;
c. The establishments shall conduct business in accordance with the following "good neighbor operating procedures" as described in Section 3.f above.
d. The storefront adjacent to the street is designed in compliance with the storefront and building façade standards and guidelines and includes active people-oriented activities of visual interest to the pedestrian (e.g., food service/restaurant seating, retail frontage, queuing areas or artwork) and in no case shall the storefront occupy more than 50 linear feet of street frontage;
e. Such establishments are compatible with adjacent residential uses; and
f. Such space is capable of being transformed into retail use in the future.

(12) Medical Centers/Clinics and Professional Offices. Professional, editorial, real estate, insurance and other general business offices including space for non-profit organizations;

medical and dental offices; and medical, optical and dental clinics will be considered for the ground level subject to the following criteria. These uses:

a. Are prohibited along Pacific Avenue frontage (75 feet perpendicular to Pacific frontage property line and within 40 feet perpendicular to the east-west street property line), except when limited to interior ground floor space not fronting the street.

b. Must be compatible with existing and planned ground-level and upper-level permitted uses; and

c. Must be in compliance with the storefront and building façade guidelines and standards, and capable of being transformed into retail use in the future.

(13) Parking, Surface or Structured. Allow for the use of parking lifts within the required envelope of any parking garage. See subdistrict development standards for other specific parking criteria.

(14) Personal Services. Uses such as barber shops, laundry and clothes cleaning establishments; administrative, executive and financial services; and technology-related services are allowed with an AUP for the ground level in the Pacific Avenue Retail district and by right in the other subdistricts if it can be demonstrated that:

a. Such establishments are not located along Pacific Avenue frontage or along east-west street frontage (75 feet perpendicular to Pacific frontage property line and within ~~40~~20 feet perpendicular to the east-west street property line) from Water Street to Laurel Street and are, therefore, limited to the interior ground floor space. This requirement may be met within the business establishment by providing a retail use in the front ~~40~~20 feet of the space, with the personal service use provided in the area beyond that ~~40~~20 feet of retail space. Businesses that can provide a retail use in the front but cannot meet the ~~40~~20-foot requirement may apply for an administrative use permit for alternate space design provided that: 1) the business can demonstrate that there is a physical difference in the space that dictates the need for the exception, or 2) the business would contribute to the overall character and mix of uses in the downtown and would be expected to create a significant local or regional draw to the downtown.

b. Such establishments are compatible with existing and planned ground-level and upper-level permitted uses; and

c. Such establishments are in compliance with the storefront and building façade guidelines and standards, and capable of being transformed into retail use in the future without extensive remodeling.

(15) Health and Fitness Studios. These uses will be considered for ground-level use, provided that:

a. The storefront adjacent to the street is designed in compliance with the storefront and building façade standards and guidelines and active people-oriented uses are located adjacent to the street (e.g., retailing component);

DRAFT

b. In no case shall the storefront occupy more than 50 linear feet of street frontage or, in the South of Laurel Area, frontage adjacent to and oriented toward Santa Cruz Riverwalk;

c. Such establishments are compatible with adjacent residential uses; and

d. Such space is capable of being transformed into retail use in the future.

(16) Retail. The store space along the frontage of North Pacific Avenue, River Street and Water Street shall have the minimum perpendicular depth of forty (40) feet; however, such use may vary in depth along these streets provided that each street maintains an average retail depth of twenty five (25) feet.

(17) Thrift Stores or pawn shops with onsite donation operations. ~~These uses are prohibited along Pacific Avenue frontage (75 feet perpendicular to Pacific frontage property line and within 40 feet perpendicular to the east-west street property line).~~ The sale of second-hand goods is a permitted retail use, and these establishments will be subject to the same standards that apply to other establishments selling new goods of a similar nature. Thrift stores and other stores that accept donations or purchase goods from consumers for sale must limit these activities to no more than 20% of the floor area of the establishment, and can only accept goods during business hours.

(18) Art Galleries and Museums. These uses shall be open to the public.

(19) Recreational, Experiential Commercial Uses. Recreational uses or other active ground floor uses shall be visible from the street frontage.

(20) Sports/Multiuse Arena. One multiuse sports arena is permitted in the Downtown Plan Area. Details on use and design requirements found in Subsection K and in Appendix 8, Section 8.4.2.

DRAFT

	TABLE 4-2: Central Business Districts Use Allowances — Upper Floors (Includes Riverwalk Level)					
	P = Principally Permitted A = Administrative Use Permit S = Special Use Permit "—" = Not Permitted					
Use Categories	*Pacific Avenue Retail*	*Front Street Riverfront*	*Cedar Street Village*	*North Pacific*	*South of Laurel*	*Additional Regulations*
Residential						
Community Care Residential Facility	P	P	P/A	P	P	(1)
Dwellings, Multiple and Townhouse	P	P	P	P	P	(2)
Dwellings, One-Family & Two-Family	—	—	P	—	—	(2)
Dwellings, Flexible Density Unit Housing	P	P	P	P	P	(2)
Dwellings, SRO Single Room Occupancy Housing	P	P	P	P	P	(2)
Family Day Care Homes, Small or Large	—	P	P	P	P	(1)
Supportive and Transitional Housing	P	P	P	P	P	(2)
Commercial						
Banks and Financial Institutions	A	P	A	P	P	
Business Support Services	A	P	P	P	P	
Eating and Drinking Establishments						
- Bar, Tavern	A	A	S	A	A	(3)
- Brewpubs	A	A	A	A	A	(3)
- Bona Fide Restaurant	P	P	P	P	P	(3)
- Tasting Rooms	A	A	A	A	A	(3)
- Breweries, Distilleries and Wineries	A	A	A	A	A	(6)
General Market	P	P	P	P	P	
Hotels/Motels	A	P	A	P	P	(4)
Instructional Services - Schools, Business and Technical	A	A	A	A	A	(5)
Live/Work Quarters	A	A	A	A	A	
Nightclubs and Live Entertainment	S	S	S	S	S	(7)
Offices, Professional	P	P	P	P	P	(8)
Parking Facilities, Surface and Structured	A	A	A	A	A	(9)
Personal Services						
- General Personal Services	P	P	P	P	P	
- Health/Fitness Studio	A	A	A	A	A	(10)
Retail Sales including Thrift Stores/Pawn Shops	P	P	P	P	P	(11)
Theaters~~/Commercial Entertainment, Arcade, Billiard Hall~~ and Recreational,	P	P	S	P	P	

DRAFT

	TABLE 4-2: Central Business Districts Use Allowances — Upper Floors (Includes Riverwalk Level)					
	P = Principally Permitted A = Administrative Use Permit S = Special Use Permit "—" = Not Permitted					
Use Categories	*Pacific Avenue Retail*	*Front Street Riverfront*	*Cedar Street Village*	*North Pacific*	*South of Laurel*	*Additional Regulations*
Experiential, or Commercial Interactive Venues and other Indoor Recreation Uses						
~~Thrift Stores/Pawn Shops~~	~~S~~	~~S~~	~~S~~	~~S~~	~~S~~	
Institutional and Community Facilities						(3)
Community/Religious Assembly	A	A	A	A	A	
Day Care Centers	A	A	A	A	A	
Government Buildings	P	P	P	P	P	
Medical Centers and Clinics	A	A	A	A	A	(8)
Museums/Galleries/Cultural Institutions	A	A	A	A	P	(12)
Communication Facilities	P	P	P	P	P	(13)
Industrial and Other						
Artist Studio	A	A	A	A	P	
Bakery, microbrewery, handicrafts or similar light manufacturing and assembly use associated with retail sales/services	P	P	P	P	P	
Other Similar Uses as Determined by the Zoning Administrator to be consistent with the purpose of the subdistrict	P/A/S	P/A/S	P/A/S	P/A/S	P/A/S	

Additional Regulations – Upper Floor Uses.

(1) Community Care Residential Facilities. Facilities with fewer than 7 persons are principally permitted uses in the Cedar Street Village District. Community Care Residential Facilities with 7 or more persons require approval of an AUP. Supportive and Transitional Housing facilities are allowed with only those restrictions that apply to similar residential uses.

(2) Multi-family Housing. Residential uses shall incorporate sound attenuation space planning designs and construction materials and methods in accordance with General Plan requirements such that noise from nearby commercial activities do not unduly disturb occupants of new dwelling units. For properties east of Front Street between Soquel Avenue and Laurel Street, housing shall be at least 60% of the total floor area of any mixed-use housing project. This requirement does not apply to projects within 75 feet of Laurel Street or Soquel Avenue or projects where the primary use is visitor-serving.

(3) Eating and Drinking Establishments. All uses within this category shall be subject to City and State alcohol regulations. When applicable, all fast food and/or beverage establishments

(defined in the Zoning Ordinance) shall be conducted in accordance with the previously described "good neighbor operating procedures" previously described in section 3.f. of the Ground Floor Uses. Eating and drinking establishments are encouraged on the Riverwalk level to publicly activate the Riverwalk and connections to the Riverwalk and east/west publicly accessible spaces in the Pacific Avenue Retail District and South of Laurel Area. Outdoor rooftop dining is allowed when associated with an upper-level restaurant/eating and drinking establishment.

(4) Hotels/Motels. These uses are allowed as principally permitted uses along the east side of Front Street and do not require the incorporation of upper-level housing. No hotel rooms are allowed along the ground floor frontages or along the Riverwalk level frontage.

(5) Instructional Services - Schools, Business and Technical. Schools and studios for arts and crafts, photography, music and dance provided that such establishments are compatible with nearby residential uses.

(6) Breweries, Distilleries and Wineries. These manufacturing uses are allowed in these districts only when they contain at least 25% of floor area devoted to retail and/or tasting of the product manufactured on the premises.

(7) Nightclubs, Establishments Providing Live Entertainment. These uses with stage/performance areas greater than 80 square feet or permitting dancing, and establishments serving alcoholic beverages not ancillary to food service, are subject to the following operating conditions:

a. Acoustical studies indicating that such uses can achieve the City's existing noise abatement standards;

b. The provisions Part 12 of the Zoning Ordinance (for High Risk or Low Risk Alcohol Outlets) are met;

c. All such establishments are conducted in accordance with the previously described "good neighbor operating procedures"; and

d. Such establishments are compatible with nearby residential uses.

(8) Medical Centers/Clinics and Professional Offices. Professional, editorial, real estate, insurance and other general business offices including space for non-profit organizations; medical and dental offices; and medical, optical and dental clinics will be considered for upper levels subject to the following criteria. These uses must be compatible with existing and planned ground-level and upper-level permitted uses.

(9) Parking, Surface or Structured. Allow for the use of parking lifts within the required envelope of any parking garage. See subdistrict development standards for other specific parking criteria.

(10) Health and Fitness Studios. These uses will be considered for upper level use, provided that such establishments are compatible with adjacent residential uses.

(11) Retail Sales. In the Pacific Avenue Retail District, second level retail sales are allowed subject to the approval an Administrative Use Permit when the second level is connected to

the same business on the ground floor, subject to being compatible with and minimizing impacts to nearby residents. Riverwalk retail is allowed subject to the approval of an Administrative Use Permit to publicly activate the Riverwalk. Retail space should be evaluated in the context of adjacent projects to ensure uses are compatible, active and enhance the Riverwalk.

(12) Art Galleries and Museums. These uses shall be open to the public.

(13) Communication Facilities. Uses are subject to the regulations in Part 15 of Chapter 24.12.

DRAFT

B. PACIFIC AVENUE RETAIL DISTRICT DEVELOPMENT STANDARDS

1. Building Height

The intent of the development standards in the Downtown Plan is to create an urban core with efficient, intensified land uses. The following height standards shall apply to all development within the Pacific Avenue Retail District, including frontage along Pacific Avenue and the east-west streets within the subarea. All buildings must conform to the Base Height requirements, except for provisions for additional height within the "Additional Height Zone A", or by compliance with any density bonus program or provisions available in state or local law. ~~The intent of the standards is not to create a five-story downtown, but rather to preserve the overall character and scale of the historic core while allowing some intensification and increased height on larger parcels.~~ Given the highly urbanized nature of the downtown with the most intensive land uses in the City, building heights exceeding base height standards are not expected to create any coastal resource impacts as a result of the increased intensity.

a. Floors. No new building shall be less than two stories in height. The second story shall be at least 50 percent of the ~~first~~ ground floor area and shall be located toward the street frontage. An exception may be made for building recessed breaks as described for the Additional Height Zones.

b. Floor-to-Floor Height. The ~~first~~ ground floor uses must have a minimum floor-to-floor height of 18 feet for properties north of Cathcart Street and 15 feet minimum ~~south of~~ between Cathcart Street and Laurel Street. Any mezzanine shall be set back at least ~~30~~20 feet from the building line on the street and shall occupy no more than one ~~third~~ half of the area of the first floor.

c. Base Height and Floors. No new development shall exceed a Base Height of 55 feet (measured to the top of parapet or eaves), except as provided for in the "Additional Height Zone A". Within this Base Height, no more than 3 floors of upper-level uses above the ground-level retail use will be permitted within the maximum 55 feet Base Height. (See Figure B-~~1~~4.)

2. Floor Area Ratio

The Downtown Plan Area includes two standards for Floor Area Ratio (FAR) which represent the maximum building volume that may be developed on any property within the Downtown Plan Area, except by compliance with any density bonus program or provisions available in state or local law. See Figure B-5. North of Laurel Street, sites may develop up to 5.0 FAR of building area; South of Laurel Street, sites may develop up to 3.5 FAR of building area. FAR is calculated for a site prior to subtracting any required public dedications. FAR will be calculated consistent with the standard definitions and requirements of the zoning ordinance, except that required ground floor commercial space is counted once regardless of interior height.

DRAFT

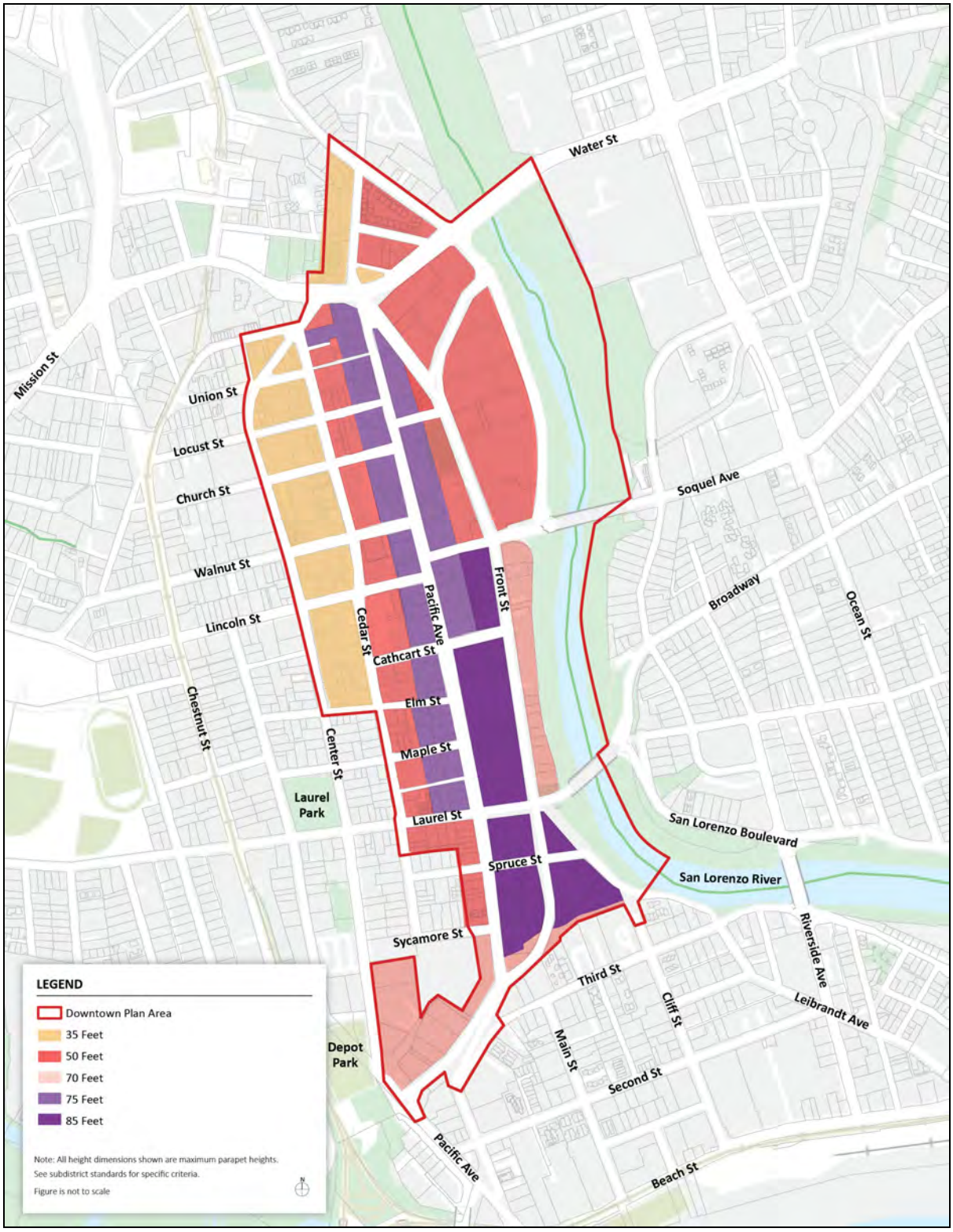


Figure B-1: Downtown Plan Area Maximum Building Heights

* See following figures for further detail on building heights.

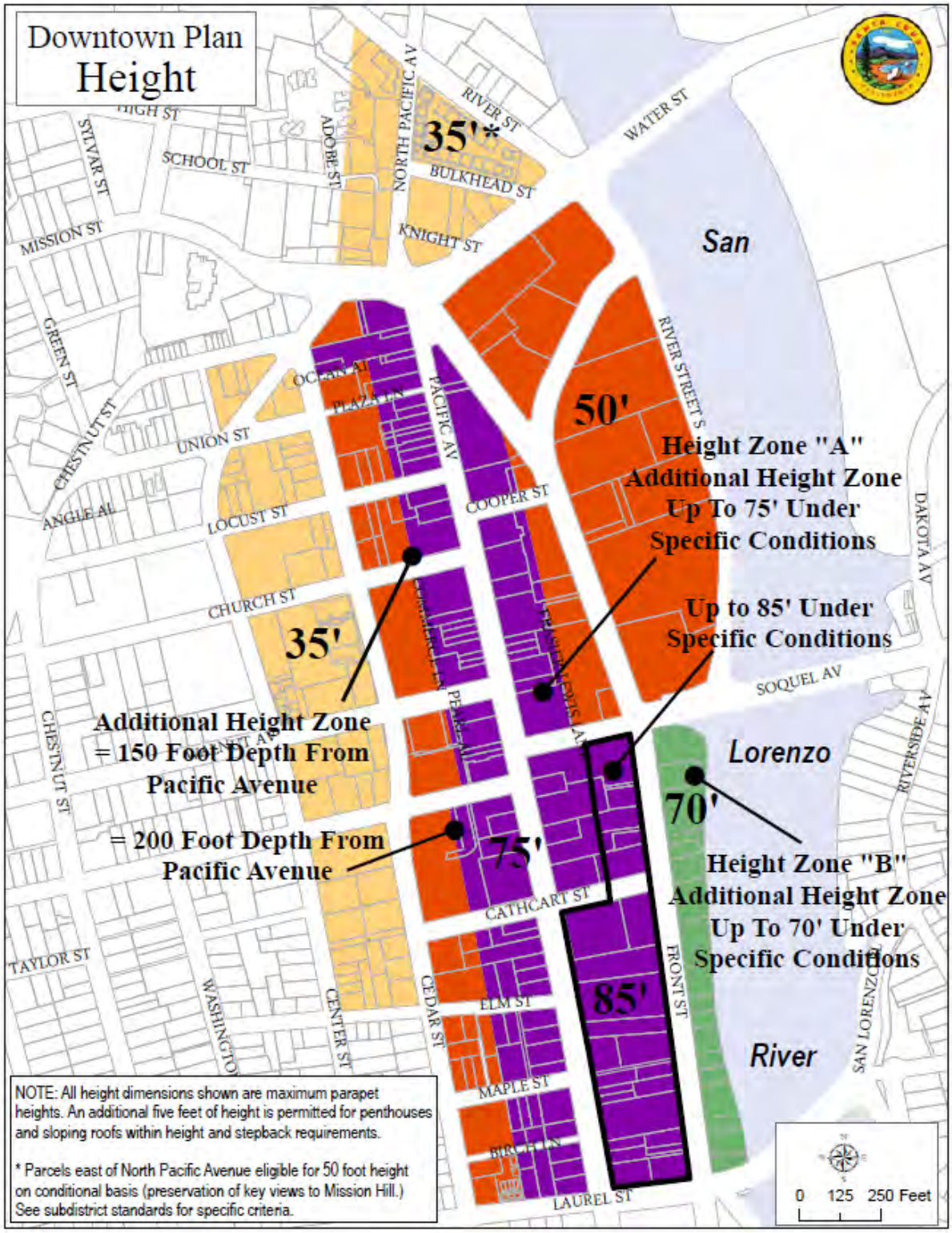


Figure ~~A-1~~ B-2: Downtown Plan Height, North of Laurel Street

*An additional 15-feet of height above the height limit indicated is allowed for activated roof top amenity structures pursuant to the standards listed in Section J.16 (ALL CENTRAL BUSINESS DISTRICTS OTHER DEVELOPMENT STANDARDS AND DESIGN GUIDELINES).

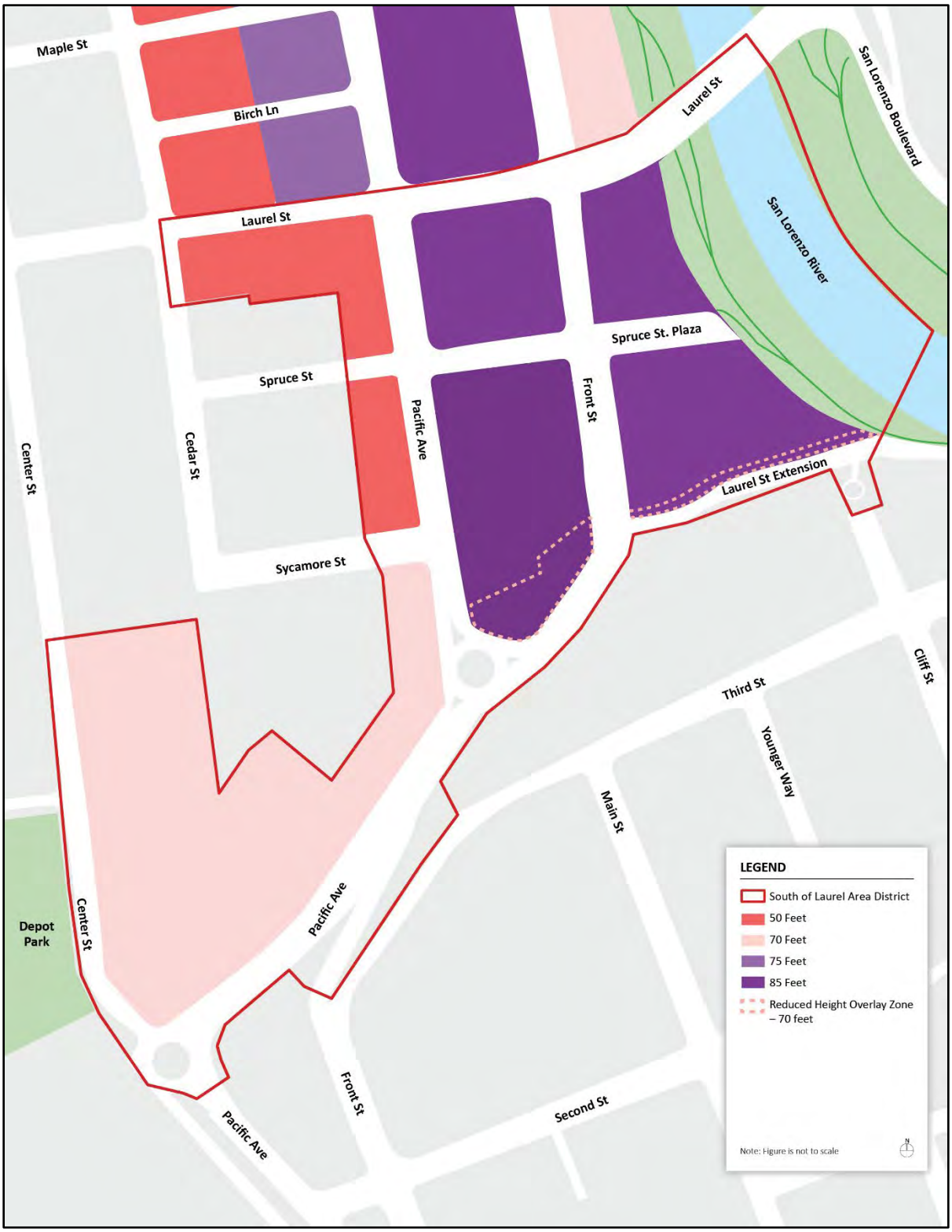
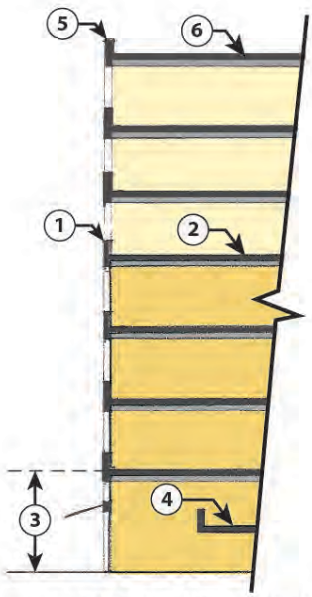


Figure B-3: Downtown Plan Height, South of Laurel Street

*An additional 15-feet of height above the height limit indicated is allowed for activated roof top amenity structures pursuant to the standards listed in Section J.16 (ALL CENTRAL BUSINESS DISTRICTS OTHER DEVELOPMENT STANDARDS AND DESIGN GUIDELINES).



COMMERCIAL OR MIXED-USE

BASE HEIGHT

1. Maximum 55' to top of parapet
2. Maximum 3 floors of commercial or residential above 1 level of commercial
3. Minimum 15' ground level floor-to-floor dimension (South of Cathcart)
   Minimum 18' ground level floor-to-floor dimension (North of Cathcart)
4. Maximum mezzanine area = 33% of ground level floor area

ADDITIONAL HEIGHT ZONE A

5. Maximum 75' to top of parapet for 60% of site area on sites 15,000 to 50,000 sf;
   Maximum 85' to top of parapet for 20% of site area for sites >50,000 sf
6. Maximum 6 floors of commercial or residential above 1 level of commercial *

**Within the massing and stepback requirements for additional height.*

Figure B-4: Maximum Building Heights and Floors, north of Laurel Street.

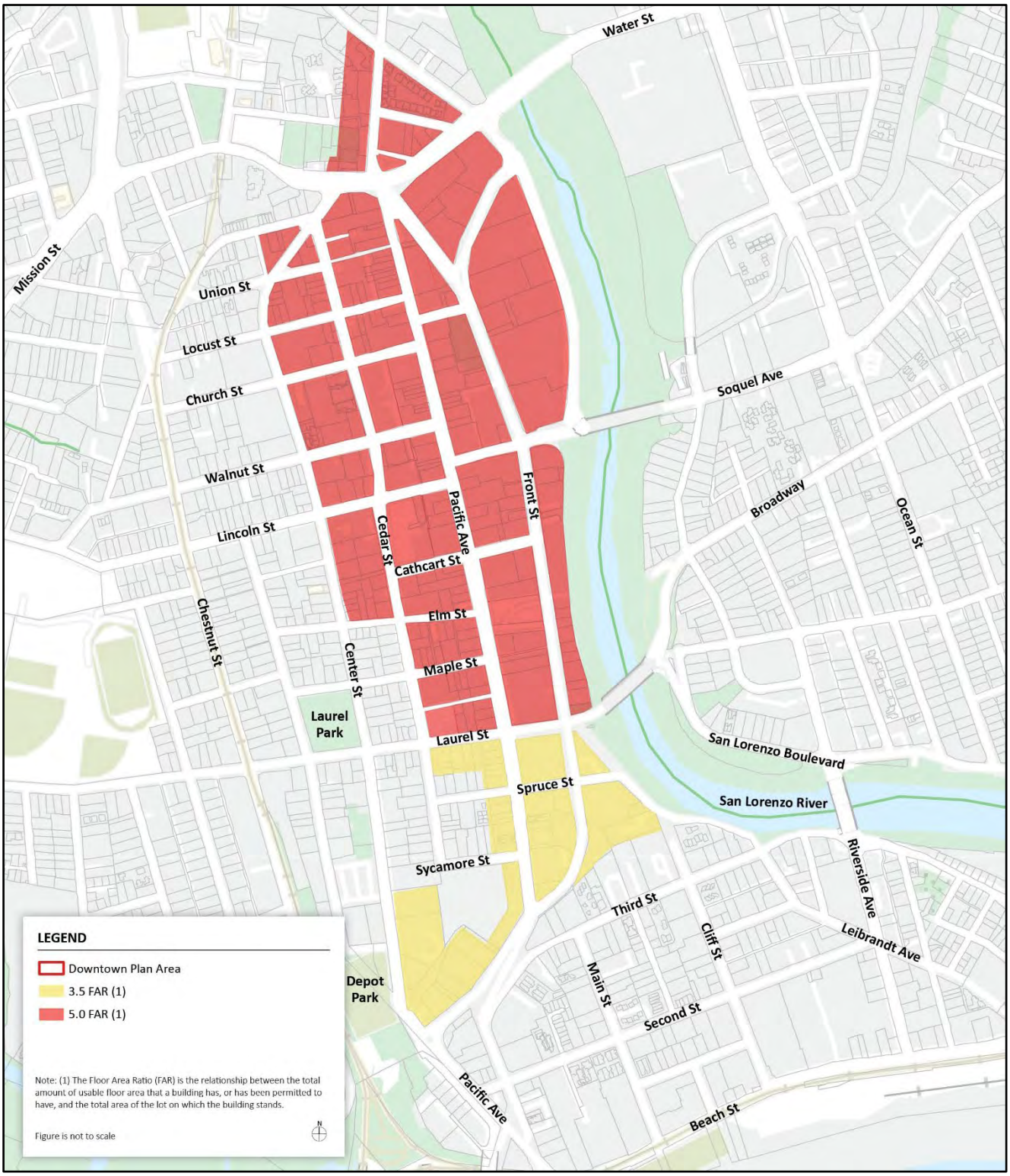


Figure B-5: Downtown Plan Floor Area Ratio Limits

*Floor Area Ratio is a relationship between allowable interior, above-ground building square footage, and size of the developable area of the parcel. This map shows the maximum allowed FAR absent any incentives or density bonus.

a. Mechanical Penthouses. Uninhabitable mechanical penthouses will be permitted above the Base Height ~~to~~ by a maximum ~~height~~ of ~~65~~ 20 feet, provided that such penthouses are set back a minimum of 15 feet from any exposed face of the buildings, unless such penthouses are architecturally integrated into the building façade design.

b. Sloping Roofs. (45 degrees/1:1 pitch or flatter) shall be permitted up to a maximum height of 60 feet, measured to the top of the sloping roof. For projects not eligible for the Additional Height, street wall heights shall not exceed the base height limit of 55 feet.

c. Visual Impact Study. Any site that is located where the east-west street does not cross Pacific Avenue (sites with frontage on Locust, Church, Walnut, Lincoln, Soquel, Elm, ~~and~~ Maple and Sycamore Streets) must prepare a visual impact study to determine how the proposed building would be viewed from the east-west street from a pedestrian eye-level.

2. Build-to Lines and Setbacks

To ensure that Pacific Avenue and the east-west streets are spatially well defined, all development shall be built to the property line of the street. The following exceptions to this condition are noted:

a. Active Outdoor Uses. Setbacks of up to 12 feet in depth are permitted along the northern property line of Cathcart Street, if such setbacks are intended to provide active outdoor uses (e.g., outdoor dining or public seating) oriented to the street.

b. Laurel Street Sidewalk. Require any development along either the north or south side of Laurel Street between Pacific Avenue and Front Street to dedicate sufficient property to result in a sidewalk depth of at least 12 feet. The precise dedication shall be consistent with the final Laurel Street design and shall be established with a build-to line.

c. Front Street Sidewalk. Require any development along the west side of Front Street between Cathcart Street and ~~Laurel Street~~ Pacific Avenue to dedicate sufficient property to result in a sidewalk depth of at least 12 feet.

d. Recessed Storefronts. ~~Minor g~~Ground-level storefront setbacks are permitted and encouraged ~~permitted~~ within the provisions of the storefront and building façade standards and guidelines. Recessed storefronts ~~up to six feet in depth and twenty-five feet in length~~ may occur where a designated outdoor use, such as an outdoor café, is an integral part of the retail business.

3. Public and Private Parking Facilities

The Pacific Avenue Retail District is within the Downtown Parking District #1 and, as such, shall comply with all parking requirements set forth within that district. On-site parking will not be permitted unless it meets one or more of the following conditions:

a. Below Grade Parking ~~and Access Driveways.~~ Parking is provided completely below grade, and access driveways to the parking facility do not conflict with the movement of pedestrians or vehicles within the area. ~~No driveways shall be permitted along Pacific Avenue.~~

b.

c. Visual Screening. Surface or above-grade structured parking can be provided if the parking is visually screened and separated from Pacific Avenue and east-west streets by retail development and if such parking can be accessed from an east-west street or rear service lane.

d. West Side Front Street. Allow parking facilities along the west side of Front Street south of Soquel Avenue where only one driveway curb cut shall be permitted per facility per street frontage; the parking facility shall not extend to street corners; and the parking facility shall be architecturally integrated within the overall building composition.

4. Driveways and Curb Cuts

No driveways shall be permitted along Pacific Avenue or Spruce Street. Limit on-site driveways along Front Street and the southern portion of Pacific Avenue after the intersection of Pacific Avenue and Front Street to a maximum of one driveway per property or at a spacing of at least 200 feet; driveways should be no more than 24 feet in width and to the extent practicable should be spaced from an adjacent driveway by at least 200 feet. Wider driveways may be considered based on a demonstrated need to accommodate specific vehicle operations of a proposed development.

5. Special Conditions for Maple Street Fronting Parcels 005-152-08, 005-152-17, 005-152-18, and 005-152-22.

Buildings fronting the 10-foot Maple Street alley between Pacific Avenue and Front Street shall be set back 20 feet to provide for a 50-foot wide public paseo, lane or street. If the above aggregated parcels are redeveloped together, the aggregated parcel size prior to the dedication exceeds the 15,000 square feet threshold to qualify for heights above the 55 foot base height, and shall be developed in conformance with the Additional Height Zone A performance standards. As a result of the required dedication, development on these aggregated parcels shall not be required to provide on-site parking. Developers of the aggregated parcels may pay parking fees to the Downtown Parking District in lieu of meeting the on-site parking requirements. A parking credit shall be applied to the project based on the amount of land dedicated to the City to expand the alley.

6. Special Conditions for Elm Street Pedestrian Connection (Parcel 005-152-31, 005-152-30, 005-152-05, 005-152-32, and 005-152-33).

Development of the above parcels shall include a 30-foot wide publicly accessible pedestrian connection between Pacific Avenue and Front Street. The public passageway shall be located in the vicinity of Elm Street (within approximately 50 feet of Elm Street extension). The passageway shall be integrated into the design of the development.

C. PACIFIC AVENUE RETAIL DISTRICT
BUILDING FAÇADE STANDARDS AND GUIDELINES

The intent of the urban design standards and guidelines for the Pacific Avenue Retail District is to reinforce the unique townscape qualities of the downtown, to introduce diversity and variety that will enhance the visual interest and comfort of the pedestrian, and to extend the landscape qualities of the streetscape into the private realm. The building facades of the downtown have a significant effect on the public identity and character of the downtown and, as such, need to be carefully considered.

1. Building Facades.

Building facades ~~shall~~ should respond to the character and composition of existing commercial buildings along Pacific Avenue. More specifically, facades shall be composed with 3 clearly distinct zones: the storefront, ~~up to 18 feet in height or 15 feet south of Cathcart Street~~ up to the required minimum heights based on location; the upper ~~two to three~~ stories of the facade to the established ~~parapet height~~ Base Height (e.g., 50/55/70/85 feet); and the roof and cornice treatment, which includes the visible portions of any additional height permitted above the ~~Base Height of 55 feet~~ established base height, based on location. This compositional approach is consistent with the existing building facades along Pacific Avenue, as well as the desire to reinforce the pedestrian realm and avoid the creation of monolithic vertical walls along the street edge. A separation of treatment shall be clearly established between the ground-level storefront and the upper building levels, utilizing a strong belt course or architectural line, and through the specific storefront treatment described below. Similarly, a strong cornice line or roof treatment is encouraged to promote variety and a distinctive silhouette along the street.

2. Adjacent Buildings.

The composition of building facades ~~shall~~ should also be considered in relation to adjacent buildings of historic or architectural value. While it is not the intent to maintain a consistent treatment along the street edge, the composition of new development shall seek to be harmonious and compatible with elements of adjacent structures, such as window proportions, the design of horizontal belt courses and cornice treatments, building materials and architectural elements.

3. Upper-Level Facades. (i.e., the ~~two to three~~ levels of building wall above the ground floor ~~up to the 55-foot Base Height~~)

Upper-level facades ~~shall~~ should provide a counterpoint to the storefronts below and provide a visually interesting and varied edge to the public space of the street. In general, the upper-level façade ~~shall~~ should ~~be built to the property line and~~ consist of carefully composed "punctured openings" within a richly detailed wall. A variety of treatments shall be introduced to create richness in both the horizontal and vertical planes, including:

- balconies
- bay windows
- flower boxes
- awnings

- cornice and belt courses
- building modulation as described in SCMC 24.12.185.~~, etc.~~

4. Streetwall.

To create a visually interesting "streetwall" with a rhythm and cadence that is reflective of the pattern of development along Pacific Avenue, building facades shall introduce variation at general intervals of 25 to 50 feet horizontal distance with the use of:

- fenestration,
- architectural elements,
- building materials, and/or
- building planes.

Large, uninterrupted expanses of horizontal or vertical wall surface shall be avoided. Regardless of property lines, the appearance shall be of a street with varying architectural treatments at intervals of no more than 50 to 75 feet. The multiple rhythms shall be created through the careful design of building elements and three-dimensional articulation of building elements sufficient to mitigate the presence of long, blank walls along Pacific Avenue, Front Street, ~~and~~ Cedar Street, the Spruce Street Plaza, the east-west streets, and the alleys. Elements that make up the rhythmic variation may include, but are not limited to:

- recessed windows as described in SCMC 24.12.185;
- projecting windows;
- bay windows;
- structural elements;
- surface textures, patterns and colors;
- trim elements;
- balconies;
- belt-cornices;
- cornices;
- building modulations as described in SCMC 24.12.185;
- awnings and shutters; and
- landscape elements including living walls or vines.

11. Cornices and Belt Courses.

Overhead horizontal projections (providing at least 8 feet of clearance above grade) of a purely architectural or decorative character such as cornices, eaves, sills and belt courses shall define the building elements (base, middle and top) and create three-dimensional interest in the façade, provided that they do not project more than:

a. At roof level, 3 feet into the public right-of-way or a designated setback area.

b. At every other level, 1 foot into the public right-of-way or designated setback area.

12. Windows.

Building walls shall be punctured by well-proportioned openings that provide three dimensional relief, detail, interest and rhythmic variation on the facade. Variation in rhythm

shall be provided both horizontally and vertically. Large expanses of glass on the upper levels shall be considered only where activities of interest to the pedestrian can be highlighted, and in such cases, the design of these openings shall be carefully integrated within the overall facade composition. Windows shall be recessed a minimum of six inches from the face of the wall to emphasize the thickness of the wall consistent with the historical, traditional and newer buildings on Pacific Avenue; or windows other than bay windows may project from the wall six inches maximum into the public right-of-way. Windows shall be of high quality and shall be operable at the upper level and composed of elements that emulate the size and detail of the windows on Pacific Avenue. Window moldings and/or shutters with projections up to six inches are encouraged to provide detail, shade and articulation to building facades.

13. Upper Level Bay Windows and Balconies.

Bay or projecting windows and balconies are encouraged and may be permitted on upper levels of buildings, provided that a minimum of 10 feet of clearance is provided to grade and that the following provisions are met:

a. The projection into the public right-of-way or designated setback area is no more than 3 feet; where sidewalks are less than 10 feet in depth, this projection shall be limited to 2 feet; along alleys, no projection shall be closer than 8 feet to the centerline of any alley.

b. The glass area of the bay window, and the open portions of each balcony, shall not be less than 50 percent of the total area of the vertical surfaces of the projection.

c. Bay windows and balconies shall "punctuate" rather than dominate the facade; to this end, the maximum length of bay windows shall be 15 feet at the property line or setback line; this width shall be reduced to a maximum width of 9 feet at the full projection of 3 feet, by means of 45 degree angles at the sides of all projecting bay windows. Perpendicular bay windows and balconies (or projections at a different angle) may be permitted, provided that they remain within the outside dimensions described above. Unless balconies are used as a means of distinguishing the storefront area from the upper-level facades, they shall be generally 15 feet in width or less.

d. The minimum horizontal separation between bay windows, between balconies, and between bay windows and balconies shall be three feet as measured from the face of the building wall along the property line or setback line. A bay window or balcony shall not occur within two feet of the building edge. The intent of this guideline is to ensure that bay windows and balconies do not visually dominate the building wall.

14. Skyline Architectural Variations.

Special attention shall be paid to the articulation of the top portion of buildings such as variation in height, massing, materials, horizontal bands, cornices and parapets. Rooflines shall be broken at intervals no greater than 50 to 60 feet by roof elements or step backs to reinforce the predominant building increment along Pacific Avenue. Interesting and varied roof forms are encouraged. Rooftop equipment shall be completely concealed from view and

integrated within the architectural vocabulary of the building. The use of landscaped roof terraces and gardens is also recommended. Refer to Section H. *Additional Height Zones* for further regulations and guidelines related to tops of buildings in those mapped areas.

15. Building Materials.

To extend the character of the existing downtown, building materials shall evoke honesty, durability and solidity. Stone, brick, ~~and~~ triple-layer stucco and other marine-grade materials, richly detailed to provide visual interest and variation, are encouraged as the predominant building materials. While wood and metal are desirable materials for window casings and trim, large expanses of wood or metal siding are discouraged as the predominant building materials. Such materials are considered appropriate for ornamental elements on the facade. Applied brick tiles that attempt to give the appearance of genuine masonry are also discouraged as the predominant building material. Decorative ceramic tiles are encouraged, however, as accent features. Reflective glass is prohibited. Living walls, as defined and regulated in SCMC Section 24.12.185 shall also be permitted as either a predominant or accent material.

16. Colors.

Materials shall be relatively light in color. To create a lively visual environment, earth tones, terra-cotta, pastels or whites, accented with dark or bright colors, are recommended. Roofing materials and accenting features such as canopies, cornices, tile accents, etc. shall also offer color variation. The color scheme for the building shall be compatible in color and value with the adjacent structures and shall be compatible with and sympathetic to the overall color palette of the buildings in the block and the downtown.

17. Landscape Provisions.

To promote a unique image and identity of downtown in its coastal setting, buildings shall incorporate provisions for planting, including flower boxes, topiary planting, and climbing vines. Plant materials within the planters, planting beds, flower boxes and flower pots shall provide color and variety throughout the year. The use of artificial plants shall not be permitted.

At least two of the following landscape concepts shall be incorporated into each Pacific Avenue or East-West Streets, including the Spruce Street Plaza, façade design (or 30 feet of retail frontage). In general, the landscape shall aggregately cover a minimum of 25 percent of the length of the storefront:

a. Landscape setbacks up to 18 inches in depth.

b. Landscape planters recessed into Pacific Avenue sidewalk, up to 18 inches into the public right-of-way.

c. Planter boxes no more than 24 inches in height may be permitted to project into the public right-of-way up to 18 inches. Window boxes also may be permitted to project from bay windows and balconies by 18 inches. Planter and window boxes shall provide internal and concealed drains connected to roof drains to avoid overflow to

the street; they shall also be designed with high quality durable materials that are compatible and integral with the building façade.

d. Hanging flower pots may project into the public right-of-way up to 18 inches and shall have a minimum 8-foot clearance within the public right-of-way unless hanging directly above planter boxes.

e. Trellis structures supporting climbing vines that may project up to six inches into the public right-of-way or, where more than eight feet above the sidewalk, may project up to 18 inches into the public right-of-way.

f. Living Walls, a minimum of 4 feet wide and 8 feet in height, as defined in SCMC Section 24.12.185.

18. Rear Service Alleys.

Upper-level facade treatments adjacent to the rear service lanes shall be consistent in quality and design with treatments adjacent to public streets and rights- of-way. The use of planting (e.g., planter and window boxes, trellises, topiary) on building facades adjacent to the service lanes is particularly encouraged to enhance the visual and pedestrian character of the alley.

19. Exterior Lighting.

Buildings shall provide warm (color temperature equal to incandescent), low-level lighting from sundown to 10:00 PM nightly as an integral part of the façade design to add to the nighttime ambient light level in the downtown and to add nighttime visual interest to the buildings. Accent lighting using warm, low-level energy efficient light sources is encouraged as an integral part of the facade design.

14. Property Line Walls.

Where a building shares a property line with an adjacent property or building, mitigate the potential for large blank walls as follows:

a. Where the adjacent building is lower than the proposed building, the property line wall shall be set back from the property line sufficient to allow windows in the new wall; or

b. The applicant shall seek an easement from the adjacent property owner to allow windows (subject to the future redevelopment of the adjacent property). Mitigation measures shall be incorporated to allow windows under the Building Code.

c. This provision may be modified by the Planning Director, subject to the preparation of a visual computer simulation of the building in context of the building viewed from key points at pedestrian eye level down Pacific Avenue and key intersecting streets. The applicant may pursue the option of adding murals or other artistic decoration in collaboration with the City's Arts Commission when authorized by the Planning Director.

DRAFT

D. PACIFIC AVENUE RETAIL DISTRICT
STOREFRONT STANDARDS AND DESIGN GUIDELINES

All storefront improvements with an improvement cost of more than $10,000 require a Design Permit. All storefronts in a new building or re-developed building shall conform to the following storefront design standards:

1. Primary Entrance. All buildings with frontage along Pacific Avenue shall have a primary entrance on Pacific Avenue.

2. Blank Walls. All buildings with frontage on Pacific Avenue or the East-West streets shall not have blank walls exceeding ten (10) feet in length. Blank walls shall be mitigated with trellises and/or climbing plants or other architectural, artistic, or landscape elements.

3. Door Entry Frequency. Establishments with frontage along Pacific Avenue shall provide door entries no further distant than 50 feet along the Pacific Avenue or east-west street frontage.

4. Open Entries to Street. Street front entries shall remain unlocked and unblocked and shall remain in use during store hours.

5. Unique Entrances. The ground floor frontage along Pacific Avenue shall be modulated, articulated, textured, colored and given such other architectural treatment to provide a visually differentiated store "front" every 25 to 50 feet.

6. Entrance Design. Storefronts shall incorporate at least two of the following design concepts into the storefront designs.

   a. Bay Windows. Provide bay windows up to 12 feet in length that may project up to 12 inches into the public ROW - where the bay window has glazing on all projecting faces.

   b. Porticos. Provide porticos around the entry door that may project up to 12 inches into the public ROW.

   c. Awnings. Provide awnings that may overhang the sidewalk a maximum of 6 feet with a vertical clearance above the sidewalk between 8 feet and 14 feet.

   d. Marquees~~is~~. Provide permanent marqui~~s~~ees structures or canopies that project from the building at entries (~~maximum 10 feet in length,~~ minimum height 8 feet above the sidewalk and maximum projection of 6 feet into the ROW).

   e. Signs. Provide decorative signs that project into the ROW per Central Business District sign ordinance.

   f. Glazing. The use of reflective or tinted glass in ground level show windows is prohibited.

DRAFT

g. Store Displays. Store displays shall be configured in such a way as to allow pedestrians to see into the store from the sidewalk. Goods, posters, photos or other visual images shall be placed a sufficient distance from the store windows to enable pedestrians to see clearly into the store.

DRAFT

E. FRONT STREET/RIVERFRONT CORRIDOR DEVELOPMENT STANDARDS AND DESIGN GUIDELINES

1. Height and Stepback Requirements

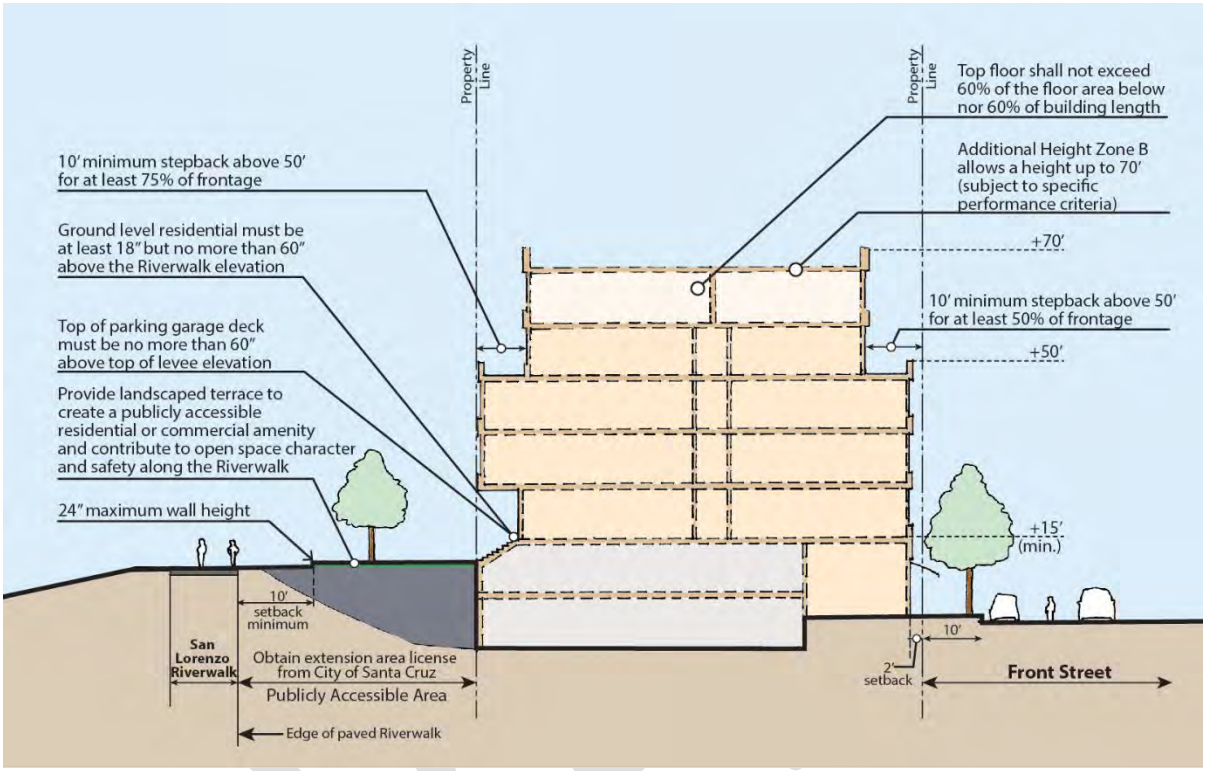


Figure E-1: Proposed base and additional height and stepback requirements along the Front Street/ Riverfront Corridor. Does not apply South of Laurel Street.

a. Base Height and Floors. No new development shall exceed a base height of 50 feet (measured to the top of parapet or eaves on the highest floor), except by compliance with any density bonus program or provision of state or local law, or where Additional Height Zone B applies (See Section H: *Additional Height Zones*). Within this base height, no more than 3 floors with a mix of uses above the ground-level retail use will be permitted within the maximum base height of 50 feet. Given the highly urbanized nature of the downtown with the most intensive land uses in the City, building heights exceeding Base Height standards through use of a density bonus provision of law, are not expected to create any coastal resource impacts as a result of the increased intensity.

b. Mechanical Penthouses. Uninhabitable mechanical penthouses will be permitted above the base height by a maximum height of ~~60~~ 20 feet, provided that such penthouses are set back from the face of buildings by a minimum of 15 feet and that sloping roofs meet the provisions of c. below, unless the penthouse is architecturally integrated into the building facade.

c. Upper Level Stepbacks from Streets and Public Passageways. In order to promote a pedestrian scale, to increase light to the street, and to reduce overall building mass and scale, development above 50 feet in height shall be required to step back from the Front Street façade a minimum of 10 feet. At least 50% of building frontage along Front Street and Soquel Avenue shall step back 10 feet above the height of 50 feet. Buildings adjacent to River Street, east-west streets, and publicly accessible passageways shall step back at least 10 feet from the street for any height above 35 feet.

d. Upper Level Stepback from River. Along the west side of the Riverwalk, development shall step back 10 feet from the exterior wall face above the 50 foot height level as measured from Front Street sidewalk elevation. Allow up to 25% of the length of the Riverwalk building frontage to encroach into or eliminate the required 10-foot stepback ~~area~~ to provide for massing variation. (See Figure E-1).

2. Build-to Lines and Setbacks.

In order to promote well-defined streets, development shall generally be required to be built to the property line adjacent to public streets. The following exceptions to this condition are noted:

a. Sidewalk Width. In locations where the sidewalk is less than 12 feet wide, development shall be set back from the property line to create a 12-foot sidewalk. Development along Laurel Street and Front Street shall dedicate sufficient property to result in a sidewalk depth of at least 12 feet. The precise dedication shall be consistent with the final Laurel Street design and shall be established with a build-to line.

b. Gateway Landscaping. New development along Water Street (south side), Laurel Street (north side), and Soquel Avenue shall be set back from the sidewalk by 10 feet to allow for generous gateway landscaping treatment. Additional considerations for the South of Laurel Area District are in discussed in Appendix 8.

c. Building Length. Between Soquel Avenue and Laurel Street, limit the length of individual buildings along Front Street to a maximum of 300 feet of lineal street frontage, subject to the performance criteria for improved public access to the Riverwalk from Front Street at the key connection points of Cathcart Street, near Elm Street and Maple Street. (See Figure E-2)

d. Riverwalk Property Line. No setback from the Riverwalk property line is required.

e. Encroachments. Development along the Riverwalk shall not encroach beyond the property line of the parcel, except in cases where levee-facing "people- oriented" commercial activities incorporate public access points to the Riverwalk. Top floor cantilevered portions of the building are allowed to encroach over the property line a maximum of 5 feet in order to provide architectural interest to the façade. Such cantilevered encroachment over the property line shall not exceed 25 percent of the total building frontage along the riverfront.

DRAFT

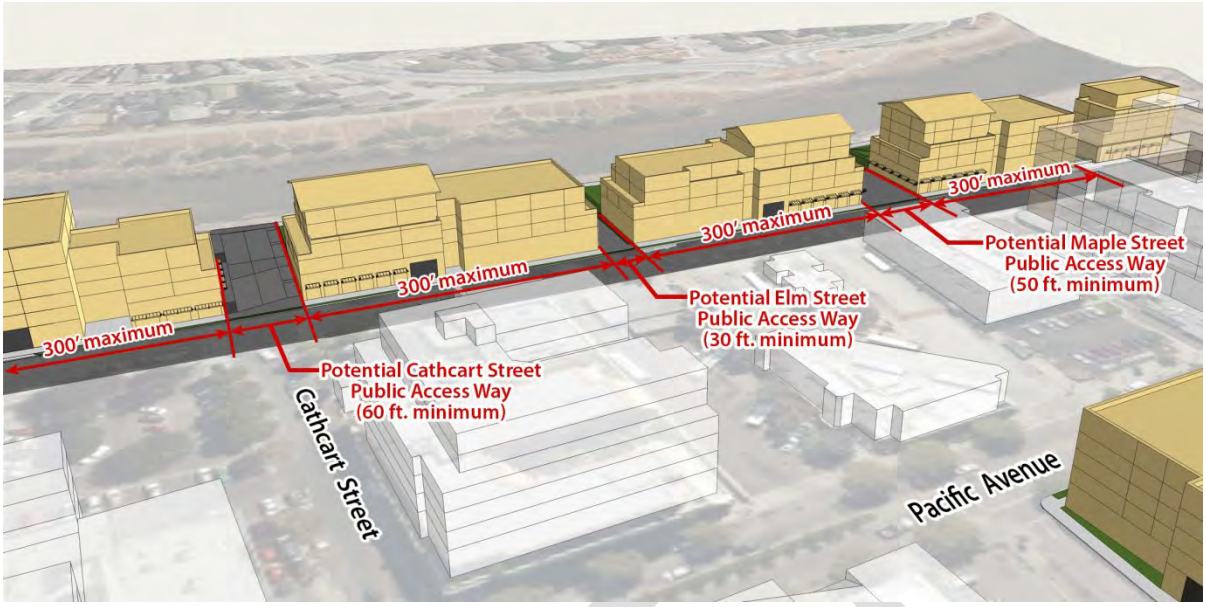


Figure E-2: Proposed building massing and public access requirements along Front Street and the riverfront.

3. Storefront Treatment.

While it is recognized that the Front Street/Riverfront Corridor is less pedestrian intensive than the Pacific Avenue District, the ground-level treatment of commercial buildings and parking structures within the area shall ~~generally~~ comply with ~~those~~ the standards and guidelines established for the Pacific Avenue Retail District in Section D: Pacific Avenue Retail District Storefront Standards and Design Guidelines except as noted below. ~~in terms of: storefront access, transparency and variation; and the use of awnings and canopies~~. Special attention shall be given to the treatment of intersections, to reinforce their gateway role to Pacific Avenue and to create a high level of interest and activity along the street. The following features shall be regulated differently than prescribed in Section D: Pacific Avenue Retail District Storefront Standards and Design Guidelines for portions of buildings located adjacent to the Front Street/Riverfront Corridor:

a. Blank Walls: Building walls within 25 feet of the Front Street right-of-way shall be broken by a massing break, entryway or fenestration (including bay windows) a minimum of every 25 feet. Blank walls shall be mitigated with trellises and/or climbing plants or other architectural, artistic, or landscape elements. Landscape elements such as Living Walls a minimum of 4 feet wide and 8 feet in height, as defined in SCMC Section 24.12.185, are particularly encouraged.
b. Door Entry Frequency: Building facades along Front Street, shall incorporate door entries at least every 100 feet.

4. Riverwalk Promenade.

The Riverwalk Promenade is the paved bicycle and pedestrian path on top of the river levee. The interface between the public Riverwalk and the adjacent private development is a vitally important element of the Downtown Plan. As such, all development along the Riverwalk will involve some form of public/private partnership and cooperation. Key performance criteria include:

a. Riverwalk Setback. Residential or outdoor commercial uses adjacent to the Riverwalk shall be no closer than 10 feet from the western edge of the physical walkway, except where "people-oriented" commercial uses incorporate public access points to the Riverwalk. South of Laurel Street ground floor uses shall incorporate "people-oriented" uses such as, but not limited to, dining establishments, entertainment uses, and drinking establishments.

b. Levee Fill. All development shall fill the western slope of the levee (which may include both public and private property) as directed by the City of Santa Cruz and Army Corps of Engineers to create a level condition between the Riverwalk and the adjacent building. The filled area may terrace up from the maximum 24-inch wall to the finished floor of the development in a way that allows for the outdoor spaces to be publicly accessible. (See Figure E-1.)

c. Retaining Wall at Property Line. Design the wall of the ground level of the building to structurally support fill material, and to provide appropriate under-drainage.

d. Landscaping. Landscaping this private and public space shall incorporate trees and vegetation appropriate to the river environment. Walls along the Riverwalk shall not exceed 24 inches in height and shall be set back from the promenade by at least 10 feet. Other than trees, landscaping shall not exceed 42 inches in height above grade. Trees planted as part of the San Lorenzo Flood Control Improvement Project should be maintained and incorporated into new development where feasible and where not in conflict with the required fill or publicly accessible amenities.

e. Extension Area License Agreement for Public Space. The City shall consider negotiated Extension Area license agreements on the publicly owned land on the west side of the Riverwalk for open space purposes that promote activity and overlook the Riverwalk and river. The publicly accessible open space area shall be visually open and accessible from the Riverwalk, but may be delineated with a low fence or hedge no more than 42 inches in height.

f. Commercial Criteria. In the case of commercial development, the area subject to the license agreement may be terraced and shall be designed to accommodate outdoor eating or public seating, and shall be within 24 inches of the Riverwalk elevation.

g. Public/Private Interface. In the case of residential development, the area subject to the license agreement and associated private yard shall be designed as a visually accessible garden space that provides a transition to the public Riverwalk. Residential entrances facing the river shall be elevated at least 18 inches, but no more than 5 feet above the Riverwalk to create privacy and differentiation of public and private spaces. Residential development is not permitted at the Riverwalk level south of Laurel Street.

h. Entrances Along Riverfront. Entries, either to individual residential units or common entrances, or to commercial establishments, shall be provided along the riverfront promenade at intervals no greater than 75 feet. No individual residential units are

allowed to connect directly with the riverfront south of Laurel Street. Common entrances for residential uses will be permitted.

i. Fencing. Fencing shall be decorative, visually open rail material, creating a visual connection between the private and public spaces.

j. Visually Open Development. Solid vegetation in the form of a visual screen or hedge is prohibited and views to the Riverwalk from private open spaces are required. Line of sight views between the development and the Riverwalk are intended to ensure a safe and interesting environment to joggers, walkers and cyclists.

5. Access to the Riverwalk.

Between Soquel Avenue and Laurel Streets along Front Street, new development shall provide east-west public access between the Riverwalk and the Front Street sidewalk at or near the extension of Cathcart Street, Elm Street and Maple Street. Developers of riverfront properties shall be required to physically and/or financially contribute their fair share through conditions of approval, an Improvement District, Development Agreement, or similar mechanisms to the improvement of these publicly accessible connections. South of Laurel Street, the development of the parcels adjacent to the Riverwalk and directly north and south of Spruce Street right-of-way shall be required to physically and/or financially contribute their fair share through conditions of approval, an Improvement District, Development Agreement, or similar mechanisms to the improvement of these publicly accessible connections. The development of the Spruce Street right-of-way shall be consistent with performance standards found in Appendix 8. Development of the passageways north of Laurel Street shall be consistent with the following performance standards:

a. Publicly Open Passageways. Such access shall be open to the public during daylight hours.

b. Pedestrian Focus. Such publicly accessible connections shall be predominantly pedestrian in nature and located within 50 feet of the Front Street intersections at the terminus of Cathcart Street and the extensions of Maple and Elm Streets. In addition to the pedestrian access, bicycle access shall be provided at the extension of Elm Street, which will serve as the primary bicycle access to the Riverwalk between Soquel Avenue and Laurel Street.

c. Passageway Widths. The width of these publicly accessible pedestrian connections shall be no less than the following: 60 feet at or near the terminus of Cathcart Street; 50 feet at or near the terminus of Maple Street; and 30 feet at or near the extension of Elm Street.

d. Vertically Open Passageways. These passageways shall be open to the sky, provide a high quality accessible path of travel between the Front Street sidewalk and the Riverwalk, and provide clear building breaks that avoid the walling off of the river from downtown.

e. Pedestrian Oriented Uses. The pedestrian passageways shall be lined with active pedestrian-oriented uses that create a safe and interesting environment, including

commercial uses, outdoor cafes, resident-serving amenities, building entries and/or lobbies. Such uses, particularly restaurants and outdoor cafes, are strongly encouraged to provide direct frontage and active outdoor areas along both the pedestrian passageway and the Riverwalk.

6. Upper-Level Facade Treatment.

The treatment of upper-level facades shall ~~generally~~ comply with the ~~guidelines~~ requirements found in ~~for the~~ Section C: *Pacific Avenue Retail District* *Building Façade Standards and Guidelines* ~~in terms of building rhythm, corner treatment, windows, roof treatment, building materials, colors and planting, and rear service lanes~~.

7. Gateway Treatments.

New development that occurs at key gateway intersections to the downtown (e.g., River-Water; Pacific-Front at the north end of downtown; Cooper-Front; Soquel-Front; Cathcart-Front; Laurel-Front, Pacific-Spruce, Front-Spruce) shall be articulated to accentuate this condition. Treatments could include corner towers or turrets, setbacks, distinctive changes in fenestration and materials, chamfered building corners, etc.

8. Riverfront Residential.

Residential development occurring along the Front Street/Riverfront Corridor, or future residential development that may occur as part of a mixed-use development on the northeast corner of the Front/Soquel intersection, shall be highly articulated and expressive of the individual units within the complex. The use of sloping roofs, recessed loggias and balconies, bay windows, dormers and chimneys shall be carefully composed to create an intricate composition that expresses individual unit modules to the maximum extent practicable. A variety of building materials is encouraged, including the building materials recommended for the Pacific Avenue district above (e.g., stucco, brick, and stone). To avoid the creation of a "wall" of development along the riverfront between Soquel and Laurel Streets, development shall be highly articulated with variation in height. The required 10-foot sideyard setbacks shall also serve to break up the mass of development along this important edge.

9. Public and Private Parking Facilities.

The Front Street/Riverfront Corridor north of Laurel Street is within the Downtown Parking District #1 and development shall comply with all parking requirements set forth within that district.

a. Surface Lot Landscaping. Existing and/or expanded surface parking lots within the Front Street/Riverfront Corridor shall be well landscaped. In addition to the landscaped area requirements for surface parking provided in the zoning ordinance, surface lots shall provide at least one tree for every four parking spaces, distributed throughout the lot. Surface lots shall be screened from the public sidewalk with low walls, planters, or hedges.

DRAFT

b. West Side of Front Street. Allow parking facilities along the west side of Front Street south of Soquel Avenue, where only one driveway curb cut shall be permitted per parking facility per street frontage; the parking facility shall not extend to street corners; and the parking facility shall be architecturally integrated within the overall building composition.

c. Structured Parking Design. Above-grade structured parking should be visually separated at the ground level from all public sidewalks and streets by means of active storefront uses as described above. Such parking should be accessed, to the maximum extent possible, from east-west streets or rear service lanes.

d. Structured Parking Facades. Parking structure facades shall be designed as compatible visual extensions of other multi-story buildings.

e. Structured Parking Rear Façade. Special attention shall also be given to the design of parking structure facades adjacent to rear service lanes, to reinforce their attractiveness for pedestrian use. The use of integrated trellis structures and planters along the service lanes is recommended.

f. Screens and Trellises. Decorative screen and trellis elements of durable, high-quality materials are also encouraged to provide variation and interest on the facade.

g. Garage Ramp Visibility. Sloping floor elevations shall not occur within 10 feet of the adjacent public street.

h. Wrap Garage with Commercial. Where parcel depth permits, the face of the parking structure shall be set back from ground floor commercial uses.

i. Garage Openings. Openings shall be carefully composed within the building wall to appear as well-proportioned windows, rather than continuous strips; variation in the dimension and proportion of openings and in the horizontal and vertical planes of the facade shall be provided to create visual interest and to reduce the massiveness of the parking structure.

j. Entrances and Stairways. Entryways and stairways shall be located along the street edge; they shall be well lit and visible from the street to promote security and a feeling of comfort.

k. Top Deck Elevation. The top deck of all structured and encapsulated parking shall be constructed to an elevation no greater than 5 feet above that of the Riverwalk promenade and shall be screened from public view. Parking garages may exceed the maximum building length of 250 feet if they are lower than 5 feet above the adjacent levee elevation.

10. Driveways and Curb Cuts.

Limit on-site driveways along Front Street and the southern portion of Pacific Avenue after the intersection of Pacific Avenue and Front Street to a maximum of one driveway per property or at a spacing of at least 200 feet; driveways should be no more than 24 feet in width and to the extent practicable should be spaced from an adjacent driveway by at least

DRAFT

200 feet. Wider driveways may be considered based on a demonstrated need to accommodate specific vehicle operations of a proposed development.

11. Guidance for Bird Safe Structures Along the San Lorenzo River.

In addition to the standard requirements for Bird Safe Development found in SCMC Section 24.12.127, the ~~The~~ following measures shall be incorporated into all development projects that are located between Front Street and the San Lorenzo River.

- Minimize the overall amount of glass on building exteriors facing the San Lorenzo River.
- Avoid mirrors and large areas of reflective glass.
- Avoid transparent glass skyways, walkways, or entryways, free-standing glass walls, and transparent building corners.
- Utilize glass/window treatments that create a visual signal or barrier to help alert birds to presence of glass. Avoid funneling open space to a building façade.
- Strategically place landscaping to reduce reflection and views of foliage inside or through glass.
- Avoid up-lighting and spotlights. Turn non-emergency lighting off (such as by automatic shutoff), or shield it, at night to minimize light from buildings that is visible to birds, especially during bird migration season (February-May and August-November).

DRAFT

F. CEDAR STREET VILLAGE CORRIDOR DEVELOPMENT STANDARDS AND DESIGN GUIDELINES

1. Height and Stepback Requirements.

   a. Base Height and Floors. The maximum height of all development within the Cedar Street Village Corridor shall be 35 feet (3 floors maximum). East of Cedar Street, development may be allowed to exceed 35 feet on a discretionary basis to a maximum height of 50 feet (4 floors maximum). The granting of additional height above thirty-five (35) feet is discretionary and requires a Design Permit with the recommendation of the Planning Director to the City Council, which must approve the additional height, unless such height is the result of compliance with any density bonus program or provision of state or local law. Given the highly urbanized nature of the downtown with the most intensive land uses in the City, building heights exceeding base height standards are not expected to create any coastal resource impacts due to the increased intensity.

2. Storefront Treatment.

The ground-level treatment of buildings and parking structures within the Cedar Street subarea shall generally comply with guidelines for the Pacific Avenue retail subarea, in terms of storefront access, transparency and variation, and the use of landscaping, awnings and canopies. However, it is recognized that Cedar Street has a more informal character than Pacific Avenue and, as such, more variation of ground-level treatment is envisioned and encouraged. The use of porches and terraced gardens as an intermediate space between the ground floor use and the sidewalk is permitted, as long as the finished floor elevation of the ground floor use is no more than four feet above or below the sidewalk level, and accessibility requirements are met.

3. Upper-Level Facade Treatment.

The treatment of upper-level facades shall generally comply with the guidelines for the Pacific Avenue Retail District in terms of building rhythm, corner treatment, windows, roof treatment, building materials, colors and planting. In recognition, however, of the area's village character, several special conditions are noted:

   a. Architectural Elements. The use of architectural elements that promote the village character of the street is encouraged. Such elements could include sloping roofs, chimneys, bay windows, dormers, recessed loggias, balconies, and porches.

   b. Articulation. Facades shall be highly articulated and varied; the introduction of moldings and trims, and changes in horizontal and vertical planes are strongly encouraged to create visual interest and variation in light and shadow. Residential development shall be highly articulated and expressive of the individual units within the complex.

c. Building Materials. Building materials can be more diverse and residential in character than those recommended for the Pacific Avenue Retail District. The use of wood as a siding material is encouraged.

d. Flowers and Landscaping. The use of planters, trellises and topiary treatment of buildings is encouraged to further enliven the area and to promote its unique village qualities.

4. Public and Private Parking Facilities.

Parking structure facades shall be designed as compatible visual extensions of other multi-story buildings. Sloping floor elevations shall not occur adjacent to public streets. Where parcel depth permits, the face of the parking structure shall be set back from ground floor commercial uses. Openings shall be carefully composed within the building wall to appear as well-proportioned windows, rather than continuous strips; variation in the dimension and proportion of openings and in the horizontal and vertical planes of the facade shall be provided to create visual interest and to reduce the mass of the parking structure. Decorative screen and trellis elements of durable, high-quality materials are also encouraged to provide variation and interest on the facade. Special attention shall also be given to the design of parking structure facades adjacent to rear service lanes, to reinforce their attractiveness for pedestrian use. The use of integrated trellis structures and planters along the service lanes is recommended. Entries and stairwells within parking structures shall be located adjacent to public streets and designed to be visually open, to promote a feeling of security and comfort.

DRAFT

G. NORTH PACIFIC AREA
DEVELOPMENT STANDARDS AND DESIGN GUIDELINES

1. Height and Stepback Requirements

a. Base Height and Floors. The maximum height of all development within the North Pacific subarea shall be 35 feet (3 floors maximum). However, within this 35 foot Base Height, east of North Pacific Avenue, development may be allowed on a discretionary basis to a maximum height of 50 feet (4 floors maximum). The granting of additional height above 35 feet is discretionary and requires a Design Permit with the recommendation of the Director of Planning to the City Council, which must approve the additional height, unless such height is the result of compliance with any density bonus program or provision of state or local law.

.

b. Minimum Floor Height. The first floor uses must have a minimum floor-to-floor height of 14 feet.

c. Visual Analysis and Criteria for Exceeding Base Height. Proposed development above 35 feet, up to 50 feet, must prepare a detailed visual analysis of the building to determine the visual impact. The visual impact analysis must consider the views from the mid-point of the Water Street Bridge looking toward the Mission Hill, from Mission Hill and other key locations within the City. The additional building height shall not obstruct views of the profile of the top of the grade of Mission Hill as viewed from the crest of the Water Street Bridge;

i. Additional height above 45 feet, up to a maximum of 50 feet, must demonstrate that the building creates a superior gateway entrance to Pacific Avenue and the Downtown; and

ii. The building height above 35 feet shall be stepped back a minimum of ten (10) feet from the 35 foot Base Height. The additional height shall be highly articulated and the upper level shall gently transition to surrounding development.

iii. Uninhabitable mechanical penthouses will be permitted above the Base Height ~~to~~ by a maximum height of ~~5~~ 20 feet above the permitted building height, provided that such penthouses are set back a minimum of 15 feet from any exposed face of the buildings and are out of the pedestrian's view, unless such penthouses are architecturally integrated into the building façade design.

2. Build-to Lines and Setbacks.

To promote well-defined streets, development shall generally be required to be built to the property line adjacent to public streets. The following exceptions to this condition are noted:

a. Sidewalk Width. In locations where the sidewalk is less than 12 feet, development shall be set back from the property line to create a 12-foot sidewalk.

b. Gateway Landscaping. Within this subarea, new development along Water Street (north side) and River Street (west side) shall be set back from the property line by 10 feet to allow for generous gateway landscaping treatment. Buildings along River

DRAFT

Street may project into this setback with approval of a landscape plan provided that the average setback along that street remains 10 feet.

c. Non-Residential Elevation. Along Pacific Avenue and Water Street, ground level uses shall not be located more than one foot above the elevation of the adjacent curb.

d. Residential Elevation. Along River Street, the first occupied residential floor level shall not be higher than five feet above the adjacent curb. For each one foot above the adjacent curb, an additional one foot of landscape setback shall be required.

3. Gateway Intersections.

The intersections of Water and River Streets, and River Street and North Pacific Avenue, are important gateways to the downtown. New development that occurs at these key gateway intersections shall be designed to accentuate this condition. Treatments shall include corner towers or turrets, setbacks, distinctive changes in fenestration and materials. The design of the ground level of the buildings at these intersections shall be articulated to reinforce the gateway significance utilizing corner setbacks, small plazas, large display windows, distinctive entrance features and canopies.

4. Building Facades.

The treatment of upper-level facades shall generally comply with the guidelines and standards for the Pacific Avenue Retail District in terms of building rhythm, articulation, corner treatment, windows, roof treatment, building materials, colors and planting.

5. Ground-Level Storefronts.

The design of the ground-level of buildings facing North Pacific Avenue, River Street and Water Street shall generally follow the guidelines and standards described for the Pacific Avenue Retail District to the south (e.g., access and transparency, storefront variation and treatment, awnings, canopies).

6. River Street.

The setback area described above for River Street shall include a well-designed landscape concept to enhance the gateway role and appearance of River Street and to create a transition between private development and the street. This landscaped area shall be broken at intervals to provide entrances to adjacent ground-level uses.

7. River Street Residential.

If residential development occurs along the River Street Corridor, it shall be highly articulated and expressive of the individual units within the complex. The use of sloping roofs, recessed loggias and balconies, bay windows, dormers, and chimneys shall be carefully composed to create an intricate and pleasing composition. Clapboard wood siding is encouraged, in addition to the building materials recommended for the Pacific Avenue Retail District above (e.g., stucco, brick, and stone).

DRAFT

8. Town Clock Park/Scope Park.

New development occurring adjacent to Town Clock Park (Knight Street right-of-way) or Scope Park shall have a strong ground-level orientation to these public open spaces. Buildings along Knight Street shall be built to the property line to maintain the spatial quality of Town Clock Park and to reinforce the civic importance of the Water-Pacific-Front intersection. Ground-level uses shall be pedestrian-oriented, and the treatment of storefront facades shall correspond with the guidelines described for the Pacific Avenue Retail District.

9. Public and Private Parking Facilities.

For properties in the North Pacific subarea which are not within the downtown Parking District #1, new development must comply with the City's general standards related to parking.

a. Surface Parking Lots. Existing and/or expanded surface parking lots within the North Pacific area shall be well landscaped, with at least one tree for every four parking spaces, and screened from the public sidewalk with low walls, planters or hedges.

b. Structured Parking. Parking structures in the North Pacific Area shall be an integral part of the development that it serves, either in below-grade structures or above-grade structures that are sensitively encapsulated within the overall building form.

c. Location of Structured Parking. Exposed parking structures shall be limited to the interior of the block or to Bulkhead Street.

d. Parking Structure Façade. Where parking is exposed as a facade, such facades shall be designed as an integral extension of the overall building facade.

e. Garage Ramps. Sloping floor elevations shall not occur within 10 feet of the adjacent public street.

f. Garage Openings. Openings shall be carefully composed within the building wall to appear as well-proportioned windows, rather than continuous strips; variation in the dimension and proportion of openings and in the horizontal and vertical planes of the facade shall be provided to create visual interest and to reduce the mass of the parking structure.

g. Screens and Trellises. Decorative screen and trellis elements of durable, high-quality materials are also encouraged to provide variation and interest on the facade.

h. Wrap Garage with Commercial. Above-grade structured parking facing River Street, Water Street or North Pacific Avenue shall be visually separated from all public sidewalks at the ground level by means of active ground-level uses as described above. Such parking shall be accessed, to the maximum extent possible, from east-west streets (e.g., Bulkhead Street). New access driveways along North Pacific Avenue, River and Water Streets shall be avoided.

DRAFT

H. ADDITIONAL HEIGHT ZONES

In 1991 when the original Downtown Recovery Plan was being developed, the community was concerned about the impact of four and five-story buildings on the predominantly one and two-story downtown. Since 1991, there has been significant infill development that has diversified the mix and intensity of downtown uses, with upper level office and residential uses. No longer is Downtown Santa Cruz and Pacific Avenue a one- and two-story downtown; it has evolved into a vibrant three to seven story district.

As such, the Additional Height Zone A is extended to eligible sites ~~south of~~ between Cathcart Street and Laurel Street along the west side of Front Street; ~~and~~ Additional Height Zone B is established along the Front Street/Riverfront Corridor south of Soquel Avenue to Laurel Street. (See Downtown Plan Height Figures ~~diagram~~) The City also wishes to promote uses that foster activity and a sense of stewardship, allowing the area to evolve from a service district to an integral part of the overall downtown. In order to achieve this goal, residential uses are generally considered highly desirable upper-level uses, with active commercial and people-oriented uses at street level, in addition to visitor-serving uses along Front Street between Soquel and Laurel. It is recognized that smaller parcels may need to be assembled and consolidated to create viable areas for redevelopment, but development of assembled properties shall be done in a way that maintains the town scale and character of the downtown, with its diverse mix of small- and medium-sized buildings, its pedestrian orientation and, its block pattern that provides multiple street and walkway connections.

The scale of blocks and parcels is a critical component, contributing to the town scale and pedestrian orientation of downtown Santa Cruz. In the areas south of Cathcart Street and Soquel Avenue, the larger block sizes make it particularly important to create additional pedestrian connections between Pacific Avenue and Front Street, and between Front Street and the Riverwalk. This has been a community vision, dating back to the original Downtown Recovery Plan and reinforced with the 2010 River/Front and Lower Pacific Design Guidelines and Development Standards. However, regulations alone cannot be expected to accomplish such transformational change, which will involve public improvements and strong public/private partnerships. Financing tools for the implementation of enhanced pedestrian linkages to the river, and for improved bicycle and pedestrian amenities along Front Street, shall be considered to leverage increased land values in the area and to provide for equitable contributions from the private sector.

In establishing the development standards for the Additional Height Zones, it is important to make sure that the standards reflect the unique conditions and opportunities of the area. It is necessary to avoid the creation of large, monolithic buildings that are out of scale with the finer-grained development pattern of the downtown.

Buildings of additional height above the Downtown's dominant three to four-stories may depart from the tri-partite facades of the historic downtown, but shall be designed in a manner that creates a positive relationship and an appropriate scale transition to the existing fabric. In addition to the volumetric standards set forth as a basis for additional height in Additional Height Zone A, building stepbacks, belt courses, material, plane and/or fenestration changes are design strategies that should be employed to create compatible architectural and scale relationships with adjacent buildings of lower height. A strong and well detailed storefront and building base is critical to the continuity of the retail and pedestrian environment of the Downtown; intermediate floors should be composed with window openings, balconies or projections that provide visual interest and a

scale relationship with adjacent buildings; and the top most floor(s) should contribute to the overall silhouette and spatial form of the street with reduced floor plates, cornices, projecting canopies or other special architectural elements.

Rather than relying on building stepbacks and terracing to achieve an appropriate scale transition to smaller buildings, the standards call for horizontal and vertical variation to create the appearance of multiple buildings that are more in keeping with the surrounding area. Additional height – even up to 85 feet in the Additional Height Zone A – can be absorbed appropriately if it is confined to a portion of a property, rather than as a massive block, terraced back from the street.

1. Additional Height Zone A.

Properties on Pacific Avenue and within 150 feet of Pacific Avenue between Water and Lincoln Streets, and within 200 feet of Pacific Avenue between Lincoln and Laurel Streets (as measured perpendicular from the property line along Pacific Avenue) , certain properties located on the east side of Cedar Street between Mission Street and Ocean Alley, and the west side of Front Street between Cathcart and Laurel Streets shall be considered within the "Additional Height Zone A", within which additional height above the 55 foot Base Height limit may be requested for buildings meeting certain criteria (See Figure A-1: Downtown Plan Heights). The intent of the Additional Height Zone A is to preserve the overall character of the existing development pattern, while allowing a discretionary intensification of use and increased height to maintain a compact urban core. For eligible development projects that overlap the Base Height and Additional Height Zone boundary, all portions of the project exceeding the 55 foot base height shall be located within to the Additional Height Zone as shown in Figure A-1.

a. Eligible Development Projects. The granting of building height above the 55 foot Base Height limit is discretionary and requires a Design Permit with the recommendation of the Planning Commission to the City Council, which must approve the additional height. To achieve approval, the applicant must demonstrate that the proposed project meets the criteria described below. Applicants for development within the Additional Height Zone A may request additional height as indicated below, if one of the following conditions is met:

   i. The aggregate parcel size is greater than 15,000 square feet, which may include land not located within the Additional Height Zone;
   ii. The frontage along Pacific Avenue is greater than 150 feet, or at least 100 feet with 150 feet of frontage along an east-west street;
   iii. The parcel is located between adjacent structures of four or more floors in height; or

b. Additional Height Criteria for Project Approval. The development project shall be found consistent with the following overarching City objectives:

   i. The additional height will help to achieve the First Principles of the Downtown Plan (e.g. form, housing, accessibility and open space).
   ii. The additional height will contribute to an improved social and economic environment.
   iii. The form of the development promotes the appearance of a grouping of buildings rather than large, monolithic building masses.
   iv. The development receiving additional height will physically and/or financially

contribute its fair share (through an Improvement District, Development Agreement or similar mechanisms) to the implementation of internal pedestrian connections between Pacific Avenue and Front Street.

v. The additional height will help to meaningfully achieve one or more of the following key community objectives, including but not limited to: Economic Development Contributions to the Downtown, Affordable Housing, Day Care Center, exceed Green Building minimums, Incubator Space for Small Business, Public Access Easements, Public Right-of-way Improvements, Publicly Accessible Open Space, Structured or Shared Parking, and Transportation Demand Management concepts.

vi. Affordable Housing Public Benefit Fee For Non-Residential Projects. An application for additional height is voluntary. Because an applicant requesting additional height is receiving a benefit in the form of increased height and intensity, and to ensure that non-residential projects which are granted additional height reasonably contribute to the City's need for affordable housing, non-residential projects that are granted additional height shall be required to pay an in-lieu public benefit fee in the amount of $5.00 per square foot of gross floor area occurring above the 55-foot Base Height limit (i.e., the additional gross floor area occurring within the project on levels that exceed the 55-foot Base Height limit). The fee shall be paid prior to occupancy of the project. All fees provided collected under this section shall be deposited the City of Santa Cruz's affordable housing trust fund.

c. Zone A Maximum Height and Floors. The buildings shall conform to the adopted building codes in effect at the time of building permit application to achieve the following height limits.

i. For development projects on aggregated parcels between 15,000 square feet and 50,000 square feet, the maximum height shall be 75 feet and the maximum number of floors shall be 5 floors above the required ground floor commercial use.

ii. For development projects on aggregated parcels larger than 50,000 square feet, the maximum height shall be 85 feet and the maximum number of floors shall be 6 floors above the required ground floor commercial use.

iii. Uninhabitable mechanical penthouses will be permitted to project 20 feet above the approved additional height of building, provided that such penthouses are set back a minimum of 15 feet from any exposed face of the building, unless architecturally integrated into the building façade design.

iv. Architectural features at prominent gateway corners may exceed the maximum heights above when required findings are made.

d. Performance Criteria. The following criteria are intended to promote the appearance of multiple buildings of varying heights, and to avoid the development of monolithic buildings:

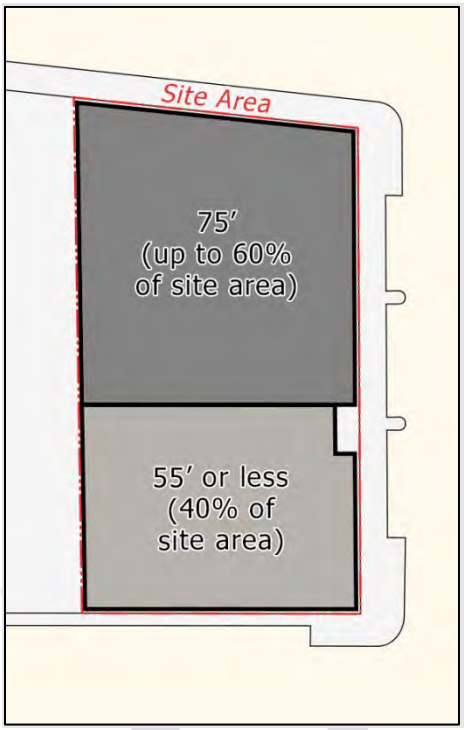
i. Maximum Height and Footprints. For sites which are eligible for additional height, the footprint of portions of the building at or below 55 feet shall be at least 40% of the total site area; portions of the building footprint above 55 feet to a height of 75 feet may comprise up to 60% of the site area. For assembled sites greater than 50,000 square feet in area, buildings may achieve an 85-foot height for up to 20% of the total site area. (See Figure H-1)

DRAFT

ii. Architectural Features. Taller building masses shall be located on portions of the site that are adjacent to street corners or in areas that will result in minimal shading of adjacent streets and sidewalks.

iii. Pacific Avenue Building Length. Along Pacific Avenue, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 55% of the length of the property line along the street or 200 feet, whichever is less. Any additional height above the base height must be set back from the building wall by at least 15 feet. (See Figures H-2 and H-4)

iv. Front Street Building Length. Along Front Street, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 60% of the length of the property line along the street or 180 feet, whichever is less. Any additional height above the base height must be set back from the building wall by at least 15 feet. (See Figure H-3)



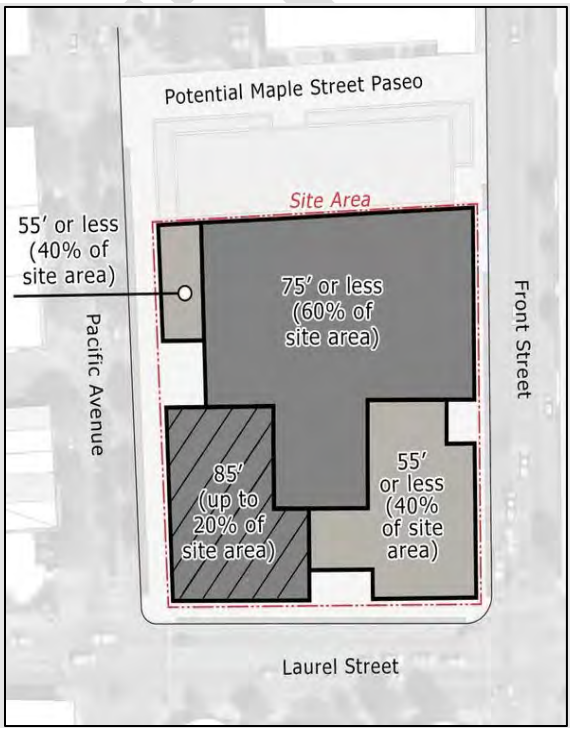


Figure H-1: Distribution percentage of additional height for sites 15,000–50,000 sq. ft.

Distribution percentage of additional height for sites larger than 50,000 sq. ft.

v. Laurel, Cathcart and Soquel Building Lengths. Along Laurel Street, Cathcart Street and Soquel Avenue, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 60% of the length of the property line or 150 feet, whichever is less. Any additional height above the base height must be set back from the building wall by at least 15 feet. (See Figure H-2)

vi. Maple Street Stepbacks. Along the Maple Street extension, the building frontage shall step back by 10 feet above a height of 50 feet; In addition to the 'build to' line The Maple Street building face shall incorporate at least one recessed break,

open to the sky, no less than 25 feet wide and no less than 10 feet in depth from Maple Street . (See Figure H-3)

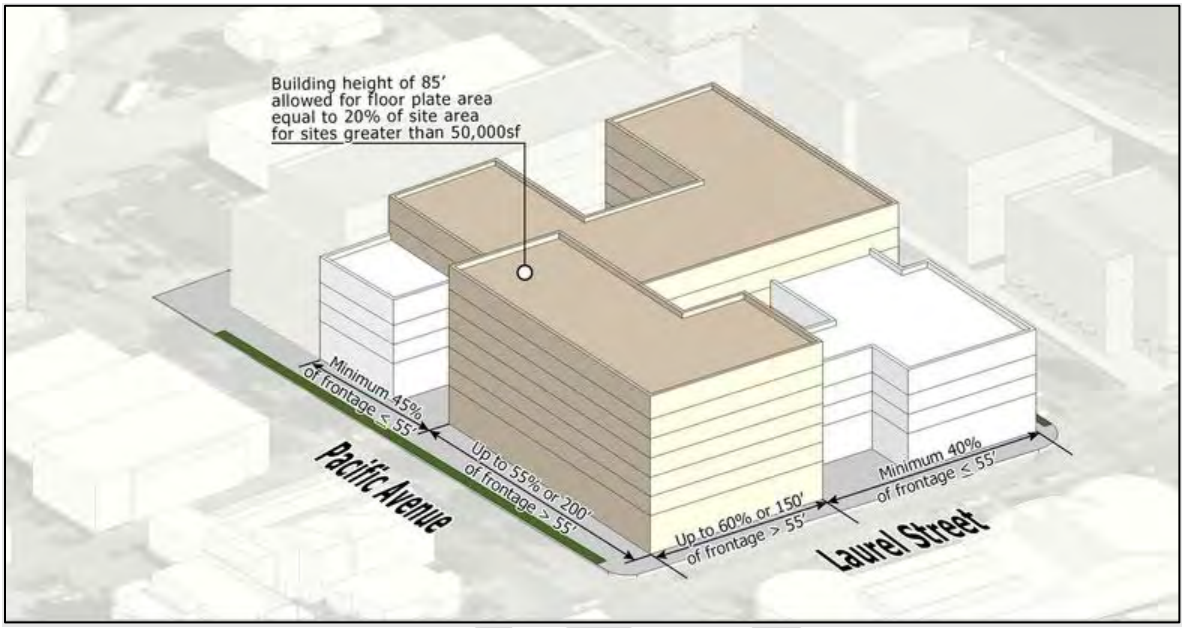


Figure H-2: Example of possible distribution of frontage heights along Pacific Avenue and Laurel Street.

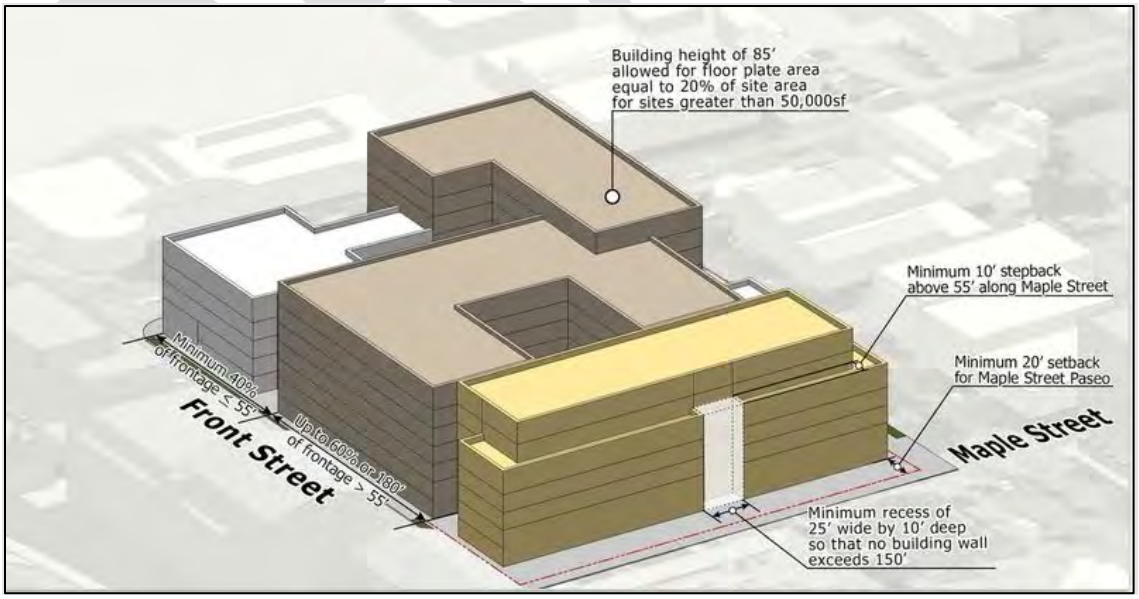


Figure H-3: Example of possible distribution of frontage heights along Front Street and the Maple Street Paseo.

vii. Building Recessed Breaks. Any building mass that exceeds the maximum base height of 55 feet must establish a separation or break that is open to the sky, measuring at least 25 feet along the streetfront property line, with a depth no less than 15 feet as measured perpendicular from the streetfront property line. For buildings along Maple Street, the recessed break shall be a minimum of 10 feet in depth. (See Figures H-3 and H-4)

(1) The recessed breaks must provide a clear visual break between building volumes, but at the same time contribute to a positive streetscape environment.

(2) The recessed spaces shall be open to the sky above the ground level. A light-weight sheltering structure, distinct from the architecture of the principal building (e.g., steel and glass trellis, awning, canopy, or single-level storefront) may be incorporated within the recessed space to provide activity along the street and protection to the ground level activity. This structure may encroach into the public right-of-way by at least 1 foot and no more than 2 feet and shall extend horizontally on either side of the recessed space by two feet to interlock with the principal building. The structure may include sliding doors or gates that can be secured at night, provided that they are accessible and visible during daytime business hours. (See Figure H-5)

(3) These recessed spaces along the streetfront shall be considered as an opportunity for creative solutions that enhance the streetscape environment. They must be designed and programmed to be purposeful and meaningful places that support positive activity and preclude anti-social behavior. They could include building entries, cafes or retail extension areas. Courtyards and paseos are particularly encouraged as a way of separating building volumes and in creating unique public spaces that connect to Pacific Avenue. The recessed spaces may be gated. (See Figure H-5)

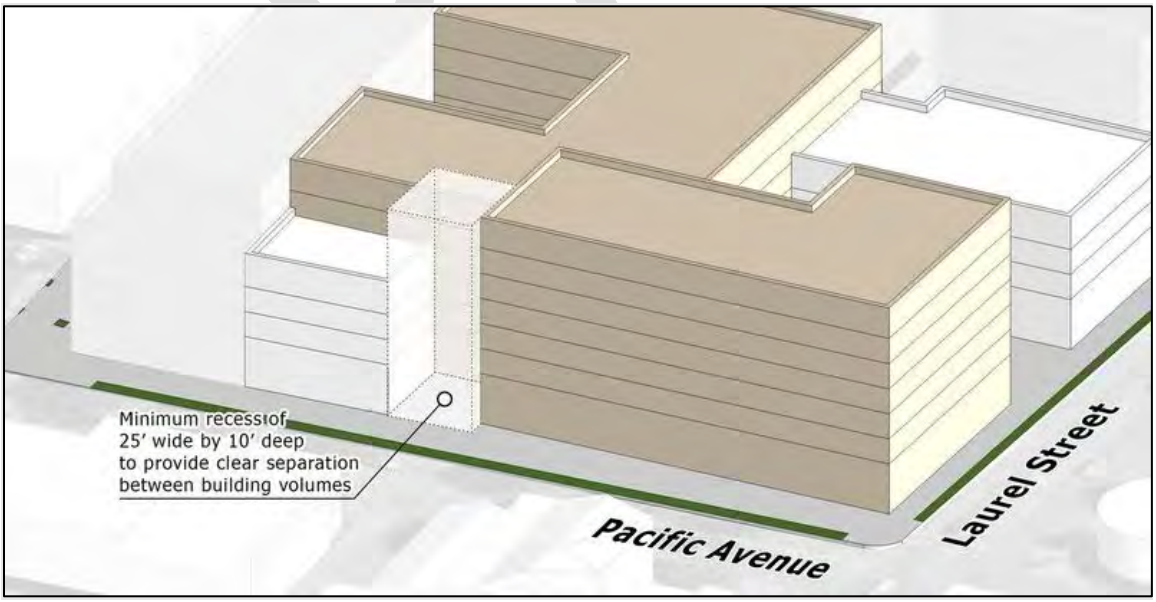


Figure H-4: Example of horizontal massing variation and recessed break in building.

DRAFT

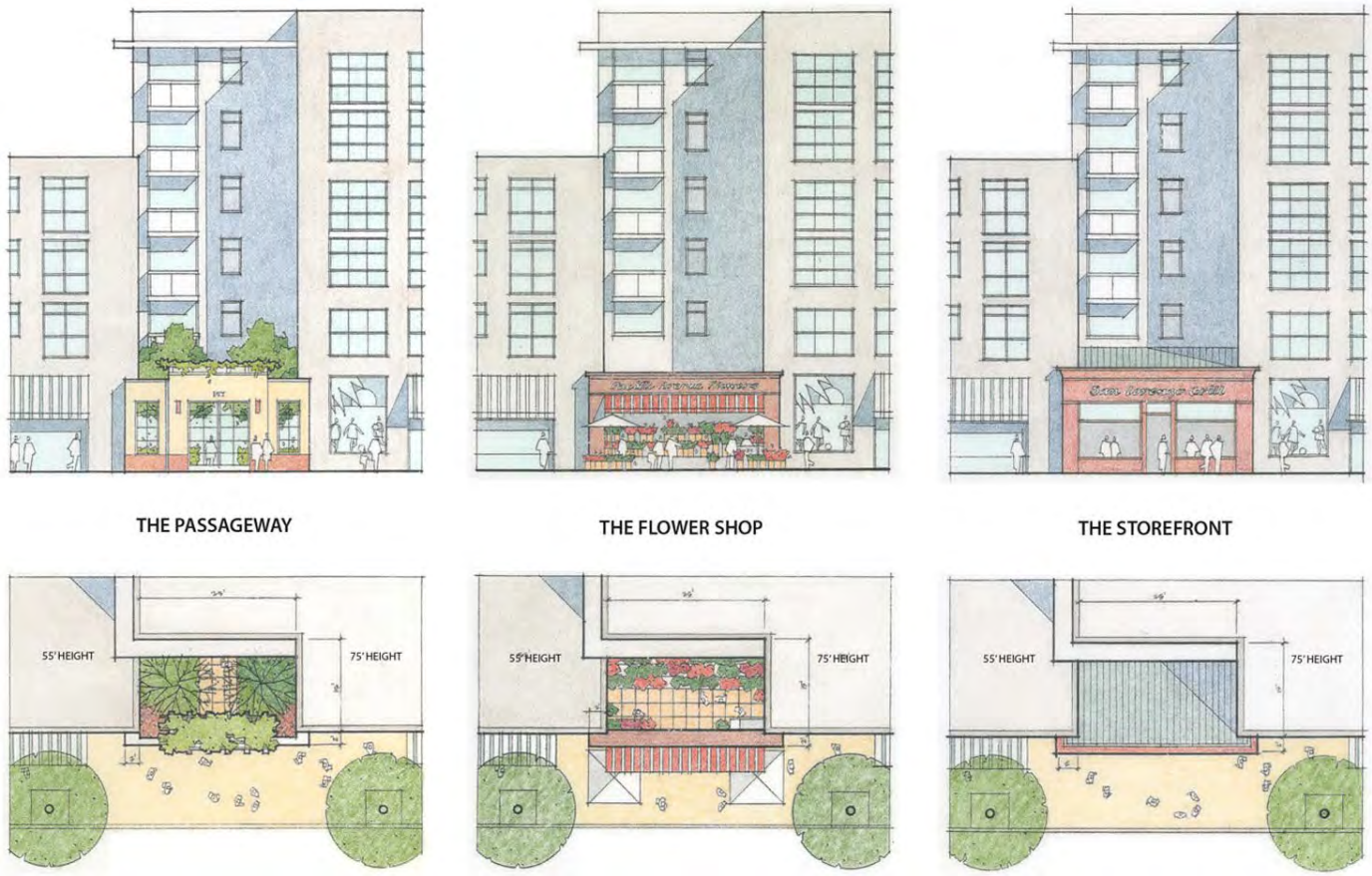


Figure H-5: Recessed spaces along the streetfront must provide a clear visual break between building volumes, while creating a positive streetscape environment. Three examples of potential treatments.

ix. Two-Story Variation. To establish the appearance of a distinct grouping of buildings, a minimum two-story variation shall be provided between building masses along each of the street fronts. (See Figure H-6)

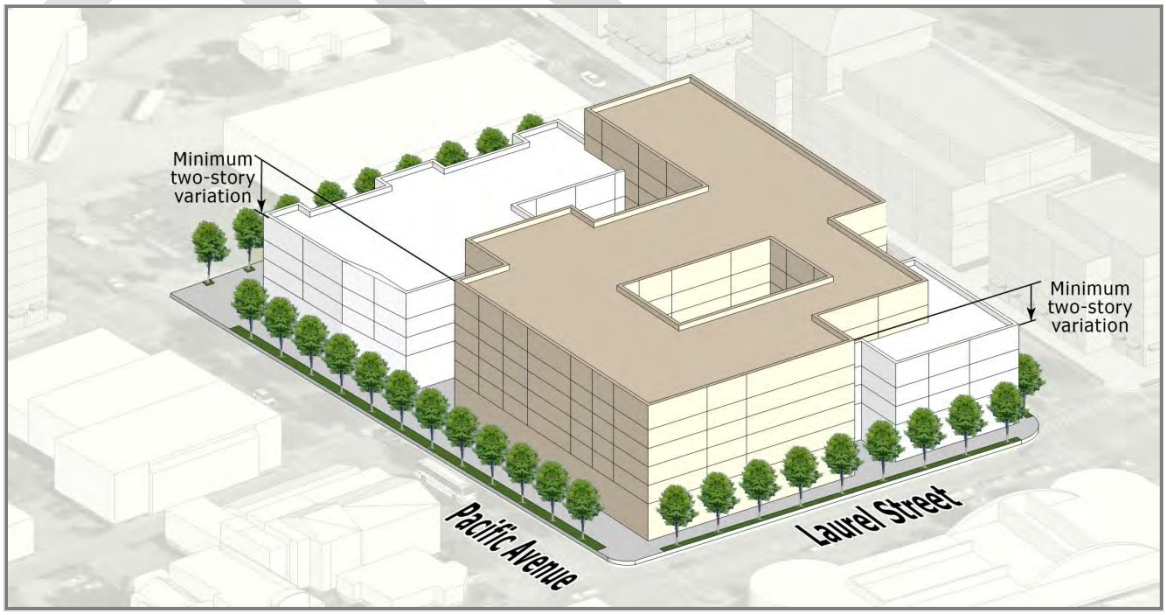


Figure H-6: Example of vertical massing variation.

e . Application Requirements. The following materials shall be submitted with all applications for proposed buildings taller than 55 feet.

i. Visual Analysis. A detailed visual analysis of the proposed buildings to determine the visual impact of the development shall be submitted. The visual impact analysis must consider the views from key locations within the City and the views from Pacific Avenue and from the east-west streets.

ii. Program Statement. A Program Statement shall be submitted indicating details of public amenities to be included in the project. The Program Statement shall specify the participation either through funding and/or land contribution, construction, and/or maintenance of the Maple Street paseo or lane. The Program Statement shall include the private funding mechanism for on-going management and maintenance of the exterior common areas, including public and private spaces along the Maple Street paseo or lane between Pacific Avenue and Front Street. The Program Statement shall specify the method of participation in the City's affordable housing program, if applicable The Program Statement items will be the basis of conditions of project approval.

2. Additional Height Zone B.

The Additional Height Zone B includes properties located on the east side of Front Street between Soquel Avenue and Laurel Street.

a. Eligible Development Projects. The granting of building height above the 50-foot Base Height limit is discretionary and requires a Design Permit with the recommendation of the Planning Commission to the City Council, which must approve the additional height. To achieve approval, the applicant must demonstrate that the proposed project meets the criteria described below. Applicants for development within the Additional Height Zone B may request additional height as indicated below if one of the following conditions is met:

i. The aggregate parcel size is greater than 15,000 square feet;
ii. The frontage along Front Street is greater than 100 feet;
iii. The parcel is located between adjacent structures of three or more floors in height; or

b. Additional Height Criteria for Project Approval. The development project shall be found consistent with the following overarching City objectives:

i. The additional height will help to achieve the First Principles of the Downtown Plan (e.g. form, scale, housing, accessibility and open space);
ii. The additional height will contribute to an improved social and economic environment;
iii. The form of the development promotes the appearance of a grouping of buildings rather than large monolithic building masses;
iv. The development receiving additional height will physically and/or financially contribute its fair share (through an Improvement District, Development Agreement

or similar mechanisms) to the implementation of internal pedestrian connections between Front Street and the Riverwalk;

v. The additional height will help to meaningfully achieve one or more of the following key community objectives, including but not limited to: Economic Development Contributions to the Downtown, Affordable Housing, Day Care Center, exceed Green Building minimums, Incubator Space for Small Business, Public Access Easements, Public Right-of-way Improvements, Publicly Accessible Open Space, Structured or Shared Parking, and Transportation Demand Management concepts.

vi. Clear demonstration of the public benefit relating to two principal objectives: high quality public access between Front Street and the river, and the appropriate treatment of the riverfront edge along the Riverwalk.

vii. Affordable Housing Public Benefit Fee For Non-Residential Projects. An application for additional height is voluntary. Because an applicant requesting additional height is receiving a benefit in the form of increased height and intensity, and to ensure that non-residential projects which are granted additional height reasonably contribute to the City's need for affordable housing, non-residential projects that are granted additional height shall be required to pay an in-lieu public benefit fee in the amount of $5.00 per square foot of gross floor area occurring above the 50-foot Base Height limit (i.e., the additional gross floor area occurring within the project on levels that exceed the 50-foot Base Height limit). The fee shall be paid prior to occupancy of the project. All fees provided collected under this section shall be deposited the City of Santa Cruz's affordable housing trust fund.

c. Zone B Maximum Height and Floors. The buildings shall conform to the adopted building codes in effect at the time of building permit application to achieve the following height limits.

i. For development projects on aggregated parcels larger than 15,000 square feet, the maximum height shall be 70 feet and the maximum number of floors shall be 5 floors above the required ground floor commercial use.

ii. Uninhabitable mechanical penthouses will be permitted to project ~~5~~ 20 feet above the approved additional height of building, provided that such penthouses are set back a minimum of 15 feet from any exposed face of the building, unless architecturally integrated into the building façade.

iii. Uninhabitable architectural features at prominent gateway corners may exceed the maximum heights above for a total of no more than 15 percent of the building footprint.

d. Performance Criteria. In addition to meeting the Front Street/Riverfront Corridor Development Standards and Design Guidelines, the project shall meet the following criteria, which are intended to promote the appearance of multiple buildings of varying heights, and to avoid the development of monolithic buildings:

i. Building Recessed Breaks. In order to break down the mass of buildings along Front Street and to promote the appearance of multiple buildings, require any portion of the building mass that exceeds the maximum base height of 50 feet to establish a separation or break that is open to the sky, measuring at least 15 feet along the

DRAFT

streetfront property line, with a depth no less than 10 feet as measured perpendicular from the streetfront property line. (See Figures H-5 and H-7)

The recessed breaks must provide a clear separation between building volumes, but at the same time contribute to a positive streetscape environment. The recessed space should be open to the sky above the ground level. A light-weight sheltering structure, distinct from the architecture of the principal building (e.g., steel and glass trellis, awning, canopy, or single-level storefront) may be incorporated within the recessed space to provide activity along the street and protection to the ground level activity. This structure may encroach into the setback zone by up to two feet and should extend horizontally on either side of the recessed space by at least 1 foot, but not more than 2 feet to interlock with the principal building. The structure may include sliding doors or gates that can be secured at night, provided that they are accessible and visible during daytime business hours.

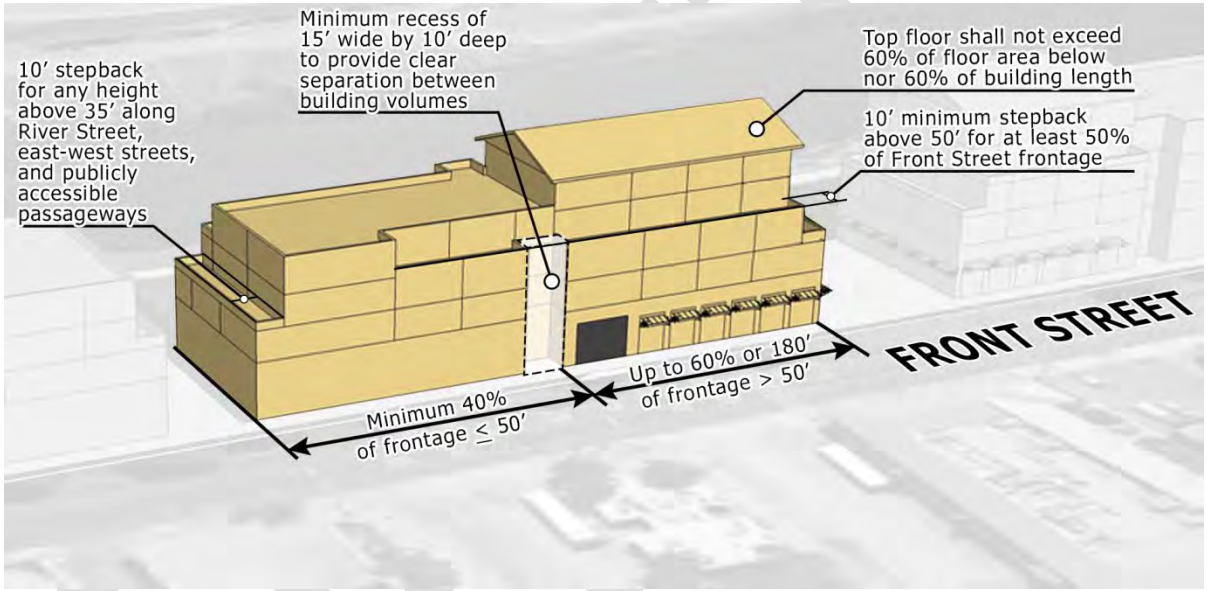


Figure H-7: Example of distribution of frontage heights and horizontal massing variation along Front Street.

ii. Skyline Architectural Variation. To promote skyline variation, the top floor of any building shall not exceed 60% of the floor area below or 60% of the building length as measured along Front Street or the Riverwalk, unless the project incorporates planned publicly accessible pedestrian passageways between Front Street and the Riverwalk (in the proximity of the extensions of Cathcart Street, Maple Street, and Elm Street). For projects that incorporate other publicly accessible connections, variation to the 60% floor area standard may be permitted with a recommendation from the Planning Commission and final approval by the City Council provided a finding can be made that the project includes adequate variation/breaks in massing, including as provided by the pedestrian passageways between building, paseo, etc.

iii. Integrated Rooftop Design. Rooftops shall be fully designed and creatively integrated into the function of the building. Rooftops provide opportunities including, but not limited to, usable residential or commercial open spaces, activated

amenity spaces such as rooftop bars and pools, community gardens, rainwater retention facilities, green-roof landscaping, solar panel facilities as shade structures, building mechanical equipment and other uses. These spaces shall be thoughtfully and creatively designed as part of the initial project application.

e. Application Requirements. The following materials shall be submitted with all applications for proposed buildings taller than 50 feet.

i. Visual Analysis. A detailed visual analysis of the proposed building including three-dimensional perspectives to determine the visual impact of the development shall be submitted. The visual impact analysis must consider the views from key locations within the City, the views from Front Street and from the Soquel and Laurel bridges and the levee opposite the project site from a pedestrian level view.

ii. Roof Design Plan. A detailed and fully integrated roof design plan that includes details of open space uses and amenity uses, landscaping, solar facilities, drainage, and mechanical equipment.

iii. Grading and Landscape Plan. A comprehensive grading and landscape plan for the filled area of the river levee.

iv. Passageway Plan. For projects adjacent to the proposed publicly accessible passageways between Front Street and the Riverwalk (in the proximity of the extensions of Cathcart Street, Maple Street and Elm Street), a scaled plan shall be provided with adequate details, section drawings and other drawings that describe how the project will achieve high quality public access to the riverfront from Front Street and how the riverfront edge will be designed to reinforce the amenity value and safety of the Riverwalk. Drawings shall describe the relationship of publicly accessible spaces with adjacent proposed development activities, grading, landscape and paving materials and treatments.

iii. Program Statement. A Program Statement shall be submitted indicating details of public amenities to be included in the project. The Program Statement shall specify the private funding mechanism for on-going management and maintenance of the exterior common areas, including public and private spaces between the Riverwalk and the development and any adjacent paseo or passageway from Front Street to the Riverwalk. The Program Statement shall specify the method of participation in the City's affordable housing program, if applicable.

DRAFT

I. ALL CENTRAL BUSINESS DISTRICTS
STOREFRONT STANDARDS AND GUIDELINES

The intention of the storefront guidelines is to promote variety and individuality along the street while complementing the scale and design character of the streetscape, reinforce the pedestrian environment, and allow for the landscape character of the downtown to extend into the private realm. The storefront guidelines encourage both setbacks from, and encroachments into, the public right-of-way, where such measures will serve to enrich the visual diversity and life of the street.

1. Storefront Projections and Setbacks. In addition to landscape elements, storefronts are encouraged to introduce architectural variation at the pedestrian level in order to create a diverse building edge between the public and private realms, and the total linear measurement of all facade elements should exceed the length of the property line by 5% or more. More specifically:

a. Bay Windows. Storefront bay windows may project up to 12 inches into the public right-of-way, if such windows maintain glazing on all projecting faces, and if the windows do not exceed 15 feet in width. A clearance of at least 12 inches between the bottom of the projecting bay and the sidewalk is recommended.

b. Porticos. Entry porticos may project up to 12 inches into the public right-of-way.

c. Entry Setbacks. ~~Entry~~Entries shall be setback~~s may be permitted up to 48~~ no less than 36 inches from the property line, as part of a door yard.

d. Marqu~~ee~~~~i~~s and Canopies. Permanent marquis structures or canopies that project from the buildings are encouraged, but shall be confined to entry lobbies leading to upper-level residential or office uses, or to public-oriented passages that provide for pedestrian access through the block. They shall be designed as an attractive and integral part of the overall facade design, shall project no more than 6 feet from the face of the building, take up no more than 10 feet of frontage, and maintain a clearance of at least 8 feet above the sidewalk surface. No column supports shall be permitted within the public right-of-way.

e. Projecting Signs. Projecting signs are encouraged on storefronts consistent with the sign regulations for the Central Business District in the Zoning Code.

f. Awnings. Awnings overhanging the sidewalk are also encouraged to further enhance the life and variety of the street. The preferred material for awnings is canvas, but other materials will be considered if they are light in character and can be architecturally integrated with the building facade. Awnings shall be maintained at least 8 feet above the sidewalk surface, and shall be carefully designed to complement the overall facade design. Under standard conditions (e.g., not within retail extension zones), storefront awnings shall not project more than 6 feet into the public right-of-way, and generally shall not be higher than 14 feet above the sidewalk. Awnings above 14 feet in height shall not project more than 3 feet into the public right-of-way.

DRAFT

2. Storefront Variation and Craftsmanship. The visual experience of moving along the street shall be enjoyable and varied. Changes in treatment (e.g., the use of porticos, setbacks, architectural elements, landscape treatments, etc.), within the standards and guidelines are outlined above and below. Particular attention shall be given to the craftsmanship and detailing within the pedestrian's range of touch and view. The use of special materials (e.g., stone, brass, bronze, terra cotta, ceramic, wood) for storefront ornamentation is strongly encouraged, particularly around windows and entries and at the base of building walls.

3. Retractable Storefronts. Where appropriate, the use of retractable storefronts is encouraged to create a direct relationship between sidewalk activity and the commercial establishment; this treatment is particularly encouraged for restaurants where outdoor seating is proposed, or for retail establishments that include an extension area within the public right-of-way.

4. Storefront Landscape Elements. The introduction of plant materials on the building face and storefront is strongly encouraged to reinforce and extend the landscape identity of Pacific Avenue and the downtown. More specifically:

a. Storefront Setbacks. Storefront setbacks of up to 18 inches may be permitted for the introduction of low planters of up to 12 inches in height below storefront windows.

b. Sidewalk Planting. The sidewalk paving along Pacific Avenue may be designed to allow for planting beds at sidewalk level to encroach into the public right-of-way up to 18 inches. Such planting beds shall include durable curbing (up to 3 inches in height) to provide a clear visual separation.

c. Planter and Window Boxes. Planter and window boxes may be allowed to project into the public right-of-way up to 18 inches, with a maximum height of 24 inches above the sidewalk level. It is recommended that window boxes maintain a clearance of 12 inches above the sidewalk, not including decorative support braces. Window boxes shall be designed as a compatible and integral extension of the storefront window casing; materials shall be durable and of high quality. Planter and window boxes shall also provide for internal drainage connecting to roof drain lines.

d. Hanging Flower Pots. Hanging flower pots may project into the public right-of-way up to 12 inches and shall have a minimum 8-foot clearance within the public right-of-way unless hanging directly above planter boxes.

e. Trellises. Trellis structures supporting climbing vines are encouraged against blank building walls, both at the storefront and upper levels. At the storefront level, trellises shall be allowed to project into the public right-of-way up to 6 inches; above 8 feet in height, overhanging arbor or trellis structures shall be allowed to project up to 18 inches into the right-of-way.

f. Living Walls. When installed consistent with the requirements of SCMC Section 24.12.185, living walls will be an allowable component of storefront landscaping provided they are a minimum of 4 feet wide and 8 feet tall.

DRAFT

g. Plant Types. Plant materials within planters, planting beds, flower boxes and flower pots shall provide color and variety throughout the year. The use of non-flowering shrubs or plant materials is discouraged, unless they are part of a planned pattern of landscape to that creates interest on the street.

DRAFT

J. ALL CENTRAL BUSINESS DISTRICTS
OTHER DEVELOPMENT STANDARDS AND DESIGN GUIDELINES

1. Design Variation. The Downtown Plan contains development standards, which when implemented, are intended to achieve the First Principles of the Plan and public objectives for the downtown. While every effort has been made to thoughtfully produce clear and concise standards for the community, the Plan can never address or respond to all development scenarios and circumstances. Therefore, projects that closely conform to the development standards, but with slight variations may be considered upon demonstration that the resulting project will better achieve stated Plan and community objectives. Such variations shall be minor in nature and must receive a positive recommendation from the Planning Director, with final approval by the City Council.

2. Storefront Setbacks. Minor ground-level storefront setbacks are permitted within the provisions of the storefront and building façade standards and guidelines discussed below. Recessed storefronts up to six feet in depth and twenty-five feet in length may occur where a designated outdoor use, such as an outdoor café, is an integral part of the retail business.

3. Roof Top Mechanical Equipment. The design of roof top mechanical equipment and related structures is an important aesthetic consideration when viewing the downtown skyline. The arrangement of roof top equipment, elevator penthouses, mechanical penthouses and enclosures, safety rails, inside faces of parapets, roofing surfaces, architectural elements, and other mechanical or electrical equipment, including telecommunications equipment, shall be designed, installed and painted to be visually unobtrusive and to create a unified, coherent whole. These roof top features shall be incorporated into the building design at the Planning approval stage of the project. Additional visual simulations may be required to demonstrate that the project provides for architecturally interesting and varied skyline views, with specific attention given to integrating these rooftop features into the overall building design.

4. Permanent Projections into the Public Right-of-Way. It is not the intent of the Plan to create a hard edge between the public and private realms. Rather, building facades and storefronts that are varied and that promote activity and interest are encouraged.

5. Café and Retail Extension Zones. Pacific Avenue and some of the east-west streets (e.g., Church Street, Walnut Avenue, Cathcart Street, and any pedestrian paseo or lane such as pedestrian-oriented portions of Plaza Lane, Pearl Alley, and Frazier Lewis Lane.) will include opportunities for the extension of retail and restaurant activities into the public right-of-way. These extension areas will be managed by the City and its designated agent through revocable licenses [See Extension Area requirements in section 24.10 of the Zoning Ordinance]. The following guidelines shall govern the physical design of these extension areas:

a. Types of Uses. Designated extension areas shall be confined to uses that add activity and color to the urban environment. Permitted uses shall be limited to outdoor cafes, food kiosks or carts, or the selling of ~~flowers, produce, and newspapers/magazines~~ goods belonging to an established adjacent commercial use, unless otherwise approved by the City Council Planning Director or ~~its~~ their designated agent.

b. Outdoor Cafes. The extension area for cafes shall project no more than 12 feet from the property line into the public right-of-way or into any area of private or

city-owned property dedicated for public pedestrian use, and in no case shall a cafe extension area result in a public walkway of less than ~~12~~8 feet wide. The elevation of the extension area shall be the same as the public sidewalk or surrounding pedestrian area, and shall meet ADA accessibility standards. A canvas awning will be permitted to extend over the full depth of the cafe extension area; no columns or supporting poles will be permitted within the public right-of-way. Awnings shall comply with the design and height guidelines prescribed below. The use of removable umbrellas within ~~sidewalk~~ the extension areas is also encouraged, provided that seven feet of vertical clearance is provided from the sidewalk or walkway.

i. Within Public Sidewalks: No permanent structures will be allowed within the public right-of-way, with the exception of ADA-complaint barriers. If a separation between the cafe and ~~the promenade~~ a sidewalk is desired, this shall be achieved through low planters that could contain colorful flowers or a low hedge not permanently affixed to the sidewalk; the maximum height of such planters (including the planting) shall be no more than four feet. Planters shall consist of high-quality, durable materials of a weight and mass that will discourage theft, vandalism or easy movement. Removable wind screens that are of a transparent material and that are an integral part of the planter will be permitted to extend the seasonal use of the cafe area. Such screens shall not exceed a height of six feet and shall be separated from the awning to provide for air movement.

ii. Within Pedestrian Lanes or Alleyways: No planters or permanent or semi-permanent separation between extension areas and walkways will be allowed in pedestrian lanes, in order to ensure access by maintenance vehicles as necessary. Furnishings and equipment in extension areas occupying pedestrian lanes should be lightweight and moveable to ensure short-notice vehicular access to the area can be provided.

c. Retailing Uses. ~~Retailing uses within extension zones shall be limited to the sale of newspapers and magazines, flowers and produce, unless otherwise approved by City Council or its designated agent.~~ ~~Such~~ Retail extension areas shall not exceed 6 feet in depth, unless it is determined by the Planning Director or their designated agent that such depth is necessary to achieve the desired pedestrian objectives for the street, and in no case shall an extension area result in a public promenade that is less than 12 feet in depth on Pacific Avenue and no less than 8 feet in depth on Front Street ~~and~~, Laurel Street, or any pedestrian lane. Merchandise shall be displayed against the shop front and be oriented toward the ~~street~~ adjacent walkway on tables or stands that do not exceed four feet in height. No separation (e.g., planters or low walls) between the merchandise and the street shall be permitted.

d. Furniture. All furniture (e.g., tables, chairs, retailing stands) shall be durable, well-maintained, and of a high quality, suitable for outdoor use; such furniture shall be light, not heavy or massive in nature, to ensure that it does not visually dominate the ~~street~~ surroundings. All furniture shall be approved by City Council or its designated agent.

e. Design Materials. The design materials and colors used for chairs, tables, display stands, lighting, and other fixtures (including umbrellas and awnings) shall

DRAFT

be generally consistent with both the architectural style and colors used on the building facade and the quality of fixtures along Pacific Avenue.

f. Lighting. Lighting shall be incorporated into the facade of the building and shall complement the style of the building. Lights on buildings shall not be glaring to pedestrians and shall illuminate only the extension area and the activities within. General illumination shall be at 5 foot-candles, with a maximum of 10 foot-candles. Table lamps or candles are encouraged in cafe areas. Wired electrical fixtures will be allowed outside the face of the building, if contained within the semi-permanent barrier allowed for cafe extension areas and if installed by a licensed electrician. A lighting plan must be approved by the City Council or its designated agent.

i. Within pedestrian lanes overhead lighting such as string lights or similar will also be permitted so long as a minimum clearance of 10 feet is maintained to ensure access by maintenance vehicles as necessary.

g. Sidewalk Cleaning. The sidewalk or pedestrian lane area within the Café or Retail Extension Zone shall be cleaned and maintained by the licensee. The area shall be cleaned, at a minimum, daily and shall be steam cleaned as needed and appropriate, to maintain a clean, sanitary and attractive environment.

6. Distinctive Architectural Elements. Towers, cupolas, chimneys, dormers, spires, flag poles and other architectural elements will be allowed on a conditional basis, if they can meet the following criteria:

a. Key Locations. Such elements occur at significant locations within the downtown (e.g. key corners, street termini, downtown gateways), and provide landmarks that will reinforce the overall sense of place;

b. Architectural Integration. Such elements have been architecturally integrated within the building design and contribute positively to the overall harmony, composition and articulation of the facade and building mass;

c. Solar Access. Such elements do not significantly affect solar access objectives for the west- facing sidewalk of Pacific Avenue or the south-facing sidewalks of east-west streets; and

d. No Habitable Space. Such elements do not add habitable space above the prescribed height limits set forth above.

7. Accessibility. The Plan recognizes that accessibility permeates all elements of urban design, and requires that access be aesthetically integrated within all public and private development in the downtown. The *Americans with Disability Act*, passed by Congress in 1990, confirms that accessibility is a civil right and not a luxury or option. The Plan endorses this position, and requires that new development strive to achieve an "optimum state" of accessibility, beginning with compliance with both the State of California's *Title 24 Accessibility Requirements* and the *Uniform Federal Accessibility Standards (UFAS)*. This requirement shall govern all subdistricts within the downtown.

8. Pedestrian Passages. While sideyard spaces are discouraged in favor of contiguous building facades, public-oriented passages that provide pedestrian access through a development parcel to parking facilities, interior courtyards, and/or other developments are encouraged. These passages shall comply with Californian Building Code, et seq., dimensional requirements, and include provision of natural (as well as electrical) light and active uses along their length. To the maximum extent practicable, adjacent development shall establish a relationship to these passages with entries and storefronts, to promote a secure and interesting environment.

9. Interior Courtyards. Santa Cruz has a tradition of interior courtyards and gardens that provide attractive places to sit and relax, and a spatial counterpoint to the street experience. If provided, courtyards or interior gardens shall be designed to include: direct publicly-oriented linkages to Pacific Avenue and/or to other public streets or lanes; activities that do not reduce the principal objective of activating Pacific Avenue; and generous solar access throughout the year.

10. Intersection Treatment. High activity-generating uses are especially encouraged at the Pacific Avenue intersections. Minor corner setbacks in conjunction with storefront entries are also encouraged at these locations.

11. Corner Treatment. Corner parcels are encouraged to incorporate special features such as rounded or cut corners, articulated corner entrances, display windows, corner roof features, etc.

12. "T" Intersections. New development that occurs at the "T" intersections along Pacific Avenue (Cooper-Church-Locust; Soquel-Walnut-Lincoln; Elm-Maple-Pacific) are encouraged to accentuate the unique spatial characteristics of this condition, through corner treatments as described above, and through special facade treatments at the visual terminus of the east-west streets (e.g., towers, distinctive change in fenestration, roof profile, building material, etc.). Buildings located at the “T” intersections are required to prepare a visual impact analysis to determine the visual impact from the east-west street.

13. Ground Level Treatment. Along rear parking lots and service lanes, rear alleys are envisioned as attractive pedestrian places as well as service spaces. Where the back of development is adjacent to a public alley or surface parking lot, the ground level shall be designed to include architectural interest and detail on the rear façade. At a minimum, a usable and operable rear entrance shall be provided and, to the maximum extent practicable, views into the retailing activity shall be provided from the rear of the building.

14. Off-site Parking and Parking Structures. Required residential and commercial parking may be provided off-site, provided that such parking is located within the parking District No. 1. Publicly available parking structures shall conform to height limits of this Plan, but are not required to adhere to a maximum floor-area-ratio limit.

15. Service Access. Parcels adjacent to rear alleys must maintain service access from the rear and provide attractive rear entrances. Trash storage areas shall be internal to the building or completely enclosed and screened from view, as required by City ordinance. Trash or loading areas shall not, to the maximum extent practicable, be located adjacent to Pacific Avenue, North

Pacific Avenue, Front Street or Water Street. Required grease trap interceptors shall be maintained within the property. On a conditional basis, the City will consider their location within public alleys or within the street right-of-way, if there is no feasible alternative within the property.

16. Activated Roof Top Amenities. Because the Plan contemplates that rooftops provide opportunities for usable residential or commercial spaces, community gardens, other common or community amenities including rooftop bars and pools, shade structures, and associated access facilities, rooftop improvements will be permitted to:

- Extend no more than 15 feet above the otherwise maximum allowable height limit;
- Shall be setback at least 15 feet from the edge of the roof, provided that they are found to better achieve stated Plan and community objectives;
- Are architecturally integrated into the building design; and
- Structures above the height limit are limited to not more than 50% of the gross rooftop area.

Such variations shall be minor in nature and must receive a recommendation from the Planning Commission, with final approval by the City Council. These exceptions are in addition to additional height allowances found in Section 24.12.150 of the Zoning Ordinance.

17. Development Review. Coordinate interdepartmental City review of new development projects to evaluate ways in which public safety and community access to public spaces can be supported, for example, through physical design, security, exterior lighting, programming, and maintenance requirements. This review will consider, in particular, the exterior of the building and how it interacts with the surrounding public rights of way, and may condition a project to provide accommodation for features that support and enhance those interactions.

18. Resiliency Requirements. Due to the potential for floodwater intrusion in the Downtown, all new development will be required to comply with the standards for floodplain development as established by the California Building Standards Code and the more restrictive of either the most updated mapping data published by FEMA, or any Letter of Map Revision (LOMR) submitted to FEMA for review, based upon the timing of building permit submittal.

DRAFT

K. SOUTH OF LAUREL AREA DEVELOPMENT STANDARDS

1. Applicability

In general, the guidelines and standards established in Section B. *Pacific Avenue Retail District - Development Standards*, Section C. *Pacific Avenue Retail District - Building Façade Standards and Guidelines*, Section D. *Pacific Avenue Retail District - Storefront Standards and Design Guidelines* and Section E. *Front Street/Riverfront Corridor - Development Standards and Design Guidelines* will apply in the South of Laurel Area, with the standards for each area extending south to the point where Pacific Avenue and Front Street meet. Beyond that point the remainder of the South of Laurel Area District shall be generally subject to the standards established in Section E. *Front Street/Riverfront Corridor - Development Standards and Design Guidelines*. Exceptions to these general provisions are shown here. Where this section includes guidelines or standards that conflict with the above referenced sections, this section shall supersede for property within the South of Laurel Area.

2. Floodplain Development

All new buildings in the South of Laurel Area shall be constructed in compliance with the standards for floodplain development as established by the California Building Standards Code and the more restrictive of either one of the following, based upon the timing of building permit submittal:

a. the most updated mapping data published by FEMA, or
b. any Letter of Map Revision (LOMR) submitted for review that postdates the published map applicable to the development site.

3. Building Height

The following height standards shall apply to all development within the South of Laurel Area. All new development must conform with the Base Height requirements, unless pursuing a City or State Density Bonus and requesting a waiver or concession for building height.

a. Base Height and Floors. No new development shall exceed the base height of 85 feet, 70 feet, or 50 feet (as indicated in Figures B-1 and B-3) except as the result of compliance with any density bonus program or provision of state or local law.
    i. Areas shown in Figure B-3 as “Reduced Height Overlay Zones” shall be limited to no more than 70 feet in height in order to provide some transition in height adjacent to Beach Hill.
b. Floor-to-Floor Height. Parcel frontages located on the west or north side of Pacific Avenue or on Center Street must have a minimum ground floor height of 15 feet. Exclusive of commercial ground floor requirements, parcel frontages along the south side of Laurel Street must have a minimum ground floor height of 11 feet six inches. All other parcel frontages in the South of Laurel Area must have a minimum ground floor height of 18 feet. Any mezzanine incorporated into the first story shall be set back at least 20 feet from the building frontage on the street and shall occupy no more than one half of the area of the floor below.

DRAFT

i. Floor-to-Floor heights for mechanical, electrical, trash, or utility rooms located on the ground floor can be lower than the above standards.

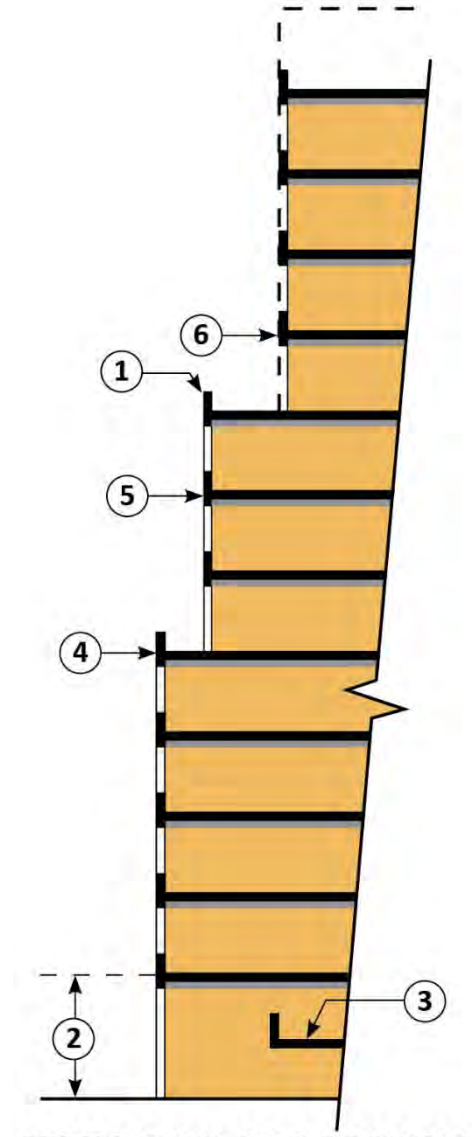
4. Commercial Ground Floors.
   a. Ground floors along Pacific Avenue, Laurel Street, and Spruce Street must be dedicated to commercial space with minimum of depth of 20 feet.
   b. Residential lobbies consistent with the requirements of that land use as defined with the Uses Chart in the Downtown Plan will be the only exceptions to this standard.
   c. Buildings adjacent to Activity Nodes identified in Appendix 8, Figure 8.4-6, Gateways and Nodes, will be required to dedicate ground floors to commercial space. Commercial spaces will have a minimum length of 50 feet of total frontage and a depth no less than 20 feet.

5. Upper-Level Tapering *(supersedes all stepback requirements from subsection E (1))*. In order to promote a pedestrian scale, to increase light to the street, and to reduce overall building mass and scale of development on sites over one-half acre in size and with a street frontage dimension of 150 feet or more shall be required to taper above 55 feet. See Figure K-1. Tapering shall be consistent with the following:
   a. The stories containing interior finished floor above 55 feet in height shall be no more than 90% of the interior finished floor area of the highest finished floor below 55 feet.
   b. The first floorplate above 75 feet in height shall be no more than 75% of the floor area of the highest floor below 55 feet.
   c. Any floorplate above 85 feet in height added through density bonus application shall be no more than 35% of the floor area of the highest floor below 55 feet in height.

6. View Corridor Setbacks. The block of land identified in Appendix 8 as Redevelopment Block 'D' located south of Spruce Street, north of Beach Hill, and between the Santa Cruz Riverwalk and Front Street, shall be developed in a manner that maintains the public view from the Cliff Street Stairs toward the San Lorenzo River by setting back all stories above 35' from grade level. The required setback will taper from 75 feet at the southern end to 35' at the north end of the parcel, measured from the western edge of the existing Riverwalk path.

7. Visual Simulation Requirement. All new development and redevelopment proposals must prepare a visual rendering from a pedestrian eye-level, showing the proposed development in context of surrounding buildings and streetscape features.

DRAFT



1. Maximum 85' to top plate
2. Minimum 18' ground level floor-to-floor dimension
3. Maximum mezzanine area = 50% of floor below
4. Floors above 55' = 90% of floor below
5. Floors above 75' = 75% of floor below 55'
6. Floors added through Downtown Density Bonus = 35% of floor below 55'

Figure K-1: Maximum Building Heights and Floors, south of Laurel Street.

*Number 1 above applies only to sites with 85' height standard as shown in in Figure B-3.

8. Activated Roof Top Amenities. Because the Plan contemplates that rooftops provide opportunities for usable residential or commercial spaces, community gardens, other common or community amenities including rooftop bars and pools, shade structures, and associated access facilities, rooftop improvements will be permitted to:
   a. Extend no more than 15 feet above the otherwise maximum allowable height limit;
   b. Shall be setback at least 15 feet from the edge of the roof, provided that they are found to better achieve stated Plan and community objectives;
   c. Are architecturally integrated into the building design; and
   d. Structures above the height limit are limited to not more than 50% of the gross rooftop area.

   Such variations shall be minor in nature and must receive a recommendation from the Planning Commission, with final approval by the City Council. These exceptions are in addition to allowances found in Section 24.12.150 of the Zoning Ordinance.

9. Upper-Level Facades. (i.e., the levels of building wall above the ground floor). Upper-level facades should provide a counterpoint to the storefronts below and provide a visually interesting and varied edge to the public space of the street. In general, the upper-level façade should consist of carefully composed "punctured openings" within a richly detailed wall. A variety of treatments shall be introduced to create richness in both the horizontal and vertical planes, including:
   - windows with sills a minimum of six inches in depth,
   - articulation through variation in facade depth,
   - balconies,
   - bay windows,
   - flower boxes,
   - awnings,
   - cornice and belt courses, and/or
   - massing breaks as described in SCMC 24.12.185.

10. Streetwall. To create a visually interesting "streetwall" with a rhythm and cadence that is reflective of the pattern of development along Pacific Avenue, building facades shall introduce variation at general intervals of 25 to 50 feet horizontal distance with the use of:
   - fenestration;
   - architectural elements
   - building materials, and/or
   - building planes.

   Large, uninterrupted expanses of horizontal or vertical wall surface shall be avoided. Regardless of property lines, the appearance shall be of a street with varying architectural

DRAFT

treatments at intervals of no more than 50 to 75 feet. The multiple rhythms shall be created through the careful design of building elements and three-dimensional articulation of building elements sufficient to mitigate the presence of long, blank walls along Pacific Avenue, Front Street, Cedar Street, the Spruce Street Plaza, the east-west streets, and the alleys. Elements that make up the rhythmic variation may include, but are not limited to:

- recessed windows as described in SCMC 24.12.185,
- projecting windows,
- bay windows,
- structural elements,
- surface textures, patterns and colors,
- trim elements,
- balconies,
- belt-cornices,
- cornices,
- massing breaks as described in SCMC 24.12.185,
- awnings and shutters; and/or
- landscape elements including Living Walls a minimum of 4 feet wide and 8 feet in height and as defined in SCMC Section 24.12.185.

11. Public and Private Parking Facilities. The South of Laurel Area is outside of Downtown Parking District #1 and parcels in this area are not eligible for inclusion in that District and access to the allowances and requirements of that District unless annexed. On-site parking will not be permitted unless it meets the conditions otherwise required by Section B part 3 or by Section E part 9, respectively, based on location as defined above.
    a. Any parking provided for residential units shall be provided in an unbundled fashion, separating the cost of parking from the cost to purchase or rent housing. In no case will a residential tenant or owner be required to purchase any amount of parking space in order to own or rent a housing unit.
    b. Any parking facilities associated with a sports arena will be permitted to exceed the limits on the number of driveways but shall still seek to minimize curb cuts on Front Street, while accommodating the loading and parking needs of the use. A sports arena shall have no curb cuts on Pacific Avenue.
    c. Standards for bicycle storage and parking shall be as required in SCMC Chapter 24.12.
        i. In the South of Laurel Area, new residential development may provide up to 30% of required Class 1 bike storage spaces within residential units. The remainder of required bike facilities will be provided consistent with the requirements of the Municipal Code.

12. Transportation Demand Management.

New development projects will meet the requirements of SCMC Chapter 10.46, Citywide Trip Reduction Program, and in the South of Laurel Area will also be required to provide the following:

a. When more than 50 residential units are proposed, shared electric bicycles shall be provided for resident use at the following ratios. In no case shall less than one electric bicycle be provided when any fraction is required, and building management shall be responsible for ongoing maintenance, replacement, etc.
    i. Up to 50 units – 1 bicycle
    ii. 51 to 80 units – 2 bicycles
    iii. 81-110 units – 3 bicycles
    iv. 111 and greater – 4 bicycles

13. Events Arena.

The SOLA District allows for the construction of a new sporting and events arena, which may be located either on the south side of the block of Spruce Street between Pacific Avenue and Front Street, or on the south side of the block of Spruce Street between Front Street and the Santa Cruz Riverwalk. In either location, the following development standards and guidelines shall apply to that development.

a. The arena should seek to incorporate durable, high-quality materials (e.g., brick, stone, steel, glass, triple-layer stucco etc.) and serve as a distinctive architectural landmark to the greater downtown area.
b. The arena building façade should include windows and other pedestrian-friendly materials to create an inviting streetscape.
c. Building massing along Front Street shall incorporate pedestrian-friendly design features such as windows, articulated facades (i.e., setbacks), door entrances, planter boxes, etc. Long continuous walls without articulation should be avoided.
d. Incorporate ground-floor active commercial uses (e.g., restaurants, box-office) fronting portions of the Spruce Street Plaza to the greatest extent possible. Semi-private use of the portion of the Spruce Street Plaza fronting the arena for outdoor dining, pre- and post-event gatherings, etc. is permitted and encouraged.
e. Active commercial ground-floor uses are encouraged on Front Street (if arena is on Block D) and required on Pacific Avenue (if arena is on Block C) to create an engaging, lively, and pedestrian-friendly civic space.
f. If the arena is constructed on Block D, portions of the eastern boundary shall include active uses that complement and integrate with the Santa Cruz Riverwalk. This shall include levee-oriented commercial space, (e.g., restaurants).
g. The arena could incorporate other community-serving amenities such as an above-grade terrace affording views of the San Lorenzo River and cityscape, or other community serving amenities. Any such uses that are directly adjacent to the arena building may be closed to the public as needed.
h. The use of large-format digital screens and/or image projection on the arena building façade to promote sporting and other entertainment events is encouraged, while considering its location, intensity, time of illumination, and positioning, consistent

DRAFT

with environmental conditions.

i. "Back-of-house" service access shall be either via the new Laurel Street Extension to the south (if the arena is on Block D) or from Front Street or a new service alley accessed from Front Street (if the arena is on Block C).

14. Downtown Density Bonus

All parcels within the South of Laurel Area are eligible to pursue development incentives for additional height and/or Floor Area Ratio for buildings meeting certain criteria. The purpose of the Downtown Density Bonus (DDB) is to support a compact urban core while achieving a higher-than-average rate of below-market-rate housing units, promoting high-quality design, and generally encouraging building heights of twelve stories or less. Applications for a Downtown Density Bonus will be processed as part of the Design Permit when requested by qualifying development project.

a. Bonus Development Density. Development proposals meeting any one of the qualifying criteria are eligible to select either one of the options for bonus density as follows:
   i. Option A: Bonus Floor Area Ratio (FAR). Up to 75% additional FAR on top of the base FAR, and up to an additional 75% in height not to exceed 145 feet. Projects may choose to use some or all of any bonus for which they qualify.
   ii. Option B: Waiver of Floor Area Ratio (FAR). For development proposals that limit height to the height limits of the Downtown Plan (50, 70, 85 feet), excluding noted exceptions to height limits as consistent with the Downtown Plan or SCMC Section 24.12.150 - Height Limit Modifications, a waiver of the maximum FAR standard.

b. Qualifying Development. Applicants for development within the South of Laurel Area of the Downtown Plan qualify for bonus density under this section when all the following conditions are met:
   i. The proposal is for a mixed-use or fully residential, rental housing development. The Downtown Density Bonus is not available to for-sale residential development proposals.
   ii. The floor area of the proposed development consists of 2/3 or more residential dwellings, while ensuring that the ground floor frontage is reserved for commercial and active, public-facing uses consistent with Sections A and K of Chapter 4 of the Downtown Plan.
   iii. The proposed development meets the required development standards as delineated below in parts h and i and complies with the requirements for Architectural Review as described in part j.
   iv. The development proposal meets one of the following criteria, with any fractional obligation being rounded up to the next whole number:
      (1) *On-site option:* If below-market-rate units are provided on the same site as the market rate units projects must meet the following minimum standards:

(a) Provide 13.4% of the total dwelling units, inclusive of any and all density bonus units, to Low-Income households at a Low-Income affordable rent, consistent with part k below. Deeper levels of affordability will also qualify; and

(b) Provide 8% of the total dwelling units, inclusive of any and all density bonus units, to Moderate-Income households at a Moderate-Income affordable rent, consistent with part k below. Deeper levels of affordability will also qualify

(2) *Off-site Option:* If below market rate units are provided off-site from the market rate units and consistent with criteria in parts 4, 5, and6, as applicable, projects must meet the following minimum standards:

(a) Provide a number of bedrooms equating to at least 26.7% of the total bedrooms, inclusive of bedrooms in any and all density bonus units, on the DDB site as part of a development project at a low-income affordable rent, as defined in SCMC 24.16.015 consistent with part 10 below. Deeper levels of affordability will also qualify; and

(b) Provide a total square footage of dwelling unit area in the off-site project that is not less than 75% of the total dwelling unit area of the DDB project multiplied by 26.7%. Common areas such as corridors, stairwells, community rooms, etc. are not counted toward this amount, only square footage within dwelling units. For instance, if a DDB project contains 100,000 square feet of dwelling unit area the required off-site project square footage of dwelling unit area would be a minimum of 20,025 square feet (100,000 x 26.7% = 26,700 and 26,700 x 75% = 20,025).

(c) These bedrooms and dwelling unit area may be arranged into any size or number of dwelling units.

(3) *Fee Option:* If a fee is provided in lieu of construction of the required below market rate units on or off site, said fee will be calculated at a rate of $60 per square foot of in-dwelling-unit leasable area to be paid to the City of Santa Cruz Affordable Housing Trust Fund. The fee will be expended consistent with part g below. The amount of the required fee will be adjusted annually beginning on January 1, 2026, consistent with the Consumer Price Index.

(4) *Combination Option*: A combination of qualification options may be approved by the City Council based upon the favorable recommendations of the Directors of Planning & Community Development and Economic Development & Housing, if Council finds that the combination of approaches provides an equivalent or greater affordable housing benefit to the community.

c. Additional Criteria for Project Approval.

i. In pursuing a DDB, the developer will permanently forgo any State Density Bonus or other City Density Bonus for which the development might otherwise be

DRAFT

eligible. No other state or local development incentives may be combined with use of the Downtown Density Bonus.

ii. Any properties pursuing a DDB that trigger requirements under state or local law for replacement housing will be responsible for providing such housing consistent with those regulations. Required replacement units may be counted towards meeting the City's inclusionary requirement and/or qualifying for a DDB provided that the level of subsidy and duration of affordability meet the criteria of this policy. The number of bedrooms in the affordable replacement units will be deducted from the number of bedrooms needed in the off-site affordable units.

(1) For sites using the off-site option: Any existing units on the site identified for the off-site below-market rate units that are subject to replacement requirements for lower-income residents by state law must be provided in addition to the total required number of bedrooms and square footage in lower-income affordable units needed to qualify for the DDB; an individual unit or bedroom cannot be counted toward both obligations.

iii. Prior to Building Permit issuance, developers using the DDB must complete an affordable housing agreement with the City that enumerates the following items:

(1) the specific number, location, and depth of affordability of all below market rate units to be constructed or any in-lieu fees to be paid;

(2) the on-site affordable housing or in-lieu fee requirements that will apply should an off-site option be selected but not achieved within specified timelines; and

(3) that all below market rate housing units created as a result of a DDB project shall be perpetually restricted to the income level required under part b.

d. Selection of Sites for Off-Site Below-Market Rate Units.

i. Any off-site below-market rate units must be built on a parcel or parcels within the City of Santa Cruz that are either:

(1) within a half-mile radius of the South of Laurel Area of the Downtown Plan; or

(2) within the Downtown Plan area; or

(3) within the Coastal Zone.

ii. More than one DDB site may contribute bedrooms in off-site units as part of a larger project, provided that the total number of bedrooms required in below-market rate units is not reduced.

iii. The site or sites must be large enough to accommodate the required square footage and number of bedrooms, as a part of housing units, in addition to any required replacement units that redevelopment of the receiving site would trigger.

iv. Multiple sites, contiguous or otherwise, may be utilized to meet the off-site obligation for below-market rate units, and all sites must comply with these locational criteria.

v. If it is indicated by an applicant or determined by staff that state or federal funding for financing will be needed then the site or sites must be located in areas

DRAFT

deemed by the Economic Development Director to be highly competitive for State and Federal housing grant funding opportunities, in order to encourage timely completion of the proposed affordable housing development(s).

e. Additional Criteria for construction for off-site below-market housing together with market rate housing development
   i. If an applicant proposes to incorporate the off-site below-market rate units into a project that is anything other than a 100% below-market-rate development, excepting manager units, the bedrooms and units that are being used to qualify for the DDB must be in excess of any inclusionary or replacement below-market rate units otherwise required for the market rate project on the receiving site, and cannot be counted toward qualifying for any State Density Bonus. The amount of below-market rate housing on the site will not be less than the total of all of the following:
      (1) the number of bedrooms and square footage required under part b;
      (2) the number of units required as replacement units under state law, if any; and
      (3) the number of units required for compliance with the City's inclusionary housing ordinance on the site, consistent with applicable state laws.
   ii. For this option, the developer of the site seeking the DDB will either identify and acquire a site suitable for development or will identify a development partner already engaged in development of a suitable site, and ensure entitlement and completion of construction of a project that will meet or exceed the requirements of part b.
   iii. To approve this option, the affordable housing agreement for the DDB site will stipulate the following:
      (1) A substantially complete development entitlement application for the receiving site or a substantially complete building permit application in the case of a ministerial project, as determined by the City, shall be submitted for City review prior issuing Building Permits for DDB site.
      (2) Prior to issuing a Certificate of Occupancy to the site utilizing the DDB, the developer of the DDB site or a development partner shall commence construction on the housing units proposed to meet the qualification criteria for the DDB.
      (3) Compensation or securities must be provided by the developer of the DDB site for any bedrooms for lower-income households not available for occupancy as part of the off-site project at the time of issuance of the Certificate of Occupancy to the DDB site. Such compensation or securities shall be provided in one of the following ways:
         (a) The required number of off-site bedrooms can be provided at the DDB site to lower-income households at an affordable rent as defined in part k; or
         (b) A bond in an amount equivalent to the amount of in-lieu fee that would have qualified the project for a DDB shall be required to be submitted to the City. The bond will be returned to the developer if the affordable units

have been constructed and occupied within two years of the date that the DDB project is occupied.

(c) If the Directors of Planning and Community Development and Economic Development and Housing determine that the off-site project has not made sufficient progress to meet the timing expectations of this section, the City reserves the right to require full payment of in-lieu fees immediately and inclusive of a 10% penalty. The determination of the directors is appealable to the City Council, with the applicant responsible for covering City costs associated with bringing such an appeal to hearing.

(4) Variation from timing standards may be sought for good cause by the developer of either the DDB site or the off-site project and shall require the approval of the City Council with an affirmative recommendation from the Directors of both Planning and Community Development and Economic Development and Housing.

f. Additional Criteria for construction of off-site below-market rate units as part of a 100% below-market rate project

i. If an applicant proposes to incorporate the off-site below-market rate units into a project that is a 100% below-market-rate development, excepting manager units, the bedrooms and units that are being used to qualify for the DDB must be in excess of any inclusionary or replacement below-market rate units otherwise required on the receiving site, but may contribute toward qualifying for a State Density Bonus.

ii. The developer of the site seeking the DDB will provide a suitable site for development of below-market-rate housing as approved by the Directors of Planning & Community Development and Economic Development & Housing. The Directors shall approve the site based on the relevant provisions of this section, including with the intent of this Policy for the off-site option to increase the number of 100% affordable projects beyond the number that would occur absent the DDB. The developer will then either proceed with entitlement and development of the site, or will engage with a City-approved affordable housing partner as part of a City-approved transaction to pursue entitlement for and complete construction of a development project of sufficient size to meet or exceed the requirement for bedrooms and square footage in below-market rate units established by part b above.

iii. To approve this option, the affordable housing agreement for the DDB site will stipulate the following:

(1) A complete development application for the receiving site or a complete building permit application in the case of a ministerial project, shall be accepted for City review prior issuing Building Permits for DDB site.

(2) Prior to issuing a Certificate of Occupancy to the site utilizing the DDB, the developer of the DDB site or a development partner shall commence

DRAFT

construction on the housing units proposed to meet the qualification criteria for the DDB.

(3) Compensation or securities must be provided by the developer of the DDB site for any bedrooms for lower-income households not available for occupancy as part of the off-site project at the time of issuance of the Certificate of Occupancy to the DDB site. Such compensation or securities shall be provided in one of the following ways:

(a) The required number of off-site bedrooms can be provided at the DDB site to lower-income households at an affordable rent as defined in part k, or

(b) A Bond in an amount equivalent to the amount of in-lieu fee that would have qualified the project for a DDB shall be required to be submitted to the City. The bond will be returned to the developer if the affordable units have been constructed and occupied within two years of the date that the DDB project is occupied.

(c) If the Directors of Planning and Community Development and Economic Development and Housing determine that the off-site project has not made sufficient progress to meet the timing expectations of this section, the City reserves the right to require full payment of in-lieu fees immediately and inclusive of a 10% penalty. The determination of the directors is appealable to the City Council, with the applicant responsible for covering City costs associated with bringing such an appeal to hearing.

(4) Variation from timing standards may be sought for good cause by the developer of either the DDB site or the off-site project and shall require the approval of the City Council with an affirmative recommendation from the Directors of both Planning and Community Development and Economic Development and Housing.

(5) Following completion of construction, the developer will transfer ownership of the property to the City of Santa Cruz unless alternative agreements are negotiated with the Economic Development and Housing Department. Subject to City approval, the developer may lease and operate the below market rate housing development or may transfer the lease for the housing units to a City-approved affordable housing partner.

(a) As part of the affordable housing agreement, the developer of the DDB site will identify the preferred option for achieving compliance with this requirement, selecting from the following options:

(i) Only the land is transferred to the City, the developer holds the units and operates the below market rate project.

(ii) Both the land and the housing units are transferred to the City, and the City selects an affordable housing partner to operate and manage the housing.

(iii) The developer of the receiving site is a City-approved affordable housing partner, who retains ownership of both the land and the housing units.

DRAFT

(b) The land and the affordable units shall be subject to a covenant ensuring perpetual affordability of the units to lower-income households at an affordable rent, as defined in part k, which shall be recorded on the property at the time of the transfer. The covenant shall clarify that the land will be reserved for housing affordable to lower-income households in perpetuity. This covenant shall be recorded in a priority lien position that shall survive a foreclosure event.

g. Requirements for in-lieu Fees
   i. To approve this option, the affordable housing agreement for the DDB site will stipulate the following:
      (1) The total amount of the in-lieu fee will be calculated based on the expected date of building permit issuance.
      (2) The fee will be paid to the Affordable Housing Trust Fund in no more than two installments:
         (a) At least 50% of the fee will be paid prior to issuance of building permits; and
         (b) Any remaining in-lieu fee will be paid prior to issuance of Temporary Certificate of Occupancy or Certificate of Occupancy.
   ii. All fees collected from DDB projects will be expended on projects that create or preserve permanently affordable housing for lower-income households
      (1) A minimum of 50% of funds resulting from any DDB in-lieu fee will be spent on projects inside the Coastal Zone or within the Downtown Plan area. The administrators of the Affordable Housing Trust Fund shall maintain accounting of the expenditures to ensure compliance with this provision.

h. Maximum Height with DDB
   i. For sites utilizing Option A: Bonus FAR
      (1) Special attention shall be paid to the structure to address issues such as massing, building shadows, and views of the skyline from a distance. One way to address these issues would be to have no more than 35% of the site area exceed 85' in height. The Architectural Review Committee shall review proposals.
      (2) The tallest portion of the structures, measured to the top plate, shall be no more than 12 stories and 145' tall. Rooftop structures may exceed this height limit in accordance with the allowances established in SCMC Section 24.12.150 and in the Downtown Plan Chapter 4.
      (3) Based upon a request by the developer and a recommendation from the Planning Commission, the City Council may approve greater heights or stories in order to achieve superior building design, such as improved skyline aesthetics, enhanced rooftop access, improved solar access, or other similar features, as demonstrated at a public hearing and when approved by a majority of City Council.

DRAFT

ii. For sites utilizing Option B: Waiver of FAR

(1) Height will be measured consistent with the standards and allowances of Chapter 4 of the Downtown Specific Plan, inclusive of allowances for elements exceeding base height.

(2) Based upon a request by the developer and a recommendation from the Planning Commission, the City Council may approve greater heights in order to achieve superior building design, particularly in terms of improved skyline aesthetics, enhanced rooftop access, improved solar access, or other similar features, as demonstrated at a public hearing and approved by a majority of City Council.

i. Development Standards, Waivers, and Concessions

i. The development standards regulating height, FAR, setbacks, upper-story stepbacks, for sites in the South of Laurel Area of the Downtown Plan will not apply as objective standards for projects utilizing the DDB consistent with accommodating the incentive granted per parts a, b, and h above, and may be used as guidelines during development review. All other requirements for design and development of buildings in the South of Laurel Area will continue to be applied to projects pursuing a DDB.

ii. Discretionary review can deny waivers, concessions and incentives but the standards applied shall not be more stringent than those that would apply to the site absent the application of the DDB (i.e. those found in the Downtown Plan Chapter 4, applicable General Plan and Zoning policies, etc.), though additional minor variations can be made consistent with Subsection J of Chapter 4.

iii. All building designs will be considered by the Architectural Review Committee, with a recommendation to staff about how to proceed with requested waivers and concessions.

j. Architectural Review Committee Process

i. All applications for DDB projects agree to provide a site plan, floorplans, elevation drawings for all building facades with exterior materials identified, renderings of all building facades that show three-dimensional characteristics of the designs, at least three cross-sections showing key areas of the full building, conceptual landscape plans, conceptual lighting plans, and sufficient building details to show depths of façade elements or other key building features to the City for use in the Architectural Review Committee (ARC) process.

ii. The Planning and Community Development Department will be responsible for selecting a committee of three licensed architects to conduct collaborative review of a DDB development application. This may occur as part of a formal application process or as part of a preliminary application review process.

iii. The ARC will review the DDB project application consistent with part i above, and in relation to the ARC Review Guidelines established by the Planning and Community Development Director in consultation with the Planning Commission

DRAFT

or a subcommittee of the Planning Commission. These administrative guidelines will be published on the City's website.

iv. The ARC will meet with the project applicant and City staff to review and critique building design proposals.

v. Applications triggering ARC review will be acted on by the Planning Commission and may be appealed to the City Council, unless another requisite entitlement triggers the need for Council review, in which case the Planning Commission will make a recommendation to the City Council. Planning staff will incorporate a summary of the ARC discussion into the Planning Commission staff report for the Design Permit review.

vi. City staff reserves the right to extend or repeat the ARC review process, if needed, should issues arise such as a request for extensive redesign or persistent disagreements on design of the proposal.

vii. The Planning and Community Development Director, or his/her designee, may establish additional procedures and requirements related to the ARC process.

viii. Any project developed using a DDB will be subject to a review of selected exterior materials at the time of Building Permit Plan Check process. This review will be conducted by a subcommittee of the City Planning Commission in consultation with the Planning and Community Development Director or his or her designee.

k. Below-market Rate Housing Requirements

i. With the exception of the method of calculating the number of inclusionary units required, the City's standard inclusionary housing requirements regulated by SCMC Sections 24.16.010 through 24.16.025 and 24.16.040 through 24.16.045 will apply to all low-income or moderate income housing that is produced as a result of projects using the DDB, including but not limited to income limits, affordable rent payment standards, and equivalence between market and below-market rate housing units for units built on-site with the DDB project.

(1) Because there may be a difference in the type of unit proposed in the DDB project and an off-site below market rate project, the requirements of 24.16.025.4 relating to the average size of inclusionary units will not apply to off-site below market rate projects developed as part of a DDB project.

ii. Below-market rate units for Moderate-income households will be subject to the following standards and requirements:

(1) Maximum monthly rent will be calculated in compliance with the applicable definition of affordable rent and requirements per SCMC 24.16.015 and 24.16.045.

(2) Residents of units reserved for moderate-income households will be required to verify a household income that complies with the applicable definition and requirements in SCMC 24.16.015 and 24.16.045.

DRAFT

SCDPE Proposed Amendments to City of Santa Cruz 2030 General Plan

Regional Visitor Commercial (RVC), 0.25 to ~~3.5~~ 5.0 FAR. Applies to areas that emphasize a variety of commercial uses that serve Santa Cruz residents as well as visitors. Mixed-use development is strongly encouraged in RVC districts. Areas designated RVC include:

- **Downtown Santa Cruz, 0.25 to 5.0 FAR.** Emphasizes a mix of regional office and retail uses, residential and mixed-use developments, restaurants, and visitor attractions such as entertainment venues. The Downtown ~~Recovery~~ Plan provides detailed requirements for this area and includes a map showing FAR limitations by neighborhood.
- ~~**South of Laurel.** Emphasizes mixed-use and residential development along with visitor-serving and neighborhood commercial uses to connect the Beach Area with Downtown Santa Cruz. The Beach and South of Laurel Comprehensive Area Plan provides detailed requirements for this area.~~
- **Beach Area, 0.25 to 3.5 FAR.** Emphasizes visitor-serving commercial uses such as hotels, motels, restaurants, and amusement parks, as well as residential and mixed-use development in the Beach Area neighborhoods. The Beach and South of Laurel Comprehensive Area Plan provides detailed requirements for this area.

For most areas designated RVC, the minimum and maximum development intensity is specified in the Downtown ~~Recovery~~ Plan or the Beach and South of Laurel Comprehensive Area Plan. In areas that are designated RVC but are not addressed in an Area Plan, the minimum FAR is 0.25 and the maximum is 1.75.

SCDPE Proposed Amendments to the City of Santa Cruz Local Coastal Program Land Use Plan

Table L-11 — General Plan and LCP Land Use Designations

General Plan Land Use Designation	Residential Density (Dwelling Units per Acre)	Employment Density Employees (E) per Acre) [3]	Allowable Zoning Districts [2]
RESIDENTIAL			
Very-Low-Density Residential	Up to 1 du/acre	0	R-S-1A, R-S-5A, R-S-2A, R-S-10A
Low-Density Residential	1.1 - 10	0	R-1-5 R-1-7 R-1-10
Low-Medium-Density Residential	10.1 - 20	0	R-L
Medium-Density Residential	20.1 - 30	0	R-M R-T(A) (B) (D)
High-Density Residential	30.1 - 55	0	R-H R-T(A) (B) (D)
COMMERCIAL AND OFFICE			
Neighborhood Commercial	0 - 30	Up to 30 E/Acre	C-N
Community Commercial	0 - 30	Up to 60 E/Acre FAR <= 2	C-C
Regional/Visitor Commercial[4]	0 - 30	Up to 80 E/Acre	C-B CB-D R-T(C)
Office[4]	0 - 30	Up to 60 E/Acre	P-A
INDUSTRIAL			
General Industrial	0 - 30	Up to 60 E/Acre	I-G
Coastal-Dependent	0	Up to 20 E/Acre	C-D
COMMUNITY FACILITIES[4]	0	Up to 80 E/Acre	P-F
UCSC	Varies	Varies	UCSC
OPEN SPACE			
Parks	0	0	P-K
Coastal Recreation	0	0	OF-R, P-K

Agriculture/Grazing	1 DU/20 acres		EA
Natural Areas	0	0	F-P P-K NA-O

[1] The unit densities indicated in the chart above are based upon developable area, which excludes land having environmental constraints.

[2] Coastal Zone (CZ-O), Flood Plain (FP-O), Shoreline Protection (SP-O), and Historic (H-O) Overlay Zones are potentially applicable to any land use designation and the High-Density Residential Overlay Zone (HD-O) may be applied to Community Commercial, Regional/Tourist Commercial and Central Business District Land Uses.

[3] Employment Density Standards apply to the overall employment density maintained throughout the entire zoning district and are not site or project specific.

[4] Note that development intensities for parcels within the City's downtown are governed by the standards of the Downtown Plan, a specific plan and part of the LCP Implementation Plan, together with the applicable zone district, rather than by the above standards.

The amendments to the Beach/South of Laurel Comprehensive Area Plan are also amendments to the Local Coastal Program Land Use Plan.

The amendments to the Santa Cruz Municipal Code, Zoning Map, and Chapter 4 of the Downtown Plan are amendments to the Local Coastal Program Implementation Plan.

Part 24: CENTRAL BUSINESS DISTRICT (CBD)

24.10.2300 PURPOSE.

This part implements the Land Use Plan, Development Standards and Design Guidelines of the Downtown Plan (Plan), a specific plan. It is intended to refine the Plan in the area of land use and regulations. It supports the purpose of the Plan, in the context of the General Plan, which aims to maintain downtown the urban center of the city, with the many functions a city center serves. This chapter of the Zoning Ordinance is also part of the Local Coastal Implementation Plan.

The Central Business District Zone of the Downtown Plan is divided into ~~four~~ five subareas, in order to enhance the character of each by special consideration of the character of each. ~~A fifth area, CBD Subdistrict E, Lower Pacific Avenue, implements the policies of the Beach and South of Laurel Plan and is separate from the Downtown Plan.~~

24.10.2301 USES, DEVELOPMENT STANDARDS AND DESIGN GUIDELINES.

Chapter 4 of the Downtown Plan, as amended, is hereby adopted by reference, and the planning and community development department shall maintain copies of the Downtown Plan in both hard copy and electronic form, for use and examination by the public. The policies and regulations set forth in Chapter 4 of the Downtown Plan shall control all uses in the CBD, Central Business District, and its ~~four~~ five subdistricts: Pacific Avenue Retail District; Front Street Riverfront Corridor; South of Laurel Area; Cedar Street Village Corridor; and North Pacific Area.

~~Part 24(A): CBD SUBDISTRICT E – LOWER PACIFIC AVENUE~~

~~24.10.2360 PURPOSE.~~

~~The purpose of the Lower Pacific Avenue Subdistrict Zone is to encourage the development/redevelopment of the Lower Pacific corridor between Laurel and Front Streets as an important linkage between the Downtown and the Beach. Its intent is to extend the commercial and mixed use developments of the Downtown along Lower Pacific Avenue in a manner that is compatible with and linked to the regional tourist serving uses of the Beach.~~

~~24.10.2361 PRINCIPAL PERMITTED USES.*~~

~~1. The following uses are allowed outright in the Lower Pacific Avenue Subdistrict, subject to a design permit and other requirements of the Municipal Code (numerical references at the end of these categories reflect the general use classifications listed in the city's Land Use Codes.~~

~~Further refinement of uses within these categories can be found in the Land Use Codes, but they are not intended to be an exhaustive list of potential uses):~~

~~a. Acting/art/music/dance school and studios (610);~~

~~b. Apparel and accessory stores (250);~~

~~c. Eating and drinking establishments (excepts bars, fast food), subject to live entertainment and alcohol regulations of Chapter 24.12 (280);~~

~~d. Educational facilities (public/private) (510);~~

~~e. Food and beverage stores (except liquor and convenience stores) (240);~~

~~f. General retail merchandise (drug and department stores) (230); not exceeding 16,000 square feet per individual store;~~

~~g. Home furnishing stores (270);~~

~~h. Lodging (300);~~

~~i. Multiple dwellings or condominiums or mixed use residential and commercial developments when multiple dwelling or condominium units are located above the first floor of commercial uses, subject to the minimum land area (net) per dwelling unit of the R-M District (830, 840);~~

~~j. Museums and art galleries (600);~~

~~k. Repair, alterations, and maintenance services for household items (except boat repair) (340);~~

~~l. Small community care residential facilities;~~

~~m. Small preschool/childcare (12 or fewer) (510A);~~

~~n. Specialty retail supply stores (290);~~

~~o. Theaters (620);~~

~~p. Video rental (360B).~~

~~24.10.2365 ACCESSORY USES.~~

~~Other uses and buildings customarily appurtenant to a permitted use, subject to the provisions of Section 24.12.140, Accessory buildings, and Section 24.10.730.~~

~~24.10.2370 USE PERMIT REQUIREMENT.~~

~~1. The following uses are subject to approval of an administrative use permit in the Lower Pacific Avenue Subdistrict and possibly other requirements of the municipal code (numerical references at the end of these categories reflect the general use classifications listed in the city's land use codes. Further refinement of uses within these categories can be found in the land use codes, but they are not intended to be an exhaustive list of potential uses):~~

~~a. Auto supply stores (260C);~~

~~b. Bakery, microbrewery (subject to alcohol regulations in Part 12 of Chapter 24.12), handicrafts or similar light manufacturing and assembly uses associated with retail sales, if floor area is less than seven thousand square feet and retail sale or service area occupies at least thirty percent of the floor area;~~

~~c. Brewpubs, subject to alcohol regulations in Part 12 of Chapter 24.12;~~

~~d. Churches (500);~~

~~e. Communication and information services (550);~~

~~f. Community organizations, associations, clubs, and meeting halls (570);~~

~~g. Developed parks (710);~~

~~h. Fast-food restaurants or drive-in eating facilities subject to performance standards in Section 24.14.290 and subject to alcohol regulations in Part 12 of Chapter 24.12 and Section 24.14.290 (280H);~~

~~i. Financial, insurance, real estate offices (420);~~

~~j. Financial services (320);~~

~~k. Flexible density unit (FDU) housing (fifteen units or less) as part of a mixed-use project;~~

~~l. Foster family homes;~~

~~m. Government and public agencies (530);~~

n. Medical/health offices (except veterinarians and ambulance services) (410);

o. Off-site public/private parking facilities (930);

p. Professional offices (400);

q. Professional/personal services (except contractors' yards and mortuaries) (310);

r. Recycling collection facilities;

s. Sports, recreation and entertainment facilities subject to alcohol regulations in Part 12 of Chapter 24.12 (720);

t. Temporary structures and uses;

u. Utilities and resources (540);

v. Veterinarians (410A);

w. Wireless telecommunications facilities, subject to the regulations in Part 15 of Chapter 24.12.

2. The following uses are subject to approval of a special use permit and design permit in the Lower Pacific Avenue Subdistrict and possibly other requirements of the municipal code (numerical references at the end of these categories reflect the general use classifications listed in the city's land use codes. Further refinement of uses within these categories can be found in the land use codes, but they are not intended to be an exhaustive list of potential uses):

a. Bar and cocktail lounges, subject to alcohol regulations in Part 12 of Chapter 24.12 (280C);

b. Community care facilities;

c. Community care residential facilities;

d. Contractor/building (310E);

e. Convenience/liquor stores, subject to alcohol regulations of Part 12 of Chapter 24.12 (240B);

f. Flexible density unit (FDU) housing (sixteen units or more) as part of a mixed-use project;

g. Nightclubs (amplified live entertainment), subject to alcohol regulations of Part 12 of Chapter 24.12 (630);

h. Single-room occupancy (SRO) (860);

i. General retail merchandise (drug and department stores) exceeding sixteen thousand square feet (230);

j. Smoking lounges as defined in Section 24.22.748.2 and subject to siting criteria and performance standards in Chapter 5.54.

24.10.2375 USE DETERMINATION.

Any other use or service establishment determined by the zoning administrator to be of the same general character as the foregoing uses, and which will not impair the present or potential use of adjacent properties, may be permitted. If the zoning administrator determines that the proposed use is more in character with the conditional uses for this zone, then a use permit shall be required and processed pursuant to Part 1, Chapter 24.08, Use Permits. The decision as to whether the use determination requires an administrative use permit or a special use permit shall be based on the use category that is most similar to the proposed use as determined by the zoning administrator.

24.10.2380 LOWER PACIFIC AVENUE SUBDISTRICT REGULATIONS.

1. Height and Stepback Requirements. The maximum height of development throughout this subarea shall be 35 feet or three stories with a minimum height of two stories for buildings along Pacific Avenue. Provision for sloping roofs and mechanical penthouses will be allowed to a maximum height of 40 feet, provided that penthouses are stepped back at least 20 feet out of sight from pedestrian view. The second story shall be at least 50% of the first floor and shall be located toward the street frontage.

2. Build to Lines and Setbacks. New development along Pacific Avenue shall be set back from the property line to create a side-walk depth of at least 12 feet. New development along Front Street shall be set back from the property line to create a sidewalk depth of at least 10 feet. Additional setbacks are permitted to provide landscaped or paved extensions of the side-walk area, gardens, out-door seating, or cafes. No side yard setbacks are required. Building design at the corners of Pacific Avenue and Front Street should include strong architectural elements (such as a tower) at the corners to emphasize the entrance to Pacific Avenue.

3. Parking. Parking requirements set forth in Part 3 of Chapter 24.12 of the Zoning Ordinance shall apply, with the exception noted in subsection (c) below.

a. Surface parking lots within the South of Laurel subarea shall be well landscaped, and parking shall be visibly screened from the public sidewalk with low walls, planters, or hedges, and shall comply with other landscaping requirements of the zoning regulations.

b. Surface parking should be located to the rear of buildings or facing side streets. Driveways should be consolidated as much as possible, and cooperative easements should be formed to allow parking access at the rear of buildings.

c. Parking Waiver Provision. Undeveloped lots, 40 feet in width or less located along Lower Pacific Avenue, may meet established parking requirements off-site, based on specific building permit review and approval, identification of receiving parking resource, and payment of a yearly parking deficiency fee. The fee structure may reflect the deficiency fees established for the adjacent CBD.

4. All new development adjacent to a "CON – Neighborhood Conservation District" overlay zone shall comply with Section 24.10.4060 standards for new construction on sites abutting overlay district boundaries, to ensure compatibility with the established district.

24.10.2385 LOWER PACIFIC AVENUE DESIGN GUIDELINES.

1. Storefront Treatment. The ground-level treatment of buildings and parking structures within the Lower Pacific Avenue subarea should generally comply with the guidelines for the Pacific Avenue retail subarea listed on pages 41 through 45 of the Downtown Plan, in terms of: storefront access, transparency, and variation; and the use of landscaping, awnings, and canopies. However, it is recognized that the Lower Pacific Avenue subarea has a more informal character than Pacific Avenue, and as such, more variation of ground-level treatment is envisioned and encouraged. The use of porches and terraced gardens as an intermediate space between the ground floor use and the sidewalk is permitted, as long as the finished floor elevation of the ground floor use is not more than four feet above or below the sidewalk level and accessibility requirements are met.

2. Ground Level Residential. Within the Lower Pacific Avenue subarea, ground level residential uses are permitted in all areas and floors. Direct access between individual units and the street is strongly encouraged through the uses of porches and front "stoops."

3. Upper Level Facade Treatment. The treatment of upper level facades should generally comply with the guidelines of the Pacific Avenue retail district in terms of building rhythm, corner treatment, windows, roof treatment, building materials, colors, and planting. In recognition, however, of the area's village character, several special conditions are noted:

~~a. Architectural Elements. The use of architectural elements that promote the village character of the street is encouraged. Such elements could include, sloping roofs, chimneys, bay windows, dormers, recessed loggias, balconies, and porches.~~

~~b. Articulations. Faces should be highly articulated and varied; the introduction of moldings and trims, and changes in horizontal and vertical planes are strongly encouraged to create visual interest and variation in light and shadow. Residential development should be highly articulated and expressive of the individual units within the complex.~~

~~c. Wood. Building material can be more diverse and residential in character than those recommended for the Pacific Avenue District. The use of wood as a siding material is encouraged.~~

~~d. Flowers and Planting. The use of significant planters, trellises, and topiary treatment of buildings is encouraged to further enliven the area and to promote its unique village qualities.~~

~~4. Parcels that are undeveloped at the time of the ordinance shall be well maintained; including landscaping and/or appropriate screening subject to the approval of the director of planning at the street frontages, within six months of adoption of the ordinance codified in this part.~~

24.12.290 VARIATIONS TO REQUIREMENTS.

The off-street parking requirements of this part may be satisfied or modified in the following ways:

1. Parking District Number 1. If the property being occupied or proposed to be occupied is in Parking District Number 1 and requires a number of parking spaces greater than the existing use, and not otherwise accommodated on the site, an in-lieu fee shall be assessed as identified in the Downtown Parking resolution. ~~the downtown commission shall review the project and advise the decision-making body as to whether the parking district is capable of providing adequate parking for the new use and existing uses in the vicinity.~~

Proposed Amendments to the Beach/South of Laurel Area Plan

(all are also proposed amendments to the Local Coastal Program (LCP))

Introduction and Purpose

Add page vii(a), showing map and footnote:

Map to be added: Beach/South of Laurel Plan Boundary

Footnote to new map:

*The Beach/South of Laurel Plan Area was amended to adjust the boundaries between the Downtown Plan and the B/SOL plan. Any conflicts between the two plans will be resolved based on the adjusted boundaries, with the Downtown Plan superseding the B/SOL plan for the portion of the South of Laurel Area that was added to the Downtown Plan.

Section II South of Laurel

Subsection X. Recommendations: Land Use & Zoning – South of Laurel

B. Planning Policy and Goals

2. Residential Policy Framework and Goals

f. Encourage mixed-use development in ~~the residential sections of~~ the South of Laurel area on major arterials ~~by overlaying the mixed-use zoning district on appropriate areas~~. (P. 144)

The remainder of this part XB2, and any points not listed, shall remain unchanged.

3. Commercial Policy Framework and Goals

a. Establish the southern end of Pacific Avenue below Laurel Street as an extension of the Downtown ~~Recovery~~ Plan policies for Pacific Avenue with an emphasis on mixed residential development above ground floor retail and other uses. Maintain a CBD zone that uses the same ~~village~~ design and use policies as ~~the Cedar Street area of~~ the Downtown ~~Recovery~~ Plan. (P. 144)

c. Establish the area South of Laurel adjacent to the river as a high-density mixed-use area that ~~will~~ can provide new market rate housing and commercial uses. (P. 144)

d. Emphasize Front Street as the secondary access route to the Beach by creating a streetscape that clearly identifies the route as a beach access. ~~This should be established by planting palm trees along the route between Soquel Avenue and the Union Pacific site as recommended by the Downtown Recovery Plan. (P. 144)~~

~~f. Reduce or eliminate the requirement to provide parking on lots 40 feet wide or less along lower end of Pacific Avenue, if an in-lieu fee is paid to allow the vacant lots to be developed.~~

The remainder of this part XB3, and any points not listed, shall remain unchanged.

Proposed Amendments to the Beach/South of Laurel Area Plan Design Guidelines

Section D. South of Laurel

Part 2. Goal and Objectives

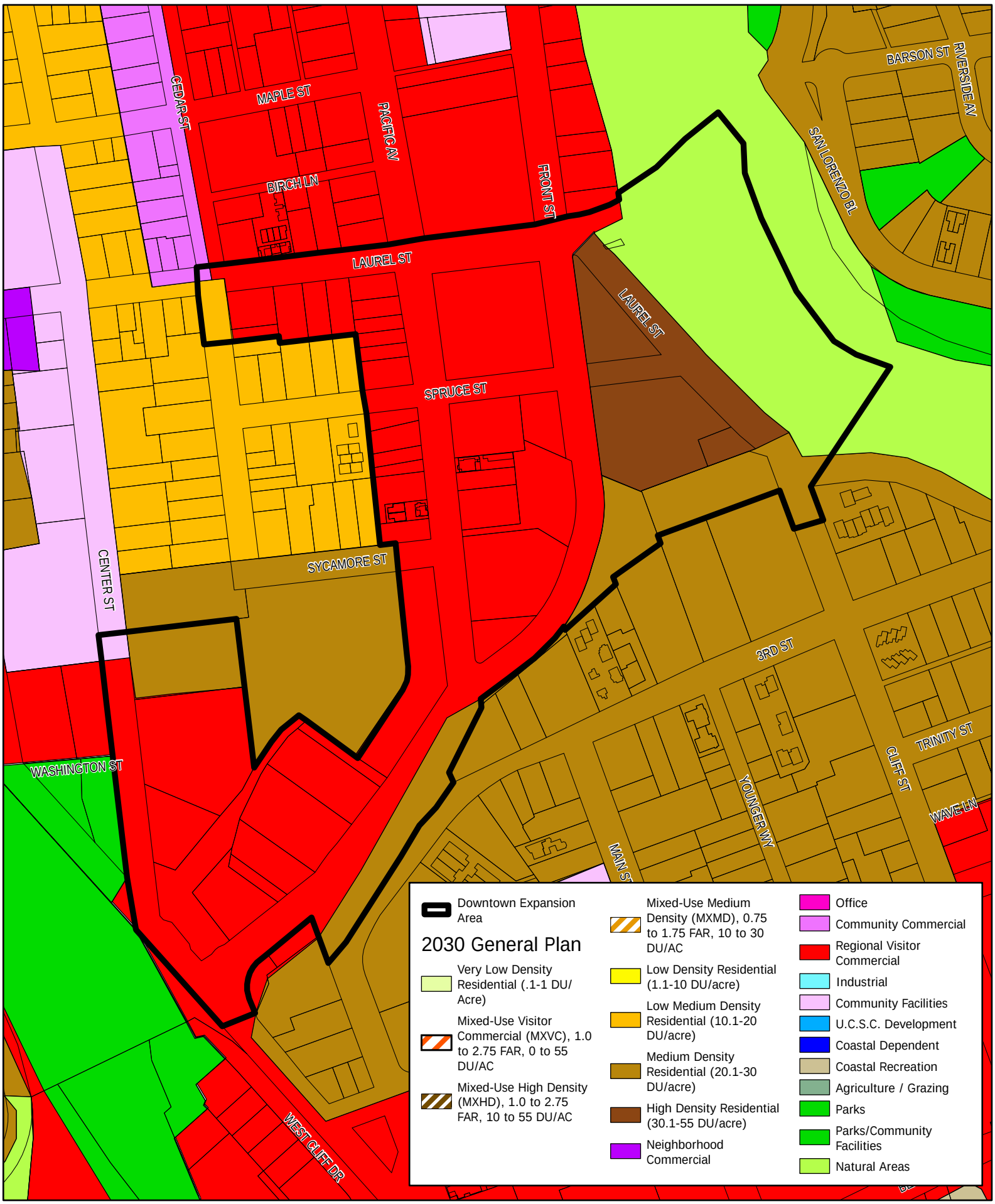
Goal:

- Improve the quality of life for the existing residents and businesses in the area through integrating appropriate visitor serving and commercial uses that serve to connect the Downtown and Beach Areas.

Objectives:

- Establish the southern end of Pacific Avenue below Laurel Street as an extension of the Downtown ~~Recovery~~ Plan policies for Pacific Avenue with an emphasis on mixed residential development above ground floor retail and other uses. Create a CBD zone that uses the same ~~village~~ design and use policies as ~~the Cedar Street area of~~ the Downtown ~~Recovery~~ Plan.
- Establish a two story minimum for commercial development along Pacific Avenue.
- Establish the area adjacent to the river as a high-density mixed-use area that ~~will~~ can provide new market rate housing and commercial uses.
- Identify the Spruce/sycamore, Washington Street and Myrtle Street neighborhoods as "Conservation Areas" in which historic homes will be preserved and new and remodeled homes will adhere to historic compatibility guidelines.
- Encourage mixed-use developments that will serve as a transition between the residential neighborhoods and commercial areas.
- Establish a strong sense of place, with edges which have a beginning and an end, and with gateways and intimate residential streets clearly defined.
- Enhance the entries to the neighborhood at definable intersections to strengthen the residential quality of the neighborhood and improve the appearance of the area.
- Maintain commercial buildings facing and in close proximity to the street and locate parking and utilitarian areas behind main structures.
- Enhance pedestrian and bicyclist safety and comfort with improved streetscapes including bike paths, sidewalks, street trees, landscaping, and other amenities.

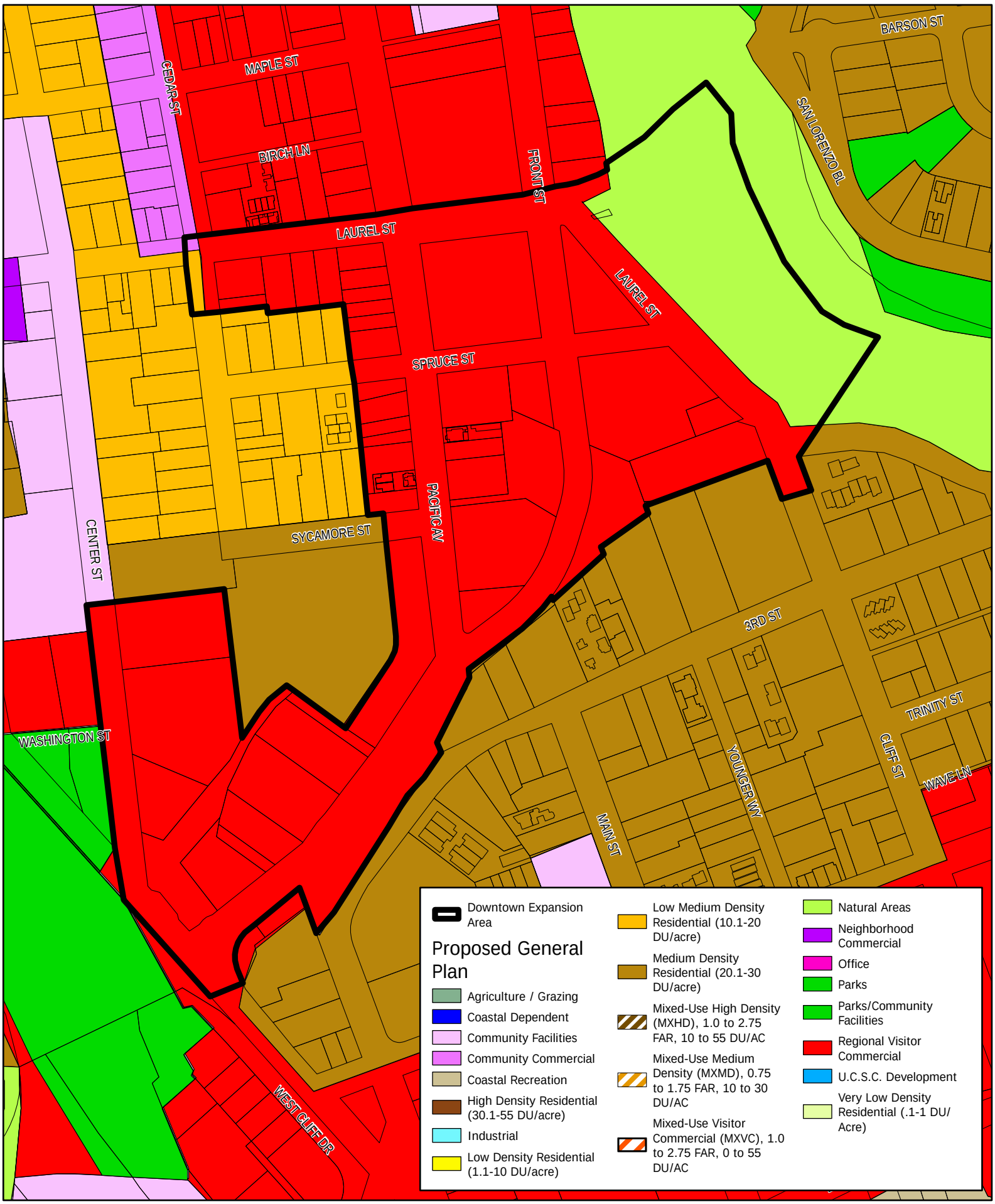
Existing General Plan/Local Coastal Program Land Use Designations Downtown Plan Area



Proposed General Plan/Local Coastal Program
Land Use Designations
Downtown Plan Area

0 125 250 500 Feet

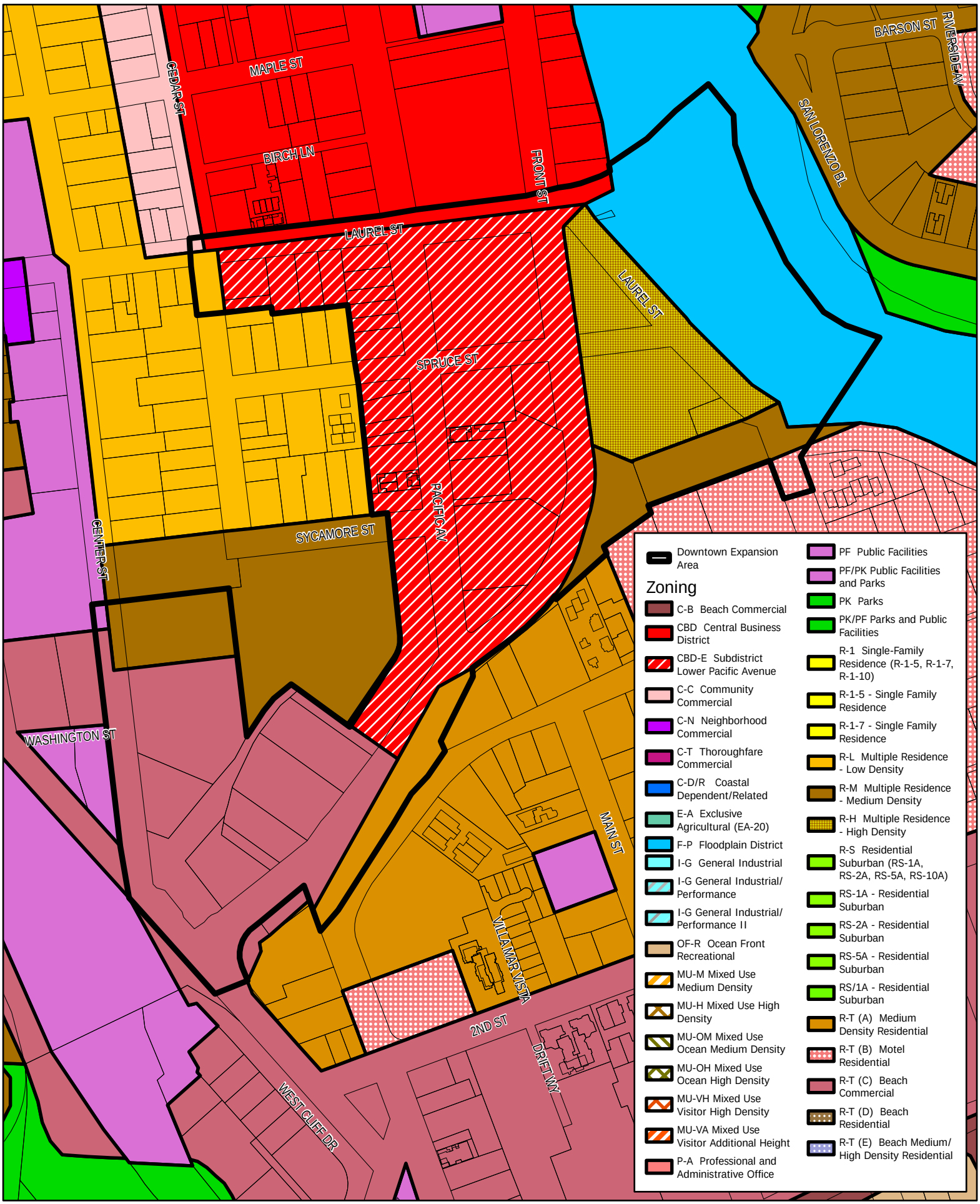
N



Existing Zoning
Downtown Plan Expansion Area

0 125 250 500 Feet

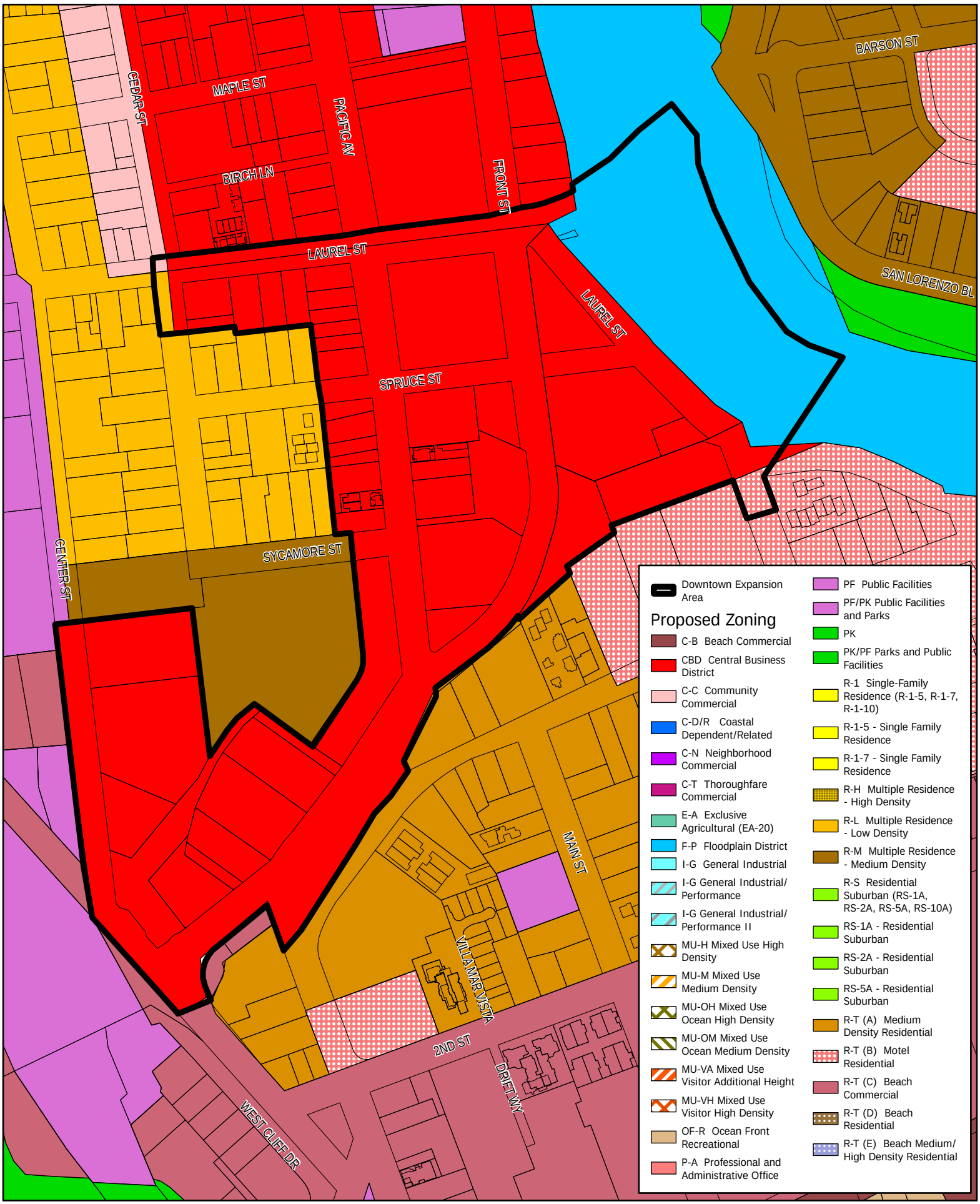
N



Proposed Zoning
Downtown Plan Expansion Area

0 125 250 500 Feet

N

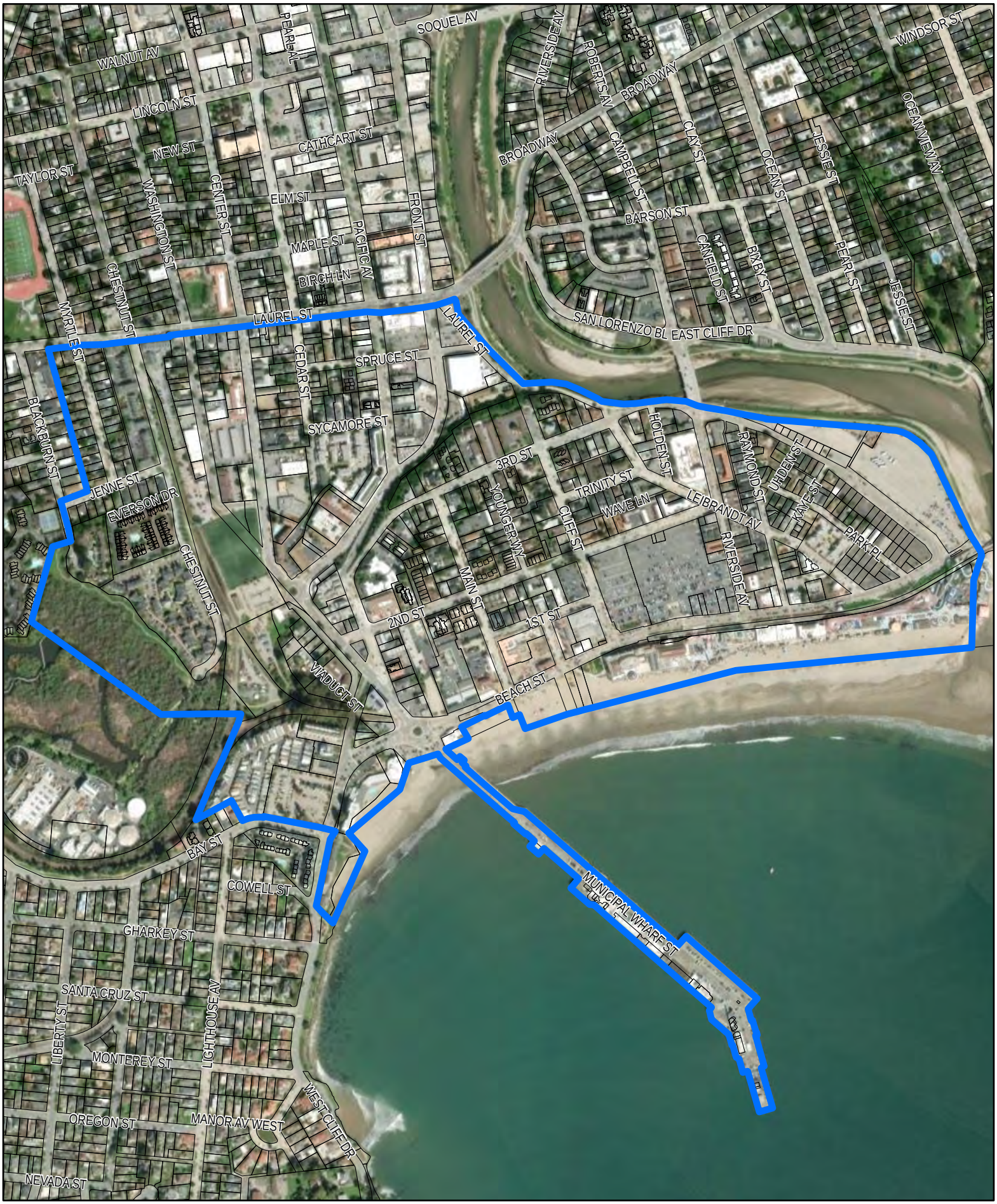


Existing Beach South of Laurel Plan Area

Beach South of Laurel Plan Area

0 250 500 1,000 Feet

N



Proposed Beach South of Laurel Plan Area

Proposed Beach South of Laurel Plan Area

0 250 500 1,000 Feet

N



SCDPE Proposed General Plan and LCP Land Use Map Amendments

Parcel Number	Street Address	Existing General Plan	Proposed General Plan
007-023-27	140 CENTER ST	M	RVC
007-032-01	220 FRONT ST	H	RVC
007-033-01	140 FRONT ST	H	RVC
007-033-02	203 LAUREL ST	H	RVC
007-033-03	203 LAUREL STREET EXT 10	M	RVC
007-033-04	126 FRONT ST	M	RVC

[1]General Plan and LCP Land Use Designation abbreviations:

M: Residential Medium Density

H: Residential High Density

RVC: Regional Visitor Commercial

SCDPE Proposed Zoning Map Amendments

Parcel Number	Street Address	Existing Zoning[1]	Proposed Zoning[1]
007-021-01	229 LAUREL ST	CBD-E	CBD
007-021-02	221 LAUREL ST	CBD-E	CBD
007-021-03	215 LAUREL ST	CBD-E	CBD
007-021-04	211 LAUREL ST	CBD-E	CBD
007-021-05	209 LAUREL ST	CBD-E	CBD
007-021-06	711 PACIFIC AVE	CBD-E	CBD
007-021-07	709 PACIFIC AVE	CBD-E	CBD
007-021-08	707 PACIFIC AVE	CBD-E	CBD
007-021-09	705 PACIFIC AVE A	CBD-E	CBD
007-021-10	703 PACIFIC AVE	CBD-E	CBD
007-021-17	212 CEDAR ST	CBD-E	CBD
007-022-04	625 PACIFIC AVE	CBD-E	CBD
007-022-05	619 PACIFIC AVE	CBD-E	CBD
007-022-06	617 PACIFIC AVE	CBD-E	CBD
007-022-07	615 PACIFIC AVE	CBD-E	CBD
007-022-08	609 PACIFIC AVE 101	CBD-E	CBD
007-022-10	601 PACIFIC AVE	CBD-E	CBD
007-023-17	555 PACIFIC AVE	CBD-E	CBD
007-023-18	415 PACIFIC AVE	R-T (C)	CBD
007-023-19	407 PACIFIC AVE	R-T (C)	CBD
007-023-20	401 PACIFIC AVE	R-T (C)	CBD

007-023-21	325 PACIFIC AVE	R-T (C)	CBD
007-023-22	311 PACIFIC AVE CMN-23	R-T (C)	CBD
007-023-23	311 PACIFIC AVE	R-T (C)	CBD
007-023-24	301 PACIFIC AVE	R-T (C)	CBD
007-023-25	114 CENTER ST	R-T (C)	CBD
007-023-26	130 CENTER ST B	R-T (C)	CBD
007-023-27	140 CENTER ST	RM	CBD
007-031-04	201 FRONT ST CMN-05	CBD-E	CBD
007-032-01	220 FRONT ST	RH	CBD
007-033-01	140 FRONT ST	RH	CBD
007-033-02	203 LAUREL ST	RH	CBD
007-033-03	203 LAUREL STREET EXT 10	RM	CBD
007-033-04	126 FRONT ST	RM	CBD
007-034-01	205 FRONT ST	CBD-E	CBD
007-034-02	131 FRONT ST	CBD-E	CBD
007-034-03	125 FRONT ST	CBD-E	CBD
007-034-04	512 PACIFIC AVE B	CBD-E	CBD
007-034-05	690 PACIFIC AVE 11	CBD-E	CBD
007-034-06	610 PACIFIC AVE 1	CBD-E	CBD
007-034-07	600 PACIFIC AVE	CBD-E	CBD
007-041-01	636 PACIFIC AVE	CBD-E	CBD
007-041-02	636 PACIFIC AVE	CBD-E	CBD
007-041-03	636 PACIFIC AVE	CBD-E	CBD

007-051-01	640 PACIFIC AVE	CBD-E	CBD
007-061-01	638 PACIFIC AVE	CBD-E	CBD
007-461-01	605 PACIFIC AVE	CBD-E	CBD
007-461-02	605 PACIFIC AVE 101	CBD-E	CBD
007-461-03	605 PACIFIC AVE 102	CBD-E	CBD
007-461-04	605 PACIFIC AVE CMN	CBD-E	CBD
007-471-01	605 PACIFIC AVE 203	CBD-E	CBD
007-471-02	605 PACIFIC AVE 201	CBD-E	CBD
007-471-03	605 PACIFIC AVE 202	CBD-E	CBD
007-481-01	605 PACIFIC AVE 303	CBD-E	CBD
007-481-02	605 PACIFIC AVE 301	CBD-E	CBD
007-481-03	605 PACIFIC AVE 302	CBD-E	CBD

Zone district abbreviations:
RM: Multifamily Residential, Medium Density
RH: Multifamily Residential, High Density
R-T(C): Tourist Residential Subdistrict C – Beach Commercial
CBD: Central Business District
CBD-E: Central Business District Subdistrict E – Lower Pacific Avenue

Appendix C

Air Quality, Greenhouse Gas Emissions, and Energy Demand Calculations

Table of Contents

Modeling Assumptions - Downtown Plan Expansion 2
1 Land Uses 2
2 Traffic 3
3 Water 4
CalEEMod Downtown Plan Expansion - Project Maximum Day Detailed Report 6
CalEEMod Downtown Plan Expansion - Project Annual Average Detailed Report 42
CalEEMod Downtown Plan Expansion - Existing Maximum Day Detailed Report 78
CalEEMod Downtown Plan Expansion - Existing Annual Average Detailed Report 125
Energy Summary 172
1 Energy Summary 172

Santa Cruz Downtown Plan Expansion Project

Land Use Assumptions

CalEEMod Operational Inputs - Existing

Type	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population
Arena	35.00	1000sqft	11.25	35,000	49,005	0	
Single Family Housing	1.00	Dwelling U	0.32	1,950	11,713	0	3
Apartments Low Rise	66.00	Dwelling U	4.13	69,960	17,969	0	174
Motel	91.00	Room	4.10	178,378	17,838	0	
Strip Mall	32.60	1000sqft	0.75	32,600	3,260	0	
High Turnover Sit Down Restaurant	2.30	1000sqft	0.05	2,300	230	0	
Fast Food Restaurant w/o Drive Thru	1.20	1000sqft	0.03	1,200	120	0	
Automobile Care Center	18.00	1000sqft	0.41	18,000	1,800	0	
Regional Shopping Center	2.80	1000sqft	0.06	2,800	280	0	
Congregate Care (Assisted Living)	21.00	Dwelling U	1.31	22,260	5,717	0	21

*Note: Lot acreages are based on model defaults. Landscape area assumes 10% of acreage would be landscaped if defaults were not available

CalEEMod Operational Inputs - Project

Type	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population
Arena	180.00	1000sqft	57.86	180,000	252,026	0	
Apartments Low Rise	17.00	Dwelling U	1.06	18,020	4,628	0	45
Apartments Mid Rise	1,783.00	Dwelling U	47	1,711,680	204,388	0	4,689
Strip Mall	30.00	1000sqft	0.69	30,000	3,000	0	0
High Turnover Sit Down Restaurant	30.00	1000sqft	0.69	30,000	3,000	0	

*Note: Lot acreages are based on model defaults. Landscape area assumes 10% of acreage would be landscaped if defaults were not available

Conversion Factors

1 acre =	43,560	square feet

Santa Cruz Downtown Plan Expansion Project

Traffic Trip Generation

Max Event Day

Existing Conditions - Land Use/Trip Gen

Land Use	*CalEEMod Use*	*Size*	*Units*	*TIS Trip Rates*	*Daily Trips*		CalEEMod Trip Rate Adjustments for Saturday and Sunday				
							Default Weekday	*Default Saturday*	*Default Sunday*	*Adj Saturday*	*Adj Sunday*
Arena	Arena	35	KSF	28.70	1,004	Large Entertainment Event	10.71	10.71	10.71	28.70	28.70
Single-Family Detached Housing (210)	Single Family Housing	1	DU	15	15		9.44	9.54	8.55	15.16	13.59
Multifamily Housing (Low-Rise) (220)	Apartments Low Rise	66	DU	6.74	445		7.32	8.14	6.28	7.50	5.78
Motel (320)	Motel	91	Rooms	3.35	305		3.35	3.35	3.35	3.35	3.35
Strip Retail Plaza (<40k) (822)	Strip Mall	32.6	KSF	54.48	1,776		44.32	42.04	20.43	51.68	25.11
High-Turnover (Sit-Down) Restaurant (932)	High Turnover Sit Down Restaurant	2.3	KSF	105.22	242		112.18	122.40	142.64	114.80	133.79
Fast-Food Restaurant w/o D.T. (933)	Fast Food Restaurant w/o Drive Thru	1.2	KSF	432.50	519		346.23	696.00	500.00	869.42	624.58
Automobile Care Center (942)	Automobile Care Center	18	KSF	31.00	558		23.72	23.72	11.88	31.00	15.53
Automobile Sales (Used) (841)	Regional Shopping Center	2.8	KSF	26.79	75		37.75	46.12	21.10	32.72	14.97
Assisted Living (254)	Congregate Care (Assisted Living)	21	Beds	2.62	55		2.60	2.93	3.15	2.95	3.17
					4,994						

Project Conditions - Land Use/Trip Gen

Land Use	*CalEEMod Use*	*Size*	*Units*	*TIS Trip Rates*	*Daily Trips*	*Internal Capture*	*Mode Share Reduction*	*Adj Daily Trips*	*Adj Trip Rate*	CalEEMod Trip Rate Adjustments for Saturday and Sunday				
										Default Weekday	*Default Saturday*	*Default Sunday*	*Adj Saturday*	*Adj Sunday*
Arena	Arena	180	KSF	7.20	1,296	Large Entertainment Event				10.71	10.71	10.71	7.200	7.200
Multifamily Housing (Low-Rise) (220)	Apartments Low Rise	17	DU	6.76	115		-15	100	5.882	7.32	8.14	6.28	6.541	5.047
Multifamily Housing (Mid-Rise) (221)	Apartments Mid Rise	1783	DU	4.54	8,096		-1119	6,977	3.913	5.44	4.91	4.09	3.532	2.942
Strip Retail Plaza (<40k) (822)	Strip Mall	30	KSF	54.48	1634	-442	-226	966	32.200	44.32	42.04	20.43	30.544	14.843
High-Turnover (Sit-Down) Restaurant (932)	High Turnover Sit Down Restaurant	30	KSF	107.23	3217	-427	-445	2,345	78.167	112.18	122.40	142.64	85.288	99.391
					14,358	-869	-1805	11,684						

Annual

Existing Conditions - Land Use/Trip Gen

Land Use	*CalEEMod Use*	*Size*	*Units*	*TIS Trip Rates*	*Daily Trips*		CalEEMod Trip Rate Adjustments for Saturday and Sunday				
							Default Weekday	*Default Saturday*	*Default Sunday*	*Adj Saturday*	*Adj Sunday*
Arena	Arena	35	KSF	4.82	169	Total annual trips divided by 365 days/year	10.71	10.71	10.71	4.82	4.82
Single-Family Detached Housing (210)		1	DU	15	15		9.44	9.54	8.55	15.16	13.59
Multifamily Housing (Low-Rise) (220)		66	DU	6.74	445		7.32	8.14	6.28	7.50	5.78
Motel (320)		91	Rooms	3.35	305		3.35	3.35	3.35	3.35	3.35
Strip Retail Plaza (<40k) (822)		32.6	KSF	54.48	1,776		44.32	42.04	20.43	51.68	25.11
High-Turnover (Sit-Down) Restaurant (932)		2.3	KSF	105.22	242		112.18	122.40	142.64	114.80	133.79
Fast-Food Restaurant w/o D.T. (933)		1.2	KSF	432.50	519		346.23	696.00	500.00	869.42	624.58
Automobile Care Center (942)		18	KSF	31.00	558		23.72	23.72	11.88	31.00	15.53
Automobile Sales (Used) (841)		2.8	KSF	26.79	75		37.75	46.12	21.10	32.72	14.97
Assisted Living (254)		21	Beds	2.62	55		2.60	2.93	3.15	2.95	3.17
					4,159						

Project Conditions - Land Use/Trip Gen

Land Use	*CalEEMod Use*	*Size*	*Units*	*TIS Trip Rates*	*Daily Trips*	*Internal Capture*	*Mode Share Reduction*	*Adj Daily Trips*	*Adj Trip Rate*	CalEEMod Trip Rate Adjustments for Saturday and Sunday				
										Default Weekday	*Default Saturday*	*Default Sunday*	*Adj Saturday*	*Adj Sunday*
Arena	Arena	180	KSF	1.69	305	Total annual trips divided by 365 days/year				10.71	10.71	10.71	1.693	1.693
Multifamily Housing (Low-Rise) (220)		17	DU	6.76	115		-15	100	5.882	7.32	8.14	6.28	6.541	5.047
Multifamily Housing (Mid-Rise) (221)		1783	DU	4.54	8,096		-1119	6,977	3.913	5.44	4.91	4.09	3.532	2.942
Strip Retail Plaza (<40k) (822)		30	KSF	54.48	1634	-442	-226	966	32.200	44.32	42.04	20.43	30.544	14.843
High-Turnover (Sit-Down) Restaurant (932)		30	KSF	107.23	3217	-427	-445	2,345	78.167	112.18	122.40	142.64	85.288	99.391
					13,367	-869	-1805	10,693						

Santa Cruz Downtown Plan Expansion Project

Water Supply Assumptions

City's Water Demand Factors

Land Use	Use Factors:		Unit
Single family residential =	135	gallons per day	Per du
	49,275	gallons per year	Per du
Multi-family residential =	90	gallons per day	Per du
	32,850	gallons per year	Per du
Commercial =	66	gallons per year	Per sf
Arena =	200,000	gallons per year	Actual
	1,100,000	gallons per year	Estimated based on 100 events/ year with 1,000 attendees
	11	gallons per attendee/event	

Existing Conditions - Water Use

Type	Size	Unit	Building Area (sq ft)	Indoor Water Use (gals/year)	
Arena	35.00	1000sqft	35,000	1,882,100	based on annual attendees
Single Family Housing	1.00	Dwelling Unit	1,950	49,275	
Apartments Low Rise	66.00	Dwelling Unit	69,960	2,168,100	
Motel	91.00	Room	178,378	11,772,948	
Strip Mall	32.60	1000sqft	32,600	2,151,600	
High Turnover Sit Down Restaurant	2.30	1000sqft	2,300	151,800	
Fast Food Restaurant w/o Drive Thru	1.20	1000sqft	1,200	79,200	
Automobile Care Center	18.00	1000sqft	18,000	1,188,000	
Regional Shopping Center	2.80	1000sqft	2,800	184,800	
Congregate Care (Assisted Living)	21.00	Dwelling Unit	22,260	689,850	
			Total	**20,317,673**	

Project Conditions - Water Use

Type	Size	Unit	Building Area (sq ft)	Indoor Water Use (gals/year)	
Arena	180.00	1000sqft	180,000	3,399,000	based on annual attendees
Apartments Low Rise	17.00	Dwelling Unit	18,020	558,450	
Apartments Mid Rise	1,783.00	Dwelling Unit	1,711,680	58,571,550	
Strip Mall	30.00	1000sqft	30,000	1,980,000	
High Turnover Sit Down Restaurant	30.00	1000sqft	30,000	1,980,000	
			Total	**66,489,000**	

Multi-family residential	1800	du =	59,130,000.00	gallons per year
Commercial	60000	sf =	3,960,000.00	gallons per year
Arena	180000	sf =	3,399,000.00	gallons per year, based on annual attendees
		Total	66,489,000.00	

Santa Cruz Downtown Plan Expansion - Project Maximum Day Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Santa Cruz Downtown Plan Expansion - Project Maximum Day
Operational Year	2045
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	8.80
Location	140 Front St, Santa Cruz, CA 95060, USA
County	Santa Cruz
City	Santa Cruz
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3124
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Arena	180	1000sqft	57.9	180,000	252,026	—	—	—

Apartments Low Rise	17.0	Dwelling Unit	1.06	18,020	4,628	—	45.0	—
Apartments Mid Rise	1,783	Dwelling Unit	46.9	1,711,680	204,388	—	4,689	—
Strip Mall	30.0	1000sqft	0.69	30,000	3,000	—	—	—
High Turnover (Sit Down Restaurant)	30.0	1000sqft	0.69	30,000	3,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	42.3	85.6	27.3	277	0.46	1.36	40.6	42.0	1.33	10.3	11.6	1,057	60,042	61,099	110	2.02	75.0	64,528
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	31.2	75.1	28.4	172	0.44	1.30	40.6	41.9	1.29	10.3	11.6	1,057	58,481	59,538	110	2.20	61.0	63,011
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	36.0	79.6	26.8	222	0.39	1.32	34.8	36.1	1.30	8.82	10.1	1,057	53,899	54,956	110	1.94	66.0	58,350
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.56	14.5	4.90	40.5	0.07	0.24	6.34	6.58	0.24	1.61	1.85	175	8,924	9,099	18.2	0.32	10.9	9,661

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	29.4	28.0	11.8	156	0.36	0.14	40.6	40.7	0.13	10.3	10.4	—	36,545	36,545	1.63	1.58	14.4	37,071
Area	11.2	56.8	1.03	113	0.01	0.06	—	0.06	0.05	—	0.05	0.00	316	316	0.01	< 0.005	—	317
Energy	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	22,970	22,970	2.39	0.13	—	23,068
Water	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Waste	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Total	42.3	85.6	27.3	277	0.46	1.36	40.6	42.0	1.33	10.3	11.6	1,057	60,042	61,099	110	2.02	75.0	64,528
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	29.6	28.1	13.9	165	0.35	0.14	40.6	40.7	0.13	10.3	10.4	—	35,300	35,300	1.89	1.76	0.37	35,871
Area	0.00	46.2	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	22,970	22,970	2.39	0.13	—	23,068
Water	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Waste	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Total	31.2	75.1	28.4	172	0.44	1.30	40.6	41.9	1.29	10.3	11.6	1,057	58,481	59,538	110	2.20	61.0	63,011
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	26.6	25.3	11.7	137	0.30	0.12	34.8	34.9	0.12	8.82	8.94	—	30,502	30,502	1.60	1.50	5.37	30,993
Area	7.69	53.5	0.71	77.4	< 0.005	0.04	—	0.04	0.03	—	0.03	0.00	216	216	0.01	< 0.005	—	217
Energy	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	22,970	22,970	2.39	0.13	—	23,068
Water	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759

Waste	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Total	36.0	79.6	26.8	222	0.39	1.32	34.8	36.1	1.30	8.82	10.1	1,057	53,899	54,956	110	1.94	66.0	58,350
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.85	4.62	2.13	25.0	0.05	0.02	6.34	6.37	0.02	1.61	1.63	—	5,050	5,050	0.26	0.25	0.89	5,131
Area	1.40	9.76	0.13	14.1	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	35.8	35.8	< 0.005	< 0.005	—	36.0
Energy	0.30	0.15	2.64	1.36	0.02	0.21	—	0.21	0.21	—	0.21	—	3,803	3,803	0.40	0.02	—	3,819
Water	—	—	—	—	—	—	—	—	—	—	—	21.1	34.8	55.9	2.17	0.05	—	126
Waste	—	—	—	—	—	—	—	—	—	—	—	154	0.00	154	15.4	0.00	—	538
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.0	10.0
Total	6.56	14.5	4.90	40.5	0.07	0.24	6.34	6.58	0.24	1.61	1.85	175	8,924	9,099	18.2	0.32	10.9	9,661

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	3.03	2.89	1.17	15.0	0.03	0.01	3.77	3.78	0.01	0.96	0.97	—	3,415	3,415	0.16	0.15	1.34	3,466
Apartments Low Rise	0.27	0.26	0.11	1.49	< 0.005	< 0.005	0.40	0.40	< 0.005	0.10	0.10	—	357	357	0.02	0.01	0.14	362
Apartments Mid Rise	16.9	16.0	6.95	93.7	0.22	0.09	24.9	25.0	0.08	6.33	6.41	—	22,373	22,373	0.96	0.94	8.88	22,685

Strip Mall	2.26	2.16	0.87	11.2	0.03	0.01	2.81	2.82	0.01	0.71	0.72	—	2,545	2,545	0.12	0.12	1.00	2,584
High Turnover (Sit Down Restaurant)	6.97	6.66	2.68	34.6	0.08	0.03	8.67	8.70	0.03	2.20	2.23	—	7,856	7,856	0.38	0.36	3.09	7,975
Total	29.4	28.0	11.8	156	0.36	0.14	40.6	40.7	0.13	10.3	10.4	—	36,545	36,545	1.63	1.58	14.4	37,071
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	3.05	2.90	1.38	16.1	0.03	0.01	3.77	3.78	0.01	0.96	0.97	—	3,300	3,300	0.19	0.17	0.03	3,356
Apartments Low Rise	0.27	0.26	0.13	1.56	< 0.005	< 0.005	0.40	0.40	< 0.005	0.10	0.10	—	344	344	0.02	0.02	< 0.005	350
Apartments Mid Rise	17.0	16.1	8.21	98.1	0.21	0.09	24.9	25.0	0.08	6.33	6.41	—	21,605	21,605	1.10	1.04	0.23	21,944
Strip Mall	2.27	2.16	1.03	12.0	0.02	0.01	2.81	2.82	0.01	0.71	0.72	—	2,459	2,459	0.14	0.13	0.03	2,501
High Turnover (Sit Down Restaurant)	7.02	6.68	3.17	37.0	0.07	0.03	8.67	8.70	0.03	2.20	2.23	—	7,592	7,592	0.44	0.40	0.08	7,721
Total	29.6	28.1	13.9	165	0.35	0.14	40.6	40.7	0.13	10.3	10.4	—	35,300	35,300	1.89	1.76	0.37	35,871
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.55	0.52	0.24	2.75	0.01	< 0.005	0.68	0.69	< 0.005	0.17	0.18	—	546	546	0.03	0.03	0.10	555
Apartments Low Rise	0.04	0.04	0.02	0.24	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	51.1	51.1	< 0.005	< 0.005	0.01	51.8
Apartments Mid Rise	2.90	2.75	1.34	16.1	0.04	0.01	4.30	4.32	0.01	1.09	1.11	—	3,401	3,401	0.16	0.16	0.60	3,452
Strip Mall	0.37	0.36	0.16	1.88	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	373	373	0.02	0.02	0.07	379
High Turnover (Sit Down Restaurant)	0.99	0.95	0.37	4.07	0.01	< 0.005	0.82	0.83	< 0.005	0.21	0.21	—	679	679	0.05	0.04	0.12	693

Total	4.85	4.62	2.13	25.0	0.05	0.02	6.34	6.37	0.02	1.61	1.63	—	5,050	5,050	0.26	0.25	0.89	5,131

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	1,015	1,015	0.16	0.02	—	1,025
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	30.0	30.0	< 0.005	< 0.005	—	30.3
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	2,957	2,957	0.48	0.06	—	2,987
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	139	139	0.02	< 0.005	—	140
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	712	712	0.12	0.01	—	719
Total	—	—	—	—	—	—	—	—	—	—	—	—	4,852	4,852	0.79	0.10	—	4,900
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	1,015	1,015	0.16	0.02	—	1,025
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	30.0	30.0	< 0.005	< 0.005	—	30.3

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	2,957	2,957	0.48	0.06	—	2,987
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	139	139	0.02	< 0.005	—	140
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	712	712	0.12	0.01	—	719
Total	—	—	—	—	—	—	—	—	—	—	—	—	4,852	4,852	0.79	0.10	—	4,900
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	168	168	0.03	< 0.005	—	170
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	4.96	4.96	< 0.005	< 0.005	—	5.01
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	490	490	0.08	0.01	—	494
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	23.0	23.0	< 0.005	< 0.005	—	23.2
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	118	118	0.02	< 0.005	—	119
Total	—	—	—	—	—	—	—	—	—	—	—	—	803	803	0.13	0.02	—	811

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.22	0.11	2.04	1.71	0.01	0.16	—	0.16	0.16	—	0.16	—	2,434	2,434	0.22	< 0.005	—	2,441

Apartments	0.01	0.01	0.12	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	146	146	0.01	< 0.005	—	146
Apartments Mid Rise	1.32	0.66	11.3	4.79	0.07	0.91	—	0.91	0.91	—	0.91	—	14,289	14,289	1.26	0.03	—	14,329
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.4	57.4	0.01	< 0.005	—	57.6
High Turnover (Sit Down Restaurant)	0.11	0.05	1.00	0.84	0.01	0.08	—	0.08	0.08	—	0.08	—	1,191	1,191	0.11	< 0.005	—	1,194
Total	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	18,118	18,118	1.60	0.03	—	18,168
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.22	0.11	2.04	1.71	0.01	0.16	—	0.16	0.16	—	0.16	—	2,434	2,434	0.22	< 0.005	—	2,441
Apartments Low Rise	0.01	0.01	0.12	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	146	146	0.01	< 0.005	—	146
Apartments Mid Rise	1.32	0.66	11.3	4.79	0.07	0.91	—	0.91	0.91	—	0.91	—	14,289	14,289	1.26	0.03	—	14,329
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.4	57.4	0.01	< 0.005	—	57.6
High Turnover (Sit Down Restaurant)	0.11	0.05	1.00	0.84	0.01	0.08	—	0.08	0.08	—	0.08	—	1,191	1,191	0.11	< 0.005	—	1,194
Total	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	18,118	18,118	1.60	0.03	—	18,168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.04	0.02	0.37	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	403	403	0.04	< 0.005	—	404
Apartments Low Rise	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.2	24.2	< 0.005	< 0.005	—	24.2
Apartments Mid Rise	0.24	0.12	2.05	0.87	0.01	0.17	—	0.17	0.17	—	0.17	—	2,366	2,366	0.21	< 0.005	—	2,372

Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.53
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	197	197	0.02	< 0.005	—	198
Total	0.30	0.15	2.64	1.36	0.02	0.21	—	0.21	0.21	—	0.21	—	3,000	3,000	0.27	0.01	—	3,008

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	42.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	11.2	10.6	1.03	113	0.01	0.06	—	0.06	0.05	—	0.05	—	316	316	0.01	< 0.005	—	317
Total	11.2	56.8	1.03	113	0.01	0.06	—	0.06	0.05	—	0.05	0.00	316	316	0.01	< 0.005	—	317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer Products	—	42.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	46.2	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	7.69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.40	1.32	0.13	14.1	< 0.005	0.01	—	0.01	0.01	—	0.01	—	35.8	35.8	< 0.005	< 0.005	—	36.0
Total	1.40	9.76	0.13	14.1	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	35.8	35.8	< 0.005	< 0.005	—	36.0

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	6.51	14.8	21.3	0.67	0.02	—	42.9

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.07	1.79	2.86	0.11	< 0.005	—	6.40
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	112	182	294	11.5	0.28	—	665
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
Total	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	6.51	14.8	21.3	0.67	0.02	—	42.9
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.07	1.79	2.86	0.11	< 0.005	—	6.40
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	112	182	294	11.5	0.28	—	665
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
Total	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	1.08	2.45	3.53	0.11	< 0.005	—	7.10
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.18	0.30	0.47	0.02	< 0.005	—	1.06

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	18.6	30.1	48.6	1.91	0.05	—	110
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.63	1.00	1.63	0.06	< 0.005	—	3.70
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.63	1.00	1.63	0.06	< 0.005	—	3.70
Total	—	—	—	—	—	—	—	—	—	—	—	21.1	34.8	55.9	2.17	0.05	—	126

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	2.67	0.00	2.67	0.27	0.00	—	9.34
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	6.82	0.00	6.82	0.68	0.00	—	23.9
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	711	0.00	711	71.0	0.00	—	2,486
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	17.0	0.00	17.0	1.70	0.00	—	59.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	192	0.00	192	19.2	0.00	—	673
Total	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	2.67	0.00	2.67	0.27	0.00	—	9.34
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	6.82	0.00	6.82	0.68	0.00	—	23.9
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	711	0.00	711	71.0	0.00	—	2,486
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	17.0	0.00	17.0	1.70	0.00	—	59.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	192	0.00	192	19.2	0.00	—	673
Total	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.44	0.00	0.44	0.04	0.00	—	1.55
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.13	0.00	1.13	0.11	0.00	—	3.95
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	118	0.00	118	11.8	0.00	—	412
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.81	0.00	2.81	0.28	0.00	—	9.83
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	31.9	0.00	31.9	3.18	0.00	—	111
Total	—	—	—	—	—	—	—	—	—	—	—	154	0.00	154	15.4	0.00	—	538

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.12	1.12
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	12.3
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.12	1.12
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	12.3
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.03	2.03
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.0	10.0

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Arena	1,296	1,296	1,296	473,040	5,326	5,326	5,326	1,944,131

Apartments Low Rise	100.0	111	85.8	36,342	505	562	433	183,599
Apartments Mid Rise	6,977	6,298	5,246	2,420,864	35,247	31,815	26,501	12,230,228
Strip Mall	966	916	445	322,848	3,970	3,766	1,830	1,326,863
High Turnover (Sit Down Restaurant)	2,345	2,559	2,982	900,268	4,424	10,516	12,255	2,340,752

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	17
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	1783
Propane Fireplaces	0
Electric Fireplaces	0

No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
3502642.5	1,167,548	360,000	120,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Arena	1,815,509	204	0.0330	0.0040	7,594,971
Apartments Low Rise	53,628	204	0.0330	0.0040	455,489
Apartments Mid Rise	5,291,758	204	0.0330	0.0040	44,586,208
Strip Mall	248,316	204	0.0330	0.0040	179,186
High Turnover (Sit Down Restaurant)	1,273,579	204	0.0330	0.0040	3,716,050

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Arena	3,399,000	2,103,119
Apartments Low Rise	558,450	47,202
Apartments Mid Rise	58,571,550	2,084,606
Strip Mall	1,980,000	25,035
High Turnover (Sit Down Restaurant)	1,980,000	25,035

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Arena	4.95	—
Apartments Low Rise	12.7	—
Apartments Mid Rise	1,318	—
Strip Mall	31.5	—
High Turnover (Sit Down Restaurant)	357	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Arena	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Arena	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.83	annual days of extreme heat
Extreme Precipitation	13.2	annual days with precipitation above 20 mm
Sea Level Rise	0.20	meters of inundation depth
Wildfire	5.68	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A

Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6
AQ-PM	3.97
AQ-DPM	45.1
Drinking Water	18.3
Lead Risk Housing	54.0
Pesticides	9.55
Toxic Releases	13.5
Traffic	21.7
Effect Indicators	—
CleanUp Sites	69.4
Groundwater	93.8
Haz Waste Facilities/Generators	75.2
Impaired Water Bodies	93.4
Solid Waste	0.00
Sensitive Population	—
Asthma	18.4
Cardio-vascular	21.4
Low Birth Weights	44.2
Socioeconomic Factor Indicators	—
Education	48.6
Housing	98.8
Linguistic	30.7
Poverty	89.9
Unemployment	36.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	10.56075966
Employed	41.67842936
Median HI	5.941229308
Education	—
Bachelor's or higher	70.30668549
High school enrollment	100
Preschool enrollment	11.77980239
Transportation	—
Auto Access	15.29577826
Active commuting	95.85525472
Social	—
2-parent households	57.12819197
Voting	27.7685102
Neighborhood	—
Alcohol availability	22.94366739
Park access	81.35506224
Retail density	84.74271782
Supermarket access	73.29654818
Tree canopy	79.43025792
Housing	—
Homeownership	9.70101373
Housing habitability	20.14628513
Low-inc homeowner severe housing cost burden	47.86346721

Low-inc renter severe housing cost burden	8.17400231
Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	40.25407417
Arthritis	0.0
Asthma ER Admissions	75.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	22.6
Cognitively Disabled	36.6
Physically Disabled	74.5
Heart Attack ER Admissions	81.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	87.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	11.9
Children	94.5
Elderly	71.6
English Speaking	62.7
Foreign-born	44.2
Outdoor Workers	79.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	36.9
Traffic Access	0.0
Other Indices	—
Hardship	59.3
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0
Healthy Places Index Score for Project Location (b)	40.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Existing uses to be demolished. Lot acreages and population estimates are based on model defaults. Landscape area assumes 10% of acreage would be landscaped, if defaults were not available.
Operations: Vehicle Data	Weekday trip rates were adjusted based on the traffic data provided for the project, with the arena trip rate based on maximum event attendance. Saturday and Sunday trip rates were adjusted proportionally for all land uses.
Operations: Road Dust	%paved area adjusted based on roadway network in the downtown area
Operations: Water and Waste Water	Adjusted indoor water use based on City's water supply assessment factors. Arena water use was extrapolated based on the annual attendance.

Santa Cruz Downtown Plan Expansion - Project Annual Average Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Santa Cruz Downtown Plan Expansion - Project Annual Average
Operational Year	2045
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	8.80
Location	140 Front St, Santa Cruz, CA 95060, USA
County	Santa Cruz
City	Santa Cruz
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3124
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Arena	180	1000sqft	57.9	180,000	252,026	—	—	—

Apartments Low Rise	17.0	Dwelling Unit	1.06	18,020	4,628	—	45.0	—
Apartments Mid Rise	1,783	Dwelling Unit	46.9	1,711,680	204,388	—	4,689	—
Strip Mall	30.0	1000sqft	0.69	30,000	3,000	—	—	—
High Turnover (Sit Down Restaurant)	30.0	1000sqft	0.69	30,000	3,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	40.0	83.4	26.4	265	0.43	1.35	37.7	39.1	1.33	9.57	10.9	1,057	57,430	58,487	110	1.91	74.0	61,876
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	28.9	72.9	27.3	160	0.41	1.29	37.7	39.0	1.28	9.57	10.9	1,057	55,957	57,014	110	2.07	60.9	60,444
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	33.7	77.4	25.8	210	0.37	1.31	31.9	33.2	1.29	8.10	9.39	1,057	51,375	52,432	110	1.82	65.5	55,785
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.14	14.1	4.72	38.4	0.07	0.24	5.82	6.06	0.24	1.48	1.71	175	8,506	8,681	18.2	0.30	10.8	9,236

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	27.1	25.8	10.9	145	0.33	0.13	37.7	37.8	0.12	9.57	9.70	—	33,934	33,934	1.51	1.46	13.4	34,420
Area	11.2	56.8	1.03	113	0.01	0.06	—	0.06	0.05	—	0.05	0.00	316	316	0.01	< 0.005	—	317
Energy	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	22,970	22,970	2.39	0.13	—	23,068
Water	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Waste	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Total	40.0	83.4	26.4	265	0.43	1.35	37.7	39.1	1.33	9.57	10.9	1,057	57,430	58,487	110	1.91	74.0	61,876
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	27.2	25.8	12.9	152	0.32	0.13	37.7	37.8	0.12	9.57	9.70	—	32,777	32,777	1.75	1.62	0.35	33,305
Area	0.00	46.2	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	22,970	22,970	2.39	0.13	—	23,068
Water	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Waste	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Total	28.9	72.9	27.3	160	0.41	1.29	37.7	39.0	1.28	9.57	10.9	1,057	55,957	57,014	110	2.07	60.9	60,444
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	24.3	23.1	10.7	125	0.28	0.11	31.9	32.0	0.11	8.10	8.20	—	27,978	27,978	1.46	1.37	4.93	28,428
Area	7.69	53.5	0.71	77.4	< 0.005	0.04	—	0.04	0.03	—	0.03	0.00	216	216	0.01	< 0.005	—	217
Energy	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	22,970	22,970	2.39	0.13	—	23,068
Water	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759

Waste	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Total	33.7	77.4	25.8	210	0.37	1.31	31.9	33.2	1.29	8.10	9.39	1,057	51,375	52,432	110	1.82	65.5	55,785
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.43	4.22	1.95	22.9	0.05	0.02	5.82	5.84	0.02	1.48	1.50	—	4,632	4,632	0.24	0.23	0.82	4,707
Area	1.40	9.76	0.13	14.1	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	35.8	35.8	< 0.005	< 0.005	—	36.0
Energy	0.30	0.15	2.64	1.36	0.02	0.21	—	0.21	0.21	—	0.21	—	3,803	3,803	0.40	0.02	—	3,819
Water	—	—	—	—	—	—	—	—	—	—	—	21.1	34.8	55.9	2.17	0.05	—	126
Waste	—	—	—	—	—	—	—	—	—	—	—	154	0.00	154	15.4	0.00	—	538
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.0	10.0
Total	6.14	14.1	4.72	38.4	0.07	0.24	5.82	6.06	0.24	1.48	1.71	175	8,506	8,681	18.2	0.30	10.8	9,236

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.71	0.68	0.27	3.54	0.01	< 0.005	0.89	0.89	< 0.005	0.23	0.23	—	803	803	0.04	0.04	0.32	815
Apartments Low Rise	0.27	0.26	0.11	1.49	< 0.005	< 0.005	0.40	0.40	< 0.005	0.10	0.10	—	357	357	0.02	0.01	0.14	362
Apartments Mid Rise	16.9	16.0	6.95	93.7	0.22	0.09	24.9	25.0	0.08	6.33	6.41	—	22,373	22,373	0.96	0.94	8.88	22,685

Strip Mall	2.26	2.16	0.87	11.2	0.03	0.01	2.81	2.82	0.01	0.71	0.72	—	2,545	2,545	0.12	0.12	1.00	2,584
High Turnover (Sit Down Restaurant)	6.97	6.66	2.68	34.6	0.08	0.03	8.67	8.70	0.03	2.20	2.23	—	7,856	7,856	0.38	0.36	3.09	7,975
Total	27.1	25.8	10.9	145	0.33	0.13	37.7	37.8	0.12	9.57	9.70	—	33,934	33,934	1.51	1.46	13.4	34,420
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.72	0.68	0.32	3.79	0.01	< 0.005	0.89	0.89	< 0.005	0.23	0.23	—	776	776	0.04	0.04	0.01	789
Apartments Low Rise	0.27	0.26	0.13	1.56	< 0.005	< 0.005	0.40	0.40	< 0.005	0.10	0.10	—	344	344	0.02	0.02	< 0.005	350
Apartments Mid Rise	17.0	16.1	8.21	98.1	0.21	0.09	24.9	25.0	0.08	6.33	6.41	—	21,605	21,605	1.10	1.04	0.23	21,944
Strip Mall	2.27	2.16	1.03	12.0	0.02	0.01	2.81	2.82	0.01	0.71	0.72	—	2,459	2,459	0.14	0.13	0.03	2,501
High Turnover (Sit Down Restaurant)	7.02	6.68	3.17	37.0	0.07	0.03	8.67	8.70	0.03	2.20	2.23	—	7,592	7,592	0.44	0.40	0.08	7,721
Total	27.2	25.8	12.9	152	0.32	0.13	37.7	37.8	0.12	9.57	9.70	—	32,777	32,777	1.75	1.62	0.35	33,305
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.13	0.12	0.06	0.65	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	128	128	0.01	0.01	0.02	131
Apartments Low Rise	0.04	0.04	0.02	0.24	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	51.1	51.1	< 0.005	< 0.005	0.01	51.8
Apartments Mid Rise	2.90	2.75	1.34	16.1	0.04	0.01	4.30	4.32	0.01	1.09	1.11	—	3,401	3,401	0.16	0.16	0.60	3,452
Strip Mall	0.37	0.36	0.16	1.88	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	373	373	0.02	0.02	0.07	379
High Turnover (Sit Down Restaurant)	0.99	0.95	0.37	4.07	0.01	< 0.005	0.82	0.83	< 0.005	0.21	0.21	—	679	679	0.05	0.04	0.12	693

Total	4.43	4.22	1.95	22.9	0.05	0.02	5.82	5.84	0.02	1.48	1.50	—	4,632	4,632	0.24	0.23	0.82	4,707

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	1,015	1,015	0.16	0.02	—	1,025
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	30.0	30.0	< 0.005	< 0.005	—	30.3
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	2,957	2,957	0.48	0.06	—	2,987
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	139	139	0.02	< 0.005	—	140
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	712	712	0.12	0.01	—	719
Total	—	—	—	—	—	—	—	—	—	—	—	—	4,852	4,852	0.79	0.10	—	4,900
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	1,015	1,015	0.16	0.02	—	1,025
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	30.0	30.0	< 0.005	< 0.005	—	30.3

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	2,957	2,957	0.48	0.06	—	2,987
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	139	139	0.02	< 0.005	—	140
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	712	712	0.12	0.01	—	719
Total	—	—	—	—	—	—	—	—	—	—	—	—	4,852	4,852	0.79	0.10	—	4,900
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	168	168	0.03	< 0.005	—	170
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	4.96	4.96	< 0.005	< 0.005	—	5.01
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	490	490	0.08	0.01	—	494
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	23.0	23.0	< 0.005	< 0.005	—	23.2
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	118	118	0.02	< 0.005	—	119
Total	—	—	—	—	—	—	—	—	—	—	—	—	803	803	0.13	0.02	—	811

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.22	0.11	2.04	1.71	0.01	0.16	—	0.16	0.16	—	0.16	—	2,434	2,434	0.22	< 0.005	—	2,441

Apartments	0.01	0.01	0.12	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	146	146	0.01	< 0.005	—	146
Apartments Mid Rise	1.32	0.66	11.3	4.79	0.07	0.91	—	0.91	0.91	—	0.91	—	14,289	14,289	1.26	0.03	—	14,329
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.4	57.4	0.01	< 0.005	—	57.6
High Turnover (Sit Down Restaurant)	0.11	0.05	1.00	0.84	0.01	0.08	—	0.08	0.08	—	0.08	—	1,191	1,191	0.11	< 0.005	—	1,194
Total	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	18,118	18,118	1.60	0.03	—	18,168
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.22	0.11	2.04	1.71	0.01	0.16	—	0.16	0.16	—	0.16	—	2,434	2,434	0.22	< 0.005	—	2,441
Apartments Low Rise	0.01	0.01	0.12	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	146	146	0.01	< 0.005	—	146
Apartments Mid Rise	1.32	0.66	11.3	4.79	0.07	0.91	—	0.91	0.91	—	0.91	—	14,289	14,289	1.26	0.03	—	14,329
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.4	57.4	0.01	< 0.005	—	57.6
High Turnover (Sit Down Restaurant)	0.11	0.05	1.00	0.84	0.01	0.08	—	0.08	0.08	—	0.08	—	1,191	1,191	0.11	< 0.005	—	1,194
Total	1.67	0.84	14.5	7.43	0.09	1.15	—	1.15	1.15	—	1.15	—	18,118	18,118	1.60	0.03	—	18,168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.04	0.02	0.37	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	403	403	0.04	< 0.005	—	404
Apartments Low Rise	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.2	24.2	< 0.005	< 0.005	—	24.2
Apartments Mid Rise	0.24	0.12	2.05	0.87	0.01	0.17	—	0.17	0.17	—	0.17	—	2,366	2,366	0.21	< 0.005	—	2,372

Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.53
High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	197	197	0.02	< 0.005	—	198
Total	0.30	0.15	2.64	1.36	0.02	0.21	—	0.21	0.21	—	0.21	—	3,000	3,000	0.27	0.01	—	3,008

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	42.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	11.2	10.6	1.03	113	0.01	0.06	—	0.06	0.05	—	0.05	—	316	316	0.01	< 0.005	—	317
Total	11.2	56.8	1.03	113	0.01	0.06	—	0.06	0.05	—	0.05	0.00	316	316	0.01	< 0.005	—	317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer Products	—	42.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	46.2	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	7.69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.40	1.32	0.13	14.1	< 0.005	0.01	—	0.01	0.01	—	0.01	—	35.8	35.8	< 0.005	< 0.005	—	36.0
Total	1.40	9.76	0.13	14.1	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	35.8	35.8	< 0.005	< 0.005	—	36.0

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	6.51	14.8	21.3	0.67	0.02	—	42.9

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.07	1.79	2.86	0.11	< 0.005	—	6.40
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	112	182	294	11.5	0.28	—	665
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
Total	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	6.51	14.8	21.3	0.67	0.02	—	42.9
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.07	1.79	2.86	0.11	< 0.005	—	6.40
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	112	182	294	11.5	0.28	—	665
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	3.79	6.04	9.84	0.39	0.01	—	22.4
Total	—	—	—	—	—	—	—	—	—	—	—	127	210	338	13.1	0.31	—	759
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	1.08	2.45	3.53	0.11	< 0.005	—	7.10
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.18	0.30	0.47	0.02	< 0.005	—	1.06

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	18.6	30.1	48.6	1.91	0.05	—	110
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.63	1.00	1.63	0.06	< 0.005	—	3.70
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.63	1.00	1.63	0.06	< 0.005	—	3.70
Total	—	—	—	—	—	—	—	—	—	—	—	21.1	34.8	55.9	2.17	0.05	—	126

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	2.67	0.00	2.67	0.27	0.00	—	9.34
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	6.82	0.00	6.82	0.68	0.00	—	23.9
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	711	0.00	711	71.0	0.00	—	2,486
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	17.0	0.00	17.0	1.70	0.00	—	59.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	192	0.00	192	19.2	0.00	—	673
Total	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	2.67	0.00	2.67	0.27	0.00	—	9.34
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	6.82	0.00	6.82	0.68	0.00	—	23.9
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	711	0.00	711	71.0	0.00	—	2,486
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	17.0	0.00	17.0	1.70	0.00	—	59.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	192	0.00	192	19.2	0.00	—	673
Total	—	—	—	—	—	—	—	—	—	—	—	929	0.00	929	92.9	0.00	—	3,252
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.44	0.00	0.44	0.04	0.00	—	1.55
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.13	0.00	1.13	0.11	0.00	—	3.95
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	118	0.00	118	11.8	0.00	—	412
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.81	0.00	2.81	0.28	0.00	—	9.83
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	31.9	0.00	31.9	3.18	0.00	—	111
Total	—	—	—	—	—	—	—	—	—	—	—	154	0.00	154	15.4	0.00	—	538

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.12	1.12
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	12.3
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.12	1.12
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.3	12.3
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60.6	60.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.19	0.19
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.03	2.03
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.0	10.0

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Arena	305	305	305	111,230	1,252	1,252	1,252	457,141

Apartments Low Rise	100.0	111	85.8	36,342	505	562	433	183,599
Apartments Mid Rise	6,977	6,298	5,246	2,420,864	35,247	31,815	26,501	12,230,228
Strip Mall	966	916	445	322,848	3,970	3,766	1,830	1,326,863
High Turnover (Sit Down Restaurant)	2,345	2,559	2,982	900,268	4,424	10,516	12,255	2,340,752

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	17
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	1783
Propane Fireplaces	0
Electric Fireplaces	0

No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
3502642.5	1,167,548	360,000	120,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Arena	1,815,509	204	0.0330	0.0040	7,594,971
Apartments Low Rise	53,628	204	0.0330	0.0040	455,489
Apartments Mid Rise	5,291,758	204	0.0330	0.0040	44,586,208
Strip Mall	248,316	204	0.0330	0.0040	179,186
High Turnover (Sit Down Restaurant)	1,273,579	204	0.0330	0.0040	3,716,050

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Arena	3,399,000	2,103,119
Apartments Low Rise	558,450	47,202
Apartments Mid Rise	58,571,550	2,084,606
Strip Mall	1,980,000	25,035
High Turnover (Sit Down Restaurant)	1,980,000	25,035

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Arena	4.95	—
Apartments Low Rise	12.7	—
Apartments Mid Rise	1,318	—
Strip Mall	31.5	—
High Turnover (Sit Down Restaurant)	357	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Arena	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Arena	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.83	annual days of extreme heat
Extreme Precipitation	13.2	annual days with precipitation above 20 mm
Sea Level Rise	0.20	meters of inundation depth
Wildfire	5.68	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A

Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6
AQ-PM	3.97
AQ-DPM	45.1
Drinking Water	18.3
Lead Risk Housing	54.0
Pesticides	9.55
Toxic Releases	13.5
Traffic	21.7
Effect Indicators	—
CleanUp Sites	69.4
Groundwater	93.8
Haz Waste Facilities/Generators	75.2
Impaired Water Bodies	93.4
Solid Waste	0.00
Sensitive Population	—
Asthma	18.4
Cardio-vascular	21.4
Low Birth Weights	44.2
Socioeconomic Factor Indicators	—
Education	48.6
Housing	98.8
Linguistic	30.7
Poverty	89.9
Unemployment	36.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	10.56075966
Employed	41.67842936
Median HI	5.941229308
Education	—
Bachelor's or higher	70.30668549
High school enrollment	100
Preschool enrollment	11.77980239
Transportation	—
Auto Access	15.29577826
Active commuting	95.85525472
Social	—
2-parent households	57.12819197
Voting	27.7685102
Neighborhood	—
Alcohol availability	22.94366739
Park access	81.35506224
Retail density	84.74271782
Supermarket access	73.29654818
Tree canopy	79.43025792
Housing	—
Homeownership	9.70101373
Housing habitability	20.14628513
Low-inc homeowner severe housing cost burden	47.86346721

Low-inc renter severe housing cost burden	8.17400231
Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	40.25407417
Arthritis	0.0
Asthma ER Admissions	75.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	22.6
Cognitively Disabled	36.6
Physically Disabled	74.5
Heart Attack ER Admissions	81.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	87.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	11.9
Children	94.5
Elderly	71.6
English Speaking	62.7
Foreign-born	44.2
Outdoor Workers	79.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	36.9
Traffic Access	0.0
Other Indices	—
Hardship	59.3
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0
Healthy Places Index Score for Project Location (b)	40.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Existing uses to be demolished. Lot acreages and population estimates are based on model defaults. Landscape area assumes 10% of acreage would be landscaped, if defaults were not available.
Operations: Vehicle Data	Weekday trip rates were adjusted based on the traffic data provided for the project, with the arena trip rate based on annual average event attendance. Saturday and Sunday trip rates were adjusted proportionally for all land uses.
Operations: Road Dust	%paved area adjusted based on roadway network in the downtown area
Operations: Water and Waste Water	Adjusted indoor water use based on City's water supply assessment factors. Arena water use was extrapolated based on the annual attendance.

Santa Cruz Downtown Plan Expansion - Existing Maximum Day Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Santa Cruz Downtown Plan Expansion - Existing Maximum Day
Operational Year	2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	8.80
Location	140 Front St, Santa Cruz, CA 95060, USA
County	Santa Cruz
City	Santa Cruz
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3124
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Arena	35.0	1000sqft	11.2	35,000	49,005	—	—	—

Single Family Housing	1.00	Dwelling Unit	0.32	1,950	11,713	—	3.00	—
Apartments Low Rise	66.0	Dwelling Unit	4.13	69,960	17,969	—	174	—
Motel	91.0	Room	4.10	178,378	17,838	—	—	—
Strip Mall	32.6	1000sqft	0.75	32,600	3,260	—	—	—
High Turnover (Sit Down Restaurant)	2.30	1000sqft	0.05	2,300	230	—	—	—
Fast Food Restaurant w/o Drive Thru	1.20	1000sqft	0.03	1,200	120	—	—	—
Automobile Care Center	18.0	1000sqft	0.41	18,000	1,800	—	—	—
Regional Shopping Center	2.80	1000sqft	0.06	2,800	280	—	—	—
Congregate Care (Assisted Living)	21.0	Dwelling Unit	1.31	22,260	5,717	—	21.0	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	34.3	40.6	19.8	167	0.23	0.45	16.9	17.3	0.43	4.30	4.73	183	26,030	26,213	20.8	1.41	4,113	31,266

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	31.4	37.7	22.5	167	0.22	0.43	16.9	17.3	0.41	4.30	4.71	183	25,323	25,506	21.2	1.55	4,020	30,518
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	28.4	34.9	18.5	142	0.19	0.41	13.9	14.3	0.39	3.53	3.92	185	21,767	21,952	20.7	1.28	4,051	26,902
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.17	6.37	3.38	25.9	0.03	0.07	2.53	2.60	0.07	0.64	0.72	30.6	3,604	3,634	3.43	0.21	671	4,454

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	31.4	29.6	17.0	148	0.21	0.22	16.9	17.1	0.21	4.30	4.50	—	21,420	21,420	1.93	1.28	95.9	21,946
Area	2.61	10.9	0.17	16.8	< 0.005	0.03	—	0.03	0.02	—	0.02	0.42	82.3	82.8	< 0.005	< 0.005	—	83.0
Energy	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	4,463	4,463	0.49	0.03	—	4,485
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Waste	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Total	34.3	40.6	19.8	167	0.23	0.45	16.9	17.3	0.43	4.30	4.73	183	26,030	26,213	20.8	1.41	4,113	31,266
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	31.1	29.1	19.9	165	0.20	0.22	16.9	17.1	0.21	4.30	4.50	—	20,775	20,775	2.31	1.43	2.49	21,260
Area	0.03	8.46	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1

Energy	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	4,463	4,463	0.49	0.03	—	4,485
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Waste	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Total	31.4	37.7	22.5	167	0.22	0.43	16.9	17.3	0.41	4.30	4.71	183	25,323	25,506	21.2	1.55	4,020	30,518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	26.3	24.7	15.8	128	0.17	0.18	13.9	14.0	0.17	3.53	3.70	—	17,191	17,191	1.82	1.15	34.2	17,614
Area	1.79	10.1	0.11	11.5	< 0.005	0.03	—	0.03	0.02	—	0.02	2.28	49.0	51.3	0.01	< 0.005	—	51.8
Energy	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	4,463	4,463	0.49	0.03	—	4,485
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Waste	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Total	28.4	34.9	18.5	142	0.19	0.41	13.9	14.3	0.39	3.53	3.92	185	21,767	21,952	20.7	1.28	4,051	26,902
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.79	4.50	2.88	23.4	0.03	0.03	2.53	2.56	0.03	0.64	0.68	—	2,846	2,846	0.30	0.19	5.66	2,916
Area	0.33	1.84	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.38	8.12	8.50	< 0.005	< 0.005	—	8.57
Energy	0.05	0.03	0.47	0.35	< 0.005	0.04	—	0.04	0.04	—	0.04	—	739	739	0.08	0.01	—	743
Water	—	—	—	—	—	—	—	—	—	—	—	6.45	10.5	17.0	0.66	0.02	—	38.3
Waste	—	—	—	—	—	—	—	—	—	—	—	23.8	0.00	23.8	2.38	0.00	—	83.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	665	665
Total	5.17	6.37	3.38	25.9	0.03	0.07	2.53	2.60	0.07	0.64	0.72	30.6	3,604	3,634	3.43	0.21	671	4,454

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	5.55	5.24	2.99	26.0	0.04	0.04	2.95	2.98	0.04	0.75	0.79	—	3,741	3,741	0.34	0.22	16.7	3,833
Single Family Housing	0.09	0.08	0.05	0.45	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.01	—	68.8	68.8	0.01	< 0.005	0.31	70.4
Apartments Low Rise	2.85	2.67	1.70	14.8	0.02	0.02	1.78	1.81	0.02	0.45	0.48	—	2,245	2,245	0.18	0.13	10.1	2,297
Motel	1.68	1.59	0.91	7.90	0.01	0.01	0.89	0.91	0.01	0.23	0.24	—	1,135	1,135	0.10	0.07	5.08	1,163
Strip Mall	9.81	9.26	5.28	46.0	0.06	0.07	5.21	5.28	0.06	1.33	1.39	—	6,614	6,614	0.60	0.40	29.6	6,777
High Turnover (Sit Down Restaurant)	1.70	1.60	0.92	7.98	0.01	0.01	0.90	0.91	0.01	0.23	0.24	—	1,146	1,146	0.10	0.07	5.13	1,174
Fast Food Restaurant w/o Drive Thru	5.76	5.44	3.10	27.0	0.04	0.04	3.06	3.10	0.04	0.78	0.82	—	3,885	3,885	0.35	0.23	17.4	3,981
Automobile Care Center	3.08	2.91	1.66	14.5	0.02	0.02	1.64	1.66	0.02	0.42	0.44	—	2,078	2,078	0.19	0.12	9.30	2,129
Regional Shopping Center	0.47	0.45	0.20	1.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	207	207	0.03	0.01	0.89	213
Congregate Care (Assisted Living)	0.38	0.36	0.23	1.99	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	—	302	302	0.02	0.02	1.36	309

Total	31.4	29.6	17.0	148	0.21	0.22	16.9	17.1	0.21	4.30	4.50	—	21,420	21,420	1.93	1.28	95.9	21,946
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	5.49	5.14	3.49	29.0	0.04	0.04	2.95	2.98	0.04	0.75	0.79	—	3,628	3,628	0.41	0.25	0.43	3,713
Single Family Housing	0.09	0.08	0.06	0.49	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.01	—	66.6	66.6	0.01	< 0.005	0.01	68.1
Apartments Low Rise	2.82	2.63	1.99	16.1	0.02	0.02	1.78	1.81	0.02	0.45	0.48	—	2,176	2,176	0.22	0.14	0.26	2,224
Motel	1.67	1.56	1.06	8.79	0.01	0.01	0.89	0.91	0.01	0.23	0.24	—	1,101	1,101	0.12	0.08	0.13	1,127
Strip Mall	9.71	9.10	6.17	51.2	0.06	0.07	5.21	5.28	0.06	1.33	1.39	—	6,415	6,415	0.72	0.44	0.77	6,565
High Turnover (Sit Down Restaurant)	1.68	1.58	1.07	8.87	0.01	0.01	0.90	0.91	0.01	0.23	0.24	—	1,111	1,111	0.12	0.08	0.13	1,138
Fast Food Restaurant w/o Drive Thru	5.71	5.34	3.62	30.1	0.04	0.04	3.06	3.10	0.04	0.78	0.82	—	3,768	3,768	0.42	0.26	0.45	3,857
Automobile Care Center	3.05	2.86	1.94	16.1	0.02	0.02	1.64	1.66	0.02	0.42	0.44	—	2,015	2,015	0.23	0.14	0.24	2,063
Regional Shopping Center	0.46	0.44	0.23	2.02	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	201	201	0.03	0.02	0.02	207
Congregate Care (Assisted Living)	0.38	0.35	0.27	2.17	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	—	293	293	0.03	0.02	0.04	299
Total	31.1	29.1	19.9	165	0.20	0.22	16.9	17.1	0.21	4.30	4.50	—	20,775	20,775	2.31	1.43	2.49	21,260
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Arena	0.98	0.92	0.60	4.88	0.01	0.01	0.53	0.54	0.01	0.14	0.14	—	600	600	0.06	0.04	1.20	615
Single Family Housing	0.02	0.01	0.01	0.08	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Apartments Low Rise	0.45	0.42	0.31	2.45	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	322	322	0.03	0.02	0.65	330
Motel	0.30	0.28	0.18	1.48	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	182	182	0.02	0.01	0.36	187
Strip Mall	1.59	1.50	0.98	7.90	0.01	0.01	0.87	0.88	0.01	0.22	0.23	—	972	972	0.10	0.06	1.94	996
High Turnover (Sit Down Restaurant)	0.23	0.22	0.11	0.96	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	99.2	99.2	0.01	0.01	0.19	102
Fast Food Restaurant w/o Drive Thru	0.61	0.58	0.38	3.04	< 0.005	< 0.005	0.33	0.34	< 0.005	0.08	0.09	—	375	375	0.04	0.02	0.75	384
Automobile Care Center	0.48	0.45	0.25	2.05	< 0.005	< 0.005	0.19	0.19	< 0.005	0.05	0.05	—	219	219	0.03	0.02	0.43	225
Regional Shopping Center	0.07	0.06	0.03	0.25	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	24.5	24.5	< 0.005	< 0.005	0.05	25.2
Congregate Care (Assisted Living)	0.06	0.05	0.04	0.32	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	41.9	41.9	< 0.005	< 0.005	0.08	42.9
Total	4.79	4.50	2.88	23.4	0.03	0.03	2.53	2.56	0.03	0.64	0.68	—	2,846	2,846	0.30	0.19	5.66	2,916

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	197	197	0.03	< 0.005	—	199
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	3.39	3.39	< 0.005	< 0.005	—	3.42
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	116	116	0.02	< 0.005	—	118
Motel	—	—	—	—	—	—	—	—	—	—	—	—	616	616	0.10	0.01	—	622
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.02	< 0.005	—	152
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	54.6	54.6	0.01	< 0.005	—	55.1
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.8
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	101	101	0.02	< 0.005	—	102
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0	< 0.005	< 0.005	—	13.1
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	34.8	34.8	0.01	< 0.005	—	35.2

Total	—	—	—	—	—	—	—	—	—	—	—	—	1,316	1,316	0.21	0.03	—	1,329
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	197	197	0.03	< 0.005	—	199
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	3.39	3.39	< 0.005	< 0.005	—	3.42
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	116	116	0.02	< 0.005	—	118
Motel	—	—	—	—	—	—	—	—	—	—	—	—	616	616	0.10	0.01	—	622
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.02	< 0.005	—	152
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	54.6	54.6	0.01	< 0.005	—	55.1
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.8
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	101	101	0.02	< 0.005	—	102
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0	< 0.005	< 0.005	—	13.1
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	34.8	34.8	0.01	< 0.005	—	35.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,316	1,316	0.21	0.03	—	1,329
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Arena	—	—	—	—	—	—	—	—	—	—	—	—	32.7	32.7	0.01	< 0.005	—	33.0
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	0.56	0.56	< 0.005	< 0.005	—	0.57
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	19.3	19.3	< 0.005	< 0.005	—	19.5
Motel	—	—	—	—	—	—	—	—	—	—	—	—	102	102	0.02	< 0.005	—	103
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	25.0	25.0	< 0.005	< 0.005	—	25.2
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	9.03	9.03	< 0.005	< 0.005	—	9.12
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	4.71	4.71	< 0.005	< 0.005	—	4.76
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	16.8	16.8	< 0.005	< 0.005	—	17.0
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14	< 0.005	< 0.005	—	2.17
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	5.77	5.77	< 0.005	< 0.005	—	5.82
Total	—	—	—	—	—	—	—	—	—	—	—	—	218	218	0.04	< 0.005	—	220

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	473	473	0.04	< 0.005	—	475
Single Family Housing	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Apartments Low Rise	0.05	0.03	0.45	0.19	< 0.005	0.04	—	0.04	0.04	—	0.04	—	567	567	0.05	< 0.005	—	568
Motel	0.14	0.07	1.24	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,476	1,476	0.13	< 0.005	—	1,481
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	62.4	62.4	0.01	< 0.005	—	62.6
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	91.3	91.3	0.01	< 0.005	—	91.6
Fast Food Restaurant w/o Drive Thru	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.6	47.6	< 0.005	< 0.005	—	47.8
Automobile Care Center	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	243	243	0.02	< 0.005	—	244
Regional Shopping Center	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.36	5.36	< 0.005	< 0.005	—	5.37
Congregate Care (Assisted Living)	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	168	168	0.01	< 0.005	—	169
Total	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	3,148	3,148	0.28	0.01	—	3,156

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	473	473	0.04	< 0.005	—	475
Single Family Housing	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Apartments Low Rise	0.05	0.03	0.45	0.19	< 0.005	0.04	—	0.04	0.04	—	0.04	—	567	567	0.05	< 0.005	—	568
Motel	0.14	0.07	1.24	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,476	1,476	0.13	< 0.005	—	1,481
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	62.4	62.4	0.01	< 0.005	—	62.6
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	91.3	91.3	0.01	< 0.005	—	91.6
Fast Food Restaurant w/o Drive Thru	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.6	47.6	< 0.005	< 0.005	—	47.8
Automobile Care Center	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	243	243	0.02	< 0.005	—	244
Regional Shopping Center	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.36	5.36	< 0.005	< 0.005	—	5.37
Congregate Care (Assisted Living)	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	168	168	0.01	< 0.005	—	169
Total	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	3,148	3,148	0.28	0.01	—	3,156
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.4	78.4	0.01	< 0.005	—	78.6

Single Family Housing	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.12
Apartments Low Rise	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	93.8	93.8	0.01	< 0.005	—	94.1
Motel	0.02	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	244	244	0.02	< 0.005	—	245
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.3	10.3	< 0.005	< 0.005	—	10.4
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.1	15.1	< 0.005	< 0.005	—	15.2
Fast Food Restaurant w/o Drive Thru	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.89	7.89	< 0.005	< 0.005	—	7.91
Automobile Care Center	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.3	40.3	< 0.005	< 0.005	—	40.4
Regional Shopping Center	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.89	0.89	< 0.005	< 0.005	—	0.89
Congregate Care (Assisted Living)	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	27.9
Total	0.05	0.03	0.47	0.35	< 0.005	0.04	—	0.04	0.04	—	0.04	—	521	521	0.05	< 0.005	—	523

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.03	0.03	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1
Consumer Products	—	7.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.58	2.39	0.15	16.7	< 0.005	0.02	—	0.02	0.02	—	0.02	—	61.7	61.7	< 0.005	< 0.005	—	61.9
Total	2.61	10.9	0.17	16.8	< 0.005	0.03	—	0.03	0.02	—	0.02	0.42	82.3	82.8	< 0.005	< 0.005	—	83.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.03	0.03	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1
Consumer Products	—	7.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	8.46	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.38	1.12	1.50	< 0.005	< 0.005	—	1.55
Consumer Products	—	1.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.32	0.30	0.02	2.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.00	7.00	< 0.005	< 0.005	—	7.02
Total	0.33	1.84	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.38	8.12	8.50	< 0.005	< 0.005	—	8.57

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	3.61	6.58	10.2	0.37	0.01	—	22.1
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.09	0.41	0.50	0.01	< 0.005	—	0.82
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	4.15	6.95	11.1	0.43	0.01	—	24.8
Motel	—	—	—	—	—	—	—	—	—	—	—	22.6	35.9	58.5	2.32	0.06	—	133
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.12	6.56	10.7	0.42	0.01	—	24.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.29	0.46	0.75	0.03	< 0.005	—	1.72

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.15	0.24	0.39	0.02	< 0.005	—	0.90
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.28	3.62	5.90	0.23	0.01	—	13.4
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.35	0.56	0.92	0.04	< 0.005	—	2.09
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	1.32	2.21	3.53	0.14	< 0.005	—	7.90
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	3.61	6.58	10.2	0.37	0.01	—	22.1
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.09	0.41	0.50	0.01	< 0.005	—	0.82
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	4.15	6.95	11.1	0.43	0.01	—	24.8
Motel	—	—	—	—	—	—	—	—	—	—	—	22.6	35.9	58.5	2.32	0.06	—	133
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.12	6.56	10.7	0.42	0.01	—	24.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.29	0.46	0.75	0.03	< 0.005	—	1.72

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.15	0.24	0.39	0.02	< 0.005	—	0.90
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.28	3.62	5.90	0.23	0.01	—	13.4
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.35	0.56	0.92	0.04	< 0.005	—	2.09
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	1.32	2.21	3.53	0.14	< 0.005	—	7.90
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.60	1.09	1.69	0.06	< 0.005	—	3.66
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.02	0.07	0.08	< 0.005	< 0.005	—	0.14
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.69	1.15	1.84	0.07	< 0.005	—	4.11
Motel	—	—	—	—	—	—	—	—	—	—	—	3.74	5.95	9.68	0.38	0.01	—	22.0
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.68	1.09	1.77	0.07	< 0.005	—	4.03
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.05	0.08	0.12	< 0.005	< 0.005	—	0.28

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.03	0.04	0.07	< 0.005	< 0.005	—	0.15
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	0.38	0.60	0.98	0.04	< 0.005	—	2.22
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.06	0.09	0.15	0.01	< 0.005	—	0.35
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	0.22	0.37	0.59	0.02	< 0.005	—	1.31
Total	—	—	—	—	—	—	—	—	—	—	—	6.45	10.5	17.0	0.66	0.02	—	38.3

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.52	0.00	0.52	0.05	0.00	—	1.82
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.36	0.00	0.36	0.04	0.00	—	1.27
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	26.4	0.00	26.4	2.64	0.00	—	92.3

Motel	—	—	—	—	—	—	—	—	—	—	—	26.9	0.00	26.9	2.68	0.00	—	93.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	18.4	0.00	18.4	1.84	0.00	—	64.5
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	14.8	0.00	14.8	1.47	0.00	—	51.6
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	7.45	0.00	7.45	0.74	0.00	—	26.1
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	1.58	0.00	1.58	0.16	0.00	—	5.54
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	10.3	0.00	10.3	1.03	0.00	—	36.2
Total	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.52	0.00	0.52	0.05	0.00	—	1.82
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.36	0.00	0.36	0.04	0.00	—	1.27
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	26.4	0.00	26.4	2.64	0.00	—	92.3
Motel	—	—	—	—	—	—	—	—	—	—	—	26.9	0.00	26.9	2.68	0.00	—	93.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	18.4	0.00	18.4	1.84	0.00	—	64.5

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	14.8	0.00	14.8	1.47	0.00	—	51.6
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	7.45	0.00	7.45	0.74	0.00	—	26.1
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	1.58	0.00	1.58	0.16	0.00	—	5.54
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	10.3	0.00	10.3	1.03	0.00	—	36.2
Total	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.30
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	4.37	0.00	4.37	0.44	0.00	—	15.3
Motel	—	—	—	—	—	—	—	—	—	—	—	4.45	0.00	4.45	0.44	0.00	—	15.6
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.05	0.00	3.05	0.31	0.00	—	10.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	2.44	0.00	2.44	0.24	0.00	—	8.54

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.23	0.00	1.23	0.12	0.00	—	4.32
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	6.14	0.00	6.14	0.61	0.00	—	21.5
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.26	0.00	0.26	0.03	0.00	—	0.92
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	1.71	0.00	1.71	0.17	0.00	—	5.99
Total	—	—	—	—	—	—	—	—	—	—	—	23.8	0.00	23.8	2.38	0.00	—	83.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.50	0.50

Motel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	279	279
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.60	3.60
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.88	1.88
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,732	3,732
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.50	0.50
Motel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	279	279
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.60	3.60
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.88	1.88
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,732	3,732
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Motel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.2	46.2
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.60	0.60

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.31	0.31
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	618	618
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	665	665

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Arena	1,004	1,004	1,004	366,642	4,128	4,128	4,128	1,506,852
Single Family Housing	15.0	15.2	13.6	5,410	75.8	76.6	68.7	27,330
Apartments Low Rise	445	495	381	161,678	2,247	2,501	1,927	816,800
Motel	305	305	305	111,270	1,253	1,253	1,253	457,306
Strip Mall	1,776	1,685	819	593,573	7,299	6,924	3,364	2,439,506
High Turnover (Sit Down Restaurant)	242	264	308	92,907	457	1,085	1,265	241,564

Fast Food Restaurant w/o Drive Thru	519	1,043	749	228,792	2,133	4,288	3,080	940,306
Automobile Care Center	558	558	280	189,150	1,367	2,293	1,149	535,916
Regional Shopping Center	75.0	91.6	41.9	26,519	162	220	101	58,857
Congregate Care (Assisted Living)	55.0	62.0	66.6	21,046	278	313	336	106,324

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	1
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	66
Propane Fireplaces	0

Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Congregate Care (Assisted Living)	—
Wood Fireplaces	0
Gas Fireplaces	21
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
190694.25	63,565	405,417	135,139	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Arena	353,016	204	0.0330	0.0040	1,476,800
Single Family Housing	6,063	204	0.0330	0.0040	39,900
Apartments Low Rise	208,203	204	0.0330	0.0040	1,768,367
Motel	1,101,565	204	0.0330	0.0040	4,606,923
Strip Mall	269,836	204	0.0330	0.0040	194,716
High Turnover (Sit Down Restaurant)	97,641	204	0.0330	0.0040	284,897
Fast Food Restaurant w/o Drive Thru	50,943	204	0.0330	0.0040	148,642
Automobile Care Center	181,551	204	0.0330	0.0040	759,497
Regional Shopping Center	23,176	204	0.0330	0.0040	16,724
Congregate Care (Assisted Living)	62,326	204	0.0330	0.0040	525,132

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Arena	1,882,100	408,939
Single Family Housing	49,275	119,464
Apartments Low Rise	2,168,100	183,271
Motel	11,772,948	148,855
Strip Mall	2,151,600	27,204

High Turnover (Sit Down Restaurant)	151,800	1,919
Fast Food Restaurant w/o Drive Thru	79,200	1,001
Automobile Care Center	1,188,000	15,021
Regional Shopping Center	184,800	2,337
Congregate Care (Assisted Living)	689,850	58,309

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Arena	0.96	—
Single Family Housing	0.68	—
Apartments Low Rise	48.9	—
Motel	49.8	—
Strip Mall	34.2	—
High Turnover (Sit Down Restaurant)	27.4	—
Fast Food Restaurant w/o Drive Thru	13.8	—
Automobile Care Center	68.8	—
Regional Shopping Center	2.94	—
Congregate Care (Assisted Living)	19.2	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Arena	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Arena	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Motel	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Motel	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Motel	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

Fast Food Restaurant w/o Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant w/o Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant w/o Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Automobile Care Center	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Congregate Care (Assisted Living)	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Congregate Care (Assisted Living)	Household refrigerators and/or freezers	R-134a	1,430	0.22	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.83	annual days of extreme heat
Extreme Precipitation	13.2	annual days with precipitation above 20 mm
Sea Level Rise	0.20	meters of inundation depth
Wildfire	5.68	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6
AQ-PM	3.97
AQ-DPM	45.1

Drinking Water	18.3
Lead Risk Housing	54.0
Pesticides	9.55
Toxic Releases	13.5
Traffic	21.7
Effect Indicators	—
CleanUp Sites	69.4
Groundwater	93.8
Haz Waste Facilities/Generators	75.2
Impaired Water Bodies	93.4
Solid Waste	0.00
Sensitive Population	—
Asthma	18.4
Cardio-vascular	21.4
Low Birth Weights	44.2
Socioeconomic Factor Indicators	—
Education	48.6
Housing	98.8
Linguistic	30.7
Poverty	89.9
Unemployment	36.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	10.56075966

Employed	41.67842936
Median HI	5.941229308
Education	—
Bachelor's or higher	70.30668549
High school enrollment	100
Preschool enrollment	11.77980239
Transportation	—
Auto Access	15.29577826
Active commuting	95.85525472
Social	—
2-parent households	57.12819197
Voting	27.7685102
Neighborhood	—
Alcohol availability	22.94366739
Park access	81.35506224
Retail density	84.74271782
Supermarket access	73.29654818
Tree canopy	79.43025792
Housing	—
Homeownership	9.70101373
Housing habitability	20.14628513
Low-inc homeowner severe housing cost burden	47.86346721
Low-inc renter severe housing cost burden	8.17400231
Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	40.25407417
Arthritis	0.0

Asthma ER Admissions	75.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	22.6
Cognitively Disabled	36.6
Physically Disabled	74.5
Heart Attack ER Admissions	81.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	87.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	11.9
Children	94.5
Elderly	71.6
English Speaking	62.7

Foreign-born	44.2
Outdoor Workers	79.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	36.9
Traffic Access	0.0
Other Indices	—
Hardship	59.3
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0
Healthy Places Index Score for Project Location (b)	40.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Existing uses to be demolished. Lot acreages and population estimates are based on model defaults. Landscape area assumes 10% of acreage would be landscaped, if defaults were not available.
Operations: Vehicle Data	Weekday trip rates were adjusted based on the traffic data provided for the project, with the arena trip rate based on maximum event attendance. Saturday and Sunday trip rates were adjusted proportionally for all land uses.
Operations: Road Dust	%paved area adjusted based on roadway network in the downtown area
Operations: Water and Waste Water	Adjusted indoor water use based on City's water supply assessment factors. Arena water use was extrapolated based on the annual attendance.

Santa Cruz Downtown Plan Expansion - Existing Annual Average Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Santa Cruz Downtown Plan Expansion - Existing Annual Average
Operational Year	2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	8.80
Location	140 Front St, Santa Cruz, CA 95060, USA
County	Santa Cruz
City	Santa Cruz
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3124
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Arena	35.0	1000sqft	11.2	35,000	49,005	—	—	—

Single Family Housing	1.00	Dwelling Unit	0.32	1,950	11,713	—	3.00	—
Apartments Low Rise	66.0	Dwelling Unit	4.13	69,960	17,969	—	174	—
Motel	91.0	Room	4.10	178,378	17,838	—	—	—
Strip Mall	32.6	1000sqft	0.75	32,600	3,260	—	—	—
High Turnover (Sit Down Restaurant)	2.30	1000sqft	0.05	2,300	230	—	—	—
Fast Food Restaurant w/o Drive Thru	1.20	1000sqft	0.03	1,200	120	—	—	—
Automobile Care Center	18.0	1000sqft	0.41	18,000	1,800	—	—	—
Regional Shopping Center	2.80	1000sqft	0.06	2,800	280	—	—	—
Congregate Care (Assisted Living)	21.0	Dwelling Unit	1.31	22,260	5,717	—	21.0	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	29.7	36.2	17.3	145	0.20	0.42	14.4	14.8	0.40	3.67	4.07	183	22,917	23,100	20.5	1.22	4,099	28,077

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	26.8	33.4	19.6	143	0.19	0.39	14.4	14.8	0.38	3.67	4.06	183	22,304	22,487	20.8	1.35	4,019	27,428
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	23.9	30.7	15.8	119	0.16	0.38	11.4	11.8	0.36	2.91	3.27	185	18,750	18,935	20.4	1.08	4,045	23,812
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.35	5.60	2.88	21.8	0.03	0.07	2.08	2.15	0.07	0.53	0.60	30.6	3,104	3,135	3.37	0.18	670	3,942

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	26.8	25.2	14.6	127	0.18	0.19	14.4	14.6	0.18	3.67	3.85	—	18,308	18,308	1.65	1.09	82.0	18,757
Area	2.61	10.9	0.17	16.8	< 0.005	0.03	—	0.03	0.02	—	0.02	0.42	82.3	82.8	< 0.005	< 0.005	—	83.0
Energy	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	4,463	4,463	0.49	0.03	—	4,485
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Waste	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Total	29.7	36.2	17.3	145	0.20	0.42	14.4	14.8	0.40	3.67	4.07	183	22,917	23,100	20.5	1.22	4,099	28,077
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	26.5	24.8	17.0	141	0.17	0.19	14.4	14.6	0.18	3.67	3.85	—	17,756	17,756	1.97	1.22	2.13	18,170
Area	0.03	8.46	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1

Energy	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	4,463	4,463	0.49	0.03	—	4,485
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Waste	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Total	26.8	33.4	19.6	143	0.19	0.39	14.4	14.8	0.38	3.67	4.06	183	22,304	22,487	20.8	1.35	4,019	27,428
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	21.8	20.5	13.1	106	0.14	0.15	11.4	11.6	0.14	2.91	3.05	—	14,174	14,174	1.51	0.95	28.2	14,524
Area	1.79	10.1	0.11	11.5	< 0.005	0.03	—	0.03	0.02	—	0.02	2.28	49.0	51.3	0.01	< 0.005	—	51.8
Energy	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	4,463	4,463	0.49	0.03	—	4,485
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Waste	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Total	23.9	30.7	15.8	119	0.16	0.38	11.4	11.8	0.36	2.91	3.27	185	18,750	18,935	20.4	1.08	4,045	23,812
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.98	3.74	2.38	19.4	0.03	0.03	2.08	2.11	0.03	0.53	0.56	—	2,347	2,347	0.25	0.16	4.67	2,405
Area	0.33	1.84	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.38	8.12	8.50	< 0.005	< 0.005	—	8.57
Energy	0.05	0.03	0.47	0.35	< 0.005	0.04	—	0.04	0.04	—	0.04	—	739	739	0.08	0.01	—	743
Water	—	—	—	—	—	—	—	—	—	—	—	6.45	10.5	17.0	0.66	0.02	—	38.3
Waste	—	—	—	—	—	—	—	—	—	—	—	23.8	0.00	23.8	2.38	0.00	—	83.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	665	665
Total	4.35	5.60	2.88	21.8	0.03	0.07	2.08	2.15	0.07	0.53	0.60	30.6	3,104	3,135	3.37	0.18	670	3,942

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.93	0.88	0.50	4.37	0.01	0.01	0.49	0.50	0.01	0.13	0.13	—	628	628	0.06	0.04	2.81	644
Single Family Housing	0.09	0.08	0.05	0.45	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.01	—	68.8	68.8	0.01	< 0.005	0.31	70.4
Apartments Low Rise	2.85	2.67	1.70	14.8	0.02	0.02	1.78	1.81	0.02	0.45	0.48	—	2,245	2,245	0.18	0.13	10.1	2,297
Motel	1.68	1.59	0.91	7.90	0.01	0.01	0.89	0.91	0.01	0.23	0.24	—	1,135	1,135	0.10	0.07	5.08	1,163
Strip Mall	9.81	9.26	5.28	46.0	0.06	0.07	5.21	5.28	0.06	1.33	1.39	—	6,614	6,614	0.60	0.40	29.6	6,777
High Turnover (Sit Down Restaurant)	1.70	1.60	0.92	7.98	0.01	0.01	0.90	0.91	0.01	0.23	0.24	—	1,146	1,146	0.10	0.07	5.13	1,174
Fast Food Restaurant w/o Drive Thru	5.76	5.44	3.10	27.0	0.04	0.04	3.06	3.10	0.04	0.78	0.82	—	3,885	3,885	0.35	0.23	17.4	3,981
Automobile Care Center	3.08	2.91	1.66	14.5	0.02	0.02	1.64	1.66	0.02	0.42	0.44	—	2,078	2,078	0.19	0.12	9.30	2,129
Regional Shopping Center	0.47	0.45	0.20	1.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	207	207	0.03	0.01	0.89	213
Congregate Care (Assisted Living)	0.38	0.36	0.23	1.99	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	—	302	302	0.02	0.02	1.36	309

Total	26.8	25.2	14.6	127	0.18	0.19	14.4	14.6	0.18	3.67	3.85	—	18,308	18,308	1.65	1.09	82.0	18,757
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.92	0.86	0.59	4.86	0.01	0.01	0.49	0.50	0.01	0.13	0.13	—	609	609	0.07	0.04	0.07	624
Single Family Housing	0.09	0.08	0.06	0.49	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.01	—	66.6	66.6	0.01	< 0.005	0.01	68.1
Apartments Low Rise	2.82	2.63	1.99	16.1	0.02	0.02	1.78	1.81	0.02	0.45	0.48	—	2,176	2,176	0.22	0.14	0.26	2,224
Motel	1.67	1.56	1.06	8.79	0.01	0.01	0.89	0.91	0.01	0.23	0.24	—	1,101	1,101	0.12	0.08	0.13	1,127
Strip Mall	9.71	9.10	6.17	51.2	0.06	0.07	5.21	5.28	0.06	1.33	1.39	—	6,415	6,415	0.72	0.44	0.77	6,565
High Turnover (Sit Down Restaurant)	1.68	1.58	1.07	8.87	0.01	0.01	0.90	0.91	0.01	0.23	0.24	—	1,111	1,111	0.12	0.08	0.13	1,138
Fast Food Restaurant w/o Drive Thru	5.71	5.34	3.62	30.1	0.04	0.04	3.06	3.10	0.04	0.78	0.82	—	3,768	3,768	0.42	0.26	0.45	3,857
Automobile Care Center	3.05	2.86	1.94	16.1	0.02	0.02	1.64	1.66	0.02	0.42	0.44	—	2,015	2,015	0.23	0.14	0.24	2,063
Regional Shopping Center	0.46	0.44	0.23	2.02	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	201	201	0.03	0.02	0.02	207
Congregate Care (Assisted Living)	0.38	0.35	0.27	2.17	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	—	293	293	0.03	0.02	0.04	299
Total	26.5	24.8	17.0	141	0.17	0.19	14.4	14.6	0.18	3.67	3.85	—	17,756	17,756	1.97	1.22	2.13	18,170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Arena	0.17	0.16	0.10	0.82	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	101	101	0.01	0.01	0.20	103
Single Family Housing	0.02	0.01	0.01	0.08	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Apartments Low Rise	0.45	0.42	0.31	2.45	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	322	322	0.03	0.02	0.65	330
Motel	0.30	0.28	0.18	1.48	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	182	182	0.02	0.01	0.36	187
Strip Mall	1.59	1.50	0.98	7.90	0.01	0.01	0.87	0.88	0.01	0.22	0.23	—	972	972	0.10	0.06	1.94	996
High Turnover (Sit Down Restaurant)	0.23	0.22	0.11	0.96	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	99.2	99.2	0.01	0.01	0.19	102
Fast Food Restaurant w/o Drive Thru	0.61	0.58	0.38	3.04	< 0.005	< 0.005	0.33	0.34	< 0.005	0.08	0.09	—	375	375	0.04	0.02	0.75	384
Automobile Care Center	0.48	0.45	0.25	2.05	< 0.005	< 0.005	0.19	0.19	< 0.005	0.05	0.05	—	219	219	0.03	0.02	0.43	225
Regional Shopping Center	0.07	0.06	0.03	0.25	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	24.5	24.5	< 0.005	< 0.005	0.05	25.2
Congregate Care (Assisted Living)	0.06	0.05	0.04	0.32	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	41.9	41.9	< 0.005	< 0.005	0.08	42.9
Total	3.98	3.74	2.38	19.4	0.03	0.03	2.08	2.11	0.03	0.53	0.56	—	2,347	2,347	0.25	0.16	4.67	2,405

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	197	197	0.03	< 0.005	—	199
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	3.39	3.39	< 0.005	< 0.005	—	3.42
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	116	116	0.02	< 0.005	—	118
Motel	—	—	—	—	—	—	—	—	—	—	—	—	616	616	0.10	0.01	—	622
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.02	< 0.005	—	152
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	54.6	54.6	0.01	< 0.005	—	55.1
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.8
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	101	101	0.02	< 0.005	—	102
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0	< 0.005	< 0.005	—	13.1
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	34.8	34.8	0.01	< 0.005	—	35.2

Total	—	—	—	—	—	—	—	—	—	—	—	—	1,316	1,316	0.21	0.03	—	1,329
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	197	197	0.03	< 0.005	—	199
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	3.39	3.39	< 0.005	< 0.005	—	3.42
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	116	116	0.02	< 0.005	—	118
Motel	—	—	—	—	—	—	—	—	—	—	—	—	616	616	0.10	0.01	—	622
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.02	< 0.005	—	152
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	54.6	54.6	0.01	< 0.005	—	55.1
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.8
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	101	101	0.02	< 0.005	—	102
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0	< 0.005	< 0.005	—	13.1
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	34.8	34.8	0.01	< 0.005	—	35.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,316	1,316	0.21	0.03	—	1,329
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Arena	—	—	—	—	—	—	—	—	—	—	—	—	32.7	32.7	0.01	< 0.005	—	33.0
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	0.56	0.56	< 0.005	< 0.005	—	0.57
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	19.3	19.3	< 0.005	< 0.005	—	19.5
Motel	—	—	—	—	—	—	—	—	—	—	—	—	102	102	0.02	< 0.005	—	103
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	25.0	25.0	< 0.005	< 0.005	—	25.2
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	9.03	9.03	< 0.005	< 0.005	—	9.12
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	4.71	4.71	< 0.005	< 0.005	—	4.76
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	16.8	16.8	< 0.005	< 0.005	—	17.0
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14	< 0.005	< 0.005	—	2.17
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	5.77	5.77	< 0.005	< 0.005	—	5.82
Total	—	—	—	—	—	—	—	—	—	—	—	—	218	218	0.04	< 0.005	—	220

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	473	473	0.04	< 0.005	—	475
Single Family Housing	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Apartments Low Rise	0.05	0.03	0.45	0.19	< 0.005	0.04	—	0.04	0.04	—	0.04	—	567	567	0.05	< 0.005	—	568
Motel	0.14	0.07	1.24	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,476	1,476	0.13	< 0.005	—	1,481
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	62.4	62.4	0.01	< 0.005	—	62.6
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	91.3	91.3	0.01	< 0.005	—	91.6
Fast Food Restaurant w/o Drive Thru	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.6	47.6	< 0.005	< 0.005	—	47.8
Automobile Care Center	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	243	243	0.02	< 0.005	—	244
Regional Shopping Center	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.36	5.36	< 0.005	< 0.005	—	5.37
Congregate Care (Assisted Living)	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	168	168	0.01	< 0.005	—	169
Total	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	3,148	3,148	0.28	0.01	—	3,156

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	473	473	0.04	< 0.005	—	475
Single Family Housing	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Apartments Low Rise	0.05	0.03	0.45	0.19	< 0.005	0.04	—	0.04	0.04	—	0.04	—	567	567	0.05	< 0.005	—	568
Motel	0.14	0.07	1.24	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,476	1,476	0.13	< 0.005	—	1,481
Strip Mall	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	62.4	62.4	0.01	< 0.005	—	62.6
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	91.3	91.3	0.01	< 0.005	—	91.6
Fast Food Restaurant w/o Drive Thru	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.6	47.6	< 0.005	< 0.005	—	47.8
Automobile Care Center	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	243	243	0.02	< 0.005	—	244
Regional Shopping Center	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.36	5.36	< 0.005	< 0.005	—	5.37
Congregate Care (Assisted Living)	0.02	0.01	0.13	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	168	168	0.01	< 0.005	—	169
Total	0.29	0.15	2.60	1.94	0.02	0.20	—	0.20	0.20	—	0.20	—	3,148	3,148	0.28	0.01	—	3,156
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.4	78.4	0.01	< 0.005	—	78.6

Single Family Housing	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.12
Apartments Low Rise	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	93.8	93.8	0.01	< 0.005	—	94.1
Motel	0.02	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	244	244	0.02	< 0.005	—	245
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.3	10.3	< 0.005	< 0.005	—	10.4
High Turnover (Sit Down Restaurant)	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.1	15.1	< 0.005	< 0.005	—	15.2
Fast Food Restaurant w/o Drive Thru	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.89	7.89	< 0.005	< 0.005	—	7.91
Automobile Care Center	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.3	40.3	< 0.005	< 0.005	—	40.4
Regional Shopping Center	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.89	0.89	< 0.005	< 0.005	—	0.89
Congregate Care (Assisted Living)	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.9	27.9	< 0.005	< 0.005	—	27.9
Total	0.05	0.03	0.47	0.35	< 0.005	0.04	—	0.04	0.04	—	0.04	—	521	521	0.05	< 0.005	—	523

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.03	0.03	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1
Consumer Products	—	7.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.58	2.39	0.15	16.7	< 0.005	0.02	—	0.02	0.02	—	0.02	—	61.7	61.7	< 0.005	< 0.005	—	61.9
Total	2.61	10.9	0.17	16.8	< 0.005	0.03	—	0.03	0.02	—	0.02	0.42	82.3	82.8	< 0.005	< 0.005	—	83.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.03	0.03	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1
Consumer Products	—	7.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	8.46	0.02	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.42	20.7	21.1	< 0.005	< 0.005	—	21.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.38	1.12	1.50	< 0.005	< 0.005	—	1.55
Consumer Products	—	1.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.32	0.30	0.02	2.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.00	7.00	< 0.005	< 0.005	—	7.02
Total	0.33	1.84	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.38	8.12	8.50	< 0.005	< 0.005	—	8.57

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	3.61	6.58	10.2	0.37	0.01	—	22.1
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.09	0.41	0.50	0.01	< 0.005	—	0.82
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	4.15	6.95	11.1	0.43	0.01	—	24.8
Motel	—	—	—	—	—	—	—	—	—	—	—	22.6	35.9	58.5	2.32	0.06	—	133
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.12	6.56	10.7	0.42	0.01	—	24.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.29	0.46	0.75	0.03	< 0.005	—	1.72

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.15	0.24	0.39	0.02	< 0.005	—	0.90
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.28	3.62	5.90	0.23	0.01	—	13.4
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.35	0.56	0.92	0.04	< 0.005	—	2.09
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	1.32	2.21	3.53	0.14	< 0.005	—	7.90
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	3.61	6.58	10.2	0.37	0.01	—	22.1
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.09	0.41	0.50	0.01	< 0.005	—	0.82
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	4.15	6.95	11.1	0.43	0.01	—	24.8
Motel	—	—	—	—	—	—	—	—	—	—	—	22.6	35.9	58.5	2.32	0.06	—	133
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.12	6.56	10.7	0.42	0.01	—	24.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.29	0.46	0.75	0.03	< 0.005	—	1.72

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.15	0.24	0.39	0.02	< 0.005	—	0.90
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.28	3.62	5.90	0.23	0.01	—	13.4
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.35	0.56	0.92	0.04	< 0.005	—	2.09
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	1.32	2.21	3.53	0.14	< 0.005	—	7.90
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	63.5	102	4.00	0.10	—	231
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.60	1.09	1.69	0.06	< 0.005	—	3.66
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.02	0.07	0.08	< 0.005	< 0.005	—	0.14
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.69	1.15	1.84	0.07	< 0.005	—	4.11
Motel	—	—	—	—	—	—	—	—	—	—	—	3.74	5.95	9.68	0.38	0.01	—	22.0
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.68	1.09	1.77	0.07	< 0.005	—	4.03
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.05	0.08	0.12	< 0.005	< 0.005	—	0.28

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.03	0.04	0.07	< 0.005	< 0.005	—	0.15
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	0.38	0.60	0.98	0.04	< 0.005	—	2.22
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.06	0.09	0.15	0.01	< 0.005	—	0.35
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	0.22	0.37	0.59	0.02	< 0.005	—	1.31
Total	—	—	—	—	—	—	—	—	—	—	—	6.45	10.5	17.0	0.66	0.02	—	38.3

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.52	0.00	0.52	0.05	0.00	—	1.82
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.36	0.00	0.36	0.04	0.00	—	1.27
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	26.4	0.00	26.4	2.64	0.00	—	92.3

Motel	—	—	—	—	—	—	—	—	—	—	—	26.9	0.00	26.9	2.68	0.00	—	93.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	18.4	0.00	18.4	1.84	0.00	—	64.5
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	14.8	0.00	14.8	1.47	0.00	—	51.6
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	7.45	0.00	7.45	0.74	0.00	—	26.1
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	1.58	0.00	1.58	0.16	0.00	—	5.54
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	10.3	0.00	10.3	1.03	0.00	—	36.2
Total	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.52	0.00	0.52	0.05	0.00	—	1.82
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.36	0.00	0.36	0.04	0.00	—	1.27
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	26.4	0.00	26.4	2.64	0.00	—	92.3
Motel	—	—	—	—	—	—	—	—	—	—	—	26.9	0.00	26.9	2.68	0.00	—	93.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	18.4	0.00	18.4	1.84	0.00	—	64.5

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	14.8	0.00	14.8	1.47	0.00	—	51.6
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	7.45	0.00	7.45	0.74	0.00	—	26.1
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	37.1	0.00	37.1	3.70	0.00	—	130
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	1.58	0.00	1.58	0.16	0.00	—	5.54
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	10.3	0.00	10.3	1.03	0.00	—	36.2
Total	—	—	—	—	—	—	—	—	—	—	—	144	0.00	144	14.4	0.00	—	503
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.30
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	4.37	0.00	4.37	0.44	0.00	—	15.3
Motel	—	—	—	—	—	—	—	—	—	—	—	4.45	0.00	4.45	0.44	0.00	—	15.6
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.05	0.00	3.05	0.31	0.00	—	10.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	2.44	0.00	2.44	0.24	0.00	—	8.54

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	1.23	0.00	1.23	0.12	0.00	—	4.32
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	6.14	0.00	6.14	0.61	0.00	—	21.5
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	0.26	0.00	0.26	0.03	0.00	—	0.92
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	1.71	0.00	1.71	0.17	0.00	—	5.99
Total	—	—	—	—	—	—	—	—	—	—	—	23.8	0.00	23.8	2.38	0.00	—	83.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.50	0.50

Motel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	279	279
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.60	3.60
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.88	1.88
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,732	3,732
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.50	0.50
Motel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	279	279
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.60	3.60
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.88	1.88
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,732	3,732
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,017	4,017
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arena	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Motel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.2	46.2
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.60	0.60

Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.31	0.31
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	618	618
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Congregate Care (Assisted Living)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	665	665

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Arena	169	169	169	61,575	693	693	693	253,067
Single Family Housing	15.0	15.2	13.6	5,410	75.8	76.6	68.7	27,330
Apartments Low Rise	445	495	381	161,678	2,247	2,501	1,927	816,800
Motel	305	305	305	111,270	1,253	1,253	1,253	457,306
Strip Mall	1,776	1,685	819	593,573	7,299	6,924	3,364	2,439,506
High Turnover (Sit Down Restaurant)	242	264	308	92,907	457	1,085	1,265	241,564

Fast Food Restaurant w/o Drive Thru	519	1,043	749	228,792	2,133	4,288	3,080	940,306
Automobile Care Center	558	558	280	189,150	1,367	2,293	1,149	535,916
Regional Shopping Center	75.0	91.6	41.9	26,519	162	220	101	58,857
Congregate Care (Assisted Living)	55.0	62.0	66.6	21,046	278	313	336	106,324

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	1
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	66
Propane Fireplaces	0

Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Congregate Care (Assisted Living)	—
Wood Fireplaces	0
Gas Fireplaces	21
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
190694.25	63,565	405,417	135,139	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Arena	353,016	204	0.0330	0.0040	1,476,800
Single Family Housing	6,063	204	0.0330	0.0040	39,900
Apartments Low Rise	208,203	204	0.0330	0.0040	1,768,367
Motel	1,101,565	204	0.0330	0.0040	4,606,923
Strip Mall	269,836	204	0.0330	0.0040	194,716
High Turnover (Sit Down Restaurant)	97,641	204	0.0330	0.0040	284,897
Fast Food Restaurant w/o Drive Thru	50,943	204	0.0330	0.0040	148,642
Automobile Care Center	181,551	204	0.0330	0.0040	759,497
Regional Shopping Center	23,176	204	0.0330	0.0040	16,724
Congregate Care (Assisted Living)	62,326	204	0.0330	0.0040	525,132

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Arena	1,882,100	408,939
Single Family Housing	49,275	119,464
Apartments Low Rise	2,168,100	183,271
Motel	11,772,948	148,855
Strip Mall	2,151,600	27,204

High Turnover (Sit Down Restaurant)	151,800	1,919
Fast Food Restaurant w/o Drive Thru	79,200	1,001
Automobile Care Center	1,188,000	15,021
Regional Shopping Center	184,800	2,337
Congregate Care (Assisted Living)	689,850	58,309

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Arena	0.96	—
Single Family Housing	0.68	—
Apartments Low Rise	48.9	—
Motel	49.8	—
Strip Mall	34.2	—
High Turnover (Sit Down Restaurant)	27.4	—
Fast Food Restaurant w/o Drive Thru	13.8	—
Automobile Care Center	68.8	—
Regional Shopping Center	2.94	—
Congregate Care (Assisted Living)	19.2	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Arena	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Arena	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Arena	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Motel	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Motel	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Motel	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

Fast Food Restaurant w/o Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant w/o Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant w/o Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Automobile Care Center	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Congregate Care (Assisted Living)	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Congregate Care (Assisted Living)	Household refrigerators and/or freezers	R-134a	1,430	0.22	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.83	annual days of extreme heat
Extreme Precipitation	13.2	annual days with precipitation above 20 mm
Sea Level Rise	0.20	meters of inundation depth
Wildfire	5.68	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6
AQ-PM	3.97
AQ-DPM	45.1

Drinking Water	18.3
Lead Risk Housing	54.0
Pesticides	9.55
Toxic Releases	13.5
Traffic	21.7
Effect Indicators	—
CleanUp Sites	69.4
Groundwater	93.8
Haz Waste Facilities/Generators	75.2
Impaired Water Bodies	93.4
Solid Waste	0.00
Sensitive Population	—
Asthma	18.4
Cardio-vascular	21.4
Low Birth Weights	44.2
Socioeconomic Factor Indicators	—
Education	48.6
Housing	98.8
Linguistic	30.7
Poverty	89.9
Unemployment	36.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	10.56075966

Employed	41.67842936
Median HI	5.941229308
Education	—
Bachelor's or higher	70.30668549
High school enrollment	100
Preschool enrollment	11.77980239
Transportation	—
Auto Access	15.29577826
Active commuting	95.85525472
Social	—
2-parent households	57.12819197
Voting	27.7685102
Neighborhood	—
Alcohol availability	22.94366739
Park access	81.35506224
Retail density	84.74271782
Supermarket access	73.29654818
Tree canopy	79.43025792
Housing	—
Homeownership	9.70101373
Housing habitability	20.14628513
Low-inc homeowner severe housing cost burden	47.86346721
Low-inc renter severe housing cost burden	8.17400231
Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	40.25407417
Arthritis	0.0

Asthma ER Admissions	75.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	22.6
Cognitively Disabled	36.6
Physically Disabled	74.5
Heart Attack ER Admissions	81.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	87.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	11.9
Children	94.5
Elderly	71.6
English Speaking	62.7

Foreign-born	44.2
Outdoor Workers	79.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	27.3
Traffic Density	36.9
Traffic Access	0.0
Other Indices	—
Hardship	59.3
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0
Healthy Places Index Score for Project Location (b)	40.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

Appendix D

Noise Measurements and Model Data

8. User Changes to Default Data

Screen	Justification
Land Use	Existing uses to be demolished. Lot acreages and population estimates are based on model defaults. Landscape area assumes 10% of acreage would be landscaped, if defaults were not available.
Operations: Vehicle Data	Weekday trip rates were adjusted based on the traffic data provided for the project, with the arena trip rate based on annual average attendance. Saturday and Sunday trip rates were adjusted proportionally for all land uses.
Operations: Road Dust	%paved area adjusted based on roadway network in the downtown area
Operations: Water and Waste Water	Adjusted indoor water use based on City's water supply assessment factors. Arena water use was extrapolated based on the annual attendance.

Santa Cruz Downtown Plan Expansion Project

Energy Demand Summary

Project Operation

	15	Gallons	
Source	**Total MTCO2**	**Diesel**	**Gasoline**
Mobile Exhaust	4,632	93,730	418,581
Landscape Equipment	36		4,081
Electricity	802		
Natural Gas Energy	3,001		
Water and Wastewater	56		
Solid Waste	154		
Total	**8,681**	**93,730**	**422,662**

Type	**Total**	**Units**
Petroleum	516,392	gallons/year
Electricity	8,682,790	kWh/year
Natural Gas	56,531,904	kBTU/year

Existing Operation

	15	Gallons	
Source	**Total MTCO2**	**Diesel**	**Gasoline**
Mobile Exhaust	2,347	51,949	206,866
Landscape Equipment	8		968
Electricity	218		
Natural Gas Energy	521		
Water and Wastewater	17		

Constants		
Fuel	**KgCO2/Gallon**	1000 Kg in MT
Gasoline	8.78	
Diesel	10.21	

Source: The Climate Registry 2023

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: DOWNTOWN SANTA CRUZ S.P. PROJECT #: 13707
SITE ID: ST1
SITE ADDRESS: 1012 THIRD STREET OBSERVER(S): JVL
START DATE: 10/12/23 END DATE: 10/12/23
START TIME: 11:13 END TIME: 11:28

METEOROLOGICAL CONDITIONS

TEMP: 70 F HUMIDITY: 60 % R.H. WIND: CALM (LIGHT) MODERATE
WINDSPD: 2 MPH DIR. N NE S SE S SW (W) NW (VARIABLE) STEADY GUSTY
SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: SoftdB Piccolo II TYPE 1 (2) SERIAL #: 3104
CALIBRATOR: REED R8090 SERIAL #: 6321
CALIBRATION CHECK PRE-MEASUREMENT: 94.0 dBA SPL POST-MEASUREMENT: 94.0 dBA SPL WINDSCRN: X

SETTINGS: (A-WTD) (SLOW) FAST (FRONTAL) RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1									
↓									
16									

COMMENTS: REFER TO PICCOLO 3104 LOGS FOR SOUND LEVEL DATA.

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: 2-LANE COLLECTOR DIST. TO RDWY C/L OR (EOP): 3 FEET

TRAFFIC COUNT DURATION: 15 MIN SPEED 25 ___ MIN SPEED

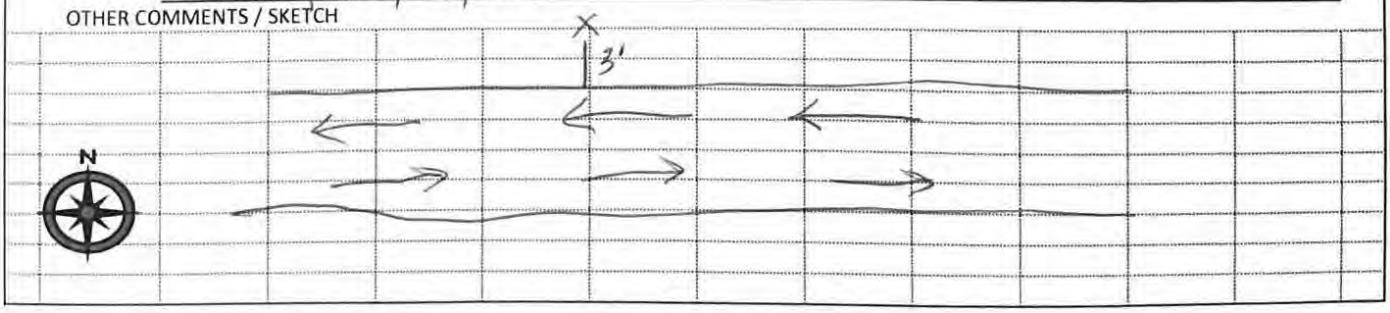
COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	49								
MED TRKS	1								
HVY TRKS	0								
BUSES	0								
MOTRCLS	0								

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 25

OTHER NOISE SOURCES (BACKGROUND): (DIST. AIRCRAFT) RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH

TERRAIN (HARD) SOFT MIXED (FLAT) OTHER:
PHOTOS ST1.1, 1.2, 1.3, 1.4
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: SANTA CRUZ DOWNTOWN S.P. | PROJECT #: 13707
SITE ID: ST2
SITE ADDRESS: NORTHERN TERMINUS OF CLIFF ST. | OBSERVER(S): JVL
START DATE: 10/12/23 | END DATE: 10/12/23
START TIME: 11:40 | END TIME: 11:55

METEOROLOGICAL CONDITIONS

TEMP: 70 F | HUMIDITY: 60 % R.H. | WIND: CALM (LIGHT) MODERATE
WINDSPD: 3 MPH | DIR. N NE S SE S SW (W) NW | (VARIABLE) STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: SOLO dB PICCOLO II | TYPE 1 (2) | SERIAL # 3104
CALIBRATOR: BRUEL R3090 | SERIAL # 63321
CALIBRATION CHECK: PRE-MEASUREMENT 94.0 dBA SPL | POST-MEASUREMENT 94.0 dBA SPL | WINDSCRN X

SETTINGS: (A-WTD) (SLOW) FAST (FRONTAL) RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
17									
	REFER TO PICCOLO 3104 LOGS FOR SOUND LEVEL DATA								
32									

COMMENTS: PICCOLO AT TERMINUS, CENTER OF STREET R-O-W AND 1 FOOT FROM GUARD RAIL.

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: 2 LANE ARTERIAL | DIST. TO RDWY C/L OR EOP:

TRAFFIC COUNT DURATION: 15 MIN | SPEED 35 | ___ MIN | SPEED

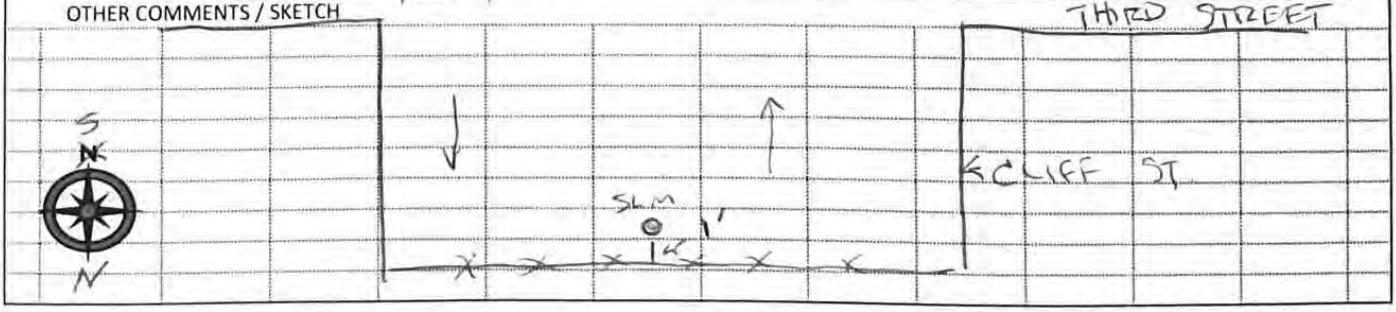
COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	55									
MED TRKS	2									
HVY TRKS	1									
BUSES	0									
MOTRCLS	0									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES (DIST. BARKING DOGS) BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING (DIST. TRAFFIC (LIST RDWYS BELOW)) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: THIRD STREET - TRAFFIC COUNT IS FOR THIRD ST. NO TRAFFIC ON CLIFF ST.

DESCRIPTION / SKETCH

TERRAIN: (HARD) SOFT MIXED FLAT OTHER:
PHOTOS: ST2.1, 2.2, 2.3
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT SANTA CRUZ DOWNTOWN SP PROJECT # 13707
SITE ID ST3
SITE ADDRESS RIVERWALK OBSERVER(S) JVL
START DATE 10/12/23 END DATE 10/12/23
START TIME 12:07 END TIME 12:22

METEOROLOGICAL CONDITIONS

TEMP 70 F HUMIDITY 60 % R.H. WIND CALM (LIGHT) MODERATE
WINDSPD 3 MPH DIR. N NE S SE S SW (W) NW (VARIABLE) STEADY GUSTY
SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT SoftdB Piccolo II TYPE 1 (2) SERIAL # 3104
CALIBRATOR REED R8010 SERIAL # L0321
CALIBRATION CHECK PRE-MEASUREMENT 94.0 dBA SPL POST-MEASUREMENT 94.0 dBA SPL WINDSCRN X

SETTINGS (A-WTD) (SLOW) FAST (FRONTAL) RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
33									
↓	REFER TO RICCOLO 3104 LOGS FOR SOUND LEVEL DATA.								
48									

COMMENTS
RIVERWALK IS ABOUT 20' ABOVE ELEVATION OF SAN LORENZO BLVD, WITH VEGETATED BERM FACING SLD.

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION: 15 MIN SPEED 35 ___ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED
AUTOS	97			
MED TRKS	1			
HVY TRKS	2			
BUSES	3			
MOTRCLS	0			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ___

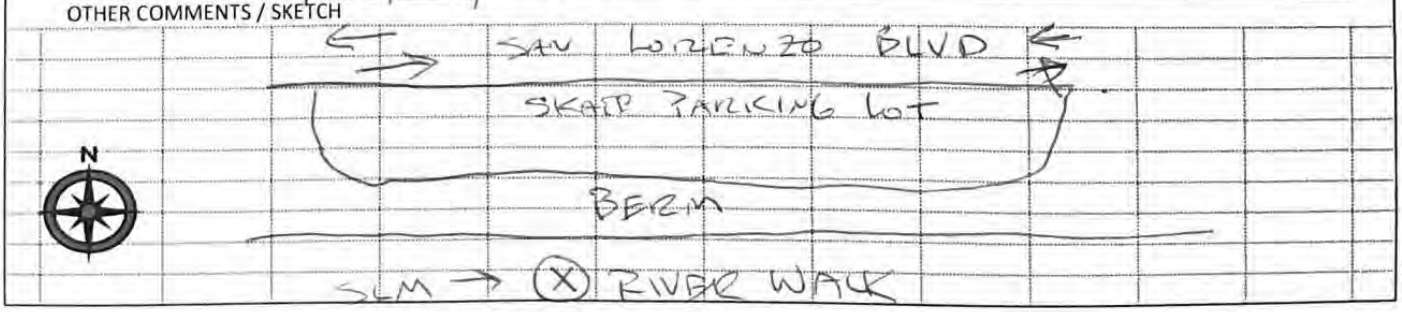
COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 35

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING (DIST. TRAFFIC (LIST RDWYS BELOW)) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: TRAFFIC COUNTS FOR SAN LORENZO BLVD
NO MOTORIZED TRAFFIC ON RIVERWALK

DESCRIPTION / SKETCH

TERRAIN HARD SOFT MIXED FLAT OTHER:
PHOTOS ST3.1, 3.2, 3.3, 3.4
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: SANTA CRUZ DOWNTOWN SP — PROJECT #: 13707
SITE ID: ST4
SITE ADDRESS: LAUREL STREET / FRONT STREET — OBSERVER(S): JVL
START DATE: 10/12/23 — END DATE: 10/12/23
START TIME: 12:35 — END TIME: 12:45

METEOROLOGICAL CONDITIONS

TEMP: 70 F — HUMIDITY: 60 % R.H. — WIND: CALM (LIGHT) MODERATE
WINDSPD: 3 MPH — DIR. N NE S SE S SW (W) NW — (VARIABLE) STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: 2OFTdB PICCOLO II — TYPE 1 (2) — SERIAL # 3104
CALIBRATOR: REED R2070 — SERIAL # 6321
CALIBRATION CHECK — PRE-MEASUREMENT: 94.0 dBA SPL — POST-MEASUREMENT: 94.0 dBA SPL — WINDSCRN: X

SETTINGS: (A-WTD) (SLOW) FAST (FRONTAL) RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
49									
↓									
60									

COMMENTS: REFER TO PICCOLO 3104 LOGS FOR SOUND LEVEL DATA.

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: — DIST. TO RDWY C/L OR (EOP): 7 FEET
TRAFFIC COUNT DURATION: 10 MIN — SPEED 35

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED
AUTOS	140						81			
MED TRKS	2						1			
HVY TRKS	2						1			
BUSES	1				X		1			
MOTRCLS	0						0			

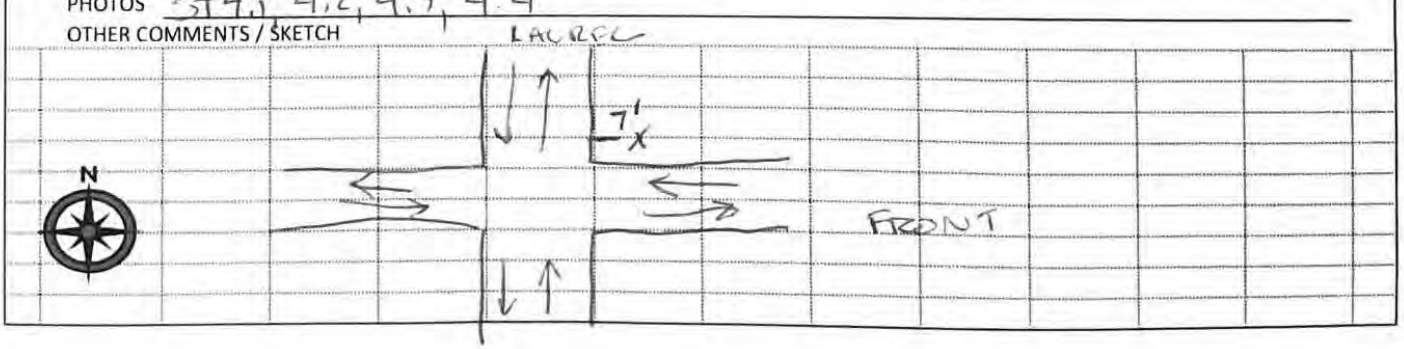
SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 35

↑ LAUREL ST. ↑ FRONT ST.

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: CONSTRUCTION PROJECT KITTY-CORNER OF SAME INTERSECTION FROM SLM.

DESCRIPTION / SKETCH

TERRAIN (HARD) SOFT MIXED (FLAT) OTHER:
PHOTOS: ST4.1, 4.2, 4.3, 4.4
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: SANTA CRUZ DOWNTOWN SP — PROJECT #: 13707
SITE ID: ST5
SITE ADDRESS: CENTER ST AT PARKING LOT ENTRANCE — OBSERVER(S): JVL
START DATE: 10/12/23 — END DATE: 10/12/23
START TIME: 1:09 — END TIME: 1:24

METEOROLOGICAL CONDITIONS

TEMP: 75 F — HUMIDITY: 39 % R.H. — WIND: CALM (LIGHT) MODERATE
WINDSPD: 2 MPH — DIR. N NE S SE S SW (W) NW — (VARIABLE) STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: SoftdB Piccolo II — TYPE 1 (2) — SERIAL #: 3104
CALIBRATOR: Reed R8090 — SERIAL #: 6321
CALIBRATION CHECK — PRE-MEASUREMENT: 94.0 dBA SPL — POST-MEASUREMENT: 94.0 dBA SPL — WINDSCRN: X

SETTINGS: (A-WTD) (SLOW) FAST (FRONTAL) RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
61									
↓	REFER TO PICCOLLO 3104 LOGS FOR SOUND LEVEL DATA.								
77									

COMMENTS: DEPOT PARK SITE - NEAR CENTER STREET PARKING LOT ENTRY.

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: 2 LANE ARTERIAL — DIST. TO RDWY C/L OR (EOP): 12 FT
TRAFFIC COUNT DURATION: 15 MIN — SPEED: 30

COUNT 1 (OR RDWY 1)	DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
	AUTOS	71			
	MED TRKS	2			
	HVY TRKS	0			
	BUSES	0			
	MOTRCLS	1			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE: X

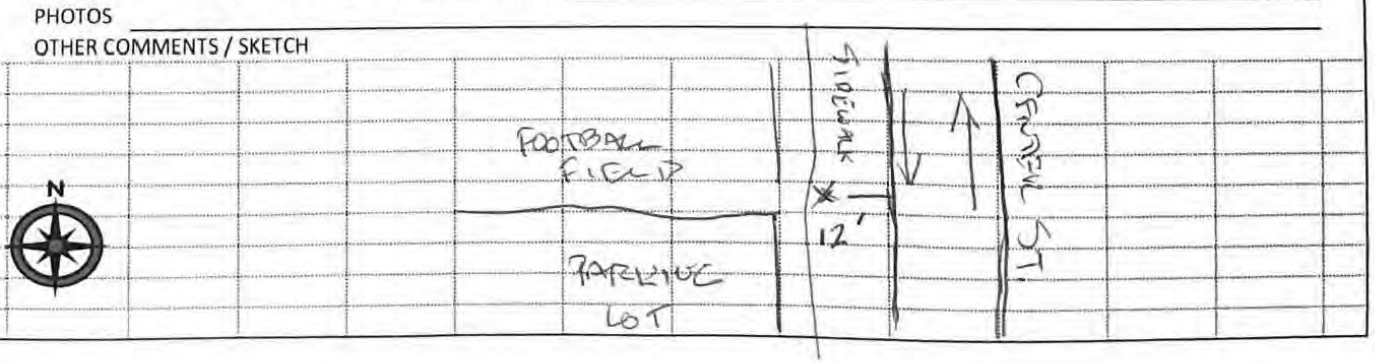
COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB	SB/WB
MIN			SPEED	

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 30

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
(DIST. KIDS PLAYING) DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: SOCCER GAME IN BACKGROUND

DESCRIPTION / SKETCH

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: DOWNTOWN SANTA CRUZ S.P. PROJECT #: 13707
SITE ID: ST6
SITE ADDRESS: 131 SYCAMORE ST. OBSERVER(S): JVL
START DATE: 10/12/23 END DATE: 10/12/23
START TIME: 1:59 END TIME: 2:14

METEOROLOGICAL CONDITIONS

TEMP 75 F HUMIDITY 39 % R.H. WIND CALM (LIGHT) MODERATE
WINDSPD 2 MPH DIR. N NE S SE S SW (W) NW (VARIABLE) STEADY GUSTY
SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: SOLO/B PICCOLO II TYPE 1 (2) SERIAL # 3104
CALIBRATOR: REED R8090 SERIAL # 6321
CALIBRATION CHECK PRE-MEASUREMENT 94.0 dBA SPL POST-MEASUREMENT 94.0 dBA SPL WINDSCRN X

SETTINGS (A-WTD) (SLOW) FAST (FRONTAL) RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
78									
↓									
94									

COMMENTS: REFER TO PICCOLO 3104 LOGS FOR SOUND LEVEL DATA

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: DIST. TO RDWY C/L OR (EOP): 6 FEET
TRAFFIC COUNT DURATION: 15 MIN SPEED 25

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	8			
MED TRKS	0			
HVY TRKS	0			
BUSES	0			
MOTRCLS	0			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE X

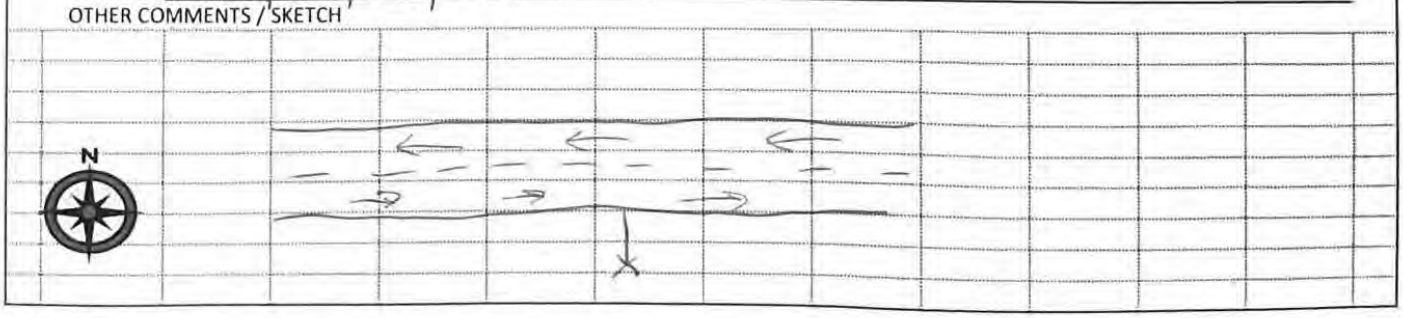
COUNT 2 (OR RDWY 2)	MIN NB/EB	MIN SB/WB	SPEED NB/EB	SPEED SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 25

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT (RUSTLING LEAVES) (DIST. BARKING DOGS) BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH

TERRAIN (HARD) SOFT MIXED (FLAT) OTHER:
PHOTOS ST6.1, 6.2, 6.3, 6.4
OTHER COMMENTS / SKETCH



DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: SANTA CRUZ DOWNTOWN S.P. | PROJECT #: 13707
SITE ID: JT7
SITE ADDRESS: 417 PACIFIC STREET | OBSERVER(S): JVL
START DATE: 10/12/23 | END DATE:
START TIME: 2:25 | END TIME: 2:40

METEOROLOGICAL CONDITIONS

TEMP: 75 F | HUMIDITY: 39 % R.H. | WIND: CALM (LIGHT) MODERATE
WINDSPD: 3 MPH | DIR. N NE S SE S SW (W) NW | (VARIABLE) STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: SOFT dB PICCOLO II | TYPE 1 (2) | SERIAL # 3104
CALIBRATOR: REED R8090 | SERIAL # 6321
CALIBRATION CHECK: PRE-MEASUREMENT 94.0 dBA SPL | POST-MEASUREMENT 94.0 dBA SPL | WINDSCRN X

SETTINGS: (A-WTD) (SLOW) FAST (FRONTAL) RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
95									
↓									
109									

COMMENTS: REFER TO PICCOLO 3104 LOGS FOR SOUND LEVEL DATA.

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: 2-LANE ARTERIAL | DIST. TO RDWY C/L OR (EOP): 7 FEET

TRAFFIC COUNT DURATION: 15 MIN | SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED
AUTOS	39			
MED TRKS	2			
HVY TRKS	0			
BUSES	3			
MOTRCLS	0			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE: X

TRAFFIC COUNT DURATION: ___ MIN | SPEED

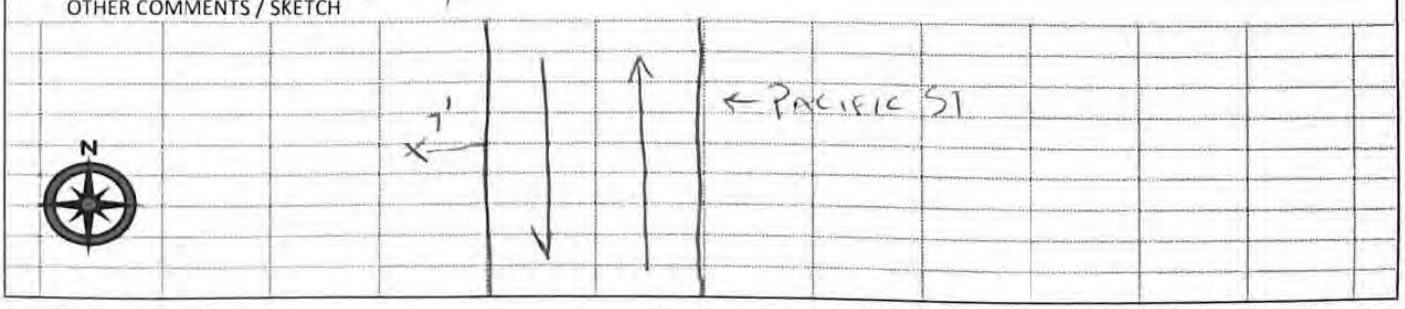
COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 30

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) (DISTD GARDENERS/LANDSCAPING NOISE)
OTHER:

DESCRIPTION / SKETCH

TERRAIN: (HARD) SOFT MIXED (FLAT) OTHER:
PHOTOS: JT7.1, 7.2, 7.3, 7.4
OTHER COMMENTS / SKETCH



Appendix 11-C (Existing)

Traffic Noise Model Calculations

Project: 13707 City of Santa Cruz Downtown Expansion

Noise Level Descriptor: Leq
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor: 0.1

	Segment Description and Location			Input										Output				
						Distance to Directional Centerline, (feet)$_4$		Traffic Distribution Characteristics										
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	Leq, (dBA)$_{5,6,7}$	Distance to Contour, (feet)$_3$ 70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
1	Laurel St	Cedar St	Center St	927	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.2	13	28	60	129
2	Laurel St	Cedar St	Pacific Ave	884	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.0	12	27	58	125
3	Laurel St	Pacific Ave	Front St	1,042	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.7	14	30	65	139
4	Pacific Ave	Front St	Spruce St	184	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	54.1	4	9	20	44
5	Pacific Ave	Front St	Pacific Ave	960	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.3	13	28	61	132
6	Pacific Ave	Pacific Ave	Second St	708	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	60.0	11	23	50	108
7	Third St	Leibrandt Ave	Cliff St	352	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	57.0	7	15	31	68
8	Center St	Laurel St	Pacific Ave	414	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	57.7	8	16	35	75
9	Front St	Pacific Ave	Laurel St	732	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	60.1	11	24	51	110
10	Pacific Ave	Laurel St	Spruce St	206	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	54.6	5	10	22	47
11	Front St	Spruce St	Laurel Ext	826	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	60.7	12	26	55	119
12	Front St	Spruce St	Laurel St	909	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.1	13	27	59	127
13	San Lorenzo Blvd	Laurel St	Riverside Ave	618	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	59.4	10	21	46	98

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Appendix 11-C (Existing + Project)

Traffic Noise Model Calculations

Project: 13707 City of Santa Cruz Downtown Expansion

Noise Level Descriptor: Leq
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor: 0.1

	Segment Description and Location			Input										Output				
						Distance to Directional Centerline, (feet)$_4$		Traffic Distribution Characteristics							Distance to Contour, (feet)$_3$			
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	Leq, (dBA)$_{5,6,7}$	70 dBA	65 dBA	60 dBA	55 dBA
#######																		
1	Laurel St	Cedar St	Center St	1,061	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.8	14	30	65	141
2	Laurel St	Cedar St	Pacific Ave	1,021	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.6	14	30	64	137
3	Laurel St	Pacific Ave	Front St	1,173	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	62.2	15	32	70	151
4	Pacific Ave	Front St	Spruce St	240	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	55.3	5	11	24	52
5	Pacific Ave	Front St	Pacific Ave	1,037	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.7	14	30	64	139
6	Pacific Ave	Pacific Ave	Second St	741	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	60.2	11	24	52	111
7	Third St	Leibrandt Ave	Cliff St	352	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	57.0	7	15	31	68
8	Center St	Laurel St	Pacific Ave	441	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	57.9	8	17	36	79
9	Front St	Pacific Ave	Laurel St	832	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	60.7	12	26	56	120
10	Pacific Ave	Laurel St	Spruce St	283	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	56.0	6	13	27	58
11	Front St	Spruce St	Laurel Ext	1,005	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.5	14	29	63	136
12	Front St	Spruce St	Laurel St	1,147	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	62.1	15	32	69	149
13	San Lorenzo Blvd	Laurel St	Riverside Ave	654	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	59.7	10	22	47	102

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Appendix 11-C (Cumulative)

Traffic Noise Model Calculations

Project: 13707 City of Santa Cruz Downtown Expansion

Noise Level Descriptor: Leq
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor: 0.1

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)$_4$		Traffic Distribution Characteristics										
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	Leq, (dBA)$_{5,6,7}$	Distance to Contour, (feet)$_3$ 70 dBA	65 dBA	60 dBA	55 dBA
#######																		
1	Laurel St	Cedar St	Center St	2,226	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	65.0	23	50	107	231
2	Laurel St	Cedar St	Pacific Ave	2,273	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	65.1	23	50	109	234
3	Laurel St	Pacific Ave	Front St	2,327	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	65.2	24	51	110	238
4	Pacific Ave	Front St	Spruce St	240	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	55.3	5	11	24	52
5	Pacific Ave	Front St	Pacific Ave	1,309	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	62.7	16	35	75	162
6	Pacific Ave	Pacific Ave	Second St	1,369	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	62.9	17	36	78	167
7	Third St	Leibrandt Ave	Cliff St	355	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	57.0	7	15	32	68
8	Center St	Laurel St	Pacific Ave	622	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	59.4	10	21	46	99
9	Front St	Pacific Ave	Laurel St	853	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	60.8	12	26	57	122
10	Pacific Ave	Laurel St	Spruce St	366	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	57.1	7	15	32	69
11	Front St	Spruce St	Laurel Ext	1,107	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.9	15	31	67	145
12	Front St	Spruce St	Laurel St	1,095	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.9	14	31	67	144
13	San Lorenzo Blvd	Laurel St	Riverside Ave	1,073	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.8	14	31	66	142

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Appendix 11-C (Cumulative + Project)

Traffic Noise Model Calculations

Project: 13707 City of Santa Cruz Downtown Expansion

Noise Level Descriptor: Leq
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor: 10

	Segment Description and Location			Input										Output				
						Distance to Directional Centerline, (feet)$_4$		Traffic Distribution Characteristics							Distance to Contour, (feet)$_3$			
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	Leq, (dBA)$_{5,6,7}$	70 dBA	65 dBA	60 dBA	55 dBA
Cumulative+project Conditions																		
1	Laurel St	Cedar St	Center St	2,360	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	65.2	24	52	112	240
2	Laurel St	Cedar St	Pacific Ave	2,410	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	65.3	24	52	113	244
3	Laurel St	Pacific Ave	Front St	2,458	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	65.4	25	53	115	247
4	Pacific Ave	Front St	Spruce St	296	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	56.2	6	13	28	60
5	Pacific Ave	Front St	Pacific Ave	1,386	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	62.9	17	36	78	169
6	Pacific Ave	Pacific Ave	Second St	1,402	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	63.0	17	37	79	170
7	Third St	Leibrandt Ave	Cliff St	355	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	57.0	7	15	32	68
8	Center St	Laurel St	Pacific Ave	649	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	59.6	10	22	47	102
9	Front St	Pacific Ave	Laurel St	953	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.3	13	28	61	131
10	Pacific Ave	Laurel St	Spruce St	443	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	58.0	8	17	37	79
11	Front St	Spruce St	Laurel Ext	1,286	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	62.6	16	35	74	160
12	Front St	Spruce St	Laurel St	1,333	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	62.7	16	35	76	164
13	San Lorenzo Blvd	Laurel St	Riverside Ave	1,109	25	50	50	97.0%	2.0%	1.0%	80.0%	5.0%	15.0%	61.9	15	31	67	145

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Appendix 11-C (Footnotes)

Traffic Noise Modeling Calculations - References

Citation	Reference
1	Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60.
2	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60.
3	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32.
4	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48.
5	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56.
6	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57.
7	Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53.
8	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45.
9	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45.
10	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45.
11	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49.
12	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49.
13	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67
14	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69
15	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69

Area Sources

Name	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Result. PWL'' Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value			
I Building			92	92	92	58.9	58.9	58.9	Lw	IRAC++ICAC++IRAHU++ICAHU	r	79	
J Building			91.6	91.6	91.6	57.8	57.8	57.8	Lw	JRAC++JCAC++JRAHU++JCAHU	r	79	
H Building			92.8	92.8	92.8	58.7	58.7	58.7	Lw	HRAC++HCAC++HRAHU++HCAHU	r	79	
G Building			77.8	77.8	77.8	53.6	53.6	53.6	Lw	GRAC++GRAHU++GCAHU	r	54	
F Building			88.4	88.4	88.4	56.1	56.1	56.1	Lw	FRAC++FCAC++FRAHU++FCAHU	r	54	
E Building			91.7	91.7	91.7	55.5	55.5	55.5	Lw	ERAC++ECAC++ERAHU++ECAHU	r	54	
A Building			95.3	95.3	95.3	59	59	59	Lw	ARAC++ACAC++ARAHU++ACAHU	r	79	
B Building			93.5	93.5	93.5	58.4	58.4	58.4	Lw	BRAC++BCAC++BRAHU++BCAHU	r	74	
D Building			97.2	97.2	97.2	58.4	58.4	58.4	Lw	DRAC++DCAC++DRAHU++DCAHU	r	74	
C2 Building			91.7	91.7	91.7	58	58	58	Lw	CRAC++CCAC++CRAHU++CCAHU	r	79	
C1 Building (Arena)			93.7	93.7	93.7	55.5	55.5	55.5	Lw	SER++AHU++AC++OAC	r	79	for Sporting event scenario (I)
C1 Building (Arena)			96	96	96	57.8	57.8	57.8	Lw	SR++AHU++AC++OAC	r	79	for Symphony event scenario (II)
C1 Building (Arena)			98.3	98.3	98.3	60.1	60.1	60.1	Lw	MCR++AHU++AC++OAC	r	79	for Popular Music event scenario (III)
C1 Building (Arena)			96.7	96.7	96.7	58.6	58.6	58.6	Lw	BR++AHU++AC++OAC	r	79	for Warriors Basketball scenario (IV)
C1 Building (Arena)			91.3	91.3	91.3	53.2	53.2	53.2	Lw	OER++AHU++AC++OAC	r	79	for Other event scenario (V)

Vert. Area Sources

Name	Sel.	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Result. PWL'' Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	
arena west facade			AWF	80.4	80.4	80.4	46.8	46.8	46.8	Lw	for Sporting event scenario (I)
arena south facade			ASF	80.4	80.4	80.4	48.7	48.7	48.7	Lw	for Sporting event scenario (I)
arena east facade			AEF	80.4	80.4	80.4	46.9	46.9	46.9	Lw	for Sporting event scenario (I)
arena north facade			ANF	80.4	80.4	80.4	48.6	48.6	48.6	Lw	for Sporting event scenario (I)
arena west facade			AWF	85.4	85.4	85.4	51.8	51.8	51.8	Lw	for Symphony event scenario (II)
arena south facade			ASF	85.4	85.4	85.4	53.7	53.7	53.7	Lw	for Symphony event scenario (II)
arena east facade			AEF	85.4	85.4	85.4	51.9	51.9	51.9	Lw	for Symphony event scenario (II)
arena north facade			ANF	85.4	85.4	85.4	53.6	53.6	53.6	Lw	for Symphony event scenario (II)
arena west facade			AWF	88.4	88.4	88.4	54.8	54.8	54.8	Lw	for Popular Music event scenario (III)
arena south facade			ASF	88.4	88.4	88.4	56.7	56.7	56.7	Lw	for Popular Music event scenario (III)
arena east facade			AEF	88.4	88.4	88.4	54.9	54.9	54.9	Lw	for Popular Music event scenario (III)
arena north facade			ANF	88.4	88.4	88.4	56.6	56.6	56.6	Lw	for Popular Music event scenario (III)
arena west facade			AWF	72.4	72.4	72.4	38.8	38.8	38.8	Lw	for Other event scenario (V)
arena south facade			ASF	72.4	72.4	72.4	40.7	40.7	40.7	Lw	for Other event scenario (V)
arena east facade			AEF	72.4	72.4	72.4	38.9	38.9	38.9	Lw	for Other event scenario (V)
arena north facade			ANF	72.4	72.4	72.4	40.6	40.6	40.6	Lw	for Other event scenario (V)
arena west facade			AWF	86.4	86.4	86.4	52.8	52.8	52.8	Lw	for Warriors Basketball scenario (IV)
arena south facade			ASF	85.4	85.4	85.4	53.7	53.7	53.7	Lw	for Warriors Basketball scenario (IV)
arena east facade			AEF	86.4	86.4	86.4	52.9	52.9	52.9	Lw	for Warriors Basketball scenario (IV)
arena north facade			ANF	85.4	85.4	85.4	53.6	53.6	53.6	Lw	for Warriors Basketball scenario (IV)

Sound Levels (local)

Name	ID	Type	1/3 Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Basketball Long Wall	BLW	Lw	A	50	62	72	80	83	80	73	63	49	86.4	95.4	LC-based calcs per project Scen 2
Basketball Short wall	BSW	Lw	A	49	61	71	79	82	79	72	62	48	85.4	94.4	LC-based calcs per project Scen 2
Basketball Roof	BR	Lw	A	60	72	81	89	92	89	82	73	59	95.4	104.8	LC-based calcs per project Scen 2
Music Concert Long Wall	MCLW	Lw	A	52	64	74	82	85	82	75	65	51	88.4	97.4	LC-based calcs per project Scen 2
Music Concert Short Wall	MCSW	Lw	A	52	64	74	82	85	82	75	65	51	88.4	97.4	LC-based calcs per project Scen 2
Music Concert Roof	MCR	Lw	A	62	74	83	91	94	91	84	75	61	97.4	106.8	LC-based calcs per project Scen 2
Santa Cruz Symphony Long Wall	SLW	Lw	A	49	61	71	79	82	79	72	62	48	85.4	94.4	LC-based calcs per project Scen 2
Santa Cruz Symphony Short Wall	SSW	Lw	A	49	61	71	79	82	79	72	62	48	85.4	94.4	LC-based calcs per project Scen 2
Santa Cruz Symphony	SR	Lw	A	59	71	80	88	91	88	81	72	58	94.4	103.8	LC-based calcs per project Scen 2
Sport Event Long Wall	SELW	Lw	A	44	56	66	74	77	74	67	57	43	80.4	89.4	LC-based calcs per project Scen 2
Sport Event Short Wall	SESW	Lw	A	44	56	66	74	77	74	67	57	43	80.4	89.4	LC-based calcs per project Scen 2
Sport Event Roof	SER	Lw	A	55	67	76	84	87	84	77	68	54	90.4	99.8	LC-based calcs per project Scen 2
Other Event Long Wall	OELW	Lw	A	36	48	58	66	69	66	59	49	35	72.4	81.4	LC-based calcs per project Scen 2
Other Event Short Wall	OESW	Lw	A	36	48	58	66	69	66	59	49	35	72.4	81.4	LC-based calcs per project Scen 2
Other Event Roof	OER	Lw	A	46	58	67	75	78	75	68	59	45	81.4	90.8	LC-based calcs per project Scen 2
Arena AHU	AHU	Lw	A	68	68	80	81	82	79	72	66	61	87	108	LC-based calcs per project Scen 2
Arena AC	AC	Lw		88	88	88	87	88	81	79	78	74	88.6	95.2	LC-based calcs per project Scen 2
Arena Office AC	OAC	Lw		66	66	66	64	64	62	58	56	50	66.7	72.9	LC-based calcs per project Scen 2
A Residential	ARAHU	Lw	A	71	71	83	84	85	82	75	69	64	90	111	LC-based calcs per project Scen 2
A Commercial AHU	ACAHU	Lw	A	56	56	68	69	70	67	60	54	49	75	96	LC-based calcs per project Scen 2
B Residential AHU	BRAHU	Lw	A	70	70	82	83	84	81	74	68	63	89	110	LC-based calcs per project Scen 2
B Commercial AHU	BCAHU	Lw	A	54	54	66	67	68	65	58	52	47	73	94	LC-based calcs per project Scen 2
C2 Commercial AHU	CCAHU	Lw	A	54	54	66	67	68	65	58	52	47	73	94	LC-based calcs per project Scen 2
C2 Residential AHU	CRAHU	Lw	A	68	68	80	81	82	79	72	66	61	87	108	LC-based calcs per project Scen 2
D Residential AHU	DRAHU	Lw	A	74	74	86	87	88	85	78	72	67	93	114	LC-based calcs per project Scen 2
D Commercial AHU	DCAHU	Lw	A	58	58	70	71	72	69	62	56	51	77	98	LC-based calcs per project Scen 2
E Residential AHU	ERAHU	Lw	A	68	68	80	81	82	79	72	66	61	87	108	LC-based calcs per project Scen 2
E Commercial AHU	ECAHU	Lw	A	55	55	67	68	69	66	59	53	48	74	95	LC-based calcs per project Scen 2
F Residential AHU	FRAHU	Lw	A	64	64	76	77	78	75	68	62	57	83	104	LC-based calcs per project Scen 2
F Commercial AHU	FCAHU	Lw	A	51	51	63	64	65	62	55	49	44	70	91	LC-based calcs per project Scen 2
G Residential AHU	GRAHU	Lw	A	56	56	68	69	70	67	60	54	49	75	96	LC-based calcs per project Scen 2
G Commercial AHU	GCAHU	Lw	A	43	43	55	56	57	54	47	41	36	62	83	LC-based calcs per project Scen 2
H Residential AHU	HRAHU	Lw	A	69	69	81	82	83	80	73	67	62	88	109	LC-based calcs per project Scen 2
H Commercial AHU	HCAHU	Lw	A	49	49	61	62	63	60	53	47	42	68	89	LC-based calcs per project Scen 2
I Residential AHU	IRAHU	Lw	A	67	67	79	80	81	78	71	65	60	86	107	LC-based calcs per project Scen 2
I Commercial AHU	ICAHU	Lw	A	48	48	60	61	62	59	52	46	41	67	88	LC-based calcs per project Scen 2
J Residential AHU	JRAHU	Lw	A	68	68	80	81	82	79	72	66	61	87	108	LC-based calcs per project Scen 2
J Commercial AHU	JCAHU	Lw	A	51	51	63	64	65	62	55	49	44	70	91	LC-based calcs per project Scen 2
A residential AC	ARAC	Lw		92	92	92	92	93	87	84	82	77	93.6	99.7	LC-based calcs per project Scen 2
A Commercial AC	ACAC	Lw		76	76	76	75	77	75	67	64	58	78.5	83.8	LC-based calcs per project Scen 2
B Residential AC	BRAC	Lw		91	91	90	90	89	86	83	80	74	91.3	97.8	LC-based calcs per project Scen 2
B Commercial AC	BCAC	Lw		74	74	74	74	76	74	65	62	56	77.4	82.3	LC-based calcs per project Scen 2
C2 Residential AC	CRAC	Lw		88	88	88	88	89	83	80	78	73	89.6	95.7	LC-based calcs per project Scen 2
C2 Commercial AC	CCAC	Lw		74	74	74	74	76	74	65	62	56	77.4	82.3	LC-based calcs per project Scen 2
D Residential AC	DRAC	Lw		97	97	91	94	92	88	87	85	78	94.6	102.3	LC-based calcs per project Scen 2
D Commercial AC	DCAC	Lw		84	84	84	83	84	77	75	74	70	84.6	91.2	LC-based calcs per project Scen 2
E Residential AC	ERAC	Lw		88	88	88	88	89	83	80	78	73	89.6	95.7	LC-based calcs per project Scen 2
E Commercial AC	ECAC	Lw		70	70	70	71	73	71	64	62	58	74.8	79	LC-based calcs per project Scen 2
F Residential AC	FRAC	Lw		85	85	85	85	86	80	77	75	70	86.6	92.7	LC-based calcs per project Scen 2
F Commercial AC	FCAC	Lw		71	71	71	71	73	71	62	59	53	74.4	79.3	LC-based calcs per project Scen 2
G Residential AC	GRAC	Lw		71	71	71	71	73	71	62	59	53	74.4	79.3	LC-based calcs per project Scen 2
H Residential AC	HRAC	Lw		91	91	88	90	89	84	84	80	74	91	97.5	LC-based calcs per project Scen 2
H Commercial AC	HCAC	Lw		64	64	64	65	67	65	58	56	52	68.8	73	LC-based calcs per project Scen 2
I Residential AC	IRAC	Lw		90	90	90	89	90	83	81	80	76	90.6	97.2	LC-based calcs per project Scen 2
I Commercial AC	ICAC	Lw		68	68	68	67	66	72	68	62	56	74.7	77.2	LC-based calcs per project Scen 2
J Residential AC	JRAC	Lw		88	88	88	88	89	83	80	78	73	89.6	95.7	LC-based calcs per project Scen 2
J Commercial AC	JCAC	Lw		70	70	70	68	68	73	69	63	58	75.8	78.6	LC-based calcs per project Scen 2

I - Sporting Event (non Warriors Basketball)

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates			
			Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)	
ST1			40.1	40.1	0	0	x		Total	5	r	1993.08	553.01		5
ST2			46.3	46.3	0	0	x		Total	5	r	2672.42	1047.05		5
ST3			43	43	0	0	x		Total	5	r	2711.08	1606.26		5
ST4			38.3	38.3	0	0	x		Total	5	r	2158.35	1625.72		5
ST5			35.6	35.6	0	0	x		Total	5	r	1247.86	148.7		5
ST6			39.4	39.4	0	0	x		Total	5	r	1509.14	913.53		5
ST7			43	43	0	0	x		Total	5	r	1847.82	1265.84		5

II - Symphony Event

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates			
			Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)	
ST1			40.5	40.5	0	0	x		Total	5	r	1993.08	553.01		5
ST2			46.5	46.5	0	0	x		Total	5	r	2672.42	1047.05		5
ST3			43	43	0	0	x		Total	5	r	2711.08	1606.26		5
ST4			39.6	39.6	0	0	x		Total	5	r	2158.35	1625.72		5
ST5			35.8	35.8	0	0	x		Total	5	r	1247.86	148.7		5
ST6			40.4	40.4	0	0	x		Total	5	r	1509.14	913.53		5
ST7			47.2	47.2	0	0	x		Total	5	r	1847.82	1265.84		5

III - Music Concert Event

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates			
			Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)	
ST1			41.1	41.1	0	0	x		Total	5	r	1993.08	553.01		5
ST2			46.7	46.7	0	0	x		Total	5	r	2672.42	1047.05		5
ST3			43.1	43.1	0	0	x		Total	5	r	2711.08	1606.26		5
ST4			41	41	0	0	x		Total	5	r	2158.35	1625.72		5
ST5			36.1	36.1	0	0	x		Total	5	r	1247.86	148.7		5
ST6			41.6	41.6	0	0	x		Total	5	r	1509.14	913.53		5
ST7			50	50	0	0	x		Total	5	r	1847.82	1265.84		5

IV - Warriors Basketball Event

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates			
			Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)	
ST1			40.7	40.7	0	0	x		Total	5	r	1993.08	553.01		5
ST2			46.5	46.5	0	0	x		Total	5	r	2672.42	1047.05		5
ST3			43	43	0	0	x		Total	5	r	2711.08	1606.26		5
ST4			40	40	0	0	x		Total	5	r	2158.35	1625.72		5
ST5			35.9	35.9	0	0	x		Total	5	r	1247.86	148.7		5
ST6			40.6	40.6	0	0	x		Total	5	r	1509.14	913.53		5
ST7			48.1	48.1	0	0	x		Total	5	r	1847.82	1265.84		5

V - Other Event

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates			
			Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)	
ST1			40	40	0	0	x		Total	5	r	1993.08	553.01		5
ST2			46.2	46.2	0	0	x		Total	5	r	2672.42	1047.05		5
ST3			42.9	42.9	0	0	x		Total	5	r	2711.08	1606.26		5
ST4			37.6	37.6	0	0	x		Total	5	r	2158.35	1625.72		5
ST5			35.5	35.5	0	0	x		Total	5	r	1247.86	148.7		5
ST6			38.9	38.9	0	0	x		Total	5	r	1509.14	913.53		5
ST7			38.4	38.4	0	0	x		Total	5	r	1847.82	1265.84		5

Area Sources

Name	M.	ID	Result. PWL Day (dBA)	Result. PWL Evening (dBA)	Result. PWL Night (dBA)	Result. PWL'' Day (dBA)	Result. PWL'' Evening (dBA)	Result. PWL'' Night (dBA)	Lw / Li Type	Value			
I Building			92	92	92	58.9	58.9	58.9	Lw	IRAC++ICAC++IRAHU++ICAHU	r	79	
J Building			91.6	91.6	91.6	57.8	57.8	57.8	Lw	JRAC++JCAC++JRAHU++JCAHU	r	79	
H Building			92.8	92.8	92.8	58.7	58.7	58.7	Lw	HRAC++HCAC++HRAHU++HCAHU	r	79	
G Building			77.8	77.8	77.8	53.6	53.6	53.6	Lw	GRAC++GRAHU++GCAHU	r	54	
F Building			88.4	88.4	88.4	56.1	56.1	56.1	Lw	FRAC++FCAC++FRAHU++FCAHU	r	54	
E Building			91.7	91.7	91.7	55.5	55.5	55.5	Lw	ERAC++ECAC++ERAHU++ECAHU	r	54	
A Building			95.3	95.3	95.3	59	59	59	Lw	ARAC++ACAC++ARAHU++ACAHU	r	79	
B Building			93.5	93.5	93.5	58.4	58.4	58.4	Lw	BRAC++BCAC++BRAHU++BCAHU	r	74	
C1 Building			97.2	97.2	97.2	59	59	59	Lw	DRAC++DCAC++DRAHU++DCAHU	r	79	
C2 Building			91.7	91.7	91.7	58	58	58	Lw	CRAC++CCAC++CRAHU++CCAHU	r	79	
D Building (Arena)			93.7	93.7	93.7	55.5	55.5	55.5	Lw	SER++AHU++AC++OAC	r	74	for Sporting event scenario (I)
D Building (Arena)			96	96	96	57.9	57.9	57.9	Lw	SR++AHU++AC++OAC	r	74	for Symphony event scenario (II)
D Building (Arena)			98.3	98.3	98.3	60.1	60.1	60.1	Lw	MCR++AHU++AC++OAC	r	74	for Popular Music event scenario (III)
D Building (Arena)			96.7	96.7	96.7	58.6	58.6	58.6	Lw	BR++AHU++AC++OAC	r	74	for Warriors Basketball scenario (IV)
D Building (Arena)			91.3	91.3	91.3	53.2	53.2	53.2	Lw	OER++AHU++AC++OAC	r	74	for Other event scenario (V)

Vert. Area Sources

Name	Sel.	M.	ID	Result. PWL Day (dBA)	Result. PWL Evening (dBA)	Result. PWL Night (dBA)	Result. PWL'' Day (dBA)	Result. PWL'' Evening (dBA)	Result. PWL'' Night (dBA)	Lw / Li Type	
arena west facade			AWF	80.4	80.4	80.4	48	48	48	Lw	for Sporting event scenario (I)
arena south facade			ASF	80.4	80.4	80.4	47.5	47.5	47.5	Lw	for Sporting event scenario (I)
arena east facade			AEF	80.4	80.4	80.4	48.8	48.8	48.8	Lw	for Sporting event scenario (I)
arena north facade			ANF	80.4	80.4	80.4	47.8	47.8	47.8	Lw	for Sporting event scenario (I)
arena west facade			AWF	85.4	85.4	85.4	53	53	53	Lw	for Symphony event scenario (II)
arena south facade			ASF	85.4	85.4	85.4	52.5	52.5	52.5	Lw	for Symphony event scenario (II)
arena east facade			AEF	85.4	85.4	85.4	53.8	53.8	53.8	Lw	for Symphony event scenario (II)
arena north facade			ANF	85.4	85.4	85.4	52.8	52.8	52.8	Lw	for Symphony event scenario (II)
arena west facade			AWF	88.4	88.4	88.4	56	56	56	Lw	for Popular Music event scenario (III)
arena south facade			ASF	88.4	88.4	88.4	55.5	55.5	55.5	Lw	for Popular Music event scenario (III)
arena east facade			AEF	88.4	88.4	88.4	56.8	56.8	56.8	Lw	for Popular Music event scenario (III)
arena north facade			ANF	88.4	88.4	88.4	55.8	55.8	55.8	Lw	for Popular Music event scenario (III)
arena west facade			AWF	86.4	86.4	86.4	54	54	54	Lw	for Warriors Basketball scenario (IV)
arena south facade			ASF	85.4	85.4	85.4	52.5	52.5	52.5	Lw	for Warriors Basketball scenario (IV)
arena east facade			AEF	86.4	86.4	86.4	54.8	54.8	54.8	Lw	for Warriors Basketball scenario (IV)
arena north facade			ANF	85.4	85.4	85.4	52.8	52.8	52.8	Lw	for Warriors Basketball scenario (IV)
arena west facade			AWF	72.4	72.4	72.4	40	40	40	Lw	for Other event scenario (V)
arena south facade			ASF	72.4	72.4	72.4	39.5	39.5	39.5	Lw	for Other event scenario (V)
arena east facade			AEF	72.4	72.4	72.4	40.8	40.8	40.8	Lw	for Other event scenario (V)
arena north facade			ANF	72.4	72.4	72.4	39.8	39.8	39.8	Lw	for Other event scenario (V)

Sound Levels (local)

Name	ID	Type	1/3 Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A lin	
Basketball Long Wall	BLW	Lw	A	50	62	72	80	83	80	73	63	49	86.4 95.4	LC-based calcs per project Scen 2
Basketball Short wall	BSW	Lw	A	49	61	71	79	82	79	72	62	48	85.4 94.4	LC-based calcs per project Scen 2
Basketball Roof	BR	Lw	A	60	72	81	89	92	89	82	73	59	95.4 104.8	LC-based calcs per project Scen 2
Music Concert Long Wall	MCLW	Lw	A	52	64	74	82	85	82	75	65	51	88.4 97.4	LC-based calcs per project Scen 2
Music Concert Short Wall	MCSW	Lw	A	52	64	74	82	85	82	75	65	51	88.4 97.4	LC-based calcs per project Scen 2
Music Concert Roof	MCR	Lw	A	62	74	83	91	94	91	84	75	61	97.4 106.8	LC-based calcs per project Scen 2
Santa Cruz Symphony Long Wall	SLW	Lw	A	49	61	71	79	82	79	72	62	48	85.4 94.4	LC-based calcs per project Scen 2
Santa Cruz Symphony Short Wall	SSW	Lw	A	49	61	71	79	82	79	72	62	48	85.4 94.4	LC-based calcs per project Scen 2
Santa Cruz Symphony	SR	Lw	A	59	71	80	88	91	88	81	72	58	94.4 103.8	LC-based calcs per project Scen 2
Sport Event Long Wall	SELW	Lw	A	44	56	66	74	77	74	67	57	43	80.4 89.4	LC-based calcs per project Scen 2
Sport Event Short Wall	SESW	Lw	A	44	56	66	74	77	74	67	57	43	80.4 89.4	LC-based calcs per project Scen 2
Sport Event Roof	SER	Lw	A	55	67	76	84	87	84	77	68	54	90.4 99.8	LC-based calcs per project Scen 2
Other Event Long Wall	OELW	Lw	A	36	48	58	66	69	66	59	49	35	72.4 81.4	LC-based calcs per project Scen 2
Other Event Short Wall	OESW	Lw	A	36	48	58	66	69	66	59	49	35	72.4 81.4	LC-based calcs per project Scen 2
Other Event Roof	OER	Lw	A	46	58	67	75	78	75	68	59	45	81.4 90.8	LC-based calcs per project Scen 2
Arena AHU	AHU	Lw	A	68	68	80	81	82	79	72	66	61	87 108	LC-based calcs per project Scen 2
Arena AC	AC	Lw		88	88	88	87	88	81	79	78	74	88.6 95.2	LC-based calcs per project Scen 2
Arena Office AC	OAC	Lw		66	66	66	64	64	62	58	56	50	66.7 72.9	LC-based calcs per project Scen 2
A Residential	ARAHU	Lw	A	71	71	83	84	85	82	75	69	64	90 111	LC-based calcs per project Scen 2
A Commercial AHU	ACAHU	Lw	A	56	56	68	69	70	67	60	54	49	75 96	LC-based calcs per project Scen 2
B Residential AHU	BRAHU	Lw	A	70	70	82	83	84	81	74	68	63	89 110	LC-based calcs per project Scen 2
B Commercial AHU	BCAHU	Lw	A	54	54	66	67	68	65	58	52	47	73 94	LC-based calcs per project Scen 2
C2 Commercial AHU	CCAHU	Lw	A	54	54	66	67	68	65	58	52	47	73 94	LC-based calcs per project Scen 2
C2 Residential AHU	CRAHU	Lw	A	68	68	80	81	82	79	72	66	61	87 108	LC-based calcs per project Scen 2
D Residential AHU	DRAHU	Lw	A	74	74	86	87	88	85	78	72	67	93 114	LC-based calcs per project Scen 2
D Commercial AHU	DCAHU	Lw	A	58	58	70	71	72	69	62	56	51	77 98	LC-based calcs per project Scen 2
E Residential AHU	ERAHU	Lw	A	68	68	80	81	82	79	72	66	61	87 108	LC-based calcs per project Scen 2
E Commercial AHU	ECAHU	Lw	A	55	55	67	68	69	66	59	53	48	74 95	LC-based calcs per project Scen 2
F Residential AHU	FRAHU	Lw	A	64	64	76	77	78	75	68	62	57	83 104	LC-based calcs per project Scen 2
F Commercial AHU	FCAHU	Lw	A	51	51	63	64	65	62	55	49	44	70 91	LC-based calcs per project Scen 2
G Residential AHU	GRAHU	Lw	A	56	56	68	69	70	67	60	54	49	75 96	LC-based calcs per project Scen 2
G Commercial AHU	GCAHU	Lw	A	43	43	55	56	57	54	47	41	36	62 83	LC-based calcs per project Scen 2
H Residential AHU	HRAHU	Lw	A	69	69	81	82	83	80	73	67	62	88 109	LC-based calcs per project Scen 2
H Commercial AHU	HCAHU	Lw	A	49	49	61	62	63	60	53	47	42	68 89	LC-based calcs per project Scen 2
I Residential AHU	IRAHU	Lw	A	67	67	79	80	81	78	71	65	60	86 107	LC-based calcs per project Scen 2
I Commercial AHU	ICAHU	Lw	A	48	48	60	61	62	59	52	46	41	67 88	LC-based calcs per project Scen 2
J Residential AHU	JRAHU	Lw	A	68	68	80	81	82	79	72	66	61	87 108	LC-based calcs per project Scen 2
J Commercial AHU	JCAHU	Lw	A	51	51	63	64	65	62	55	49	44	70 91	LC-based calcs per project Scen 2
A residential AC	ARAC	Lw		92	92	92	92	93	87	84	82	77	93.6 99.7	LC-based calcs per project Scen 2
A Commercial AC	ACAC	Lw		76	76	76	75	77	75	67	64	58	78.5 83.8	LC-based calcs per project Scen 2
B Residential AC	BRAC	Lw		91	91	90	90	89	86	83	80	74	91.3 97.8	LC-based calcs per project Scen 2
B Commercial AC	BCAC	Lw		74	74	74	74	76	74	65	62	56	77.4 82.3	LC-based calcs per project Scen 2
C2 Residential AC	CRAC	Lw		88	88	88	88	89	83	80	78	73	89.6 95.7	LC-based calcs per project Scen 2
C2 Commercial AC	CCAC	Lw		74	74	74	74	76	74	65	62	56	77.4 82.3	LC-based calcs per project Scen 2
D Residential AC	DRAC	Lw		97	97	91	94	92	88	87	85	78	94.6 102.3	LC-based calcs per project Scen 2
D Commercial AC	DCAC	Lw		84	84	84	83	84	77	75	74	70	84.6 91.2	LC-based calcs per project Scen 2
E Residential AC	ERAC	Lw		88	88	88	88	89	83	80	78	73	89.6 95.7	LC-based calcs per project Scen 2
E Commercial AC	ECAC	Lw		70	70	70	71	73	71	64	62	58	74.8 79	LC-based calcs per project Scen 2
F Residential AC	FRAC	Lw		85	85	85	85	86	80	77	75	70	86.6 92.7	LC-based calcs per project Scen 2
F Commercial AC	FCAC	Lw		71	71	71	71	73	71	62	59	53	74.4 79.3	LC-based calcs per project Scen 2
G Residential AC	GRAC	Lw		71	71	71	71	73	71	62	59	53	74.4 79.3	LC-based calcs per project Scen 2
H Residential AC	HRAC	Lw		91	91	88	90	89	84	84	80	74	91 97.5	LC-based calcs per project Scen 2
H Commercial AC	HCAC	Lw		64	64	64	65	67	65	58	56	52	68.8 73	LC-based calcs per project Scen 2
I Residential AC	IRAC	Lw		90	90	90	89	90	83	81	80	76	90.6 97.2	LC-based calcs per project Scen 2
I Commercial AC	ICAC	Lw		68	68	68	67	66	72	68	62	56	74.7 77.2	LC-based calcs per project Scen 2
J Residential AC	JRAC	Lw		88	88	88	88	89	83	80	78	73	89.6 95.7	LC-based calcs per project Scen 2
J Commercial AC	JCAC	Lw		70	70	70	68	68	73	69	63	58	75.8 78.6	LC-based calcs per project Scen 2

I - Sporting Event (non Warriors Basketball)

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
ST1				37.9	37.9	0	0		x	Total	5	r	1993.08	553.01	5
ST2				39.7	39.7	0	0		x	Total	5	r	2672.42	1047.05	5
ST3				37.7	37.7	0	0		x	Total	5	r	2711.08	1606.26	5
ST4				38.1	38.1	0	0		x	Total	5	r	2158.35	1625.72	5
ST5				35.8	35.8	0	0		x	Total	5	r	1247.86	148.7	5
ST6				39.5	39.5	0	0		x	Total	5	r	1509.14	913.53	5
ST7				38.4	38.4	0	0		x	Total	5	r	1847.82	1265.84	5

II - Symphony Event

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
ST1				38.8	38.8	0	0		x	Total	5	r	1993.08	553.01	5
ST2				43.4	43.4	0	0		x	Total	5	r	2672.42	1047.05	5
ST3				40.3	40.3	0	0		x	Total	5	r	2711.08	1606.26	5
ST4				39.5	39.5	0	0		x	Total	5	r	2158.35	1625.72	5
ST5				35.8	35.8	0	0		x	Total	5	r	1247.86	148.7	5
ST6				39.5	39.5	0	0		x	Total	5	r	1509.14	913.53	5
ST7				38.4	38.4	0	0		x	Total	5	r	1847.82	1265.84	5

III - Music Concert Event

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
ST1				39.9	39.9	0	0		x	Total	5	r	1993.08	553.01	5
ST2				46	46	0	0		x	Total	5	r	2672.42	1047.05	5
ST3				42.5	42.5	0	0		x	Total	5	r	2711.08	1606.26	5
ST4				40.9	40.9	0	0		x	Total	5	r	2158.35	1625.72	5
ST5				35.8	35.8	0	0		x	Total	5	r	1247.86	148.7	5
ST6				39.6	39.6	0	0		x	Total	5	r	1509.14	913.53	5
ST7				38.5	38.5	0	0		x	Total	5	r	1847.82	1265.84	5

IV - Warriors Basketball Event

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
ST1				39	39	0	0		x	Total	5	r	1993.08	553.01	5
ST2				43.9	43.9	0	0		x	Total	5	r	2672.42	1047.05	5
ST3				40.8	40.8	0	0		x	Total	5	r	2711.08	1606.26	5
ST4				39.9	39.9	0	0		x	Total	5	r	2158.35	1625.72	5
ST5				35.8	35.8	0	0		x	Total	5	r	1247.86	148.7	5
ST6				39.5	39.5	0	0		x	Total	5	r	1509.14	913.53	5
ST7				38.4	38.4	0	0		x	Total	5	r	1847.82	1265.84	5

V - Other Event

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
ST1				37.4	37.4	0	0		x	Total	5	r	1993.08	553.01	5
ST2				36.3	36.3	0	0		x	Total	5	r	2672.42	1047.05	5
ST3				35.9	35.9	0	0		x	Total	5	r	2711.08	1606.26	5
ST4				37.4	37.4	0	0		x	Total	5	r	2158.35	1625.72	5
ST5				35.8	35.8	0	0		x	Total	5	r	1247.86	148.7	5
ST6				39.5	39.5	0	0		x	Total	5	r	1509.14	913.53	5
ST7				38.3	38.3	0	0		x	Total	5	r	1847.82	1265.84	5

Appendix E

Water Supply Evaluation

Water Supply Evaluation for the Downtown Plan Expansion Project

Santa Cruz Water Department

Heidi Luckenbach, Water Director

Prepared by
Sarah Easley Perez, Principal Planner

October 2024

Water Supply Evaluation for the Downtown Plan Expansion Project

Santa Cruz Water Department

Table of Contents

1 Background 1
2 Santa Cruz Downtown Plan Expansion Project Summary 1
3 SB 610 Applicability 2
4 Santa Cruz Water Department 2
5 Urban Water Management Plan Applicability 3
6 Water Supply 4
6.1 Surface Water 5
6.2 Groundwater 11
6.3 Transfers and Exchanges 14
6.4 Water Supply Augmentation 15
7 Water Demand 23
7.1 Customer Classification System 23
7.2 Historic and Current Water Use 24
7.3 Water Demand Projections 24
8 Supply and Demand Evaluation 27
8.1 Methodology 27
8.2 Evaluation Findings 28
8.3 Climate Change Conditions 31
9 Conclusion 34
10 References 35

Table of Figures

Figure 6-1: City of Santa Cruz Water Supply System 4
Figure 6-2: 10-year Summary of Annual Production by Source 11
Figure 6-3: Santa Cruz Mid-County Groundwater Basin 12
Figure 7-1: Historic Trends in Water Production 24
Figure 8-1: Projected Supply Availability by Percent through 2045 30
Figure 8-2: Climate Change Scenario Projected Supply Availability by Percent 33

Table of Tables

Table 6-1: Pre-1914 Water Rights Summary 7
Table 6-2: Post-1914 Water Rights Summary 8
Table 6-3: Summary of Proposed Water Rights Modifications in the Santa Cruz Water Rights Project 10
Table 6-4: Groundwater Volume Pumped 14
Table 7-1: Projected Water Use Through 2045 27
Table 8-1: Projected Supply and Demand Comparison through 2045 29
Table 8-2: Climate Change Scenario Projected Supply and Demand Comparison 32

Appendices

- Appendix A: 2024 Update to the City of Santa Cruz Long-Range Demand Forecast
- Appendix B: Securing Our Water Future
- Appendix C: Santa Cruz Mid-County Groundwater Sustainability Plan Summary
- Appendix D: Water Supply Augmentation Implementation Plan Timeline
- Appendix E: Santa Cruz Water Rights Project Community Guide
- Appendix F: CIP Fact Sheets
- Appendix G: Water Code Section 10910 et seq.

Acronyms and Abbreviations

ADU	Accessory dwelling unit
AFY	Acre-feet per year
ASHCP	Anadromous Salmonid Habitat Conservation Plan
ASR	Aquifer Storage and Recovery
Basin	Santa Cruz Mid-County Groundwater Basin
BUS	Business
CFS	Cubic feet per second
City	City of Santa Cruz
DWR	Department of Water Resources
EIR	Environmental Impact Report
FIP	Facility Improvements Project
GPM	Gallons per minute
GSP	Groundwater Sustainability Plan
HVAC	Heating, ventilation, and air conditioning
LCP	Local Coastal Program
MG	Million gallons
MGA	Santa Cruz Mid-County Groundwater Agency
MGD	Million Gallons Per Day
MGY	Million gallons per year
NCP	Newell Creek Pipeline
PMA	Projects and management actions
POU	Place of Use
Proposed Project	Downtown Plan Expansion Project
SCADA	Supervisory Control and Data Acquisition
sf	Square feet
SGMA	Sustainable Groundwater Management Act
SOWF	Securing Our Water Future
SWRCB	California State Water Resources Control Board
Update Demand Forecast	2024 Update to the City of Santa Cruz Long-Range Demand Forecast
UWMP	Urban Water Management Plan
U.S.	United States
Water Department	Santa Cruz Water Department
WSAC	Water Supply Advisory Committee
WSAIP	Water Supply Augmentation Implementation Plan
WSAS	Water Supply Augmentation Strategy

1 Background

In late 2022, the City of Santa Cruz (City) Planning and Community Development Department reached out to the City Water Department (Water Department) for an assessment of water supply availability for the proposed Downtown Plan Expansion Project (Proposed Project). This Water Supply Evaluation was prepared by the Water Department by Sarah Easley Perez, Principal Planner, in response to that request. Additionally, it is noted that this Water Supply Evaluation is inclusive of the development proposed for the proposed 908 Ocean Street Project, as described in the March 2024 Notice of Preparation and Initial Study, and other foreseeable development in area served by the Water Department as of September 2024.

2 Santa Cruz Downtown Plan Expansion Project Summary

The proposed Santa Cruz Downtown Plan Expansion Project consists of a series of amendments to the City's Downtown Plan. The amendments would extend the boundary of the existing Downtown Plan to incorporate the Proposed Project study area, incorporate development standards and design guidelines for the study area, and amend other policies and standards in the Downtown Plan (previously amended January 28, 2020) that will facilitate future redevelopment of the Proposed Project area. The Proposed Project also includes amendments to the City's General Plan 2030, the Local Coastal Program (LCP), the Beach and South of Laurel Comprehensive Area Plan, the San Lorenzo Urban River Plan, and the Municipal Code to provide updates consistent with the proposed Downtown Plan amendments. The proposed Downtown Plan amendments could facilitate additional development because of various circulation, land use, and infrastructure revisions (Santa Cruz, 2022).

As described in the Proposed Project's Notice of Preparation of a Subsequent Environmental Impact Report (EIR), for purposes of environmental review, the project area could potentially accommodate:

- A minimum of 1,800 housing units and 60,000 square feet (sf) of gross commercial area.
- Construction of a new approximately 180,000 sf permanent sports and entertainment arena for the Santa Cruz Warriors basketball team. The arena would contain a main event court with spectator seating for approximately 3,200 seats for basketball, and approximately 4,000 seats for concerts, performances, etc. Additional facilities would include a practice facility consisting of an additional court and training spaces, and supporting concession, retail, and administrative uses.
- The amendments could result in increased building heights with maximum heights not to exceed one taller building of 175 feet and three buildings not to exceed 150 feet, with each height being inclusive of anticipated height increases associated with a 50 percent density bonus and with the taller building elements comprising only a portion of shorter podium building forms.
- Pedestrian and vehicular circulation improvements including: 1) The permanent closure of Spruce Street east of Pacific Avenue to create a new civic space that extends to and includes the San Lorenzo riverfront but does not limit access to critical utilities under Spruce Street; 2) Access or relocation of a storm drain pump station at the north end of Laurel Street Extension; 3) A new service alley west of Pacific Avenue; 4) Reconfiguration of Pacific Avenue to support "flex use" parking and commercial uses within the public right-of-way; 5) Realignment of the Laurel Street Extension and adjacent City roadway and parking lot fronting the San Lorenzo levee; 6) Creation of a new civic spaces along the San Lorenzo River, Spruce Street, Front Street, and Pacific Avenue; and 7) Other miscellaneous streetscape improvements that facilitate vehicular, bike, and pedestrian mobility.
- Enhanced pedestrian connections between the Downtown and Main Beach by way of improvements to the Cliff Street overlook and stairs, and the Cliff Street right-of-way to create a new multi-modal corridor.

- Options for the location of a permanent arena facility for the Santa Cruz Warriors, with a preferred location being on the south side of Spruce Street between Pacific Avenue and Front Street.

3 SB 610 Applicability

Through the Proposed Project, the City is updating its Downtown Plan, General Plan 2030, LCP, Beach and South of Laurel Comprehensive Area Plan, San Lorenzo Urban River Plan, and the Municipal Code. As part of this process, the City's Planning and Community Development Department requested a study to determine the adequacy of water supply resources to serve the land uses associated with the Proposed Project.

To initiate the evaluation of the adequacy of water supplies, the Planning and Community Development Department requested the Water Department to prepare an assessment of the extent to which existing and anticipated future water supplies will suffice to serve levels of growth contemplated under the Proposed Project. As a municipal water supplier, the Water Department responded to the notification of the need for a determination of water supply sufficiency with this Water Supply Evaluation.

This response is intended to provide the kind of information required of a formal 'water supply assessment' required by Water Code section 10910 et seq. (commonly known as SB 610), even though the Water Department does not believe that SB 610 actually applies to the Proposed Project. Rather, SB 610 applies to categories of 'projects' subsidiary to the range of plan and general plan updates included in the Proposed Project. The limited application of these Water Code requirements was very clear in the predecessor to SB 610, known as SB 901 (see former Water Code sections 10910, subdivision (a) and 10913). When SB 901 was in effect (1996 through 2001), it was clearly intended to complement the requirements of Government Code sections 65352, subdivision (b)(7), and 65352.5, which remain in effect and require cities and counties, in updating their general plans, to consult with 'public water agencies' and to receive from them detailed information regarding water supply availability.

Even though the Water Department believes that SB 610 was not intended to change the approach that was in effect during the lifetime of SB 901, the Water Department, in the spirit of cooperation, has nevertheless undertaken preparation of this document with the intent of having it function as a de facto water supply assessment, despite the general nature of the Proposed Project at issue and the inevitably of the somewhat general nature of discussion included herein. It is important to acknowledge that this document is not a substitute for the formal consultation required by Government Code sections 65352 and 65352.5.

4 Santa Cruz Water Department

The Water Department is a municipal utility that is owned and operated by the City of Santa Cruz. It is led by a Water Director who is appointed by the City Manager. The governing body for the Water Department is the seven-member City Council. A seven-member Water Commission advises the Council on policy matters involving the operations and management of the water system. The Commission is composed of six members who reside within the City limits and one member who resides in the unincorporated portion of the water service area.

The Water Department's major water infrastructure facilities include three water treatment plants, including the Graham Hill Water Treatment Plant and two groundwater treatment plants related to the Beltz well system; four raw water pump stations; ten treated water pump stations; 15 distribution tanks with a total maximum capacity

of 21.2 million gallons (MG) of treated water storage; seven surface water diversions; seven production wells;[1] and approximately 300 miles of treated and raw water pipelines interconnecting the entire system.

The Water Department operates financially as an enterprise in which all the costs of running the system are paid by water rates, service charges, and related revenues. The Water Fund receives no tax or general fund revenues. In addition to providing water service, the Water Department has responsibility for billing and customer service functions related to water, sewer, refuse, and recycling services inside the City limits.

Long-range goals and policies for guiding growth and development in the City, including civic and community facilities like the water system, are contained in the City's 2030 General Plan as amended. The General Plan includes a series of policy statements regarding water service that support and promote the General Plan's overarching goal of achieving a safe, reliable, and adequate water supply. Because these policies have not been updated since the development of the City's Water Supply Augmentation Strategy (described below), some of these policies require updating to reflect the City's current direction for water supply planning. Furthermore, the Proposed Project includes amendments to the City's General Plan 2030, the LCP, the Beach and South of Laurel Comprehensive Area Plan, the San Lorenzo Urban River Plan, and the Municipal Code to provide updates consistent with the proposed Downtown Plan amendments. The proposed Downtown Plan amendments could facilitate additional development because of various circulation, land use, and infrastructure revisions.

5 Urban Water Management Plan Applicability

Water Code Section 10910(c)(1) requires a determination of whether or not the Proposed Project was included in the most recently adopted Urban Water Management Plan (UWMP). The City's most recent UWMP is the 2020 UWMP adopted in November 2021. Because the Santa Cruz Downtown Plan Expansion Project was not initiated when the long-term demand forecast for the 2020 UWMP was developed, the Proposed Project and associated amendments to the City's General Plan 2030, the LCP, and other local plans were not considered or included in the 2020 UWMP.

The water supply and reliability analysis provided in the 2020 UWMP characterizes the City's water service reliability through assessments of forecasted demand relative to forecasted supply. Specifically, forecasted demand was based upon the long-term demand forecast prepared for the City by M.Cubed for use in the 2020 UWMP. The City then utilized the Confluence® model to analyze the variability of water supplies to determine potential water supply shortages under the projected demand forecast. The Confluence® model takes into account the variation in demand both within and between years, the availability of water from various sources, and the capacity of infrastructure to pump and treat the water. The City has utilized the Confluence® model to generate the results for UWMPs since 2010. (Santa Cruz, 2021a)

To support this Water Supply Evaluation, M.Cubed prepared the 2024 Update to the City of Santa Cruz Long-Range Demand Forecast (Update Demand Forecast), included as Appendix A, that includes projected demand from the Proposed Project in addition to other updates based on anticipated development throughout the water system service area. The Update Demand Forecast includes a comparison of the 2020 UWMP demand forecast results to the updated results which shows that by 2045, the City now anticipates approximately 8.6 percent additional water demand by 2045 as compared to the water demand projected in the 2020 UWMP.

1 The City operates four groundwater production wells within the Beltz well system and three production wells at the Tait Diversion wells that are assumed to be hydraulically connected to surface water and considered to be tied to the City's appropriative rights for surface diversion.

The increase in demand relative to the UWMP is due to higher projected levels of housing development, particularly with respect to multi-family and accessory dwelling unit (ADU) development (M.Cubed, 2024).

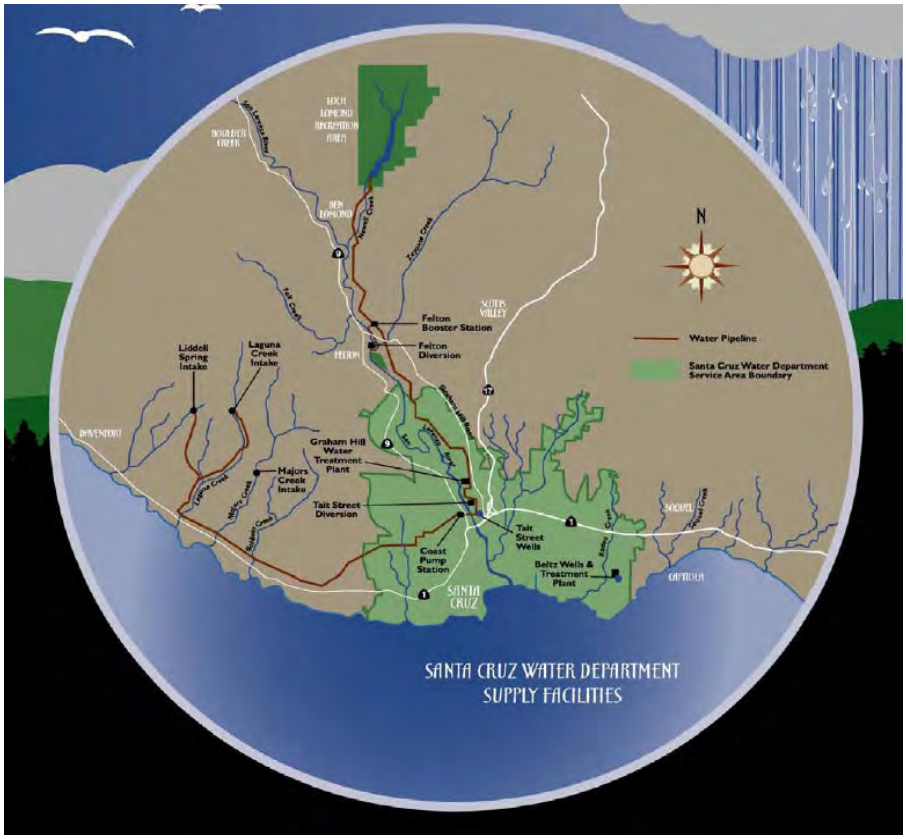
6 Water Supply

This section describes the City's water supply system, discusses plans to enhance the City's existing supply portfolio, and presents current and projected supply source production volumes.

The City does not now, nor does it plan to, import water, either from outside the Central Coast Hydrologic Region, or outside the Santa Cruz County boundaries. All the City's water supplies are obtained from local sources. The system relies entirely on rainfall, surface runoff, and groundwater infiltration occurring within watersheds located in Santa Cruz County. No water is purchased from state or federal sources or imported to the region from outside the Santa Cruz area.

The Santa Cruz water system relies predominantly on local surface water supplies, which include the North Coast sources (Liddell Spring and Laguna, Majors, and Reggiardo Creeks), the San Lorenzo River (Felton Diversion, Tait Diversion, and Tait Wells), and Loch Lomond Reservoir. Together, these surface water sources represent approximately 95 percent of the City's total annual water production. The balance of the City's supply comes from groundwater, all of which is extracted from the Beltz Well system in the Santa Cruz Mid-County Groundwater Basin. These main production elements of the City's water supply system are illustrated below in Figure 6-1.

Figure 6-1: City of Santa Cruz Water Supply System



A small portion of recycled water, about 35 MG per year, is provided by the City of Scotts Valley to the Pasatiempo Golf Course within the water service area. The City of Santa Cruz continues to supply the remainder of the Pasatiempo golf course water demand as needed for potable water uses and as supplemental water for irrigation.

While water supply is considered adequate in normal and single dry years, the water supply reliability and drought risk assessments included in the 2020 UWMP demonstrate a potential lack of adequate supplies during near-term multiple consecutive dry years. To address this supply vulnerability, the City is implementing its Water Supply Augmentation Strategy (WSAS) developed and recommended by the Water Supply Advisory Committee (WSAC). In addition to ongoing water conservation, the WSAS includes the development of aquifer storage and recovery (ASR) facilities, transfers and/or exchanges with neighboring water districts, and increased use of recycled water with desalination as a backup, as described below.

In 2022, the City developed and adopted its Securing Our Water Future Policy Guidance for Water Supply Augmentation to Address Santa Cruz's Water Supply Reliability Issue (SOWF), included as Appendix B. Building on the WSAS, the SOWF includes a reliability goal to achieve adequate supply to meet all customer demand under plausible worst-case conditions, guiding principles, and evaluation criteria important to the selection of the City's water supply augmentation projects. The policy direction also includes a provision that the volume of water needed to meet the reliability goal be reviewed and potentially revised at least every five years based on ongoing research and monitoring of the impacts of climate change on local water conditions. To further this work, the City is now in the process of developing a Water Supply Augmentation Implementation Plan (WSAIP), expected to be completed in early 2025, to provide a definitive roadmap for future water supply projects as described further below.

6.1 Surface Water

The surface water system supplies are located both within and outside of the City with a mix of flowing sources and a storage reservoir. Figure 6-1 illustrates the various surface water sources and the conveyance systems that comprise the supply facilities of the City. Each of the surface water sources are briefly described in the following sections.

6.1.1 Surface Water Sources

North Coast Creeks and Spring

The North Coast sources consist of surface diversions from three coastal streams and a natural spring located approximately six to eight miles northwest of downtown Santa Cruz. These sources are Liddell Spring, Laguna Creek, Reggiardo Creek, and Majors Creek. The use of these sources by the City dates back as far as 1890.

San Lorenzo River

The San Lorenzo River is the City's largest source of water supply. The main surface water diversion is the Tait Diversion near the City limits just north of Highway 1. Use of this source dates back to the 1870s and was consolidated under public ownership in 1917. The Tait Diversion is supplemented by shallow, auxiliary wells located directly across the river referred to as the Tait Wells. These wells are assumed to be hydraulically connected to the river and considered to be tied to the City's appropriative rights for surface diversion. The drainage area above the Tait Diversion is 115 square miles.

The other diversion on the San Lorenzo River is Felton Diversion, which is an inflatable dam and intake structure built in 1974 that is located about six miles upstream from the Tait Diversion. Water is pumped from this diversion through the Felton Booster Station to Loch Lomond Reservoir for storage in the reservoir.

While the City is the largest user of water from the San Lorenzo River basin, two other water districts, several private water companies, and numerous individual property owners share the San Lorenzo River watershed as their primary source for drinking water supply.

Newell Creek and Loch Lomond Reservoir

Loch Lomond Reservoir, which impounds Newell Creek, is located near the town of Ben Lomond in the Santa Cruz Mountains. The reservoir was constructed in 1960 and has a maximum capacity of 2,810 MG. In addition to providing surface water storage, the reservoir and surrounding watershed are used for public recreation purposes, including fishing, boating, hiking, and picnicking (swimming and wading are prohibited). The Newell Creek watershed above the reservoir is about nine square miles. In addition to the City, the San Lorenzo Valley Water District is entitled by contract to receive a portion of the water stored in Loch Lomond.

6.1.2 Surface Water Supplies and Water Rights

The City of Santa Cruz follows a variety of policies, procedures, and legal restrictions in operating the water supply system. In general, the system is managed to use available flowing sources to meet daily demands as much as possible. Groundwater and stored water from Loch Lomond are used mainly during the summer and fall months when flows in the coast and river sources decline and additional supply is needed to meet higher daily water demands. Water from Loch Lomond is also used during winter storms and high stream and river flows when water from surface water sources is too turbid to treat at the Graham Hill Water Treatment Plant.

The amount of water produced from each of the City surface water sources is controlled by different water rights. There are generally two types of surface water appropriative water rights[2] recognized in California: pre-1914 and post-1914. The City currently holds both pre-1914 and post-1914 water rights. A summary of these existing water rights is presented below.

The City's pre-1914 water rights authorize diversions from several streams located north of the City, including Laguna Creek, Reggiardo Creek (a first order tributary to Laguna Creek), Liddell Spring (located within the East Branch Liddell Creek watershed), and Majors Creek (all collectively referred to as North Coast streams). These water rights are summarized in Table 6-1.

2 Appropriative water rights are water rights that allow surface water to be diverted at one point and used (appropriated) at another point off the property encompassing the diversion. Appropriative water rights also can authorize storage from season to season and year to year.

Table 6-1: Pre-1914 Water Rights Summary

Location	Date of First Use	Source	Points of Diversion	Purpose of Use	Season of Diversion	Bypass Requirement[1]
Liddell Spring: Statement of Water Diversion and Use S002043	1913	Liddell Spring (East Branch Liddell Creek watershed)	Liddell Spring Diversion	Municipal	Year-round	None
Laguna Creek: Statement of Water Diversion and Use S002042	1890	Laguna Creek	Laguna Creek Diversion	Municipal	Year-round	None
Majors Creek: Statement of Water Diversion and Use S002044	1881	Majors Creek	Majors Creek Diversion	Municipal	Year-round	None
Reggiardo Creek: Statement of Water Diversion and Use S008610	1912	Reggiardo Creek	Reggiardo Creek Diversion	Municipal	Year-round	None

Notes:

1 Since 2007, diversions by the City have been voluntarily subject to a series of interim bypass flow requirements established by ongoing agreements with the California Department of Fish and Wildlife. Those agreements' terms are not part of the water rights and not reflected in this column. As shown in Table 6-3, the City has proposed permanent modifications to these water rights as part of the pending Santa Cruz Water Rights Project.

The City holds post-1914 appropriative water rights for Newell Creek and the San Lorenzo River under existing water-right licenses and permits,[3] respectively. These water rights are summarized in Table 6-2.

3 A water-right permit is an authorization to develop a water diversion and use project. Ultimately, the water right is based on beneficial use of water under a permit. If water is used beneficially in conformance with the permit, the SWRCB will confirm the water right by issuing a license, which is a vested right that confirms the actual use. The license will only confirm a water right that reflects the reasonable and beneficial use under the permit.

Table 6-2: Post-1914 Water Rights Summary

Location	Priority	Source	Place of Use	Method of Diversion	Points of Diversion	Purpose of Use	Annual Diversion Limit	Maximum Diversion Rate	Season of Diversion	Bypass Requirement[1]
Tait: License 1553 (A004017)	06/09/1924	San Lorenzo River	City of Santa Cruz Areas Served	Direct Diversion	Tait Diversion	Municipal, Domestic	4,492 afy[2]	6.2 cfs[2]	1/1 – 12/31	None
Tait: License 7200 (A005215)	09/20/1926						4,347 afy[2]	6 cfs[2]		
Felton: Permit 16123[3] (A022313)	10/20/1965	San Lorenzo River	City of Santa Cruz Areas Served	Diversion to Storage	Felton Diversion Facility	Municipal	3,000 afy (combined maximum diversion under both permits)	9/1 – 9/30: 7.8 cfs (under Permit 16123 only) 10/1 – 5/31: 20 cfs (combined under both permits)	9/1 – 6/1	9/1 – 9/30: 10 cfs 10/1 – 10/31: 25 cfs 11/1 – 5/31: 20 cfs
Felton: Permit 16601[3] (A023710)	3/1/1971								10/1 – 6/1	
Newell Creek: License 9847 (A017913)	12/12/1957	Newell Creek	City of Santa Cruz Areas Served	Diversion to Storage[4]	Newell Creek Dam	Municipal, Domestic, Industrial, Recreational, Fire Protection	5,600 afy diversion to storage Maximum storage in Loch Lomond Reservoir 8,624 afy Maximum withdrawal not to exceed 3,200 afy	none	9/1 – 7/1	9/1 – 7/1: 1 cfs[5]

Notes: afy= acre-feet per year; cfs= cubic feet per second; gpm= gallons per minute.

1 Since 2007, diversions by the City have been voluntarily subject to a series of interim bypass flow requirements established by ongoing agreements with the California Department of Fish and Wildlife. Those agreements' terms are not part of the water rights and not reflected in this column. As shown in Table 6-3, the City has proposed permanent modifications to these water rights as part of the pending Santa Cruz Water Rights Project.

2 The two Tait Licenses (Licenses 1553 and 7200) are operated jointly and, based on their combined maximum diversion rates of 12.2 cfs, have a total combined maximum use of 8,838 afy. These limits are not specified in the Tait Licenses. The maximum amounts were calculated using the maximum diversion rates and diversion seasons.

3 The two Felton Permits (Permit 16123 and Permit 16601) function together. The total quantity of water diverted under these two permits combined shall not exceed 3,000 afy. The combined maximum rate of diversion to storage shall not exceed 20 cfs.

4 While direct diversion is not explicitly authorized, that appears to be an oversight. The City has determined that diversions authorized by the license could not occur without the ability to take water by direct diversion.

5 Between July 2 and August 31, 1 cfs or the natural flow is bypassed, whichever is higher.

In 2007, the City began voluntarily providing in-stream flows from the North Coast system in connection with ongoing development of an Anadromous Salmonid Habitat Conservation Plan (ASHCP) for federal Endangered Species Act and California Endangered Species Act compliance for water system operations and maintenance activities that may adversely affect local special-status anadromous salmonids (coho salmon and steelhead trout). Since then, the City has dramatically reduced its diversion of water from Laguna Creek and increased instream flow releases on the San Lorenzo River to benefit fisheries habitat.

The City is currently working with the California State Water Resources Control Board (SWRCB) to revise the City's existing water rights to allow more options for where and how the City can use its existing rights while enhancing stream flows for local anadromous fisheries. The Santa Cruz Water Rights Project would improve flexibility in operation of the City's water system and include for all City surface water sources fish flow bypass requirements developed in coordination with the National Marine Fisheries Service and California Department of Fish and Wildlife for the ASHCP, as further described below. Proposed modification to the City's pre-1914 and post-1914 water rights are summarized in Table 6-3.

Table 6-3: Summary of Proposed Water Rights Modifications in the Santa Cruz Water Rights Project

Location	Place of Use	Method of Diversion	Points of Diversion	Underground Storage and Purpose of Use	Extension of Time	Bypass Requirement
All North Coast Streams: Statements of Water Diversion and Use S002043, S002042, S002044, and S008610	Expand the authorized POUs to (1) ensure that the POUs of all the City's water rights are consistent, (2) include the Santa Margarita and Santa Cruz Mid-County Groundwater Basins, and (3) include the service areas of potential partnering regional water districts[2]	—	Add Beltz 8, 9, 10, and 12 wells as points of rediversion into and out of groundwater storage	Add protection of water quality as new beneficial use	—	Add minimum bypass flows to reflect Agreed Flows
Tait: Licenses 1553 and 7200 (A004017 and A005215)	Expand the authorized POUs to (1) ensure that the POUs of all the City's water rights are consistent, (2) include the Santa Margarita and Santa Cruz Mid-County Groundwater Basins, and (3) include the service areas of potential partnering regional water districts[1]	—	Add Beltz 8, 9, 10, and 12 wells as points of rediversion into and out of groundwater storage	Add underground storage supplement associated with Beltz 8, 9, 10, and 12 wells Add protection of water quality as new beneficial use	—	Add minimum bypass flows to reflect Agreed Flows Enhance fish screening at the Tait Diversion consistent with the ASHCP and incidental take permit for anadromous species
Felton: Permits 16123 and 16601 (A022318 and A023710)	Expand the authorized POUs to (1) ensure that the POUs of all the City's water rights are consistent, (2) include the Santa Margarita and Santa Cruz Mid-County Groundwater Basins, and (3) include the service areas of potential partnering regional water districts[2]	Explicitly recognize direct diversion	Add Beltz 8, 9, 10, and 12 wells as points of rediversion into and out of groundwater storage Add Tait Diversion Facility as an authorized point of diversion	Add underground storage supplement associated with Beltz 8, 9, 10, and 12 wells Add protection of water quality as new beneficial use	Extend time to maximize beneficial use under the permits to 2043[2]	Add minimum bypass flows to reflect Agreed Flows Enhance fish passage and screening at the Felton Diversion consistent with the ASHCP and incidental take permit for anadromous species

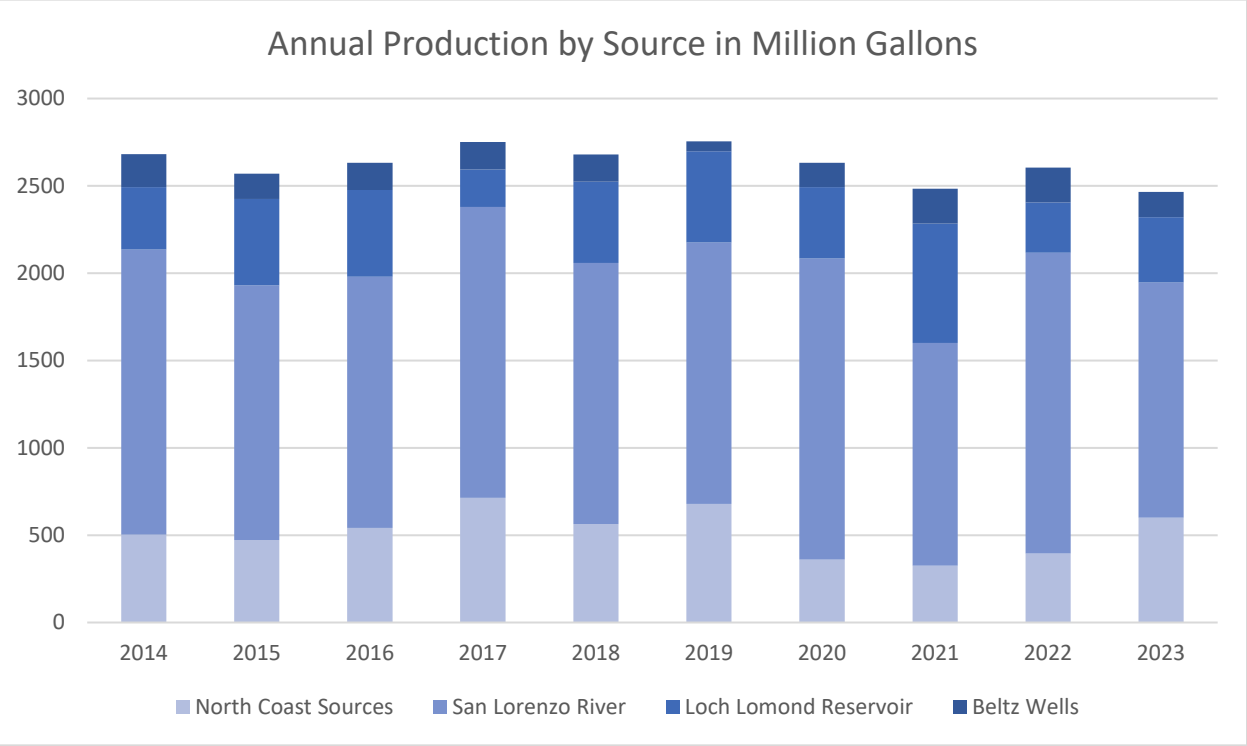
Notes: ASHCP = Anadromous Species Habitat Conservation Plan; cfs= cubic feet per second; POU = place of use.

1 Service areas of potential partnering regional water districts to include: Soquel Creek Water District, Scotts Valley Water District, San Lorenzo Valley Water District, and Central Water District.

2 The time to maximize beneficial use ended on December 31, 2006, although the City filed a prior extension petition before that date.

Gross annual production volumes from the City's surface and groundwater sources over the past ten years are shown in Figure 6-2, broken down by source of supply. During the past ten years, the North Coast sources represented 20 percent of the total water supply, the San Lorenzo River represented 58 percent, Loch Lomond Reservoir (Newell Creek) represented 16 percent, and Beltz Well system contributed the remaining 6 percent.

Figure 6-2: 10-year Summary of Annual Production by Source



6.2 Groundwater

Even though groundwater constitutes only about 5 percent of the entire City water supply on an annual basis, it is a crucial component of the water system for meeting peak season demands, maintaining pressure in the eastern portion of the distribution system, and for weathering periods of drought.

6.2.1 Groundwater Background

The Beltz Well system consists of four production wells and two water treatment plants located in the eastern portion of the City water service area. The facilities were originally acquired by the City from the Beltz Water Company in 1964 and are still referred to as the "Beltz" wells. Wells 8 and 9 were installed in 1998 as replacement wells for Wells 1 and 2, which were damaged in the 1989 Loma Prieta earthquake. Well 7, which began operating in 1974, has been replaced by Well 10. The newest well, Beltz 12, and associated water treatment facility, were completed in 2015.

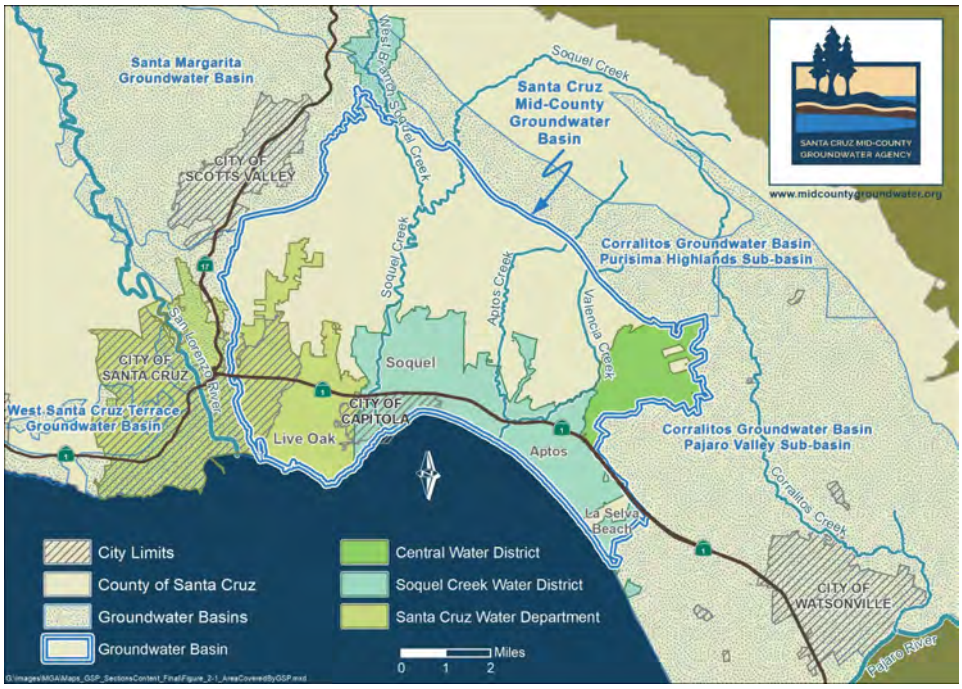
As described in the 2020 UWMP, the geographical area from which the City pumps groundwater is identified as the Santa Cruz Mid-County Groundwater Basin, Basin Number 3-001 (Basin) in California's Groundwater, Bulletin 118 Interim Update 2016. The Basin is described in detail in the Santa Cruz Mid-County Groundwater Sustainability Plan (GSP), adopted by the Santa Cruz Mid-County Groundwater Sustainability Agency (MGA) on November 21, 2019. The adopted GSP was submitted to the California Department of Water Resources (DWR)

for approval on January 30, 2020. DWR approved the GSP on June 3, 2021, as being found to satisfy the requirements of the Sustainable Groundwater Management Act (SGMA). The Basin GSP Summary is included as Appendix C. The Basin GSP is posted online at the following link: https://sgma.water.ca.gov/portal/gsp/all.

The Basin was consolidated from all or part of four previously existing basins: Soquel Valley (Basin Number 3-1), West Santa Cruz Terrace (Basin Number 3-26), Santa Cruz Purisima Formation (Basin Number 3-21), and Pajaro Valley Basins (Basin Number 3-2). The Purisima Formation and Aromas Red Sands are the two main geographic formations within the Basin. The Basin is defined by both jurisdictional and geologic boundaries and is intended to include all areas that constitute the shared groundwater resources in the stacked aquifer system of the Purisima Formation, as well as the Aromas Red Sands and some other units underlying the Purisima Formation.

The Basin lies within the Central Coast hydrologic region that covers 36,290 acres and stretches from the Santa Cruz Mountains to the Pacific Ocean and from Live Oak to La Selva Beach along the coast of the Monterey Bay. The Basin is comprised of a portion of the City of Santa Cruz, all of the City of Capitola, and portions of unincorporated Santa Cruz County. A map of the Basin is shown in Figure 6-3. The City's Beltz Well system is the western side of the Basin, shown in the green area labeled Live Oak.

Figure 6-3: Santa Cruz Mid-County Groundwater Basin



Source: MGA, 2019

The majority of land use in the Basin is residential and open space, with limited amounts of commercial and agricultural lands. Urban and suburban areas are concentrated along the coastal terraces with rural communities and lower population densities in the foothills and mountains.

Groundwater is the primary water supply for most residents within the Basin, except for the approximately 32,000 residents that are supplied by the City water system. As described above, customers of the City water system rely primarily on surface water but with a critical portion of water supply coming from groundwater supply from the Beltz Well system in the Basin.

Production from the City's Beltz Groundwater System is derived from the A and AA Purisima Formation units, that are the primary groundwater aquifer units underlying the Basin, as well as the Tu Formation below the Purisima Formation. Groundwater from the Purisima Formation is used by the City, Soquel Creek Water District, Central Water District, several small water systems, and numerous private rural water wells.

The Purisima Formation is a collection of distinct geologic units composed of sandstone interbedded with layers of siltstone and claystone. These units, designated as AA through FF, vary in thickness and hydrogeological characteristics, with AA being the deepest and oldest unit. The formation is relatively shallow under the City's water service area, but dips southeast, becoming deeper and thicker towards Capitola and Aptos and outcrops at the cliffs along the Monterey Bay shoreline. The A zone is the primary supply for both the City's Beltz Well system and the Soquel Creek Water District's Service Area 1 wells and is continuous and connected between these areas of groundwater extraction. Recharge is thought to occur from deep percolation of rainfall in the upper watersheds and along streambeds of Branciforte Creek, Arana Gulch, Rodeo Creek, and Soquel Creek.

To better understand how the Purisima Formation responds to pumping stresses and to detect seawater intrusion, the City has installed and maintains a network of 36 monitoring wells at 14 sites, contributing to a network of over 150 wells within the Basin that are monitored at least twice a year (MGA, 2019). Groundwater levels and water quality parameters, including chlorides, pH, total dissolved solids, general minerals, and other constituents are measured. Data collected from these monitoring wells are shared with adjoining public water agencies interested in management and planning of groundwater supply.

The Basin contains no areas with adjudicated groundwater rights.

6.2.2 Groundwater Management

Pursuant to Government Code Section 12924, the basin has been identified as being subject to critical conditions of overdraft. DWR classifies the Basin as a high priority basin in a state of critical overdraft because of active seawater intrusion. Over pumping of the Basin has led to lower groundwater levels in coastal areas and seawater intrusion into coastal portions of the groundwater aquifers. Without active management, there is a threat of more widespread seawater contamination of groundwater in the Basin.

The City has participated in regional evaluation, monitoring, and management activities in the Basin for over 50 years. The first major study of regional groundwater resources was conducted in late 1960s by the United States (U.S.) Geological Survey in collaboration with the County of Santa Cruz, the Soquel Creek Water District, and the City of Santa Cruz. The study identified the importance of the Purisima Formation for regional water supply and recognized seawater intrusion into the aquifer as the greatest threat to regional groundwater supplies. Since that time and prior to the passage of SGMA in 2014, the City and other agencies that rely on groundwater from the Basin have continued engagement in monitoring and pursued various management strategies to help prevent the intrusion of seawater into groundwater supplies.

With the passage of SGMA came the formation of the MGA in May 2016 under a Joint Exercise of Powers Agreement. The MGA now oversees groundwater management activities in the Basin and is comprised of four member agencies representing the principal public agencies that extract groundwater or regulate groundwater extraction and/or land use in the Basin: Central Water District, City of Santa Cruz, County of Santa Cruz, and Soquel Creek Water District. The MGA is governed by an eleven-member board of directors including two representatives from each member agency and three private well owner representatives, in addition to alternates. The City of Santa Cruz representatives are appointed by City Council.

The GSP describes the projects and management actions that the MGA has developed to achieve Basin groundwater sustainability, primarily focused on avoidance of seawater intrusion, with related benefits to surface water and groundwater dependent ecosystems. Because the City's water system relies heavily on surface water, an additional focus of the project and management actions is development of a supplemental drought supply to improve the City's water supply reliability, consistent with the City's WSAS (see above) and Basin sustainability. The individual member agencies, including the City, have responsibility for implementing the various projects and management actions described in the GSP, including permitting, funding, and oversight.

6.2.3 Groundwater Use

The Beltz Well system is utilized during the peak season which is the months of May through September and is additionally currently being utilized for piloting and demonstrating ASR. Table 6-4 below shows the actual volume pumped from the City's Beltz Well system over the last five years, including water pumped as part of ASR piloting and demonstration. Average volume over this time was 149 million gallons per year (MGY). The current understood sustainable yield volume for groundwater pumping excluding ASR operations is 170 MGY which has been utilized historically by the City when planning for the operation of the Beltz Well system.

Table 6-4: Groundwater Volume Pumped

Groundwater Volume Pumped (MG)						
Groundwater Type	Location or Basin Name	2019	2020	2021	2022	2023
Alluvial Basin	Santa Cruz Mid-County Basin (3-001)	57	147	199	200	144
	TOTAL	165	57	199	200	144

Notes: In 2019, pilot testing of ASR included injection of 21 MG of treated surface water and subsequent extraction of 25 MG. Of the 25 MG extraction volume, 7 MG was disposed of and 18 MG entered into the distribution system. The full 25 MG of extraction is included in the 2019 total. In 2020, pilot testing of ASR included injection of 4 MG of treated surface water and subsequent extraction and disposal of 6 MG during the pilot testing. The 6 MG extraction is included in the 2020 total. In 2021, pilot testing of ASR included injection of 6 MG of treated surface water and subsequent extraction and disposal of 9 MG during the demonstration. The 9 MG extraction is included in the 2021 total. In 2022, demonstration studies of ASR included injection of 86 MG of treated surface water and subsequent extraction of 78 MG during the demonstration. The 78 MG extraction is included in the 2022 total. In 2023 pilot testing of ASR included injection of 25 MG of treated surface water and subsequent extraction and disposal of 13 MG during the pilot testing. The 13 MG extraction is included in the 2023 total.

6.3 Transfers and Exchanges

In 2016, the City and Soquel Creek Water District entered into a "Cooperative Water Transfer Pilot Project for Groundwater Recharge and Water Resource Management" agreement to transfer a small amount of water to Soquel Creek Water District in the winter months when excess surface water from the North Coast is available. The pilot agreement was extended in 2021 through 2026. The agreement represents a preliminary step in the implementation of the WSAS, below, and serves to further study and determine the potential benefits of local exchanges and transfers as a groundwater management tool and supply reliability strategy.

Following successful completion of preliminary water quality studies, pilot transfers began in December 2018 and continued into 2023. Yearly totals for transfers of treated surface water are as follows:

- In 2018, a total of 9 MG was transferred from the City to Soquel Creek Water District,
- In 2019, a total of 68 MG was transferred from the City to Soquel Creek Water District,

- In 2020, a total of 13 MG was transferred from the City to Soquel Creek Water District,
- In 2021, a total of less than 1 MG was transferred from the City to Soquel Creek Water District,
- In 2022, a total of less than 1 MG was transferred from the City to Soquel Creek Water District, and
- In 2023, a total of 4 MG was transferred to Soquel Creek Water District and a total of 12 MG was transferred from Soquel Creek Water District to the City.

6.4 Water Supply Augmentation

Future water projects are critical to ensuring future water supply reliability for City water customers. These projects are described below.

6.4.1 Water Supply Augmentation Strategies

Since 2015, the City of Santa Cruz has been pursuing its WSAS developed by the WSAC as described in the 2020 UWMP. The WSAC was formed in 2014 when the City Council approved formation and membership of the citizen committee with the charge to "explore, through an iterative, fact-based process, the City's water profile, including supply, demand and future risks; analyze potential solutions to deliver a safe, adequate, reliable, affordable and environmentally sustainable water supply; and, to develop recommendations for City Council consideration" (WSAC, 2015). The committee developed the Water Supply Advisory Committee Final Report on Agreements and Recommendations, which was accepted by the City Council in November 2015. The Final Report was incorporated by reference into the 2015 Urban Water Management Plan, and the guiding recommendations continue to serve as the water supply management strategy for the City.

The WSAC recommendations are designed to address the "Problem Statement" included in the WSAC Final report:

> "Santa Cruz's water supply reliability issue is the result of having only a marginally adequate amount of storage to serve demand during dry and critically dry years when the system's reservoir doesn't fill completely. Both expected requirements for fish flow releases and anticipated impacts of climate change will turn a marginally adequate situation into a seriously inadequate one in the coming years. Santa Cruz's lack of storage makes it particularly vulnerable to multi-year droughts. The key management strategy currently available for dealing with this vulnerability is to very conservatively manage available storage. This strategy typically results in regular calls for annual curtailments of demand that may lead to modest, significant, or even critical requirements for reduction. In addition, the Santa Cruz supply lacks diversity, thereby further increasing the system's vulnerability to drought conditions and other risks…" (WSAC, 2015)

The overarching goal of the WSAS is to provide significant improvement in the sufficiency and reliability of the City water supply. As presented in the 2015 UWMP, the WSAS portfolio elements include the following (WSAC, 2015):

- Element 0: Demand Management. Additional water conservation with a goal of achieving an additional 200 to 250 MGY of demand reduction by 2035 by expanding water conservation programs.
- Element 1: Transfers and Exchanges. Passive recharge of regional aquifers by working to develop agreements for delivering surface water to the Soquel Creek Water District and/or the Scotts Valley Water District so they can rest their groundwater wells, help the aquifers recover, and potentially store water for use by the City in dry periods.

- Element 2: Aquifer Storage and Recovery. Active recharge of regional aquifers by using existing infrastructure and potential new infrastructure in the Purisima aquifer in the Soquel-Aptos Basin (now referred to as the Santa Cruz Mid-County Groundwater Basin), in the Santa Margarita/Lompico/Butano aquifers (now referred to as the Santa Margarita Groundwater Basin) in the Scotts Valley area, or in both to store water that can be available for use by the City in dry periods.
- Element 3: Recycled Water or Desalination. A potable water supply using advanced-treated recycled water as its source as a supplemental or replacement supply in the event the groundwater storage strategies described in Element 1 and Element 2 prove insufficient to meet the goals of cost-effectiveness, timeliness, or yield. In the event advanced-treated recycled water does not meet the City's needs, desalination would become Element 3.

The Santa Cruz Water Department has been actively pursuing these recommendations since 2015 and continues to make steady progress. The WSAC recommended that the Water Department prepare information about the range of water supply augmentation projects to be compared to support a data-driven decision making about which options to pursue to address the water supply reliability gap.

Additionally, in collaboration with the Soquel Creek Water District (District), the City is currently working on the Santa Cruz Mid-County Regional Water Resources Optimization Study. The primary purpose of the Optimization Study is for the District and City to collaboratively identify and evaluate potential opportunities to optimize select projects and management actions (PMAs) identified in the Basin's Groundwater Sustainability Plan to most effectively achieve/maintain groundwater basin sustainability. Additionally, the Study is evaluating the PMAs for their ability to improve regional water supply reliability. Projects that are the focus of the Optimization Study include:

- Water transfers/exchanges between the District and the City
- City's ASR Project
- District's Pure Water Soquel Project

Progress toward implementation of Elements 1 through 3 is described below, followed by a discussion of water supply policy and implementation plan development. Conservation, or demand management, is not considered a water supply for the purposes of this evaluation.

Implementation of Transfers and Exchanges (WSAS Element 1)

The City has been working with Soquel Creek Water District to evaluate the feasibility of water transfers and exchanges since 2015 through the development of a formal pilot agreement, studies to assess the compatibility of surface and groundwater resources in distribution systems, and eventually piloting of water transfers since 2018. The transfer agreement extends through 2026, and additional piloting will continue as water supply conditions allow.

The City and Scotts Valley Water District are currently pursuing the Intertie-1 Project to construct an intertie and pump station to link the two water systems. In 2022, DWR awarded a $9,449,786 grant under the Urban and Multibenefit Drought Relief Grant Program that includes funding for the project. Project design has been completed, and construction is planned to begin in late 2024.

Future transfers and exchanges with local agencies, including Soquel Creek Water District, Scotts Valley Water District, Central Water District, and San Lorenzo Valley Water District would be facilitated by the water rights modifications to place of use proposed in the Santa Cruz Water Rights Project described herein. The Santa Cruz

Water Rights Project EIR additionally examines implementation of water transfers and exchanges with local agencies.

Limitations of the transfer and exchange strategy include that it is limited both by availability of surface water for transfer and by the demand of other-agency systems to utilize transferred water when available.

Implementation of Aquifer Storage and Recovery (WSAS Element 2)

The City has been evaluating the feasibility of ASR in both the Santa Cruz Mid-County and in the Santa Margarita Groundwater Basins, with the most recent work primarily focused on the portion of Santa Cruz Mid-County Basin within the City of Santa Cruz service area. To help advance the ASR project, the City has completed groundwater modeling of over 20 scenarios, a well siting study, a geochemical analysis study, pilot testing at the existing Beltz 12, Belt 9 and Beltz 8 wells, and demonstration studies at the existing Beltz 12 and Beltz 8 well facilities to better understand potential water quality and operational constraints.

ASR in both basins would be facilitated by the water rights modifications proposed in the Santa Cruz Water Rights Project. The Santa Cruz Water Rights Project EIR additionally examines implementation of ASR. Next steps for the City's ASR project include finalizing designs and initiation of construction for permanent ASR operations at Beltz 8 and Beltz 12.

Implementation of Recycled Water or Desalination (WSAS Element 3)

Since 2000, the City has been examining the use of recycled water through commissioned engineering studies regarding potential uses of recycled water for agricultural irrigation, landscape irrigation, groundwater recharge, direct potable reuse, and use of recycled water from neighboring water districts. These studies include the following:

- Alternative Water Supply Study (Carollo Engineers, 2000)
- Evaluation of Regional Water Supply Alternatives (Carollo Engineers, 2002)
- Integrated Water Plan EIR (City of Santa Cruz, 2005)
- Opportunities and Limitations for Recycled Water Use (Kennedy/Jenks, 2010)
- Current and Potential Future Opportunities for Indirect and Direct Potable Reuse of Recycled Water Use (Kennedy/Jenks, 2010)
- Regional Recycled Water Facilities Planning Study, Phase 1 (Kennedy/Jenks, 2018)

The City of Santa Cruz is continuing to actively investigate the feasibility of recycled water through an ongoing Santa Cruz Recycled Water Feasibility Study Phase 2.

While further study of recycled water has currently been prioritized over seawater desalination, the feasibility of desalination continues to be explored. In 2018, the Desalination Feasibility Update Review was prepared, and an updated review of feasibility is now being prepared as part of the WSAIP described blow.

Securing Our Water Future Policy and Water Supply Augmentation Implementation Plan

In 2022, the Water Department worked extensively with the Water Commission to complete a comparison of the water supply augmentation strategies identified in the WSAS, to develop a water supply augmentation policy, SOWF (since adopted by City Council), and to initiate the WSAIP as part of the final phase of implementing the WSAS.

The SOWF policy provides a comprehensive framework to guide selection and incremental implementation of necessary water supply augmentation projects. It defines how water supply projects will be selected and provides estimated high-level yield and costs associated with water supply augmentation projects. The policy direction includes a provision that the volume of water needed to meet the reliability goal be reviewed and potentially revised no less frequently than every five years based on ongoing research and monitoring of the impacts of climate change on local water conditions. This "adaptive management" approach is critically important to support appropriate timing of implementation of water supply augmentation projects.

The objective of the WSAIP which is now underway is to continue the assessment to develop one or more projects to prepare a water supply portfolio to ensure water supply is available to meet the City's public health and safety and economic sustainability goals. The WSAIP will utilize guiding principles and criteria defined in the SOWF and set expectations for transparence in how the projects will be evaluated and prioritized.

6.4.2 Santa Cruz Water Rights Project

As described above, the Santa Cruz Water Rights Project supports the implementation of the WSAS and involves the modification of the City's existing water rights to increase the flexibility of the water system by improving the City's ability to utilize surface water within existing allocations. This project also adds Agreed Flows bypass flow requirements into the City's water rights for all its surface water sources; such requirements are protective of local anadromous fisheries. The success of this project is necessary for fisheries protection and to facilitate future water supply projects. The primary components of the Santa Cruz Water Rights Project include:

- Water rights modifications related to place of use, method of diversion, points of diversion and rediversion, underground storage and purpose of use, extension of time, and Agreed Flows stream bypass requirements for fish habitats (see Table 6-3 above);
- Water supply augmentation components, including new ASR facilities at unidentified locations, ASR facilities at the existing Beltz well facilities, water transfers and exchanges and intertie improvements; and
- Surface water diversion improvements, including the Felton Diversion fish passage improvements and the Tait Diversion and Coast Pump Station improvements.

The SWRCB noticed the City's water rights change petitions in February 2021. Subsequently, the project's Draft EIR was released for public review in summer 2021. The Final EIR was certified by Santa Cruz City Council in November 2021. The SWRCB is considering action on the City's water rights change petitions. The Santa Cruz Water Rights Project Community Guide is included as Appendix E. The Final EIR can be found online at: https://www.cityofsantacruz.com/Home/Components/BusinessDirectory/BusinessDirectory/126/2089.

Additional permits and approvals anticipated for all phases of the Santa Cruz Water Rights project include:

- Clean Water Act Section 404 Permit from US Army Corps of Engineers for work within Water of the U.S., including consultations under Section 7 of the Endangered Species act with National Marine Fisheries Service and/or U.S. Fish and Wildlife Service and under Section 10 of the National Historic Preservation Act with the California State Historic Preservation Officer;
- Clean Water Act Section 401 Water Quality Certification from the California Central Coast Regional Water Quality Control Board for work that could impact Waters of the State;
- Lake and Streambed Alteration Agreement per California Fish and Game Code Section 1602 from California Department of Fish and Wildlife for work within Waters of the State and/or riparian habitat;

- Review of Notice of Intent to inject and store treated drinking water in groundwater aquifers through ASR operations under SWRCB WQ Order 2012-0010 California Central Coast Regional Water Quality Control Board (General Waste Discharge Requirements for Aquifer Storage and Recovery Projects that Inject Drinking Water into Groundwater);
- Compliance with the National Pollutant Discharge Elimination System Construction General Permit to control stormwater discharges during construction;
- Coastal Development Permit from County of Santa Cruz under the Santa Cruz County LCP and/or from City of Capitola under the Capitola LCP per the California Coastal Act for pipeline construction within the California Coastal Zone;
- Encroachment Permit(s) from County of Santa Cruz Public Works for construction within County road rights-of-way; and
- Approval of water transfer agreements and intertie facilities from Soquel Creek Water District, Scotts Valley Water District, San Lorenzo Valley Water District, and/or Central Water District.

6.4.3 Santa Cruz Water Program (Capital Investment Program)

City of Santa Cruz has embarked on an ambitious capital investment program, the Santa Cruz Water Program, to secure our future water supply portfolio, to improve reliability and resiliency in the face of climate change, and to address aged infrastructure. Major investments are planned in the coming years to meet these goals. Staff has been working alongside with HDR Engineering as program manager to implement the Water Program. Some elements of the program will help contribute to the WSAS and support water supply reliability such as improvements to the Graham Hill Water Treatment Plant, raw water pipeline improvements, and Tait diversion, as described below. Information on the projects included in the Program is included in Appendix F, including information on estimated budgets and funding sources. More information on the Water Department capital program can be found online here: https://www.cityofsantacruz.com/government/city-departments/water/engineering/santa-cruz-water-program.

Graham Hill Water Treatment Plant Projects

Upgrades to the City's Graham Hill Water Treatment Plant are critical to the implementation of the WSAS to allow treatment of higher turbidity source water that otherwise would need to be bypassed during high flow periods such as during and after storm events. Recent and ongoing projects include major maintenance repairs to the flocculation, sedimentation, and filtration basins that have been completed, and replacement of three of the four concrete tanks that is currently underway. Simultaneous with these component repair and replacement projects, staff has been developing the Climate Resilient Santa Cruz: Graham Hill Water Treatment Plant Facility Improvements Project (FIP).

The FIP consists of improvements at the facility to address aging infrastructure and to provide for efficiently and reliably meeting future water quality objectives and water supply needs. At this time, the FIP is finalizing 100 percent design drawings. The project includes the following:

- Reliable Water Treatment Plant Capacity. The FIP would be designed to reliably produce a maximum of 18.2 MG per day, under a broad range of source water conditions.
- New and Upgraded Water Treatment and Related Processes. The FIP includes process upgrades related to:
    - Pretreatment
    - Treatment

    - Solids handling
    - Chemical feed systems
- New and Upgraded Buildings. The FIP would include new and upgraded buildings including:
    - Upgraded Operations and Filter Building
    - New Maintenance Building
    - New Ozone Building
    - New Solids Dewatering Building
    - New Chemical Storage and Feed Building
- Infrastructure and Site Improvements. FIP infrastructure and site improvements would include:
    - Sewer improvements
    - Stormwater management improvements
    - Electrical; lighting; heating, ventilation, and air conditioning (HVAC); Supervisory Control and Data Acquisition (SCADA); and alarm improvements
    - Solar photovoltaic panels would be installed on one or more of the new and/or existing building rooftops and/or on the adjacent concrete tanks currently under construction as part of the Concrete Tanks Replacement Project.
    - Existing natural gas infrastructure would be removed and replaced with electrical infrastructure
    - Vehicular access improvements
    - Screening and landscaping improvements
    - Fencing and site security improvements
- Project Operations and Maintenance. Under the FIP, operation and maintenance of the upgraded GHWTP would include many activities largely consistent with current activities, as well as new activities related to the new treatment process and solids dewatering equipment.
- Project Construction. The project construction is anticipated to commence in phases over a four-year period (from 2025 through 2030) while maintaining ongoing operations and continuous production of drinking water at GHWTP. The City has identified standard construction practices that would be implemented by the City and/or its contractors. Additionally, the FIP would implement the applicable avoidance and minimization measures from the City's Low Effect Habitat Conservation Plan and associated Incidental Take Permit under Section 10(A)(1)(B) of the Endangered Species Act.

A Notice of Preparation of a Draft EIR was released in June 2022, initiating 30-day EIR scoping period. The Draft EIR was released for a 60-day public review period from December 2023 to February 2024. The Final EIR was released in July 2024 and certified by City Council in September 2024.

Permits and approvals expected to be required for the FIP include:

- U.S. Army Corps of Engineers: Federal agency that may issue a Clean Water Act Section 404 permit should construction activities result in fill of Waters of the U.S. due to storm drain modifications.
- U.S. Environmental Protection Agency: Federal agency that would administer and provide funding for the FIP through the Water Infrastructure Finance and Innovation Act loan program.
- U.S. Fish and Wildlife Service: Federal agency that consults with the lead Federal agency (either U.S. Army Corps of Engineers or U.S. Environmental Protection Agency) under Section 7 of the Endangered Species Act for projects that impact sensitive species of fish, wildlife, or their habitat.
- National Marine Fisheries Service: Federal agency that consults with the lead Federal agency (either U.S. Army Corps of Engineers or U.S. Environmental Protection Agency) under Section 7 of the

Endangered Species Act for projects that impact U.S. fisheries. This may be required if the FIP impacts the San Lorenzo River due to storm drain modifications.

- SWRCB, Division of Drinking Water: Responsible Agency for issuing a Domestic Water Supply Permit Amendment.
- SWRCB, Division of Financial Assistance: Responsible Agency if the FIP obtains financing through the Drinking Water State Revolving Fund Program.
- California Department of Fish and Wildlife: Trustee Agency for projects that may affect fish, wildlife, or their habitat and potentially a Responsible Agency for issuing a Lake and Streambed Alteration Agreement should construction activities result in fill of Waters of the State if the FIP impacts the San Lorenzo River due to storm drain modifications.
- Central Coast Regional Water Quality Control Board: Responsible Agency for approval of a Clean Water Act Section 401 Water Quality Certification Permit in areas of impacts to waters or wetlands of the U.S., if the FIP impacts the San Lorenzo River due to storm drain modifications. Also, the Regional Water Quality Control Board would oversee the City's Notice of Intent to Comply with the National Pollutant Discharge Elimination System Construction General Permit.
- Monterey Bay Air Resources District: Authority to Construct, Modify Existing Permit, Permit to Operate. Existing air permits would need to be amended if there are changes to the discharge of air pollutants from the revised processes. Existing air permits for the GHWTP are Permit Numbers 9970, 14520, and 13932.
- State Historic Preservation Officer: State agency that consults with the lead Federal agency (either U.S. Army Corps of Engineers or U.S. Environmental Protection Agency) under Section 106 of the National Historic Preservation Act for projects that impact designated or eligible historic resources.
- City of Santa Cruz: Building Permit (includes Green Building); Heritage Tree & Street Tree Permit; Design Permit and Special Use Permit; Stormwater Control Plan; Temporary Encroachment Permit & Traffic Control Plans; and Wastewater Discharge Permit Amendment may be required.
- County of Santa Cruz: Hazardous Materials Management Plan Amendment and Septic Tank Deconstruction Application; Encroachment Permit Traffic Control Permit; Sewer Connection Permit & Waste Discharge Permit may be required.
- Local Agency Formation Commission. Extraterritorial Service Authorization may be required.

Raw Water Transmission Pipeline Projects

The City is planning improvements to raw water conveyance through upgrades to both the North Coast system and Newell Creek Pipeline (NCP). These projects will improve reliability and reduce hydraulic constraints to improve delivery of raw water to the Graham Hill Water Treatment Plant.

The Water Department operates a network of diversions and 19 miles of pipeline to extract and bring raw from the North Coast sources into the City. In 2005, the City certified the programmatic Final EIR for the North Coast System analyzing system-wide improvements to the network, and has since completed three phases of pipeline replacement and diversion improvements. To complete the remainder of the improvements, in 2021, the City completed a new Planning Study and Implementation Plan to consider a number of changes that have occurred in the North Coast System since the 2005 EIR. The study provided recommendations for a slightly modified alignment as well as detailed estimates for construction timelines and budget. The remaining segments of the pipeline replacement and rehabilitation of the Majors Diversion have been combined into a single final project,

the North Coast System Phase 4 project. Project design is estimated to commence in 2030, and project completion is targeted for early 2030s.

The NCP Improvement Project will replace the existing NCP, which is a 9.25-mile-long raw water pipeline constructed in 1960 in conjunction with construction of the Newell Creek Dam and Graham Hill Water Treatment Plant. The NCP is a critical component of the City's raw water supply infrastructure. It conveys untreated water to and from the Loch Lomond Reservoir, which is the City's only raw water storage facility. The NCP conveys water from City's Felton Diversion to Loch Lomond Reservoir and also conveys water from the Reservoir to the Graham Hill Water Treatment Plant. The pipeline is critical to supplying the water system during dry seasons and during storm events when other water sources cannot be treated at the water treatment plant. The pipeline generally would be installed within existing road pavement, road right-of-way, which includes road pavement and unpaved shoulders adjacent to the paved road, and/or existing City easements. The Final EIR for the NCP Improvement Project was certified by Santa Cruz City Council in May 2022. Construction of the project will proceed in three phases, with completion all phases anticipated by early 2030s.

Permits and approvals expected to be required for the raw water transmission pipeline projects include:

- Clean Water Act Section 404 Permit from US Army Corps of Engineers for work within Waters of the U.S., including consultations under Section 7 of the Endangered Species Act with National Marine Fisheries Service and/or U.S. Fish and Wildlife Service and under Section 10 of the National Historic Preservation Act with the California State Historic Preservation Officer;
- Clean Water Act Section 401 Water Quality Certification from the California Central Coast Regional Water Quality Control Board for work that could impact Waters of the State;
- Lake and Streambed Alteration Agreement per California Fish and Game Code Section 1602 from California Department of Fish and Wildlife for work within Waters of the State and/or riparian habitat;
- Coastal Development Permit from County of Santa Cruz under the Santa Cruz County LCP per the California Coastal Act for pipeline construction within the California Coastal Zone;
- Compliance with the National Pollutant Discharge Elimination System Construction General Permit to control stormwater discharges during construction; and
- Encroachment Permit(s) from County of Santa Cruz Public Works for construction within County road rights-of-way.

Tait Diversion Improvements

The City is also investigating improvements to the Tait Diversion facility that would improve reliability and fish screening. As described in the Santa Cruz Water Rights Project EIR, if the Tait Diversion is added as a new point of diversion to existing Felton water rights, Tait Diversion capacity would be increased to accommodate the combined diversion of water under both the Tait and the Felton water rights at this facility. This could benefit fisheries by allowing water diverted under the Felton water rights to bypass the Felton Diversion and remain in the San Lorenzo River until it reaches the Tait Diversion downstream. Planning, design, and construction is anticipated to be completed by early 2030s.

Permits and approvals expected to be required for the diversion improvement project includes:

- Clean Water Act Section 404 Permit from US Army Corps of Engineers for work within Waters of the U.S., including consultations under Section 7 of the Endangered Species act with National Marine Fisheries Service and under Section 10 of the National Historic Preservation Act with the California State Historic Preservation Officer;

- Clean Water Act Section 401 Water Quality Certification from the California Central Coast Regional Water Quality Control Board for work that could impact Waters of the State;
- Lake and Streambed Alteration Agreement per California Fish and Game Code Section 1602 from California Department of Fish and Wildlife for work within Waters of the State and/or riparian habitat; and
- Compliance with the National Pollutant Discharge Elimination System Construction General Permit to control stormwater discharges during construction.

7 Water Demand

This chapter describes the City's customer classification system, summarizes trends in water consumption, and presents projections of water use out to the year 2045.

7.1 Customer Classification System

The City divides its water customers into eight major classes and one miscellaneous category, as follows, in addition to designating accounts into various customer classes.

- Single-Family Residential: Individually metered residential units (regardless of housing type).
- Multiple-Family Residential: Any residential account with more than one dwelling unit served by one water meter.
- Business: Commercial establishments including restaurants, hotel/motel, retail, medical, schools, offices, churches, and mixed-use buildings. This category also includes county and state government accounts.
- Industry/UCSC: This category is comprised of one primary customer – the University of California, Santa Cruz – and a small number of manufacturing businesses.
- Municipal: These are City-owned and operated facilities such as city offices, parks, police and fire stations, a wastewater treatment plant, street medians, and parking lots.
- Irrigation: Dedicated water services for landscape irrigation associated with large multiple residential complexes and homeowners associations, or with commercial, industrial, and institutional sites, including schools, churches, parks, etc.
- Golf Irrigation: Accounts serving the two golf courses in the service area.
- Coast Irrigation: Agricultural accounts receiving untreated or "raw" water on the north coast.
- Other: Miscellaneous uses such as temporary construction accounts, hydrant meters, and bulk water sales.

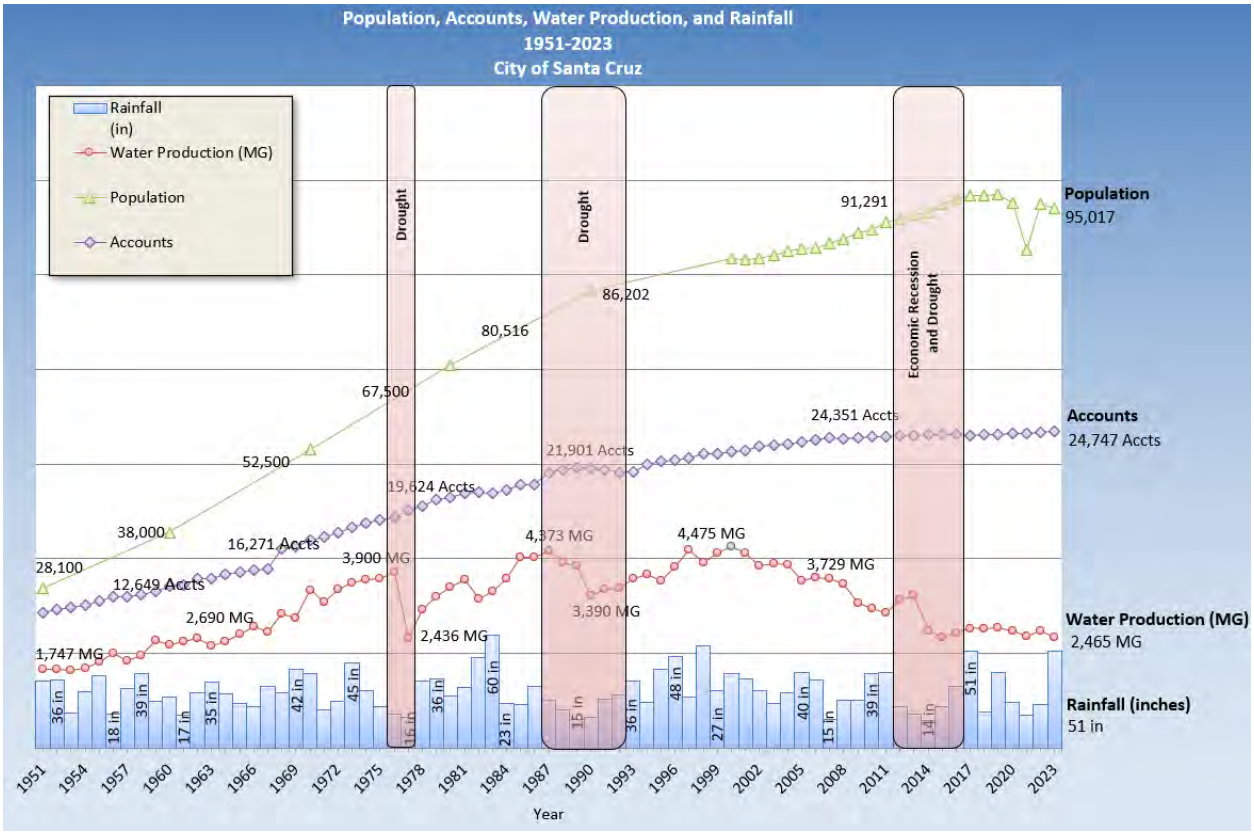
While not customer classes, water transfers and ASR are accounted for in consumption data. As part of the City's implementation of the WSAS (see above), beginning in 2018, the City began piloting water transfers to the Soquel Creek Water District under the "Cooperative Water Transfer Pilot Project for Groundwater Recharge and Water Resource Management", and beginning in 2019, the City began piloting ASR at existing groundwater wells in the Beltz well system.

Except for coast irrigation accounts that receive raw water, all water supplied is potable water. The City does not currently provide recycled water within its service territory; although recycled water is supplied to the Pasatiempo Golf Course, which is within the City of Santa Cruz service area, through an agreement with the City of Scotts Valley.

7.2 Historic and Current Water Use

The overall trend in population, number of accounts, and total annual water use since the 1950s is presented in Figure 7-1.

Figure 7-1: Historic Trends in Water Production



Until the early 2000s, the general trend in system demand was one in which water use rose roughly in parallel with account and population growth over time, except during two major drought periods in the late 1970s and the early 1990s. Around 2000, this pattern changed and system demand began a long period of decline, accelerated by pricing changes, drought, economic downturn, and other factors including the influences of active conservation programs and updated plumbing codes.

In 2015, after two years of water rationing, annual water use fell to a level of about 2.5 billion gallons, similar to the level experienced during the 1970s drought. In 2023, demand was still at a similar level as 2015, about 2.5 billion gallons, despite several years of above long-term average rainfall from 2016 and 2023. While demand did rebound following droughts in the 1970s and 1980s, demand has not rebounded to pre-drought conditions following 2014, contrary to previous projections. Today, even with 30 percent population growth since the 1980s, we're using less water than we were then, thanks to conservation efforts including plumbing code changes and water efficient appliances and landscapes.

7.3 Water Demand Projections

The forecast of future water demand is a foundational component of any water supply analysis. In 2014 and 2015, the City of Santa Cruz worked with M.Cubed to develop a long-term water demand forecast using

econometric forecasting for the first time that was used in the 2015 UWMP, and that demand forecast was updated in 2021 for use in the 2020 UWMP. In 2023, the City worked with M.Cubed to develop an update to the 2020 UWMP demand forecast for use in this Water Supply Evaluation, but this forecast was ultimately not utilized due to delays releasing the environmental document for the Downtown Plan Expansion Project. In 2024, the City again worked with M.Cubed to update to the demand forecast in support of this Water Supply Evaluation with the most up to date revised projections for housing and commercial development associated with the Downtown Plan Expansion Project, the 908 Ocean Street Project, and other projected future development throughout the service area. Appendix A includes a summary and results from M.Cubed's 2024 forecasting work.

Econometric demand forecasting develops statistically-based models of average water use per service by customer class. The 2015 demand forecast was developed based on these models and incorporating empirical relationships between water use and key explanatory variables, including season, weather, water rates, household income, employment, conservation, and drought restrictions. Monthly models of water demand were then combined with service and housing growth forecasts to predict future water demands. The approach built on similar models of water demand developed for other organizations in California.

Water use was rationed by the City of Santa Cruz in 2014 and 2015 due to severe drought conditions. In the years following the end of rationing, water sales remained significantly below the long-term projections included in the 2015 UWMP. Following up on the 2015 work, M.Cubed prepared a comparative analysis for the calendar year 2018 to analyze the divergence between projected and actual sales. After normalizing for weather, the forecast was found to be approximately 19 percent greater than actual sales in this year. The divergence of the forecast from actual sales coincided with changes to the City's water rate structure adopted in 2016. The new rate structure resulted in significant increases in the marginal cost of water service. Most of the forecast error was found to be driven by the increase in the marginal cost of water service. Weather was not found to be a significant explanatory factor, nor were differences in actual and projected sales to large customers (University California Santa Cruz and the two golf courses).

Subsequently, M.Cubed updated its long-term forecast for the 2020 UWMP in 2021, adjusting the forecast to reflect the higher marginal cost of water service and incorporating other updated information. That update included:

- Updated service area population, land use and housing projections consistent with Association of Monterey Bay Area Governments projections,
- Updated baseline estimates of average water use per service connection by customer class based on customer-level billing data,
- Adjustment to baseline averages use estimates to account for the effects of plumbing codes, on-going conservation, and marginal water service cost,
- Adjustment to projections for future water demands of the University of California Santa Cruz, based on their 2020 draft Long-Range Development Plan, and
- Accounting for COVID-19 pandemic on current and future water use.

The resulting water demand projection are predicated on average weather and normal (predicted) income and growth, by customer class.

The 2024 update was based is based on housing unit and commercial/industrial land use projections compiled by the Water Department to support the development of this evaluation. Key findings from the 2024 Update to the City of Santa Cruz Long-Range Demand Projection (Appendix A) include:

- Updates were made to the single-family, multi-family, ADU, business (BUS), and industrial demand projections. Water demand projections for University of California Santa Cruz and other miscellaneous water uses have not changed from those in the 2020 UWMP.
- There is little information available on ADU water usage. ADUs share a common meter with the primary residence and thus ADU water usage is not separately measured. For the long-range demand projections, it is assumed that average ADU use is the same as average multi-family use and these two uses are reported simply as multi-family This provides a conservative basis for water supply planning as it may in fact be the case that ADU water use is, on average, somewhat lower than multi-family. However, given the low number of ADUs relative to multi-family, the difference, if any, is not expected to have a material impact on the planning estimates of future demand.
- The updated 2045 demand projection is 8.6 percent greater than the projection in the 2020 UWMP. The increase in demand relative to the UWMP is due to higher projected levels of housing development, particularly with respect to multi-family and ADU development.

The projected water demand findings are presented in Table 7-1. For reference, the estimated projected demand in 2045, 3,000 MG, is approximately equal to the City's water use in 1968.

Table 7-1: Projected Water Use Through 2045

2024 Projected Water Use						
Use Type	Additional Description	Projected Water Use (MG)				
		2025	2030	2035	2040	2045
Single Family	Individually metered dwellings	947	936	934	934	934
Multi-Family	2 or More Dwelling Units	656	762	815	859	904
Commercial	Business	455	445	429	426	429
Industrial		38	39	40	41	42
Institutional/Governmental	Municipal	54	51	47	47	47
Landscape	Dedicated irrigation accounts	77	69	59	58	59
Landscape	Golf irrigation - potable water	44	40	36	35	35
Institutional/Governmental	University of California Santa Cruz - Main Campus	10	15	21	26	26
Institutional/Governmental	University of California Santa Cruz - Coastal Campus	152	199	245	292	292
Losses		197	207	213	220	224
TOTAL		2,630	2,763	2,839	2,938	2,992
ROUNDED TOTAL		2,600	2,800	2,800	2,900	3,000

NOTES: Excludes 12 MG of projected raw water use for North Coast agriculture projected for 2025 through 2045. Raw water demand is not incorporated into the City's Confluence® water supply model. Projected water use is based upon the 2024 Update to the City of Santa Cruz Long-Range Demand Forecast (M.Cubed, 2024) (Appendix A). Recycled water demand is not reported in this table.

8 Supply and Demand Evaluation

The supply and demand evaluation for this Water Supply Evaluation mirrors the supply and demand evaluation utilized in the 2020 UWMP, but with updated demand projections generated in 2024 including the Proposed Project and other additional planned development within the service area as currently understood.

8.1 Methodology

The data, methods, and basis for assumed water shortage conditions are consistent with those in the City's 2020 UWMP. Specifically, projected demand is based upon the long-term demand forecast prepared for the City by M.Cubed. In 2014 and 2015, the City of Santa Cruz worked with M.Cubed to develop a long-term water demand forecast using econometric forecasting, and that demand forecast was updated in 2021 for use in the Urban Water Management Plan and in 2024 for use in this Water Supply Evaluation (Appendix A).

The City of Santa Cruz utilized the Confluence® model to analyze the variability of water supplies to determine potential water supply shortages. The City has been utilizing the Confluence® model to support water supply planning activities since 2003 and this model was also used to generate the results for the 2010, 2015, and 2020

UWMP. The model accounts for the variation in demand both within and between years, the availability of water from various sources, and the capacity of infrastructure to pump and treat the water.

As described below, the City is in the process of transitioning to a new water system model developed by University of Massachusetts' Hydrosystem Research Group. Before the Confluence® model was retired from use by the City, model runs for the current scenario were completed under projected demands of up to 2,900 MGY which form the basis for this analysis.

The City is safeguarding against future water shortages by actively implementing future water projects as described above. Implementation of these projects is therefore assumed in the City's water supply planning process. Consistent with the WSAS and 2020 UWMP, the following assumptions about future water projects have been used in developing projected water supplies over the 25-year planning horizon of this evaluation.

- In 2025, the City will have implemented proposed water rights modifications, including implementation of the Agreed Flows which are protective of local anadromous fisheries, as described in the Santa Cruz Water Rights Project Final EIR
- In 2030, the City will have implemented the following components of the WSAS and planned infrastructure projects:
    - ASR in the Santa Cruz Mid-County Groundwater Basin and/or the Santa Margarita Groundwater Basin, sized for up to 4.5 million gallons per day (MGD) injection and 8.0 MGD extraction as described in the Santa Cruz Water Rights Project Final EIR,
    - Improvements to the Tait Diversion on the San Lorenzo River as described in the Santa Cruz Water Rights Project Final EIR and as included in the Santa Cruz Water Program,
    - Facility improvements at the Graham Hill Water Treatment Plan that will allow treatment of more turbid water as included in the Santa Cruz Water Program, and
    - Replacement of major transmission pipelines on the North Coast and the NCP as included in the Santa Cruz Water Program.

For the purposes of assessing water system reliability, the City has selected the following years from the historical record to represent DWR definitions for year type:

- Average/Normal Year: This condition represents the water supplies available during normal conditions. This could be a single year or averaged range of years that most closely represents the average water supply available. In this reliability assessment, the year 2010 is used to represent the average year because flows in the San Lorenzo River during this year were very close to the historical average.
- Single Dry Year: A year that represents the lowest water supply available to the agency. In this reliability assessment, the year 1977 is used as the single dry year because it was the single driest year in this historical record.
- Multiple Dry Years: Multiple dry years in this evaluation is consistent with the five-consecutive-year drought representing the driest five-year historical period for the supplier. The period 1973-1977 is used as the five-consecutive-year drought because it is the period in the historic record that was most challenging from a water supply perspective, particularly due to the two extremely dry years of 1976-1977.

8.2 Evaluation Findings

To demonstrate supply reliability over time for each base year type modelled, Table 8-1 and Figure 8-1 illustrate projected supply available relative to demand over the 20-plus-year planning horizon of this assessment.

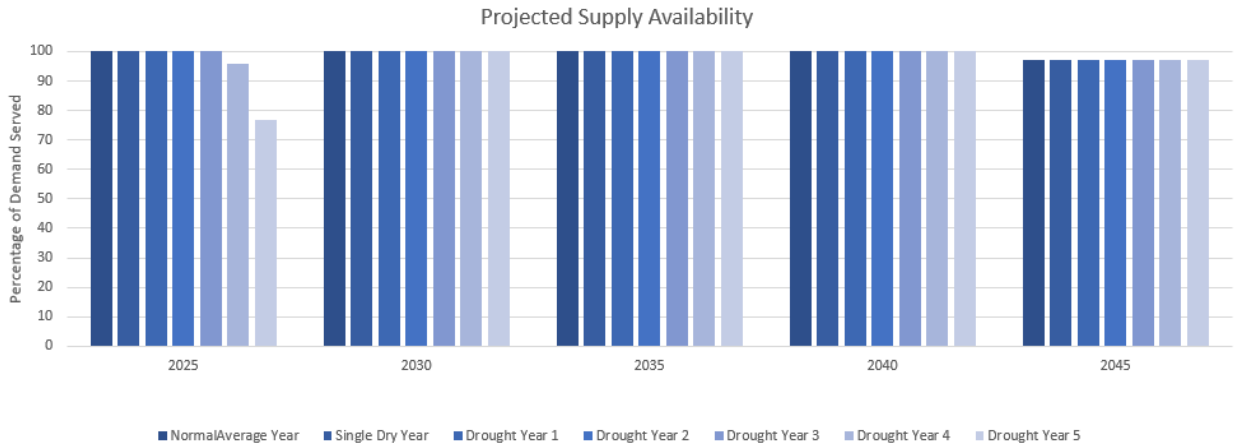
Table 8-1: Projected Supply and Demand Comparison through 2045

			2025 (MG)	2030 (MG)	2035 (MG)	2040 (MG)	2045* (MG)
Normal Year		Forecasted Demand	2,600	2,800	2,800	2,900	3,000
		Modeled Supply	2,600	2,800	2,800	2,900	2,900
		Supply Shortage	0	0	0	0	100
Single Dry Year		Forecasted Demand	2,600	2,800	2,800	2,900	3,000
		Modeled Supply	2,600	2,800	2,800	2,900	2,900
		Supply Shortage	0	0	0	0	100
Multiple Dry Years	First year	Forecasted Demand	2,600	2,800	2,800	2,900	3,000
		Modeled Supply	2,600	2,800	2,800	2,900	2,900
		Supply Shortage	0	0	0	0	100
	Second year	Forecasted Demand	2,600	2,800	2,800	2,900	3,000
		Modeled Supply	2,600	2,800	2,800	2,900	2,900
		Supply Shortage	0	0	0	0	100
	Third year	Forecasted Demand	2,600	2,800	2,800	2,900	3,000
		Modeled Supply	2,600	2,800	2,800	2,900	2,900
		Supply Shortage	0	0	0	0	100
	Fourth year	Forecasted Demand	2,600	2,800	2,800	2,900	3,000
		Modeled Supply	2,500	2,800	2,800	2,900	2,900
		Supply Shortage	100	0	0	0	100
	Fifth year	Forecasted Demand	2,600	2,800	2,800	2,900	3,000
		Modeled Supply	2,000	2,800	2,800	2,900	2,900
		Supply Shortage	600	0	0	0	100

NOTES: Projected water supply values shown in this table represent output values from the City's Confluence® (water supply) model utilizing historic hydrology and demands up to 2,900 MG. The Confluence® model utilizes system demands to model water supply from City sources. Consistent with the WSAS, the following assumptions about future water projects have been used in developing projected water supplies. In 2025, the City will have implemented proposed water rights modifications as described in the Santa Cruz Water Rights Project Final EIR, and in 2030, the City will have implemented the following components of the WSAS and planned infrastructure projects: ASR in the Santa Cruz Mid-County Groundwater Basin and/or the Santa Margarita Groundwater Basin, sized for up to 4.5 MGD injection and 8.0 MGD extraction as described in the Santa Cruz Water Rights Project Final EIR (specifically for this analysis, 3.0 MGD injection and 6.0 MGD extraction was assumed); improvements to the Tait Diversion on the San Lorenzo River as described in the Santa Cruz Water Rights Project Final EIR and as included in the Santa Cruz Water Program; facility improvements at the Graham Hill Water Treatment Plant that will allow treatment of more turbid water as included in the Santa Cruz Water Program; and replacement of major transmission pipelines on the North Coast and the NCP as included in the Santa Cruz Water Program. Projected demand is based upon the 2024 Update of the City of Santa Cruz's Long-Range Water Demand Forecast (M.Cubed, 2024) (Appendix A).

* Although the demand projected for 2045 is 3,000 MG, the maximum demand modeled in the Confluence® model was 2,900 MG. While this results in an apparent three percent shortage in all 2045 scenarios, it is anticipated that the modeled shortages would have been smaller or absent if Confluence® model runs had been completed using 3,000 MG as the maximum demand.

Figure 8-1: Projected Supply Availability by Percent through 2045



As illustrated by Table 8-1 and Figure 8-1, in the near term (2025) with proposed water rights modifications assumed but before implementation of ASR and planned infrastructure projects, the City projects having sufficient water supply available in normal years and single dry years. Under near-term multi-year drought conditions, with proposed water rights modifications assumed but before implementation of the ASR and planned infrastructure projects, available supplies would meet projected demand in years one through three of the multi-year drought scenario but would fall short of demand by four percent in year four, and 23 percent in year five.

In the 2030-2040 analysis period, assuming implementation of the City's proposed water rights modifications, ASR and planned infrastructure improvements, the City projects having sufficient water supply available in normal years, single dry years, and multiple dry years to serve anticipated demand.

In 2045, the analysis shows a three percent deficit across all year types. A three percent shortage is considered a negligible amount in the scale of this twenty-year supply and demand analysis. Furthermore, although the demand projected for 2045 is 3,000 MG, the maximum demand modeled in the Confluence® model before it was retired from use by the City was 2,900 MG. While this results in an apparent three percent shortage in all 2045 year-type scenarios, it is anticipated that the modeled shortages would have been smaller or absent if Confluence® model runs had been completed using 3,000 MG as the maximum demand. That is, if the model had been instructed to keep supplying water up to 3,000 MG, rather than stopping when the modeled demand of 2,900 MG was satisfied, the system would likely have had additional water available which the model did not supply since the set demand of 2,900 MG was already met. Moreover, implementation of the City's SOWF Policy and its adaptive management approach would ensure that future water supply projects would be fine-tuned to eliminate any minor projected future shortages.

8.3 Climate Change Conditions

The City has chosen to conduct this analysis using both historic hydrology and a selected climate change hydrology, CMIP-5, mirroring the approach utilized for the 2020 UWMP. The scenario used is the CMIP5 50-99 scenario which has been adjusted to include warmer air temperatures. The five-year consecutive drought period was selected as the driest period identified from the climate change hydrology resulting in the greatest projected supply shortages.

To demonstrate supply reliability over time for each base year type modelled under a climate change scenario, Table 8-2 and Figure 8-2 illustrate projected supply available relative to demand over the 20-plus-year planning horizon of this assessment.

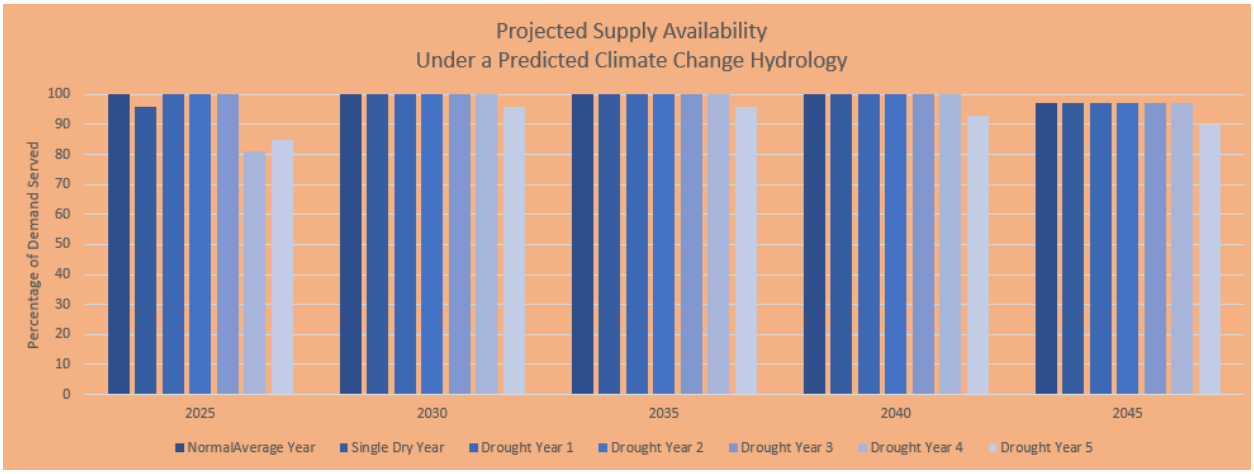
Table 8-2: Climate Change Scenario Projected Supply and Demand Comparison

			2025 (MG)	2030 (MG)	2035 (MG)	2040 (MG)	2045* (MG)
Normal Year		Forecast Demand	2,600	2,800	2,800	2,800	3,000
		Modeled Supply	2,600	2,800	2,800	2,800	2,900
		Supply Shortage	0	0	0	0	100
Single Dry Year		Forecast Demand	2,600	2,800	2,800	2,800	3,000
		Modeled Supply	2,500	2,800	2,800	2,800	2,900
		Supply Shortage	100	0	0	0	100
Multiple Dry Years	First year	Forecast Demand	2,600	2,800	2,800	2,800	3,000
		Modeled Supply	2,600	2,800	2,800	2,800	2,900
		Supply Shortage	0	0	0	0	100
	Second year	Forecast Demand	2,600	2,800	2,800	2,800	3,000
		Modeled Supply	2,600	2,800	2,800	2,800	2,900
		Supply Shortage	0	0	0	0	100
	Third year	Forecast Demand	2,600	2,800	2,800	2,800	3,000
		Modeled Supply	2,600	2,800	2,800	2,800	2,900
		Supply Shortage	0	0	0	0	100
	Fourth year	Forecast Demand	2,600	2,800	2,800	2,800	3,000
		Modeled Supply	2,100	2,800	2,800	2,800	2,900
		Supply Shortage	500	0	0	0	100
	Fifth year	Forecast Demand	2,600	2,800	2,800	2,800	3,000
		Modeled Supply	2,200	2,700	2,700	2,700	2,700
		Supply Shortage	400	100	100	100	300

Notes: Projected water supply values shown in this table represent output values from the City's Confluence® (water supply) model utilizing historic hydrology. The Confluence® model utilizes system demands to model water supply from City sources. Consistent with the WSAS, the following assumptions about future water projects have been used in developing projected water supplies. In 2025, the City will have implemented proposed water rights modifications as described in the Santa Cruz Water Rights Project Final EIR, and in 2030, the City will have implemented the following components of the WSAS and planned infrastructure projects: ASR in the Santa Cruz Mid-County Groundwater Basin and/or the Santa Margarita Groundwater Basin, sized for up to 4.5 MGD injection and 8.0 MGD extraction as described in the Santa Cruz Water Rights Project Final EIR (specifically for this analysis, 4.5 MGD injection and 6.5 MGD extraction was assumed); improvements to the Tait Diversion on the San Lorenzo River as described in the Santa Cruz Water Rights Project Final EIR and as included in the Santa Cruz Water Program; facility improvements at the Graham Hill Water Treatment Plant that will allow treatment of more turbid water as included in the Santa Cruz Water Program; and replacement of major transmission pipelines on the North Coast and the NCP as included in the Santa Cruz Water Program. Projected demand is based upon the 2024 Update of the City of Santa Cruz's Long-Range Water Demand Forecast (M.Cubed, 2024) (Appendix A).

* Although the demand projected for 2045 is 3,000 MG, the maximum demand modeled in the Confluence® model was 2,900 MG. While this results in an apparent three to ten percent shortage in the 2045 scenarios, it is anticipated that the modeled shortages would have been smaller or absent if Confluence® model runs had been completed using 3,000 MG as the maximum demand.

Figure 8-2: Climate Change Scenario Projected Supply Availability by Percent



As illustrated by Table 8-2 and Figure 8-2, in the near term (2025) in this climate change scenario with proposed water rights modifications but before implementation of ASR and planned infrastructure projects, the City projects having sufficient water supplies available in normal years. In a near-term single dry year in this climate scenario, a four percent shortage would result. In the multi-year drought scenario, available supplies would meet projected demand in years one through three, but would fall short of demand by 19 percent in year four and 15 percent in year five.

In the 2030-2040 analysis period, with implementation of ASR and planned infrastructure projects, available supplies would meet projected demand in normal and single dry years. In the multi-year drought scenario, available supplies would meet projected demand in years one through four of the multi-year drought scenario, but would fall short of demand in year five by four percent (2030, 2035) to seven percent (2040).

In 2045, the analysis shows a three percent deficit across a normal year, single dry year, and years one through four of the multi-year dry sequence, increasing to ten percent in year five. Although the demand projected for 2045 is 3,000 MG, the maximum demand modeled in the Confluence® model before it was retired from use by the City was 2,900 MG. While this results in an apparent three to ten percent shortage in the 2045 scenarios, it is anticipated that the modeled shortages would have been smaller or absent if Confluence® model runs had been completed using 3,000 MG as the maximum demand. That is, if the model had been instructed to keep supplying water up to 3,000 MG, rather than stopping when the modeled demand of 2,900 MG was satisfied, the system would likely have had additional water available which the model did not supply since the set demand of 2,900 MG was already met.

While a shortage is projected under these scenarios with implementation of the ASR and planned infrastructure projects, the City is currently planning for water supply augmentation through its SOWF Policy and WSAIP that would meet projected supply under plausible worst-case conditions. Moreover, implementation of the adaptive management approach from SOWF Policy would ensure that future water supply projects would be fine-tuned to eliminate any projected future shortages.

It is important to note that the City is continuing its work to understand system vulnerabilities under climate change conditions through the development of the new Santa Cruz Water System Model with the University of Massachusetts' Hydrosystem Research Group. Water Department staff is working with the university to develop a model that performs in the same basic way as the Confluence® model does but uses current advanced

technology. This will support the ability to look at results across many more potential scenarios than would be feasible using Confluence®. The new model does not use a specific global climate model or combination of models. Rather it uses a climate/weather generator to provide combinations of temperature and precipitation changes for inputs. This will allow the ability to stress test the water system to see how it performs across a wide range of potential future conditions. It is expected that this new model will be utilized for supply planning going forward.

The SOWF was structured to incorporate changing demands and climate projections over time and includes a reliability goal based on adequate supply to meet all customer demand. As noted in the SOWF, expected increases in demand in the water service area are not expected to drive the size or timing of needed water supply augmentation projects. Longer dry periods under climate change conditions are understood to be the primary challenge driving the need to augment the City's water supply.

9 Conclusion

Water is a vital element of sustainable development in our community. It must be managed proactively and strategically to ensure there's enough water for today, without compromising the ability of future generations to meet their needs. Santa Cruz has had periodic water shortages for the last several decades, driven by droughts. Yet, even with 30 percent population growth since the 1980s, we're using less water now as we were then, thanks to conservation efforts including plumbing code changes and water efficient appliances and landscapes. In fact, our estimated projected demand in 2045, 3,000 MG, is approximately equal to what the City's water use was in 1968. Our supply problem has been caused by cyclical shortfalls in rain, exacerbated by a long-term lack of ability to capture and store rainfall – features of the emerging climate change phenomenon of "weather whiplash" that results in so-called "normal" rainfall years becoming a thing of the past.

Because of climate change, our water supply problem must be solved regardless of whether or not the City grows. Our reality is that even if the population of Santa Cruz could be frozen in time, with not a single person added, the challenges brought by climate change cause us to need to increase our water supply as described in this document. Projections for the City's growth are included in the City's water supply planning. Thanks to modern water efficiencies and Santa Cruz's legendary commitment to conservation, the modest growth in water demand that's projected does little to increase our need for water supply. The critical challenge that the Water Department is planning for is the need to establish a reliable supply of water that ensures water is available to our community as we experience the increasingly unpredictable winter rainfall pattern caused by climate change.

While existing water supplies are acknowledged to be insufficient, based on the entire record, projected water supplies with implementation of planned augmentation projects will be sufficient to satisfy the demands of the Downtown Plan Expansion Project, in addition to existing and planned future uses.

10 References

M.Cubed, 2024 Update to the City of Santa Cruz Long-Range Demand Forecast. September 9, 2024. (M.Cubed, 2024)

Santa Cruz, City of, Notice of Preparation of a Subsequent Environmental Impact Report for the Santa Cruz Downtown Plan Expansion Project. September 16, 2022. (Santa Cruz, 2022)

Santa Cruz, City of, 2020 Urban Water Management Plan. Adopted November 9, 2021. (Santa Cruz, 2021a)

Santa Cruz, City of, Santa Cruz Water Rights Project Final Environmental Impact Report. Certified December 14, 2021. (Santa Cruz, 2021b)

Santa Cruz Mid-County Groundwater Sustainability Agency, 2019. Santa Cruz Mid-County Groundwater Sustainability Plan. Adopted November 21, 2019. (MGA, 2019)

Water Supply Advisory Committee, 2015. Water Supply Advisory Committee Final Report on Agreements and Recommendations. Accepted by Santa Cruz City Council November 24, 2015. (WSAC, 2015)

APPENDIX A

POLICY ANALYSIS FOR THE PUBLIC AND PRIVATE SECTORS
M.CUBED

5358 MILES AVENUE
OAKLAND, CA 94618
(510) 593-6913
MITCHELL@MCUBED-ECON.COM

Technical Memorandum

Date: September 9, 2024
Prepared For: City of Santa Cruz Water Department
Prepared By: David Mitchell (M.Cubed)
Subject: 2024 Update to the City of Santa Cruz Long-Range Demand Forecast

Contents

Background 2
Summary of Updated Water Demand Projections 3
Residential Water Demand Update 5
Housing Stock Update 5
Residential Population Update 10
Service Area Population Update 11
Updated Residential Demand Projection 12
Comparison with AMBAG Draft Population and Housing Projections 13
Business and Industrial Water Demand Update 16
Projected Water Use by New Business and Industrial Development 16
Projected Water Use by Existing Business and Industrial Customers 20
Updated Business and Industrial Demand Projection 20
Attachment 1: Development Projections Compiled by the Water Department 22

Background

In 2020, the Water Department contracted with M.Cubed to update its long-range water demand forecast from the previous forecast developed for the 2015 UWMP. The scope of work specified completion of the following tasks:

1. Update service area population, land use, and housing projections consistent with local planning documents and AMBAG projections.
2. Using customer-level billing data, update the baseline estimates of average water use per service connection by customer class.
3. Apply adjustments to the baseline average use estimates to account for the effects of plumbing codes, on-going conservation, and marginal water service costs on average water use over the course of the forecast.
4. Adjust the projections of future UCSC water demands to be consistent with the university's Long-Range Development Plan (University of California, Santa Cruz 2021).
5. Account for effects of the covid-19 pandemic on current and future water use.
6. Prepare a technical memorandum documenting the data and procedures used to update the demand forecast and provide side-by-side comparisons of the original and updated forecasts. Prepare an Excel workbook containing the datasets and calculations used to update the water demand forecast.

The results of these tasks were summarized in a Technical Memorandum dated September 10, 2021, which provided the basis for the population and water demand projections contained in the City of Santa Cruz's 2020 Urban Water Management Plan (UWMP).[1]

In late 2022, the Water Department requested M.Cubed update these projections to reflect updated new housing and commercial development projections related to the Downtown Plan Expansion, Library Mixed-Use Project, Capitola Mall Redevelopment Project, and projected development in other parts of its service area. The updated demands are summarized in a Technical Memorandum dated March 9, 2023.[2]

The Water Department has requested this update to the projections to reflect current housing and commercial development projections, including residential construction projections contained in the City's, Capitola's, and County's 2023-2031 Housing Elements, to support environmental analyses in development by the City of Santa Cruz. This technical memorandum presents the updated projections

[1] Update of the City of Santa Cruz's Long-Range Water Demand Forecast, Technical Memorandum dated September 10, 2021, prepared by David Mitchell, M.Cubed.
[2] 2023 Update to the City of Santa Cruz Long-Range Demand Forecast, Technical Memorandum dated March 9, 2023, prepared by David Mitchell, M.Cubed

and provides a side-by-side comparison with the previously updated projections and those contained in the 2020 UWMP.

Summary of Updated Water Demand Projections

A comparison of the updated demand projections to the 2023 update and those in the 2020 UWMP is provided in Table 1. The following is noted:

- The update is based on housing unit and commercial/industrial land use projections compiled by the Water Department and included in Attachment 1.

- Updates were made to the single-family (SFR), multi-family (MFR), accessory dwelling unit (ADU), business (BUS), and industrial (IND) demand projections. Water demand projections for UC Santa Cruz and other miscellaneous water uses have not changed from those in the 2020 UWMP.

- There is little information available on ADU water usage. ADUs share a common meter with the primary residence and thus ADU water usage is not separately measured. For the long-range demand projections, it is assumed that average ADU use is the same as average MFR use and these two uses are reported simply as MFR. This provides a conservative basis for water supply planning as it may in fact be the case that ADU water use is, on average, somewhat lower than MFR. However, given the low number of ADUs relative to MFR, the difference, if any, is not expected to have a material impact on the planning estimates of future demand.

- The updated 2045 demand projection is 3.9% greater than the projection in the 2023 update and 8.6% greater than the projection in the 2020 UWMP. The increase in demand relative to the UWMP is due to higher projected levels of housing development, particularly with respect to MFR and ADU development.

Table 1. Updated and 2020 UWMP Demand Projections

2024 Update	**Units**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
SFR	MG	952	947	936	934	934	934
MFR	MG	588	656	762	815	859	904
BUS	MG	388	455	445	429	426	429
IND	MG	39	38	39	40	41	42
MUN	MG	66	54	51	47	47	47
IRR	MG	77	77	69	59	58	59
GOLF	MG	39	44	40	36	35	35
UC Coastal	MG	4	10	15	21	26	26
UC Main	MG	106	152	199	245	292	292
Total Demand	**MG**	**2,257**	**2,432**	**2,556**	**2,627**	**2,717**	**2,768**
MISC/LOSS	MG	348	197	207	213	220	224
Coastal Irrigation	MG	6	12	12	12	12	12
Total Production	**MG**	**2,612**	**2,641**	**2,775**	**2,851**	**2,950**	**3,004**
Rounded	**MG**	**2,600**	**2,600**	**2,800**	**2,900**	**2,900**	**3,000**

2023 Update	**Units**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
SFR	MG	952	947	938	937	939	939
MFR	MG	588	659	718	743	781	781
BUS	MG	388	500	478	453	445	445
IND	MG	39	39	39	39	39	39
MUN	MG	66	54	51	47	47	47
IRR	MG	77	77	69	59	58	59
GOLF	MG	39	44	40	36	35	35
UC Coastal	MG	4	10	15	21	26	26
UC Main	MG	106	152	199	245	292	292
Total Demand	**MG**	**2,257**	**2,480**	**2,548**	**2,581**	**2,661**	**2,663**
MISC/LOSS	MG	348	201	207	209	216	216
Coastal Irrigation	MG	6	12	12	12	12	12
Total Production	**MG**	**2,612**	**2,694**	**2,767**	**2,802**	**2,889**	**2,891**
Rounded	**MG**	**2,600**	**2,700**	**2,800**	**2,800**	**2,900**	**2,900**

2020 UWMP	**Units**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
SFR	MG	952	955	954	959	967	976
MFR	MG	588	605	610	604	609	614
BUS	MG	388	504	488	464	458	462
IND	MG	39	37	37	37	37	37
MUN	MG	66	54	51	47	47	47
IRR	MG	77	77	69	59	58	59
GOLF	MG	39	44	40	36	35	35
UC Coastal	MG	4	10	15	21	26	26
UC Main	MG	106	152	199	245	292	292
Total Demand	**MG**	**2,257**	**2,437**	**2,463**	**2,473**	**2,529**	**2,547**
MISC/LOSS	MG	348	198	200	200	205	206
Coastal Irrigation	MG	6	12	12	12	12	12
Total Production	**MG**	**2,612**	**2,647**	**2,675**	**2,685**	**2,746**	**2,765**
Rounded	**MG**	**2,600**	**2,600**	**2,700**	**2,700**	**2,700**	**2,800**

Residential Water Demand Update

The residential water demand projections are based on the projected number of occupied single- and multi-family dwelling units. In year t, residential demand is:

$$Demand_t = DU_t \cdot OccupancyRate_t \cdot PersonsPerHousehold_t \cdot GPCD_t$$

Where *DU* is the number of dwelling units, *OccupancyRate* is the average occupancy rate of the housing stock, *PersonsPerHousehold* is the average household size, and *GPCD* is residential per capita water use. *GPCD* is adjusted over the forecast to capture the ongoing effects of plumbing and water appliance efficiency codes and changes in marginal water costs. Separate parameter estimates were prepared for single- and multi-family dwelling units.

Housing Stock Update

Projected housing units have been updated according to the estimates compiled by the Water Department (Attachment 1). Projected occupancy rates have been updated to reflect current rates based on Department of Finance and Water Department data. The other parameters used to estimate residential demand are unchanged from the 2023 update.[3]

The housing development estimates compiled by the Water Department do not differentiate between single- and multi-family structures, though they do estimate ADUs separately. Specific and general plan information reviewed for this update indicates that the vast majority of new units, other than ADUs, will be multi-family. Therefore, multi-family water use factors are applied to the estimates of new construction to forecast the associated water usage.

The new development estimates compiled by the Water Department included varying timeframes over which this construction is anticipated to occur. Based on these timeframes, the new housing units were allocated across the forecast as follows:

- If the timeframe is 2-10 years, dwelling units were evenly apportioned between 2025 and 2035.
- If the timeframe is 4-10 years, dwelling units were evenly apportioned between 2030 and 2035.
- If the timeframe is 1-20 years, dwelling units were evenly apportioned between 2025 and 2045.
- If the timeframe is 2-20 or 4-20 years, dwelling units were evenly apportioned between 2030 and 2045.
- If a project is marked as completed or under construction, dwelling units were apportioned to 2025.

[3] As reported in 2023 Update to the City of Santa Cruz Long-Range Demand Forecast, Technical Memorandum dated March 9, 2023, prepared by David Mitchell, M.Cubed.

- If the timeframe is listed as unknown, dwelling units were apportioned between 2025 and 2030.[4]

Table 2 shows the apportionment of projected new dwelling units in five year increments between 2025 and 2045.

Table 2. Planned Cumulative Additions to Housing Stock: 2025-2045

Downtown Plan Expansion	**2025**	**2030**	**2035**	**2040**	**2045**
MFR	0	434	867	1,301	1,734
Inside-City Under Construction or Approved					
MFR	864	1,726	2,303	2,303	2,303
Inside-City Other Pending/Planned					
MFR	0	495	991	1,158	1,326
ADU	292	584	876	1,168	1,460
Subtotal	292	1,079	1,867	2,326	2,786
Capitola Housing Element					
MFR	0	1,336	1,336	1,336	1,336
ADU	8	16	23	31	39
Subtotal	8	1,352	1,359	1,367	1,375
Unincorporated County					
MFR	0	525	1,050	1,575	2,100
ADU	0	50	100	150	200
Subtotal	0	575	1,150	1,725	2,300
Grand Total					
MFR	864	4,515	6,547	7,673	8,799
ADU	300	650	999	1,349	1,699
Total	1,164	5,165	7,546	9,022	10,498

Table 3 compares the updated cumulative additions to the housing stock to the cumulative additions used in 2023 update and the 2020 UWMP. The MFR and ADU housing categories are grouped together because the residential demand forecast assumes the two housing categories share the same average occupancy, household size, and per capita water use. Overall, the 2024 updated projection includes 6,750 more dwelling units in 2045 than was assumed in the 2020 UWMP, and 1,654 more than was assumed in the 2023 update. All of the increase is due to higher projected rates of MFR and ADU construction.

[4] This only applied to new housing in Capitola's Housing Element which covers the period 2023-2031. Thus, the majority of these housing units should be online by 2030.

Table 3. Updated and 2020 UWMP Cumulative Additions to Housing Stock

SFR	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	0	0	0	0	0	0
2023 Update	0	53	93	118	143	143
UWMP	0	245	433	618	772	909
Difference from						
2023 Update	0	-53	-93	-118	-143	-143
UWMP	0	-245	-433	-618	-772	-909
% Difference from						
2023 Update	0%	-100%	-100%	-100%	-100%	-100%
UWMP	0%	-100%	-100%	-100%	-100%	-100%

MFR + ADU	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	0	1,164	5,165	7,546	9,022	10,498
2023 Update	0	3,193	5,983	7,342	8,701	8,701
UWMP	0	1,396	2,210	2,507	2,718	2,839
Difference from						
2023 Update	0	-2,029	-818	204	321	1,797
UWMP	0	-232	2,955	5,039	6,304	7,659
% Difference from						
2023 Update	0%	-64%	-14%	3%	4%	21%
UWMP	0%	-17%	134%	201%	232%	270%

Total	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	0	1,164	5,165	7,546	9,022	10,498
2023 Update	0	3,246	6,076	7,460	8,844	8,844
UWMP	0	1,641	2,643	3,125	3,491	3,748
Difference from						
2023 Update	0	-2,082	-911	86	178	1,654
UWMP	0	-477	2,522	4,421	5,531	6,750
% Difference from						
2023 Update	0%	-64%	-15%	1%	2%	19%
UWMP	0%	-29%	95%	141%	158%	180%

Table 4 compares the updated housing stock projection to the 2020 UWMP and 2023 update projections. Overall, the updated 2045 housing stock is 20% greater than the UWMP projection and 7% greater than the 2023 updated projection.

Table 4. Updated and 2020 UWMP Housing Stock Projections

SFR	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	20,578	20,994	20,994	20,994	20,994	20,994
2023 Update	20,578	20,631	20,671	20,696	20,721	20,721
UWMP	20,578	20,823	21,011	21,196	21,351	21,487
Difference from						
2023 Update	0	363	323	298	273	273
UWMP	0	171	-17	-202	-357	-493
% Difference from						
2023 Update	0%	2%	2%	1%	1%	1%
UWMP	0%	1%	0%	-1%	-2%	-2%

MFR + ADU	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	18,173	20,493	24,494	26,875	28,351	29,827
2023 Update	18,173	21,366	24,156	25,515	26,874	26,874
UWMP	18,173	19,569	20,383	20,680	20,892	21,013
Difference from						
2023 Update	0	-873	338	1,360	1,477	2,953
UWMP	0	924	4,111	6,195	7,460	8,815
% Difference from						
2023 Update	0%	-4%	1%	5%	5%	11%
UWMP	0%	5%	20%	30%	36%	42%

Total	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	38,751	41,487	45,488	47,869	49,345	50,821
2023 Update	38,751	41,997	44,827	46,211	47,595	47,595
UWMP	38,751	40,392	41,394	41,876	42,242	42,500
Difference from						
2023 Update	0	-510	661	1,658	1,750	3,226
UWMP	0	1,095	4,094	5,993	7,103	8,322
% Difference from						
2023 Update	0%	-1%	1%	4%	4%	7%
UWMP	0%	3%	10%	14%	17%	20%

Table 5 compares the updated projection of occupied housing to the one used in the 2020 UWMP. The occupied housing projection provides the basis for the residential population and water demand projections. Occupied housing is calculated by multiplying the housing stock by the occupancy rates for City of Santa Cruz, City of Capitola, and unincorporated county portions of the service area. The occupancy rate used in the 2024 update is the average occupancy rate for the last three years reported by Department of Finance for City of Santa Cruz. The updated 2045 projection is 22% greater than the 2020 UWMP, and 8% greater than the 2023 update.

Table 5. Updated and 2020 UWMP Occupied Housing Projections

SFR	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	19,119	19,158	19,158	19,158	19,158	19,158
2023 Update	19,119	19,167	19,204	19,226	19,248	19,248
UWMP	19,119	19,249	19,380	19,511	19,644	19,777
Difference from						
2023 Update	0	-10	-46	-68	-91	-91
UWMP	0	-91	-222	-354	-486	-619
% Difference from						
2023 Update	0%	0%	0%	0%	0%	0%
UWMP	0%	0%	-1%	-2%	-2%	-3%

MFR + ADU	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	16,861	19,511	23,321	25,588	26,993	28,398
2023 Update	16,861	19,830	22,408	23,650	24,898	24,900
UWMP	16,861	18,065	18,773	19,014	19,203	19,325
Difference from						
2023 Update	0	-319	913	1,938	2,095	3,498
UWMP	0	1,446	4,548	6,574	7,790	9,073
% Difference from						
2023 Update	0%	-2%	4%	8%	8%	14%
UWMP	0%	8%	24%	35%	41%	47%

Total	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	35,980	38,669	42,478	44,745	46,150	47,556
2023 Update	35,980	38,997	41,612	42,876	44,146	44,149
UWMP	35,980	37,314	38,152	38,525	38,846	39,102
Difference from						
2023 Update	0	-328	866	1,869	2,004	3,407
UWMP	0	1,355	4,326	6,220	7,304	8,454
% Difference from						
2023 Update	0%	-1%	2%	4%	5%	8%
UWMP	0%	4%	11%	16%	19%	22%

Residential Population Update

Table 6 shows the updated projection of residential population. Overall, the updated 2045 residential population is 15% larger than the 2020 UWMP, and 6% larger than the 2023 update.

Table 6. Updated and 2020 UWMP Residential Population Projections

SFR	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	54,124	54,237	54,238	54,239	54,240	54,240
2023 Update	54,124	54,262	54,368	54,432	54,496	54,496
UWMP	54,124	54,735	55,271	55,702	56,193	56,680
Difference from						
2023 Update	0	-25	-129	-193	-256	-256
UWMP	0	-497	-1,033	-1,463	-1,953	-2,440
% Difference from						
2023 Update	0%	0%	0%	0%	0%	0%
UWMP	0%	-1%	-2%	-3%	-3%	-4%

MFR + ADU	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	30,919	35,813	42,865	47,046	49,678	52,297
2023 Update	30,919	36,370	41,138	43,445	45,785	45,821
UWMP	30,919	33,270	34,677	35,151	35,567	35,856
Difference from						
2023 Update	0	-557	1,728	3,601	3,893	6,476
UWMP	0	2,543	8,188	11,895	14,111	16,441
% Difference from						
2023 Update	0%	-2%	4%	8%	9%	14%
UWMP	0%	8%	24%	34%	40%	46%

Total	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	85,043	90,050	97,104	101,285	103,918	106,537
2023 Update	85,043	90,632	95,506	97,877	100,280	100,317
UWMP	85,043	88,004	89,949	90,852	91,760	92,535
Difference from						
2023 Update	0	-582	1,598	3,408	3,637	6,220
UWMP	0	2,045	7,155	10,432	12,158	14,001
% Difference from						
2023 Update	0%	-1%	2%	3%	4%	6%
UWMP	0%	2%	8%	11%	13%	15%

Service Area Population Update

Table 7 shows the updated service area population projection. Only the residential population projections have changed. Group quarters and UCSC population projections remain unchanged from the 2020 UWMP. The updated 2045 service area population is 12% greater than the 2020 UWMP, and 5% greater than the 2023 update.

Table 7. Updated and 2020 UWMP Service Area Population Projections

SFR	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	54,124	54,237	54,238	54,239	54,240	54,240
2023 Update	54,124	54,262	54,368	54,432	54,496	54,496
UWMP	54,124	54,735	55,271	55,702	56,193	56,680
Difference from						
2023 Update	0	-25	-129	-193	-256	-256
UWMP	0	-497	-1,033	-1,463	-1,953	-2,440
% Difference from						
2023 Update	0%	0%	0%	0%	0%	0%
UWMP	0%	-1%	-2%	-3%	-3%	-4%
MFR + ADU	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	30,919	35,813	42,865	47,046	49,678	52,297
2023 Update	30,919	36,370	41,138	43,445	45,785	45,821
UWMP	30,919	33,270	34,677	35,151	35,567	35,856
Difference from						
2023 Update	0	-557	1,728	3,601	3,893	6,476
UWMP	0	2,543	8,188	11,895	14,111	16,441
% Difference from						
2023 Update	0%	-2%	4%	8%	9%	14%
UWMP	0%	8%	24%	34%	40%	46%
Group Qtrs	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Unchanged	1,375	2,309	2,374	2,391	2,443	2,464
UCSC	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Unchanged	9,750	11,650	13,750	15,950	18,650	18,650
Total	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	96,168	104,009	113,227	119,625	125,011	127,651
2023 Update	96,168	104,591	111,629	116,217	121,374	121,432
UWMP	96,168	101,964	106,072	109,193	112,853	113,650
Difference from						
2023 Update	0	-582	1,598	3,408	3,637	6,220
UWMP	0	2,045	7,155	10,432	12,158	14,001
% Difference from						
2023 Update	0%	-1%	1%	3%	3%	5%
UWMP	0%	2%	7%	10%	11%	12%

Updated Residential Demand Projection

The updated residential demand projections are provided in Table 8. The updated 2045 projection is 16% greater than the 2020 UWMP and 7% greater than the 2023 update.

Table 8. Updated and 2020 UWMP Residential Water Demand Projections (MG)

SFR	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	952	947	936	934	934	934
2023 Update	952	947	938	937	939	939
UWMP	952	955	954	959	967	976
Difference from						
2023 Update	0	0	-2	-3	-4	-4
UWMP	0	-8	-18	-25	-33	-41
% Difference from						
2023 Update	0%	0%	0%	0%	0%	0%
UWMP	0%	-1%	-2%	-3%	-3%	-4%

MFR + ADU	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	588	656	762	815	859	904
2023 Update	588	659	718	743	781	781
UWMP	588	605	610	604	609	614
Difference from						
2023 Update	0	-3	43	72	78	122
UWMP	0	51	152	211	249	290
% Difference from						
2023 Update	0%	0%	6%	10%	10%	16%
UWMP	0%	8%	25%	35%	41%	47%

Total	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	1,539	1,603	1,698	1,749	1,793	1,838
2023 Update	1,539	1,606	1,657	1,680	1,719	1,720
UWMP	1,539	1,560	1,563	1,563	1,577	1,589
Difference from						
2023 Update	0	-3	41	69	74	118
UWMP	0	42	134	186	216	249
% Difference from						
2023 Update	0%	0%	2%	4%	4%	7%
UWMP	0%	3%	9%	12%	14%	16%

Comparison with AMBAG Draft Population and Housing Projections

In general, AMBAG's draft projections for the City of Santa Cruz show smaller increases in housing and population than the estimates compiled by the Water Department (Attachment 1). The differences are summarized in Tables 9 through 14 and are primarily due to (1) a lower AMBAG projection of new housing units and (2) a higher AMBAG projection of household vacancy rates. Together, these differences result in a lower household population projection. Both projections assume similar average household size and institutional populations.

The basis for the AMBAG vacancy rate projection is unknown but is believed to be based on older DOF data. The vacancy rate used in the updated water demand projection is derived using Water Department estimates of the number of single- and multi-family dwelling units with active meters versus DOF counts of total single- and multi-family dwelling units. This comparison yielded a three-year average (2022-24) vacancy rate of 8.7% for single-family dwelling units, 4.8% for multi-family dwelling units, and a combined vacancy rate of 7.0% which is 2.5 percentage points lower than DOF's average vacancy rate for the same period. The single- and multi-family vacancy rates are used in the demand forecast and the overall vacancy rates shown in Table 13 are dwelling-unit weighted averages of the two rates.

Under the AMBAG projection, Inside-City 2045 residential demand would be about 144 MG lower than shown in Table 1 and total demand, after accounting for water production losses, would decrease from 3,004 MG to 2,849 MG, or when rounded to the nearest hundred MG, from 3,000 to 2,800 MG. Thus the draft AMBAG projections reduce the rounded 2045 demand projection by 200 MG.

Table 9. Inside-City Household Population Projections

Projection	2020*	2025	2030	2035	2040	2045	2050
2024 Update	53,299	55,642	59,282	62,427	64,026	65,616	
AMBAG	51,504	50,856	52,290	53,626	54,306	55,055	55,256
Difference	1,795	4,786	6,992	8,801	9,720	10,561	
% Difference	3.5%	9.4%	13.4%	16.4%	17.9%	19.2%	

* 2020 UWMP Estimate

Table 10. Inside-City Total Population

Projection	2020*	2025	2030	2035	2040	2045	2050
2024 Update	64,424	69,152	74,948	80,310	84,662	86,273	
AMBAG	64,695	64,479	67,618	70,998	74,011	75,350	75,552
Difference	-271	4,673	7,330	9,312	10,651	10,923	
% Difference	-0.4%	7.2%	10.8%	13.1%	14.4%	14.5%	

* 2020 UWMP Estimate

Table 11. Inside-City Total Housing Units

Projection	2020*	2025	2030	2035	2040	2045	2050
2024 Update	23,954	25,662	27,744	29,543	30,436	31,329	
AMBAG	24,014	24,987	26,418	27,322	27,706	27,941	28,074
Difference	-60	675	1,326	2,221	2,730	3,388	
% Difference	-0.2%	2.7%	5.0%	8.1%	9.9%	12.1%	

* 2020 UWMP Estimate

Table 12. Inside-City Occupied Housing Units

Projection	2020*	2025	2030	2035	2040	2045	2050
2024 Update	22,608	23,900	25,883	27,595	28,445	29,296	
AMBAG	21,731	22,344	22,970	23,586	23,916	24,118	24,232
Difference	877	1,557	2,913	4,009	4,529	5,178	
% Difference	4.0%	7.0%	12.7%	17.0%	18.9%	21.5%	

* 2020 UWMP Estimate

Table 13. Inside-City Vacancy Rates

Projection	2020*	2025	2030	2035	2040	2045	2050
2024 Update	5.6%	6.9%	6.7%	6.6%	6.5%	6.5%	
AMBAG	9.5%	10.6%	13.1%	13.7%	13.7%	13.7%	13.7%
Difference	-3.9%	-3.7%	-6.3%	-7.1%	-7.1%	-7.2%	
% Difference	-40.9%	-35.1%	-48.6%	-51.8%	-52.2%	-52.6%	

* 2020 UWMP Estimate

Table 14. Inside-City Average Household Size

Projection	2020*	2025	2030	2035	2040	2045	2050
2024 Update	2.36	2.33	2.29	2.26	2.25	2.24	
AMBAG	2.37	2.28	2.28	2.27	2.27	2.28	2.28
Difference	0	0	0	0	0	0	
% Difference	-0.5%	2.1%	0.5%	-0.3%	-0.8%	-1.8%	

* 2020 UWMP Estimate

Business and Industrial Water Demand Update

The business and industrial water demand projections in the 2020 UWMP are based on the projected number of business and industrial services. In year t, business and industrial demand is:

$$Demand_t = Accounts_t \cdot WDF_t$$

where *Accounts* is the number of business or industrial accounts and WDF is the water demand factor in gallons per year per account. The projected number of business accounts is proportional to service area population while the projected number of industrial accounts is proportional to projected City of Santa Cruz manufacturing employment. The water demand factors, WDF, vary by year in order to capture the ongoing effects of plumbing and water appliance efficiency codes and changes in marginal water costs.

The updated business and industrial water demand projections are based on the new commercial and industrial development projections compiled by the Water Department (Attachment 1).

In year t, business and industrial demand is:

$$Demand_t = [Accounts_{2024} \cdot WDF_t] + \left[NewSqft_t \cdot WDF_{sqft}\right] + [NewHotelRms \cdot WDF_{room}]$$

where $[Accounts_{2024} \cdot WDF_t]$ represents projected water use by existing business/industrial accounts, $\left[NewSqft_t \cdot WDF_{sqft}\right]$ represents projected water use for new business/industrial development other than lodging, and $[NewHotelRms \cdot WDF_{room}]$ represents projected water use for new lodging development.

Projected Water Use by New Business and Industrial Development

The water factors used to project water uses by new business, industrial, and lodging development are unchanged from the 2023 update.

Table 15. Updated New Commercial Development (Sqft)

Year	2024 Downtown Plan Expansion (4-20 yrs)	Under Construction/Approved			Other Pending/Planned			Total	Water Use Factor (gal/sf/yr)	Change in Water Use (MG)
		2024 Under Constr. (1-2 yrs)	2024 Finaled (Completed)	2024 Approved (2-10 yrs)	2024 Pending Applications (4-10 yrs)	2024 Other Planned Pre-Appl. (4-20 yrs)	Unincorp. County (2-20 yrs)			
2020	0	0	0	0	0	0	0	0	66	0
2025	0	-28,803	450	-17,084	0	0	0	-45,436	66	-3
2030	-4,193	-57,605	450	-34,167	775	4,531	6,766	-83,443	66	-6
2035	-8,385	-57,605	450	-51,251	1,549	9,063	13,532	-92,648	66	-6
2040	-12,578	-57,605	450	-51,251	1,549	13,594	20,298	-85,543	66	-6
2045	-16,770	-57,605	450	-51,251	1,549	18,125	27,064	-78,438	66	-5

Table 16. Updated New Office Development (Sqft)

Year	2024 Downtown Plan Expansion (4-20 yrs)	Under Construction/Approved			Other Pending/Planned			Total	Water Use Factor (gal/sf/yr)	Change in Water Use (MG)
		2024 Under Constr. (1-2 yrs)	2024 Finaled (Completed)	2024 Approved (2-10 yrs)	2024 Pending Applications (4-10 yrs)	2024 Other Planned Pre-Appl. (4-20 yrs)	Unincorp. County (2-20 yrs)			
2020	0	0	0	0	0	0	0	0	18	0
2025	0	295	0	-1,377	0	0	0	-1,082	18	0
2030	0	590	0	-2,754	41	0	89,900	87,777	18	2
2035	0	590	0	-4,131	81	0	179,800	176,340	18	3
2040	0	590	0	-4,131	81	0	269,700	266,240	18	5
2045	0	590	0	-4,131	81	0	359,600	356,140	18	6

Table 17. Updated New Other Development (Sqft)

Year	2024 Downtown Plan Expansion (4-20 yrs)	Under Construction/Approved			Other Pending/Planned			Total	Wtd. Avg. Water Use Factor (gal/sf/yr)	Change in Water Use (MG)
		2024 Under Constr. (1-2 yrs)	2024 Finaled (Completed)	2024 Approved (2-10 yrs)	2024 Pending Applications (4-10 yrs)	2024 Other Planned Pre-Appl. (4-20 yrs)	Unincorp. County (2-20 yrs)			
2020	0	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0	0
2030	36,250	0	0	0	0	0	9,100	45,350	13	1
2035	72,500	0	0	0	0	0	18,200	90,700	13	1
2040	108,750	0	0	0	0	0	27,300	136,050	13	2
2045	145,000	0	0	0	0	0	36,400	181,400	13	2

Table 18. Updated New Lodging Development (Rooms)

Year	2024 Downtown Plan Expansion (4-20 yrs)	Under Construction/Approved			Other Pending/Planned			Total	Water Use Factor (gal/rm/yr)	Change in Water Use (MG)
		2024 Under Constr. (1-2 yrs)	2024 Finaled (Completed)	2024 Approved (2-10 yrs)	2024 Pending Applications (4-10 yrs)	2024 Other Planned Pre-Appl. (4-20 yrs)	Capitola & Unincorp. County (2-20 yrs)			
2020	0	0	0	0	0	0	0	0	33,945	0
2025	0	83	0	0	0	0	0	83	33,945	3
2030	0	165	0	0	0	0	122	287	33,945	10
2035	0	165	0	0	0	0	144	309	33,945	10
2040	0	165	0	0	0	0	166	331	33,945	11
2045	0	165	0	0	0	0	188	353	33,945	12

Table 19. Updated New Industrial Development (Sqft)

Year	Downtown Plan Expansion	Under Construction/Approved			Other Pending/Planned			Total	Water Use Factor (gal/sf/yr)	Change in Water Use (MG)
		2024 Under Constr. (1-2 yrs)	2024 Finaled (Completed)	2024 Approved (2-10 yrs)	2024 Pending Applications (4-10 yrs)	2024 Other Planned Pre-Appl. (4-20 yrs)	Unincorp. County (2-20 yrs)			
2020	0	0	0	0	0	0	0	0	12	0
2025	0	7,500	8,870	7,338	0	0	0	23,708	12	0
2030	0	7,500	8,870	14,677	1,540	1,250	79,750	113,587	12	1
2035	0	7,500	8,870	22,015	3,080	2,500	159,500	203,465	12	2
2040	0	7,500	8,870	22,015	3,080	3,750	239,250	284,465	12	3
2045	0	7,500	8,870	22,015	3,080	5,000	319,000	365,465	12	4

Projected Water Use by Existing Business and Industrial Customers

The projection of business and industrial water demand for existing customers is shown in Table 20. This projection updates the water factors (in gallons/account/year) to reflect current usage rates. Note that the lower business water factor in 2020 is due to reductions in business water use related to Covid shelter-in-place orders.

Table 20. Water Demand Projection for Existing Business and Industrial Accounts

Business	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Accounts	1,874	1,879	1,879	1,879	1,879	1,879
WDF (gal/acct/yr)	206,797	242,362	233,254	223,786	220,213	220,213
Demand (MG)	388	455	438	420	414	414

Industrial	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Accounts	38	35	35	35	35	35
WDF (gal/acct/yr)	1,018,796	1,074,473	1,074,473	1,074,473	1,074,473	1,074,473
Demand (MG)	39	38	38	38	38	38

Updated Business and Industrial Demand Projection

Table 21 compares the updated projection of business and industrial water demand to the one used in the 2020 UWMP. The updated 2045 projection is 6% less than the 2020 UWMP and 3% less than the 2023 update.

Table 21. Updated and 2020 UWMP Business and Industrial Water Demand Projections (MG)

Business	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	388	455	445	429	426	429
2023 Update	388	500	478	453	445	445
UWMP	388	504	488	464	458	462
Difference from						
2023 Update	0	-45	-33	-24	-19	-16
UWMP	0	-49	-43	-35	-32	-33
% Difference from						
2023 Update	0%	-9%	-7%	-5%	-4%	-4%
UWMP	0%	-10%	-9%	-8%	-7%	-7%

Industrial	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	39	38	39	40	41	42
2023 Update	39	39	39	39	39	39
UWMP	39	37	37	37	37	37
Difference from						
2023 Update	0	-1	0	1	2	3
UWMP	0	1	2	3	4	5
% Difference from						
2023 Update	0%	-2%	0%	3%	5%	8%
UWMP	0%	2%	5%	8%	11%	13%

Total	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
2024 Update	426	493	484	469	467	471
2023 Update	426	538	517	492	484	484
UWMP	426	541	525	501	495	499
Difference from						
2023 Update	0	-45	-33	-23	-17	-13
UWMP	0	-48	-41	-32	-28	-28
% Difference from						
2023 Update	0%	-8%	-6%	-5%	-4%	-3%
UWMP	0%	-9%	-8%	-6%	-6%	-6%

Attachment 1: Development Projections Compiled by the Water Department

New housing unit and commercial/industrial land use projections compiled by the Water Department are summarized in the table on the following page.

SANTA CRUZ WATER DEPT CUMULATIVE DEVELOPMENT FORECAST 2024							7/10/2024
	DU	**Commercial (sf)**	**Industrial (sf)**	**Office (sf)**	**Hotel Rooms**	**Other (sf)**	**Estimated Development Timeframe**
INSIDE CITY							
Proposed Downtown Plan Expansion [1]	1,734	-16,770	0	0	0	145,000	4-20 years
Under Construction/Approved							
Under Construction	569	-57,605	7,500	590	165		1-2 years
Finalized 2024	2	450	8,870				Completed
Approved	**1,732**	**-51,251**	**22,015**	**-4,131**	**232**		2-10 years
City Current Subtotal	**4,037**	**-125,176**	**38,385**	**-3,541**	**397**	**145,000**	
Other Pending/Planned							
Pending Applications [2]	655	1,549	3,080	81			4-10 years
Other Planned Pre-Applications	671	18,125	5,000				4-20 years
Accessory Dwelling Units (ADUs) [3]	1,460						1-20 years
City Future Subtotal	**2,786**	**19,674**	**8,080**	**81**	**0**	**0**	
UCSC: Net increase of 8,500 students and 2,100 staff for total 28,000 students and 5,000 employees (no change_							1-20 years
OUTSIDE CITY							
Unincorporated County Estimate from 2022 [4]	2,100	27,064	319,000	359,600	88	36,400	2- 20 years
Unincorporated County ADUs [5]	200						2- 20 years
Unincorporated County Subtotal	**2,300**	**27,064**	**319,000**	**359,600**	**88**	**36,400**	
Capitola Housing Element DUs (within City Water service area) [6]	1,336				100		Unknown
Capitola ADUs [7]	39						1-20 years
Capitola Subtotal	**1,375**	**0**	**0**	**0**	**100**	**0**	
TOTAL	**10,498**	**-78,438**	**365,465**	**356,140**	**585**	**181,400**	
NOTES							
[1] Downtown Plan Estimated Growth per NOP	1,800	60,000	0	0	0	180,000	New Sports Arena: 3,200 - 4,000 seats
Minus Existing-only APNs expected to be redeveloped	-66	-76,771	0	0	0	-35,000	Existing Arena: 2,475 - 3,100 seats
Downtown Plan Expansion Net Increase	**1,734**	**-16,771**	**0**	**0**	**0**	**145,000**	725-900 seats
[2] Includes 278 pending permit applications and 377 net DUs for 908 Ocean Street							
[3] City's Housing Elements uses 73/year							
[4] Resources used to predict the overall potential development for water demand on the Santa Cruz City Water Service Area in the next 20 years include the County's recent EIR for the Sustainability Update (General Plan/Zoning Ordinance Update) and GIS measurements of the County's General Plan Planning Areas regarding dwelling units. The Sustainability Update EIR has forecasts for residential units broken down by General Plan Planning Areas. GIS was used to measure how much of the Santa Cruz City Water Service Area is in the applicable Planning Areas. Live Oak, and small portions of Soquel and Carbonera Planning Areas are the only applicable areas in this water service area. Using percentages of the service area paired with the forecasts from the EIR lead to the dwelling unit projections provided. Regarding non-residential forecasts, County staff used AMBAG's growth forecast of jobs for the unincorporated county expected by 2045 and adjusted for the percentage of jobs Live Oak, Soquel, and Carbonera each respectively account for across the County. An "Estimated Building Area Per Employee (Employment Density) Conversion" was used to then calculate the total square footage of each non-residential development type we expect to see by 2045. Other represents "public" category.							
[5] Provided by County, extrapolated							
[6] Housing Element includes Mall Redevelopment, 38th Street, and Clares Street; Quantified Objective new construction = 1,336							
[7] 30% of total of 50 ADUs (15) every 8 years through 2045 in our service area based on City of Cap estimate							

APPENDIX B

COUNCIL POLICY NUMBER 34. 7

POLICY TITLE: SECURING OUR WATER FUTURE POLICY GUIDANCE FOR WATER SUPPLY AUGMENTATION TO ADDRESS SANTA CRUZ'S WATER SUPPLY RELIABILITY ISSUE

POLICY STATEMENT:

1. **Statement of Findings:**
   - 1.1 Water is essential to life. Managing Santa Cruz's water resources in a manner that protects the watershed, respects wildlife and the habitats it depends on, and produces and delivers a high quality and reliable supply of water that protects public health and safety and supports economic prosperity will ensure a secure water future for our community.
   - 1.2 Over many decades, Santa Cruz residents and water service customers have placed a high value on stewardship approaches for the management of our region's natural resources and have expected publicly owned natural resources to be managed in a manner that ensures long-term sustainability, protection, and enhancement of ecosystems to support and restore threatened and endangered species, and to serve the needs of the community.
   - 1.3 As identified by the WSAC in its 2015 report, inadequate water system storage is the critical limiting factor that exposes Santa Cruz water service customers to serious shortages and burdensome and unsustainable levels of curtailment should multi-year droughts deplete stored water in Loch Lomond reservoir. The WSAC explicitly acknowledged in its problem statement that long-term water conservation alone cannot ensure supply reliability for Santa Cruz water service customers.
   - 1.4 Santa Cruz water service customers have embraced water use efficiency as a way of life, achieving an unprecedented level of residential indoor and outdoor use of 44 GPCD, with indoor only use stable at 35 GPCD and have taken actions to significantly reduce outdoor water use by more than 35% over the last two decades, which means that the opportunity to include further customer water use curtailments as key elements in Securing Our Water Future is severely limited.
   - 1.5 Due to current customer water use practices, should curtailment of demand be required, mandatory water rationing will be needed. All stages of the City's 2021 Water Shortage Contingency Plan (WSCP) include water rationing in which already highly efficient water use by residential and business customers would be curtailed. To protect the availability of water for public health and safety purposes under water shortage conditions requiring implementation of the WSCP, Section 16.01 of the Santa Cruz Municipal Code establishes significant excess use penalties and other actions for non-compliance with rationing allotments, which could further subject residential and business customers to financial hardship.
   - 1.6 The results of the Economic Impacts of the Costs of Curtailments developed as part of the Securing Our Water Future process indicates that consequences of

routine and potentially significant water use curtailments to water service customers and the impacts to the region's economy and quality of life are both significant and seriously negative These consequences can be mitigated through expeditious action to add new resources to Santa Cruz's water supply portfolio.

1.7 Climate change, which is already influencing weather patterns in Santa Cruz, is expected to increase the annual variability of Santa Cruz's water supply. This means that more frequent and longer drought conditions are likely, that there will be fewer normal and moderately wet years and that wet conditions, when they occur, are likely to substantially increase flooding events because of a shift in the pattern of precipitation to shorter and significantly more intense storms. This increased variability is a substantial change from historic conditions and is the key driver of sizing supply augmentation projects.

1.8 Long-term demand projections for the Santa Cruz water service area include modest growth over the 25-year demand projection period and reflect water use required to accommodate increased housing, mostly in the form of multi-family housing, and the additional water that is needed to support student housing as identified by University of California at Santa Cruz's 2020 Long Range Development Plan.

1.9 Even without additional modest growth in water demand, the Santa Cruz water system cannot provide reliable service to its customers because of its lack of storage and resulting vulnerability to severe water shortages should dry conditions persist over multiple years.

1.10 Because the impacts of climate change on Santa Cruz's water resources are already being experienced, there is an urgent need for immediate and sustained action to implement additional supply augmentation projects as needed to meet the reliability goal established by this policy. Additionally, appropriate adaptive management tools and techniques need to be implemented over time to assure that, as climate impacts evolve, supply reliability will continue to be a focus of assessment and action.

1.11 Based on Climate Stress Testing and Vulnerability Analysis work completed by Dr. Casey Brown and the Water Department's consultants, near term climate change trends indicate increasing variability will be more of a challenge than changes in mean annual precipitation. Longer term climate trends include both increased variability as well as reduced precipitation, resulting in significantly more challenging conditions of longer, more frequent, and deeper droughts.

1.12 Selecting an initial climate scenario for use in assessing the volume of water needed to meet the reliability goal described in Section 2.1 below involved looking at drought conditions across all 10 Climate Realizations identified and evaluated by Dr. Brown and his team and presented and discussed with the Santa Cruz Water Commission in the summer and fall of 2022. The worst-case conditions identified were from Realization 1270, which has a challenging five-year drought sequence, that turns out to be the worst-case drought for deficits under several different versions of assumptions about precipitation change,

including no precipitation change and -10% precipitation change, and under 1.0, 1.1, and 1.2 Coefficients of Variability.

1.13 Our understanding of and need to continue our work to adapt to climate change is supported by the Vulnerability Analysis, Climate Stress Testing, Water Balance and Santa Cruz Water System modeling tools that have been developed by the Water Department and its consultants as part of the Securing Our Water Future and WSAIP work. Maintaining, updating, and using these tools to inform climate adaptation planning for water supply will be key to the timely development of needed water supply augmentation projects and climate adaptation strategies for ensuring the resilience of water system and its facilities in the face of climate change.

2. Water Supply Reliability Goal

2.1 The City of Santa Cruz's water supply reliability goal shall be achieved by having an adequate supply to meet all customer demand under plausible, worst-case conditions.

2.2 The initial assessment of plausible worst-case conditions shall be based on the review of Water Supply Vulnerability Analysis and Climate Stress Test work completed by Dr. Casey Brown and his team in the summer and fall of 2022 using the following parameters:

2.2.1 **Temperature Parameter:** 2° C increase in temperature (dT = +2º C),

2.2.2 **Precipitation Parameter:** No change in precipitation (dP =100% of average), and

2.2.3 **Coefficient of Variability Parameter**: A +10% coefficient of variability (CV = 1.1).

In selecting these initial climate change parameters to use as the basis for near-term planning for supply augmentation projects, staff has considered a wide range of climate scenarios and chosen parameters that are moderate, plausible, and attempted to choose parameters that do not either over- or under-estimate the potential implications of near-term impacts of climate change on local water resources and water supply reliability.

The parameters shall be reviewed and updated no less frequently than every five years as part of the regular update of the City's Urban Water Management Plan. The resulting review and revision may result in modifications to the volume of water that needs to be developed to meet the water supply reliability goal articulated in 2.1 above.

2.3 As curtailment of demand under the provisions of the state mandated Water Shortage Contingency Plan has been found not to be an effective tool for addressing anticipated water shortages for longer or more frequent dry conditions, its use shall be limited to the infrequent implementation of Stage 1 of the plan where the 10% demand reduction associated with Stage 1 curtailments is determined to be critically necessary to protecting supply availability for public health and sanitation purposes.

3. Santa Cruz's Water Supply Portfolio

3.1 Resources available to achieve water supply reliability in Santa Cruz are limited to those available locally, including surface water flows from local rivers and streams during wet seasons, local groundwater resources, various forms of advanced treated recycled water, and seawater desalination.

3.2 These supply augmentation source options have been found to be technically viable and reliable from a long-term availability perspective considering the potential impacts of climate change. In various circumstances as they may develop into the future, development of one or more of these sources may be determined to be the most appropriate and effective way to ensure water is available to meet the City's public health and safety and economic sustainability goals.

4. Considerations In Developing Water Supply Augmentation Projects

As part of the Securing Our Water Future process, Water Department staff worked with Water Commissioners to use, adapt, and update as needed the evaluation criteria developed and recommended by the WSAC. This policy incorporates these criteria as updated by the Department's active engagement with the Water Commission in the years following completion of the WSAC's work.

The goal of integrating the guiding principles, key criteria and additional criteria in this policy is to confirm that these criteria are important to the consideration and selection of supply augmentation projects to pursue and to set an expectation for transparency. Attachment A to this resolution and policy includes more detailed definitions of each of the criteria.

4.1 Guiding Principles

4.1.1 Public Health – Protecting public health is every water utility's most fundamental duty. The Water Department as an organization, and its individual employees, work every day to produce and deliver an adequate supply of high-quality water that complies with numerous public health-based regulatory standards and is used for human consumption, sanitation, for other domestic and commercial use and for fire protection.

4.1.2 Affordability and Equitable Access to Water Service – Water service is critical to public health and community wellbeing. The City and Water Department recognize that rising costs of water to address system vulnerability, climate adaptation and supply reliability present affordability challenges to customers and, consistent with the City's Health in All Policies policy, is committed to taking steps during the planning and implementation of projects to ensure a reliable water supply and equitable access to service for everyone. Given the limitations of Proposition 218 that prohibit directly subsidizing the cost of water service for those least able to pay, options for locally addressing water affordability are limited, but staff is committed to continuing to advocate for state and federally funded programs for those in need.

4.1.3 Public Acceptance – During the WSAC process and throughout the ensuing work in collaboration with the Water Commission over the intervening years, connecting with community interests, customers, and members of the public about the need for and the approach to improving the reliability of Santa Cruz's water supply has been a key focus of the design and execution of the Department's work. Along

with the yield, costs, timeliness, and technical feasibility of various supply augmentation alternatives, the WSAC identified and applied criteria reflecting the community's values, and also considered energy use, and environmental impacts of the alternatives. All the WSAC's values and considerations have been carried forward in the work that has occurred following the end of the WSAC process and are recommended to be carried into future work as important criteria that, when objectively evaluated and transparently communicated, are aligned with the goal of establishing and maintaining public trust.

4.1.4 Regional Collaboration – Consistent with the goal of achieving a sufficient water supply, the City is committed to regional collaboration to improve water supplies, achieve groundwater sustainability, protect the Santa Cruz Mid-County Groundwater Basin from further seawater intrusion and support the protection and restoration of critical aquatic habitats and the resources dependent upon these ecosystems.

4.1.5 Incremental Implementation – The reality of developing a water supply augmentation project is that such projects take a long time to fully develop due to the required feasibility work, environmental reviews, design and permitting and what is often multi-year construction. Projects developed with regional partners also require development of agreements and funding arrangements at various stages of the work, which also requires time and effort. An incremental implementation strategy supports near-term progress that is important for reducing Santa Cruz's vulnerability to water shortages caused by multi-year droughts while also allowing for simultaneous work on the often-time-consuming early planning and feasibility work to move forward with long-term projects.

4.1.6 Ongoing Community Engagement – The Santa Cruz Water Commission has a long history of engagement with the Water Department on supply augmentation planning and shall continue to be a forum for the active engagement of community interests and the public in this important work. A key goal of Water Commission engagement shall be to maintain transparency through the process of developing and implementing water supply augmentation projects.

4.2 Primary Evaluation Criteria

4.2.1 Cost Metric – Cost-effectiveness is an important consideration in decision-making about supply augmentation projects under development. Useful cost metrics include total capital costs, annualized capital costs, annualized operation and maintenance costs, and unit costs based on both average production and maximum production. To the degree feasible, cost-effectiveness data will be developed and compared for available supply augmentation alternatives at the time a decision is made to proceed forward with a project or pursue an alternative.

4.2.2 Yield Metric – The Yield Metric is the most straightforward and quantifiable of the evaluation criteria. The supply reliability goal described in Section 2 of this policy is used to define the yield needed to achieve reliability. Project yield analyses need to relate to the volume of water needed to meet the supply reliability goal, as it is defined and updated at least every five years as part of the update to the Urban Water Management Plan.

4.2.3 Timeliness Metric – Water projects typically take a decade or more to develop and implement. Planning work on supplemental water supply has been underway since completion of the WSAC work in late 2015. The WSAC's timeliness metric set a 10-year target for achieving water supply sufficiency, with sufficiency defined as having a fully functional water system able to meet the supply-demand gap forecasted during extended droughts.

The Securing Our Water Future Policy acknowledges that, due to the length of time required to develop supply augmentation projects, and the need to use an ongoing and evolving understanding of the impacts of climate change on water supply reliability, incremental implementation of augmentation projects to address the supply deficit will be required. To reduce the vulnerability to nearer term droughts, however, supply augmentation producing at least 500 million gallons a year of additional supply by 2027 should be completed.

4.3 Additional Criteria – The following additional criteria are further characterized and defined in Attachment A-1 to this policy. These criteria are aligned with the criteria and values developed by WSAC for use in evaluating water supply augmentation projects and sharing those evaluation results with the community to support both data-driven and transparent decision-making:

4.3.1 Project's supply contribution as a percent of worst year supply shortfall;
4.3.2 Increases resilience to climate change;
4.3.3 Is understood and accepted by the public and key stakeholders;
4.3.4 Scalable or can be implemented incrementally or in phases;
4.3.5 Technical feasibility;
4.3.6 Likelihood of project being funded by state or federal grants;
4.3.7 Opportunity for shared funding;
4.3.8 Greenhouse gas emissions (from both construction and operations);
4.3.9 Time required for implementation;
4.3.10 Operational complexity;
4.3.11 Energy use;
4.3.12 Potential impacts for CEQA-required mitigation;
4.3.13 Adaptable to future regulatory or source water changes; and
4.3.14 Degree of administrative complexity.

5. Policy Implementation

Subject to the same general terms and provisions for Council review and approval used for the development and implementation of capital investment projects in the City of Santa Cruz, the Santa Cruz Water Department is authorized to pursue any of the following or other similarly related activities in implementing this Policy:

5.1 Conduct planning, preliminary engineering, and technical feasibility analyses for supply augmentation alternatives;

5.2 Consider Primary and Additional Evaluation Criteria in Section 4, evaluate and select supply augmentation projects needed to achieve the Water Supply Reliability Goal described in Section 2 of this Policy;

5.3 Prepare project designs, environmental reviews, and complete project permitting activities;

5.4 Select and implement project development and construction delivery methods using any procurement method authorized by the City Charter and Municipal Code;
5.5 Recommend for Council consideration and action any other steps required to achieve compliance with Section 1431.3 of the City Charter (2012 Measure P requirement for a public vote prior to construction of a desalination plant); and
5.6 Develop and recommend to the City Council for consideration or action as appropriate any agreements with other regional water providers for partnerships, joint ventures, or other collaborative approaches to improving water supply reliability, groundwater sustainability, environmental, and natural resource management and protection, or mutually beneficial projects or partnerships in support of water supply and water system resiliency, and climate adaptation.

The Water Department will continue to actively engage with the Santa Cruz Water Commission and the public in the implementation of this Policy as well as inform and involve the larger community, customers, and interests as appropriate.

Additional Supply Evaluation Criteria

WATER SUPPLY PROJECT EVALUATION CATEGORIES, SUB-CATEGORIES AND DEFINITIONS	
QUANTITATIVE CATEGORIES	
Criterion	**Definition or Explanation** **The criterion provides information about:**
Project Costs	
• Annualized cost per million gallons (and acre foot) of supply	• Full cost analysis of operating and capital costs for the project
Project Yield	
• Project supply contribution as a % of the worst year supply shortfall	• The percent contribution to reducing the worst year supply gap provides information about the degree to which a project can contribute to closing the supply gap
Energy Profile and Climate Mitigation	
• Energy use (KWh/year)	• The amount of energy required annually to operate the project.
• Greenhouse gas emissions associated with the project (metric tons of carbon dioxide equivalents released (MT of CO_{2e}))	• The amount of greenhouse gases associated with the construction and operation of a project. (Similar to the energy version of annualized or life-cycle cost)
Timeliness	
• Time required to begin producing additional an increment of water that makes a significant contribution to improving the system's water supply reliability (months/years)	• The number of years required (from date of evaluation and green light to proceed) to complete technical feasibility work, pre-design, design, CEQA, permitting, construction, commissioning and start-up of a project that produces additional water supply
Technical Feasibility	
• Technical Feasibility (yes/no ratings for each element that comprises a project's technical feasibility benchmarks) o Example sub-elements for technical feasibility can include constructability	• The technical and engineering aspects of a project are realistic and achievable and can and will contribute to improving supply reliability
• Operational complexity (high/medium/low)	• Whether/how the project's operation does or does not add significantly to the operational complexity of the existing system

Qualitative Categories	
Criterion	**Definition or Explanation** **The criterion provides information about:**
Environmental Impact	
• Potential impacts of any CEQA-required mitigation that could significantly affect project cost, yield or timeliness parameters (high/medium/low or additional gradations of this scale)	• The likelihood for potentially large impacts to cost, yield, or timeliness parameters from CEQA required mitigation for the supply augmentation project.
Funding and Financing	
• Likelihood of the project being fundable with federal or state grant funds (highly likely/unlikely with gradations)	• The potential for the project to be grant funded. An example is the US Bureau of Reclamation's Title XVI grant program that is specifically designed to fund recycled water projects.
• Opportunity for shared funding (yes/no)	• The potential for shared funding through partnerships with other regional water agencies.
Public Acceptability	
• The degree to which there is public understanding and acceptance for the projects under consideration.	• Whether a project (or projects) is understood and accepted by the public and key stakeholders.
Administrative Feasibility	
• Degree of complexity with respect to regulatory, permitting, right of way, or legal issues and the time required to address and resolve the identified issues (for complexity: high/ medium/low) (for time requirement: number of months or years)	• The complexity and time required to address regulatory, permitting, right-of-way and/or legal issues related to a supply augmentation project and the amount of time needed to address or resolve those issues.
Adaptive Flexibility	
• Increases resiliency to climate change (high, moderate, low) specifically related to: o Certainty of supply during drought o Certainty of supply during extreme wet weather; o Vulnerability to shifting patterns of precipitation due to climate change; o Seawater intrusion; o Coastal inundation and sea level rise; o Natural disasters (e.g., wildfire , seismic events, etc.)	• How a project may (or may not) be able to adapt to changing conditions or be functional in the face of climate change, wildfire, seismic or other natural disasters.

Qualitative Categories	
Criterion	**Definition or Explanation** **The criterion provides information about:**
• Project includes characteristics that provide for scalability or provide for it to be implemented incrementally or in phases over time (yes/no)	• The degree to which the project can be relatively easily expanded or scaled up over time or implemented in increments or phases.
• Adaptability to future uncertainty from regulations or source water changes (yes/no)	• Whether or how well a project may (or may not) be able to adapt to changing regulations or source water quality changes.

AUTHORIZATION: Adopted by Resolution No. NS-30,074 November 29, 2022.

APPENDIX C

SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY

Groundwater Sustainability Plan Summary

Thank you for your interest in learning about the Groundwater Sustainability Plan for the Santa Cruz Mid-County Groundwater Basin!



Groundwater sustainability planning for our Basin brings together innovative science, community input, and careful management to protect groundwater resources and our precious environment.

midcountygroundwater.org

CENTRAL WATER DISTRICT

CITY OF SANTA CRUZ Water Department

THE COUNTY OF SANTA CRUZ ·1850·

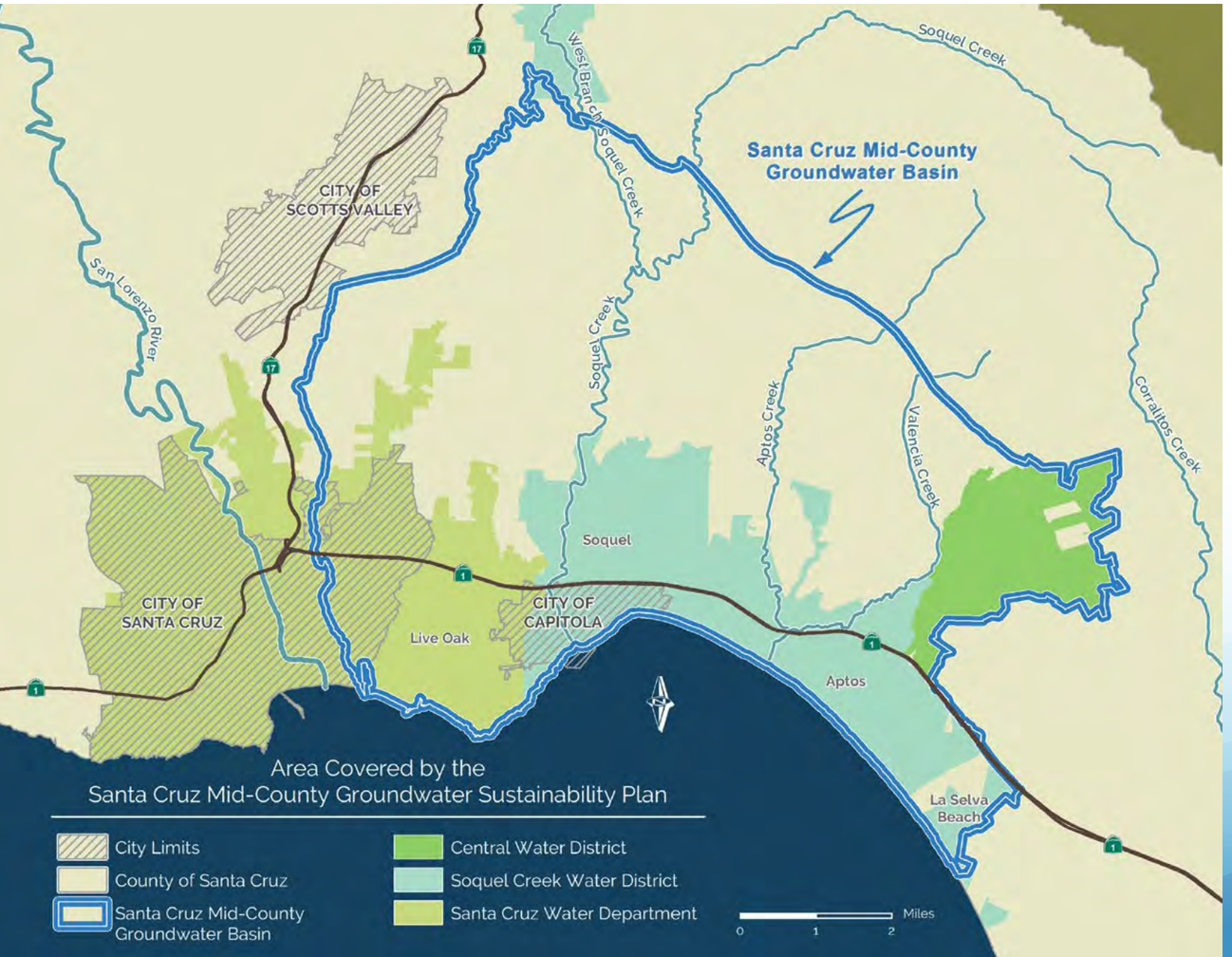
SOQUEL CREEK WATER DISTRICT

PRIVATE WELL OWNERS

What is the Santa Cruz Mid-County Groundwater Agency?

The Santa Cruz Mid-County Groundwater Agency (MGA) formed in March 2016 under California's Sustainable Groundwater Management Act (SGMA). SGMA is the first legislation in California history to make sure groundwater is sustainably managed for future generations. Emphasizing regional collaboration, the MGA is governed by an 11-member board that includes two representatives each from the Central Water District, City of Santa Cruz, County of Santa Cruz and Soquel Creek Water District, as well as three private well representatives. The board is responsible for groundwater sustainability of the Mid-County Groundwater Basin (Basin).

To make key policy decisions, the MGA board selected members of the public from various interest groups to serve as an advisory committee. The committee met each month for almost two years to develop local policy goals for sustainable groundwater management. Together with input from community members, qualified experts, and groundwater scientists the MGA developed a regional Groundwater Sustainability Plan (Plan) based on these local policy goals. The science-based Plan meets all state requirements to achieve and maintain groundwater sustainability, including protection of sensitive species that rely on groundwater.



What are the MGA's Mission and Goals for Groundwater Sustainability?

The MGA's mission is to ensure a safe and reliable groundwater supply is available for everyone who relies on water from the Basin, now and in the future.



These goals include:

- Ensure groundwater is available for all Basin water users
- Protect groundwater quality to promote public health
- Protect groundwater supply against seawater intrusion
- Protect groundwater supply from over-pumping and resolve historical over-pumping impacts
- Protect groundwater supply from climate change and sea level rise impacts
- Maintain Basin groundwater reserves for use during times of drought
- Maintain or enhance groundwater levels where groundwater dependent ecosystems exist
- Maintain or increase groundwater available to support local stream flow
- Support neighboring groundwater basins in their efforts to achieve regional groundwater sustainability

Where Does Our Water Come From?

The Mid-County Basin does not import water from outside Santa Cruz County. All Basin water supply originates as regional rainfall. Approximately 92,000 people and a diverse ecology of plants and animals live within the Basin area. About 80,500 residents receive water from local water agencies and 11,500 receive water from private wells or small water systems. Roughly 50,000 Basin residents rely on groundwater for their water supply. Groundwater is rainfall that has collected over a long period of time in cracks and spaces in soil, sand and rock below the ground surface. The remaining 42,000 receive water from the City of Santa Cruz water Department. In years with average rainfall, the City's water supply is 95% surface water from sources outside the Basin and 5% groundwater from wells inside the Basin.

What are Our Basin Groundwater Issues?

SGMA requires the Plan to consider and resolve the following issues:

Seawater Intrusion in Coastal Areas

Seawater intrusion occurs when groundwater is pumped to levels below sea level. When this happens, seawater moves inland to fill the void, making wells salty and no longer useful for water supply. Basin groundwater levels were 40 to 120 feet below sea level in the mid-1980s to early 1990s, allowing seawater intrusion in some areas. Though levels have improved dramatically since 1995, further seawater intrusion remains a threat. Because of this threat, the California Department of Water Resources (DWR) designates the Basin as "critically overdrafted."

Chronic Lowering of Groundwater Levels

Scientists determined that Basin over-pumping occurred in the mid-1980s. Huge strides have been made to increase groundwater levels through management actions and more efficient use of water by customers, but it has not been enough to fully recover Basin groundwater levels. Planning for climate change requires development of additional water supplies to achieve sustainability.

Reduction of Groundwater in Storage

Sustainable groundwater management requires groundwater storage at levels needed to support Basin water use, to preserve or enhance ecological resources, and to provide for a drought reserve when local rainfall is below normal levels.

Water Quality

The Plan requires the MGA to monitor groundwater quality to prevent impacts from management activities that could adversely affect Basin water users.

Impacts to Surface Water Flow

In parts of the Basin, streams receive some of their flow from groundwater. This is particularly important to sensitive species in summer and fall when rainfall is low. Without the addition of groundwater from the Basin, these waterways may not be able to support aquatic plants and animals.

How Will the MGA Address These Issues?

To achieve Basin sustainability, Plan implementation will:

- Prevent seawater from moving farther inland than was observed in 2013 – 2017.
- Prevent groundwater levels from declining to a level that no longer support existing land uses.
- Maintain Basin groundwater pumping at sustainable levels.
- Manage Basin groundwater to prevent water quality impacts that would jeopardize the Basin's ability to meet state and federal drinking water standards.
- Ensure groundwater pumping does not reduce groundwater contribution to future stream flows below levels observed prior to 2015.

Which Projects and Management Actions are Being Pursued in the Basin?

- **Monitoring Actions** gather data on groundwater extractions, groundwater levels, water quality, and stream flow. The results of this monitoring will inform MGA strategies to support a sustainable Basin.
- **Water Demand Management** done by the MGA member agencies encourages wise water use in multiple ways: rates are structured to encourage sustainable water use; indoor and outdoor water conservation strategies are funded through rebates; water waste is prohibited; and in parts of the Basin, new development must reduce overall water demand through an offset program.
- **Pumping Redistribution Projects** shift municipal groundwater pumping away from the coast and interconnected streams to prevent seawater intrusion and to support stream flow.
- **Groundwater and Surface Water Sharing Projects** (Conjunctive Use Projects) share surface water and groundwater between water agencies within and outside the Basin to optimize regional water resources. These projects (like Water Transfers and the City of Santa Cruz Aquifer Storage and Recovery) use surface water when it is available and build a groundwater reserve for use in times of drought.



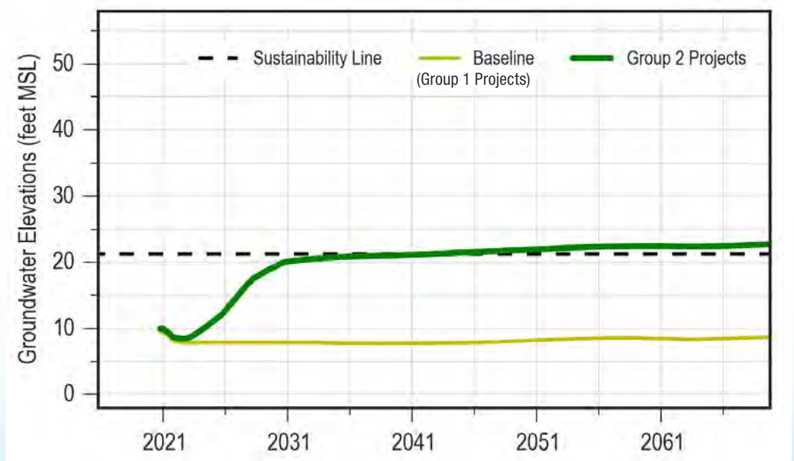
- **Recycled Water** is treated wastewater that can be used instead of drinking water for outdoor uses such as irrigation. Soquel Creek Water District's Pure Water Soquel project will purify recycled water using advanced treatment methods, and use the purified water to replenish the Basin through recharge wells, creating a seawater intrusion barrier and resting wells that are located closer to the coast.
- **Stormwater Recharge Projects** treat and percolate surface water runoff to increase the amount of stormwater that becomes groundwater. County of Santa Cruz stormwater projects are identified and installed in the Basin. Neighboring Pajaro Valley and Santa Margarita Groundwater Basins also have stormwater projects planned and in place.

Science-Based Approach to Management

The MGA's role outlined in the Plan is to function as an umbrella agency to optimize Basin groundwater management. The MGA gathers and evaluates data, and monitors projects and management actions using a science-based approach:

- **Basin Modeling** The MGA developed an integrated groundwater and surface water model, a complex and robust tool, to assess groundwater conditions and provide a means to evaluate project and management actions. The model forecasts climate change and tracks actual climate over time to continuously compare anticipate changes in groundwater level to achieve sustainability (see chart below).
- **Innovative Technology** The MGA commissioned an aerial study to assess the Basin's vulnerability to seawater intrusion. The MGA took measurements of our aquifers just offshore, using sensors housed in device towed below a helicopter, known as SkyTEM. The results demonstrated that there is significant risk of seawater intrusion in many parts of the Basin. SkyTEM surveys will be repeated every five years to assess the on-going threat of seawater intrusion to the Basin.
- **Data Collection** The MGA will oversee comprehensive monitoring of Basin groundwater and surface water resources and ensure coordinated data management.
- **Data Evaluation** The MGA will prepare and submit annual reports to DWR that assess progress toward Basin sustainability.
- **Adaptive Management** The MGA will evaluate Basin sustainability and adapt its management programs as needed. The MGA will report any revisions to its management strategies to DWR at least every five years.

Groundwater Model Output for a Monitoring Well
(Purisima Aquifer)



GSP Catalog Climate – Final GSP Runs for Expected Benefits in Section 4: Baseline vs. Pure Water Soquel & ASR (Public Summary), October 28, 2019

SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY

midcountygroundwater.org

Preliminary Schedule

The preliminary schedule of the MGA's near-term and long-term Plan implementation spans a period through 2070. Activities include existing baseline projects (Group 1) and projects that we expect to achieve groundwater sustainability (Group 2).

BASELINE PROJECTS & MANAGEMENT ACTIONS (GROUP 1)	2020	2025	2030	2035	2040	2050	2060	2070
Water Conservation & Demand Management (Multiple Programs)	■	■	■	■	■	■	■	■
Redistribution of Municipal Groundwater Pumping	Evaluated periodically as part of ongoing adaptive management							
Well Master Planning & Municipal Production Well Development	■	■	■	■	■	■	■	■
Groundwater Pumping Redistribution	■	■	■	■	■	■	■	■

PROJECTS & MANAGEMENT ACTIONS TO REACH SUSTAINABILITY (GROUP 2)	2020	2025	2030	2035	2040	2050	2060	2070
	Evalutated periodically as part of ongoing adaptive management							
Pure Water Soquel	▪	■	■	■	■	■	■	■
Aquifer Storage & Recovery (ASR)	▪	▪	■	■	■	■	■	■
Water Transfers / In Lieu Recharge	■	■	■	■	■	■	■	■
Distribution Storm Water Managed Aquifer Recharge (DSWMAR)	▪	▪	▪	▪	▪	▪	▪	▪

KEY: ▪ Development Phase ■ Implementation/Operations/Adaptive Management
Overlapping periods on phases – some include multiple projects/sites/elements

What Happens if the Plan Fails to Produce Results?

If implementation of the Plan does not lead the Basin to sustainability, further actions described in the Plan as Group 3 projects, may be necessary. The decisions for which actions to take will depend on the scale of the shortfall, regulatory requirements, and the technology available at the time. Considerations will include community input and how fast solutions can be implemented. If we fail to make the Basin sustainable, the State will step in and likely mandate water cutbacks and fees for all parties.



What Does the California Sustainable Groundwater Management Act (SGMA) Require?

SGMA went into effect in 2015. It requires that local water agencies must work together to manage Basin groundwater sustainability by developing a Groundwater Sustainability Plan. The completed Plan must include a science-based approach and utilize a comprehensive planning process, and continuous public input. The Plan must achieve groundwater sustainability for all Basin water users and the natural environment. The MGA's Plan must achieve sustainability by 2040.

The Plan for the Mid-County Basin was adopted by the MGA in November 2019 and submitted to the State in January 2020. To review the Plan and learn about how you can become involved, visit **midcountygroundwater.org**.



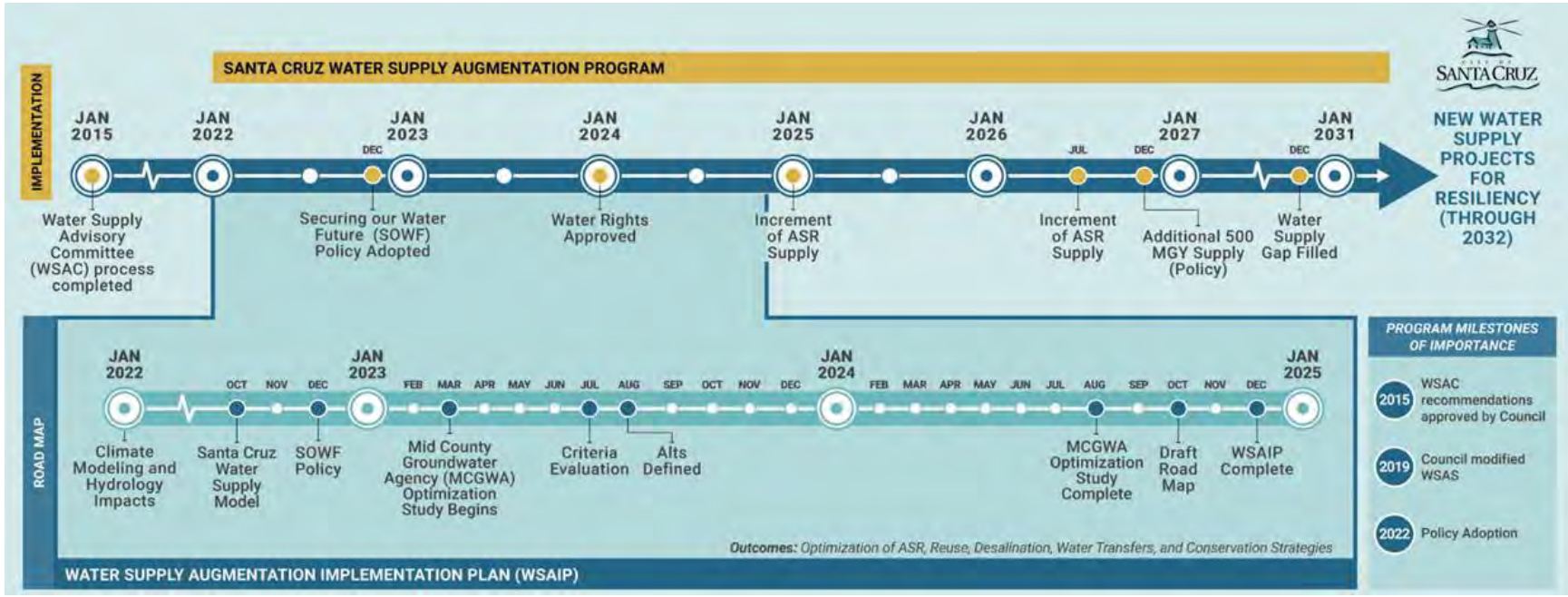
Central Water District · City of Santa Cruz Water Department · The County of Santa Cruz · 1850 · Soquel Creek Water District · Private Well Owners

SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY

midcountygroundwater.org

Cover Photo: Soquel Creek by Maya Vavra. Back Photo: Steelhead fry by Kristen Kittleson.

APPENDIX D


SANTA CRUZ WATER SUPPLY AUGMENTATION PROGRAM
IMPLEMENTATION
JAN 2015
JAN 2022
JAN 2023
JAN 2024
JAN 2025
JAN 2026
JAN 2027
JAN 2031
DEC
JUL
DEC
DEC
Water Supply Advisory Committee (WSAC) process completed
Securing our Water Future (SOWF) Policy Adopted
Water Rights Approved
Increment of ASR Supply
Increment of ASR Supply
Additional 500 MGY Supply (Policy)
Water Supply Gap Filled
NEW WATER SUPPLY PROJECTS FOR RESILIENCY (THROUGH 2032)
ROAD MAP
JAN 2022
OCT NOV DEC
JAN 2023
FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
JAN 2024
FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
JAN 2025
Climate Modeling and Hydrology Impacts
Santa Cruz Water Supply Model
SOWF Policy
Mid County Groundwater Agency (MCGWA) Optimization Study Begins
Criteria Evaluation
Alts Defined
MCGWA Optimization Study Complete
Draft Road Map
WSAIP Complete
Outcomes: Optimization of ASR, Reuse, Desalination, Water Transfers, and Conservation Strategies
WATER SUPPLY AUGMENTATION IMPLEMENTATION PLAN (WSAIP)
PROGRAM MILESTONES OF IMPORTANCE
2015 WSAC recommendations approved by Council
2019 Council modified WSAS
2022 Policy Adoption

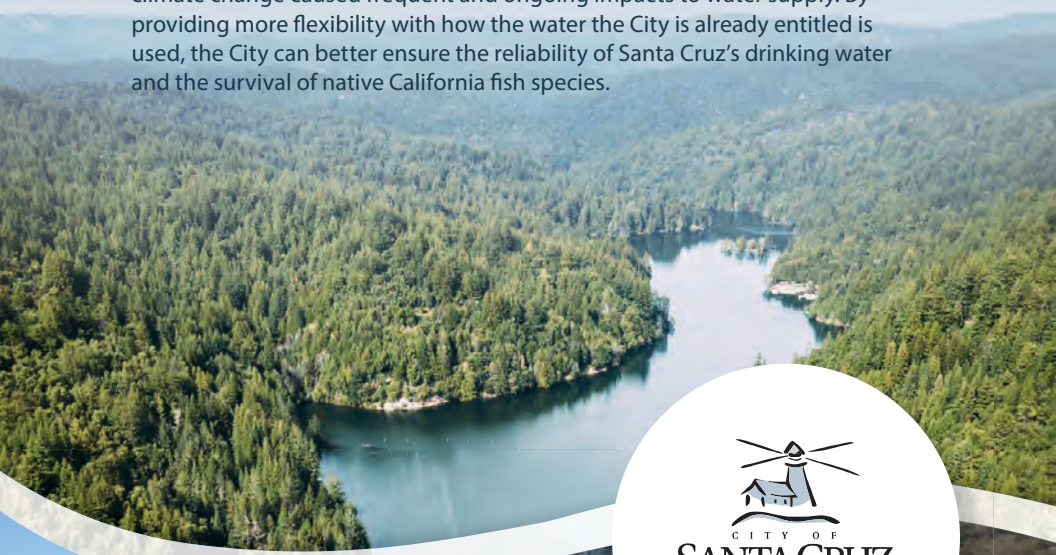
APPENDIX E

Community Guide

Santa Cruz Water Rights Project

Ninety-five percent of City of Santa Cruz drinking water comes from surface sources like rivers and creeks, with the remaining five percent from local groundwater. Surface water resources are overseen by the State of California Water Resources Control Board and its use is governed by legally-enforceable rules called "water rights."

The City's water rights were granted over 50 years ago. Long before coho salmon and steelhead trout became "special status species", and before climate change caused frequent and ongoing impacts to water supply. By providing more flexibility with how the water the City is already entitled is used, the City can better ensure the reliability of Santa Cruz's drinking water and the survival of native California fish species.



CITY OF SANTA CRUZ
Water Department







What is the Santa Cruz Water Rights Project (SCWRP)?

The City is working with the State Water Resources Control Board to revise the decades-old rights to allow more options for where and how the City can use its existing appropriative water rights. The SCWRP would improve flexibility in operation of the City's water system while enhancing stream flows for local anadromous fisheries. The primary project and programmatic components of the SCWRP include:

1. water rights modifications related to place of use, method of diversion, points of diversion and rediversion, underground storage and purpose of use, extension of time, and stream bypass requirements for fish habitats;

2. water supply augmentation components, including new aquifer storage and recovery (ASR) facilities at unidentified locations, Beltz ASR facilities at the existing Beltz well facilities, and water transfers and exchanges and intertie improvements; and

3. surface water diversion improvements, including the Felton Diversion fish passage improvements and the Tait Diversion and Coast Pump Station improvements.

Project Benefits

System Flexibility and Regional Collaboration

Current water rights allow Santa Cruz to only use its water within service area boundaries established when the rights were issued decades ago. This prevents the City from implementing water supply solutions like sharing available winter water with other regional water agencies, storing available water in regional aquifers, and diverting available water to where it can be used most efficiently.

With more flexibility, the City can participate in regional solutions that build regional resilience, ensure better local supply reliability, help replenish depleted groundwater basins, and maximize available water.

Help Support Threatened Native Fish Species

Most California water rights were granted without consideration for the impacts of diversions on native fish species and before native fish species were under stress, and therefore don't require water utilities to accommodate surface flows that support fish and their habitats. Because of the scarcity of water in parts of California, including Santa Cruz, some important fish species have become threatened or endangered.

In Santa Cruz, we share the watershed with endangered coho salmon and threatened steelhead trout. We are stewards of habitat that is critical to the survival of both humans and fish. Santa Cruz has voluntarily agreed to flow releases specifically designed to support special status species and to integrating these flows into our water rights as we're making other changes. This will codify the community's commitment to sharing water resources with fish.



Additional Benefits

- **Improve the flexibility with which the City operates the water system** so the community's drinking water needs can be met while providing flow conditions that are protective of coho salmon and steelhead.
- **Provide protective flow conditions for coho salmon and steelhead within all streams** from which the City diverts water, as agreed to with state and federal regulators.
- **Support improvements to the City's limited water storage** through passive recharge of regional aquifers (via water transfers and/or exchanges), and active recharge of regional aquifers (via aquifer storage and recovery (ASR), including allowing for underground storage of treated surface water in groundwater basins for use as water supply and to protect the Santa Cruz Mid-County Groundwater Basin from seawater intrusion.
- **Remove potential operational constraints** on the City's existing diversions.
- **Allow additional time for the City to fully reach beneficial use** under existing water-right permits at Felton.
- **Improve fish screening at Felton and Tait Diversions**, and improve fish passage at the Felton Diversion.
- **Address reliability and operational deficits** at Tait Diversion and the Coast Pump Station.
- **Implement state policy favoring integrated regional water management** by involving the City and other local agencies in significantly improving the reliability of water supplies by diversifying water portfolios, taking advantage of local and regional opportunities, and considering a broad variety of water management strategies.

What the Project Will **Not** Do

Proposed changes to Santa Cruz's water rights will not change the authorized amounts of water that the City can take from local sources. The changes would simply allow the City to be more flexible with the water that it currently has rights to use.

Environmental Review

Under the requirements of the California Environmental Quality Act (CEQA), the City has prepared a Draft Environmental Impact Report (EIR) for the proposed water rights changes and released it for a 45-day public review period. A Draft EIR is an informational document used to inform the general public and public agency decision makers about the project. It includes a detailed description of the proposed project, an analysis of potential impacts of the proposed project, and proposed mitigation measures to reduce impacts that can't be avoided. Other topics covered in the Draft EIR include an analysis of alternatives to the proposed project, an analysis of cumulative impacts of the proposed project in relationship with other past, present, or reasonably foreseeable future projects, and a discussion of the proposed project in the context of climate change.

Following the close of the public comment period on the Draft EIR, responses will be prepared for all timely comments received that raise significant environmental issues regarding the Proposed Project. The Final EIR will include written responses to such comments and will also include any text changes to Draft EIR that become necessary after consideration of public comments.

Timeline

November 2018

- City releases CEQA Initial Study and Notice of Preparation of a Draft EIR issued for a 30-day public scoping period.
- Two public meetings held in Santa Cruz and Ben Lomond.

January 2021

- City submits final water rights change petitions to the State Water Resources Control Board (SWRCB).

February 2021

- WRCB publicly notices water rights change petitions for a 30 day public review period.

June – July 2021

- City releases Draft EIR for 45-day public review period.
- Two online public meetings to be held.

December 2021

- City to prepare Final EIR.
- Santa Cruz City Council to consider certification of Final EIR and project approval at a public City Council meeting.

2022

- Expected action by SWRCB on change petitions.

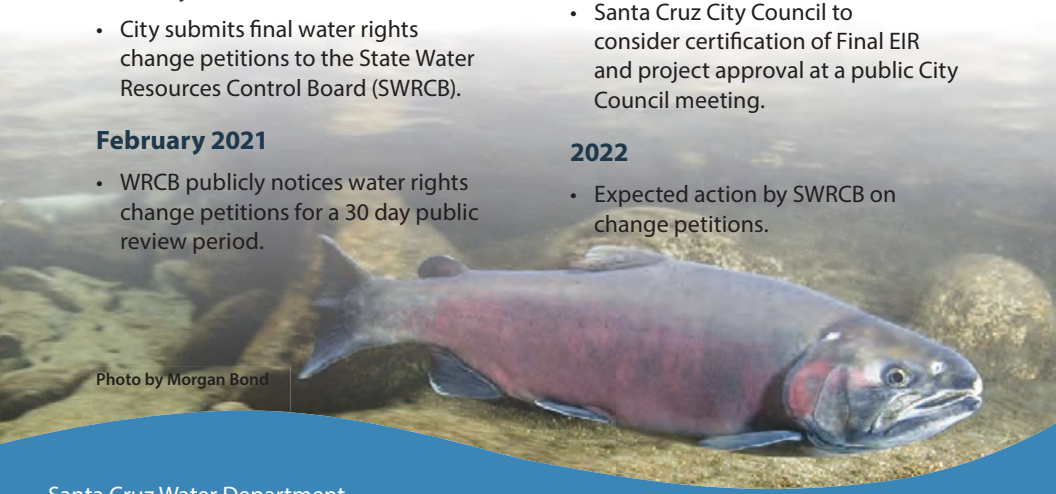


Photo by Morgan Bond

Santa Cruz Water Department
212 Locust Street, Suite B, Santa Cruz, CA 95060
(831) 420-5230 • (831) 420-5220

cityofsantacruz.com/SCWRP

APPENDIX F



1.3.1 Tait Diversion Retrofit

Current Status: Planning

Project Description	The Tait Diversion diverts surface water from the San Lorenzo River to the Graham Hill Water Treatment Plant. Alternative analyses of this aging facility include fish passage and screening upgrades, evaluation of climate change impacts due to sea level rise, and riverine geomorphological assessments. A future phase of the project (FY25) includes planning, design and construction of flood-protection improvements and hydraulic capacity upgrades (pumps, piping, etc.) at the Coast Pump Station in coordination with the City's Water Rights Project, and the Habitat Conservation Plan (HCP).
Project Benefit	This project will provide fisheries improvements (salmonids), flood resiliency and operational upgrades.
Operating Budget Impact	Reduced future repairs expected due to flood protection.
Project Location	River Street, Santa Cruz
Project Contact Email	tkihoi@santacruzca.gov

Escalated Estimate

Construction	$4,544,519
Other Costs*	$4,041,009
Total Project	$8,585,528

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
MAY 2019 JUN 2023	FEB 2027 OCT 2028	APR 2029 NOV 2029	NOV 2029 NOV 2030

Revised: 6/30/23





North Coast System Phase 4

Current Status: Planning

Project Description	The City diverts water from several coastal sources to the North Coast Pipeline, an approximately 19-mile raw water conveyance pipeline traversing mountainous and remote terrain adjacent to Highway 1 along the coast to the Coast Pump Station within City limits. The existing pipeline is reaching the end of its useful life and has been prone to numerous failures in recent years. The extent of the pipeline within City limits and a portion of the pipeline alignment along the coast has been replaced as part of prior phases. The North Coast System Phase 4 project consists of the replacement of the remaining approximately 10 miles of pipeline in existing or slightly modified alignments. in addition to rehabilitation of the Majors Diversion structure.
Project Benefit	This project will enhance water system reliability and access to critical source of high quality water.
Operating Budget Impact	Reduction in costs for future repairs is expected.
Project Location	Bonny Doon, Wilder Ranch State Park, Coast Daries Property.
Project Contact Email	Hluckenbach@santacruzca.gov

Escalated Estimate

Construction	$57,282,082
Other Costs*	$30,972,891
Total Project	$88,254,973

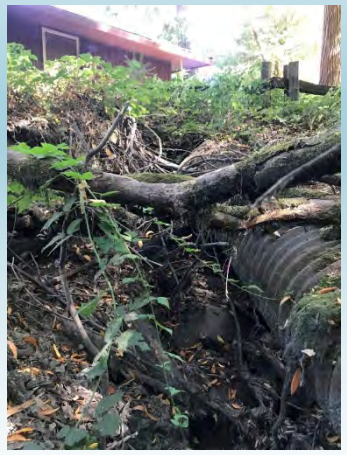
* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
OCT 2020 DEC 2021	JUL 2026 JUN 2028	FEB 2030 JUL 2031	JUL 2031 JUL 2032

Revised: 6/30/2023







Newell Creek Pipeline, Felton-Graham Hill Water Treatment Plant

Current Status: Design

Project Description	This project includes approximately 4.5 miles of Newell Creek Pipeline from Felton to the Graham Hill Water Treatment Plant. This segment of the Newell Creek Pipeline was identified as the highest priority segment for replacement . The Project will relocate the pipeline out of Henry Cowell State Park and into Graham Hill Road, avoiding multiple geologic hazards that have caused past breaks. Project Design and Environmental review are complete. This project is intended to ensure continued reliability of this critical water supply transmission main.
Project Benefit	This project ensures continued reliability of this critical water supply transmission main.
Operating Budget Impact	Reduced costs for future repairs expected.
Project Location	Graham Hill Road between Felton Booster Pump Station and the Graham Hill Water Treatment Plant

Project Contact Email

- dvalby@santacruzca.gov

Escalated Estimate

Construction	$ 27,871,121
Other Costs*	$ 13,242,193
Total Project	$ 41,113,314

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs

Potential Funding Source

US EPA WIFIA and State Water Resources Control Board Drinking Water State Revolving Fund (DWSRF) loans and rate-revenue financing.

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
SEP 2019 MAY 2020	DEC 2020 AUG 2023	APR 2024 OCT 2026	OCT 2026 OCT 2027

Revised: 6/30/2023

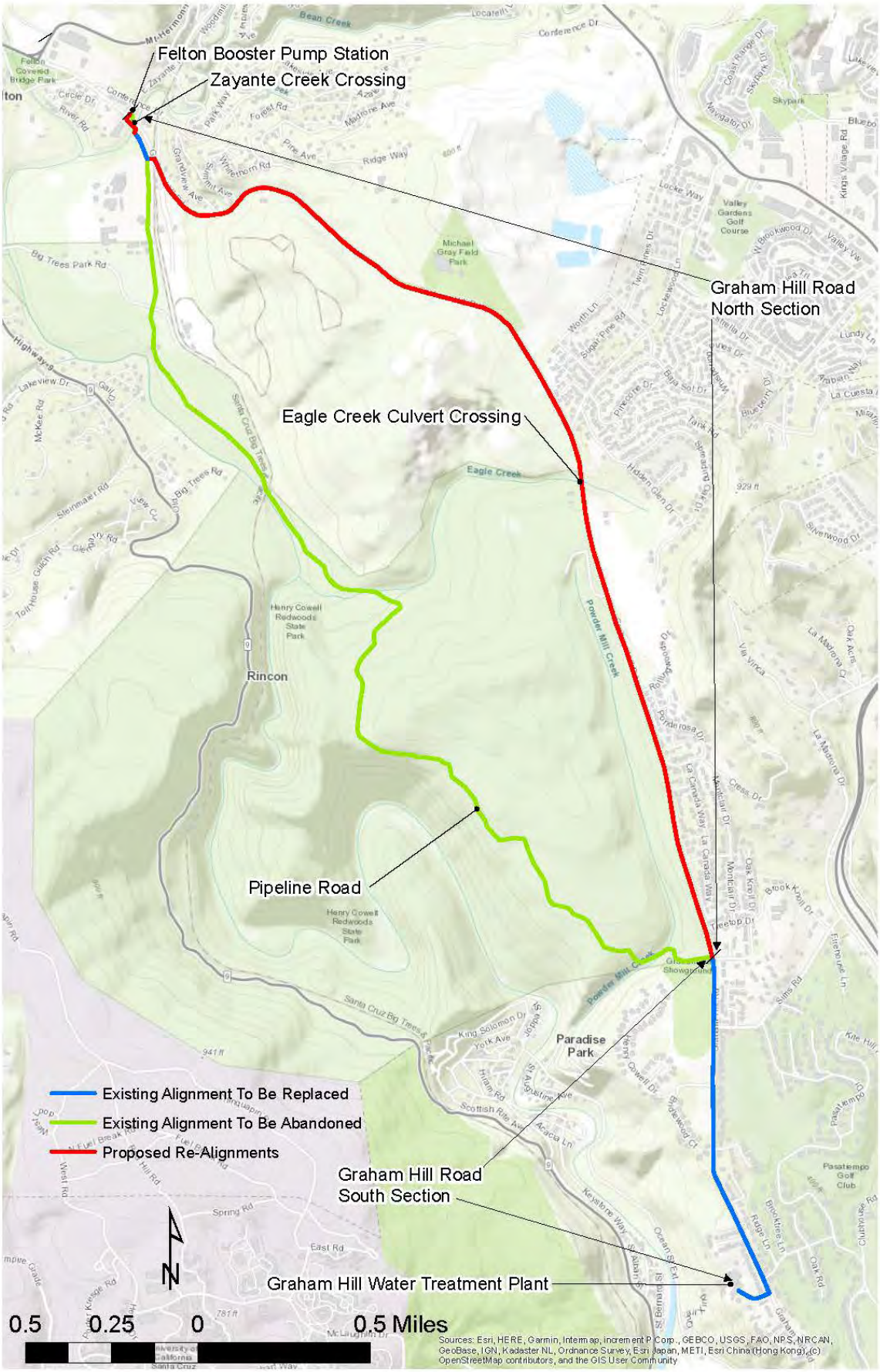


Figure: Existing Pipe Alignment (Blue); Proposed Pipe Alignment (Red)





Newell Creek Pipeline Replacement / Loch Lomond - Felton

Current Status: Not Initiated

Project Description

The entire Newell Creek Pipeline extends 9.5 miles from the Newell Creek Dam to the Graham Hill Water Treatment Plant. This phase of the overall project replaces the pipeline between Loch Lomond and Felton Booster Pump Station.

Project Benefit

The Newell Creek Pipeline is experiencing an increased frequency of breaks due to age, corrosion and land movement along its alignment through active geology. This project is intended to ensure continued reliability of this critical water supply transmission main.

Operating Budget Impact

Reduced costs for future repairs expected

Project Location

Pipeline between Loch Lomond and Felton Booster Pump Station

Project Contact Email

dvalby@santacruzca.gov

Escalated Estimate

Construction	$ 32,073,197
Other Costs*	$ 15,398,278
Total Project	$ 47,471,475

*Other costs may include planning/preliminary engineering, environmental, permitting, legal, land transaction, city administration, and program management costs.

Current Schedule Start-Finish Dates

Planning/Env	Design	Construction	Post Construction
NA	NOV 2027	APR 2030	MAR 2032
NA	OCT 2029	MAR 2032	APR 2033

Revised: 6/30/2023

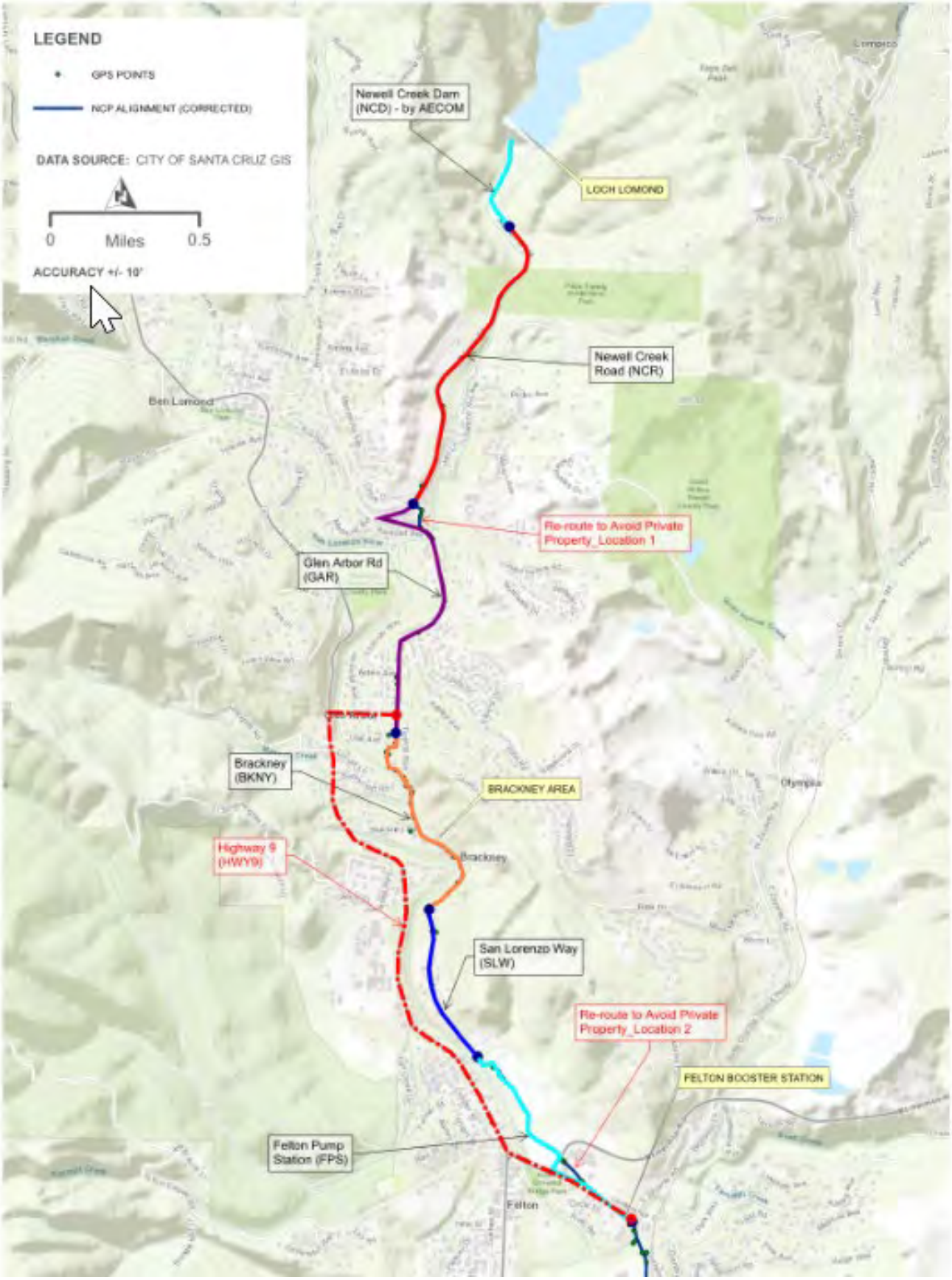


Figure: Existing Pipe Alignment (Blue); Proposed Pipe Alignment (Red)



2.2.3 Brackney Landslide Area Pipeline Risk Reduction Project

Current Status: Design

Project Need

Constructed in 1961, the Newell Creek Pipeline (NCP) is a 9.5 mile pipeline connecting Loch Lomond Reservoir to the Water Department's treatment plant. The project is a ½-mile section located along an abandoned railroad bed and steep hillside above the San Lorenzo River in the Brackney area, where landslides threaten the integrity of the pipeline.

Background

The NCP conveys raw water to and from Loch Lomond Reservoir, which is the Water Department's only raw water supply storage facility. This source is critical to supply the water system during dry seasons, when the demand cannot be met with other sources, and storm events, when other sources are too turbid to treat. Historical damages occurred in the Brackney area in 1982, 1995 and 2017.

Project Description

The project will construct approx. 2,600-LF new NCP using two techniques, horizontal directional drilling (HDD) and open cut trenching. The HDD (~1,600-LF) will be 30-inch fused HDPE carrier pipe, 80-100-feet deep, use drill and intersect, cross the Ben Lomond Fault, and is in close proximity to the San Lorenzo River. The open cut (~1,000-LF) will be 24-in PVC. Approx. 2,250-LF of existing 22-in NCP will be abandoned in place.

The project will require new easements for realignment. Due to limited access, construction staging, and permitting, the project will require close coordination with neighbors, the county, other utilities, and permitting agencies.

Project Benefits

Benefits of this project include:

- Increase reliability of critical water supply infrastructure.

Escalated Estimate

Construction	$ 7,360,000
Other Costs*	$ 4,130,000
Total Project	$11,490,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs

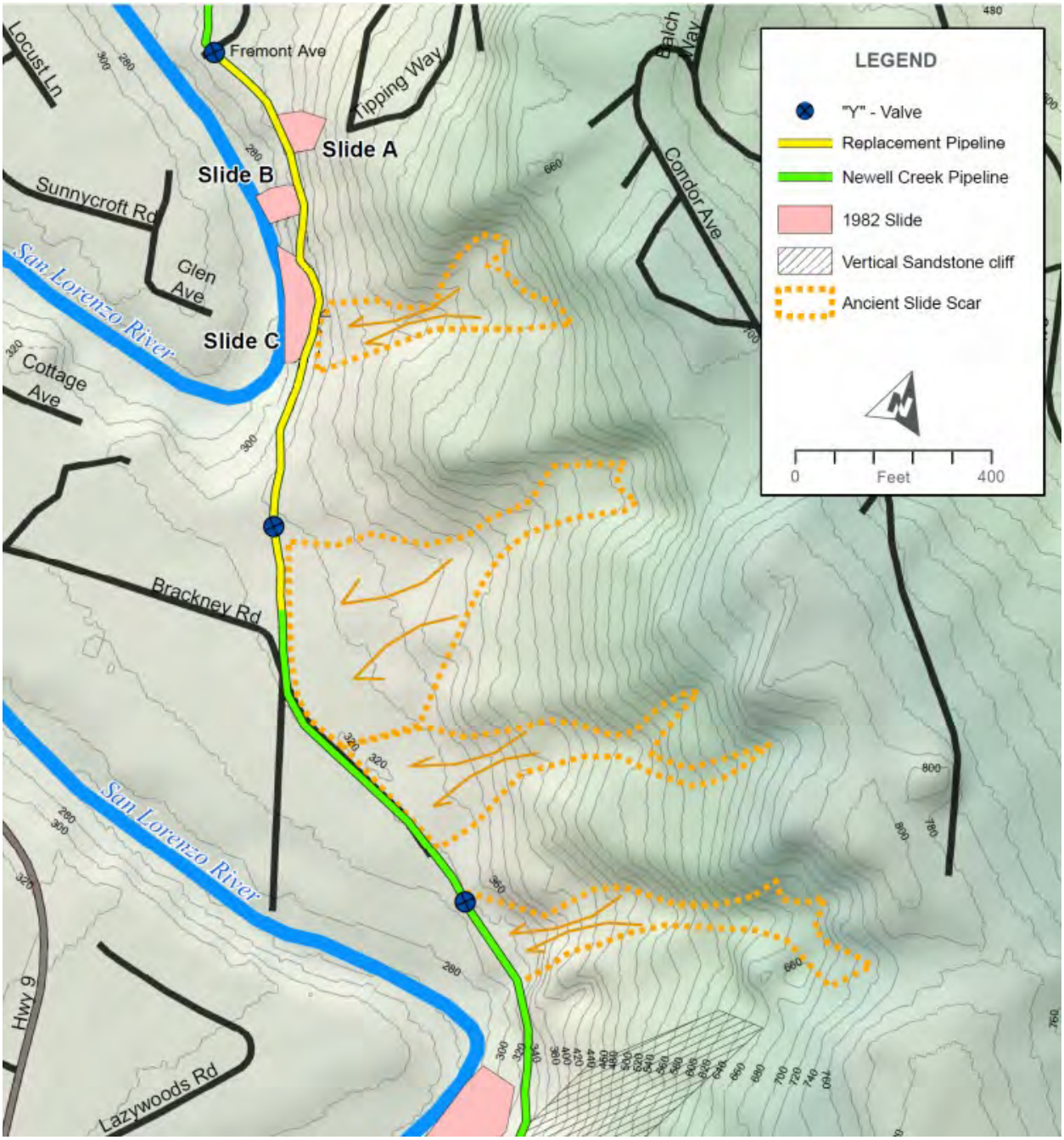
Potential Funding Source

FEMA Hazard Mitigation Grant Program (HMGP) and matching Pay as you go

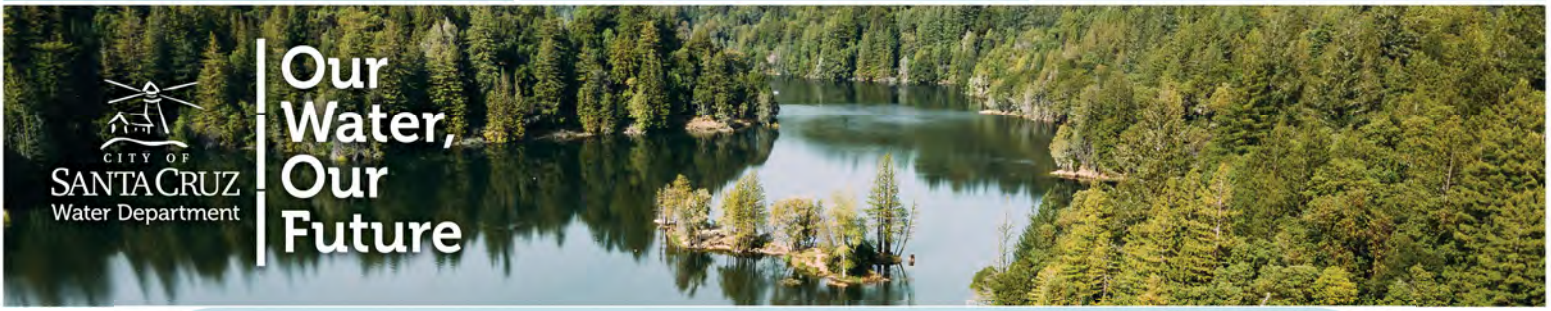
Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
APR 2020 MAY 2020	DEC 2020 SEPT 2022	MAY 2023 APR 2024	APR 2024 JUN 2025

Revised: 4/18/2022



Existing Newell Creek Pipeline (NCP) with Pipeline Section to be Realigned and Abandoned at Brackney Landslide







3.x Water Supply Augmentation Strategy Projects

Current Status: Project Definition/Feasibility/Partial Implementation

Project Need

The Water Department is evaluating several alternatives for augmenting existing water supplies. Alternatives include Aquifer Storage and Recovery (ASR), In-Lieu Water Transfers and Exchanges, Desalination and Recycled Water.

Background

As part of the Water Supply Augmentation Plan (2015) developed by the Water Supply Advisory Committee, the Water Department is evaluating the feasibility of using ASR, recycled water, and/or in-lieu transfers and exchanges to augment its water supply. These active and passive groundwater storage projects would provide water to the City during extended drought periods. Desalination would act as a backup if these other alternatives cannot meet the supply needs of the City.

Phase 2 of the Recycled Water Feasibility Planning Study is ongoing and building on the findings of Phase 1 including groundwater replenishment in one or both of the two local groundwater basins. The Water Department is pilot testing ASR in several existing production wells as part of an on-going ASR project in the Mid-County Groundwater Basin that may result in the installation of up to 10 ASR wells.

Project Description

ASR in the Mid-County and Santa Margarita Groundwater Basins is being considered by the Water Department to take advantage of available water from its surface water sources, beyond what is needed to meet its system demands, and injecting and storing the water in the regional aquifers. For water transfers, the Water Department would capture excess surface water, treat to potable standards at the Graham Hill Water Treatment Plant, and convey through existing and potentially new water distribution systems to neighboring communities served by Scotts Valley Water District, San Lorenzo Valley Water District and Soquel Creek Water District.

Phase 2 of the Recycled Water Feasibility Study began in November 2019 and takes several of the alternatives from Phase 1 and advances them in design, cost estimate, and potential yield, to provide more accurate understanding of the long-term benefit(s) to the Water Department. The study is scheduled to conclude in mid-2021.

The Water Department is also conducting a Water Supply Augmentation Implementation Study over the next 18-24 months that aims to create a road map for long-term implementation of the feasible alternatives that is adaptable and responsive to climate change.

Project Benefits

Benefits of the Water Supply Augmentation projects include:

- Providing a source of water for recovery by the Water Department and other users of the basin during drought or high demand periods, addressing part or all water supply deficiencies.
- Reducing (or eliminating) periodic peak season water supply shortfalls.
- Beneficial use of treated wastewater.
- Providing supplemental water supply.

Escalated Estimate

Construction	$ 116,370,000
Other Costs*	$ 15,990,000
Total Project	$ 132,360,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Funding Source

TBD: Bonds, Grants, Loans, or Pay As You Go

Current Schedule Start Dates

Planning	Design	Construction	Post Construction
STARTED DEC 2019	START 2022	COMPLETE 2030	COMPLETE 2031

Revised 4/18/2022







4.4 Graham Hill WTP Facilities Improvement Project

Current Status: Design

Project Need

The Graham Hill Water Treatment Plant (GHWTP) was commissioned in 1960 and has provided high quality potable water to the City of Santa Cruz for the last 60 years. Many modifications to GHWTP have been made over the years in response to changing regulations, permit requirements and to increase system reliability. The facility is reaching the end of its useful life and requires improvements to best implement the Water Supply Augmentation Strategy and allow the plant to continue to reliably meet current, as well as future treatment objectives.

Background

The Water Department hired HDR in 2018 to identify and develop a plan for overall improvements to the GHWTP to address the aging facilities so that the plant can continue to reliably meet current, as well as, future treatment objectives. In 2021, the Water Department awarded the progressive design-build Phase 1 design contract to the AECOM-W M Lyles joint venture team. The design-build team will work closely with the Water Department to fully develop the layout and configuration of the updated water treatment plant.

Projects Major Processes and Components

- Replacement of rapid mix basin with flash mix structure
- Replacement of existing pretreatment processes with high rate clarification (HRC)
- Conversion of existing filters to dual media filters
- Replacement of recycled stream treatment process including polymer system
- Construction of residuals dewatering facility, including mechanical dewatering equipment, equalization tanks, feed pump station, building, cake pumps, and load leveling system
- Replacement or new construction of chemical storage tanks, chemical transfer pumps, and chemical piping for all plant chemicals
- Construction of structural improvements for existing operations building
- Construction of new two-story operations building
- Replacement of existing filter gallery
- Construction of ancillary improvements, including replacement/rehab of existing pipelines, storm drain improvements, flood protection, replacement of HVAC units, and various electrical and instrumentation improvements

Project Benefits

- Upgrade treatment processes to reliably meet current and future regulations.
- Increase resiliency to address changing source water quality and emerging contaminant concerns.
- Reliably treat winter water that was previously too turbid for the plant to process.

Escalated Estimate

Construction	$ 109,540,000
Other Costs*	$ 41,480,000
Total Project	$ 151,020,000

* Other costs may include design, engineering services during construction, construction management, construction contingency, environmental, permitting, legal, land transaction, city administration, and program management costs.

Potential Funding Sources

US EPA WIFIA and California Water Board Clean Water State Revolving Fund (CWSRF) loans and rate-revenue financing.

Contract Type

Progressive Design-Build

Current Schedule Start-Finish Dates

Planning	Design	Construction	Post Construction
JAN 2019 MAY 2020	AUG 2021 MAR 2024	OCT 2024 APR 2028	APR 2028 APR 2029

Revised 4/18/2022

APPENDIX G

California Water Code § 10910

(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system whose service area includes the project site and any water system adjacent to the project site that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c)

(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

(d)

(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contractholders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2)

(A) A description of any groundwater basin or basins from which the proposed project will be supplied.

(B) For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree.

(C) For a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4, information regarding the following:

(i) Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924.

(ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

(D) For a basin that has not been adjudicated that is a basin designated as low- or very low priority pursuant to Section 10722.4, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by subparagraph (D) of paragraph (4) of subdivision (b) of Section 10631.

(g)

(1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

(2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.

(3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public

water system to comply with the requirements of this part relating to the submission of the water supply assessment.

(h) Notwithstanding any other provision of this part, if a project has been the subject of a water supply assessment that complies with the requirements of this part, no additional water supply assessment shall be required for subsequent projects that were part of a larger project for which a water supply assessment was completed and that has complied with the requirements of this part and for which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has concluded that its water supplies are sufficient to meet the projected water demand associated with the proposed project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses, unless one or more of the following changes occurs:

(1) Changes in the project that result in a substantial increase in water demand for the project.

(2) Changes in the circumstances or conditions substantially affecting the ability of the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), to provide a sufficient supply of water for the project.

(3) Significant new information becomes available that was not known and could not have been known at the time when the assessment was prepared.

(i) For the purposes of this section, hauled water is not considered as a source of water.

Ca. Water Code § 10910

Amended by Stats 2018 ch 15 (AB 1668),s 19, eff. 1/1/2019.Amended by Stats 2016 ch 594 (SB 1262),s 2, eff. 1/1/2017.Amended by Stats 2001 ch 643 (SB 610), s 4.5, eff. 1/1/2002.

California Water Code § 10911

(a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision
(b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is

required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.**(c)** The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

Ca. Water Code § 10911

Amended by Stats 2001 ch 643 (SB 610), s 5, eff. 1/1/2002.

California Water Code § 10912

For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections. A public water system includes all of the following:

(1) Any collection, treatment, storage, and distribution facility under control of the operator of the system that is used primarily in connection with the system.

(2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the system.

(3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

(d) This section shall become operative on January 1, 2018.

Ca. Water Code § 10912

Amended by Stats 2016 ch 669 (AB 2561),s 2, eff. 9/26/2016.Added by Stats 2011 ch 588 (SB 267),s 2, eff. 10/8/2011.