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SCHOOL OF PLANNING, PUBLIC
POLICY AND MANAGEMENT

Reimagining East Bend: Building a Stronger Community in the Heart of Oregon

Johnathan Beckerman and Alyssa Cody

Report Authors ▪ School of Planning, Public Policy and Management

**Megan Banks, Anne Brown, Bob Choquette,
Kaarin Knudson, Marc Schlossberg**

Faculty ▪ School of Planning, Public Policy and Management



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Damian Syrnyk, Senior Planner

BreAnne Gale, Senior Planner

Jennifer Knapp, Senior Planner

Susanna Julber, Transportation Planner

This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for the City of Bend. Text and images contained in this report may not be used without permission from the University of Oregon.

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About SCI

The Sustainable Cities Institute (SCI) is an applied think tank focusing on sustainability and cities through applied research, teaching, and community partnerships. We work across disciplines that match the complexity of cities to address sustainability challenges, from regional planning to building design and from enhancing engagement of diverse communities to understanding the impacts on municipal budgets from disruptive technologies and many issues in between.

SCI focuses on sustainability-based research and teaching opportunities through two primary efforts:

1. Our Sustainable City Year Program (SCYP), a massively scaled university-community partnership program that matches the resources of the University with one Oregon community each year to help advance that community's sustainability goals; and

2. Our Urbanism Next Center, which focuses on how autonomous vehicles, e-commerce, and the sharing economy will impact the form and function of cities.

In all cases, we share our expertise and experiences with scholars, policymakers, community leaders, and project partners. We further extend our impact via an annual Expert-in-Residence Program, SCI China visiting scholars program, study abroad course on redesigning cities for people on bicycle, and through our co-leadership of the Educational Partnerships for Innovation in Communities Network (EPIC-N), which is transferring SCYP to universities and communities across the globe. Our work connects student passion, faculty experience, and community needs to produce innovative, tangible solutions for the creation of a sustainable society.

About SCYP

The Sustainable City Year Program (SCYP) is a yearlong partnership between SCI and a partner in Oregon, in which students and faculty in courses from across the university collaborate with a public entity on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner agency through a variety of studio projects and service-learning courses to provide students with real-world projects to investigate. Students bring energy, enthusiasm, and innovative approaches

to difficult, persistent problems. SCYP's primary value derives from collaborations that result in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

Community partnerships are possible in part due to support from U.S. Senators Ron Wyden and Jeff Merkley, as well as former Congressman Peter DeFazio, who secured federal funding for SCYP through Congressionally Directed Spending.

About City of Bend

The City of Bend is located on the traditional lands of the Wana Lama, Wasq'u, and Norther Paiute indigenous peoples, many of whom were moved to the Warm Springs Reservation when it was established in 1855.



Historically, several irrigation projects brought water from the Deschutes River to irrigate nearby farmland and create an agricultural economy. Some of the canals are still in use today. The City of Bend officially incorporated in 1905 and the town's name came from "Farewell Bend," the designation used by early pioneers to refer to the location along the Deschutes River where the town eventually was platted. In 1911, the completion of the Oregon Trunk Line Railroad created railroad transportation for goods and people from the Columbia River to Bend. The subsequent establishment of two sawmills brought intense population and housing growth to Bend.

At present, the City of Bend has a population of just under 107,000 people. Located in the geographic center of Oregon, Bend is nestled between the eastern side of the Cascades and the high desert. The local economy is highly dependent on tourism from skiers, bikers, hikers, and general outdoor enthusiasts alike. The largest employers are the St Charles Health System, Bend-La Pine School District, and Deschutes County followed by Mount Bachelor Ski Resort. Bend sees itself as a community of entrepreneurs, outdoor enthusiasts, community activists, and families. The local government aims to provide public service that is innovative as well as responsive to the community.

Course Participants

MASTER'S CANDIDATES IN COMMUNITY AND REGIONAL PLANNING, SCHOOL OF PLANNING, PUBLIC POLICY AND MANAGEMENT:

Sarah Bausmith
Kai Beattie
Johnathan Beckerman
Carly Boyer
Sarah Charlesworth
Alyssa Cody
Cameron Coronado
Cheyenne Dickenson
Dani Dolphin
Seth Hunt
Brady Lance
Dylan McCarthy
Gabrielle Robb
Peter Simmeth

Course Descriptions

PPPM 608: GRADUATE WORKSHOP IN URBAN DESIGN

Kaarin Knudson

This class taught the theories and methods of urban design and facilitated the project's direction and deliverables.

PPPM 610: INTRODUCTION TO PLANNING PRINCIPLES AND PRACTICE

Megan Banks

The coursework for this class provided a foundational understanding of planning principles, what tools planners have at their disposal, how to implement them, and the historical and current context of the profession.

PPPM 613: PLANNING ANALYSIS I

Anne Brown

PLANNING ANALYSIS LAB

Bob Choquette

The quantitative analysis performed by the students for the background research and demographic profile of the site was made possible thanks to the theoretical and practical knowledge provided by these two classes. This course focused on data sources and methods of data collection including surveys; descriptive and multivariate analysis; computer applications; selected analytic models, population projections, cost-benefit analysis.

PPPM 617: HUMAN SETTLEMENTS

Marc Schlossberg

This course asked students to think critically about the long-term effects of a built environment and gave guiding principles to how transportation predicates the function of a design.

Executive Summary

Graduate Planning students worked with the City of Bend to redesign a 35-acre commercial site (the Project) over fall term 2024. Four teams applied a unique theme to the project, ranging from Walkability and Transportation; Climate Resilience; Placemaking; to Equitable Community. This report synthesizes each team's findings, approach, and design proposal. It integrates data-driven insights, historical context, an iterative design process, and phased implementation to create a comprehensive final design addressing each theme.

Students visited the site, met with City Councilors and planning staff, and analyzed the site's designation as a potential Climate-Friendly Area (CFA). Students conducted demographic, economic, and housing needs assessments, supplemented by a review of Bend's planning documents. This data-driven approach informed a site analysis that identified redevelopment opportunities and constraints.

Planning and design frameworks, case studies, and other background research informed proposals that focused on flexible, community-centered designs. A class design charrette translate theory into preliminary design concepts and aided in

the development of foundational features such as street circulation and building form, laying the groundwork for future iterations.

Each proposal recommended a phased approach to establish funding, increase community support, and mitigate displacement throughout the implementation process. As Bend considers the redevelopment of this strategic site, this report provides a range of integrated, adaptable solutions that align with city priorities and community aspirations. The proposals offer a vision for a resilient, inclusive, and vibrant space that enhances the quality of life for residents in Bend's eastside community.

Land Acknowledgment

The authors would like to acknowledge that the beautiful land known as Bend, Oregon, north to the Columbia River, is the original homeland of the Confederated Tribes of Warm Springs. The Wana Łama (Warm Springs), Wasq'ú (Wasco), and Northern Paiute people inhabited the area in certain seasonal times that clearly established their presence.

The writers acknowledge and pay respect to Native and Indigenous cultures that have transferred many of the practices used in their work every day. Offering of gratitude itself is an essential part of learning from Indigenous practices that have existed for centuries and, in some instances, for millennia.

Introduction

In 2007, Oregon legislators adopted a law setting a statewide policy goal to reduce climate pollution in Oregon by 75% by 2050. By 2020, Oregon acknowledged that the state is off track in their efforts to meet these goals—all while experiencing real-world impacts of climate disruption. Oregon particularly falls short in reducing transportation emissions, which contributes 38% of Oregon’s climate pollution. On the current path, pollution will only fall about 20% by 2050. In response, the Land Conservation and Development Commission (LCDC) worked with state officials to implement the Climate-Friendly and Equitable Communities (CFEC) program, which aims to move Oregon closer to meeting the goals of the 2007 legislation.

As part of this statewide program, the City of Bend designated 10 areas within the urban growth boundary (UGB) as candidates for Climate-Friendly Areas (CFA). A CFA is an urban mixed-use zone designed to reduce the need for driving by providing a mix of housing, jobs, businesses, and services within a short distance. The goal is to create environments where residents, workers, and visitors can meet most of their daily needs through walking, biking, or using public transportation, as well as providing direct access to various public-space amenities and parks.

The Master in Community and Regional Planning first year student cohort worked with SCYP to redesign a 35-acre commercial site (the Project), in Bend, Oregon, during fall term 2024. This report presents a synthesis of four thematic proposals for the redevelopment of the Project. These proposals aim to convert this automotive-dependent retail hub into a sustainable, walkable, and climate-

resilient community that aligns with Bend’s climate goals. The envisioned proposals plan to increase availability of middle housing and affordable and market-rate housing, develop a walkable community with access to services and green space, and connect the new development to surrounding neighborhoods.

The report outlines opportunities for community engagement to gather diverse perspectives on east Bend’s needs and how this site can equitably serve the community while meeting CFEC goals. The students define potential challenges both within the physical site and in the development process, as well as implementation strategies. As the City of Bend considers the redevelopment of this 35-acre site, these proposals provide distinct but cohesive options to create an adaptive and resilient space where all neighbors in Bend’s eastside community can flourish.

Project Context

PLANNING PROBLEM AND PROCESS

The State of Oregon introduced CFEC regulations in 2023 (City of Bend, 2024b) with the intent to reduce climate pollution, provide more transportation and housing choices, and promote equitable land use planning outcomes (DLCD, n.d.-a). The City of Bend began implementing Climate Friendly Areas (CFAs) in response to CFEC guidelines. CFAs are designed to allow residents to live, work, and fulfill most of their daily needs without relying on a car (City of Bend, 2024b). Each of the four team proposals focused on delivering these outcomes by designing walkable, climate resilient, placemaking, and equitable communities for the Eastside CFA on a 35-acre site called The Forum.

Each team gathered information on the Eastside CFA and Forum site by visiting Bend and the Project site in person (Figure 1). With each theme in mind, each team identified key attributes that needed improvement at the Project site, including connectivity, safety for travelers who are not in motor vehicles, access to public amenities, and increased green space. All teams also noted key attributes of the site, its proximity to St. Charles Hospital, residential hubs, and current retail utilization. The teams recognized that heavy traffic from arterial roadways, such as US Highway 20, was adjacent to pedestrian travel paths, creating a dangerous and unpleasant scenario for pedestrian and bicycle travelers.



FIG. 1

Images from site visit



FIG. 1

Images from site visit



FIG. 1
Images from site visit



FIG. 1
Images from site visit

Each team proposed a phased design and vision based on their individual concepts. All teams participated in individual brainstorming sessions to reimagine this area in a way that is safe, walkable, and pleasant for all travelers. Analysis of local spatial and Census data provided a better understanding of the site and the broader community context. A design charrette followed where everyone created and considered various alternative design proposals. Weighing the strengths and weaknesses of each proposal and iterating for feedback, teams developed a final design for the Project to address each theme. This design further developed into a final presentation and report to suggest implementation for weaving the concept into the urban fabric within the city.

REGIONAL AND LOCAL CONTEXT

Bend and the broader Deschutes County were originally inhabited by the Indigenous people of the Confederated Tribes of Warm Springs for thousands of years before the arrival of Western settlers. Pioneers began heading west toward what is now Bend around the winter of 1824 (Downtown Bend). By 1852, thousands of settlers were crossing Wasco and Warm Springs lands. In 1855, Wasco and Warm Springs Nations were moved on to the Warm Springs Reservation (City of Bend). In 1879, 38 Paiutes moved to the Warm Springs Reservation from the Yakama Reservation.

Historically, several irrigation projects brought water from the Deschutes River to irrigate nearby farmland and create an agricultural economy. Some of the canals are still in use today. The City of Bend officially incorporated in 1905, and the town's name came from "Farewell Bend,"

the designation used by early pioneers to refer to the location along the Deschutes River where the town eventually was platted. In 1911, the completion of the Oregon Trunk Line Railroad created railroad transportation for goods and people from the Columbia River to Bend. The subsequent establishment of two sawmills brought intense population and housing growth to Bend.

Rapid population growth is a defining element of Bend's History, with dramatic spikes evident since 1990. In the 1990's, more than 32,000 people lived within the UGB of Bend. By the year 2000, More than 52,000 people lived in Bend. Part of this population growth is due to annexation, but a substantial portion was due to migration patterns, with recreation and retirement drawing people to the community (Bend Code). Bend's growth continues to climb, with the most recent spike occurring during the COVID-19 pandemic due to Bend's draw as a popular work-from-home destination.

At present, the City of Bend has a population of just under 107,000 people. Located in the geographic center of Oregon, Bend is nestled between the eastern side of the Cascades and the high desert. The local economy is highly dependent on tourism from skiers, bikers, hikers, and general outdoor enthusiasts alike. The largest employers are the St Charles Health System, Bend-La Pine School District, and Deschutes County followed by Mount Bachelor Ski Resort. Bend sees itself as a community of entrepreneurs, outdoor enthusiasts, community activists, and families. The local government aims to provide public service that is innovative as well as responsive to the community.

Site Analysis

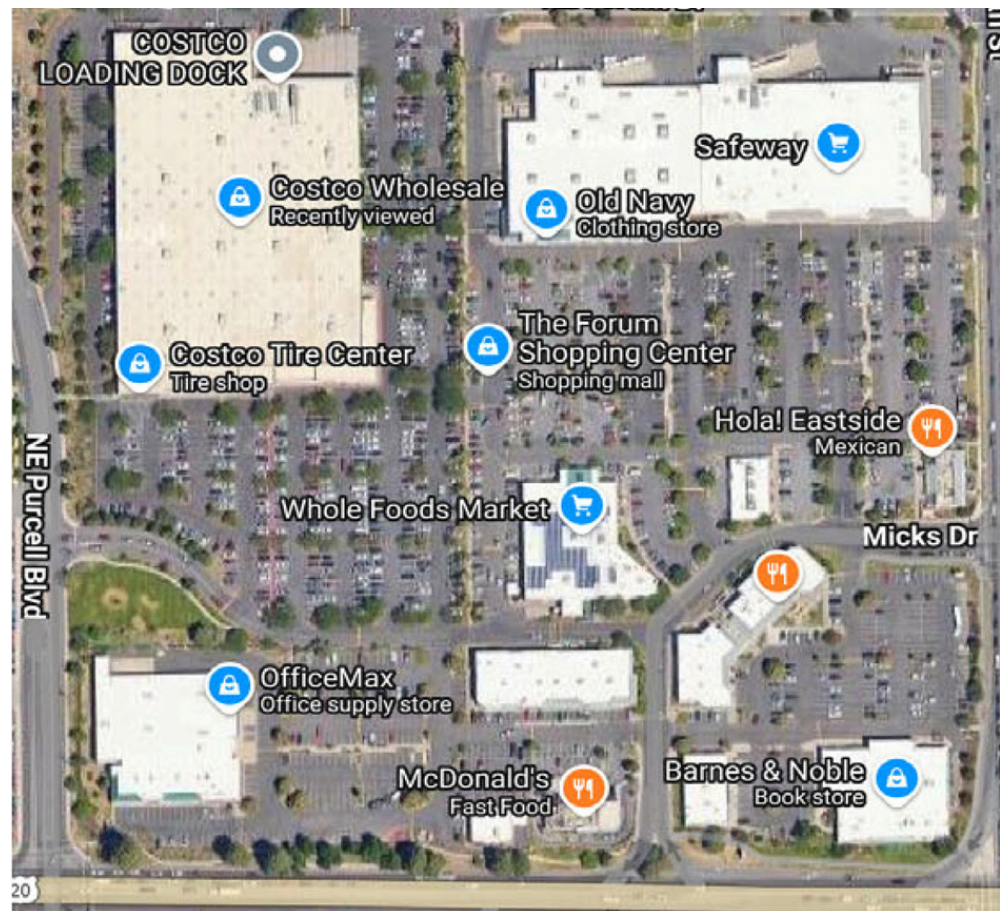
SITE HISTORY

The 35-acre site known as “The Forum” in Eastside Bend, Oregon, has a history that reflects the city’s growth and development over the past few decades. Before it became home to a variety of big-box retailers and commercial developments, the land was largely undeveloped and agricultural. Highway 20, which travels along the southern end of the site, was completed in 1926 (Farr, 2022). An agricultural canal was built through the site between 1930 and 1960, which remains underground to this day. (USGS & GAIA GPS, 1960). In January 1995, as Bend experienced a wave of population growth; demand for more retail and commercial space to

serve the expanding community also rose. The Forum development began to take shape as a commercial center designed to meet growing needs, with big-box stores, restaurants, and other businesses.

The development became a focal point for shopping on Bend’s east side, contributing to the area’s urbanization. Costco, a staple in The Forum’s shopping amenities since it opened in 2007, officially closed on October 18, 2024, to move to a bigger location on the north side of Bend. Costco’s closure on the site poses a question for Bend city planners and the community—what comes next for The Forum?

FIG. 2
Aerial image of Forum site



BUILT FEATURES AND LAND USE

The Forum Shopping Center (Figure 2) currently occupies 35-acres along Greenwood Avenue (US Highway 20) in east Bend and is located between the intersections of NE Purcell Boulevard to the west, and NE 27th Street to the east. NE Forum Drive provides access to the property from the north, whereas Greenwood Avenue offers an access point on the property's south side. This location, along two major arterials and a collector (Purcell), is easily accessible and provides ample parking for various retailers and restaurants located on the property.

It houses major retailers like Safeway, Whole Foods, Old Navy, Barnes & Noble, and OfficeMax, making it a one-stop shop for groceries, books, office supplies, and more. For dining, visitors can enjoy a variety of options, including McDonald's, Jamba Juice, Hola, and Baldy's Barbeque.

The center also offers essential services such as Postal Connections, telecommunications at T-Mobile, a bank and a Sleep Number store. Overall, The Forum Shopping Center is a key destination in Central Oregon, attracting many visitors due to its diverse offerings and strategic location.

NATURAL FEATURES

Bend's natural features and scenic beauty significantly influence the city's identity and form. To the west, the Cascade Mountains offer scenic backdrops and endless opportunities for outdoor enthusiasts. The Deschutes River flows through the center of town (Figure 3). It offers many activities, including walking along the river, floating, kayaking, paddle boarding, watching concerts at Hayden Homes Amphitheater from a flotation device, and even surfing.

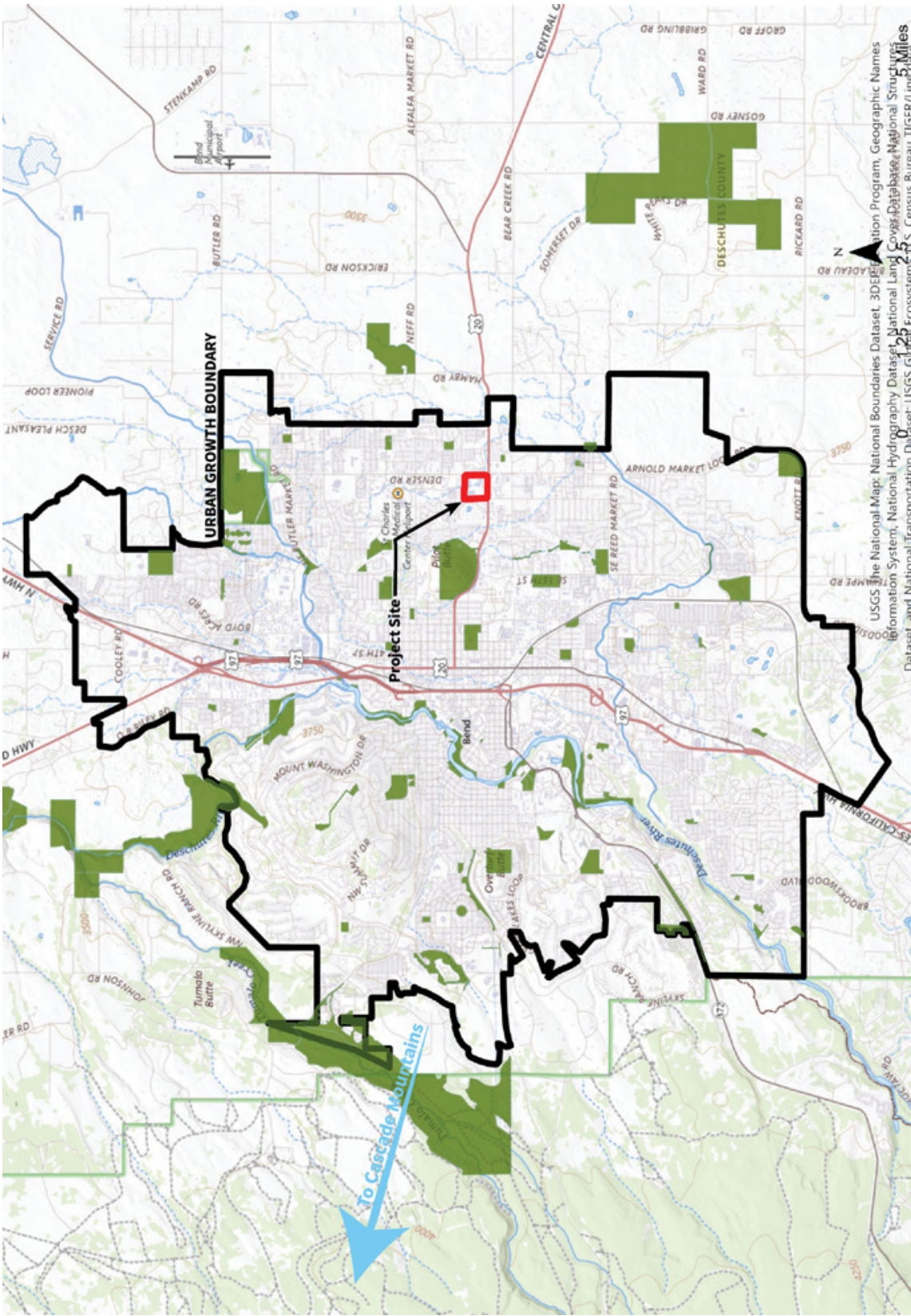


FIG. 3
Map of natural features

Like many Oregon cities, Bend is at risk of seasonal wildfires. As climate change leads to more frequent and intense wildfires, awareness of natural hazards is vital. Figure 3 demonstrates that the Project site does not fall within the Deschutes County Oregon Wildlife Hazard Area but is surrounded by these wildfire designations.

The site has very few natural features, and the closest public green spaces are parks over half a mile from the project site. The Census tract received a Tree Equity Score of 73 with an 18% canopy coverage, indicating high heat disparities and a high health burden index. The site

itself is relatively flat and receives south/southeastern winter winds and northern summer winds. However, there is a significant elevation change in the public right-of-way from the southwest corner of the site, with an elevation of 3,638 feet, to the northeast corner, with an elevation of 3,612 feet (a 26-foot elevation change). An engineered retaining wall in the site's southwest corner demonstrates that extensive site excavation was undertaken upon initial development. Figure 4 shows the soil that could be expected onsite, although the exact composition of the soil could be different due to the extensive excavation mentioned above.

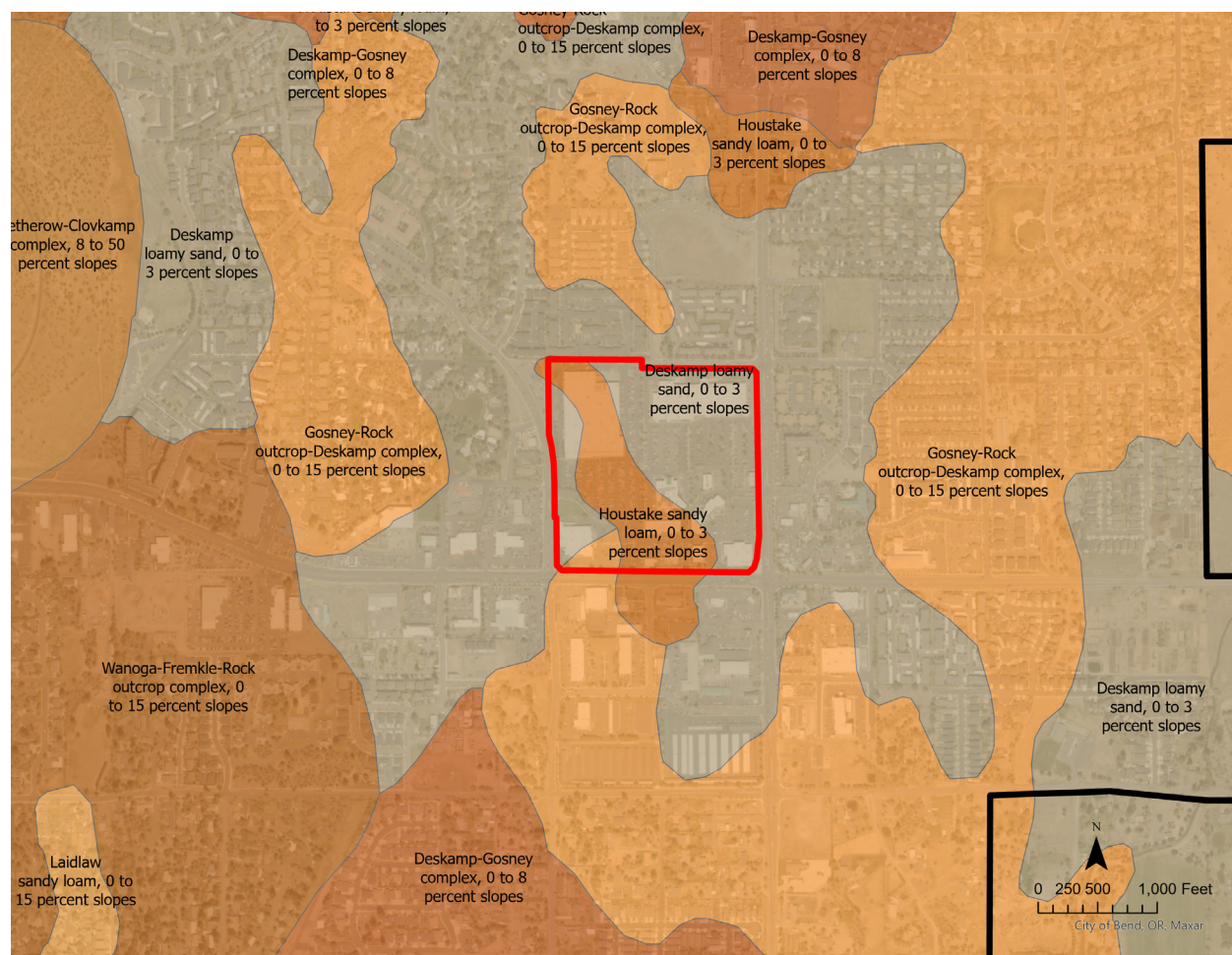


FIG. 4

Map of site soil composition

SURROUNDING CIRCULATION AND TRANSPORTATION

The site is bordered by multi-lane, high-traffic roads, including Highway 20, Purcell Boulevard, and NE 27th Street. Figure 5 shows existing bicycle facilities and transit corridors that run along the site's boundaries. The site's internal circulation is designed primarily for vehicles. Although sidewalks are placed sporadically throughout the site, they are not well connected. The south side in

particular features a steep slope without safety measures to slow before entering traffic-heavy intersections. The bike lanes that run along high-traffic corridors lack strong visual or physical barriers. Public transit stops are infrequent in this neighborhood. Circulation conditions create an uninviting and unsafe experience for anyone navigating the site using multimodal transportation methods like walking and biking.



FIG. 5
Map of surrounding roads

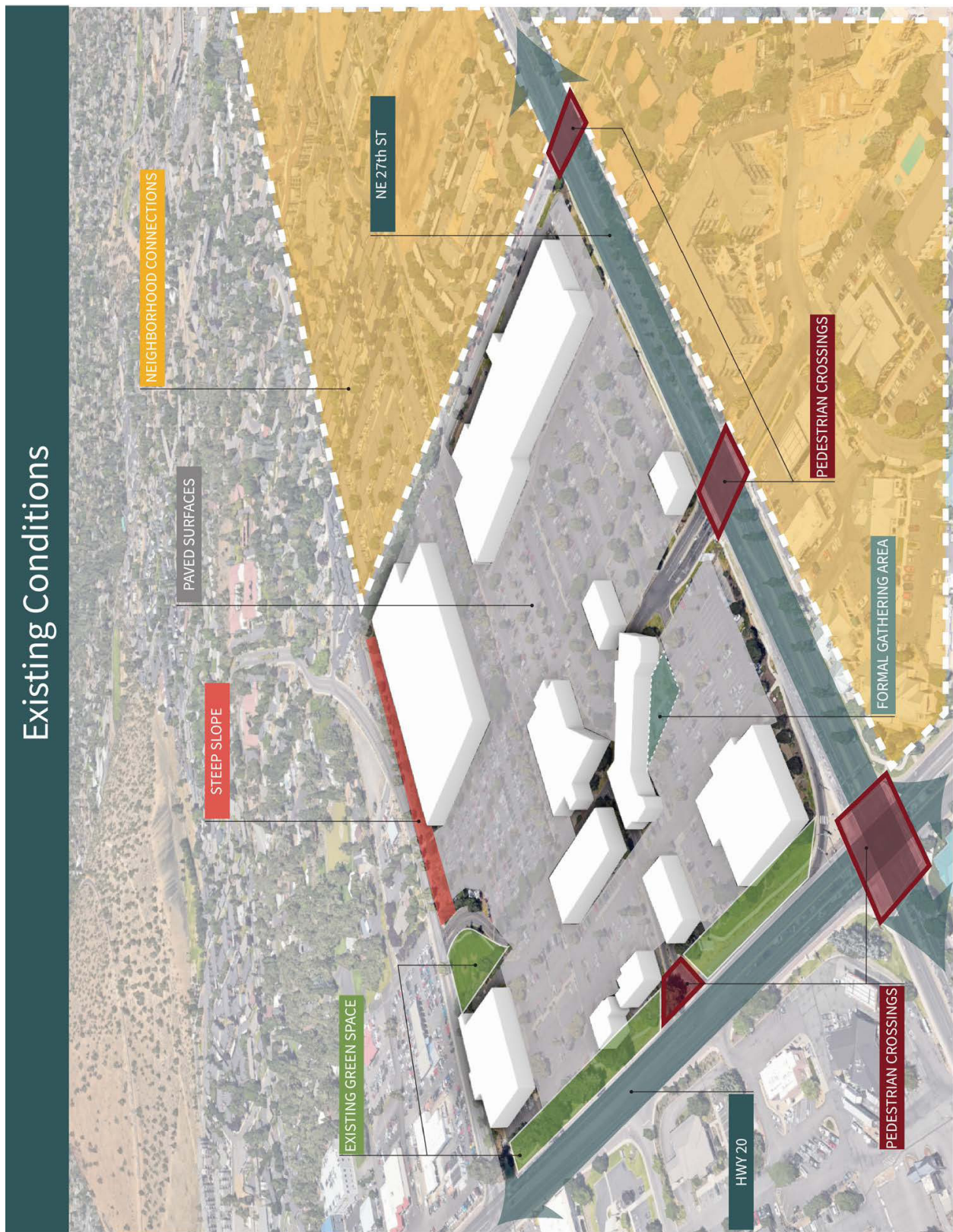


FIG. 6
Diagram of existing conditions

EXISTING CONDITIONS

The site analysis findings (Figure 6) identify the site's strengths, weaknesses, opportunities, and threats. Steep slopes along the site's western edge could create grading and drainage challenges or provide opportunities for design elements that pair well with steep slopes, such as cascading water features, stairs, and terraces.

Highway 20 and NE 27th Street are busy roads that present both challenges and opportunities. The Oregon Department of Transportation (ODOT) owns and maintains Highway 20, which can complicate the process of redeveloping or reconfiguring the road to promote increased use of multimodal transportation. The design choices at the five main intersections leading into the site are consequential to commuter safety.

During redevelopment, designers should consider the small areas of existing greenspace on the site. Green spaces could either be enhanced or eliminated

based on the redevelopment goals.

If developers eliminate the existing green space, they must follow City of Bend Development Code 3.2.200 Tree Preservation to ensure they are preserving priority trees, replacing the necessary number of trees, and mitigating the loss of green space on the site (City of Bend, 2024).

The site contains a large surface area of paved surfaces. Paved surfaces contribute to urban heat island effects as the surfaces absorb and retain heat, contributing to higher temperatures. Impervious surfaces prevent water from infiltrating the soil, increasing stormwater runoff. Stormwater typically carries many pollutants, including oil, chemicals, and heavy metals, into waterways, degrading water quality. Paved areas restrict plant growth, reduce natural habitats and biodiversity, and disrupt local ecosystems. Finally, the production and maintenance of asphalt and concrete are energy-intensive processes, contributing to greenhouse gas emissions.

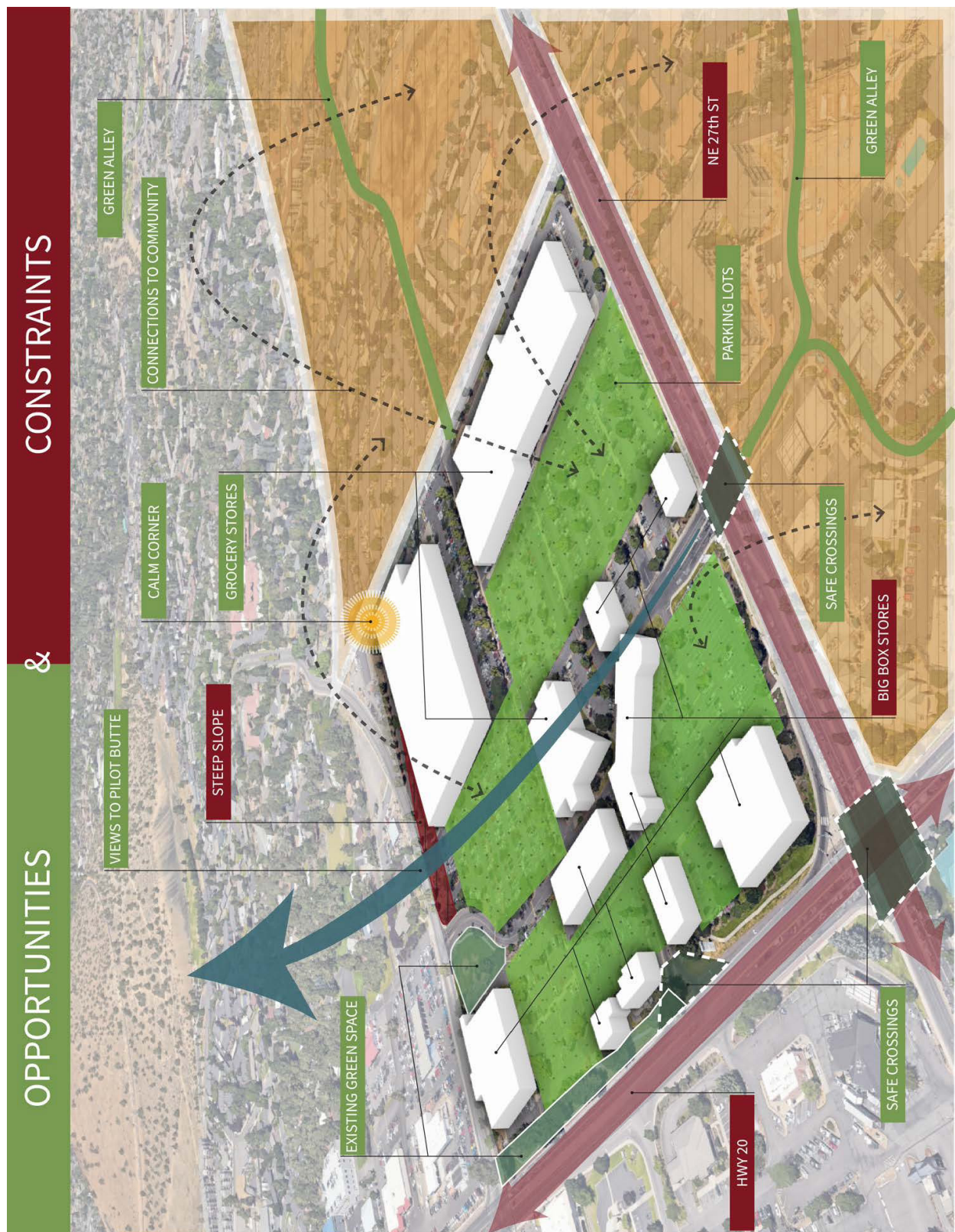


FIG. 7

Diagram of opportunities and constraints

OPPORTUNITIES AND CONSTRAINTS

Opportunities

Residential neighborhoods to the site's north and east create ample opportunities for neighborhood connectivity. These design proposals could benefit and serve the needs of the surrounding neighborhoods. In addition to surrounding residential neighborhoods, the St. Charles Medical Center complex lies one mile north of the site. Greenway connectors could offer unique opportunities for increased connectivity to the site and a wide range of benefits, including safe multimodal transportation options, increased access to green space, community, and social interaction, enhanced mental and physical well-being, increased economic activity, and enhanced urban resilience.

The northwest corner of the site is quiet and calm. Compared to the site's southern and eastern edges, the northwest corner could be a place for rest and relaxation with opportunities for a therapeutic garden, a children's play area, reading benches, meditation gardens, or a labyrinth, all of which promote a calming sensory experience for site users.

Because surface parking lots dominate the site, there are ample opportunities for redeveloping them into more valuable and equitable programmatic spaces. Parking lots are one of the easiest built forms to redevelop compared to other urban spaces because of their structural simplicity and typically straightforward ownership and characteristics. They are flat, open, and free of significant structures, reducing site demolition and preparation costs and complexity. Parking lots are adaptable to various redevelopment options, including buildings, streets, and green spaces.

Although paved surfaces dominate the site, some existing green space could be retained and expanded upon during the site redevelopment. In particular, the green space along Highway 20 provides a buffer from traffic noise and pollution. The city could extend and densify the buffer to further insulate the site from the views and sounds of the highway.

The site offers excellent views of Pilot Butte, an iconic landmark in Bend. Creating site lines to the Butte offers spectacular viewsheds enhanced by design elements. Designers could frame views of the Butte using structures and green infrastructure to facilitate exciting moments as people move throughout the site.

Safeway and Whole Foods are viewed as an opportunity to provide east-side neighbors with access to groceries and nutritious foods. Bend staff conveyed that these are the only grocery stores on the east side of town, making them a critical asset to the community. Rural residents who live outside of Bend city limits rely on these grocery stores. Access to nutritious food is a common element missing from low-income neighborhoods, so ensuring grocery access remains in the redevelopment of this site is imperative.

Finally, large intersections offer opportunities for improvements that make the environment more welcoming for pedestrians. To facilitate the shift from a car-dependent culture, pedestrians must be prioritized in the reconfiguration of crossings to create a safe, comfortable, and enjoyable experience. These measures encourage more people to walk, bike, or use public transportation—outcomes that align with CFEC goals.

Constraints

A significant slope affects parts of the site, which could pose challenges for construction, accessibility, and drainage management. The steep slopes on the west side of the site make it difficult to form new connections to the site. New roads on the site would require significant grading, which is a costly investment.

The layout and scale of big-box stores may limit flexibility in reimagining the space for more dynamic, pedestrian-friendly uses. Big-box stores and the accompanying large parking lots encourage and prioritize the use of cars. The current urban form is not conducive to meeting CFEC goals and building complete communities. Big-box store landscapes typically lack the unique character found in locally owned shops. Such homogeneity can detract from community identity and vibrancy like those found in downtown Bend. Additionally, big-box stores typically negatively impact small and local businesses. Retailers, like Barnes & Noble or Office Max, often undercut prices, making it difficult for local, independent businesses to compete and survive. Critics of big-box stores argue that while they create jobs, positions often come with low wages and minimal benefits (Lichtenstein, 2009).

The surrounding roads present significant constraints to the redevelopment of the site. If Bend's goal is to promote increased multimodal transportation, the streets could be reconstructed to promote safety, comfort, and enjoyment. During the site visit, the teams experienced how vulnerable it feels to access the site if you are not in a vehicle. In addition to high costs, redeveloping busy roads poses numerous challenges, as these thoroughfares are critical for transportation, commerce, and daily life. Balancing the need for improvements with the potential disruptions and competing priorities requires careful planning and collaboration. Redevelopment projects often involve lane closures, detours, and construction zones, leading to significant delays and frustration for commuters. Since Highway 20 and NE 27th Street serve as bus corridors, construction can disrupt schedules and further reduce accessibility for riders. Lastly, jurisdictional challenges may exist between the City of Bend and ODOT regarding Highway 20. Since the City of Bend does not own or operate Highway 20, making any road changes would require ODOT's approval. A cross-agency collaboration, though achievable, can be complex and challenging to navigate.

Community Profile: Demographic, Economic, and Housing Data

DEMOGRAPHIC SNAPSHOT

Social and economic data from Oregon, Deschutes County, and Census Tract 19.03 provide context for understanding the demographic and economic makeup of the Project area. Data at the census tract level informed decisions on the redesign of the 35-acre project site.

All data for the community profile were collected from the American Community Survey (ACS) 2018-2022 5-Year Estimate from the United States Census Bureau. Figure 8 shows that Deschutes County makes up about 5% of Oregon's population. The census tract represents around 3% of Deschutes County.

FIG. 8
Deschutes County
Population

Oregon	Deschutes County, Oregon	Census Tract 19.03
4,229,374	199,352	6,340

Data in Figure 9 illustrates that Census Tract 19.03 has a higher percentage of young adults (25-34 years old) compared to Deschutes County and Oregon. Almost half of the census tract population is aged

18-44 years old, significantly higher than Deschutes County at 34% and Oregon at 37%. Deschutes County has an aging population; about 20% of the county is aged 65 and above.

FIG. 9
Age Distribution

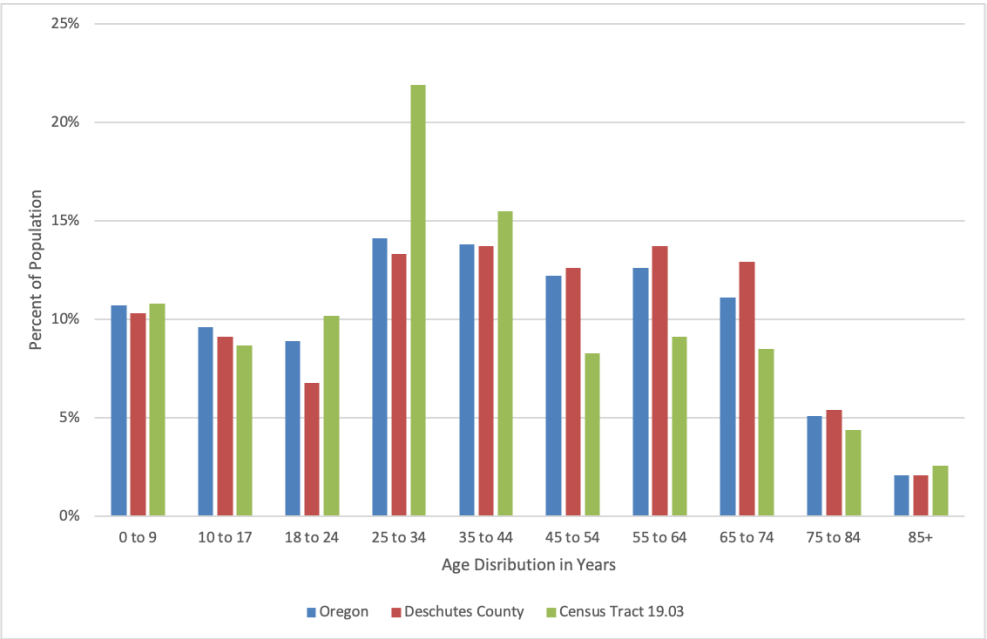


Figure 10 indicates the highest levels of educational attainment for the census tract are “High School Graduate or More” and “Some College or More”. For the level of Bachelor’s Degree or more, the educational attainment in the census tract

is less than that of Deschutes County or Oregon. A younger population with lower educational attainment may have less financial security and accumulated wealth than older, more educated populations.

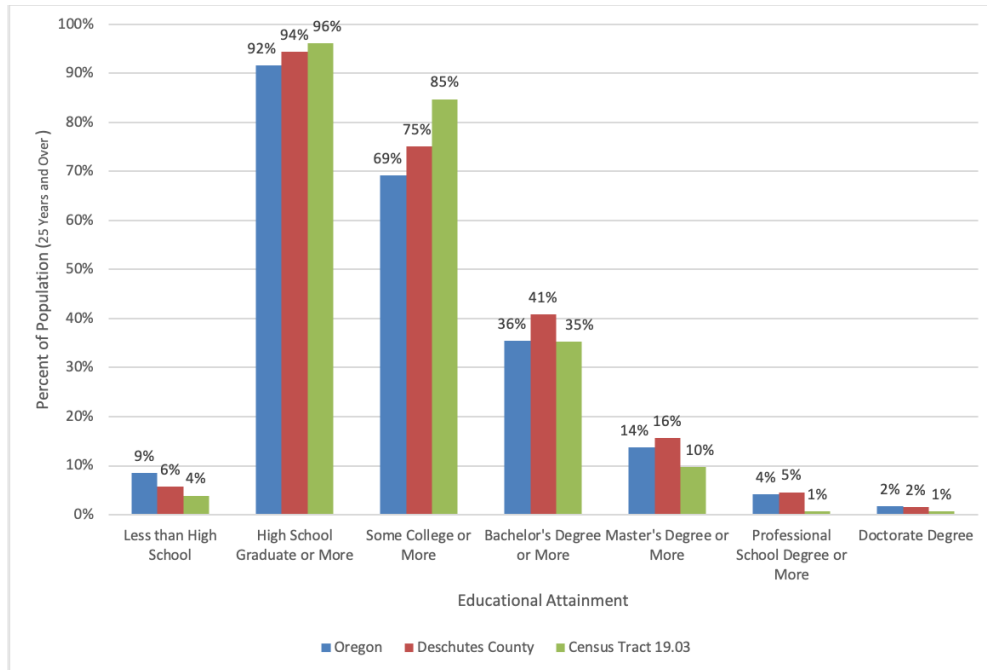


FIG. 10
Educational Attainment

Figure 11 shows the racial and ethnic makeup of the census tract closely resembles Deschutes County. Oregon has higher rates of ethnic and racial diversity (27% non-white) than Deschutes County (15%) or the census tract (14%). Approximately 8% of the census tract is Hispanic and Latino.

FIG. 11
Race and Ethnicity

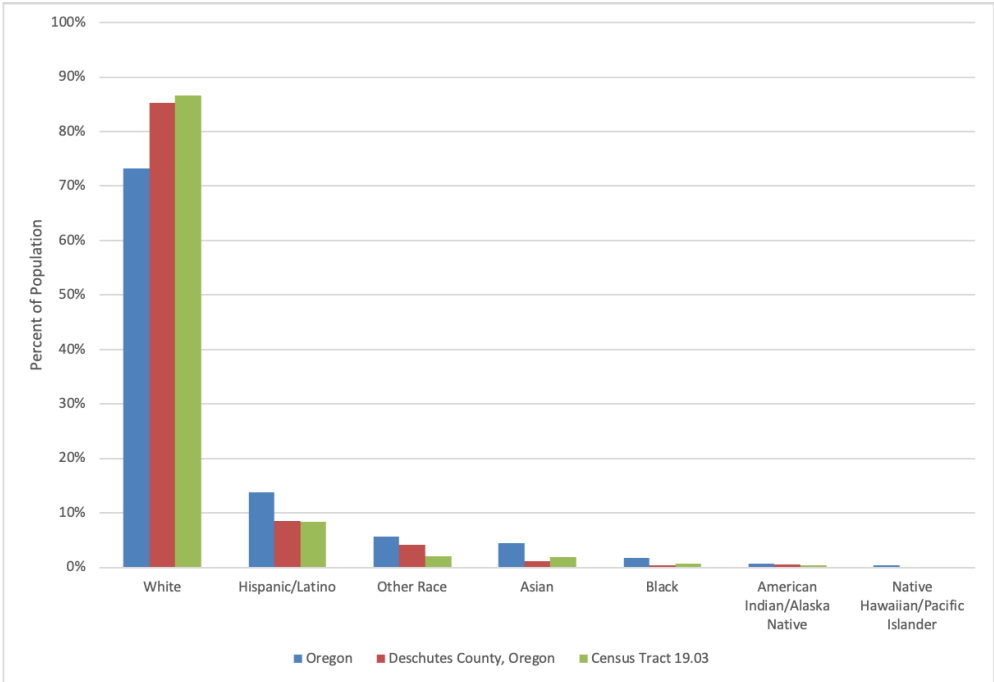


Figure 12 displays both Deschutes County and the census tract have higher median incomes than Oregon. Deschutes County's median income is 7% higher, while the census tract is 11% higher than Oregon. Half of households in the census tract earn less than \$85,122 per year. Despite the median income of the census tract being higher than Deschutes County and Oregon, a significant number

of families, approximately 15%, live below the poverty line. Figure 13 reveals the poverty rate for the census tract is significantly higher at twice the rate of Oregon and Deschutes County. In the census tract, a disproportionate level of women with children under 18 live below the poverty line, about 10% of the 15% of households living below the poverty line (ACS).

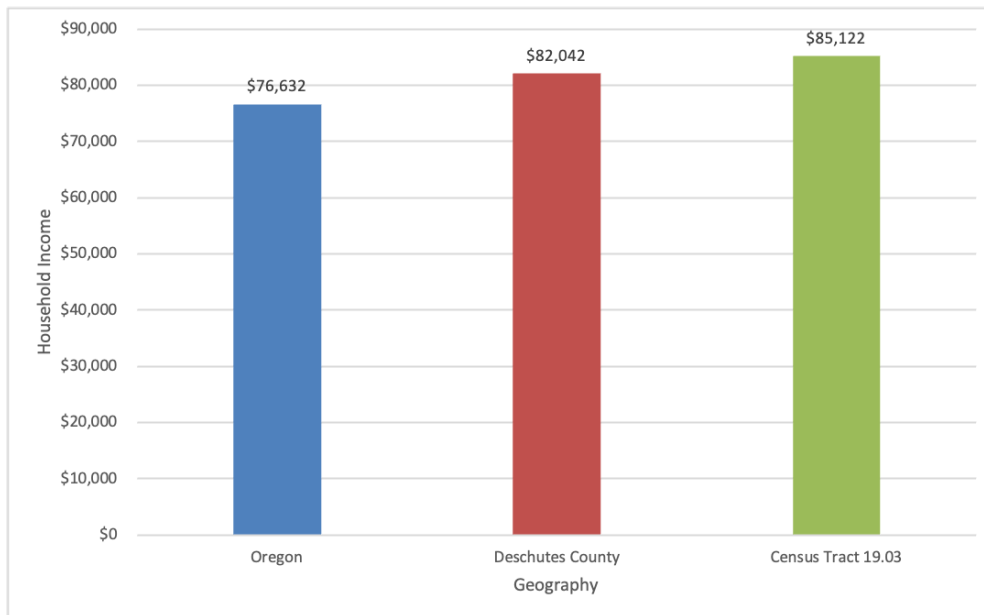


FIG. 12
Median Income

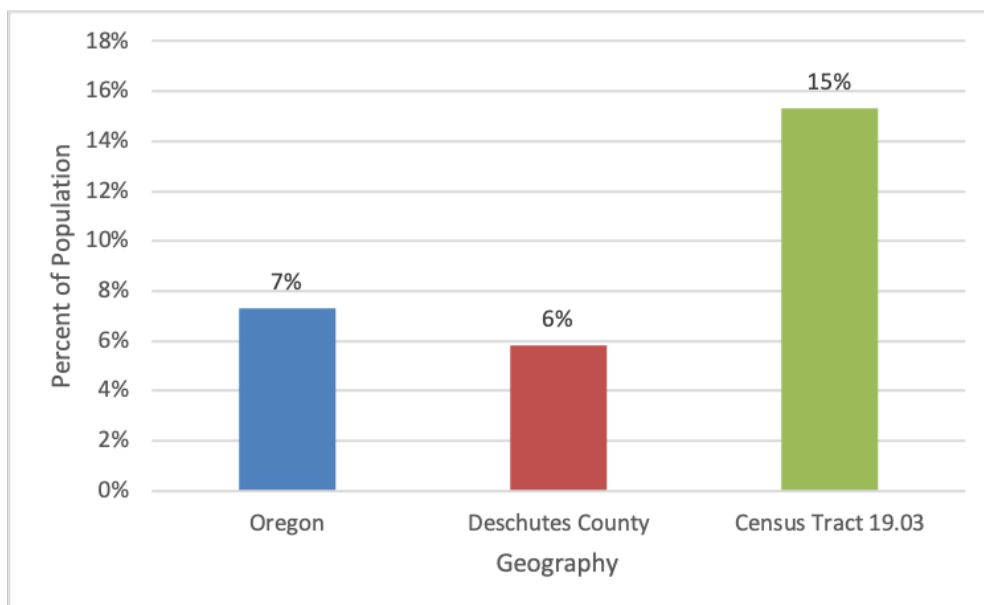
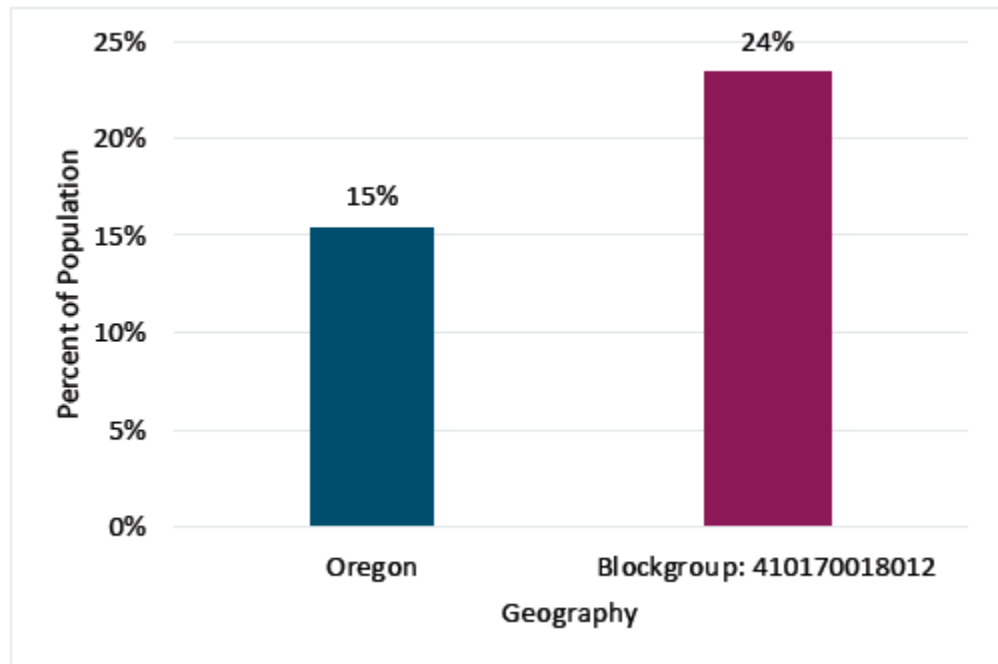


FIG. 13
Poverty Rate

The block group encompassing the Project has a higher rate of persons with disabilities than Oregon. Figure 14 shows 24% of people living in the block group have a disability. Disabilities are defined as

difficulties with hearing, vision, cognitive, ambulatory, self-care, and independent living (EPA). The block group is in the 93% percentile for persons with disabilities.

FIG. 14
Disability Rate



Block group 410170018012 is a subdivision of Census Tract 19.03. EPA's EJScreen utilizes ACS Census Tract Data to determine block groups. Block group

values are calculated by multiplying the tract value by the block population weight (EPA, 2024).

ECONOMIC SNAPSHOT

Deschutes County is home to the sixth-largest city in Oregon and has a growing population. The industrial sectors that once defined the central Oregon county are evolving to meet the needs of a changing population. Deschutes County's total employed population is growing faster than the national average. The county had a 38% change in employment between 2010 and 2020 compared to a 10% national change. Analyzing data from the Oregon Regional Economic Analysis Project aids in understanding important growth, potentially emerging sectors, and which industries require attention or have little promise to the local economy.

Table 2 demonstrates the shift-share analysis for Deschutes County. The

national growth component suggests that 9,361 of the 34,684 new jobs across all industries were due to national economic trends. The negative industrial mix (-305) means local sectors in Deschutes County grew slower than the national average. Government, retail trade, accommodation and food service, and arts, entertainment, and recreation contributed to the slower growth in Deschutes County. The competitive effect component indicates Deschutes County gained an additional 25,628 jobs beyond national growth trends or industrial mix. Construction, health care, professional, scientific, and technical services, and transportation and warehousing were key industries that made Deschutes County more competitive than other areas.

National Growth Rate Component	Industrial Mix Component	Competitive Share Component	Total
9,361	-305	25,628	34,684

TABLE 2
Shift Share Analysis for
Deschutes County

Healthcare is a self-sufficient industry (see Table 6 in appendix), with a large share of the population of Deschutes County employed in the sector. The total population employment by the healthcare industry increased by 47% in Deschutes County compared to 18% nationally from 2010 to 2020. The Project is within a mile of St. Charles Medical Center, and there are multiple senior living facilities directly adjacent to the site. The site's proximity to healthcare and related industries makes it uniquely qualified to meet the needs of those employed in the sector. Developing infrastructure like green alleys from public parks and housing to

the hospital will help support the growing industry. Retail trade is a self-sufficient industry in Deschutes County, and the total employed population rose by 24% in the sector compared to 2% nationally (see Table 6 in appendix). Retail trade is a significant industry in Deschutes County, and if trends continue, more vacant retail stores will need remodeling as companies increase the size of their stores, moving from location to location. It is important to examine equitable development for the future to prevent big-box stores from leaving large vacancies in the community when they upgrade and move across town.

HOUSING SNAPSHOT

Housing affordability is a critical issue in Deschutes County and the City of Bend due to rapid population growth. Deschutes County’s population grew 26% in the last 10 years. By 2040, the population is projected to increase by 33% (Deschutes County 2040). Bend’s Comprehensive Plan identified the need for over 17,000 new units of housing by 2028 to accommodate growth (Bend Comprehensive Plan). Figure 15 demonstrates the census tract has lower rates of home ownership than Deschutes County or Oregon. The census tract has

about equal owner-occupied (51%) and renter-occupied (49%) units. Deschutes County has about 70% owner-occupied and 30% renter-occupied units. Oregon has about 63% owner-occupied and 37% renter-occupied units. The higher level of renter-occupied units in the census tract aligns with the younger demographic of the area, approximately 48% of the population is aged 18-44 years old (Figure 9). A younger population typically does not have the financial resources to purchase a home, especially given the housing value-to-income ratio in the census tract.

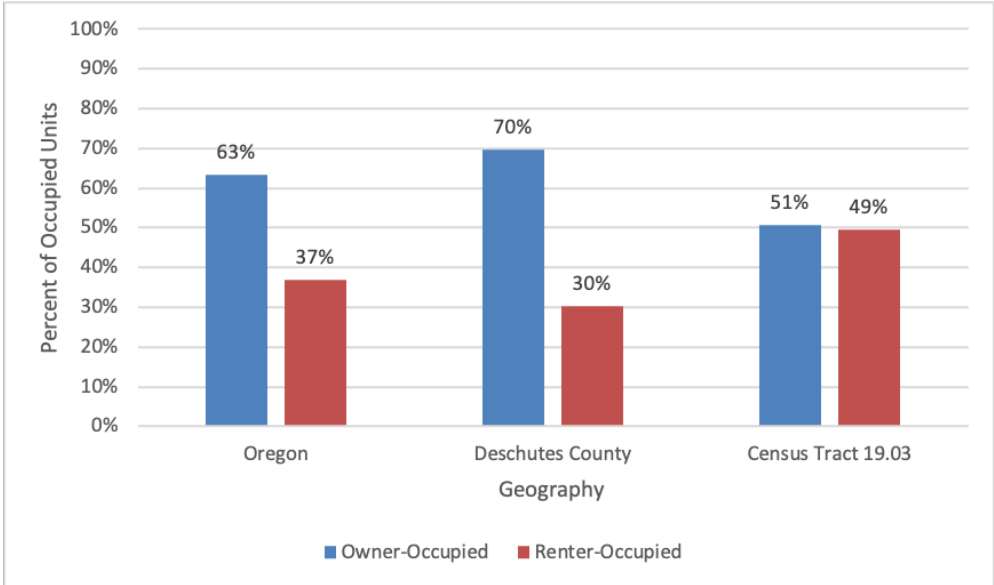


FIG. 15
Housing Tenure

The census tract has higher housing diversity than Deschutes County. The number of housing structures with multiple units is higher in the census tract (29%) than in Deschutes County (15%)

and Oregon (24%) (Table 3). The census tract has a lower number of single-family homes than Deschutes County, 68% to 80%, respectively.

Statistics	Oregon		Deschutes County, Oregon		Census Tract 19.03	
SE:A10032. Housing Units in Structure						
Housing Units:	1,818,599		94,911		2,838	
1 Unit:	1,233,824	67.8%	76,181	80.3%	1,925	67.8%
1, Detached	1,146,153	63.0%	72,057	75.9%	1,716	60.5%
1, Attached	87,671	4.8%	4,124	4.4%	209	7.4%
2	47,206	2.6%	1,997	2.1%	110	3.9%
3 or 4	79,446	4.4%	3,745	4.0%	22	0.8%
5 to 9	80,704	4.4%	2,437	2.6%	279	9.8%
10 to 19	67,766	3.7%	1,400	1.5%	26	0.9%
20 to 49	60,690	3.3%	1,577	1.7%	68	2.4%
50 or More	107,786	5.9%	2,631	2.8%	294	10.4%
Mobile Home	133,706	7.4%	4,559	4.8%	114	4.0%
Boat, Rv, Van, Etc.	7,471	0.4%	384	0.4%	0	0.0%

TABLE 3

Housing Units by Structure

Almost half of renter households are cost-burdened (Table 4). Deschutes County has the highest percentage of residents (47%) who are cost-burdened or extremely cost-burdened, followed by the state (Oregon, 44%), and the census tract

within Deschutes County at 42%. The census tract has a high rate of renters, and the median rent in the tract is \$1,803 per month (Table 5). Renters face an undue burden with high median rent rates in the state, county, and tract.

Statistics	Oregon		Deschutes County, Oregon		Census Tract 19.03	
SE:A10049. Selected Monthly Owner Costs as a Percentage of Household Income in the Past 12 Months (Dollars) for Housing Units with a Mortgage						
Housing Units with a Mortgage:	697,213		38,357		856	
Less than 30 Percent	484,910	69.6%	25,315	66.0%	593	69.3%
30 Percent or More	209,536	30.1%	12,671	33.0%	197	23.0%
50 Percent or More	79,978	11.5%	4,806	12.5%	94	11.0%
Not Computed	2,767	0.4%	371	1.0%	66	7.7%

TABLE 4

Cost-Burdened Households

Statistics	Oregon	Deschutes County, Oregon	Census Tract 19.03
SE:A18009. Median Gross Rent			
Median Gross Rent	\$1,373	\$1,550	\$1,803

TABLE 5

Median Gross Rent

Table 6 indicates the rent-to-income ratio in Census Tract 19.03 is 25%. The census tract rent-to-income ratio is higher than Deschutes County and Oregon. Renters in Oregon face significant affordability challenges due to high rent-to-income ratios. The American Apartment Owners Association recommends that 30% or

less of a tenant's annual income goes to rent (Beckner). Fifty percent of the census tract spends more than 25% of their income on rent, and 42% of the population spends more than 30% of their income on rent. Oregon has a significant need to address the lack of affordable housing statewide.

Statistics	Oregon		Deschutes County, Oregon		Census Tract 19.03	
SE:A18002. Gross Rent as a Percentage of Household Income in the Past 12 Months (Dollars)						
Renter-Occupied Housing Units:	618,278		24,660		1,303	
Less than 10 Percent	19,460	3.2%	773	3.1%	97	7.4%
10 to 29 Percent	267,064	43.2%	10,340	41.9%	571	43.8%
30 to 49 Percent	147,901	23.9%	6,118	24.8%	305	23.4%
50 Percent or More	149,061	24.1%	5,899	23.9%	315	24.2%
Not Computed	34,792	5.6%	1,530	6.2%	15	1.2%

TABLE 6

Rent-to-Income Ratio

Homeowners in Oregon face a substantial economic burden due to high housing value-to-income ratios. Table 7 demonstrates the median value of an owner-occupied home in Census Tract 19.03 was 5.4 times higher than the median household income. The census tract has a lower ratio than Deschutes County (6.4) and Oregon (5.5). Oregon has the 4th highest state housing value-to-income ratios in the country (Jones). A housing value-to-income ratio above five is considered expensive, while a ratio

below three is considered affordable (Hermann & Whitney). Oregon and the census tract have ratios above five, and Deschutes County has a ratio of about six. High ratios impact first-time home buyers' ability to afford a mortgage. Ratios above five are especially significant in the census tract where only 51% of homes are owner-occupied. For the 49% renter-occupied, a housing value-to-income ratio of 5.4 will cause further inequities as residents will not be able to afford to buy a home or will risk being cost-burdened.

Oregon	Deschutes County, Oregon	Census Tract 19.03
5.5	6.4	5.4

TABLE 7
Housing Value-to-Income Ratio

Lack of affordable housing is associated with limited healthcare access and lower food security (Reid et al.; Ma et al.). Increased affordable housing must be supported by other public and private services to improve the lives of low-income Bend residents. It is

critical to establish necessary physical infrastructure like affordable housing and social infrastructure, including healthcare, childcare, grocery stores, food banks, and community gardens to address community needs.

Integration of Bend's Planning Tenets

This section provides an overview of some of the City of Bend's key plans, analyses, and reports that align with the goals outlined of the Project proposals. The integration of these resources with the thematic designs will support the success of the city in approaching an innovative development opportunity.

CLIMATE FRIENDLY EQUITABLE COMMUNITIES PLAN

The CFEC program is a strategic initiative mandated by the State of Oregon to reduce carbon emissions while promoting social equity and resilience across Oregon cities.

Another major focus of the CFEC Plan is to meet the state's climate goals by reducing carbon emissions from transportation. Policies to encourage walking, biking, and public transit, alongside infrastructure improvements, aim to make low-carbon transportation options more accessible.

Affordable housing is also a key aspect of CFEC, with an emphasis on creating energy-efficient, climate-resilient housing options for low- and middle-income families. CFEC also suggests increasing urban green spaces, improving water conservation and stormwater management, and transitioning to more

sustainable transportation methods.

Community engagement is an imperative aspect of CFEC, ensuring the city involves neighbors in the establishment of CFAs.

The City of Bend conducted a CFA Study in 2022 to identify potential neighborhoods to meet the CFEC goals and designate them as future project sites for CFA investment. The study found that the city needs to designate 275-350 acres of CFAs across Bend to meet current and projected housing needs. The study suggests the Eastside as a strong contender with the potential to meet 66% of needed housing capacity. Additional benefits of the Eastside CFA include the proximity to St. Charles Medical Center and community favorability. The study also noted that the area scored low on the connectivity model, with transportation and major highways posing a significant barrier. It also scored the highest at risk of displacement.

BEND COMPREHENSIVE PLAN

The Bend Comprehensive Plan is a 20-year planning guide that organizes diverse stakeholders around a collective vision for Bend's future development. The Plan addresses major land use considerations like community engagement, housing, the economy, and transportation. Initially approved in 1981, the plan is periodically updated to adapt to current factors. The policies in each chapter of the plan provide standards for the public and private sectors to tangibly achieve goals while meeting community expectations and governmental regulations. There are several long-term goals outlined in the comprehensive plan that helped guide the cohort's objectives for the project (Bend Comprehensive Plan):

- **Create and Preserve Great Neighborhoods:** Continue fostering neighborhoods that serve as complete communities, equipped with safe and walkable schools, parks, and other neighborhood services while preserving historic character.
- **Build Affordable Housing:** Increase the availability of affordable housing for all income levels and build more inclusive, mixed-income communities.
- **Foster Connections to Recreation and Nature:** Enhance the network of parks and recreation amenities throughout the city.
- **Promote Community Engagement:** Prioritize community participation in planning processes and decisions, especially reaching out to historically marginalized communities.

- **Facilitate a Balanced Transportation System:** Integrate a well-connected transit system across Bend's urban development to provide safe options for pedestrians, bicyclists, public transit users, and drivers.

ECONOMIC OPPORTUNITIES ANALYSIS

The Economic Opportunities Analysis (EOA) assesses Bend's current economy and projected trends and moves the city closer to its goals for economic development. Alongside the projected population growth, the EOA aims to ensure that employment opportunities keep up with the demand. Additional objectives within the EOA align with the Project goals (Economic Opportunities Analysis):

- **Small neighborhood centers:** Recommends small, service-oriented employment centers located to facilitate walkable and bikeable employment opportunities, public spaces, parks, recreational facilities, and more.
- **Mixed-use development:** Suggests building additional mixed-use developments along key corridors or as buffering uses.
- **Opportunity for all economic levels:** Promotes economic and housing opportunities for all income levels, creating an inviting community for people of all backgrounds to live.

URBANIZATION REPORT

The Bend Urbanization Report, published in 2016, presents an analysis of how to accommodate residential and employment growth within the UGB. It stresses the need for efficient land use, specifically, “Minimum residential densities for housing along transit corridors in commercial and mixed-use zones” (Urbanization Report, p. 4). The report emphasizes that access to transportation and safe streets influence equitable and sustainable outcomes. Improving transportation can be achieved on the east side of Bend, “By a fairly complete grid of streets, while topographic barriers limit the potential for a full street grid in this area” (Urbanization Report, p. 115). These standards influenced the Project approach to developing baseline connectivity inside of and beyond the site.

TRANSPORTATION SYSTEM PLAN

The Bend Transportation System Plan (TSP) outlines current and future transportation needs based on expected growth, focusing on addressing congestion and safety on the Bend Parkway. The TSP improves travel reliability on key east-west corridors, enhances connectivity on north-south routes in eastern Bend, and fills gaps in walking and biking routes (Growth Management Division). The plan aligns with the Bend Community Climate Action Plan to reduce greenhouse gas

emissions. TSP policy goals include reducing fatalities, improving travel time reliability, and completing key walking and biking routes. TSP’s comprehensive approach aims to create a safe, efficient, and equitable transportation system that supports Bend’s growth and enhances the quality of life for all residents.

PARKS & RECREATION MIDTERM COMPREHENSIVE PLAN

The Bend Park and Recreation District published its current comprehensive plan in 2018 to guide park, trail, recreation, and facilities development through 2028. The midterm update of the plan accounts for updated projected needs through the end of the plan’s term. Demographic shifts in Bend since the initial plan include increased population growth, more racial diversity, an increased aging population, and a decrease in the youth population. In a 2023 Community Needs Survey, district neighbors demonstrated the continued value of the parks and recreation system, resulting in a Needs/Unmet Needs Analysis to discern the District’s priorities in the coming years. The District also conducted equity mapping to identify areas with the greatest inequities. The needs survey and equity mapping both concluded that the Bend Eastside CFA is a high-priority area for a new neighborhood park to serve the increased density of residents (Bend Parks & Recreation District Comprehensive Plan: Midterm Update, 2024, p. 58).

Thematic Research

Throughout the term, each team conducted in-depth research around each planning theme: Walkability and Transportation, Climate Resilience, Placemaking, and Equitable Community. The following outlines some of the key takeaways that the cohort recommends the City of Bend consider in the redevelopment of the Project.

WALKABILITY AND TRANSPORTATION

Urban Heat

Given Bend's high desert climate, plans for urbanization should respect the threat of urban heat. Research in Phoenix, Arizona, showed that increases in vegetation, emissivity, thermal conductivity, and albedo create significant decreases in urban heat (Silva & Fillpot, 2018). Even in the hottest and driest urban climates, designing more green space and opportunities to reflect and displace heat can be successful in producing a more comfortable local climate. Utilizing tree cover in parks and along streets in addition to interspersed vegetation improves biodiversity, air quality, and lowers ambient temperatures (Aleksandrowicz et al., 2017). Cool roofs, coated with materials designed to reflect sunlight back into the atmosphere, decrease surface temperatures, reduce energy used for cooling buildings, and increase comfort within the structure (Taleghani et al., 2014). Amendments to Bend's Development Code can be used to enshrine these techniques into new construction, which would allow Bend to adapt to its climate in the future. A community that can mitigate urban heat is inherently more walkable.

Welcoming an Aging Population

Bend's aging population, and specifically the Project's proximity to retirees, makes it desirable to design with

accessibility and safety in mind. There are many aspects to designing a walkable community that also provides better outcomes for seniors. Seniors prefer to walk and drive in slower, more connected street conditions (Dumbaugh, 2008). Another example is the correlation between added greenspace and longer lifespans for older adults in Tokyo (Takano et al., 2002). Some older adults want to integrate back into their communities by downsizing into more accessible units, while others want to segregate into specific sites for seniors (Rosenberg & Everitt, 2001). The area around the site already has a retirement community, but the additional housing proposed on the Eastside CFA site could allow for the proper diversification needed to fit both conditions. Creating a walkable community is inherently creating a community that is accessible to seniors.

Public Attitudes Towards Housing

Understanding the possible reactions from the public to land-use changes is essential to the process. Not in My Back Yard (NIMBYs) are community members who present social or political opposition to housing or other land use choices by policy makers (Fischel, 2001). Contemporary discussions around the NIMBY phenomenon underlines that while the fear around the economic security of one's own housing is a reasonable one, the political backlash can hamper a local

government's ability to take necessary action in solving its own problems. To alleviate these problems, it is imperative to involve the community early in the process of development. The political process will require finding partners to champion a project like this one.

CLIMATE RESILIENCE

Cool Roofing

Cool roof infrastructure is a multifunctional way to cool the surrounding area and minimize building energy consumption. Simply painting the roofs of the Project's developed infrastructure white has the potential of reflecting 60-90% of sunlight (U.S.

Department of Energy, n.d.). Creating green roofing throughout the Project will reduce temperatures, save energy, and reduce stormwater runoff. This style of roofing helps reduce "building energy use by 0.7% compared to conventional roofs" (EPA, 2024). Additional benefits include better air quality, cooling through evapotranspiration, additional insulation, and better water quality (EPA, 2024). Brooklyn Grange is an example of a business that contains an extensive portfolio of green roof farms as well as green roofing in commercial and residential spaces throughout the boroughs of New York City (Brooklyn Grange, n.d.).



FIG. 18

Brooklyn Grange Urban Green Roof

Source: Tata Innovation Center

Solar Panels

Providing on-site renewable energy is an important step towards carbon neutrality. On-site power generation provides cost savings to consumers and is an important resilience strategy for the redevelopment plan. Integrating a backup power supply will support community resilience as the frequency of natural disasters increases, supporting well-being and long-term sustainability. Examples of a systematic approach to roof spaces include low-light plant species on green roofing being placed in shaded areas, roofing with solar panels placed on higher spaces to maximize light absorption and to reduce glare, and redeveloping Costco's roof into a large green roof and solar panel domain to maximize space utilization.

Passive Design

Passive design elements more efficiently cool buildings in the summer and heat them in winter, reducing energy consumption. These practical design principles include proven techniques that decrease the operational carbon cost. Glass rotating shaded systems, for example, provide shade in response to surrounding light and temperature readings. These solar-controlled systems have the potential to reduce energy use by approximately 50% and “reduce solar heat gain” (Energies, 2017).

Electrochromic glazing on commercial building windows within the site will help with overall energy conservation within the Project. It uses electrical voltage to regulate the amount of light allowed to pass through the window without affecting visibility. This style of window not only reduces ultraviolet light by over 99%, but also potentially reduces power consumed annually by around 30% (Energies, 2017).

PLACEMAKING

The practice of placemaking in the context of urban development evolved as a response to auto-dependent design and a sense of placelessness among the American public. In *Placemaking: Developing Town Centers, Main Streets, and Urban Villages*, Charles Bohl characterizes placemaking as a development strategy in response to the social isolation inherent to urban sprawl. City dwellers are on a “quest for community” (2002). In the *Sustainable Urban Design Handbook*, authors Nico Larco and Kaarin Knudson state “What is clear is that urban design itself has historically been used as a tool to isolate communities, reject diversity, and limit opportunities. Urban designers have a responsibility to better understand both the intentions and the outcomes of our work in this regard and to center community needs that contribute to a more equitable future” (Larco & Knudson, 2024).

The Project for Public Spaces defines placemaking as, “A collaborative process by which we can shape our public realm in order to maximize shared value... placemaking facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution.” Mark Wyckoff explains that placemaking is the process by which we create quality places, describing quality places as “places where people and businesses want to be. They are active, unique locations, interesting, visually attractive, often with public art and creative activities. They are people-friendly, safe, and walkable with mixed uses; they have good building dimensions relative to the street, and quality façades; they are often alluring

with pizzazz” (2013). Yet the presence of these characteristics does not ensure that a redevelopment project will be a quality place, only that it has the potential to contain it.

Community Role

Placemaking strategies rely on significant engagement by local neighbors and participation in the process; they are partnerships between the public, private, and/or non-profit sectors; and placemaking projects are multi-faceted strategies often occurring incrementally over a long period of time. “However, placemaking can also be used to create and implement larger scale transformative projects and activities that can convert a place [and]...that serves as a magnet for people and new development” (Wyckoff, 2013).

Cultural Planning

Cities can implement cultural planning to map cultural resources and lean into the community’s unique identity. Cultural planning assumes that culture is locally created and locally valued and it includes “arts, heritage, libraries, for-profit commercial and cultural industries... the built environment... landscapes, local traditions, dialects, festivals and local customs, the diversity and quantity of leisure opportunities, the cultural activities of youth and other communities of interest, local products, and skills in crafts, design, new media, manufacturing, etc. Broadly speaking, cultural resources encompass all those things that together define the unique identity and sense of place of that community” (Baeker, 2005).

According to Baeker, cultural planning also calls for “silo-busting,” or crossing those institutional barriers between communities and the various public agencies, private, and non-profit sectors, and establishing multi-stakeholder advisory groups – creating a container for intersectional dialogue and problem-solving.

Developer and City Role

The Urban Land Institute describes how a development company can be successful in embracing “placemaking” as a new part of its strategic focus and ethos. Creating a successful mixed-use project today demands more than just building the traditional hardware...it also requires good ‘software’—the ability to activate a project with programming, activity, and energy, so that the place is somewhere people want to be... achieving that activation [in part, by] bringing programming and activation operations people onto the design team” (Mattson-Teig, 2024). Suggesting that municipalities have a role in placemaking as well, he calls on local governments to rethink public works as public arts. Developers and cities can both implement placemaking strategies with the use of culture mapping (Baeker, 2005).

Resiliency

Edward Relph frames the subject of placemaking in the context of climate change, anticipating “energy costs to rise dramatically, and the spatially distributed ways of modern life will be seriously compromised” in his article, *A Pragmatic Sense of Place*. From this

perspective, placemaking strategies can be implemented to promote climate and community resiliency in the face of an increasingly unstable world. Placemaking aims to create environments that are adaptable, sustainable, and long-lasting. It encourages more dense, mixed-use development centered around walkability, thus discouraging reliance on cars and lowering greenhouse gas emissions. Placemaking emphasizes the use of local knowledge and resources, which can lead to more resilient and self-sufficient communities. By integrating community input, placemaking ensures that public spaces meet the specific needs of their users, making them more likely to be maintained and valued over time (Project, 2007).

This community-driven approach builds social cohesion and empowers residents to take an active role in climate adaptation and mitigation efforts. By creating multifunctional spaces that serve various purposes—such as social gatherings, markets, and recreational activities—communities can better withstand economic and environmental disruptions. These spaces become community hubs, fostering trust and mutual support among

residents. This holistic approach not only improves the physical environment but also builds a stronger, more connected community capable of facing future challenges.

Placemaking is Essential for Sustainable Development

While programming activation into development projects is a step toward balancing out the previous “geography of nowhere” era of urban planning, it fails to recognize a fundamental principle of placemaking – engaging local neighbors and empowering them to participate in the process, projects, and activities that comprise a multi-faceted strategy of transformation. The literature contends that, in this way, placemaking is more than mixed-use, pedestrian-friendly development. You can’t simply install a vibrant, dynamic, equitable sense of place like a lamp post or a building. Many developers are realizing “there must be connecting agents that foster collaboration and integration for a thriving ecosystem... Developers do need to consider a new approach to mixed-use that starts first with a key question: what does a place need to be?” (Mattson-Teig, 2024).

“**To align with an ethic of sustainability, these processes must meaningfully and representatively engage the community with decisions about development and the distribution of urban resources. Historically and presently, urban design decisions have not effectively engaged or benefited underserved communities in terms of development, equitable access, and resource distribution.**”

Larco & Knudson, 2024

Third Places

The term “Third Place” was first coined in 1989 by sociologist Ray Oldenburg to describe an informal public gathering space that is neither home (“First Place”) nor the workplace (“Second Place”). By defining this concept, Oldenburg sought to draw attention to a dilemma: third places, he argued, are integral to a healthy society, but their importance is often overlooked and undervalued. He also argued that the decline of third places has contributed to the feelings of isolation, alienation, and general dissatisfaction expressed by many in the American public. Since its introduction, the concept of “third places” has been incorporated across academic disciplines including (but not limited to) planning, public health, and economics. The study of third places (and lack thereof) has generated a more robust understanding of the relationships between social cohesion, public space, urban design, physical and mental health, community resiliency, and quality of life.

In his book “The Great Good Place”, Oldenburg (1989) defines third places through eight key traits:

1. They are neutral spaces.
2. They are inclusive and do not prioritize social status.
3. They are centered around conversation.
4. They are accessible and accommodating.
5. They have “regulars”.
6. They are unassuming and ordinary in appearance.
7. They offer a sense of playfulness.
8. They provide a level of comfort and familiarity, sometimes being considered “a home away from home.”

Third places can be defined not just by the characteristics they exhibit, but also by the benefits they provide to a community.

Public Health

Third places have demonstrably positive impacts on one’s physical and mental health. Places such as public parks, gyms, pools, and basketball courts encourage physical activity and provide spaces for relaxation and recreation. Wang’ombe (2024) notes that “Access to green spaces within urban environments has been consistently linked to increased physical activity levels, reduced risk of chronic diseases, and improved overall health status among residents.” Maas et al. (2009) investigate how green spaces in residential areas contribute to health through social mechanisms. Kaźmierczak’s (2013) study of local parks in inner-city neighborhoods supports Maas’ argument, stating that the interactions that occur within such public third places help to build friendships and acquaintances, contributing to stronger community bonds.

Jennings and Bamkole (2019) also point out the direct correlation between social interaction, mental health, and physical health: “Positive social cohesion can ... support health related behaviors such as decreased smoking, less alcohol consumption, and increased use of preventative healthcare services. Conversely, people who are socially isolated tend to be less healthy and susceptible to stress, depression, and cardiovascular issues” (Jennings & Bamkole, 2009). Finlay et al. (2019) highlight how the closure of third places could lead to increased loneliness, stress, and alienation, as these spaces play a significant role in buffering against these issues within community. While the structured networks of social support fostered through third places are beneficial to individuals’ well-being, they are also crucial for the broader health of a community.

Democratic Principles

Third places have historically played an important role in promoting democratic engagement and civic participation. Take, for example, taverns in the American Revolution, French cafes in the French Revolution, and London coffee houses during the Enlightenment. Public squares were often the venues of public discussion and debate, dating back to ancient Rome (Oldenburg, 1989). According to Jeffres et al. (2009), third places can “foster commitment to local politics via informed public discourse”. Democracy also rests on citizens’, “Ability to associate with other citizens in a civil manner, respect other citizens, and join with them in common projects involving dialogue”, and that the “creation of public spaces that [encourage] civic interaction and discourse” should be prioritized (Mattson, 1999). Even the basic process of community members coming together to shape and define the public realm is inherently democratic (Goosen & Cilliers, 2020).

Public vs. Private Space

While a core tenant of third places is public accessibility, Oldenburg did not originally conceptualize “third places” as publicly owned. As Finlay et al. (2019) put it, “public facilities and institutions... constitute third places; but so do commercial businesses and certain privately-operated organizations”. However, some scholars critique the privatization of public spaces, arguing that this has negative impacts on third places. Mattson (1999) connects the decline of third places to suburbanization, privatization, and the rise of commercial spaces like shopping malls.

“Though the acceptability of ‘Wal-Mart’ as a third place may depend upon one’s political or philosophical inclinations, the reliance on ‘commercial’ private venues for public interactions deserves more than cursory examination” (Jeffres et al., 2009). Kaźmierczak (2013) also critiques the privatization of public space, arguing that it reduces cultural meaning, and decreases draw to such third places. “An increasing proportion of urban space is privately developed and managed, thus becoming commodified and exclusionary. Coupled with the continued priority given to cars, a large proportion of public space in the city has lost its cultural meaning and human purposes leaving little common ground to strengthen urban society” (Kaźmierczak, 2013).

EQUITABLE COMMUNITY

Affordability

Bend is experiencing a growing affordable housing crisis, exacerbated by a surge in population driven by its natural beauty, recreational opportunities, and thriving job market. The high demand has increased property values and rental rates, making homeownership difficult for many residents. High land and construction costs cause developers further challenges in building affordable housing. The city’s UGB has restricted residential development expansion, further driving up costs.

Zoning regulations have historically prioritized single-family homes and deterred high-density, mixed-use projects that are essential for affordable housing. Oregon’s House Bill 2001, which abolished single-family zoning, may bring change. However, opposition from NIMBYs and infrastructure challenges bring further complications regarding affordable housing expansion.

Bend's economy also attracts new residents, increasing the demand for housing. Economic disparities among households further exacerbate affordability issues. Affordable housing developments rely on limited public and private funding sources and often require subsidies and tax incentives to build the development. Addressing all of these issues requires collaboration among the city, developers, community members, and organizations dedicated to building more affordable housing developments.

Accessibility

The City of Bend's staff acknowledged that engagement is a major issue in addressing accessibility. Effective solutions require local knowledge to tailor that engagement. The community needs gathering spaces and affordable, accessible housing. Barriers to accessibility include higher building costs for accessible units, and builders often meet only the minimum Americans with Disabilities Act (ADA) Standards for Accessible Design. Some important aspects of ADA-compliant building development include:

1. Ensuring that there are clear, unobstructed entries and pathways with adequate width to accommodate wheelchair users.
2. Providing designated accessible parking spots with adequate maneuvering space and clearly marked signage.
3. Accessible restrooms that include features like grab bars and wheelchair-accessible toilets.
4. Buildings with multiple stories require accessible elevators with clear controls and braille signage.
5. Visually clear signage and tactile elements like braille for visually impaired individuals.

More data on accessibility and disability are needed to help further inform redevelopment projects.

Lack of Gathering Spaces

The City of Bend's staff explained the importance of integrating community spaces with affordable, accessible housing and sidewalk connectivity close to shopping, hospitals, and other amenities. They pointed out that there are currently no spaces in east Bend that include housing and community spaces available for rent and gathering. According to a minor report conducted by the City of Bend in 2023, interviews of residents found that more public gathering places, parks, and childcare should be a priority when choosing which community should be designated as a CFA (City of Bend). The report also found that 32% of residents surveyed believed that creating welcoming and safe public gathering spaces is an equity strategy that should be prioritized.

Aging Population

The Council on Aging of Central Oregon's Area Plan for 2021-2025 highlighted several equity implications for the region's aging population (Council on Aging of Central Oregon). The plan identifies several disparities regarding access to services among seniors, particularly those from underserved and low-income communities. It emphasizes the need for targeted outreach to better serve underrepresented groups. The plan also discusses challenges that seniors in rural and remote areas face, where limited transportation options and social isolation exacerbate inequities. Additionally, the plan underscores the importance of addressing food insecurity, affordable housing, and healthcare access. Seniors with the greatest economic and social need are disproportionately affected by these issues.

Lack of Public Transportation

Bend's transportation system aims to focus on "connecting businesses, houses, parks, and schools with safe routes to walk, bike, and take transit. [They] also recognize the continued need for cars and freight transport" (Growth Management Division, p. 22). City of Bend staff highlighted that there are significant transportation challenges in Bend, particularly for vulnerable and lower-income populations. The Project's current

infrastructure restricts safe access for pedestrians and cyclists, especially near major roadways like Highway 20 and 27th Street. The lack of safe and accessible routes limits movement and access to essential services and businesses. City staff emphasized the need for better street design and connectivity with suggestions for mixed-use developments and public spaces that would improve accessibility and safety.

Proposals

WALKABILITY AND TRANSPORTATION

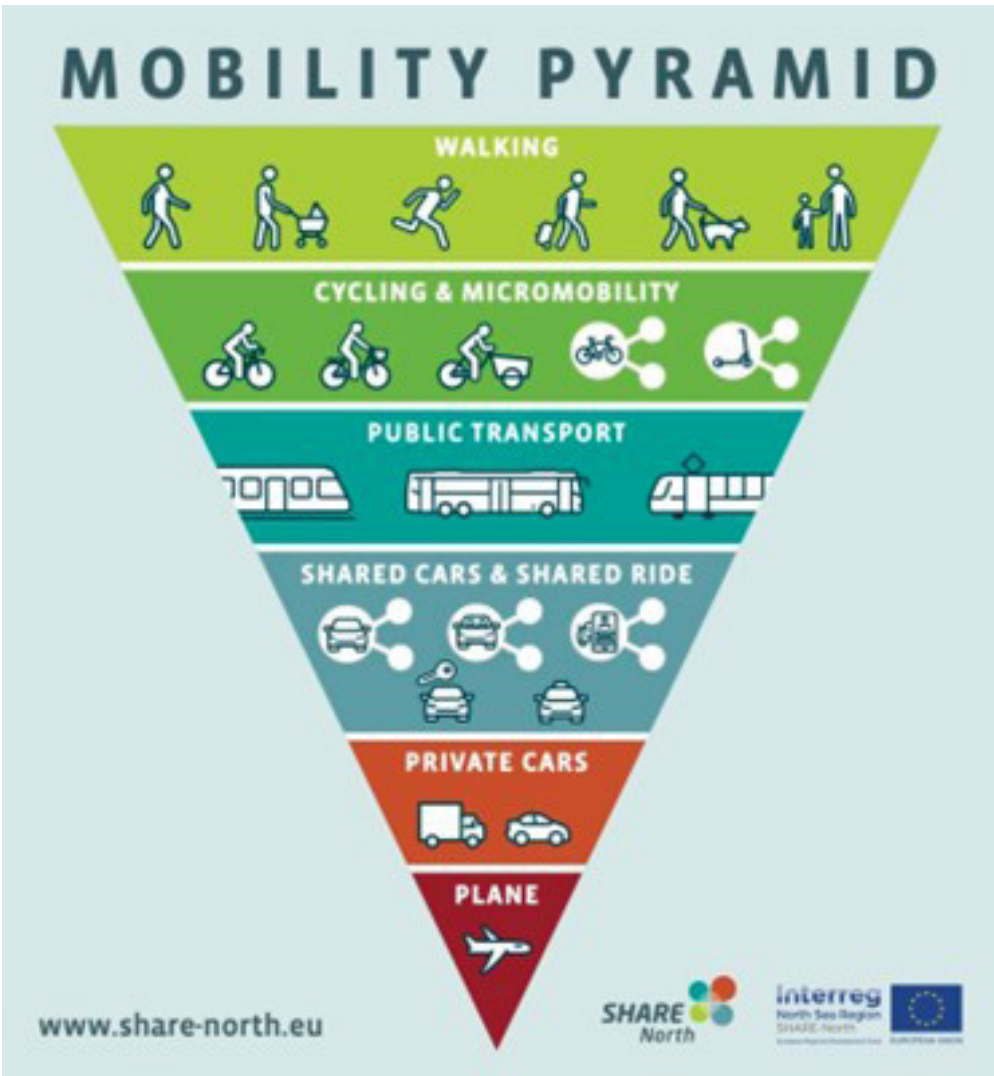
Vision

Climate friendly and equitable communities are models of sustainable development that reduce pollution by creating dense, walkable neighborhoods that use land and resources responsibly while reducing dependence on driving. The equity team envisions a neighborhood centered on safety, walkability, and community. This development would focus on the needs of east Bend by providing places to work, shop, play, rest, and socialize in a design that reduces dependence on cars and emphasizes opportunities for social interaction that builds community organically.

Proposed Transportation Network

The proposed transportation network reflects a vision of safety, walkability, and community by providing safe options for all road users. The network was designed to keep the current car access to the site, while dramatically increasing the access for people walking and on bikes and following the ideals of the mobility pyramid (Figure 19). All streets are traffic calmed to 20 mph or less, as people driving in the site should only be those accessing those amenities.

FIG. 19
Green Mobility Pyramid



The core of the new street network (Figure 20) is two perpendicular boulevards that run through the site, connecting to existing streets on all four edges of the site. The boulevards would

be the main bicycle and car entrances to the site, and the 80 ft cross section would provide space for protected bicycle lanes, driving lanes, and a treed median.

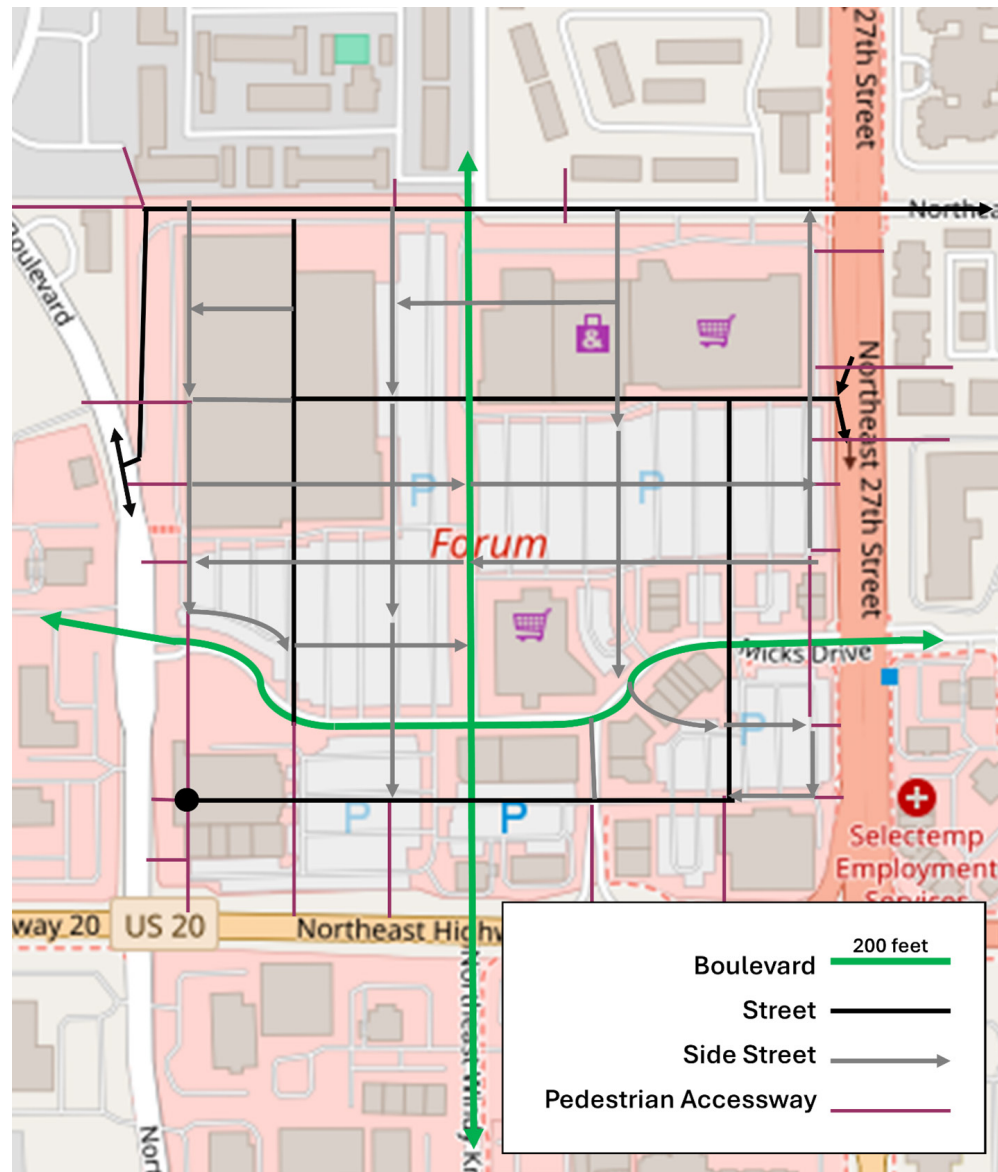


FIG. 20
Street Network Map

There is also a loading zone that could be used for outdoor dining, food pickup and delivery, parklets, and more. Access to major destinations, like Safeway and the indoor recreation center, would be supplemented with standard streets. These streets would have parallel parking and two-way car traffic but will remain comfortable for active transportation users thanks to curb bump outs at intersections and narrow driving lanes. These streets would have some driving

connections to outside streets but would be primary for internal traffic. The walkable 200 ft grid is realized with a mesh of side streets, which prioritize accessibility for neighbors with wide sidewalks, plentiful diagonal parking, and large amenity zones (Figures 21a and 21b). These side streets are two-way for bicycles and walking but one way for driving, providing the maximum amount of space for lively street uses and emphasizing a commitment to walkability.



FIG. 21A
3DStreet Diagram (Boulevards)

**FIG. 21B**

3DStreet Diagram (Side Streets)

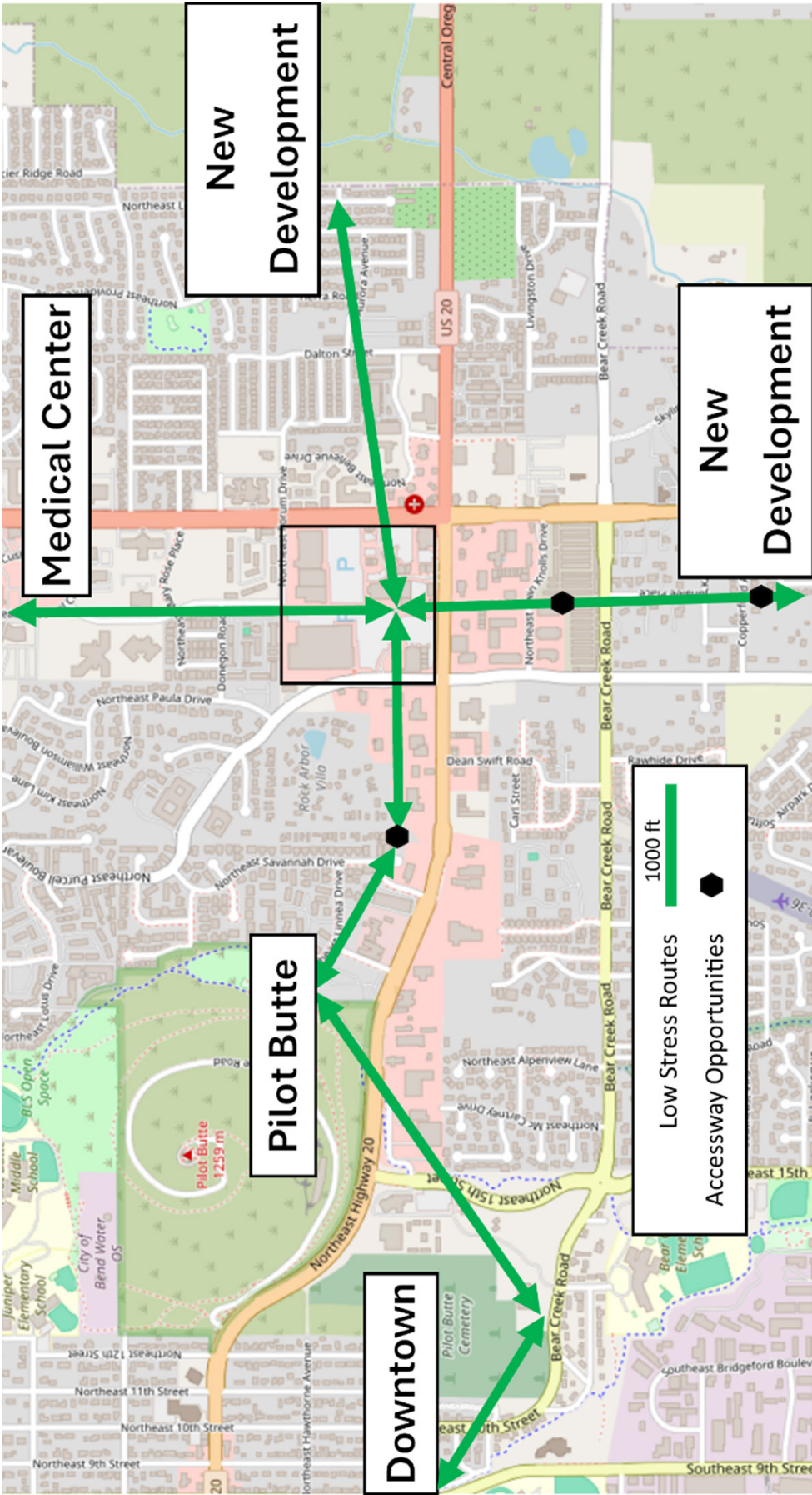
To maximize permeability between the site and adjacent land uses, the proposed street grid is connected to the outskirts of the site with accessways for people walking and on biking. These accessways reduce the distance people walking have to travel and connect to new crosswalks on the edges of the site, without adding new driveways into the site that would affect the Level of Service, a quantitative evaluation of traffic, on arterial streets and introduce more traffic into the site. Accessways also replace one block of the standard street in the southwest quadrant, where the terrain is too steep for a street and ADA ramps and stairs are required.

The proposal also suggests working with partners in the City of Bend and ODOT to make adjacent streets safer and more comfortable for all road users. Protected bike lanes, additional crosswalks that are

raised with refuge islands, and medians would altogether improve people's ability to safely get around East Bend without needing a car.

Zooming out, the improved transportation network of the site could be the catalyst for a low stress cycling network for the east side of Bend (Figure 22). This network would use existing side streets, which when improved with a few key accessways between dead ends and traffic calming would provide an alternative to biking on arterial roads. With relatively little financial input, this low stress network could connect the site to St. Charles Hospital, nearby residential development, Pilot Butte, and the 3.5 miles to downtown Bend. Altogether, this new street network maintains current car access, while dramatically increasing the safety and comfort of walking and cycling to and within the site.

FIG. 22
Low Stress Routes



Site Concept – Three Districts

The concept of this proposal involves the development of a new neighborhood that will, in many ways, act as a “community hub” or a “second downtown” in Bend’s east side. Providing improved and new pedestrian connections at key points around the site and a mix of land uses across a dense street network, this new

development plans to meet the basic needs of residents living in and around this property. The site is divided into three key districts, encompassing a clear transition of land uses across the site, and each the location of a key point of interest(s) for visitors and residents (Figure 23).

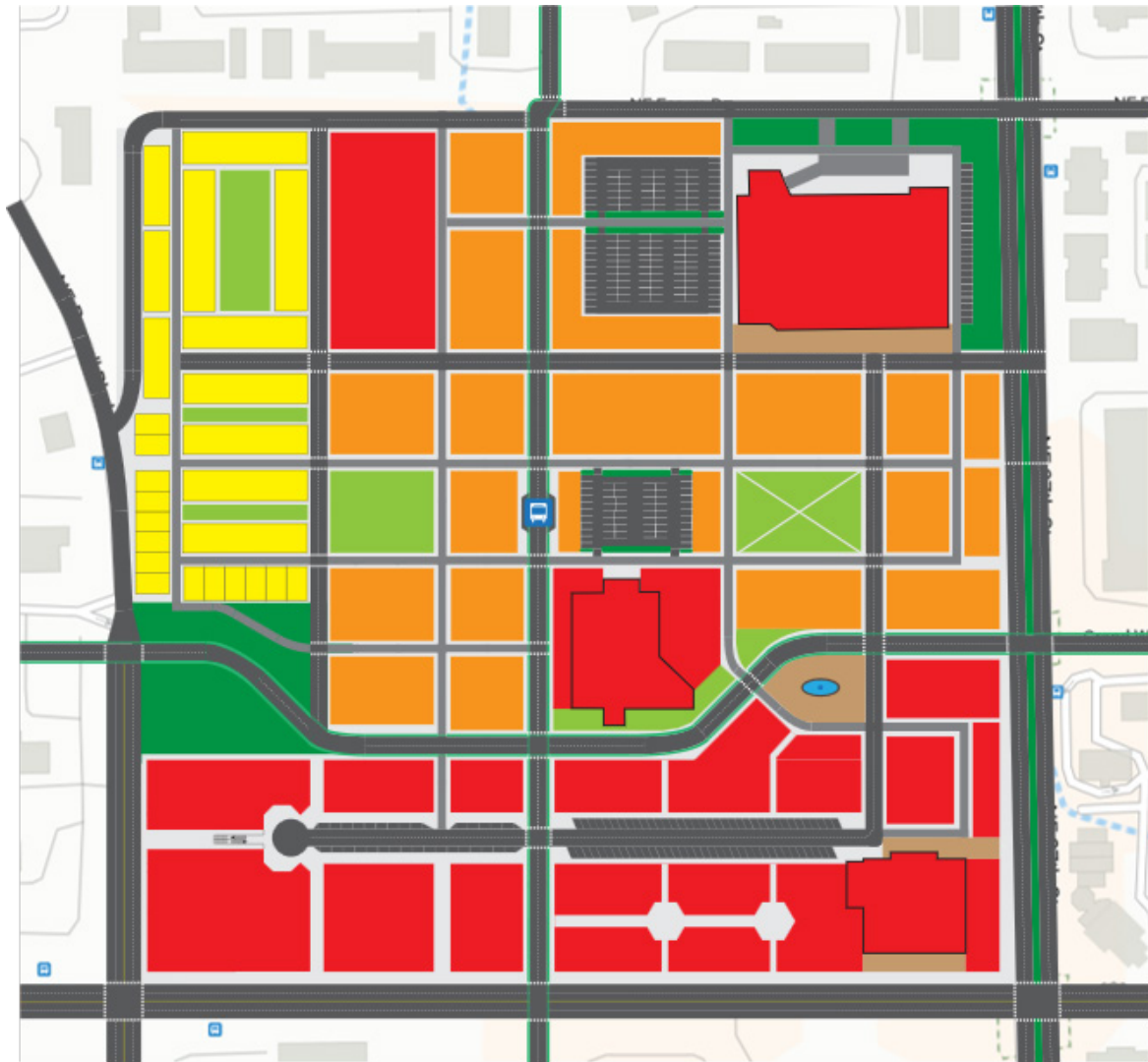
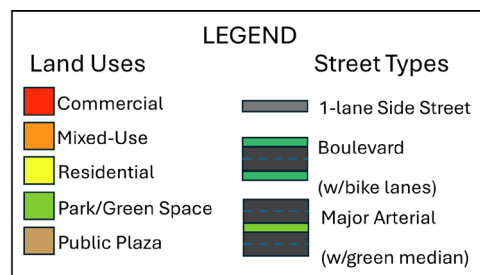


FIG. 23

Site Concept Map/Legend



West District

Home to the original site of the now closed Costco, the West District will serve as the location for stand-alone high-density residential units and some mixed-use development. Utilizing a courtyard-style design, these apartments would face the street edge to provide easy access to on-street parking and direct access to the site's pedestrian network. Interior to these apartments would be greenspace and community amenities available to residents. As seen in the site plan map, this design proposes the development of middle housing as well, whether in the form of multi-story townhomes, rowhouses, or duplexes and similar types (tri-/quadplexes). This offers a variety of single-family housing types while still fitting within this dense, walkable street network. The West District will also be home to a new, state-of-the-art, indoor extreme sports recreational center. Acting as an "urban magnet" for east Bend, this facility will provide various amenities to accommodate the outdoor culturalists and athletes that enjoy the winter and summer sports and outdoor recreational activities that Bend, and the surrounding areas, are known for.

East District

This district is proposed to be a mixed-use neighborhood, home to small locally owned shops, restaurants, and basic services along the street edge, and multi-unit apartments and condominiums on the upper two floors. Offering a mixture of rental and purchasable homes in this district will provide more a balance of temporary and permanent housing options for perspective residents, given most of the housing within the vicinity of this property is currently high-density rental housing.

This team's proposal suggests that the existing Safeway and Whole Foods stores remain in their respective locations within this district, as they serve as a key piece of the local economy for eastside residents and those that live outside of Bend. Both stores serve as major retailers to purchase food, basic household goods, and pharmaceutical services. To accommodate those that must drive extensive distances to reach these locations, surface parking is recommended for both stores, but the design proposes for "internalized" surface lots. This type of development still offers parking as an amenity for drivers but pulls it away from the street edge and from a common design standard that promotes automotive dependency.

New and improved pedestrian crossings over NE 27th Street will provide residents across the street direct access to the East District. These new crossings will shorten the distance needed to reach shops, restaurants, and essential services. Another opportunity to promote walkability is the proposed bus station at the center of the site. Bus routes 5,6, and 7 can reroute through this site to provide an alternative mode of transit for residents that live outside Bend's eastside neighborhoods.

South District

Keeping the original name of the property, the South District proposal involves the development of what could be considered a pedestrian-oriented outdoor mall. The Forum would, in its original location, be home to the existing Barnes & Noble, small fashion boutiques, name-brand designer outlets, and local eateries and shops. Infrastructure within this district will feature central corridors with arterial walkways to maximize the efficiency of traffic and provide multiple entry points for visitors arriving on foot.

Similar to other outlet malls such as Woodburn and Seattle Premium Outlets, it will provide a mixture of large and small retail spaces, and a potential home for the relocation of Old Navy, OfficeMax, and Big Lots, which are current tenants at The Forum. A local outlet mall is currently located in south Bend along the Highway 97 business loop but is in a location that serves to be more automotive-dependent. Relocating these businesses to the Eastside site could act a boost in the local economy and as an urban magnet for this new development. The old outlet site, as part of the Far South CFA, would open the opportunity to see other development in that part of Bend.

Buildings on the west end of this district would feature a first-floor east storefront, and a second-floor west storefront, given the change in elevation and terrain. This offers pedestrian access to Purcell Boulevard and provides a second floor of commercial space that can be utilized by the retailer on the first floor or another retailer altogether. Located along the east end of Micks Drive is a proposed public plaza space. Due to the recommended street layout and the higher elevation over Micks Drive, developing a street adjacent building could be difficult. In its place, this space works great as a community public space that can accommodate public seating (benches and tables), and amenities such as a fountain and trees to shade the space.

Phasing and Zoning Changes

The entirety of the site is General Commercial (GC). The first phase should be the northwest area, as it was recently vacated by Costco. Students recommend the city change the zoning in this area to Medium Density Residential (RM). Medium Density Residential allows for between 7.3 to 21.7 housing units per

gross acre, permitting duplexes, triplexes, quadplexes, townhomes, as well as neighborhood parks. The location of this residential zoning takes advantage of the naturally quieter conditions of the section of the site.

To support the building of the indoor recreation complex, the city should allow for the retention of general commercial, bordered by additional Mixed-Use Neighborhood (MN) zoning to the commercial building's south. This area will serve to transition from the residential area to the rest of the site. To the east lies the area of the second phase. General Commercial should be retained for both existing grocery stores, which remain attractions on the site. Around both nodes, the city would rezone either Mixed-Use Neighborhood or Mixed-Use Urban (MU). These two zones are much more similar than different in terms of permitted use, but Mixed-Use Urban does include a few more allowed uses, which may be useful.

The final phase of this project would involve the southern section that goes between the east west boulevard and Greenwood Avenue. This section would remain General Commercial. This creates a natural buffer between the rest of the site, including the entirety of newly built housing, and the busier roadway. The General Commercial zoning would support the plan for a commercial district, such as an open-air mall that can become a commercial hub in the area.

Community Outreach

For the best and most effective process, this space must connect to the community, and to achieve that goal, planners must connect to the community. Like Forum Vauban, the public will feel a connection to the project when they

feel their voices are heard and when the intention of connection goes beyond the legal minimum. It is also important to look at partnering with community groups that focus on important demographics to around the Project, such as seniors and the Latinx community that Bend expects to grow over time.

Funding and Partnerships

For such an ambitious project, there is a need for financial backing and partners to support these plans. The United States Department of Housing and Urban Development and affordable housing grants from the State of Oregon are possible sources for funding considering the need and opportunity this project provides. Private grants, such as the AARP Community Challenge, are additional avenues of supplemental funding. It is highly recommended to work with developers to achieve financial goals. Multi-Unit Property Tax Exemptions (MUPTe), Tax Increment Financing (TIF), and Urban renewal grants are tools that can be used to incentive these ambitious development goals. It will be important to help developers secure equity from local banks. These funding sources will all be important to achieve the goals for this site.

Like funding, partners are likely needed to complete this project. If community outreach approaches are effective, champions from the local community will emerge naturally. The selection of developers will be important, and those with experience and expertise in mixed-use development and affordable housing should be prioritized. There are natural advocates for this project, such as outdoor recreation advocacy groups and the Bend Chamber of Commerce. These groups will serve as political allies to the East Bend CFA community, which can be invaluable in its creation.

Timeline

This proposal projects this new development to be ready by 2040. The three phases of development will take five years each. As a case study example, the Vauban neighborhood developed a much larger area in 15 years in a similarly phased redevelopment. This is an assertive goal that respects Bend's commitment to building sustainable communities in response to its housing needs and its promise to build a climate-friendly community.

CLIMATE RESILIENCE

Vision

The Eastside CFA sustainable redevelopment project emphasizes green infrastructure, renewable energy and a complete, high-density walkable community with mixed-use and affordable housing. Residents will have the benefit of living in an innovative, adaptive, and efficiently built environment. This will offer flexible use of spaces and economic development opportunities for small businesses.

Thematic Implications on Site

The present-day design highlights the myriad challenges and opportunities for increasing climate resilience in a suburban sprawl redevelopment project. The site's current reliance on automobile infrastructure significantly contributes to transportation-related greenhouse gas emissions, which "accounts for 38% of Oregon's total emissions" (Department of Land Conservation and Development: Land Use and Transportation Planning for Climate Change: Climate Change: State of Oregon, n.d.). Additionally, the site's redevelopment presents a logistical challenge to minimize the embodied carbon losses in existing materials and infrastructure at The Forum.

By prioritizing the adaptive reuse of the Costco building and integrating the recommended urban design response strategies to address embodied and operational carbon emissions, the redevelopment project can serve as a model for sustainable and climate-resilient urban redevelopment. Incorporating green infrastructure, renewable energy systems, and energy-efficient building design will support the project in addressing key contributors to greenhouse gas emissions. Moreover, enhancing pedestrian connectivity, creating shared public flex spaces, and increasing green cover can mitigate urban heat island effects, support biodiversity, and improve community livability in a changing climate. Together, these strategies will transform The Forum into a climate-resilient, mixed-use, and walkable community that aligns with Oregon's climate goals of reducing emissions by 75% by 2050.

Embodied Carbon

The building sector is one of the most resource-intensive industries globally, consuming 30-40% of total basic resources and ranking as the third-largest consumer of fossil fuels after agriculture (Chel and Kaushik 2018). In the United States alone, the energy demands of residential and commercial buildings account for over 40% of total energy consumption and 72% of electricity usage (Li et al. 2017), with nearly 50% of that energy wasted (Yang, Ghahramani, and Becerik-Gerber 2016). The rapid urbanization and increased energy demand of modern construction underscores the critical need for sustainable and energy-efficient building practices. Demolishing existing buildings and road infrastructure on site comes with a high carbon loss. To minimize embodied

carbon losses, the climate proposal integrates the redesign of the existing Costco warehouse. By utilizing existing materials and infrastructure, developers can reduce the carbon-intensive impacts associated with new construction, preserving the emissions already spent in the original build.

Alignment with State Climate Goals

In early 2020, former Governor Kate Brown issued Executive Order NO. 20-04. This order outlines the goals of a 45% reduction in Greenhouse Gas (GHG) emissions by 2035 and an 80% reduction of GHG emissions by 2050 (Office of the Governor State of Oregon, 2020). As a proposed CFA within Bend's Climate Friendly Areas Study conducted in December of 2023 and with the topic of climate resilience, it is imperative that every aspect is mindful of emission reduction. It is estimated that, "If the Bend community does not take action on climate change, Bend will generate roughly 1,230,000 metric tons of market-based greenhouse gas emissions from fossil fuel sources in 2030, with expected population growth" (City of Bend Community Climate Action Plan, 2019).

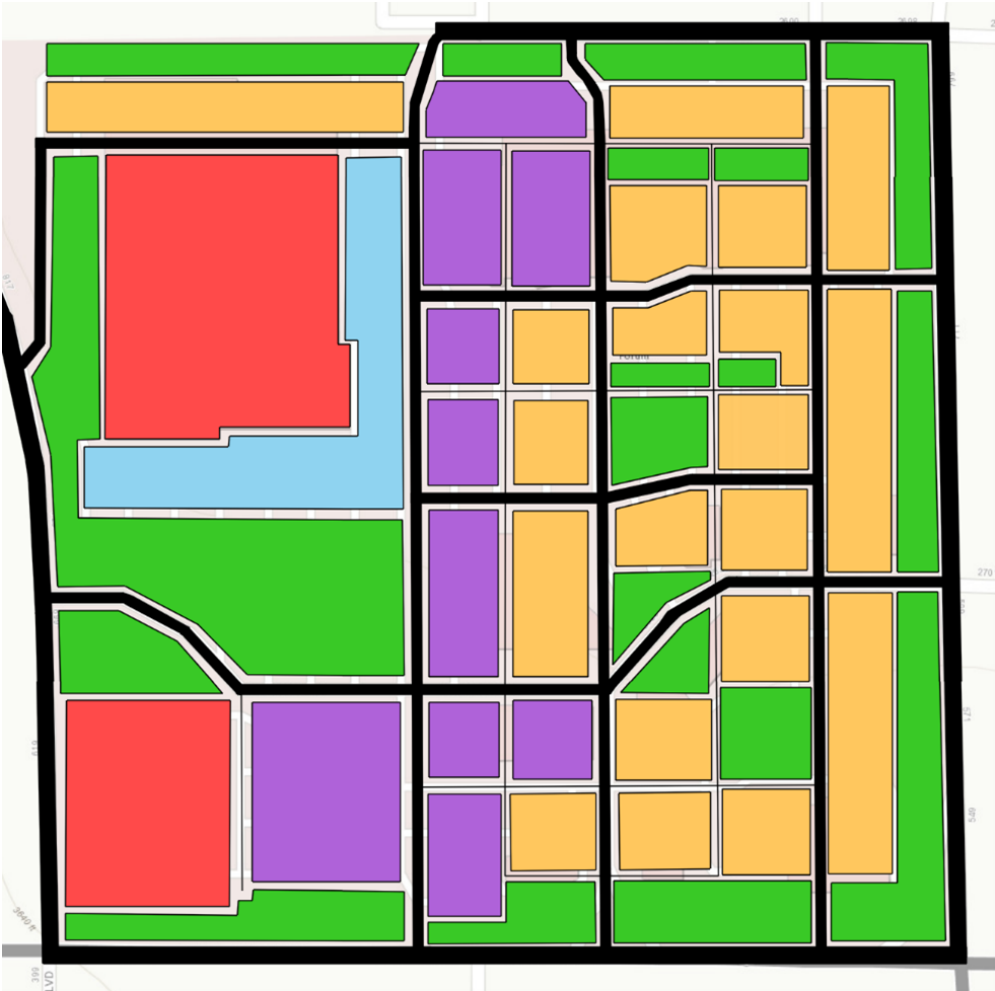
Proposal Phasing

The following map key applies for the diagrams of the site redevelopment (Figures 25, 26, 27, and 28):

- Red: Commercial
- Blue: Courtyard
- Purple: Mixed-Use
- Orange: Residential
- Green: Green Space

With four phases, this redevelopment could be completed by the year 2040 to align with Bend's CFA goals.

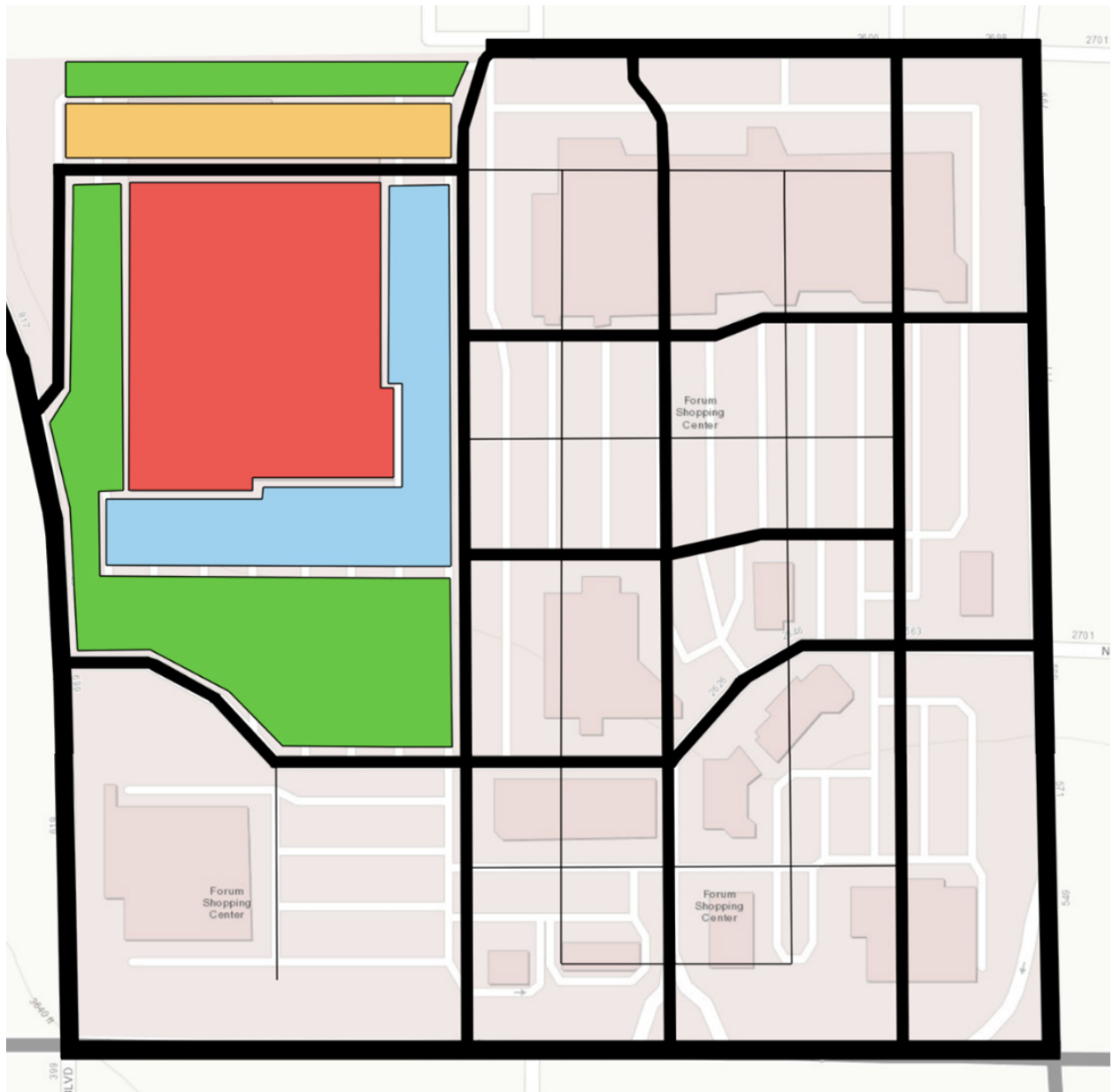
FIG. 24
Completed Site
Development Proposal



Phase 1

Phase one of this site redesign starts in the northwest portion of the site. This area contains the Costco location and part of the parking area surrounding it. Phase one includes the redevelopment of Costco into an indoor/outdoor market with an indoor recreational space, creating a social hub for the community (indicated in red in Figure 25—Phase

One). The area designated blue (Figure 25—Phase One) represents the courtyard previously described as an area for the community to socialize and enjoy the space. In orange, more residential space is placed North of the redeveloped Costco, and all areas in this phase are surrounded by various green spaces (represented in green in Figure 25—Phase One).

**FIG. 25**

Phase One of Climate Site Redevelopment

Phase 2

Phase two consists of southeast portion of the site and contains most of both residential spaces (75-80%) as well as the mixed-use areas (65-70%) within the site. Mixed-use development is represented by purple (Figure 26: Phase Two) and is proposed centrally along NE Micks Drive.

Mixed-use is located centrally to connect with the commercial areas within the western portion of the Project. To the right of this is the residential zone with green space throughout to buffer noise and traffic for residents (Highway 20 and NE 27th Street).

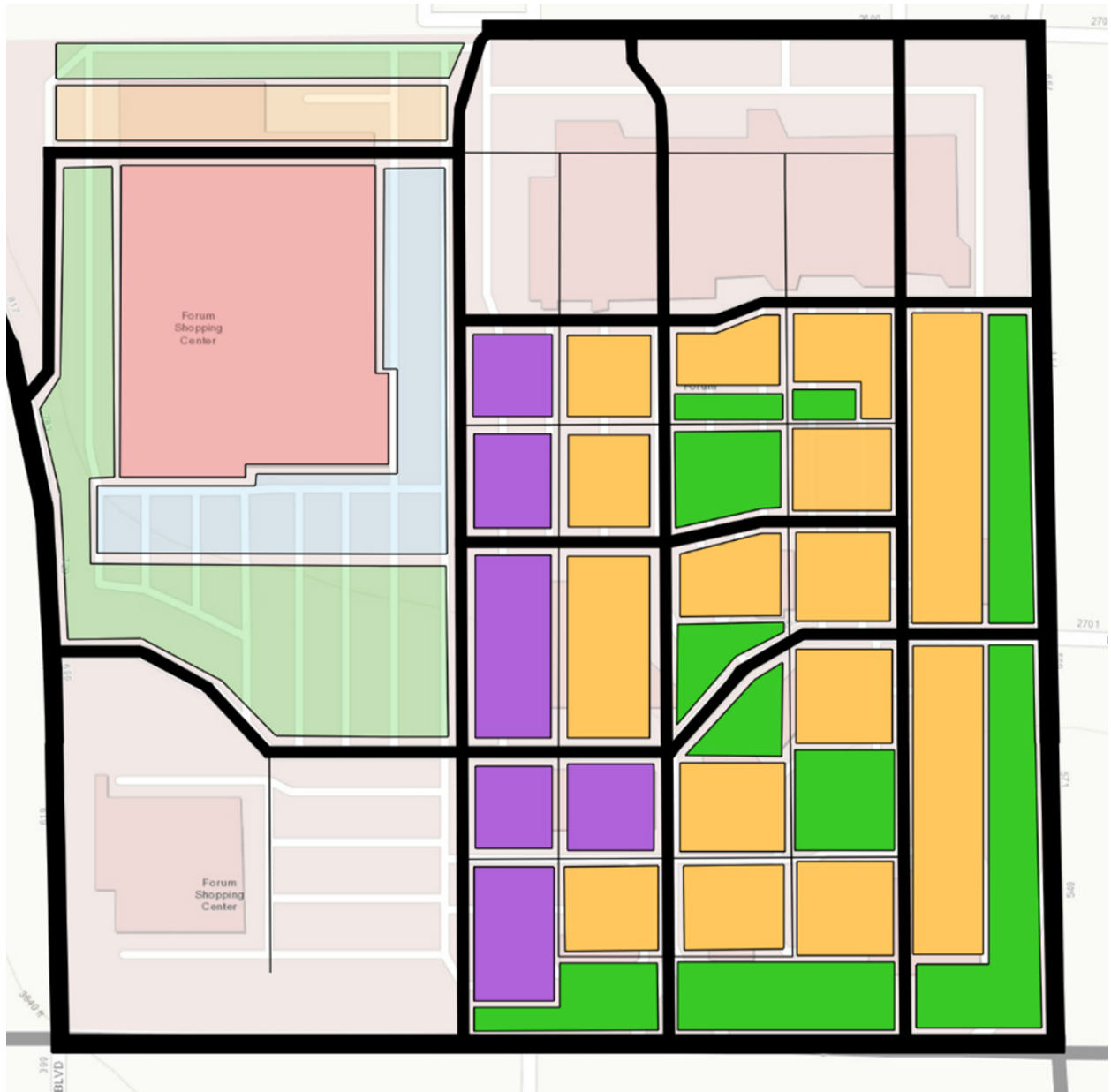


FIG. 26

Phase Two of Climate Site Redevelopment

Phase 3

Phase three is in the southwest area of the site where an Office Max and a T-Mobile store are currently located. This area is designated for commercial and mixed-use space, adding a new Safeway location

so that the community continues to have a reliable food source in the area. These two commercial sections, which are designated in red (see Figure 27: Phase Three) will be flanked on either side by additional green space.

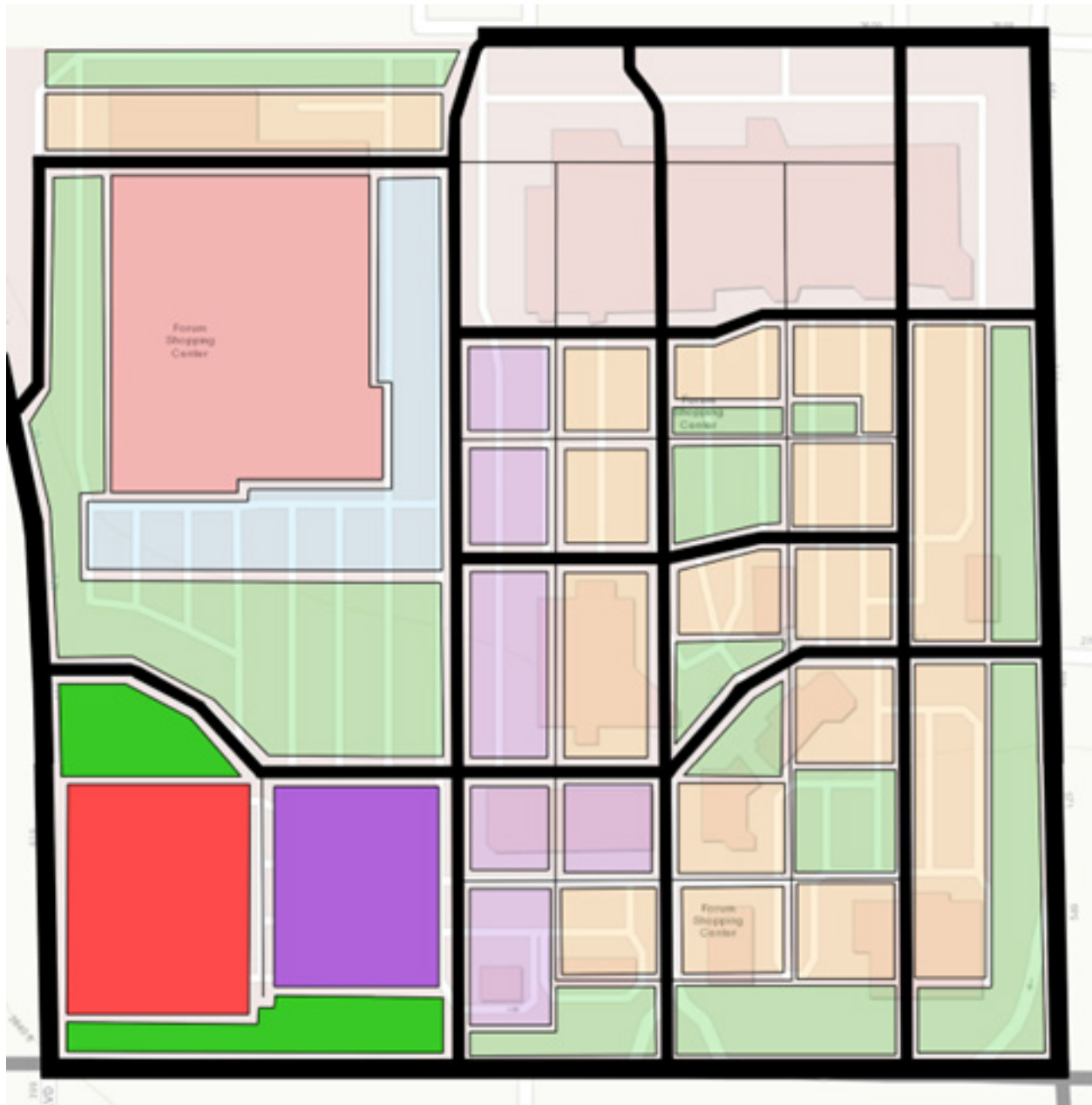


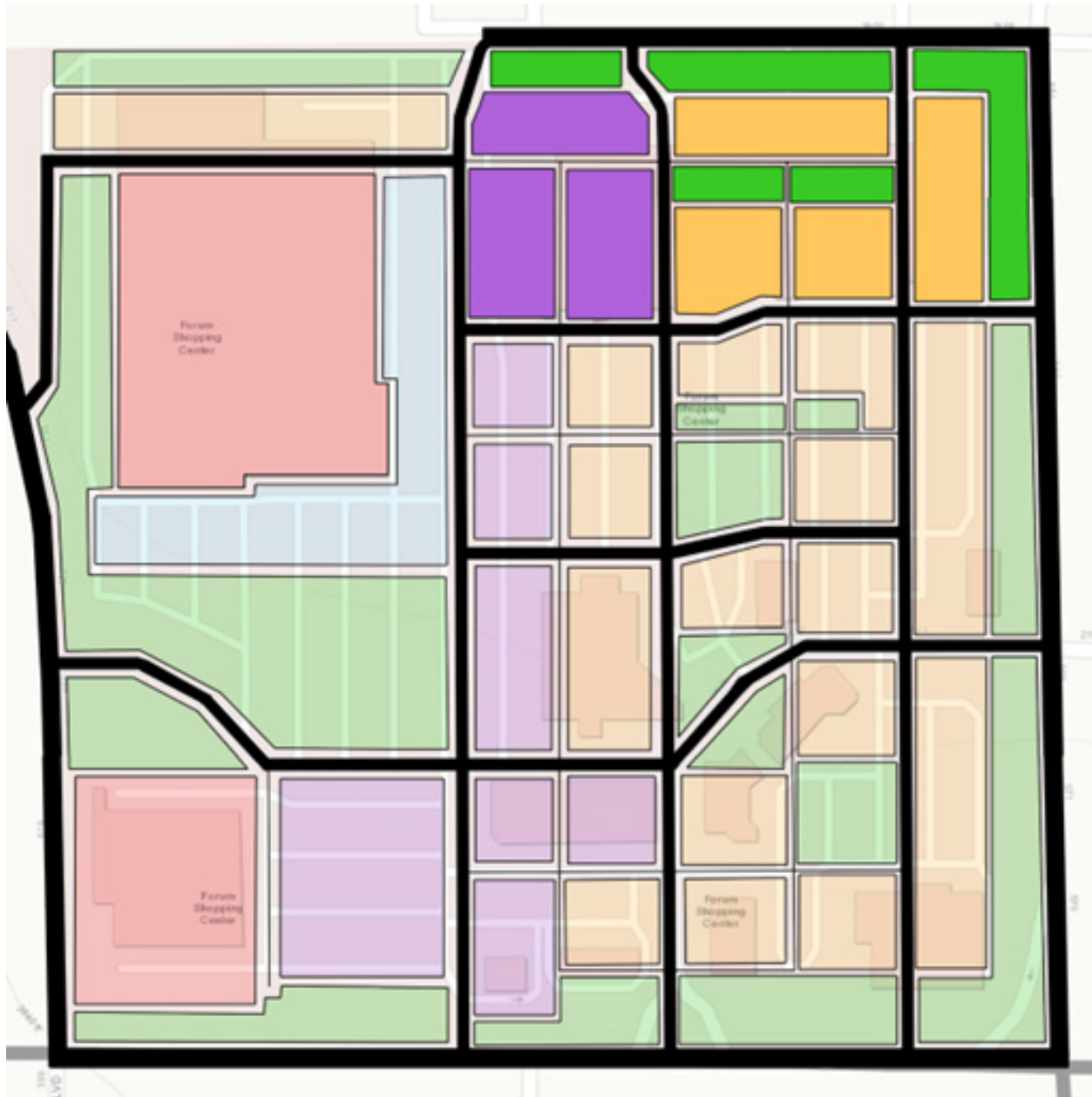
FIG. 27

Phase Three of Climate Site Redevelopment

Phase 4

Phase four, in the northeast section of the redevelopment, currently holds the existing Safeway location. It is the last phase to prolong the building's operational life for the maximum amount of time. This phase includes the development of the remaining mixed-use

and residential spaces, connecting to the other residential areas that currently surround the site (see Figure 28: Phase 4). This area also has green space running along its outer edge to again create a buffer between new residents and NE 27th Street.

**FIG. 28**

Phase Four of Climate Site Redevelopment

Climate Resilience Design Details

Costco Redevelopment

With such a large amount of space to utilize, it is important to take advantage of the opportunity the current Costco building provides and create a multifunctional area for the community. To enhance climate resilience, the climate resilience team proposes maintaining the existing building to minimize emissions and utilize embodied carbon. The plan proposes slightly reducing the size of the building from approximately 4.1 acres to 3.3 acres. A section in the middle of the roof would be opened to create a skylight, creating light and opening the space inside. This also creates the potential of minimizing energy consumption from having this additional light source. The daylit rooftop area will also be directly above an accessible indoor courtyard, which will take up approximately 0.3 acres of the total 3.3 of the redevelopment.

- **Food Hall, Market, and Business Incubator:** Approximately 1 acre of the 3.3 total acreage is recommended as an indoor market. Within that acre, lots for around 40 vendors (food, retail, etc.) can be accommodated. Integrating Central Oregon Small Business Center's training, technical assistance and services will increase economic development opportunities to start, grow, and launch successful businesses in the food hall, farmers market, and/or food hub.
- **Recreational Opportunities:** Within this 3.3-acre space, approximately 1 acre of space is assigned as an indoor recreational space, like an indoor climbing gym/rock wall, as the space

and height within the Costco building are suitable for these uses needs.

The back portion (Northern section) of the redeveloped building will be designated for recreation and will be divided from the market area to limit any adverse effects of these two areas being near one another.

- **Additional Space:** Within the planned redeveloped Costco building, there is around 1 acre of space remaining envisioned as having multiple uses. Examples of these include seating for the market space, space to navigate around the building, and restrooms. This additional space can also be used as an indoor event space for the community to host various functions, meetings, and ceremonies.
- **Climate Resilience Hub:** The redeveloped Costco building can also serve as an effective community-serving climate resiliency hub. This expands the building as a vital center with a food hall, economic development opportunities, recreation, and an additional community resource to mitigate the harmful impacts of climate change. Hosting training events and/or workshops for both community resilience and disaster response will create an informed public. The Costco warehouse offers a large indoor space that could provide emergency shelter for those in need. With prolonged heat or wildfire smoke, the large indoor space offers relief for the community in times of emergency, providing shelter, and if needed, targeted relief and essential supplies during strenuous times.

- **Courtyard:** Adjacent to the indoor market development, the climate resilience team proposes an outdoor courtyard area as an additional space for community connection (represented in blue, see Figure 24). This area (located on the Eastern and Southern side of the current Costco building) will serve multiple purposes. This space can also serve small vendors like local food trucks. This courtyard will seamlessly connect with both the green space south of it as well as the mixed-use commercial spaces nearby, serving as a connection between these different areas. This will also be available for community engagement as a large space to hold outdoor events and various activities.

Housing

Within the entirety of the Eastside CFA, a total of 10,118 units are required in accordance with the CFA Executive Summary (City of Bend, 2024). The site accounts for 19% of the proposed Eastside CFA, proportioning out to 1,920 units as a minimum requirement within the redevelopment. This development plan would create approximately 2,045 units—of which, 10.3% are townhouses, 26.4% are Courtyard Apartments, and 63.3% are upper story (mixed-use) units.

Green Infrastructure

Stormwater Management: Around 4.5 acres, or 12.5%, of the total Project is made up of permeable surfaces (small grass space and tree medians between parking). This means the Project consists primarily of impervious surfaces, causing a stormwater pollution. Other harmful results include the transfer of pollutants

like trash, chemicals, and dirt/sediment into streams, lakes, and groundwater. Especially because of the hot, dry climate, enhancing the climate resilience of the site necessitated a strategic focus on recharging Bend's aquifer.

- **Roads:** Where possible, the team recommends conserving asphalt paths and/or roads to limit carbon emissions from construction and to utilize pre-existing embodied carbon. Brick roads, also known as pavers, is another recommended method of green infrastructure. Also known as Permeable Interlocking Concrete Pavement (PICP), this road creates gaps between individual brick like pieces, grouped together to form various paths and roads (EPA, 2021). The gaps enable stormwater infiltration and “reduce stormwater discharges” (2021). This has the potential of filtering out 67-81% of total suspended solids from rainwater (2021). According to the EPA, “Most pavers comply with the Americans with Disabilities Act” (2021).
- **Bike Lanes:** Within the site's roadways, elevated bike lanes accompanied by spacious pedestrian pathways should create separation from vehicular traffic through green spaces and/or bollards. This design is inspired by a similar successful implementation in Vancouver, British Columbia which includes raised bike lanes, clear markings, protection from green space and/or parking lanes, and mountable curbs (National Association of City Transportation Officials, n.d.).

- **Energy Conservation:** A main consideration when trying to design a climate resilient urban space is to ensure the energy consumption within the area is reduced as much as possible. According to the International Energy Agency (IEA) approximately 75% of energy consumption in the World resides within cities (IEA, 2024). “Residential buildings are a significant source of greenhouse gas emissions due to their inefficient heating, ventilation, and cooling (HVAC) systems and increased electricity consumption” (Abu Bakar et al. 2015). Throughout the site redevelopment plan, students have considered three main strategies to reduce and conserve energy use: cool roofing, solar panels, and passive design

The old Costco site will undergo some renovations, but housing is not part of the plan for reusing that structure. The purely residential areas of the Forum will be RH. These residential developments are still dense and allow for apartments, townhomes, and row homes. These housing types were chosen because they are dense and align with the Bend CFA neighborhoods. The goal is to make some areas designed to be quiet living spaces while still having access to the vibrant MU areas. The Safeway building is currently zoned for CG. This classification will stay the same when Safeway is relocated because CG is oriented toward serving the greater community, not just the surrounding area. This mix of districts will create an environment that is vibrant, walkable and meets the goals of a CFA. Biofiltration swales are a part of the vision to make the site more climate resilient.

Implementation Strategies

Zoning Changes

The Forum site planned through the Climate Resilience lens makes use of CG, MU, and high-density residential district (RH). Student planners use MU in the site in an effort to accomplish the goal of a CFA by emphasizing connectivity, density, and a pedestrian-friendly area (Ch. 2.3 Bend Development Code). MU zones are dense and can provide a mix of services for the surrounding area. The MU will also buffer the Bend Costco site redevelopment and the high-density residential zone. The Costco site will be rezoned for MU to allow a wide range of retail uses and public space. The proposed mixed-use redevelopment would receive an additional 10-foot height bonus for ground-floor commercial and vertical housing or affordable housing compliance, consistent with goals for high density, complete communities with affordable and market-rate housing.

Strategic Grants, Incentives, and Subsidized Loan Programs

Selected federal, state, and regional programs focus on strategic investment to increase resilience across sectors. The following programs support the development of resilient food systems, climate-resilient communities, economic resilience, and energy-efficient and renewable power grids. The following opportunities were active at the time of study and may be affected by Federal Administration changes.

The Department of Energy facilitates federal tax credits for photovoltaic (PV) and solar-thermal power installation for businesses, nonprofits, and other entities. Two programs are available, but participants cannot claim both credits:

- Investment Tax Credit: Reduces federal income tax liability for a percentage of the cost of a solar system that is installed during the first year (Federal Solar Tax Credits for Businesses, n.d.).
- Production Tax Credit: Per kilowatt-hour (kWh) federal income “tax credit for electricity generated by solar and other qualifying technologies for the first 10 years of a system’s operation” (Federal Solar Tax Credits for Businesses, n.d.).

Energy Trust of Oregon offers various services for multi-family development, including assistance, metering, and incentives (Multifamily, n.d.).

- Solar Planning Incentives: Cash incentives to incorporate solar and storage into multi-family building design.
- Landlord Provided Cooling Space Initiative: “Reimbursement of up to 100% of the cost of cooling equipment and resources for multifamily properties” (Multifamily, n.d.-a).
- Early Design Assistance: Up to \$6,500 to establish design goals and strategies for maximum energy savings.
- Technical Assistance Incentive: Covering up to 60% for energy modeling, up to \$40,000 total.
- Installation Incentives: Cash incentives for the energy savings included in the energy model.
- Energy Metering: Covering up to 50% of installation cost, up to \$20,000.

Oregon Department of Energy, “helps Oregon individuals, businesses, nonprofits, tribes, and other organizations complete energy-saving and renewable energy projects” (*State of Oregon: INCENTIVES - Incentives*, n.d.):

- Community Renewable Energy Grant: “Eligible projects include renewable energy generation systems like solar or wind, and energy storage systems, electric charging stations, or microgrid technology paired with new or existing renewable energy systems.” Up to 100% of eligible costs, with a maximum award of \$1,000,000 (*State of Oregon: INCENTIVES - Community Renewable Energy Grant Program*, n.d.).
- Count Energy Resilience Grant Program: Provides noncompetitive grants to Oregon counties to develop energy resilience plans funding up to \$50,000.
- Oregon Solar + Storage Rebate Program: Available in 2025

Deschutes County offers several incentive programs of interest (*Deschutes County Launches CPACE Program / Deschutes County Oregon*, n.d.):

- Commercial Property Assessed Clean Energy: Provides upfront private sector commercial property owners 100% long-term, fixed-rate financing for energy efficiency, renewable energy, water conservation, and seismic rehabilitation projects.

For more solar or energy efficiency tax incentives and rebates in Oregon, check the Database of State Incentives for Renewables & Efficiency or DSIRE database.

United States Department of Agriculture offers a wide variety of food infrastructure and marketing grants. Several of these programs would support the development and success of the food hub, farmer’s market, and/or business incubator.

- **Farmers Market Promotion Program:** Offers four types of projects, designed to support capacity building, community development training, turnkey marketing and promotion with funding up to \$500,000.
- **Local Food Promotion Program:** Offers four types of projects designed to support planning, implementation, turnkey marketing and promotion, turnkey recruitment, and training with funding up to \$500,000.
- **Local Agriculture Marketing Program:** Supports the development, coordination, and expansion of direct marketing; local and regional food markets and enterprises; and value-added agricultural products.
- **Environment and Climate Justice Community Change Grants Program** provides funds for a wide range of environmental and climate change-related activities that benefit disadvantaged communities. Specific projects include but are not limited to, constructing new or enhanced bikeways, walkways, and new parks, constructing green infrastructure, installing infrastructure to support zero-emission transportation options, reducing heat island effects, constructing or installing microgrid infrastructure, including onsite renewable energy storage, and more.

The Department of Energy also offers a variety of resilience-based funding for prevention and post-disaster mitigation and response.

- **Federal Financial Assistance Programs for Resilience Activities:** This database includes grants, cooperative agreements, technical assistance and loans to support climate resilience for nonprofits, governments, tribes and other organizations.

Department of Protection Agency provides a broad range of funding and services, to protect human health and the environment.

The State of Oregon offers a variety of grant programs to support statewide resilience through the development of climate resilience hubs.

- **Resilience Hubs and Networks Grant:** Resilience Hubs and Networks Grant: 2023 legislative session allocated \$10,000,000 for statewide resilience hubs. 2025 funds have not been allocated.
- **Climate Equity and Resilience Through Action Grant:** Distributes \$197 million to support climate pollution reduction goals and is focused on “reducing greenhouse gas emissions from buildings, housing, transportation, and waste while providing benefits to surrounding communities.”

PLACEMAKING

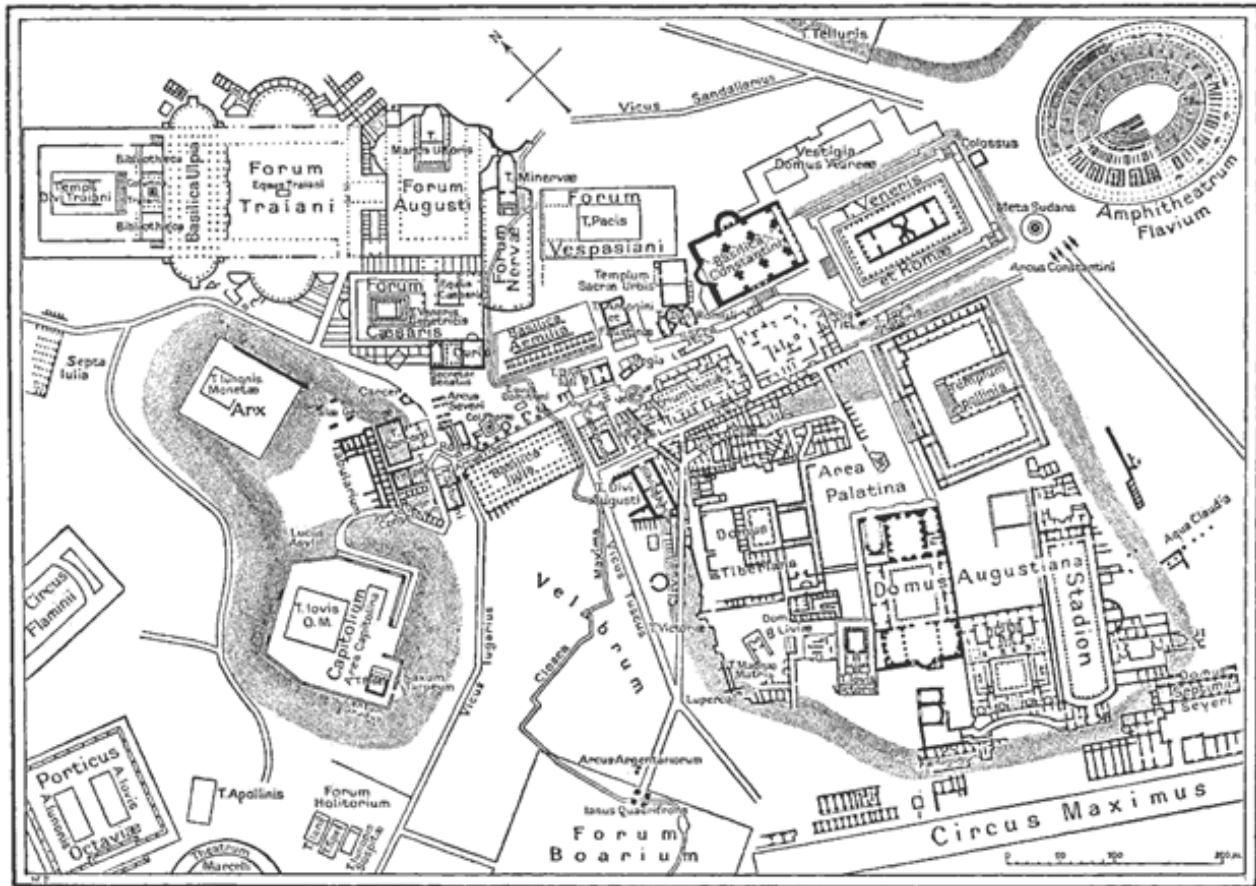


FIG. 29

Map of Downtown Rome

Forums have been central to human settlements since ancient times, serving as public meeting places, marketplaces, and venues for exchanging ideas and connecting with the community. They included markets, public squares, facilities, places of worship, and entertainment. However, The Forum, as it currently stands in Eastside Bend, does not live up to its namesake. There is a notable disconnect between the name and the actual experience of the place. It is not a space for gathering, celebrating, worshipping, or entertaining. Instead, it

is merely a destination to drive to and acquire specific commodities, then return home.

This proposal retains the name “The Forum” as a guiding principle and aims to create a space that truly embodies the essence of a forum—a place designed to bring people together. Much like the forums of ancient Rome, which were bustling centers of civic life, the placemaking team’s vision is to transform The Forum into a vibrant hub for community interaction and engagement

Vision

The vision is that this reimagined Forum will enable a complete community to flourish in the heart of Eastside Bend, where residents' basic needs can be met and spaces for home, work, and play

are all nearby. The Forum will feature accessible, mixed-used, connective public spaces that are flexible, welcoming, and authentic to Bend's identity as well as supportive of its goals.

What Makes a Great Place?

Project for Public Spaces

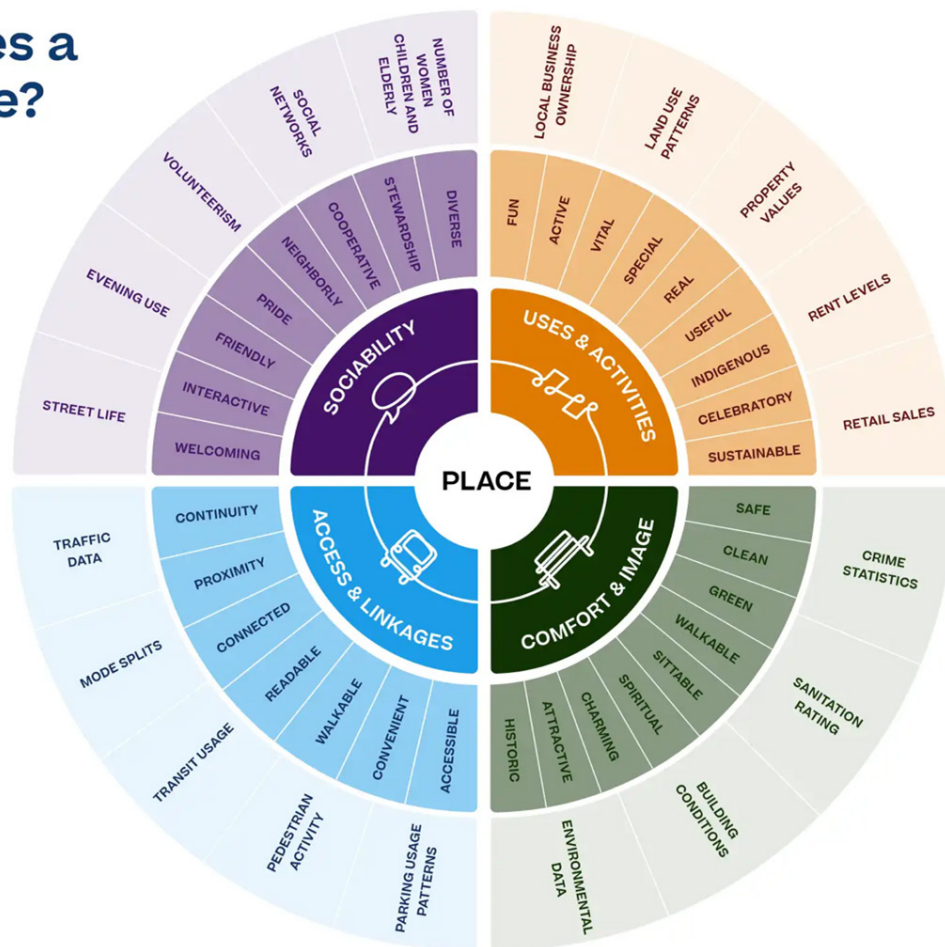


FIG. 30

"The Place Diagram"

The Place Diagram (see Figure 30), developed by the Project for Public Spaces, is a tool used to evaluate the success of public spaces. It consists of three concentric rings: the innermost ring represents key placemaking attributes (sociability, uses and activities, access and linkages, and comfort and image), the middle ring represents intangible qualities

about a place (such as safety, cleanliness, and the presence of people), and the outer ring represents measurable data (like pedestrian counts and economic performance). Using this diagram, the team focused on key placemaking tactics to enhance the quality of urban life through public spaces:

1. **Mixed-Use Development:** Creating dynamic, multifunctional spaces where people can live, work, shop, and socialize, fostering a vibrant and cohesive community.
2. **Affordable Housing Options:** Ensuring diverse and inclusive communities, allowing people of all income levels to live, work, and participate in civic life. A generous quantity of housing also buffers against displacement from gentrification.
3. **Streets as Places:** Designing streets to be more than just thoroughfares for vehicles by adding pedestrian-friendly features like wide sidewalks, ground floor commercial space, public seating, and greenery.
4. **Community Engagement:** Involving neighbors in the development process to ensure that the space meets their needs and reflects their desires, fostering a sense of ownership and belonging.



FIG. 31
Downtown Bend

In a local context, historic downtown Bend exemplifies successful placemaking strategies, creating an active, vibrant, and walkable environment. The area is visually appealing with its diverse architecture and abundant trees. Designed with people in mind, it offers human-scale design and a variety of activities, fostering a strong sense of community and making it an attractive location for both residents

and businesses. Downtown Bend boasts over 200 unique shops and restaurants, housing, and public spaces, showcasing the area's potential for vibrant community life (Visit Central Oregon). Travel guides highlight its combination of natural beauty, history, and culture, offering activities for all seasons, including festivals, parades, tours, and farmer's markets, along with fine dining and

nightlife (AllTrips, n.d.). Cultural events such as gallery walks, museum tours, and performances further enhance its appeal, demonstrating effective placemaking in action.

Established near the turn of the last century, downtown Bend's development reflects historic trends with compact, mixed-use buildings on a legible grid,

close to prime river access. The design prioritizes pedestrian transportation, ensuring walkable access to essential errands. The block structure is easy to navigate, offering multiple routes and a sense of security for pedestrians with buildings close to the sidewalk. Incredibly, all that cultural richness, variety of activity, and activity fits into roughly the same 35-acres available at The Forum.

Proposal Details

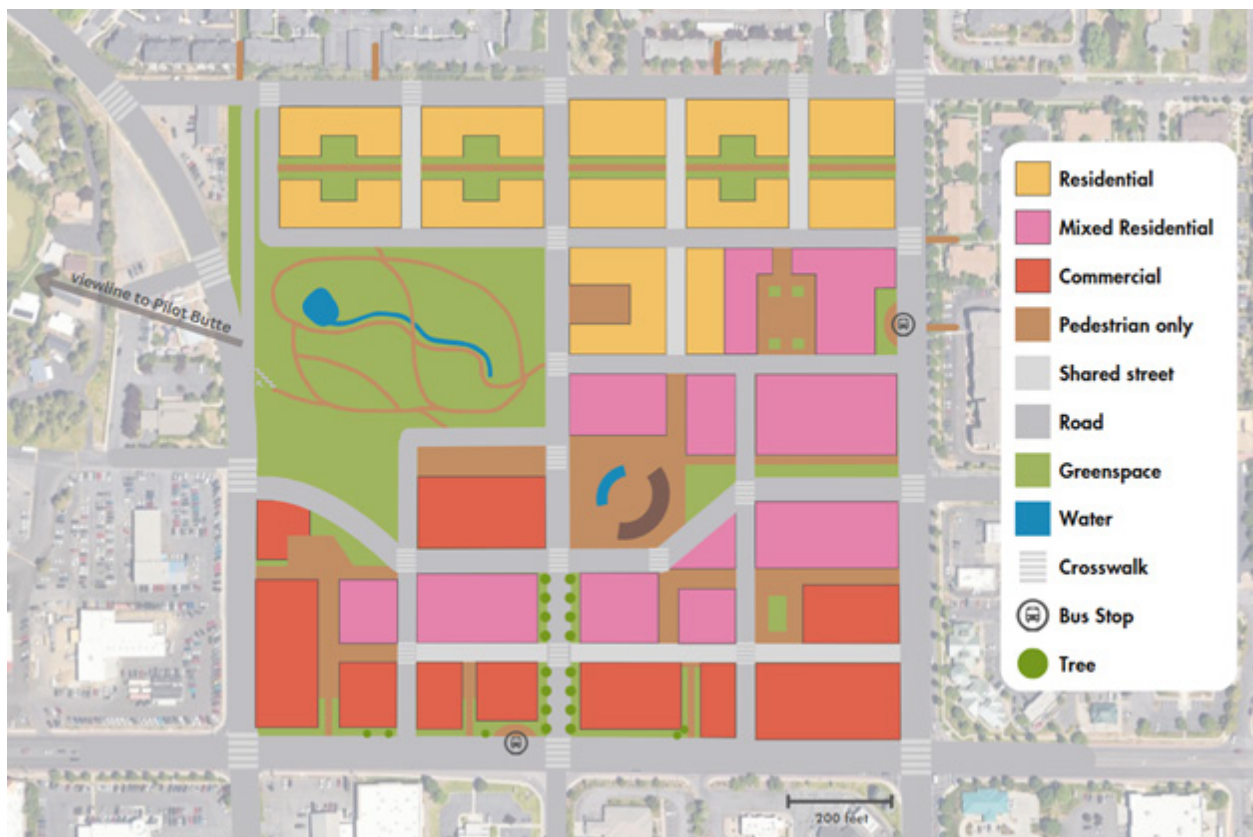


FIG. 32

Public Space Placemaking Site Design Map

Figure 32 represents the final design proposal. This design formulates open space as “public rooms” where plazas ground the surrounding multi-story buildings around a coherent “center”, supporting community connection and space for outdoor dining, markets, and other events or programming. These different zones are unique and identifiable from within the site, offering different flavors of experience to the user. At the same time, each space would be welcoming and useful to all, especially of all ages, abilities, and incomes. This is especially true for the generous allocation of housing.

Features throughout the site connect users to unique aspects of Bend’s identity. The natural park is an urban respite, offering an opportunity for the public to engage with the native ecology of the high desert, including a stream and pond (that now lies buried underground). From the plazas there are views to Pilot Butte; upper terraces and rooftops could also

take advantage of the view. The rest of the landscaping at the site would prioritize climate-resilient species. Architecture would support a sense of place by using local materials like pine or stone and feature local design styles.

The design would move away from a car-centric place to a human-centric place. This design proposal is organized so that commercial buildings block the sights and sounds of Highway 20 and 27th Street, while creating a closer relationship to those streets. Connection to the adjacent neighborhoods would be strengthened by adding or improving crosswalks to the perimeter of the site and creating a network of bike- and pedestrian-only paths. In addition to the bus island on the south side of the site along Highway 20, this design encourages mobility and transportation beyond the use of a car. Together this would add more clarity to where cars travel, slow down traffic, and free up space for use by people.

Use of Space

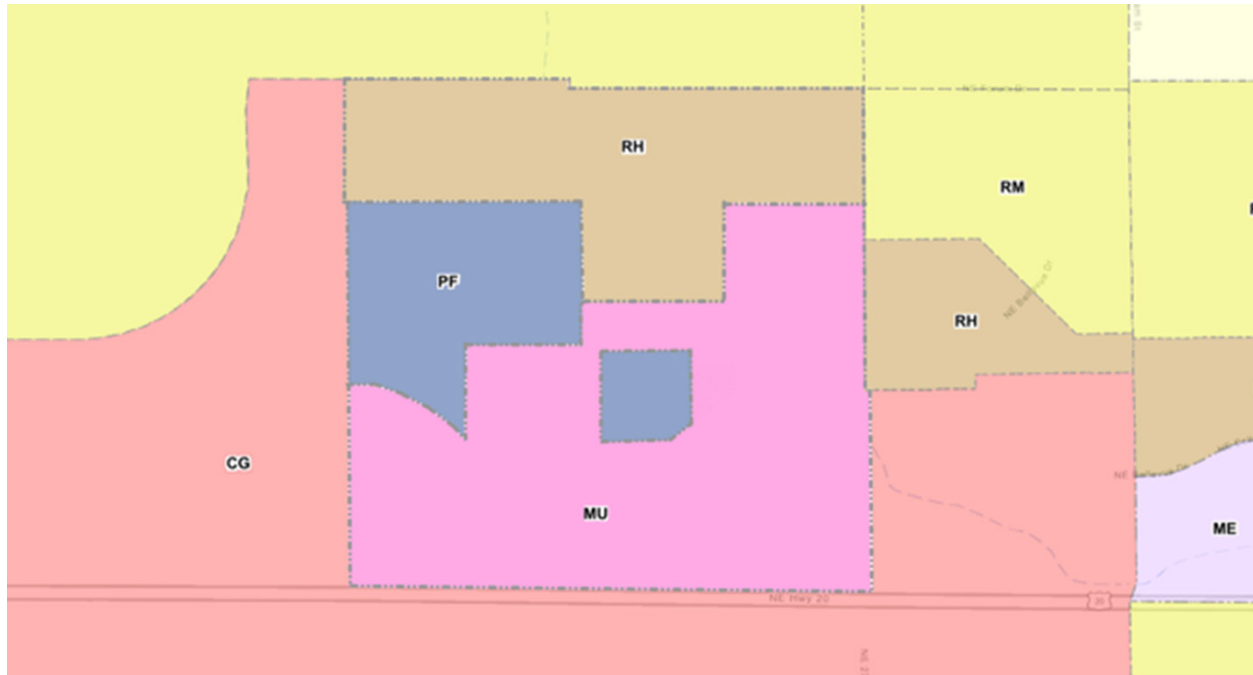


FIG. 33

Proposed Zoning Change Map

Zoning

To encourage denser development with a closer relationship to the street, all areas with commercial use in the proposal will be zoned Mixed Use. Along the north is a section of High Residential, to ensure dense housing, and to create a transition zone from Medium Residential to the north. This transition reflects the zone pattern seen to the east of the site. Note (in blue) that parks and open space are central to this design. The center blue square may stand out—any strong community core is surrounded with people and activity, which is why this plaza is designed to be surrounded by mixed use development. There are places where such plazas are privately owned, but it highly recommends that this plaza to be a true publicly owned place to ensure equitable access.

Currently, the entire area is zoned General Commercial (CG). The Bend Development Code (BDC) defines CG is as: “a broad mix of commercial uses that have large site requirements, are oriented to the higher classification roadways and provide services to the entire City and surrounding area.” Mixed use development, where commercial and residential uses combine, is permissible under the CG zone type. In addition, all types of commercial uses, including industrial uses under 5,000 sq. ft., are permissible. The maximum allowable building height for a CG building, with residential uses above the ground floor, is 65 feet. There are no other requirements for lot coverage, building size, or residential density aside from allowances for adjacent residential zones like additional setback requirements (BDC 2.2). Ultimately,

to keep the CG zoning would allow for redevelopment with parking, setbacks, and pedestrian amenities like the existing layout. If the city wants to move away from this urban typology in this area, a zone change will be necessary.

MU zones, on the other hand, are “intended to provide opportunities for vibrant mixed-use centers” with “a variety of commercial and residential uses” that encourage “a pedestrian-friendly environment” (BDC 2.3.100). The rezoning recommendations included in this proposal diversify and intensify the use of the space overall, thereby retaining approximately the same amount of space available for mixed-use and commercial as is currently in use as CG.

Land Use

For this design proposal, included is the calculated area covered by each major use type – commercial, residential, and public land – to better understand the use of space (Table 8). This is measured based on the specific building footprints as indicated in Figure 33. There is roughly 12.5 acres for ground commercial, 12 acres for residential, 6 acres for the park, and 10.5 acres for plazas, streets, paths, and smaller greenspaces. That means there is a total 16.5 acres, or 47%, dedicated to public open space, if one considers streets to fit that category.

	MU Commercial	MU Vertical Mixed	RH High Density Res.	PF Public Park	PF Public Plaza	Streets, Paths & Greenspace
Acres	6	6.5	6	6	1	9.5
% of Total Acres (35)	17%	19%	17%	17%	3%	27%

TABLE 8
Distribution of Acreage

Housing

Considering the combined 12.5-acre footprint for housing (RH and MU vertical mixed use with ground retail), the assumption of an average unit size of 1,000 square feet, and 10% allowance for walls and shared space, this design provides for a maximum of 2,936 units if the maximum building heights –equal to six stories – were used (Table 9). Considering the average household

size in the area is about two people, this translates to housing for approximately 6,000 people. However, according to minimum zoning standards, this design only requires about 126 units (21.7 units on 6 acres). If the city wants to ensure a denser housing typology, it will need to work with a developer who shares the same vision, create a master planned area, or otherwise alter residential zoning minimums.

Zone Type	Min Density Units/Acre	Max Density	Max Height	Acre Footprint	Total Units Max (6 floors)	Total Units Min (3 floors)
RH	21.7	n/a	60ft*	6	1409	705
MU (residential)	n/a	n/a	75ft	6.5	1527	763
Totals				12.5	2936	1468

TABLE 9
Housing Attributes

Street Network

In Figure 34, dark gray represents more “conventional” streets where cars have dedicated lanes, cyclists may share those lanes or have dedicated lines at the margins, and pedestrians stay to the sidewalks. In contrast, light gray represents shared streets where pedestrians have priority. Sometimes called ‘woonerfs’ after their popular use in the Netherlands, these commonly feature narrow brick-laid surfaces, parking, greenery, and buildings with a close relationship to the street. If all the internal streets, Forum Drive, and Purcell

Boulevard had on-street parking on both sides, this site could accommodate about 4 miles of linear parking space, or over 1,000 angled parking spots. Developers would have the option of adding below ground parking or a parking garage, if they deemed the investment worthwhile. Overall, the design allows for an adequate Public Space Placemaking 50 amount of parking, especially if the Eastside were holistically redeveloped with other transportation options made viable via strong multi-modal connections to other areas of town.

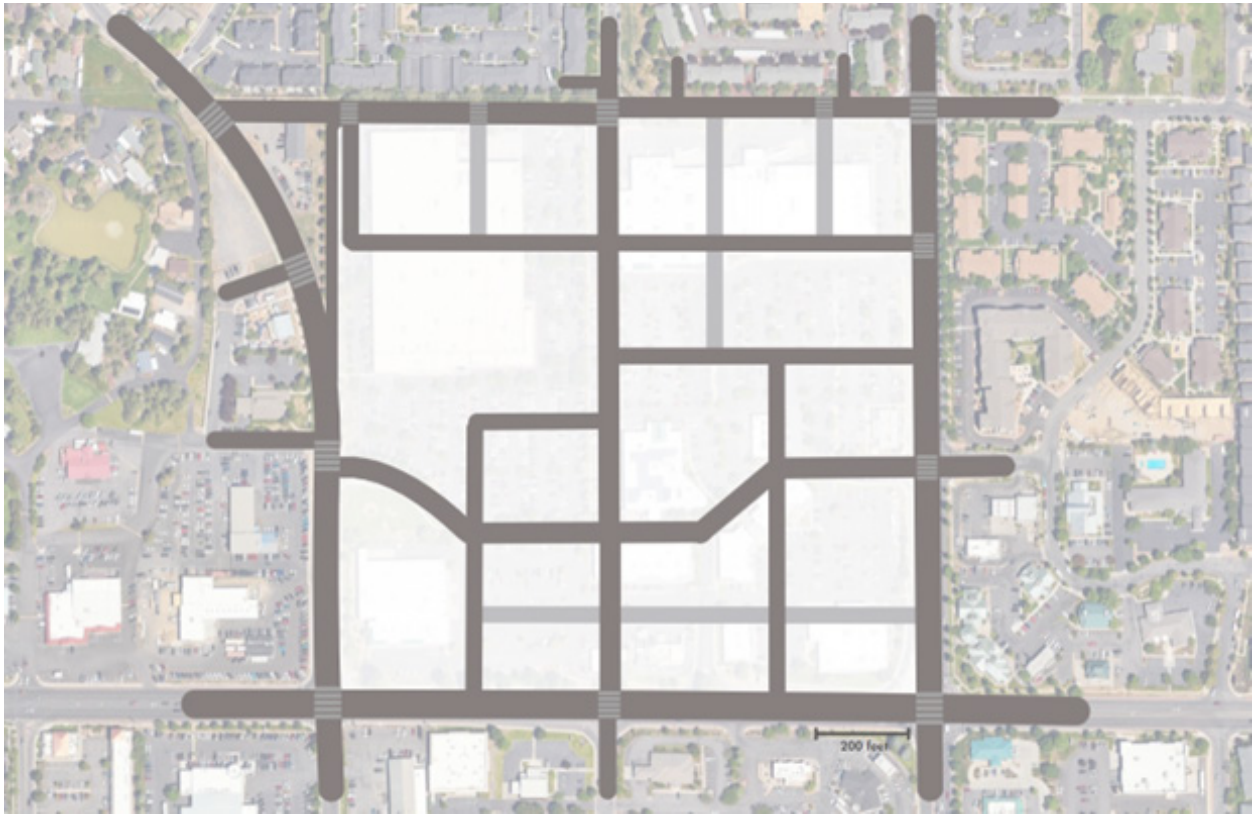


FIGURE 34
Proposed Street Network

EQUITABLE COMMUNITY

Vision

The Forum, a complete community in Bend's eastside, is a beacon of equitable and inclusive urban design in Central Oregon—modeling a multi-generational community hub that meets the needs of a diversity of neighbors through universal design principles. Neighbors of varied abilities safely access all their basic needs within a 10-minute walk. The enhanced transit connectivity also better connects neighbors with each other, the natural world, and the culture of their community—weaving a social fabric to sustain for generations. The redesign of this big-box store and car-dominant parking lot into a welcoming mixed-use neighborhood with affordable housing, small businesses, and ample green spaces creates an environment for all eastside Bend neighbors to thrive socially, physically, and economically.

Equitable Communities Framework

This project focus on equitable community development led us to build a framework to inform design strategies (see Figure 35). The framework was derived from research on equitable communities and the need to translate this vision into an equitable design. The team was inspired by the Place Diagram created by the Project for Public Spaces. The Place Diagram is a tool to help communities evaluate and determine what makes a great place (Project for Public Spaces). The diagram includes attributes, intangible qualities, and measurable data, and the framework centers on five themes: housing, community services, resiliency, ecological services, and accessibility. Each theme is supported by three foundational principles and six corresponding tenets that inform its implementation. Defining community equity and creating a draft framework enabled us to narrow the focus of the design.

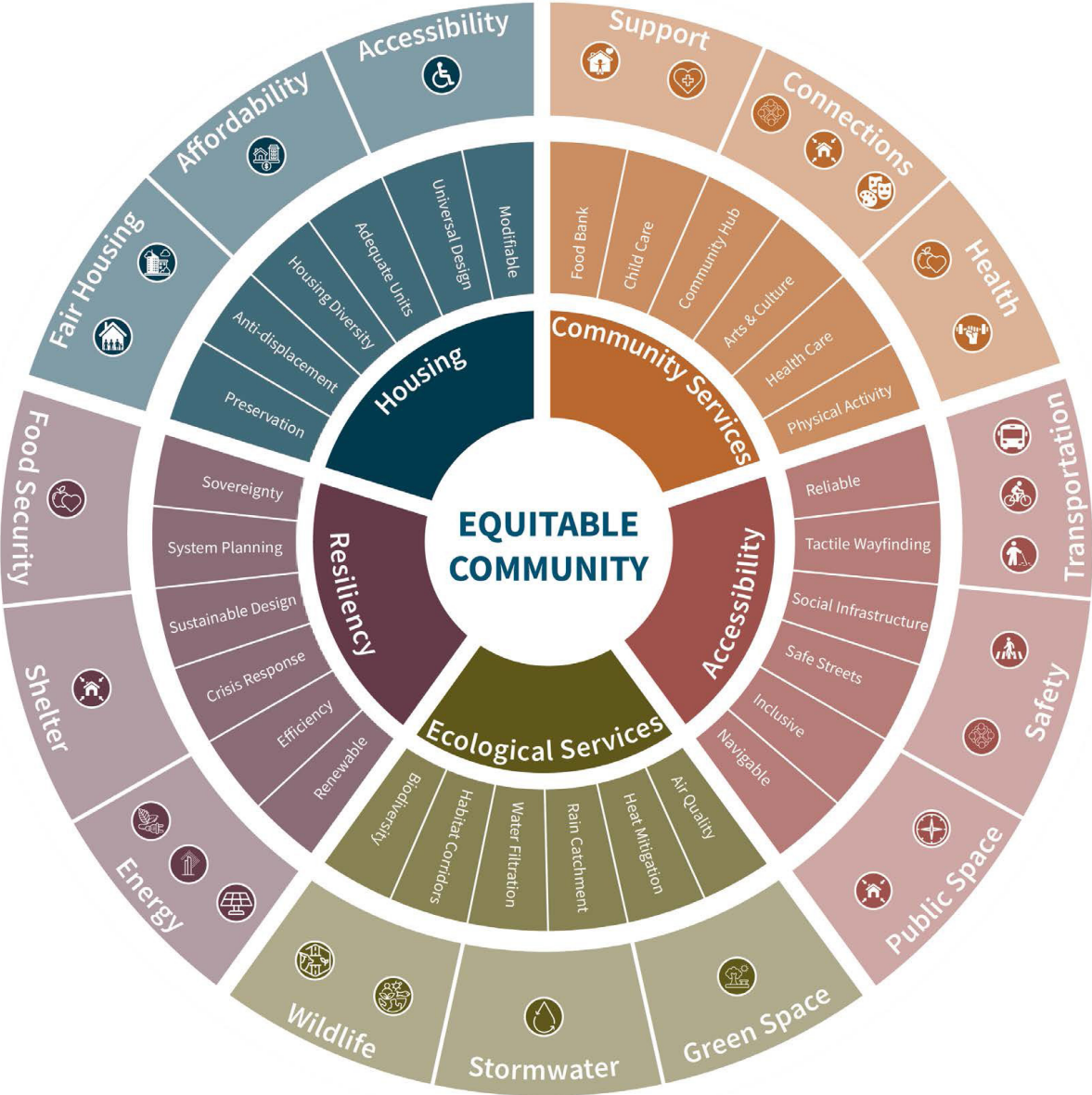


FIGURE 35
Equitable Community Framework
Source: Cameron Coronado

All elements in the framework are intersectional and important to inform an integrated approach to equity. The priority for the equitable community project design was affordable housing, creating community connections, accessible design, and public green space. Affordable housing is a critical element to address the cost burden on renters in the project area. The design prioritizes housing diversity and an adequate number of units to meet the needs of a growing population. The east side of Bend lacks connection in the form of a community hub. This design incorporates a large community center that creates space for connection and anchors the site. The project area is currently inaccessible to people with disabilities and lacks public space. The final proposal includes public promenades, navigable street patterns, and inclusive design standards. Finally, the east side has limited green spaces. The team proposes a park half the size of the iconic Drake Park to address the undue burden of environmental injustices faced by low-income and communities of color.

Phases

Phase 1

For the project, it is suggested that a phased approach is best to address growing needs in Bend and allow for flexibility and adaptation. This vision prioritizes a significant investment in new urban open space and affordable housing. In Phase 1.0, the implementation of a publicly funded residential boulevard

with a roundabout makes all future access for multi-modal transportation on the site possible (Figure 36 – Phase 1.0). Prioritizing the residential boulevard is essential for connecting the site to neighboring communities and providing continuity throughout the project.

The east side of Bend lacks access to community gathering areas and greenspace. In Phase 1.1, the city should develop a community center and adjacent accessible green space to anchor the site and create space for the public to engage, recreate, and build community (Figure 37 – Phase 1.1). The 7-acre park, half the size of Drake Park, provides necessary green space in east Bend.

Increasing the housing supply and providing new affordable housing options will improve community stability and equity. North of the site is naturally occurring affordable housing. The housing is at risk of demolition due to underinvestment, which aids in displacement of people with lower incomes and financial stability (NOAH). The city should land bank the northwest quadrant of the site to secure the area for future community services and critical affordable housing. Centering affordable housing in the Project redesign will mitigate the displacement of current residents to the north of the site. A significant investment by the city is required to guarantee affordable housing on site that could be managed by a land trust or a city entity.

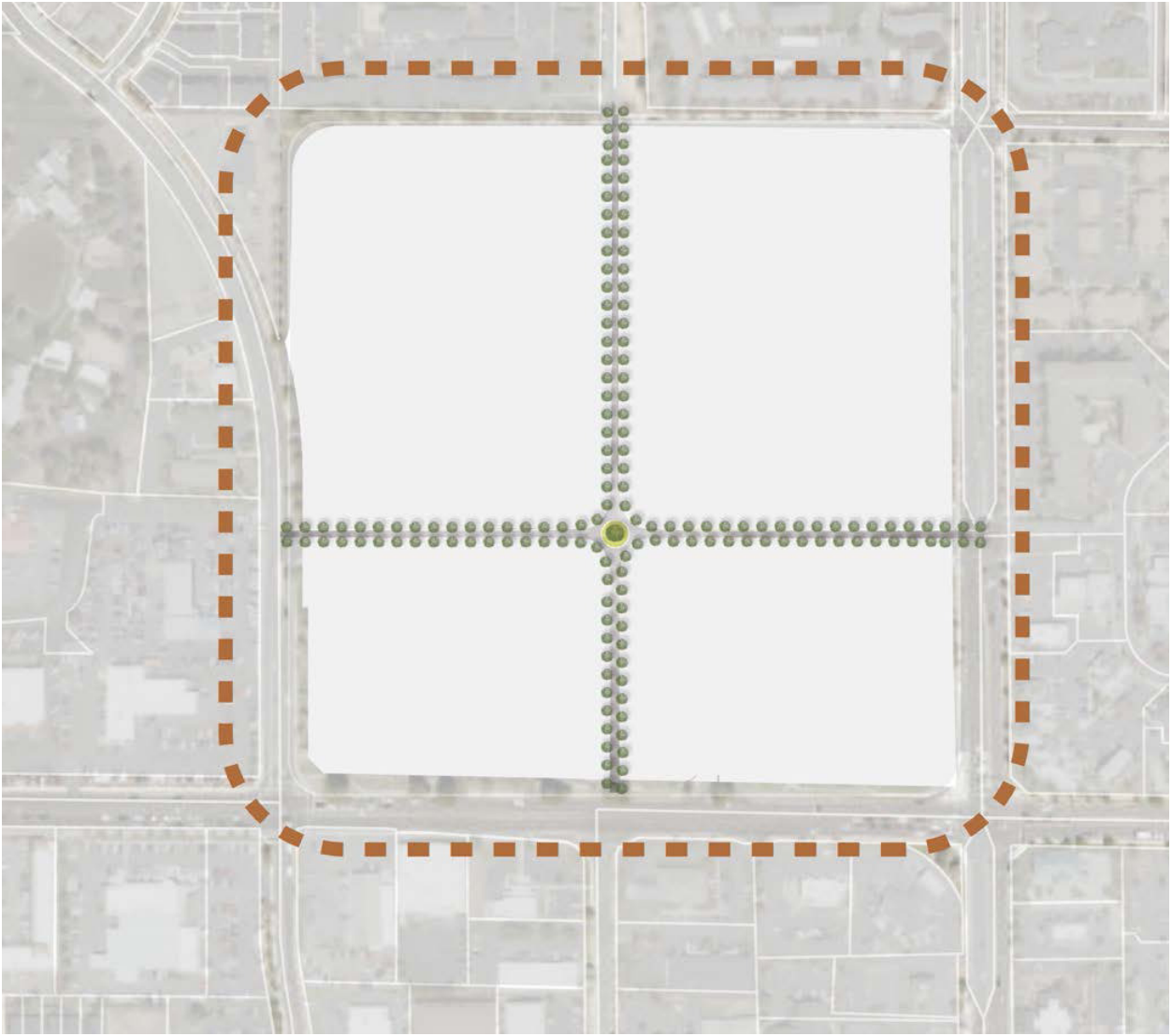


FIGURE 36
Phase 1.0 of Urban Design Proposal,
Source: Cameron Coronado

**FIGURE 37**

Phase 1.1 of Urban Design Proposal,

Source: Cameron Coronado

Phase 2

The main objective of Phases 2 and 3 is housing density. In Phase 2, developing higher-density mixed-use and commercial buildings in the South will insulate the site from HWY 20 and match the overall form of the area south of the site (Figure 38—Phase 2). The buildings are offset to limit the prevailing north winter winds from penetrating the site, making the

interior site comfortable for activities all year long. The design is in line with Bend's goals of efficient land use along transit corridors in commercial and mixed-use zones, as stated in Bend's Urbanization Report. The access to mixed-use buildings with commercial space on the first floor aligns with Bend's Comprehensive Plan and creates complete communities with access to public and private services.



FIGURE 38

Phase 2 of Urban Design Proposal

Source: Cameron Coronado

Phase 3

In Phase 3, the city should develop a mix of lower-density residential housing to integrate the Northeast quadrant of the site with the neighborhood to the north (Figure 39—Phase 3). A wide range of residential building types will encourage income diversity on the site. A mix of middle housing, including duplexes,

triplexes, townhomes, and cottage clusters, increases housing options and addresses a variety of needs. Developing middle housing provides options for smaller households, lower-income households, and first-time home buyers, increasing housing affordability and supply.



FIGURE 39

Phase 3 of Urban Design Proposal

Source: Cameron Coronado

Phases 2 and 3 were developed to demonstrate the site's form while flexible with individual design features. The design framework has the flexibility to work with existing elements like Safeway to maintain food security and can be adapted based on needs and funding. In

total, this design would develop housing on about 20 acres of land and create approximately 1,035 new units of housing. The housing proposed on the site would address about 6% of the projected need for new dwelling units in Bend by 2028.

Equitable Design Details

Block Structure and Street Circulation

Laying the block structure demonstrated in Figure 40: Block & Street Structure was the first crucial step in the design process— setting the foundation for the overall form and experience of the site. First, the northwest quadrant was set aside to maintain open space, with street access around the perimeter. The small, defined 200' blocks in the northeast

quadrant promote a pedestrian-friendly environment with easy connectivity. The larger block structure in the southwest quadrant allows for higher-density capacity while still allowing cars to move through. The southeast quadrant is set up for a larger grocery store or a business with similar commercial capacity— providing space for a parking lot and service truck access.

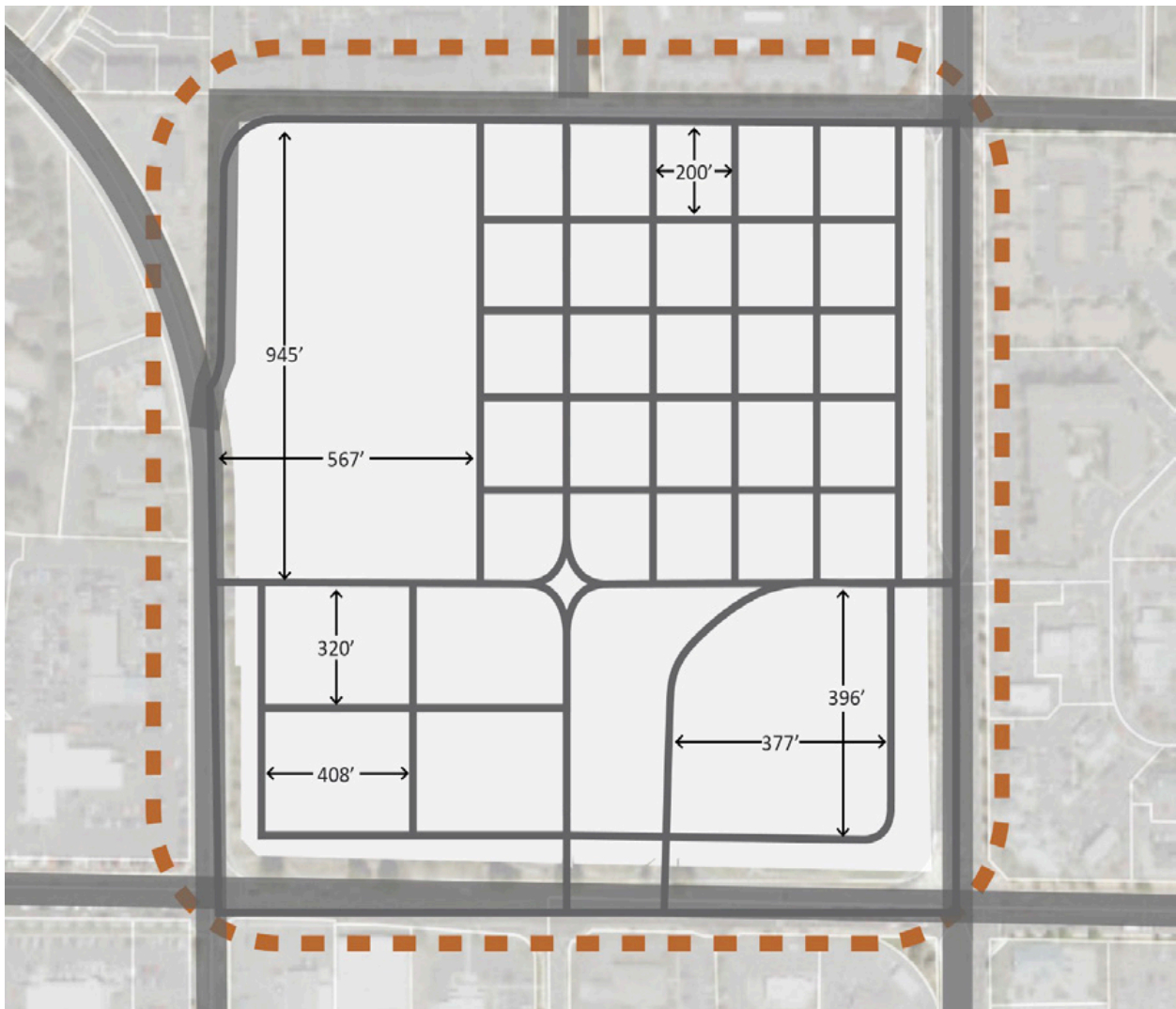


FIGURE 40

Block & Street Structure

Source: Cameron Coronado

The proposed streets are meant for pedestrians, bicyclists, and other forms of commuters to travel alongside cars safely. As demonstrated in Figure 41: Proposed Circulation, the block structure is composed of three primary types of streets:

- **Residential Boulevard:** The Residential Boulevard serves as the primary axis moving through the site. It is connected by a roundabout at the center and accommodates the highest density of traffic inside the Project. The design, as recommended by the National Association of City Transportation Officials (NACTO), activates the typically underutilized median. “Broad central medians can become a community focal point as well as an active space for recreation, exercise, and leisure (Residential Boulevard, NACTO).” Midblock crossings allow pedestrians to safely access the median and traverse the boulevard, maintaining connection across each quadrant. Curbside parking is also accommodated in the design.
- **Yield Street:** The two-way Yield Streets designated in the residential and mixed-use areas are designed to slow traffic down and offer significant parking opportunities on one or both sides of the street (Yield Street, NACTO). The green right-of-way spaces provide a buffer zone between the streets and sidewalks, which can also be planted with trees, stormwater gardens, and bioswales. Signs and street striping can be used to indicate to commuters the two-way traffic, as well as bicycle presence.
- **Green Alley:** The Green Alleys in the low and medium-density residential areas prioritize the experience of the families living there by significantly slowing traffic and creating an inviting public street using sustainable surfaces and stormwater gardens. Pervious pavements with high reflectivity can help reduce heat island effects (Green Alley, NACTO). The lack of a curb makes it a “shared street,” meaning that pedestrians, cars, and bicyclists share the same lane of traffic. Light fixtures that provide safe lighting while limiting light pollution are an important public safety feature to consider in the street design (NACTO).

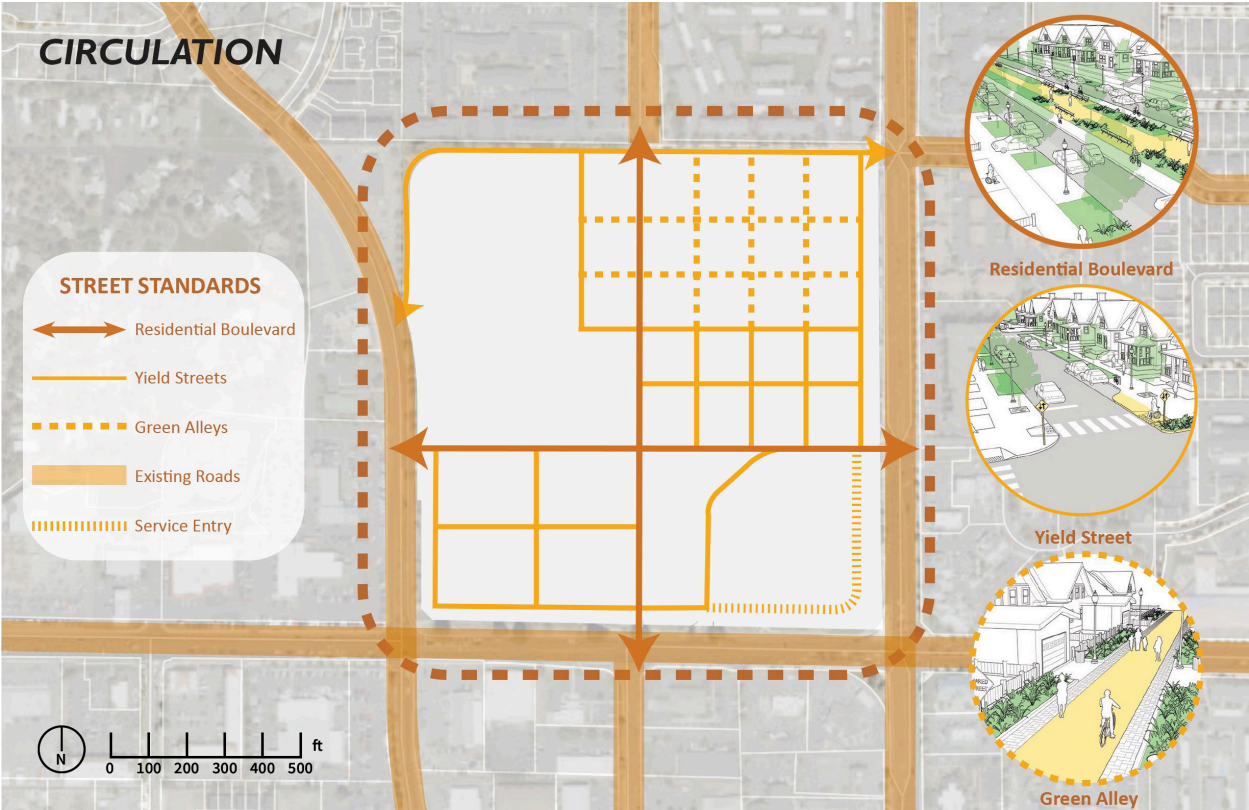


FIGURE 41
Proposed Circulation
Source: Cameron Coronado

Pedestrian Pathways

While all the streets are designed for the safe use of pedestrians, there are two proposed quadrants in the project with walking-only designations (see Figure 42). In the northwest, the universal pedestrian path creates a dynamic trail throughout the greenspace accessible to neighbors using a variety of mobility aids. Universal design, a concept defined by architect and wheelchair user Ronald Mace, provides seven principles of universal design: equitable use; flexibility in use; simple and intuitive use; perceptible information; tolerance for error; low physical effort; and size and space for approach and use (Accessibility Design Standards for all Future Projects). Applying stated principles and associated design standards to the greenspace trail and surrounding sidewalks is crucial to equitable development.

In the mixed-use development in the south half of the site, pedestrian-only

promenades connect ground-floor businesses, creating a sense of place for residents and visitors to enjoy free of cars. Trees and gardens throughout the promenade help reduce noise pollution, provide a shaded tree canopy, and promote a connection to nature. By preserving promenades as car-free spaces, there is more opportunity for community connection, like outdoor restaurant accommodations, open-air markets, and places to rest. Elderly neighbors, kids, and people with disabilities can also travel with more ease on pedestrian pathways.

Greenway connectors along major roadways propose retrofitting current road conditions to buffer sidewalks and protect bike lanes from cars with green infrastructure. The new conditions will allow people commuting to the project from across Bend to access it safer and more easily.

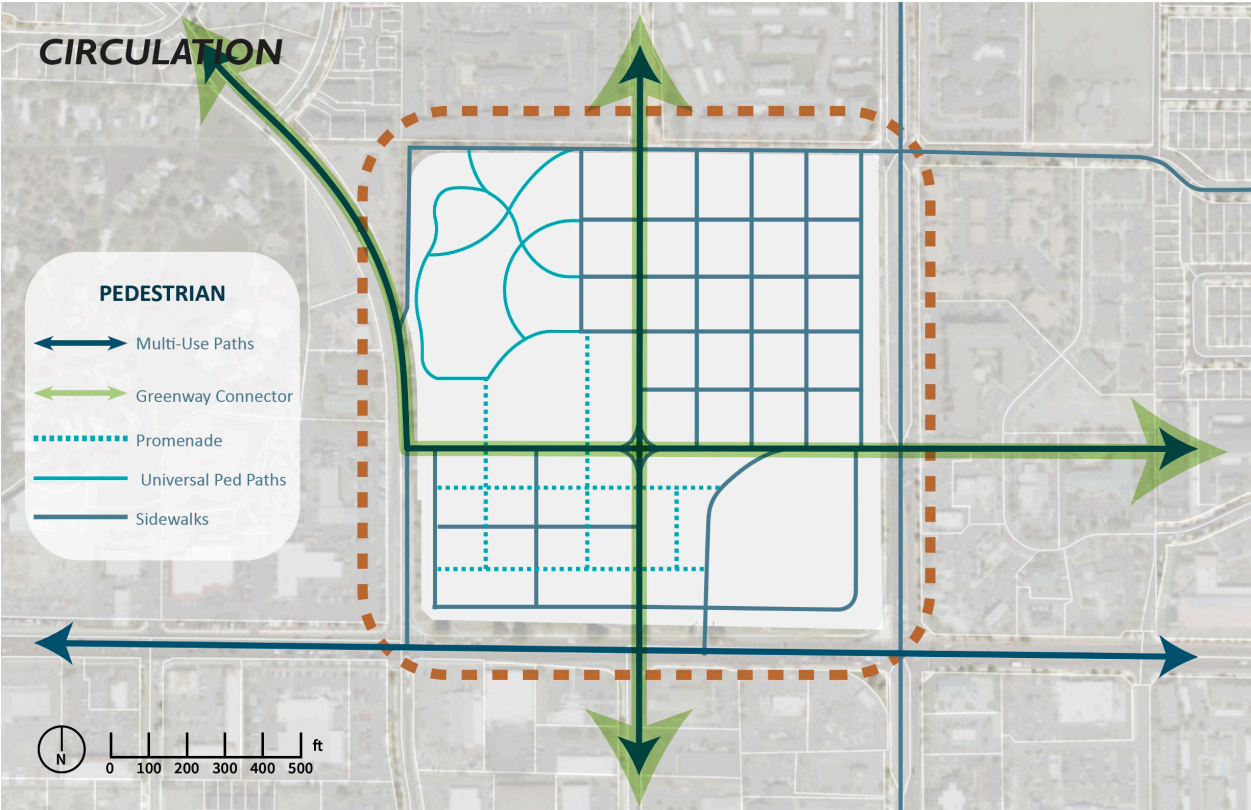


FIGURE 42
Proposed Pedestrian Circulation
Source: Cameron Coronado

Housing Gradients/Density/Types

A housing gradient is essential for creating equitable communities. The gradient ensures diverse housing options cater to different income levels, family sizes, and individual needs. It also allows affordable housing development to be built, which provides housing options for low-income families, seniors, and individuals with disabilities, ensuring everyone can access safe and stable housing.

Building high-density, mixed-use housing along Highway 20 and 27th Street will help insulate the site from the loud street corridors. In addition to insulating the site from outside noise, high-density developments improve access to goods and services and reduce travel needs (Duranton & Puga). High-density areas also allow for a broader sharing of urban amenities and better labor market matching, potentially enhancing job opportunities for those living in the area. Additionally, high-density developments can lead to reduced pollution per capita due to more efficient land use and enhanced transportation systems.

Middle-density housing should be built moving from the high-density developments into the middle of the northeast quadrant of the site. Middle-density housing developments are vital to address the missing middle housing crisis that cities are experiencing (Parolek

& Nelson C.). Middle development types refer to the middle scale of buildings between low-density, single-family homes and high-density apartment complexes or condominium buildings. Middle housing also refers to the affordability or attainability level for middle-income households. Missing middle housing also meets the demand for downsizing Baby Boomers, single-person households, and Millennials who want walkable communities.

Low-density developments should be built north of the site to transition into the low-density neighborhoods across from it. The transition will help preserve the characteristics of the neighborhoods surrounding the site.

A diversity of building types is recommended on the site (Figure 43—Housing Gradient). Multi-story mixed-use buildings should be prioritized in the high-density areas. Triplexes, fourplexes, townhouses, cottage clusters, and courtyard apartments should be developed in medium-density areas. The dwellings are essential developments that fit between single-family homes and large apartment complexes while allowing for denser housing options and maintaining a neighborhood feel. Duplexes and row houses could be built in the low-density areas of the site.

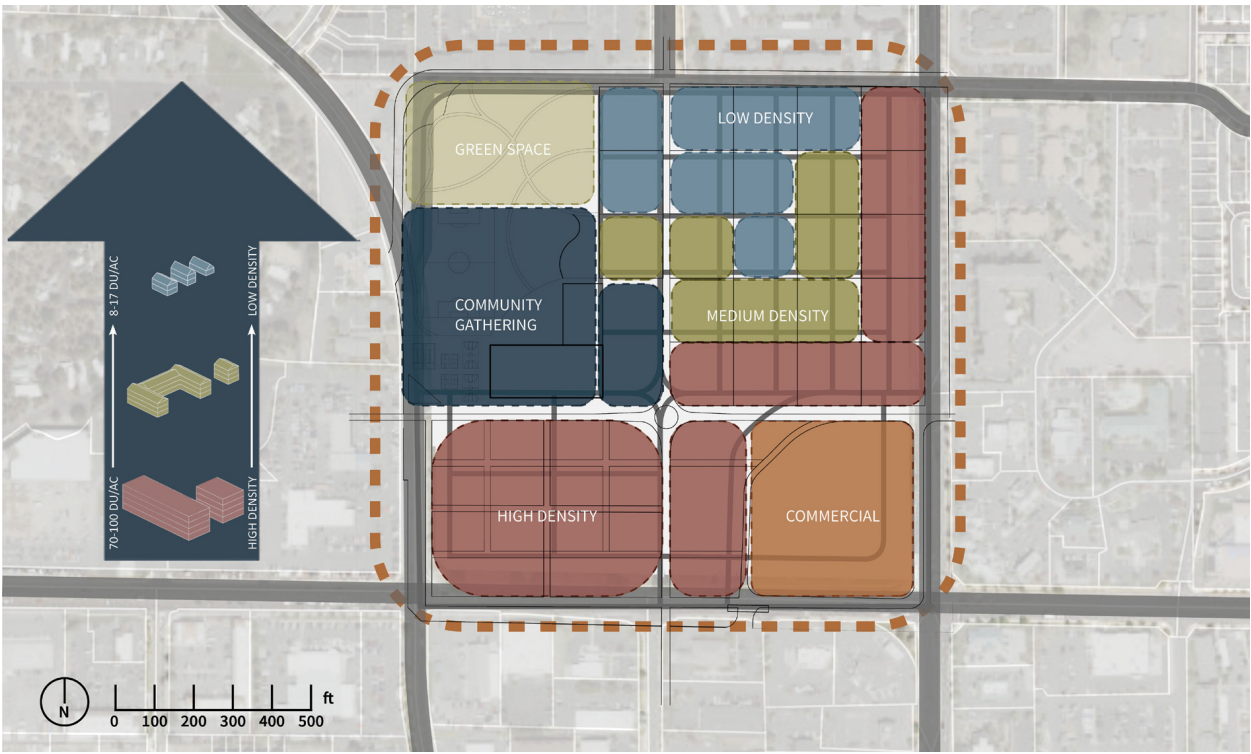


FIGURE 43
Housing Gradient Diagram
Source: Cameron Coronado

Ecological Corridors

Ecological Corridors are another important part of the block structure, providing connectivity of green space throughout the project and building in climate-resilience measures (see Figure 44). By integrating the following elements throughout the project, Bend has the opportunity to grow a green urban oasis in the middle of the high desert:

- **Urban Forest:** Growing a robust urban forest provides many benefits to the community and the environment. It helps reduce the urban heat island effect, bringing down temperatures by providing shade and increasing water evaporation from soil and leaves (American Forests). A recent Lancet study concluded that doubling the urban tree canopy in European cities (from 15 to 30%) could have reduced the death toll during the 2015 heat wave by nearly 40% (lungman). Researchers anticipate that heat-related deaths could rise by 57% from 2031 to 2050 (Plos Medicine), making urban heat island mitigation a clear climate justice issue. Urban forests are also proven to cause a host of mental and physical health benefits for communities (see Figure 42).
- Urban forests are inequitably distributed across American cities. In 2021, American Forests released its first nationwide Tree Equity Score, which calculated equitable tree

distribution across the country by evaluating socioeconomic status, existing tree canopy, and other census data in 486 metropolitan areas. The findings revealed that marginalized neighborhoods have fewer trees than wealthier and whiter neighborhoods and thus lack the benefits of trees. “Neighborhoods with a majority of people of color have 33% less tree canopy on average than majority white communities. Neighborhoods with 90% or more of their residents living in poverty have 41% less tree canopy than communities with only 10% or less of the population in poverty (American Forests).”

- **Stormwater Networks:** Stormwater gardens are a vital component of sustainable urban development, helping to mitigate the environmental impact of urbanization on water quality. In cities, where large amounts of impervious surfaces like roads and buildings prevent rainwater from naturally soaking into the ground, stormwater gardens offer one effective solution. Stormwater gardens are designed to slow, filter, and absorb rainwater runoff, reducing the risk of flooding and erosion. Bioswales are gently sloped channels layered with vegetation, rocks, and soil to slow the movement of water and filter runoff. Bioswales could be useful on the sloped edge of the greenspace in the Project’s northwest corner.

- **Native Plants:** Native plants are naturally adapted to the local climate, soil, and water conditions, making them more resilient to drought, temperature extremes, and pest pressures common in arid regions. Native plants also require less maintenance, as they are well-suited to local conditions, reducing the need for fertilizers, pesticides, and frequent irrigation. Local biodiversity is supported by native plants by providing food, shelter, and habitat for wildlife, including pollinators like bees

and butterflies. High desert native plants can survive long dry periods and contribute to soil stabilization due to their deep root systems and drought tolerant features. These effects make urban landscapes more resilient to the impacts of climate change, such as increased heatwaves and prolonged droughts. By incorporating native plants, the project will be a more sustainable, climate-adapted, and ecologically abundant space for both people and wildlife.

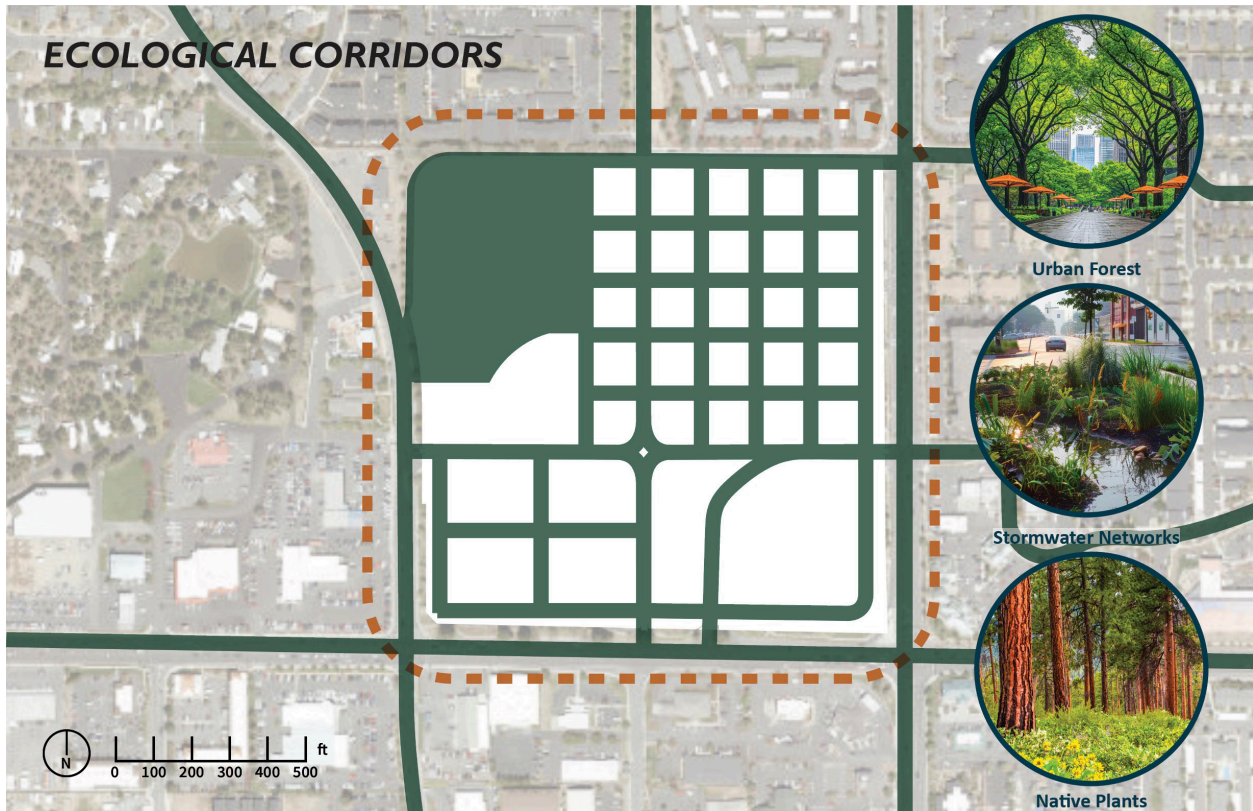


FIGURE 44
Proposed Ecological Corridors
Source: Cameron Coronado

Implementation Strategies

Zoning Changes

For the Equitable Community proposal, the City of Bend should move forward with a zoning change for the site from General Commercial (CG) to Mixed-use Urban (MU). These districts are designed to create vibrant mixed-use centers with excellent connectivity. The goal of MU districts is to support transit and encourage a pedestrian-friendly environment, which would align with Bend's Comprehensive Plan and TSP goals. A zoning change to a MU District would also permit the usage of parks and open space.

Residential developments on properties between 3 and 20 acres in the RM District must ensure that at least 50% of the total housing units are middle housing, single-room occupancy, and multi-unit dwellings. The requirement is in addition to the minimum and maximum density standards outlined in BDC 2.1.600. The minimum density for RM districts is 7.3 units/gross acres to 21.7 units/gross acre. Multi-unit affordable dwellings are exempt from maximum density requirements (Ch. 2.3 Mixed-Use Zoning Districts (ME, MR, PO, MU, and MN) | Bend Development Code).

Complete Communities and Publicly Funded Affordable Housing

The Southeast False Creek (SEFC) development in Vancouver, BC is an example of a sustainable neighborhood and complete community that funded an affordable housing project utilizing a public model and "city-raised debt." (Copenhagen Centre, n.d.). The SEFC development informed equitable decisions in the Project redesign. The success of Vancouver's sustainable

neighborhood is due to the integrated community health approach. Public amenities within walking distance are critical in establishing a sustainable community. The City of Bend's Comprehensive Plan emphasizes creating complete communities, and the site redesign was influenced by the City of Vancouver's SEFC development plan.

The City of Bend needs an integrated approach centering on diverse affordable housing integrated with childcare and walkable amenities to address equity issues on the east side. The affordable housing, public park, and childcare amenities suggested would address the need for social infrastructure and support vulnerable communities on the east side of Bend. Bend has limited housing and cannot accommodate the surge in population growth. Affordable and modest market housing requirements from the SEFC development plan informed housing density in the Project site redesign. Designing a diversity of housing options for families can encourage income diversity in an area.

Investment Strategies and Resources

The city must employ various investment strategies to complete the project and produce affordable housing, addressing immediate needs and long-term sustainability. Public-private partnerships are critical, leveraging government funding with private sector expertise and capital to develop mixed-income and affordable housing projects. Bend was the first city in Oregon to implement an Affordable Housing Fee. The city collects one-third of 1% of the total valuation of all building permits to collect and leverage funding for affordable housing. The city should maintain and potentially expand

the fee to achieve the housing needed. It must employ additional investment strategies for the and future projects. Some of the investment strategies recommend for the city to pursue include:

- Reduced or exempt System Development Charges (SDC): Reducing, deferring, or financing SDCs at low interest rates for desired housing types helps reduce development costs for private sector partners.
- Reduce or exempt SDCs for Accessory Dwelling Units (ADU): As Bend's east side densifies, the surrounding neighborhoods may look to capitalize on the inflow of community members by adding ADUs to their properties. Reducing or waiving SDCs for ADUs can improve homeowners' development feasibility.
- Transportation SDCs tied to parking: The city can guide development in avoiding large parking lots by implementing SDCs tied to the number of parking spaces provided. By linking transportation costs directly to vehicle storage, new developments can promote multi-modal forms of transportation.
- Incentivize manufactured and modular housing: Manufactured and modular housing units using sustainable building materials like mass timber can decrease construction timelines, allowing more housing units in a shorter time. Bonus density incentives for manufactured and modular housing

units are one method to incentivize and attract housing units with short construction timelines.

- Publicly funded infrastructure: Students recommend the city construct a publicly funded residential roadway in phase one to ensure that connectivity throughout the site and to the surrounding neighborhoods is established from the beginning. In addition to ensuring this roadway reflects Bend's vision for the future, it will also set a precedent for developers that the city is committed to investing in Bend's Eastside CFA now and into the future.

In addition to investment strategies, the city must utilize a variety of local, state, and federal funding resources to promote desired redevelopment projects. Since 2004, the city has received \$6,111,257 in Community Development Block Grants (CDBG) for housing acquisition, rehabilitation, and down payments (City of Bend, n.d.). The city leveraged block grant funding against private and public funding to generate an additional \$21,056,064. The city should continue to be creative in securing resources to promote desired development. Some of the recommended resources include:

- Low-Income Housing Tax Credit (LIHTC): A federal tax provision encourages private investment in affordable housing by giving investors a dollar-for-dollar reduction in federal income tax liability.

- **Housing trust funds:** The funds are a flexible source of funding that can support affordable housing in numerous ways. Funds are created and administered at the city, county, regional, and state levels, allowing them to address local needs and priorities. Eligible activities include emergency rent assistance, gap financing for new construction, and repairs for older homeowners.
- **HOME Program:** HOME is a federal program designed to increase affordable housing for low and very low-income households. HUD distributes HOME funds for rental assistance, assistance to homebuyers, new construction, rehabilitation, improvements, demolition, relocation, and limited administrative costs.
- **Dedicated revenue sources for affordable housing:** Bend could examine additional dedicated revenue sources for affordable housing. In addition to collecting revenue for building permits, the city could consider establishing Transient Lodging Taxes (TLT). Since Bend attracts many visitors who stay for short durations, TLTs could provide a substantial tax base. The city could charge the tax as a percentage of the total cost of the lodging or as a flat fee per night.
- **Luxury Taxes:** Luxury taxes apply to luxury items and second homes dedicated to providing funds for affordable housing. Since Bend is relatively affluent, the tax could help redistribute wealth throughout the community to improve outcomes for all.
- **Construction Excise Tax (CET):** CET are taxes on all construction projects used to provide affordable housing. According to state statutes, the tax may be imposed on property improvements resulting in a new structure or additional square footage in an existing structure.
- **Tax Increment Financing (TIF):** The city could tie TIFs to new CFA designations. Utilizing TIF can begin to set aside funds for affordable housing projects as a medium-term action.
- **Housing Vouchers:** Housing vouchers provide rental assistance for eligible families occupying specific housing units managed by private owners who agree with a housing agency. The city can further target vouchers toward renters living at specific Area Median Incomes (AMI) to ensure Bend's most vulnerable households are cared for.
- **Low-interest loans/revolving loan fund:** TIFs, CDBGs, or local Housing Trust Funds may capitalize on housing repair and weatherization assistance for low and moderate-income households. Loans help maintain the existing housing stock while remaining affordable, helping to mitigate displacement.

Combining investment strategies and resources enables Bend to address diverse housing needs, enhance equity, and foster resilient, inclusive communities. The above list of strategies and resources is not exhaustive but offers a starting point for the city as it looks to address its housing needs.

Community Engagement

To create a place that meets the needs and values of the community, the city should start by conducting comprehensive community engagement during all phases to ensure the project meets the needs of all users. Arnstein writes citizen participation is citizen power (Arnstein, 1969). To give community members meaningful decision-making power, the city should go beyond traditional forms of engagement that merely inform community members of their rights, responsibilities, and choices. Redistributing decision-making power through negotiations between community members and decision makers is vital in equitable engagement. To ensure the Project achieves equitable outcomes, especially for underserved and underrepresented communities, community engagement strategies should ensure an overrepresentation of underserved community voices.

Community engagement efforts that center the voices of underserved and underrepresented communities are necessarily time and resource intensive. The city should secure funding for staff to plan, implement, assess, analyze, report, and reconfigure policies and programs. The city will need additional funding to host engagement events, offer incentives for participation, provide food and childcare, offer transportation, and more to enable underserved community members' participation.

Other cities provide examples and lessons learned regarding engagement strategies for redevelopment projects. The City of Seattle partnered with Via Architecture to conduct an urban design study to redevelop Northgate, a car-dominated landscape six miles

north of downtown Seattle. Seattle's project has similar goals to the Bend Project, including transforming an auto-oriented neighborhood into a more high-density, pedestrian-friendly, mixed-use community (Bicknell et al., n.d.). The City of Seattle understood that traditional outreach efforts frequently leave underserved and underrepresented voices out of the conversation. As such, their outreach efforts relied heavily on community organizations and leaders with established trust and relationships in the community. The methods used to connect with diverse stakeholders included small focus groups planned and facilitated by members in these communities. The community determined meeting times and locations, allowing for more participation and comfort. Fifteen focus groups were held, with discussions lasting between one to two hours. The City of Seattle employed diverse engagement strategies, including holding language and cultural-specific meetings, running small group sessions to ensure everyone could have a voice, and offering honorariums to partner organizations.

From the Seattle case study and through explicit efforts to center the voices of underserved community members, the following recommendations can help facilitate equitable engagement:

- Secure adequate funding to support robust and ongoing community engagement efforts. Funds must cover staff time, resources including translation services, rental spaces, food, and materials, and institutional inducements, including stipends for participating members, transportation, childcare, and other elements identified by the community groups as necessary for involvement.

- Allot sufficient time for meaningful engagement and relationship building. Many underserved communities lack trust in government agencies, and for good reasons. Relationships and trust building will take significant time and resources. Although some communication can be done through emails, face-to-face meetings are recommended.
- Co-design the process with community leaders and organizations with an intimate understanding of the communities in question. The process will ensure that the city's engagement strategies are responsive and reflective of the communities they are looking to engage with.
- Balance structure and flexibility to capitalize on time spent together as community members have busy lives. A balance enables community members to further drive the engagement process by adapting to their needs.
- Identify communities not typically engaged to identify who is left out of the conversations. The city should still allow feedback from the "common actors" using standard methods like town halls, community meetings, surveys, newsletters, etc. Still, engagement efforts should direct time and attention toward underrepresented communities, especially community members in the eastside who are at risk of displacement.
- Create focus groups to ensure all members have a voice. Groups should be large enough to provide an overrepresentation of underserved voices yet small enough that the meetings cannot be dominated by one or a few speakers with more knowledge and power. Well-trained facilitators can ensure that power is distributed equally among the group, so all members are given a voice and can enact change.
- Meet groups where they are to suit the needs of each focus group. Seattle staff learned in their engagement efforts that community groups were more likely to attend and felt more comfortable speaking freely with their own community members.
- Provide customized support to promote accessibility and inclusion. Customization is important as not one size fits all. Support can come in various ways, including translation services, technical assistance, room configurations, etc.
- Provide institutional inducements for participants, including stipends to participants, childcare and transportation, translation services, accessible meeting locations, food, and any other elements identified through the co-design process that will encourage participation.

The community engagement recommendations are not exhaustive or meant to be prescriptive. Using the stated recommendations as a guide will help the city move past the status quo by creating new democratic innovations that address power, access, and equity issues. By giving underserved neighbors, a voice through overrepresentation, culturally responsive technical assistance methods, and institutional inducements, the redevelopment of the site is more likely to meaningfully meet access and equity goals. Failure to redistribute resources and power toward underserved communities will result in the status quo contributing to the inequities Bend is striving to overcome.

Anti-Displacement

Research reveals well-intended redevelopment projects can drive and accelerate social and racial injustices (Anguelovski, Connolly, Garcia-Lamarca, et al.; García; Gould & Lewis; Lewartowska et al Rigolon & Németh). While redevelopment projects make neighborhoods more attractive, projects are often blind to social vulnerabilities and affordability issues (Anguelovski, Connolly, Pearsall, et al.; Checker; Connolly; García, 2020; Pearsall & Eller). Bend's Eastside CFA is known to be at risk of displacement if redevelopment occurs. As such, the city must be bold, deliberate, and intentional to work with the communities most likely to be disproportionately and negatively impacted by the project. The city is required to fulfill the requirements of OAR 660-012-0315.4.f, which states that as part of a CFA Study, cities shall submit plans for achieving fair and equitable housing outcomes within climate-friendly areas, as identified in OAR 660-008-0050(4)(a)-(f). Analysis of OAR 660-008-0050(4)(f) shall include analysis of spatial and other data to determine if the rezoning of potential climate-friendly areas would be likely to displace residents who are members of state and federal protected classes. The local government shall also identify actions that may be employed to mitigate or avoid potential displacement.

Per OAR 660-012-0315.4.f, the city conducted an Anti-Displacement spatial and planning analysis. From the analyses, the city verified that Bend's Eastside is among five potential CFAs most at risk of

displacement. Some of the actions Bend is currently taking to mitigate displacement include: Location of housing; fair housing; housing choice; housing options for residents experiencing homelessness; affordable homeownership and rental housing; and gentrification, displacement, and housing stability.

The city promotes new and affordable housing through financial incentives, code changes, programs, and actions. Future actions to mitigate displacement included in the Anti-Displacement analysis:

- Permitting alternative housing types on wheels
- Updates to the System Development Charges (SDC) methodologies
- Distribution of information on converting detached single-unit housing to duplexes
- Funding off-site infrastructure requirements for affordable housing
- The development of a revolving loan fund tied to the boundaries of a CFA
- Site acquisition for affordable housing projects in CFAs (Vukelich et al.)

The city should focus on integrated redevelopment projects with a community-driven, equity-centered housing, transportation, and land use planning process (Anguelovski & Connolly). A holistic approach ensures that the city works alongside the communities most at risk and considers all aspects of redevelopment, from housing to transportation to social services. Additional anti-displacement strategies include:

- **Affordable housing provisions:** Affordable housing provisions are policies, programs, and initiatives to ensure that housing is accessible and attainable for households with limited incomes. Provisions typically include subsidies, rent control, inclusionary zoning, and government-funded housing projects. Additionally, the city can promote mixed-income developments and encourage private developers to set aside portions of units for low-income households using a variety of incentives and tax cuts.
- **Rent control/rent stabilization programs:** The city can establish regulations that limit the amount landlords can charge for renting out residential properties, aiming to protect tenants from excessive rent increases and housing insecurity. The process will require stakeholder engagement, including tenants, landlords, and housing advocates, to design policies that meet the local needs of Bend and produce equitable outcomes for tenants and landlords alike. The city can implement rent control through new legislation or by amending existing housing laws. In addition to mitigating displacement, rent control can contribute to community cohesion by enabling residents to remain in their neighborhoods, fostering diversity, and preserving local culture. Effective implementation often requires complementary measures such as incentives and tax breaks.
- **Inclusionary zoning:** Inclusionary zoning establishes the portion of units within a market-rate development that must be set aside as affordable housing. This tool is often combined with incentives such as tax exemptions, fee waivers, or development bonuses to offset the cost of affordable housing. Careful consideration must be employed when using this tool, as case studies have shown that inclusionary zoning can suppress housing production as developers face profit margin challenges (DLCD). The city must calculate the financial components of inclusionary zoning measures to balance affordable housing units and profit margins for developers.
- **Housing rehabilitation codes:** To mitigate gentrification and displacement of the neighborhoods surrounding the site, the city could enact housing rehabilitation codes. Housing rehabilitation codes reduce the costs of renovating existing buildings. Renovations ensure the continued affordability and habitability of older rental and owner-occupied homes.

Bend will need to deploy various anti-displacement tools, actions, and policies to mitigate displacement. The strategies listed above are not exhaustive but are meant to demonstrate the wide range of options the city should explore. Financial and regulatory impediments to developing and maintaining needed housing is reduced by the strategies listed above. The housing stock will require economic and regulatory incentives to attract housing developers. The city should be innovative in working with private, local, state, and federal resources to mitigate the displacement of existing and future Bend neighbors.

Conclusion

The redevelopment of Bend's potential CFA presents a unique opportunity to address critical issues of equity, accessibility, and sustainability in Bend.

This report takes a thematic approach to outline a comprehensive vision for transforming the 35-acre Costco site into a vibrant, inclusive, and resilient community hub that meets the diverse needs of Bend's Eastside. Student planners provide recommendations centered in walkability and transportation, climate resilience, placemaking, and equitable community principles. The focus on connectivity, both within the site and to the broader Bend area, ensures that the development supports multi-modal transportation options, reducing the reliance on cars and promoting a healthier, more sustainable lifestyle for residents on the site.

An emphasis on community engagement and anti-displacement strategies is necessary to meet the needs of Bend residents. In the site planning process, representation of residents, particularly people from underserved and vulnerable

communities are critical. Engaging with the community and enacting anti-displacement strategies will help ensure the benefits of the redevelopment are equitably distributed and displacement is minimized.

Public infrastructure investments create the foundation for a thriving community. The proposed phased approaches allow for flexibility and adaptation, ensuring that the project can respond to changing needs and priorities over time. The proposed redevelopment of Bend's Eastside CFA represents a process for urban planning that prioritizes equity, sustainability, and placemaking. By leveraging a mix of public and private investment strategies and focusing on inclusive design principles, the project can serve as a model for inclusive and resilient urban redevelopment in Central Oregon and beyond.

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Appendix

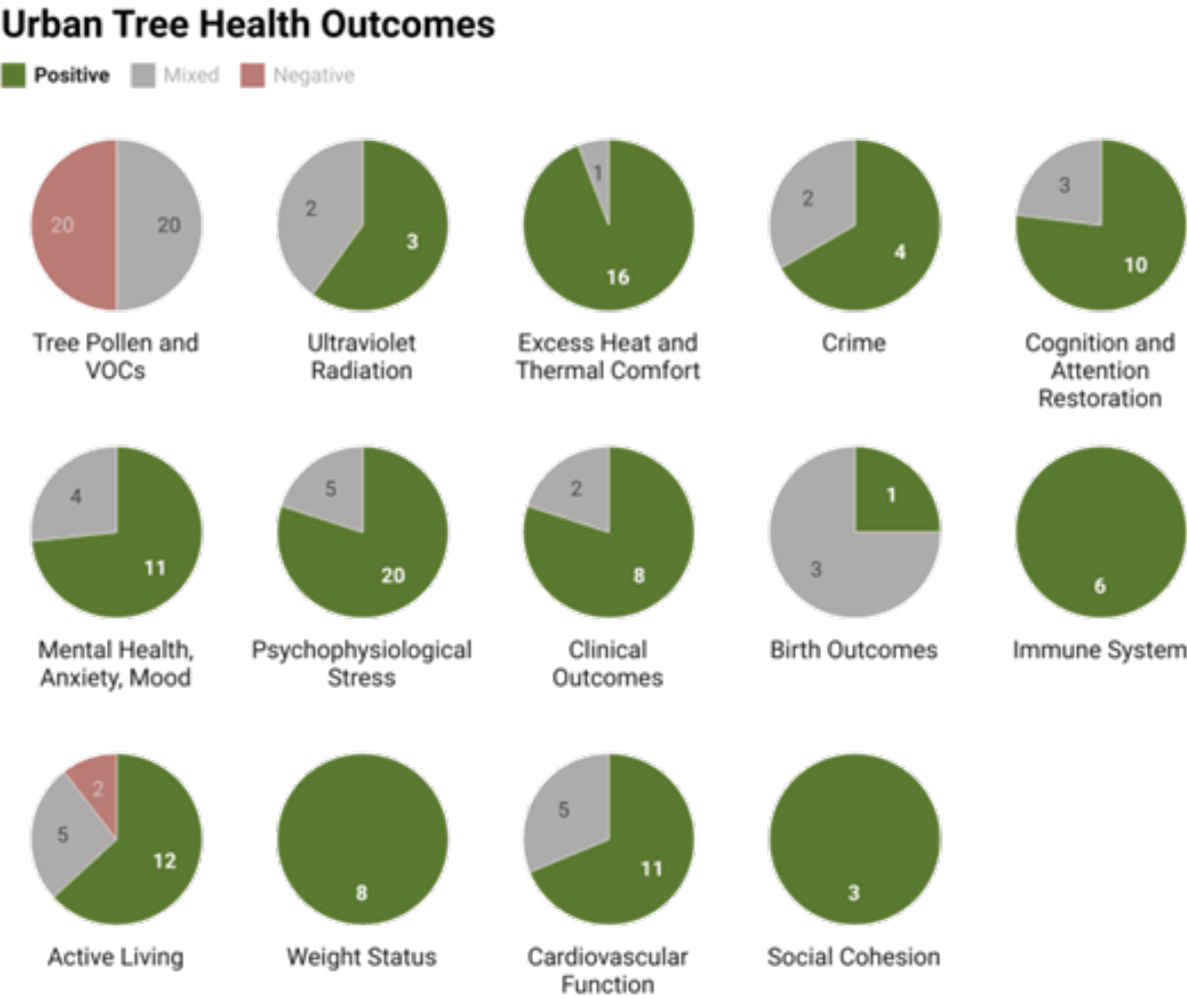
TABLE 6: LOCATION QUOTIENT FOR DESCHUTES COUNTY

	Population Employment Ratio					
	2010	2020	2010	2010	2020	2020
TOTAL EMPLOYMENT	1.00	1.00	90548	1.74	125232	1.58
WAGE AND SALARY EMPLOYMENT	0.88	0.88	62260	2.53	85486	2.32
PROPRIETORS EMPLOYMENT	1.44	1.39	28288	5.58	39746	4.99
Farm proprietors employment	1.32	1.12	1304	120.96	1305	151.92
Nonfarm proprietors employment	1.45	1.40	26984	5.85	38441	5.16
FARM EMPLOYMENT	1.17	0.94	1617	97.55	1594	124.37
NONFARM EMPLOYMENT	1.00	1.00	88931	1.77	123638	1.60
Private nonfarm employment	1.05	1.06	80111	1.97	114085	1.74
Forestry, fishing, and related activities	0.59	0.69	759	207.82	945	209.79
Mining	1.03	0.90	310	508.82	292	678.95
Utilities	0.48	0.63	315	500.74	345	574.65
Construction	1.25	1.22	6171	25.56	10836	18.30
Manufacturing	1.72	1.53	4318	36.53	6407	30.94
Wholesale trade	1.02	1.11	1845	85.49	2823	70.23
Retail trade	1.02	1.05	11531	13.68	14332	13.83
Transportation and warehousing	0.47	0.47	1364	115.64	3743	52.97
Information	0.68	0.76	1810	87.15	2184	90.78
Finance and insurance	0.32	0.72	4130	38.19	5287	37.50
Real estate and rental and leasing	1.07	1.03	6946	22.71	8938	22.18
Professional, scientific, and technical services	1.08	1.08	6307	25.01	10477	18.92
Management of companies and enterprises	1.70	1.56	341	462.56	1251	158.48
Administrative and waste management services	0.86	0.77	5481	28.78	6909	28.69
Educational services	0.66	0.63	1413	111.63	1892	104.78
Health care and social assistance	1.34	1.52	10815	14.58	15915	12.46
Arts, entertainment, and recreation	1.56	1.64	3084	51.15	3845	51.56
Accommodation and food services	1.01	0.90	7950	19.84	10401	19.06
Other services, except public administration	1.27	1.30	5221	30.21	7263	27.30

TABLE 6: LOCATION QUOTIENT FOR DESCHUTES COUNTY (CONT.)

Government and government enterprises	0.68	0.60	8820	17.88	9553	20.75
Federal, civilian	0.64	0.51	1021	154.49	1004	197.46
Military	0.41	0.37	448	352.08	468	423.62
State and local	0.72	0.64	7351	21.46	8081	24.53
State government	0.33	0.26	931	169.42	927	213.87
Local government	0.86	0.79	6420	24.57	7154	27.71

FIGURE 45: URBAN TREE HEALTH OUTCOMES



Source: Wolf et al. (2020) • Created with Datawrapper

Source: Yale Climate Connections “Research findings on health outcomes created by urban forests. Green indicates studies finding a positive effect, gray indicates studies finding mixed effects or inconclusive evidence, and red indicates studies finding a negative effect. The numbers refer to the number of studies in each category. Created by Dana Nuccitelli using Datawrapper and data from Wolf et al. (2020), International Journal of Environmental Research and Public Health.”

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