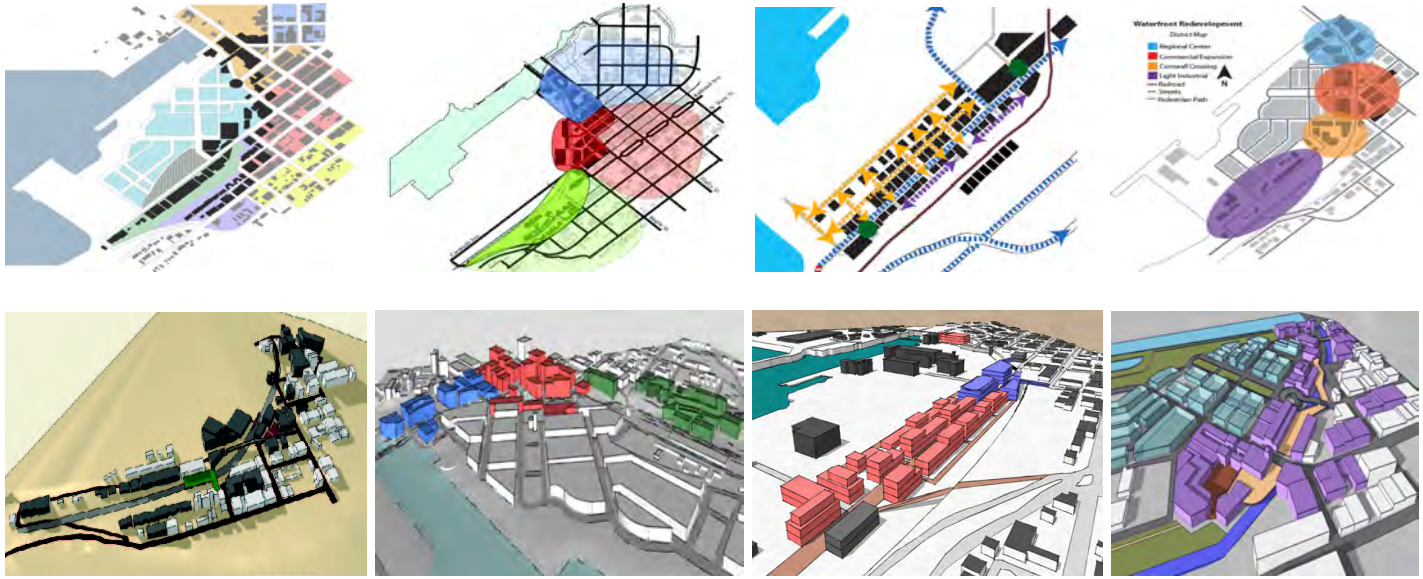
Downtown Bellingham

CORRIDOR EDGE

Planning Study

4 Scenarios for Downtown Bellingham, WA



2012 Urban Transitions Studio (UTS)

1.0 Introduction

March 10, 2012

2012 Urban Transitions Studio (UTS)

Downtown Corridor Edge Planning Study: 4 Scenarios. Bellingham, WA.

The 2012 Urban Transitions Studio is a collaborative partnership between WWU, Bellingham's Office of Planning and Community Development and Office of Public Works, the Port of Bellingham, the Bellingham Public Development Authority, and Sustainable Connections.

Beginning in 2010, WWU's Planning Studio participated in a coordinated service learning curriculum that partnered several WWU classes with community and institutional partners in order to develop new urbanism planning concepts to help transition Bellingham into a more urban and sustainable community. Planning Studio is the first in a series of coordinated class investigations that emphasizes the preparation of the plan/design concept. Other classes participating in the Urban Transitions Studio program include: Planning Studio II (investigating approaches to plan implementation), Sustainable Design Studio (exploring the application of green building methods), and Environmental Impact Assessment (assessing impacts posed by the proposed development concepts). Each of the participating classes further build upon the planning concepts developed in planning studio. The program is intended to expand student learning by concentrating planning studies over the course of an entire year and by incorporating multiple dimensions of the planning process that aims to effect positive community change towards sustainable development.

OVERVIEW

The Planning Studio applies planning principles, methods and processes of analyses from previous classroom training to develop alternative solutions to community planning and development. The course examined ways to achieve planning's social, environmental, and economic values through the master site plan process to foster the creation of sustainable downtown communities. The objective of the exercise is to balance a community's social, environmental, and economic development objectives with local, state, and national and international planning principles and ideals. Design alternatives emphasize sustainability principles in community development and are informed by LEED Neighborhood Development guidelines.

Because the problems that are presented in the studio concern a variety of complex issues, underlying each problem are questions concerning the appropriate "community fit," and the identification of constraints that must be overcome before a planning solution can emerge. This course engages the student in methods for resolving policy conflicts; the analysis of physical, social and economic information; and the formulation and evaluation of planning alternatives that meet project objectives.

Students worked both independently and within a project team structure. Meetings, interviews, and critiques with client groups helped to inform the students about local problems and priorities and provided insights and access to information and resources. Students presented their draft ideas in a mid-quarter critique presentation for early feedback from our UTS partners, and at a formal public presentation before the client and the general public.

THE PROJECT

Planning Studio evaluated development alternatives along the "corridor edge" lying between Bellingham's City Center and the publicly acquired waterfront, and extending generally between the Old Town district to the west, and Cornwall Avenue to the south. Geographically, the "corridor edge" is depicted as the *southern boundary* of the existing downtown, demarcated by an elevation drop to the waterfront site (formerly serving as Bellingham's industrial site). The site contains the BNRR rail corridor which, along with the natural bluff, serves to bifurcate the waterfront from the downtown.

Bellingham's Public Development Authority, serving as the project "client", was established to assume a primary role in developing Bellingham's public properties in the central city. A priority development area of the BPDA is the Army Street site, which will serve as one of the focus areas for this study. In addition to the Army Street site, student teams evaluated the entire "corridor edge" to develop a series of development scenarios to facilitate: 1) urban redevelopment that furthers the goals of the Bellingham City Center Master Plan, 2) a transition to the Port of Bellingham's Master Plan proposed activities on the waterfront, and 3) the enhancement of a unique and vibrant central city development that meets the needs for additional urban infill, downtown housing, commercial, public facilities, recreational, and infrastructure development.

Army Street Priority Development Area

The Army Street area includes a parcel of approximately 0.4 acres on the NE side of Roeder/Chestnut that is currently owned by BPDA and is intended to serve as a catalyst for a larger development. The City of Bellingham conveyed ownership of the parcel to the BPDA in March 2010. Other parcels in the Army Street planning area are owned by 8 separate entities. These properties are

strategically located but vacant or underutilized. This project is first on the list of BPDA priorities because it is at the hub juncture of the Bellingham's three priority development areas (Downtown District, Old Town District and Waterfront District), within easy walking distance connecting all three areas, and could span Roeder/Chestnut and the railroad tracks to interconnect these districts physically and economically as an early phase of development for the Waterfront District. The "Army Street" project would require a collaborative development program combining the interests of multiple owners into an integrated development project, including a mix of mutually supporting public and private projects. The BPDA has prepared a general plan outlining the approach underlining the Army Street Project concept. The plan is intended to serve as a first step in the consideration and discussion of a potential development program for the environs around and including the BPDA-owned parcel. Students evaluated the conceptual land use mix proposed by the BPDA, the Port, and the City (in the City Center Master Plan) for the Army Street Project and related areas along the corridor edge study site.

Teams Organization and Methodology: Students were assigned to Design Teams of 5-6 students. Each team formulated development scenarios for parts of the overall study site. Each team defined their project site boundaries, project objectives and assumptions prior to commencing design development. During the first 2 weeks, students developed a project methodology and schedule, identifying the general planning boundaries for their "corridor edge" study, a general approach to fact finding, available resources, field evaluation, individual student assignments, and contact persons. Students used their research methodology to develop a project critical path to show the linear progression of activities over the 10-week study period. Student teams reported on their progress to the instructor on a weekly basis.

Team Approach and Initial Methodology:

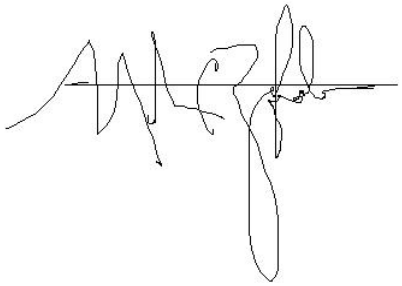
- Select and form project teams
- Define parameters of inquiry and data needs
- Define project objectives
- Define systems of team coordination, leadership, and decision making
- Establish relationships with project clients and identify client objectives
- Establish schedule and deadlines, and a plan for distribution of work
- Perform field work
- Formulate design alternatives and analysis of those alternatives
- Establish criteria for evaluating and justifying the "land use mix"
- Establish team editorial rules and graphics standards
- Integrate report findings and recommendations
- Organize presentation of findings

Deliverables:

A final report in a standardized format, consisting of the following:

- Statement of planning objectives
- Synthesis of City Center, BPDA, and Waterfront objectives
- A figure ground analysis of the project site
- A hard and soft characterization analysis
- An analysis of land use mix
- Identification of issues and opportunities
- Detailed site modeling and massing study
- Narrative report
- Presentation materials, including Power Point, informational brochure, and poster board

Respectfully submitted,



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1.1 The Corridor Edge

A place that fosters a strong tie to both the waterfront and downtown through increased density, rich character, diverse districts, a variety of housing and plenty of outdoor space.

Planning Studio ESTU 470
Winter 2012

Heidi Anderson, Kaelene Nobis, Kali Hollenhorst, Catherine Harris, Kelsey Brubaker, Chelsea Reiss

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1.1.0 Introduction

This study focuses on the corridor edge between two developments; Bellingham's proposed waterfront development and the central business district. The intent of this study is to create a seamless corridor between the two areas that serves priority urban development needs of Bellingham, while complimenting existing and proposed activities. The corridor, as shown in Figure 1 in orange, serves a primary role in connecting both pedestrian and auto traffic through the corridor between the future waterfront and the downtown as an urban infill site. The corridor serves as a priority development site relating the waterfront and downtown development districts. In order to better understand the needs of the Bellingham community, this study helps to assess the strengths and weaknesses of the site as well to identify barriers to development.

Figure 1.1.1: Study corridor

Vision

The vision for the corridor area is to have a cohesive urban development. The goal is to have the area expand upon the Central Business Districts density and mixed use development pattern while fostering a strong tie to both the waterfront and the downtown. It will serve as the main connector between two developments and contain a rich character with diverse districts, a variety of housing types, and plenty of outdoor space. Essentially, the corridor is a place where people will want to be. It will provide a converging space where all districts will mesh in a melting pot of culturally significant activities.

Current Objectives of Waterfront and Downtown

In order to create a comprehensive corridor plan, it is important to look at the development that is already occurring in the area. The City of Bellingham (COB) implemented a Central Business District (CBD) Neighborhood Plan which stems from the City center Master plan for the downtown area which proposed goals related to infill, economic development, and downtown revitalization and housing affordability. In the corridor edge the COB proposed the area to be primarily commercial and multifamily residential while reserving the waterfront to be commercial industrial. This exemplifies the economic development goal of COB.

City of Bellingham CBD Plan, Adapted From COB (2011)

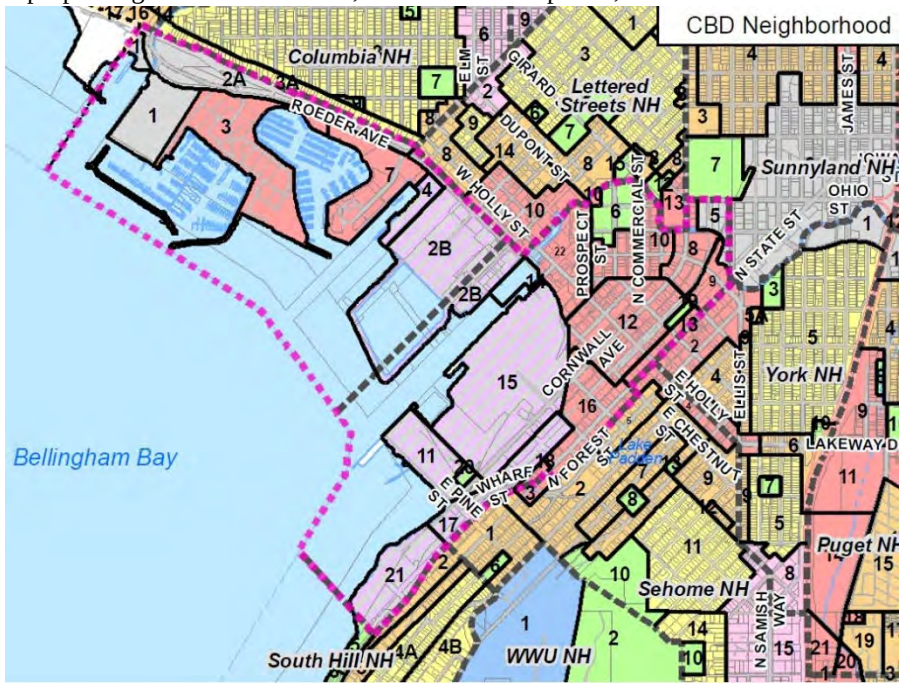


Figure 1.1.2: The corrodor edge as being primarily commercial and multifamily residentail.

The Port of Bellingham (POB) owns the land down on the waterfront. They have the primary role in designing the waterfront district. Their goals are consistent with the CBD plan in order to create a cohesive environment. Their primary goals are place making and access into the site while enhancing environmental quality. Although the plan for the waterfront does not encroach into the CBD plan it is important to recognize the uses that were noted as important. The waterfront plan is primarily mixed use commercial, and marine industrial where it borders the corridor. This has been taken into account when forming districts at the corridor's edge.

The Bellingham Public Development Authority (BPDA) is another stakeholder in this development process. The BPDA is an public agency dedicated to developing public property. According to the COB, the mission of the BPDA is "to maximize the public good by attracting sustainable development that generates capital investment, contributes to the vitality of the economy, and creates employment opportunities, while improving and preserving historical and environmental assets that define the city's character (COB, 2012)." The primary focus from the BDPA's plan is the connection between Old Town and the new waterfront via a pedestrian plaza, referred to as the Army Street Plaza.

Identification of Issues and Opportunities

In order to create a seamless corridor edge it was important to identify the strengths and weaknesses of the site. These problems were a lack of connectivity due to a bluff, lack of character and identity due to underdeveloped character of the site, lack of pedestrian focus and train tracks that divide the waterfront from the CBD. At first these issues seemed hard to mitigate because they represent physical and physiological barriers to the future development of the waterfront and downtown. The corridor edge plan utilizes these development challenges as unique and innovative design features. The plan uses the difference in elevation to its advantage, creating a pedestrian crossing above the train, the ability to build up without impairing existing views, and a protective barrier for residents by mitigating noise pollution from the train.

In addition to the issues of connectivity, the corridor edge has an issue of blight. The edge consists mostly of rundown buildings in disrepair, with many buildings uninhabited or being used as housing for the transient population. Psychologically this creates a barrier to pedestrians due to fear and a feeling of a lack of safety from the inactivity in the area. A hard-soft analysis was completed for the site to identify which of these buildings had characteristics or uses that rendered them important to retain. The analysis showed that most industrial buildings were in such disrepair that the cost to renovate them would outweigh the benefits of new construction. The buildings that were retained were new construction, important residential or culturally significant structures or city utilities.

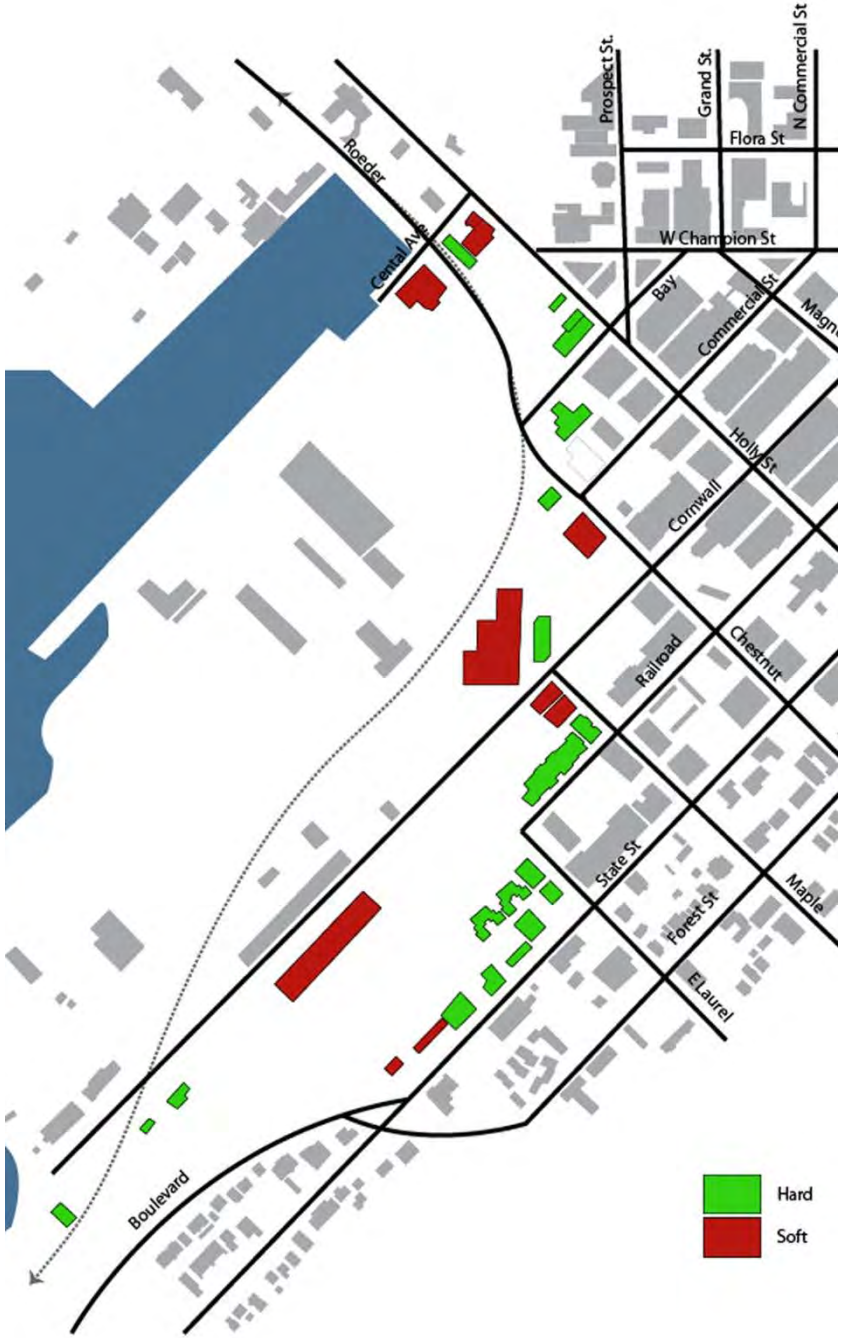


Figure1.1. 3: Hard soft analysis on corridor edge showed keeping all residential and most of the commercial/industrial.

1.1.1 Main Objective and Core Design Principles

Main Objective

The main objective of the study is to establish destinations and incorporate place making into the corridor edge. The reasoning behind this is to provide each district within the corridor with an identity that promotes the diverse socio-cultural heritage of the area it encompasses. For example, the industrial arts district is located around the Puget Sound Energy building. This creates a culturally significant area that is a destination and reflects its unique industrial heritage while providing for economic growth. This idea will be expanded in the districts section below.

Place making occurs by including uses in the districts that exemplify the function of that district. For example, in the residential districts supplying amenities for the newly added medium density residential uses like a daycare and stroller friendly park are important to include.

In order to establish destinations it was necessary to include features that neither the waterfront plan nor the CBD included. One of these destinations is the Railway Park, an elevated park above the train tracks. Another significant area is lower Cornwall Avenue; it should be adapted to higher-end uses, like a restaurant district, boutiques, and an industrial/modern art style concert hall.

Design Principles

In order to obtain the main objective, it was integral to use a set of design principles that helped guide the planning process. These principles were identified as follows:

Pedestrian Accessibility and Spaces
Pedestrian space is a design principle that allows for safe and direct routes for pedestrians. By increasing the amount of space designated to pedestrians it makes it possible for them to reach all destinations within the corridor in a short amount of time on a comfortable path. Efficient use of space is not the only determining factor in designing these spaces; it is also important to have aesthetically pleasing features. This is shown in the design of the pocket parks which have spaces for sitting, playing, picnicking and human interactions.

Maximize Human Interaction and Flow throughout Transition Corridor
This principle allows for increased human interactions through an increase in density. The more people using the area, the higher the likelihood of interaction among those people and the more integrated their actions will be in the community. Flow for these interactions is also necessary. Therefore, pedestrian flow should be considered when constructing new buildings in the corridor.

Incorporate Elevation via Bluff into Form and Function
By using the elevation difference as an advantage, parking garages and overpasses allow for seamless pedestrian and auto connections without having at grade railroad crossings. This also dissuades from undesirable view restrictions on existing structures.

Promote for Ecology when Possible and Environmental Health
This principle allows for using the most desirable environmental practices when possible. It also helps to outline desirable building alternatives and incorporates the reuse of material from the demolition of older buildings.

Land Use

The success of continual revitalization of downtown Bellingham and the waterfront is contingent on increased residential density in the site and surrounding areas. Bellingham is continuing to grow, and with that expansion it is necessary to create homes for the increased inhabitants. Infill development, adaptive reuse, and new construction were necessary components to increase commercial, residential, and office space.

The first changes to land use are through adaptive reuse. Having identified the Granary as a historical landmark of some significance to Bellingham, the building should be salvaged and updated. The structural integrity of most industrial buildings made it impossible to salvage cost effectively. Keeping the Granary reflects the importance of maintaining historical and architecturally valued buildings in the Bellingham community.

A second type of added land use is through infill development, especially around the core of the CBD. Currently, there is no path connecting Old Town through downtown towards WW, instead there are an abundance of vacant parking lots, vacant buildings, and many uncomfortable vacant places. Infill development should be constructed on empty or underutilized space between buildings. Businesses and offices with high densities have been proposed in order to promote revenue opportunities. In general these were next to existing

buildings, although new offices could be built directly below the bluff to start connecting the waterfront to a central location. This increase in commercial and office is necessary for the revitalization of the downtown because it creates the tax base to support investment of future progressive growth. Furthermore, the infill incorporates residential and commercial into one building to allow the increased population densities to fuel businesses. It is crucial for the people who want to live in downtown to have access to essential services. When an abundance of people live in the downtown it creates the base for other to follow suit, providing a presence that is vital to the economy. To further accommodate residential expansion there is the proposed addition of 'high-rise' type buildings near the Market Depot and Army Street Plaza that provide a previously lacking form of housing. Additions of public and civic space were designed as pocket parks in-between buildings and through the designation of plazas. This increased density of uses creates a prosperous commerce, preserves and creates green space, and re-stitches the fabric of the heart of downtown connection the water.

Lastly, an abundance of new development has been proposed within the corridor since industrial uses dominated the waterfront previously, there are very few buildings along the corridor and Cornwall Beach. Development here only has to work around the bluff and wetlands, but otherwise is an opportunity begging to be transformed into the missing district piece of the downtown/ waterfront puzzle. An overarching feature of the study is the attempt to create a linear walking path along the corridor, which led to the decision to keep Wharf Street using it as a main connector. The designation of a new district, called the Industrial Arts district, hinges on commercial and civic uses being brought down along Cornwall. Designs for a theater and higher-end entertainment give the district an identifiable character that meshes well with the new PSE glass encasing and art structures along the walking path. As aforementioned as a necessity, this proposal for creation of revenue is only possible if residential additions are complementary. Utilizing land along the bluff for family residential units in the form of townhouses provides housing and completes the smooth transition from the family to the arts and culture district.

Should the proposed additions to the Corridor edge be completed, it will turn the edge into a vibrant mixed use community what remains after the demolition of most of the old buildings, and the inactivity the rest is a scattered and inefficient use of space. The addition of new residential, commercial, open space, office and entertainment opportunities provides for the resurrection of an underutilized area.

Figure Grounds

Figure 1.1.4: Existing Figure Ground

Figure 1.1.5 Proposed Figure Ground

Existing and Proposed Land Use Map with Expanded Key

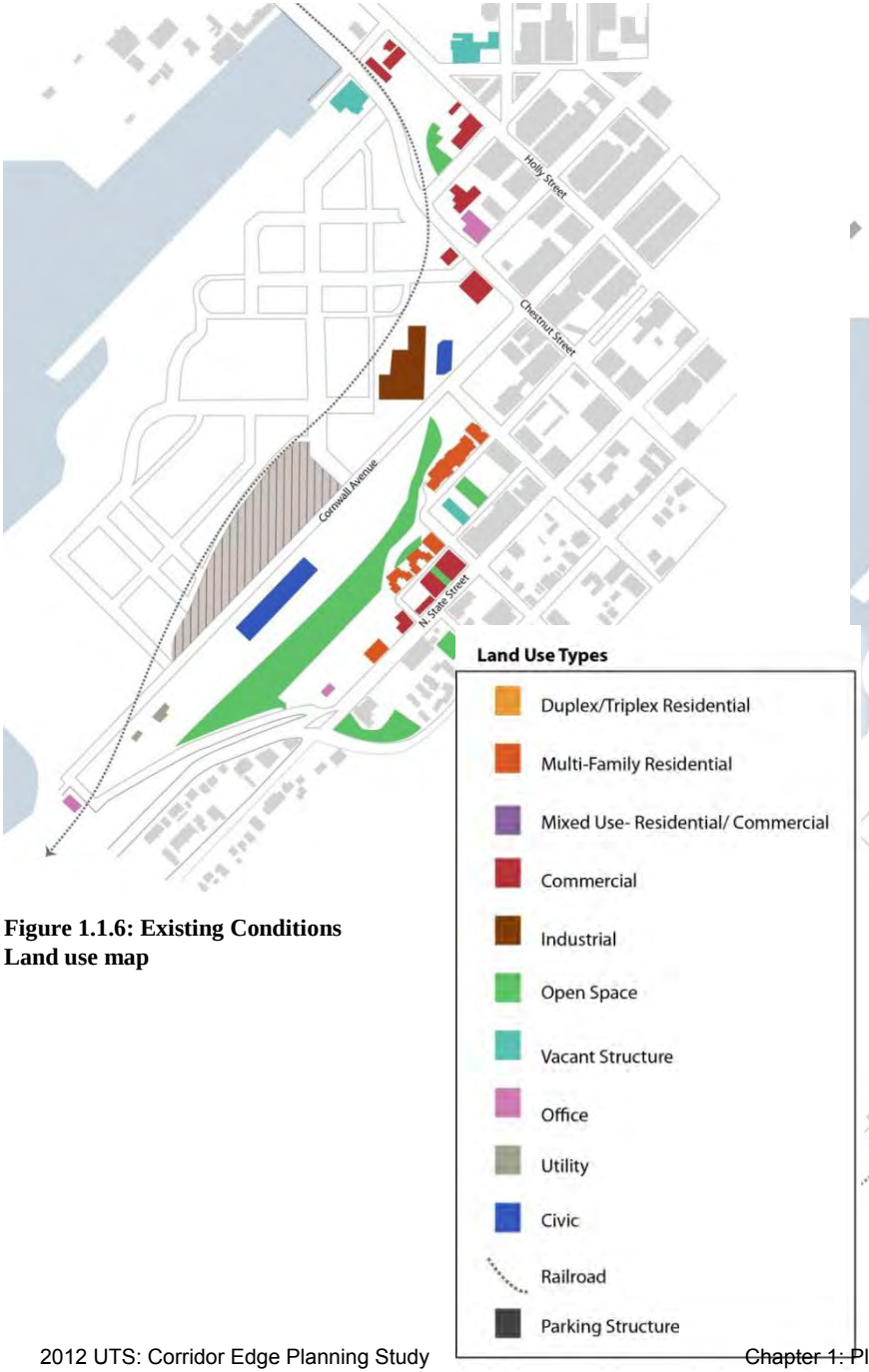


Figure 1.1.6: Existing Conditions Land use map

Figure 1.1.7: Proposed land use Distribution map

Land Use Matrix

	Existing (ft^2)	Proposed (ft^2)	New Total (ft^2)
Commercial	93,600	552,300	645,900
Residential	123,00	544,700	667,700
Residential Units (Approx.)	120 Units	545 Units	665 Units
Industrial	12,500	0	12,500
Office	15,500	248,955	264,400
Utility	5,100	0	5,100
Civic	70,760	-47,900	22,860
Vacant Building	51,300	-51,300	0

Table 1: Distribution of land uses and totals

1.1.2 Establish Destinations and Place-Making

In order for the study area to function as a fluid transition zone from downtown to the waterfront it needs to act both as an intersection and a destination. This can be achieved by establishing districts within the CBD and by identifying points of reference within the districts as landmarks. Working in conjunction, these designations serve to highlight smaller common identifying factors within the site. The desire is to connect the existing neighborhoods, to future neighborhoods so that the overall feel is fluid but the destinations within the site are unique.

Districts

In order to better establish distinct and significant areas, important buildings and existing uses became anchors. These were established as a base to design for similar uses that will support the existing uses in the area. This is most apparent in the industrial arts sub-district, which allows for the artistic use of the Puget Sound Energy Building as an anchor for a modernized industrial area that feels welcome to pedestrians and incorporates uses besides industrial.

Old Town

The existing Old Town district melds into the corridor edge with the addition of new mixed use office structures and high-rise residential. This space was ideal for office because of its proximity to existing offices and the civic center in downtown. This was also ideal for high-rise apartments taking advantage of the elevation difference in this spot. From Chestnut-Roeder Street the high-rise apartments look to be apartments of four stories, but are in fact eight stories with four stories hidden blow grade behind the bluff. The addition of the Army Street Plaza, as proposed by BPDA, anchors the transition between the Old Town district and the new waterfront development.

Hank and Ida Matthews

Hank and Ida are active in their retirement and enjoy exercising together in the outdoors. They would enjoy walking on a pathway that leads to a lovely park with benches for

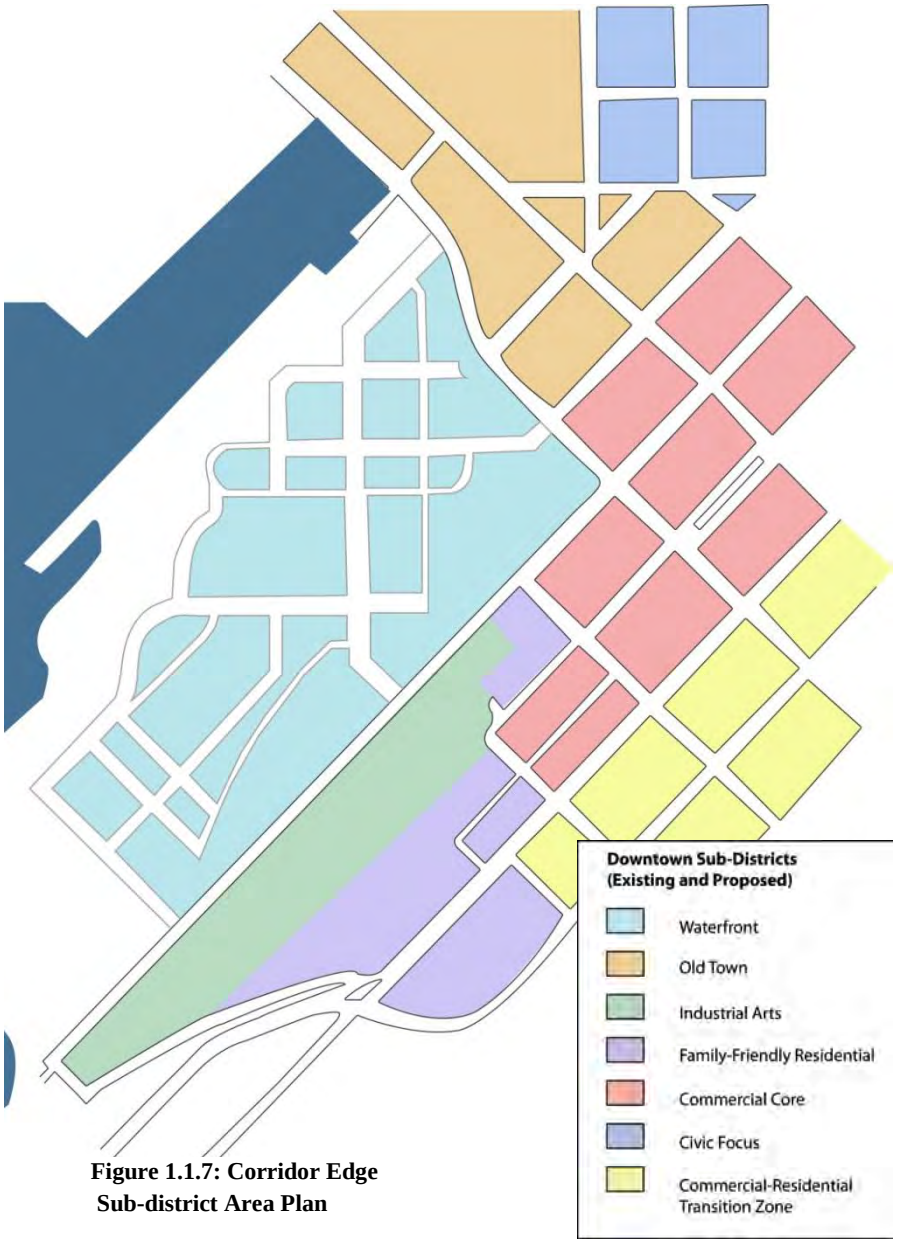


Figure 1.1.7: Corridor Edge Sub-district Area Plan

them to rest after their tiring workout. They would most likely like to live in the apartments near the Army Street Plaza. This would provide them with proximity to the new waterfront and plenty of opportunities for walking. Draws for Hank and Ida are pedestrian spaces, walks to arts and services and entertainment.

Commercial Core

The commercial core in downtown is the densest existing area in the CBD. Due to this, it is also the densest area in the corridor edge. This area holds immense potential for infill because of the high land value. Proposed for this area is an increased amount of commercial mixed use buildings, with high-rise residential on top. Unique to this area is a pedestrian plaza which serves as a center for the whole development. The change in elevation between the waterfront and CBD in this location is the least severe allowing for a unique pedestrian bridge crossing into a parking garage that is at grade on the waterfront.

Hazel Edwards

Hazel is a Bellingham local who has lived here her whole life. She owns a jewelry making businesses and sells her jewelry weekly at the farmers market. She wants to live in a community that is walkable because she would like to not own a car. The ideal location for Hazel to live in in one of the mixed use residential buildings that is in the core. This would allow her to be close to the Co-op and farmers market, her two places of interest.

Family Friendly Residential

This new district was created to allow for the expansion of family style residential homes in the area. Currently the primary demographics of the downtown area cater to single or double occupancy homes that are occupied by a younger demographic. Row-style homes have been added in an undeveloped area, allowing for a new space to be created for families.

The Anderson Family

Luu and Bill Anderson are married and have two kids, Aiden and Emily. The Anderson family moved to Bellingham from Mount Vernon because Bill has gotten a job with the City of Bellingham. They would like to live close to downtown but not within the downtown. The new row-house condominiums proposed off of Wharf Street would be perfect for this family, because is it in the residential district. The amenities of this district provide a day care, parks and playgrounds as well as a walking path that leads directly to downtown.

Industrial Arts District

The Industrial Art's District is a distinctive feature of the Corridor Edge Plan. It incorporates the existing industrial feel of the area with modern architecture and artistic, high-end uses. It has merged the industrial PSE building with new architecture that is groundbreaking and modern. The buildings themselves will be a draw to this area as well as the uses within them. Proposed uses will increase traffic in the area at a variety of times, making it a vibrant space both during the day and at night.

Liam and Michelle

Liam and Michelle met while attending Western Washington University in 2006; they continued dating after graduation and are now engaged. They like the funky atmosphere of Bellingham and have chosen to live here permanently. She is a waitress at a local restaurant and he is starting his own web design business. They love living in a place that is so well connected and has so many amenities near-by.

Points of Interest

Sculpture walk

Three questions have arisen in attempting to establish the transition corridor; how to connect existing and proposed districts along the bluff, how to incorporate Bellingham's heavy industry history into the design, and how to create destinations along the corridor. An 'industrial art' walking path is being encouraged because it addresses each of these issues. The path, a loop going up from Cornwall Beach through downtown and back down at the Army Street Plaza, highlights large art and sculpture installations as well as parks, cultural buildings, and other enticing features of Bellingham. Larger permanent installations placed within sightlines create landmarks whereas smaller rotating installations may incorporate themes such as history of Pacific Northwest, environmental education, or other values of Bellingham citizens. Not only does this benefit the strong arts community of Bellingham by providing a gallery for outdoor art, but it ensures that everywhere along the path is a unique destination drawing people in.

Moreover, a solution to make the current waterfront a destination for the path is encasing PSE and surrounding buildings in glass turning the entire site into an industrial art piece. This aesthetic adaption of large-scale buildings can be done elsewhere on the waterfront and ensures that necessary utilities contribute to the pedestrian atmosphere and enhance the area.

Industrial Area

The industrial area is a district that will be compromised of a combination of the left over industrial buildings and modern artistic architecture. It functions as a fun and vibrant community during the day, while also maintains presences at night. Proposed used for this area are a restaurant district, a concert hall, huge buildings that act as art, as well as high-end clubs and music venues. The concert hall should be grandiose in stature, standing high and compromised of recycled metals and wood from the teardown of other structures. Much like the Experience Music Project building in Downtown Seattle, it will function as the main building in the district, helping to promote an artistic and innovative culture where the buildings are as much of an attraction as what inhabits them.

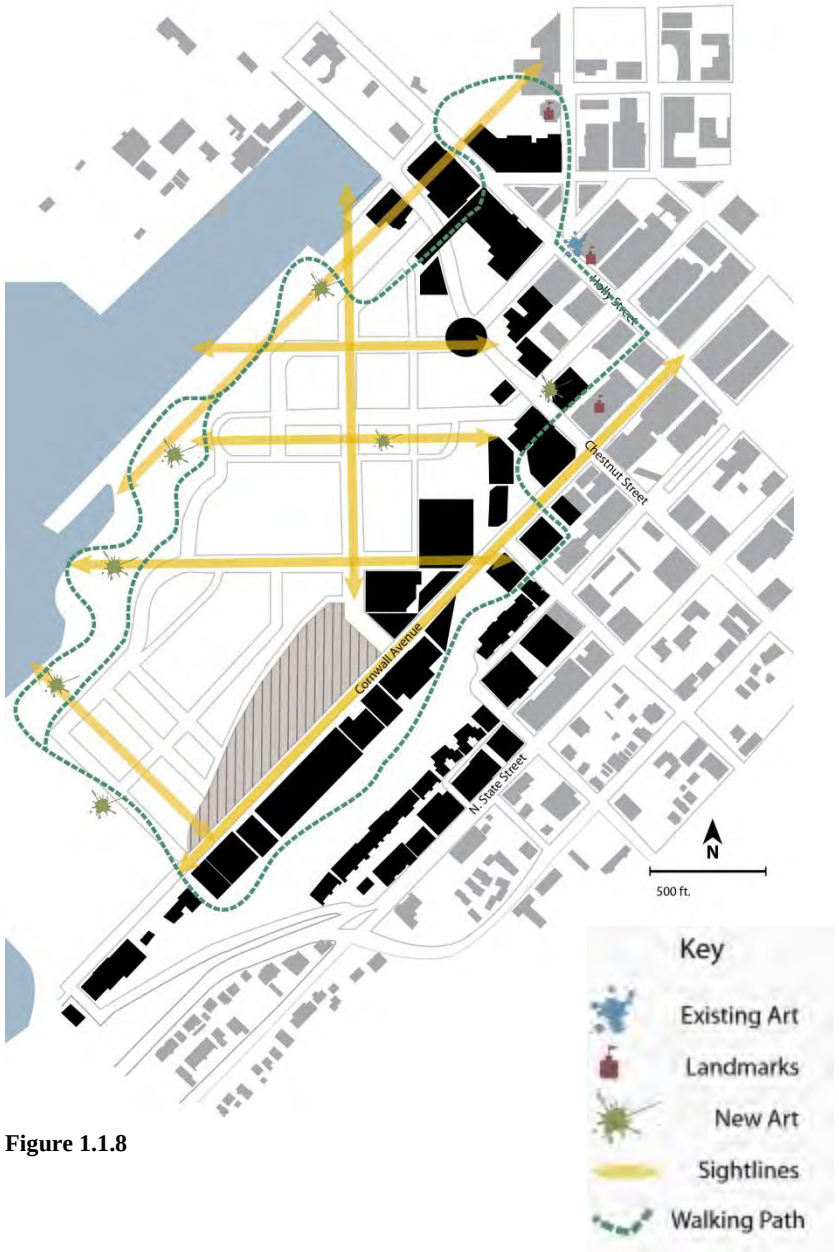


Figure 1.1.8

1.1.3 Pedestrian Accessibility and Pedestrian Spaces

Pedestrian accessibility was addressed throughout the entire study as a main issue. It was identified that the city of Bellingham relies too frequently on automobile transportation, and in order to promote many of the other core principles and increase pedestrian activity, dedicating more resources and space seemed necessary. With the bluff a huge complication, it became important to connect pedestrians through the corridor in spaces that were made solely for pedestrians. What is meant by this statement is that although connectivity had been addressed for roads, which will be talked about in the next section, pedestrians needed a place to cross and walk safely out of the car realm. The following are solutions for pedestrian connectivity in addition to sidewalks and roadway connectivity.

Pedestrian Trail

A pedestrian and bike path from Boulevard park currently exists and connects Boulevard Park to downtown Bellingham behind State Street. The proposed addition to this pathway (see Figure 5) would connect the current Boulevard Path to a new addition that would branch off of Wharf Street and pass a new walkable town house development that has been created. This path would then connect to the top to the new rail bridge, described later. It would increase the flow of new resident and old resident traffic down towards the waterfront and make an easy, safe connection where there was not one before. Although Wharf Street has existed, it is not a safe pedestrian realm, and with the increase of proposed waterfront uses, a safer way down to the waterfront will be necessary. This trail will then continue into a pedestrian town square that has been created near the Opportunity Council as a primary focus for the new corridor development. The pathway can then either be taken through the square or down through the parking garage, (described in detail in the parking garage sections) from the square towards the waterfront. From this point pedestrians can also continue as they normally would through the well-connected downtown.

Figure 1.1.9: Proposed Pedestrian trail

Rail Bridge

Figure 1.1.10: First proposed rail bridge rendering, connecting to town houses: Most recent to follow

The rail bridge is an innovative solution to facilitate pedestrian access as well as to minimize noise and traffic conflicts posed by railroad operations. With the proposed expansion of the railway, pedestrian access to the waterfront could be compromised. No new grade level pedestrian crossings will be likely allowed, so the addition of a pedestrian route that crosses over the train tracks as seen in figure 1.1.10 is a preferred alternative, as getting pedestrians across the corridor and down to the waterfront could be very dangerous. The addition of a crossing that goes over the train seems to be the most feasible alternative.

Parking Garage Accessibility

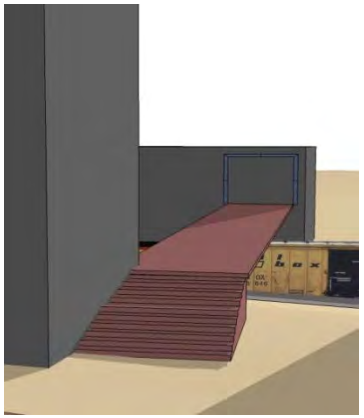


Figure 1.1.11: Pedestrian connection from square to garage

As mentioned earlier, proposed parking garages serve as a parking solution while also facilitating pedestrian movement between the waterfront and the CBD. These garages will be open and contain elevators and stairwells that can be accessed through the pedestrian domain and serve as connectors. Similar to downtown Seattle, where the waterfront and Pike Place Market are connected, this will connect Bellingham for pedestrians and cars alike. Figure 1.1.11 shows the connection from the pedestrian plaza over the train tracks and into the garage.

1.1.4 Maximize Interaction and Improve Flow Through Corridor

Maximize Human Interactions through Increased Density

The first step to maximize engagement within the development is to increase the amount of permanent residents and to vary the types of residents that currently inhabit the downtown. First and foremost, this means increasing the number of housing units, but also varying the types of units. The plan incorporates a diversity of housing units, including row housing units that provide single family home ownership choices in a moderately dense neighborhood. As housing density increases, it creates a demand for greater services. The new housing that has been included in the plan facilitates new high-rise residential buildings near the Old Town district and row houses near Wharf Street. The plan also provides for expanded commercial space in mixed use buildings that are centrally located in the core. Figure 1.1.12 shows the densest part of the new urban core, while Figure 1.1.13 shows the density of the area as a whole.

Figure 1.1.12: Detail view of Pedestrian Square

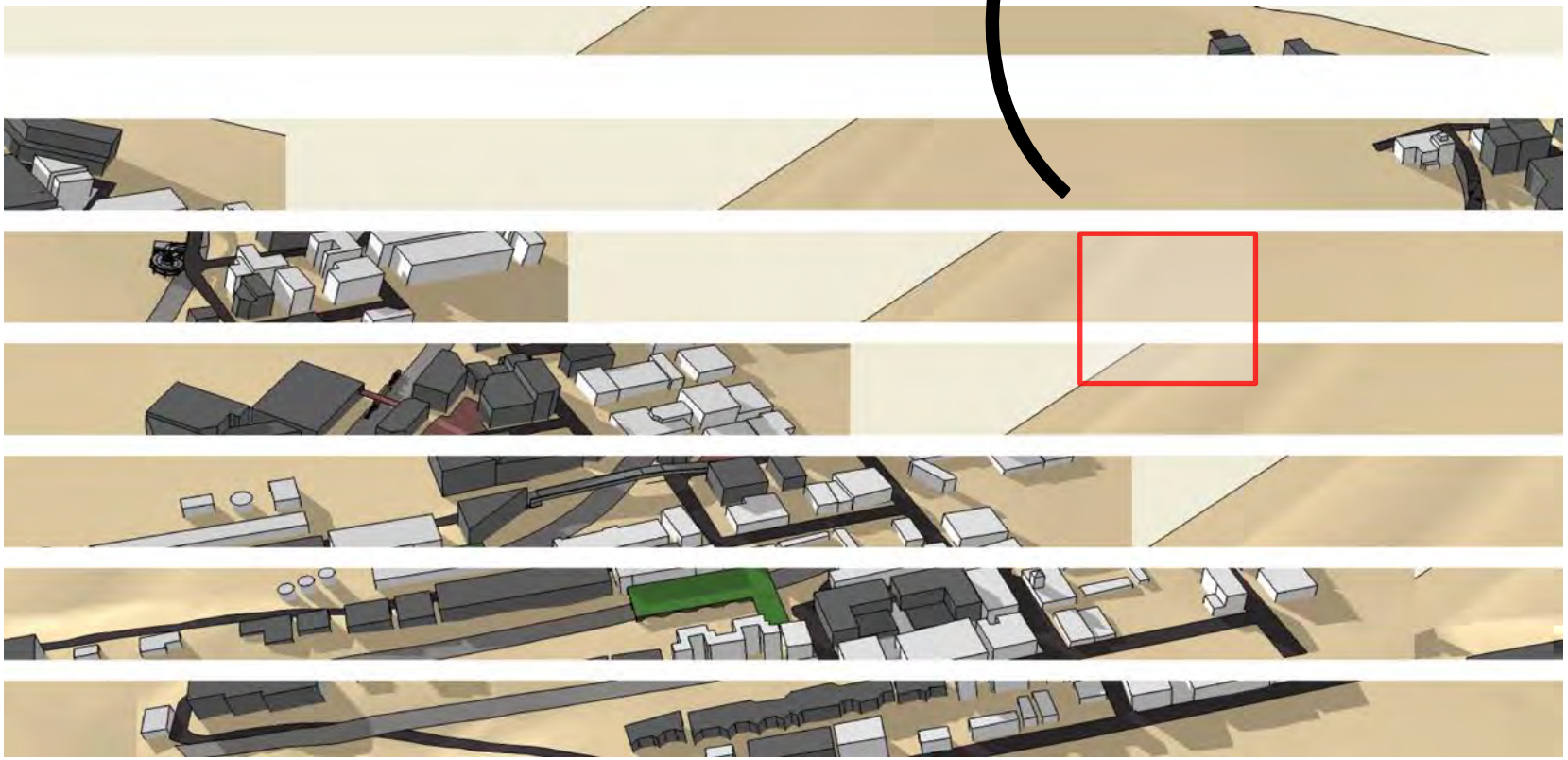


Figure 1.1.13: Massing Study Image Showing increased density

Improve Transportation Flow

Pedestrians

In order to better improve flow between the corridors the addition of some new structures is necessary. Pedestrian oriented flow was addressed in an earlier section, but automobile flow must be addressed as well. A parking garage added to the end of Bay Street will be used as a connector between the top and bottom of the bluff. It will be a swirl with a parking garage added to it, taking care of connectivity and parking issues. Laurel Street will be used as an at grade connector into the waterfront site through the south side while Granary Road will be expanded and moved as an intended main connector at the north side. At the very southern end of the site, Wharf Street will be maintained instead of torn down. With the addition of many new residents a street is needed in that exact location to better improve flow and connectivity. Maintaining Wharf Street provides residents that live on State Street the ability to be easily connected to the waterfront, thus promoting economic growth. This also allows for the newly added town homes to have both an automobile and pedestrian only connection.

Spatial Reference map

Figure 1.1.14: Pedestrian only trail in front of high end town homes

Pedestrians, Automobile's and Bicycles

In order to better provide for all types of transportation methods it was important to change existing roads structures. For example it is proposed that an expansion occurs on Cornwall Avenue allowing for the addition of bike lanes, tree buffers and an additional lane of street parking. This allows for the seamless transportation of all modes across the corridor.

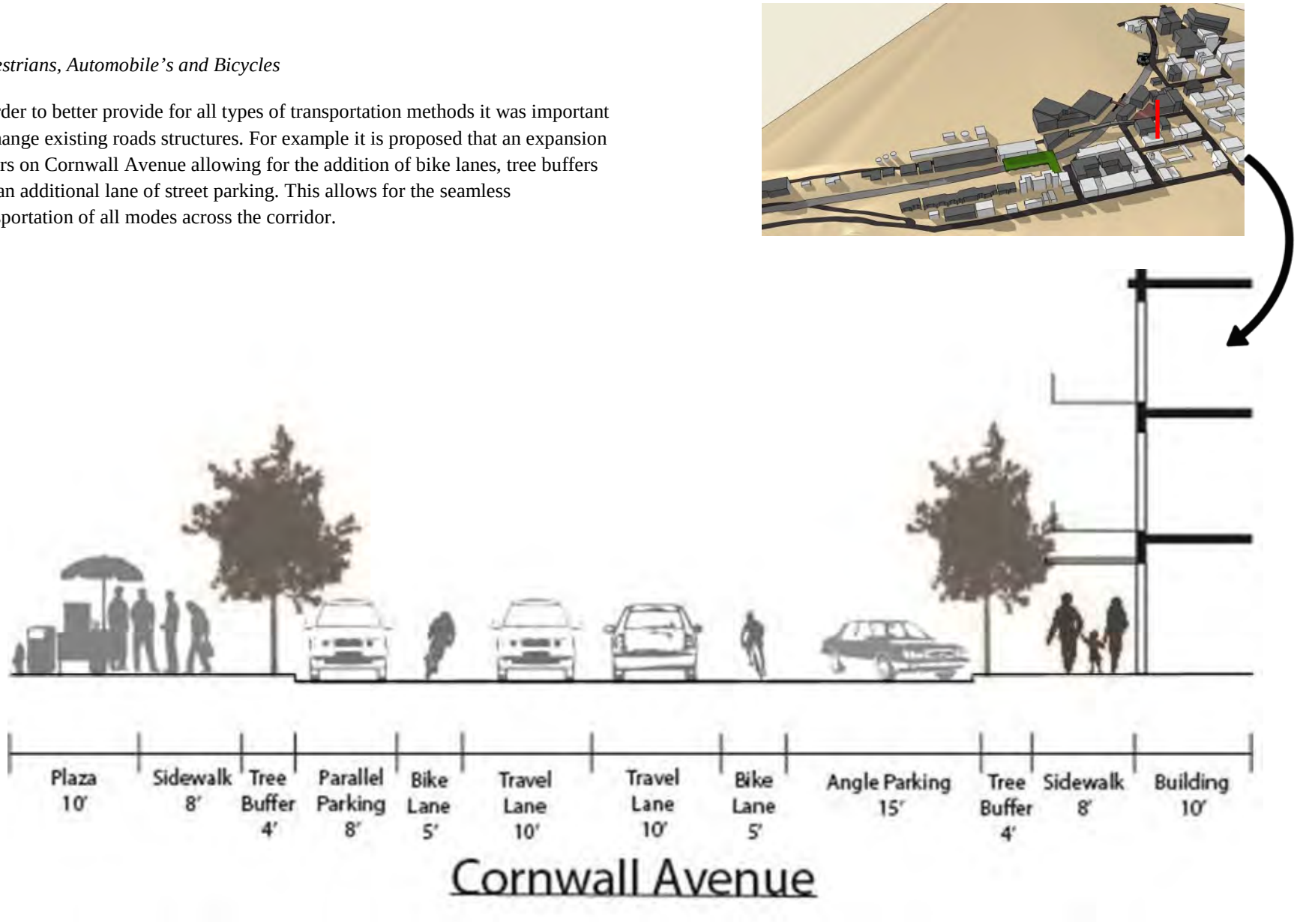


Figure 1.1.15 Cornwall Avenue street section

1.1.5 Incorporate Elevation into Form and Function

The bluff was identified in this study as a constraint. The approach that was taken addressing the bluff is to integrate its elevation as a unique urban design feature. The bluff allows for the height of new buildings built at the waterfront elevation to capitalize on height, promoting greater infill without degrading the view from downtown. This allows most residents to have an unobstructed ocean view. The unique elevation difference between downtown and the waterfront fosters the development of new design approaches.

The Army Street Plaza as proposed by the BPDA has been incorporated into the scope of the plan but has not been developed. This is to allow for the reservation of the space to be designed by the BPDA. The rise in elevation also made it possible to look at the possibility of crossing over the train tracks at a height of 25' without having to create bridges that connect over the train tracks that are an eyesore; this concept is referred to as the Rail Bridge, which is described below.

Rail Bridge

The Rail Bridge will span the train track from approximately where Wharf Street meets Cornwall Street to the Cornwall Street Bridge near the proposed public plaza. The aim of this space is both to mitigate the change in elevation from the top of the bluff to the waterfront and also to provide a pedestrian space in the northern area of the site. The Rail Bridge will serve as both a lateral access way from the north end to the middle "hub" of the site, and also as a vertical access from State Street to the future waterfront development. This can be seen in Figures 1.1.16 and 1.1.17 (on next page).

The park itself is built above the train track on a structure roughly thirty feet tall. This will accommodate the need of the trains to pass beneath. The structure is not a tunnel, as the tracks are open and visible by a series of arches, allowing access to the tracks and train when needed. Visitors can get to and from the park at a series of points that consist of ramps, stairs, and elevators, ensuring that this is a non-exclusionary system.

The structure itself also serves to buffer the sound from the trains. There are apartments along the top of the bluff, and the open tunnel hugging the bluff will damper the sound. Additionally, the walls of the structure will be a "living wall." This will both offer an aesthetic appeal to the community, an environmental benefit, and also further the goal of dealing with the noise pollution caused by the train tracks.

Visitors walking along the park itself will feel very safe and separate from the trains running beneath them, but connected to this prominent aspect of Bellingham at the same time. See figure 1.1.18 on next page. The concept of this park embraces the fact that the railroad is running through the city and uses the infrastructure as a way to mitigate another challenge that the site presented: elevation.

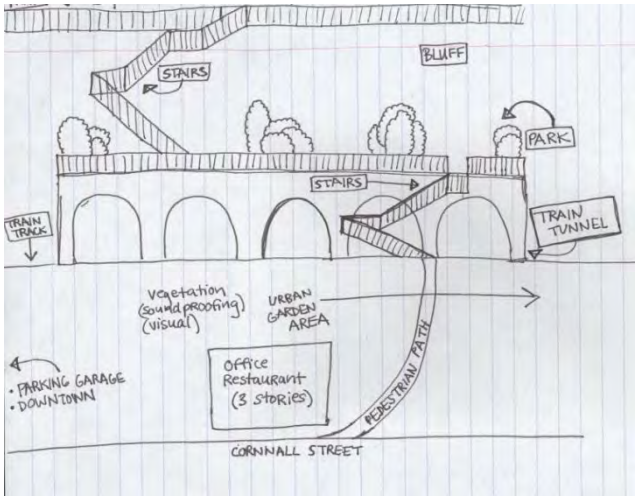
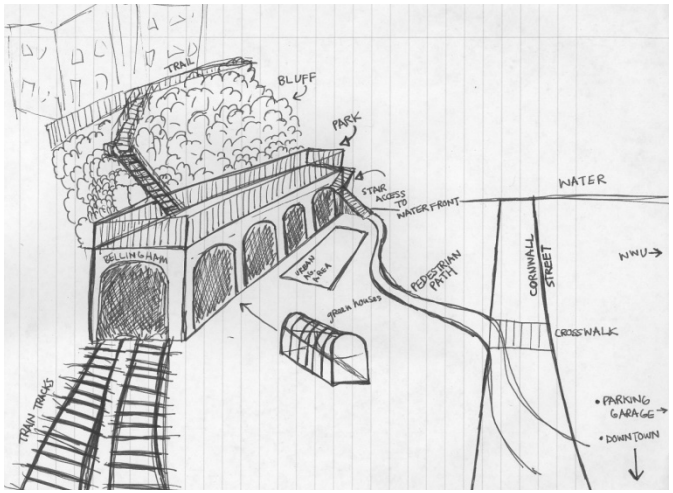
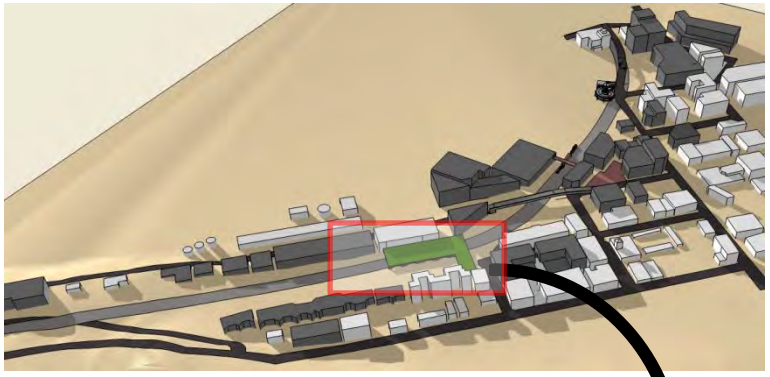


Figure 1.1.16 and 1.1.17: Detailed Sketch of Rail Bridge concept





Spatial Reference map

1.1.18: Rendering of the park on top of the railroad tracks shows the ambience of the park as well as connections to the townhomes and waterfront.

1.1.6 Advocate ecology and promote environmental health

Green Space via Pocket Parks

One of the popular trails existing near Bellingham's waterfront is the South Bay Trail. The trail extends from Boulevard Park to E. Maple Street. Adding a pocket park in the lot on the corner of E. Maple Street and Cornwall Avenue would extend the 'urban trail' and add green space to the downtown corridor. The proposed pocket park would be located between a four story building and a three story building. The main entrance to the park would be on Cornwall Avenue, across the street from the proposed pedestrian plaza.

Pedestrians may enter from Cornwall Avenue, or from an alley behind the park. The pocket park will include seating with moveable tables and chairs, as well as benches and a stage for small musical performances. This park, in addition to many other small pocket parks in the area, will create a network of parks for the public to enjoy with each person finding their own "favorite" park. This facilitates connectivity and fosters the emergence of new green space.

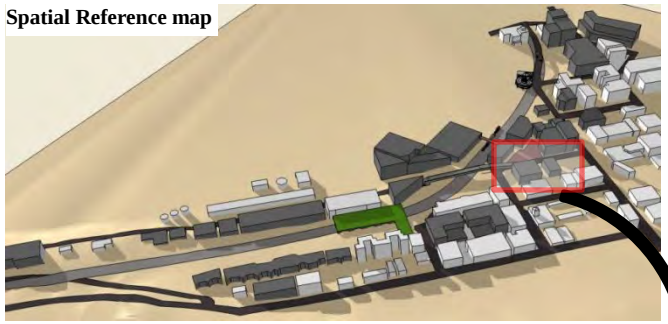


Figure 1.1.19: Rendered view of proposed pocket park

Building improvements: Green roofs & other storm water mitigation

Most new buildings in the corridor should implement building strategies that support local ecology goals. Following the U.S. Green Building Council's LEED standards is recommended for all future development as well as retrofits for all existing buildings. What this will entail is that buildings have green roofs, water catchment systems, and storm water mitigation devices in accordance with COB standards.

In order to reduce waste from the construction of new buildings, materials from the demolition of prior buildings should be recycled. This will allow for a closed system of resources when possible, providing an adequate amount of waste allocation resources.

1.1.7 References:

COB. City of Bellingham, Department of Planning and Community Development (2006). *City of Bellingham Comprehensive Plan*. Retrieved from website: http://www.cob.org/services/neighborhoods/community-planning/comprehensive-plan.aspx

COB. (2011). *Central business district neighborhood plan amendments*

COB. (2012). *Bellingham Public Development Authority*. Retrieved from City of Bellingham website: http://www.cob.org/cob/cal.nsf/Article/241C70179E980F0B88257958006DDAD8?OpenDocument

POB. Port Of Bellingham, Port of Bellingham (2011). *Waterfront Draft Sub-Area plan*. Retrieved from website: http://www.portofbellingham.com/index.aspx?nid=172

CHAPTER 1. DOWNTOWN TRANSITIONS

1.2 THE CORRIDOR DISTRICTS TRANSTION

Megan Boerner, Richard Bruno, Hayden Fairley, Emily Garin, Michael Stoothoff

Table of Contents

1. Introduction

Fig. 1.2.1 Vicinity Map

1.1Proposal for the Corridor Edge Plan

Bellingham has the rare opportunity to turn a relatively undeveloped waterfront into a vibrant and diverse district. The Port of Bellingham and the Bellingham Public Development Authority have engaged in this opportunity, by providing development plans. The City of Bellingham has also expressed interest in the proposed development along with concerns of how it will impact the downtown.

The purpose of this report is to provide a concept which will create a seamless transition between the existing development of downtown and the future development on the waterfront. Considering the plans of the previously noted organizations, the development of the Corridor Edge, is the area between downtown and the waterfront, and is essential to build a vibrant, connected and livable Bellingham.

1.2 Client Profiles

The development agencies have been working diligently for years in an attempt to propose the best redevelopment plan to serve the community in and near downtown and its waterfront. This report attempts to further bridge the gap between the individual agencies' plans and propose a solution to the dilemmas the city and its waterfront faces in its current state of underutilized property.

The Port of Bellingham is the property owner and is fully invested in the development and cleanup of the waterfront's 220 acres. The master plan proposed by the Port includes elements that will help bring a livable and economically stable community to the waterfront. The plan includes an emphasis on new parks, trails and accessibility to the bay for the public use. However this plan is not an immediate project, is projected to take over 50 years to complete. They are striving to create a thriving community by providing a development plan that will promote economic vitality through leadership and community outreach. Commercial and mixed use development will attract the public to the waterfront, therefore creating jobs and commerce for the Central Business District and surrounding neighborhoods.

The Bellingham Public Development Authority is an independent agency consisting of a Board of Directors made up of seven business and civic leaders that represent different areas including: finance, corporate management, real estate development, industrial development, law, technology, and construction management. Concerning these fields, the Board of Directors also focuses on achieving the focal point of the agency which is financial, social, and environmental concerns for the city. The Bellingham Public Development Authority focuses on how to build Bellingham's downtown in a way that protects the values of the city while providing economic sustainability. They want to take these considerations and use them in trying to rebuild the waterfront, downtown and old town in Bellingham. This agency works on a multitude of projects in the city. A major proposal from this agency is "Army Street Plaza" that will connect, Maritime Heritage Park and will build into the proposed waterfront plan.

The City of Bellingham's City Center Master Plan focuses on the downtown Central Business District of Bellingham which was initiated by city staff. The goals and the objectives of the plan identified by the city were created to address economic development, downtown revitalization and housing affordability. Their main concern is the possibility of the new waterfront development taking commerce away from the existing downtown. This report addresses this concern, and works with the city to make sure that the downtown will stay economically prosperous. The city is also dedicated to providing high-quality alternative modes of transportation while reducing the need for the personal automobile.

1.3 Relationship to Washington State Growth Management Act[1]

This project seeks to further the development practices, policies and regulations under the Washington State Growth Management Act. In 1990, the Legislature of Washington State found that "uncoordinated and unplanned growth, together with a lack of common goals… pose a threat to the environment, sustainable economic development, and the health, safety, and high quality of life enjoyed by residents of this state"[1].

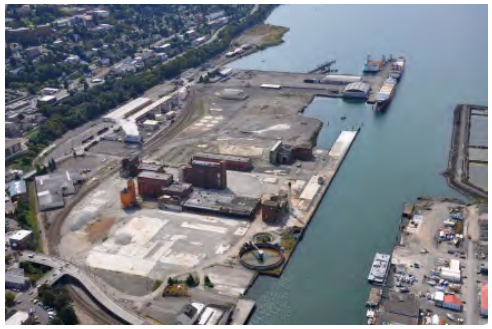


Fig. 1.2.2 Bellingham Current Waterfront

Understanding and promoting the goals of the Growth Management Act within this project will allow the Bellingham region to thrive both socially and economically in the future as the population increases. The Growth Management Act's main objectives include promoting urban growth, reducing sprawl, and providing efficient and alternative transportation. Stemming from these goals, this proposal looks to provide affordable housing, encourage sustainable development, retain open space, provide adequate services to the community, and protect natural areas.

1.4 Study Area

Overall, this study area is long and narrow starting at the crossing of Holly Street and Central Avenue, following the bluff as it curves south to Cornwall Avenue and Pine Street. This area outlines the edge of the current downtown and is known as the Corridor Edge.

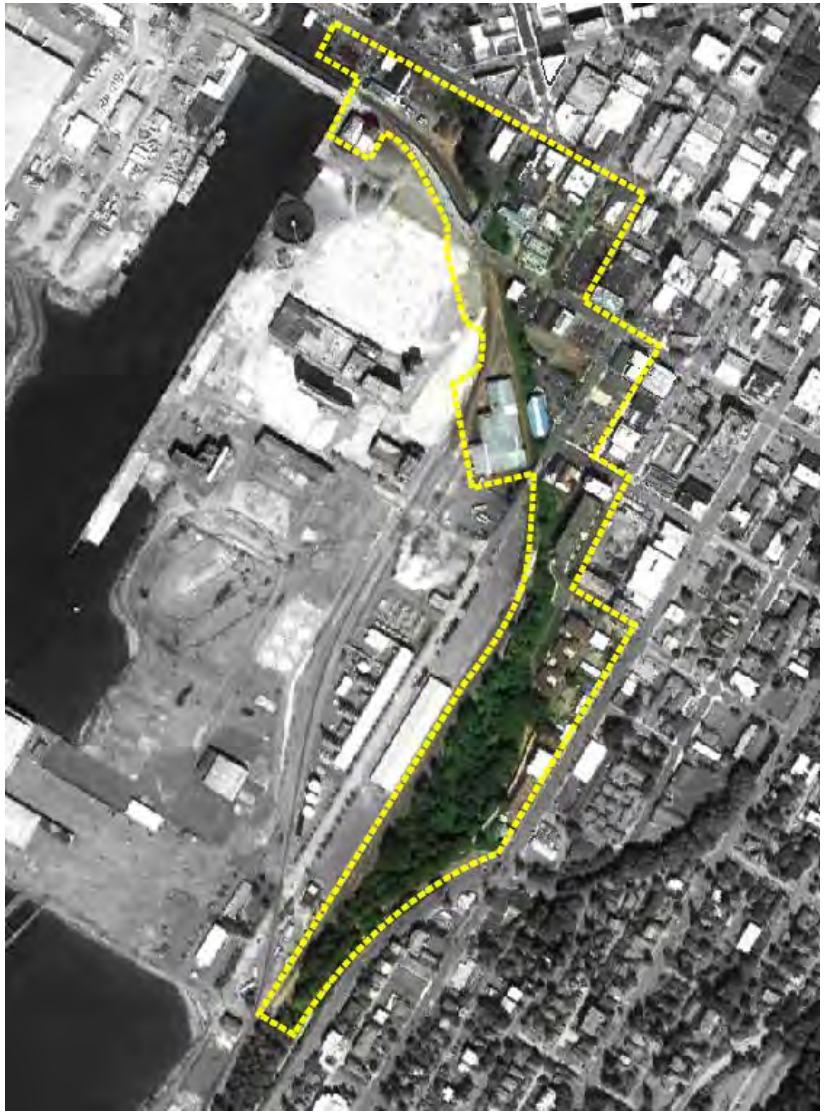


Fig. 1.2.3 Study Area

[1]Growth Management Act- retrieved from http://www.commerce.wa.gov/_cted/documents/id_892_publications.pdf

Building Analysis

A large number of existing buildings are not compatible with the proposed project. Many are low density and are counterproductive to encouraging a dense, urban environment. Infill of the site is necessary to create a continuous street scape and to support the desire of higher densities. A Hard/Soft Analysis was completed to determine which structures would be included in this proposal, seen below in blue, and which structures would be removed or altered, as seen in orange (Fig 1.2.4.)

Fig. 1.2.4 Hard-Soft Analysis

Historic Preservation

It is important to preserve elements of Bellingham's history related to the waterfront and its regional economic roots. The history behind the Granary Building is rich and exciting; with nuances of what a Whatcom County farmers markets was like in the early 20th century. As the building aged, the history behind it faded, leaving a large, empty building. This proposal aims to keep the Granary Building, but have it adapted for productive use.

Fig. 1.2.5 Historic Granary Building

1.5 Study Area Complications

There are multiple challenges posed within the study area, both physically and psychologically. These challenges have been confronted and mitigated within this Corridor Edge plan to create a seamless transition between downtown and the waterfront.

Fig. 1.2.6 The Bluff from Cornwall Ave.

The Bluff

There is a significant grade difference between Bellingham's Central Business District and the waterfront site. This presents multiple challenges for physical connectivity into the waterfront for pedestrians, cyclists and automobiles.

The Railroad

The Burlington Northern Santé Fe Railroad runs directly along the corridor edge, creating a physical barrier between downtown and the waterfront. This further complicates connectivity for redevelopment because in order to transition into the waterfront new railroad crossings must be established.

Fig. 1.2.7 Railroad View

The Chestnut-Roeder Bridge

This elevated roadway is another potential divider of the study area as it prevents connectivity. Currently, the roadway is not pedestrian friendly, as there are no crossings on or off the street other than its ends

Fig. 1.2.8 Chestnut-Roeder Bridge

1.6 Perspective Resident Profiles

Demographic studies were done of downtown and its fringe neighborhoods. This report responds to the needs of future residents that fit the profiles found in the research. The needs of these individuals are expressed below:

Student

Beth is a 19 year old college student transferring to Western Washington University in the fall. She does not own a vehicle and has expressed the need for strong alternative transportation options. As a student she desires an affordable, but comfortable apartment close to activities like shopping, dining, and recreation. A sense of safety in the community is also important to her.

Young Family

Sarah and Ricky are originally from Santa Cruz, California currently living in Seattle and have expressed interest in residing in a smaller community with a condensed downtown core such as Bellingham. With two small children they require the amenities of shopping they can walk to and outdoor spaces in which they can socialize with others. A close by daycare and

elementary school are essential. Convenient accessible transportation is also necessary. Having small children, they want to feel as though the streets are pedestrian-friendly and safe, without the consistent annoyances of automobiles.

Professional
Alexander is a 34 year old professional working for an emerging software company in downtown Everett. This company has interests in establishing offices in smaller cities. Alexander enjoys living in a dense urban neighborhood. He enjoys the outdoor recreation opportunities the area has to offer. He does not own a car, by choice, and, being an avid cyclist, and he would enjoy being able to commute to his job and other activities by bicycle.

Elderly
Jackie is in her late sixties, and visiting Bellingham from Shelton, Washington. She is a massage therapist and an avid theater-goer. When asked what she would want to have access to in order to live in a downtown setting, she replied that affordable and spacious living options were a must, as well as the opportunity to enjoy the arts. Jackie also stressed a desire for a walkable environment, with easy access to activities and services

2. Corridor Edge Plan

2.1 Vision

The vision of this proposal is to create a continuous transition between downtown Bellingham and the future waterfront development which will maintain Bellingham's character, livability and economic vitality.

Goals

The purpose of these goals are to serve the needs of the community of Bellingham now and into the future.

1. Provide the means for a diverse community by offering many types of employment, residence and recreation in a densely populated urban environment.
2. Reduce personal vehicle reliance by creating a connected bicycle and pedestrian infrastructure, which promotes the citizens' needs on a human-scale.
3. Creating a coherent plan which merges the goals of multiple stakeholders.

2.2 The Sub-Districts

The study area is defined by three, distinct sub-districts and is an essential element to the overall development plan. Each sub-district provides specific amenities which support the needs of the larger districts of which they are a part. Existing areas such as the Arts District, the Sehome Neighborhood, the Central Business District, and Old Town were influential in defining each of the following three sub-districts.

Fig. 1.2.9 Influences Map

Total Land Use	Feet^2
Commercial	663,791
Office	613,877
Institutional	29,442
Parks	105,300
Plazas	48,098
Parking	133,552
Residential	1,658,504

Table 1.2.1

Total Dwelling Units
1,311

Table 1.2.2

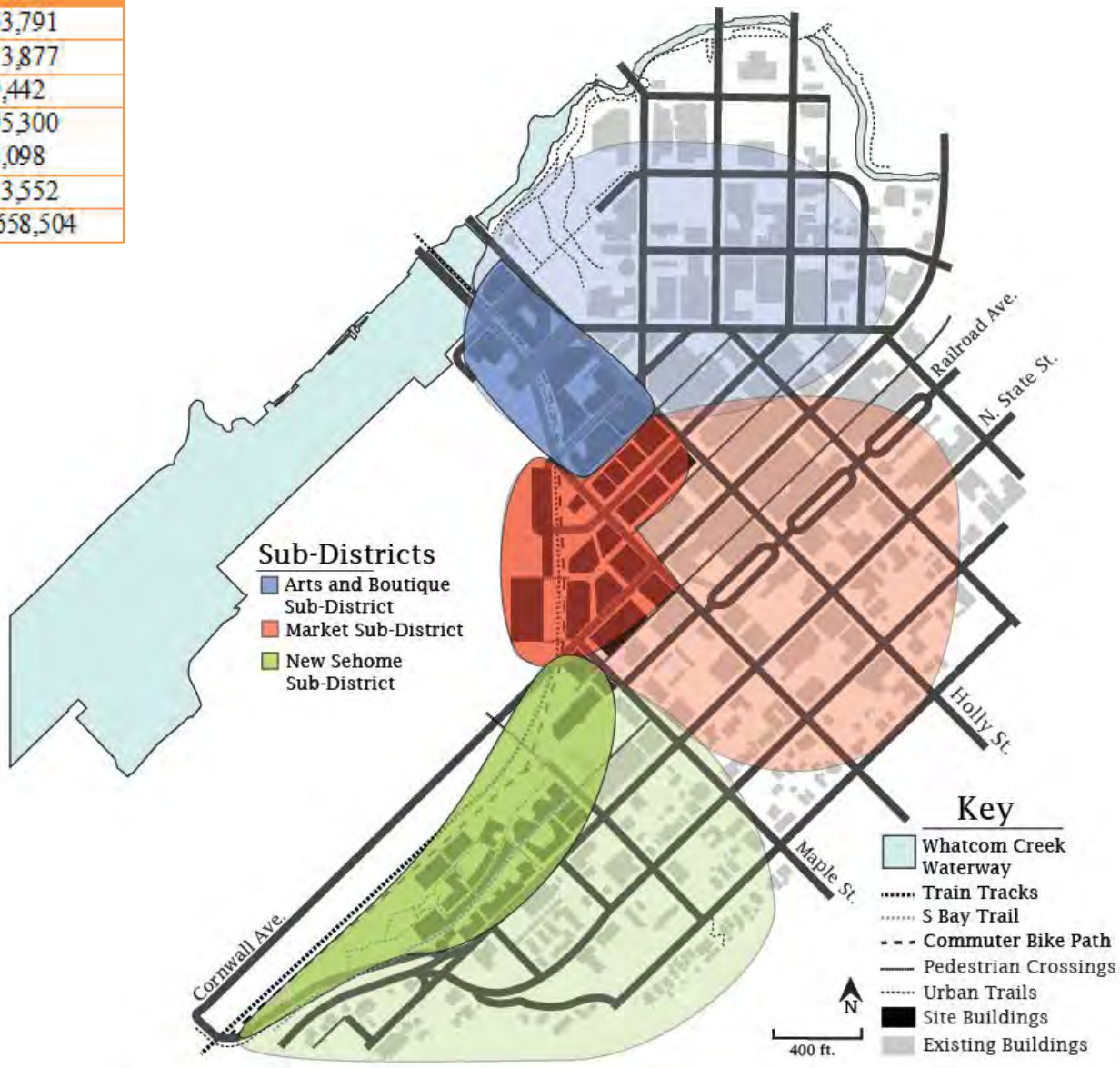


Fig. 1.2.10 Large Sub-District Map

Arts and Boutique Sub-District

Attracting commerce is essential to a vibrant urban environment. The Corridor Edge plan recognizes the need to maximize the inward flow of capital and create a lively community. This district was purposefully placed in the northern area (Fig.1.2.11) of the site due to its proximity to the established Arts District.

The focus of this district is on small local businesses, which will further foster Bellingham's existing Arts District. Established restaurants and businesses in the commercial core will thrive due to the increase in residential density. Future development will also benefit from the proximity of the Army Street Plaza which bridges the gap between existing development and the waterfront.

Army Street Plaza

Implemented in this district is the Army Street Plaza, a concept developed by the Bellingham Public Development Authority. This plaza is lined with mixed-use buildings, which include boutiques and small commercial shops at plaza level. The Army Street Plaza spans the train tracks and provides open public space, (Fig.1.2.12) creating safe pedestrian crossing to the waterfront area. Multiple stories of apartments bring density, as well as diversity, to this sub-district.

Arts and Boutiques Sub- District	Feet²
Offices	412,539
Commercial	224,463
Residential	150,230
Plaza	38,409

Table 1.2.3 Land Uses

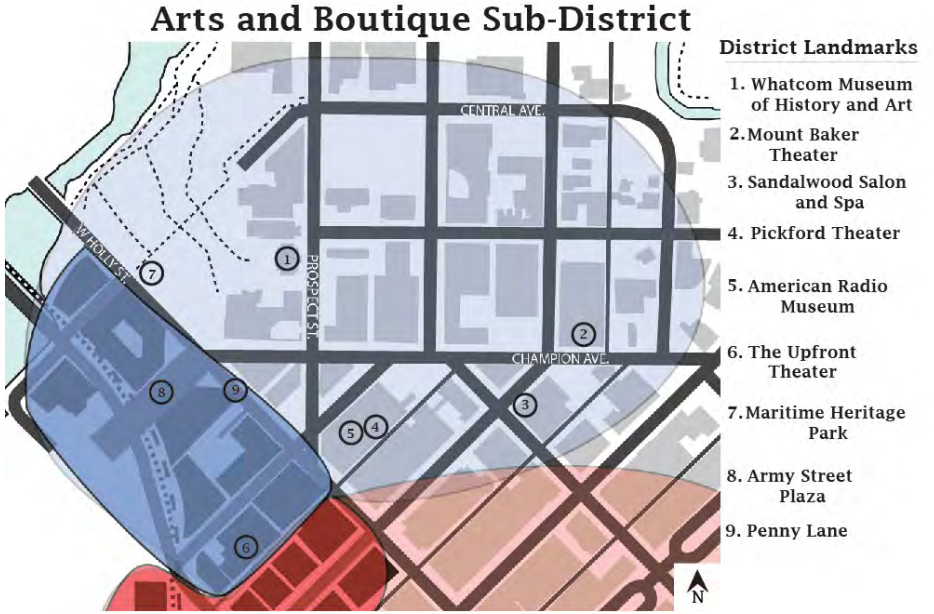


Fig. 1.2.11 Arts and Boutique Sub-District Landmark Map

Fig. 1.2.12 Army Street Plaza (looking south)

Housing

Mixed-use buildings, which line and enclose the Army Street Plaza, provide dense housing which is oriented take advantage of natural daylight and beautiful views of Bellingham Bay. This area is designed to attract young professionals who enjoy the social scene an urban environment and arts district can provide. Therefore, there is a high-supply of artist lofts and studios in this district.

Housing	Units	Size of Unit(feet^2)
Lofts	64	1000
Studios	66	400-600
2-bedroom Apartments	39	900-1200
3-bedroom Apartments	13	1100-1400
Total	182	

Table 1.2.4 Housing Table

Market Sub-District

This area is defined by a compact, pedestrian focused shopping area for an intimate shopping experience (Fig.1.2.13). This district houses the "central core" of the Corridor Edge development proposal and creates a grand, central gathering space for the entire community (Fig 1.2.14). The market district provides services such as a large grocery store, diverse housing, commercial store-fronts and office space.

Market Sub-District	Feet^2
Offices	197,516
Commercial	374,186
Residential	931,009
Parking	133,552
Park	105,300
Plaza	9,689

Table. 1.2.5 Land Use

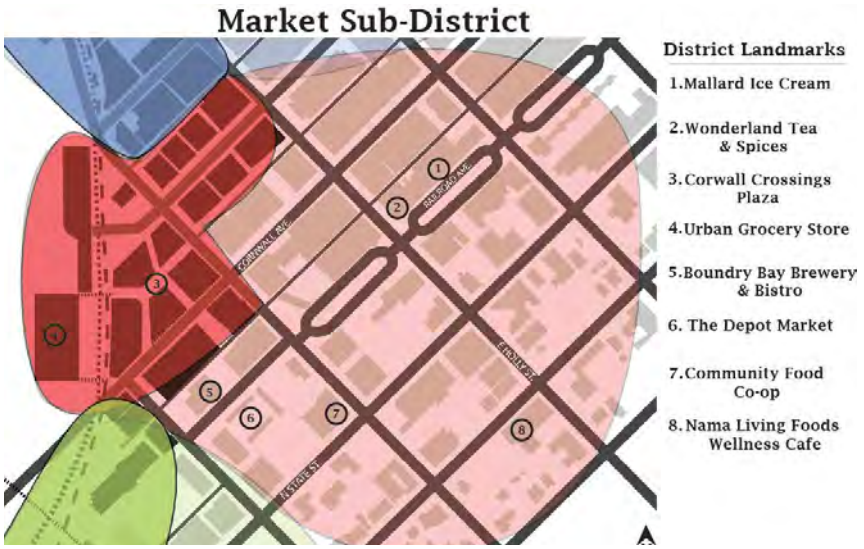


Fig. 1.2.13 Market Sub-District landmark map

Cornwall Crossing Plaza

The center of this district is a pedestrian-only plaza surrounded by tall, yet inviting buildings (Fig.1.2.14). These buildings provide housing options, retail spaces and office suites. Extending from this plaza is an elevated walkway spanning the railroad tracks, and the commuter bike path, to a two-story structure. This building is the site of a proposed grocery store that will serves the future, residential shopping of Bellingham's commercial core.

Fig. 1.2.14 Cornwall Crossings Plaza

Fig. 1.2.16 Grocery Store

Grocery Store

The intent of this grocer is to supply an assortment of goods to supplement, rather than compete with, the Depot Market[2] and the Community Co-op. This structure provides street-level retail with small store fronts to continue the street scape while providing multiple entrances into the larger store. The structure acts as a noise buffer and efficiently mitigates the train from the street.

Fig. 1.2.15 Depot Market

Housing

Since this sub-district is not only located at the core of Corridor Edge, but also at the core of the transition between the existing downtown and the waterfront, there is a need for very high-density residential units. For this reason there are three towers, ranging between ten and twelve stories, within this sub-district to accommodate Bellingham's growing population.

There is also a need to provide more elderly housing within the Central Business District, a service which the existing Leopold building partially provides. This style of development will provide a spectrum of housing, ranging from assisted living to a full-care facility and will be adjacent to the Cornwall Crossing Plaza with easy access to the grocer and other amenities.

The Corridor Edge report has adapted to elements of the Bellingham Public Development Authority plans in regards to a low-income housing building that is proposed to be constructed across Cornwall Street from the Cornwall Crossing Plaza. Residents of this housing development will have access to an outstanding public space as well as employment opportunities.

[2] Depot Market –Retrieved from www.COB.org

Table 1.2.6 Displays the different types of housing that are included inside the Market Sub-District

Housing	Units	Size of Unit(feet²)
Lofts	105	1,000
Studio	178	400-600
2-bedroom Apartments	142	900-1,200
3-bedroom Apartments	180	1,100-1,400
Total	605	
Independent-Retirement Housing	**Units**	**Size of Unit(feet²)**
Studios	51	400
1-bedroom	38	650
2-bedroom	16	1,100
Total	105	
Affordable Housing	**Units**	**Size of Unit(feet²)**
Studios	42	400-600
1-bedroom	10	650
2-bedroom	12	900-1,200
3-bedroom	6	1,100-1,400
Total	70	

New Sehome Sub-District

This sub-district is influenced by the nearby Sehome Neighborhood. It aims to attract diverse family types into an area where they can both live and work, without the reliance upon an automobile. This district will have complete pedestrian accessibility through a series of pedestrian-only walkways, bike paths and bus routes. The high speed bicycle path is accessibility to this district, creating a connection to the north end of the site. The path will be constructed atop a berm which will buffer nearby residences from railroad noise

New Sehome Sub-District	Feet²
Offices	3,822
Commercial	65,142
Residential	577,270
Institutional	29,442

Table 1.2.7 Land Use

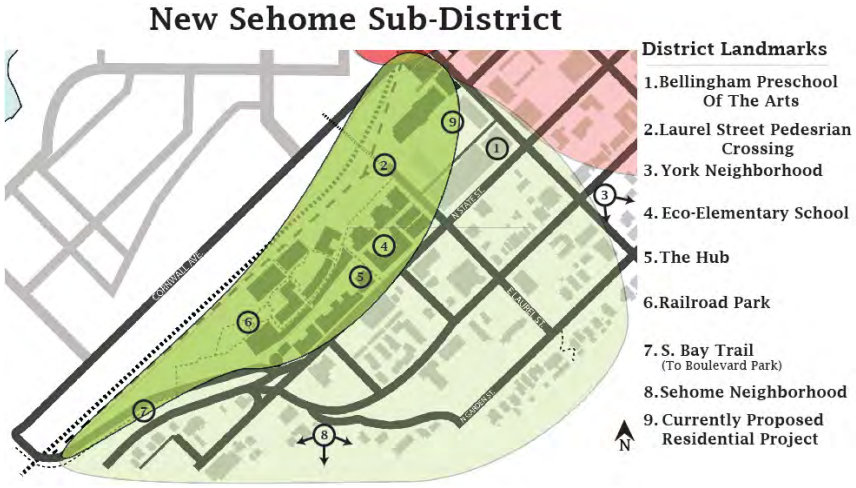


Fig. 1.2.17 New Sehome Sub-District Landmark Map

School

With increased residential housing options for small families a school would be a necessary element to complete the neighborhood. An alternative type of Eco-minded elementary school and day care facility for this new residential area is centered on State Street and Laurel Street (Fig.1.2.) The proposed design is for a zero net impact structure and includes elements such as a rooftop garden, passive solar design and recycled building materials. No parking is proposed to encourage the use of alternative modes of transportation to reach the school as well as reduce the unnecessary amount of pavement and underutilized space.

Fig. 1.2.18 Eco-Elementary (front view)

Fig. 1.2.19 Eco-Elementary (back view)

Railroad Park

This Park utilizes the green spaces surrounding the existing elevated path from the southern end of the site that connects to Laurel Street. Art installations, similar to Big Rock Garden Park, will be Native American themed. The paths all connect and will create a relaxing walk to Fairhaven. The art is here to give more character to the area and to shed light on who lived on the bluff. This area will also act as a rain water catchment system as well as a natural storm water filtration system.

Fig. 1.2.20 Railroad Art Park

Housing	Units	Size of Unit(feet^2)
Row Housing	18	1,600-2,000
1-bedroom	105	600-800
2-bedroom	131	900-1,200
3-bedroom	95	1,100-1,400
Total	**349**	

Table 1.2.8 Housing

Housing

Diverse housing options are available within the New Sehome Sub-District including apartments, condominiums and row-housing which create a secure, neighborhood feel near the urban core. The primary focus of this sub-district is on the family, and therefore many of the units within this site provide more than one bedroom. Row-housing will offer a great opportunity for single-family residences, while maintaining the essential density which must be present near an urban core. These units will provide a continuous street scape along pedestrian-only corridors.

3. Design Characteristics

Proposed development will add a multitude of new uses to the Corridor Edge between the existing downtown and the proposed waterfront.

Land Use
Mixing uses such as residential and commercial or commercial and office space foster a dense, close knit urban environment that allows for active modes of transportation such as bicycling or walking.

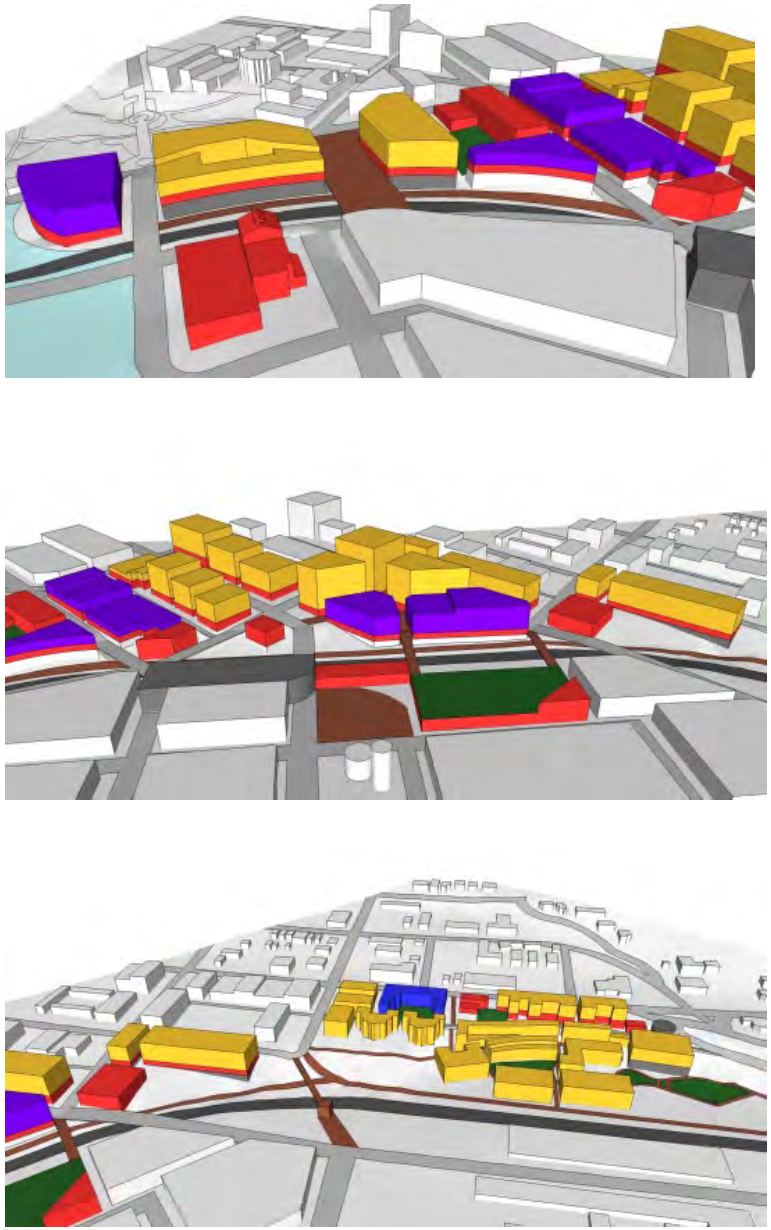
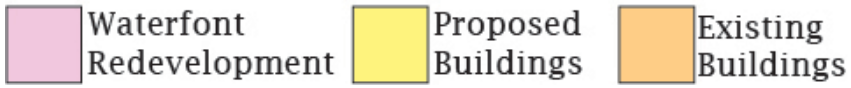
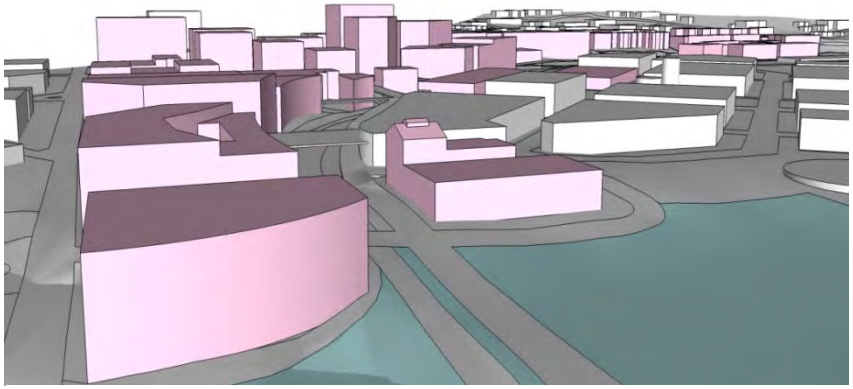


Fig. 1.2.22 Land Use Diagrams

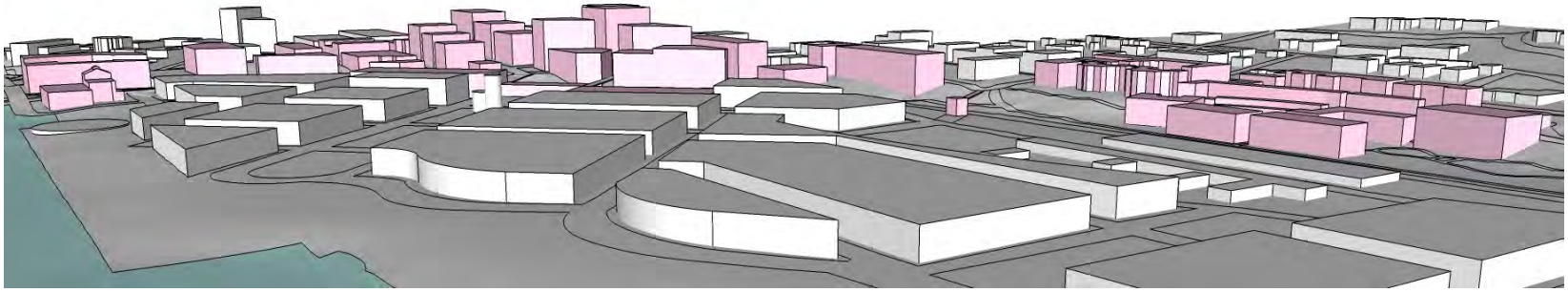
Massing Studies

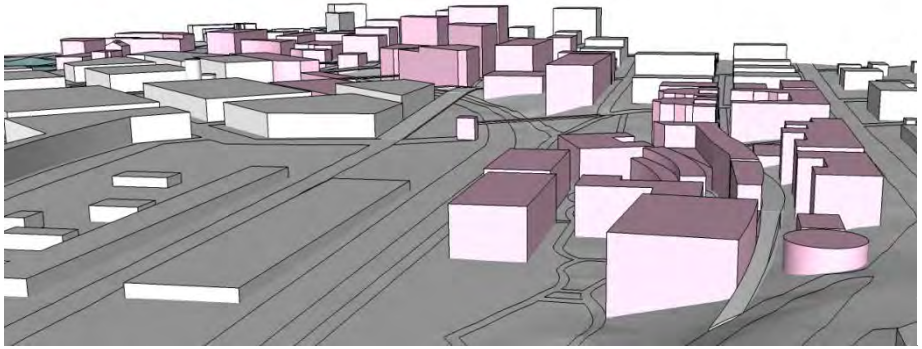
Fig. 1.2.23 Entire Study Area massing study





The entirety of the study area is shown in these three Figures. These aerial views express the relative massing of buildings and how they relate to the urban core. As infill was a main objective, these perspectives show how development was pushed vertically rather than horizontally and provide support for the increase in residential density. The top image shows the northern end of the site, the Arts and Boutiques Sub-District. Dense buildings along the Army Street Plaza help to create a seamless transition into the waterfront development from the existing Arts District. In the center image, the core of the study area, Cornwall Crossings Plaza in the Market Sub-District, is easily conveyed through the increase of building mass.





Solar orientation was taken into consideration as the building heights and placement seek to optimize solar input. The bottom image depicts the southern end of the study area, the location of the New Sehome Sub-District. These buildings focus on residential, working to create a dense, diverse urban neighborhood. Residential units range from single-bedroom apartments to single-family townhomes providing many options to fit different families. This area also houses a small urban elementary school, completing the neighborhood feel.

Fig. 1.2.24 Breakdown of Massing studies

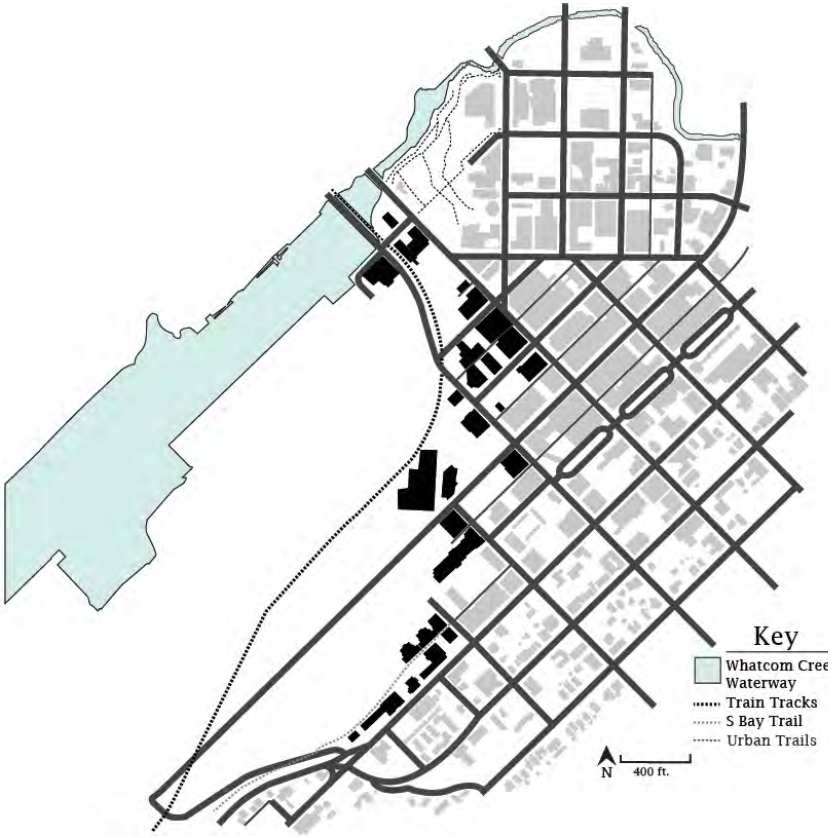


Fig. 1.2.25 Existing Figure Ground

The image on the left shows current development which is lacking in density .Currently there is a large amount of unused property, which could benefit from infill.

Fig 1.2.26 Proposed Figure Ground

The image on the right shows the proposed development. The buildings now frame human-scaled pedestrian spaces as well as street fronts.

Many buildings in the Arts and Boutique district are mixed use. This integration of land uses emphasis that this sub-district is a place where people can work close to where they live without reliance on a personal automobile. There is a parking garage located underneath the Army Street Plaza to supply parking for residents and visitors, but spaces are limited. There are a multitude of small commercial shops for both commerce and employment as well as a pocket park in the middle, ensuring that open space is never far from the urban resident or employee. The commuter bike path provides a route for commuters to enter the sub-district without relying on vehicular modes of transportation.

Arts and Boutique Sub District	Land Use	Measurements
1	Mixed-Use Offices	
2	Granary	
3	Mixed-Use Residential	95 DU
4	Army Street Plaza	
5	Mixed-Use Residential	87 DU
6	Commercial	
7	Pocket Park	12759 ft^2
8	Commercial	
9	Commuter Bike Path	
10	Mixed-Use Offices	
11	Mixed-Use Offices	
12	Mixed-Use Offices	
13	Commercial	

Table 1.2.9 Building Breakdown Table

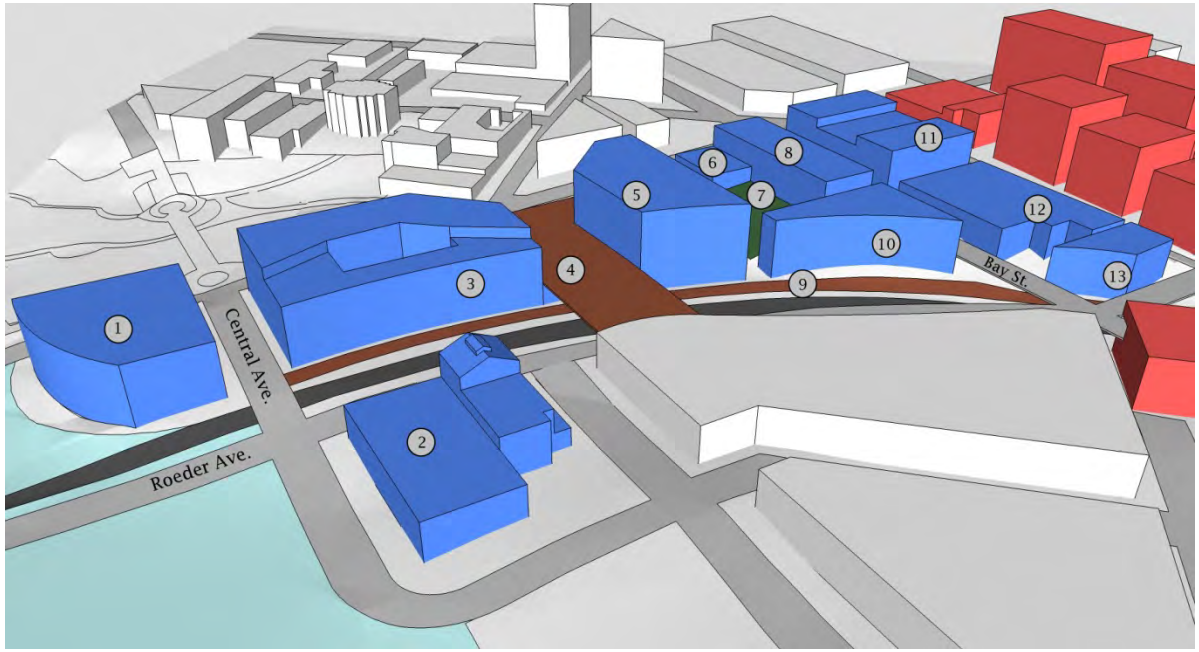


Fig. 1.2.27 Building Breakdown Arts and Boutique Sub-District

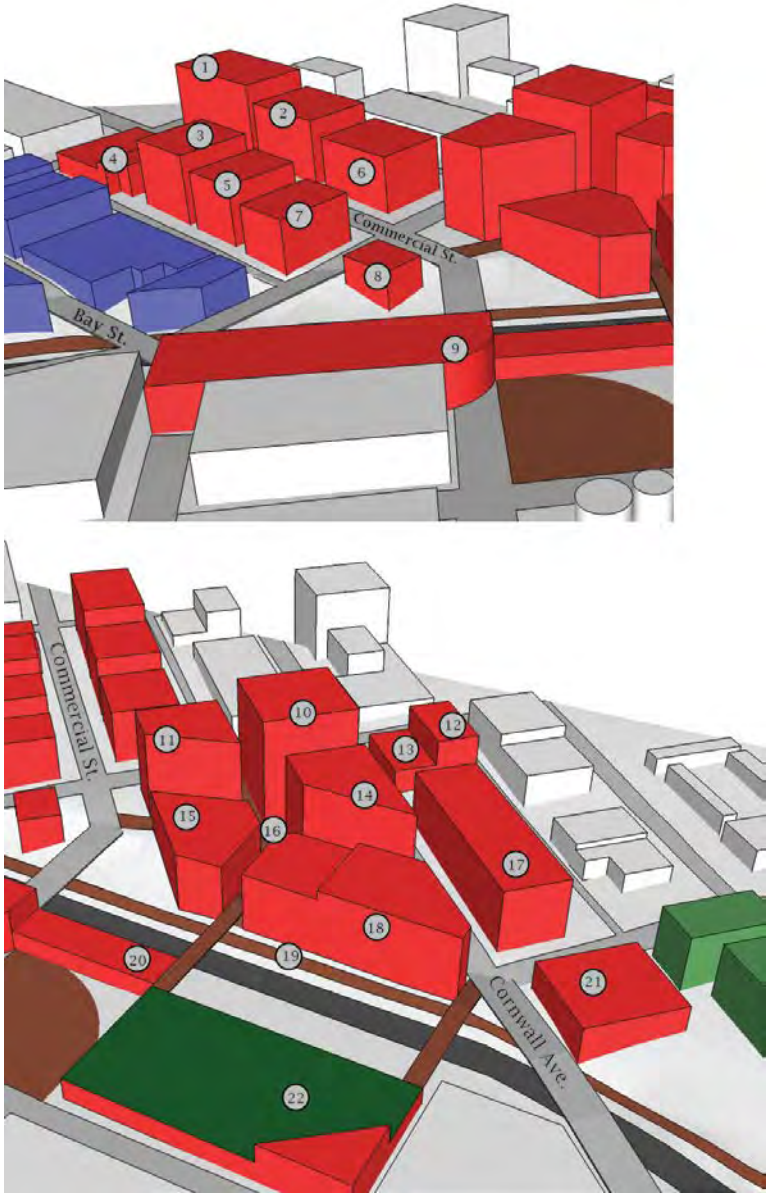


Fig 1.2.28 Building Breakdown Market Sub-District

Market Sub District	Land Use	Measurements
1	Mixed-Use Residential	88 DU
2	Mixed-Use Residential	70 DU
3	Mixed-Use Residential	51 DU
4	Mixed-Use Residential	8 DU
5	Mixed-Use Residential	25 DU
6	Mixed-Use Residential	35 DU
7	Mixed-Use Residential	25 DU
8	Commercial	
9	Parking Structure	
10	Mixed-Use Residential	175 DU
11	Mixed-Use Residential	88 DU
12	Residential	40 DU
13	Commercial	
14	Independent Retirement	105 DU
15	Mixed-Use Offices	
16	Cornwall Crossings Plaza	
17	Affordable Housing	70 DU
18	Mixed-Use Offices	
19	Commuter Bike Path	
20	Commercial	
21	Commercial	
22	Parkland	

Table 1.2.10 Building Breakdown Table

The Market Sub-District is the proposed urban core of the Corridor Edge. High density buildings are coupled with a multitude of social amenities and commercial uses to provide a complete urban environment. There is a variety of residential options, including elderly, affordable and apartments. The Cornwall Crossings Plaza is a pedestrian only space which connects to a pedestrian bridge spanning the train tracks, the Commuter Bike Path and dissolving the 'edge'. Located in Building 15, a bicycle storage facility, connected to the Commuter Bike Path, provides parking, maintenance and rental services. The pedestrian bridge connects to an open park space, which located atop the grocery store building. Adjacent to this commercial building is a pedestrian plaza.

Parking needs are met through a 448 space garage with entrances at Bay Street and Commercial Street. This parking structure doubles as a sound barrier between the train tracks and the waterfront development.

New Sehome Sub District	Land Use	Measurements
1	Mixed-Use Residential	10 DU
2	Residential	20 DU
3	Mixed-Use Residential	25 DU
4	Eco-Elementary School	29,442 feet^2
5	Mixed-Use Residential	76 DU
6	Residential	45 DU
7	Residential	25 DU
8	Residential	25 DU
9	Commuter Bike Path	
10	Laurel Street Pedestrian Bridge	230ft long
11	Commercial	
12	Mixed-Use Residential	23 DU
13	Mixed-Use Residential	11 DU
14	Commercial	
15	Parking	
16	Commercial	
17	Pocket Park	
18	Residential	3 DU
19	Residential	9 DU
20	Residential	7 DU
21	Residential	6 DU
22	Residential	5 DU
23	Community Garden	
24	Residential	25 DU
25	Residential	17 DU
26	Residential	17 DU
27	Railroad Art Park	
28	Commuter Bike Path	

Table 1.2.11 Building Breakdown Table

Fig. 1.2.29 Building Breakdown New Sehome Sub-District

The New Sehome Sub-District provides family-friendly residential units; units range from single-bedroom apartments to single-family townhomes. The school is located in this sub-district to encourage young families raise their children in a safe, walkable and interesting environment. The Railroad Art Park is built around natural water features and enhanced through the addition of pathways and boardwalks, providing a scenic greenway through the entire neighborhood. The commuter bike path is located on the edge of the sub-district to act as both a commuter connection and a noise buffer from train activity.

3.1 Study Area Complication Mitigation

The Bluff
Multiple pedestrian crossings use the elevation of the bluff to their advantage by creating increased connectivity into the waterfront.

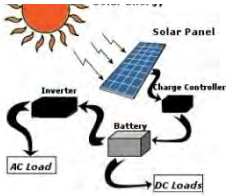
The Railroad
Elements such as elevated crossings, sound barriers and relocating tracks help to reduce the potential negative impacts of this site complication.

The Chestnut-Roeder Bridge
The plan eliminates the dangers of crossing Chestnut-Roeder for pedestrians by providing multiple options for entering the waterfront area. The Army Street Plaza, for example, eliminates this connectivity barrier by elevating above it to enter into the proposed waterfront development.

3.2 Sustainability
In order to mitigate the environmental impacts of this proposal, many elements have been incorporated into the design of buildings and infrastructure.

Incorporating passive solar orientation[3] within building design, including light and heat filtering awnings on south facing windows, allows for maximum efficiency for heating and cooling purposes. Buildings have opportunities to create their own energy needs through the installation of solar panels. Rainwater procurement can also be incorporated through roof-top designs, which can supply freshwater for buildings within the site. The Puget Sound Energy Co-generation Plant should be able to supply heating on a city wide level.

Fig. 1.2.30 Solar Energy



[3] Retrieved from http://www.applied-solar.info/earth4energy-homemade-power/

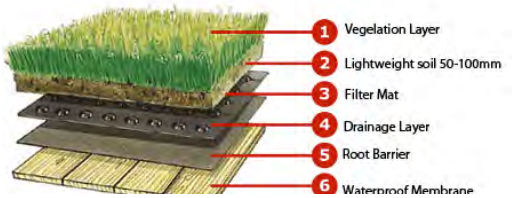


Fig. 1.2.31 Elements of Green Roof

Green roofs are proposed in the site because it is a sustainable way to gather rain water to be used in various ways[4]. Since Bellingham has a mild, wet climate for the majority of the year, having green roofs will help decrease storm water runoff and can prevent flooding.

Fig. 1.2.32 Permeable pavement

Permeable pavement should be used for sidewalks, roadways, and bike paths in order to minimize unnecessary stormwater runoff[5]. This will be great for the plaza areas because it will decrease puddles and flooding, since the water will sift through the ground. This can also be helpful for this area because Bellingham is very wet and the pavement will reduce storm water runoff.

[4] Retrieved from: http://www.advancedflatroofingsystems.com/
[5] Retrieved from: http://vdcgreen.blogspot.com/2010/09/permeable-pavement-systems-just.html

3.3 Public Space

Plazas
The implementation of two, pedestrian-only plazas are a significant part of the Corridor Edge plan to bridge the railroad and create outdoor space for the Bellingham community. The Army Street Plaza connects the Old Town District to the waterfront and consists of dense residential, retail boutiques, business, and restaurants. The Cornwall Crossing Plaza is located near the center of the site and connects the Central Business District to the waterfront through elevated walkways onto an elevated park.

Parks
Multiple parks are included throughout the Corridor Edge. The sizes range from small pocket parks and corridors to the large elevated park, located in the Market Sub-District. The objective of the parks is to give urban residents access to open spaces. The pocket parks are can be used for active recreation, as well as quiet enjoyment. The large park atop the grocery store acts as a central park to encourage a sense of place and increase pedestrian activity. At the southern end of this site Railroad Art Park concludes a green corridor, which begins at Boulevard Park and continues through Cornwall Park. This is a meaningful end to the green corridor because of the Native American themed art and because of its connection to Railroad Avenue.

Public Art
Pacific Northwest Art will commemorate Native American communities while also giving local artist the opportunity to apply for installations of prominent pieces. The Railroad Art Park will be a main area for these art installations, commemorating the history of local Native Nations.

3. 4 Transportation
It is the goal of the Corridor Edge proposal to create areas of development in which residents can rely upon alternative forms of transportation instead of personal automobiles. Increasing connectivity between the waterfront and the existing downtown is necessary for a walkable and bikeable community.

Pedestrian
Pedestrians can enjoy the walkability of the entire site due to the multiple pedestrian trails, elevated crossings and plazas that span the gap over the railroad and down from the bluff (Fig.1.2.33) shows how the majority of sites are easily with in a five minute walk, approximately 1500 feet, from the core, which is located at Cornwall Crossing Plaza. The existing Whatcom Transit Authority bus terminal is in easy walking distance, allowing resident's mobility to areas outside a comfortable walking distance.

Fig. 1.2.33 Pedestrian Shed

Fig. 1.2.34 Community Bike Shop

Bicycle

This proposal increases bicycle infrastructure and connectivity, creating multi-modal transportation options of ease and convenience. A recreational, high-speed commuter bike path connects the entire study area. This wide path allows bicyclists the ability to ride along the railroad corridor, providing a direct route for commuters from the most southern end to the most northern end. At the core, located in the proposed Cornwall Crossings Plaza, is a storage facility offering bike rentals and maintenance. Public bike racks are to be included at all other high traffic areas.[6]

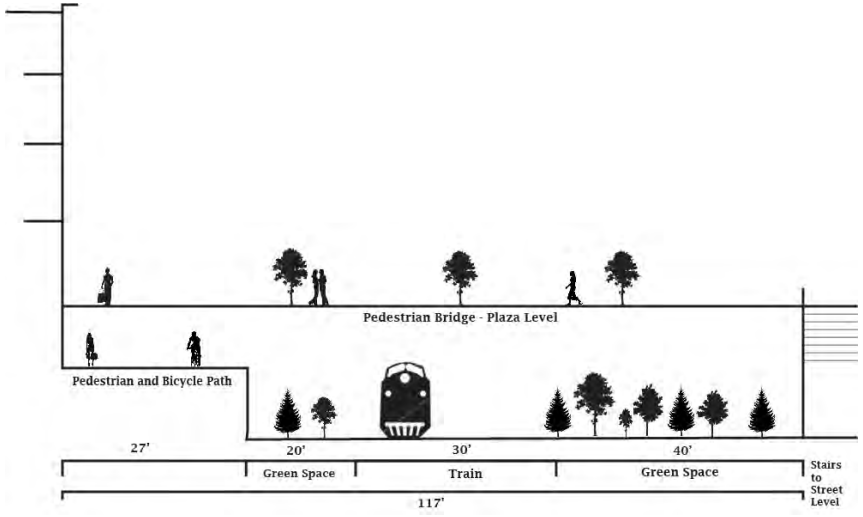


Fig. 1.2.36 Cross Section Commuter Bike Path in relation to pedestrian crossing at Market District

Fig. 1.2.37 Market Sub-District Showing Commuter Bike Path and Pedestrian Crossing

Automobile

The proposal seeks to reduce personal automobile reliance. This is evident through the employment of concepts such as maximum parking, which limits the availability of parking spaces, while providing infrastructure to support alternative modes of transportation. Metered street parking and parking structures beneath the Army Street Plaza, near the grocery store, and under the southernmost New Sehome residences cover parking needs.

Additionally, there is a proposed car-share program to furnish automobile services for persons who do not own a car and reside within the developed district. This program would be a significant contributor to a community of people that do not need the use of a car on a daily basis.

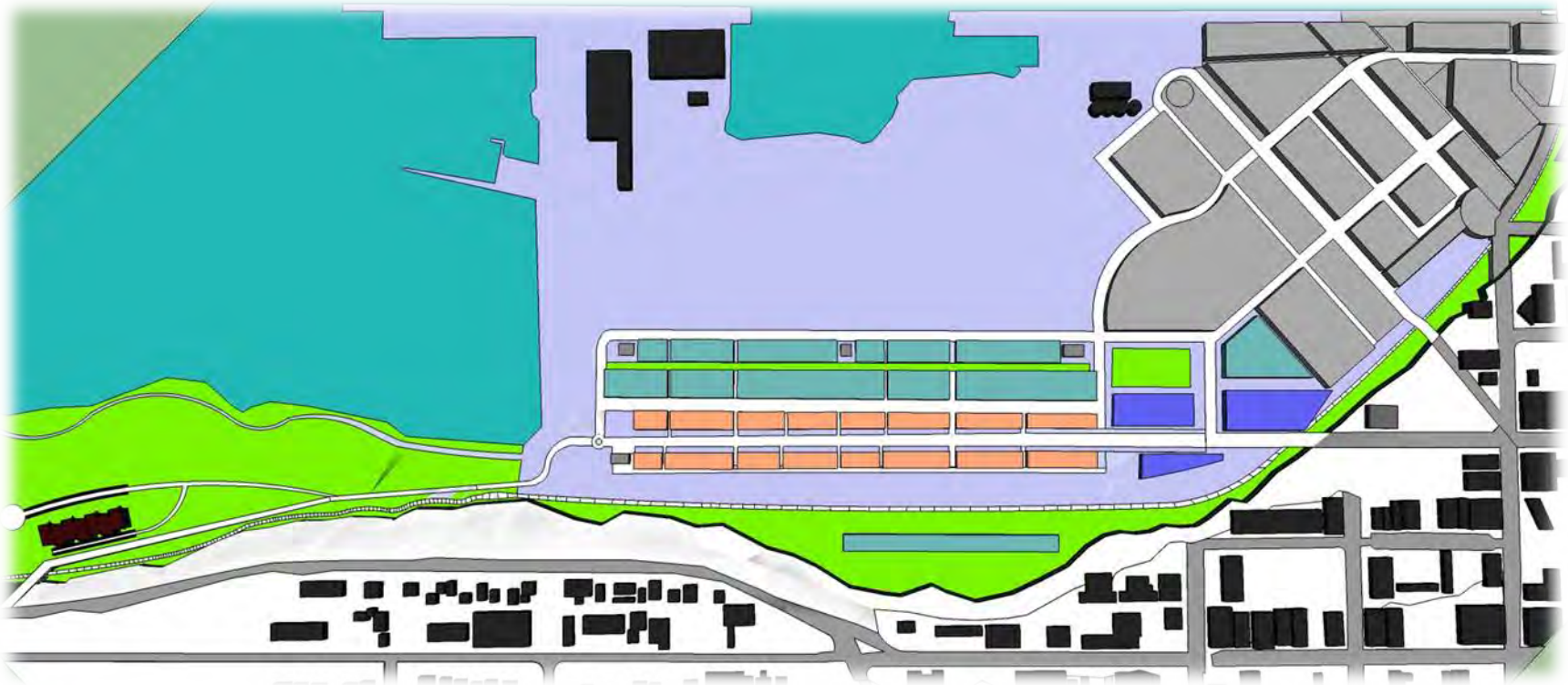
...

Combining the outlined design characteristics and fulfilling the goals of this plan will create a seamless transition between the existing city of Bellingham and the proposed waterfront development. Elements such as high density, mixed use buildings ensure that the growing population can be accommodated. Implementation of this plan ensures an exciting, vibrant and diverse future for all Bellingham residents.

[6] Hub- Retrieved from: http://www.portofbellingham.com/

Chapter 1. Bellingham Edge Development
Design Concept 3

1.3 Lower Cornwall Avenue Transition



Ally Ganyo, Kelsey Heyd, Connor Lange, Matt Orehek, Matt Reider, and Krista Tollefson

Table of Contents

1. Introduction

Figure 1.3.1 Study Area Image

1.1 Downtown Transitional Edge Study

The Downtown transitional edge frames the Port of Bellingham Waterfront site and creates opportunities for connecting future waterfront development with the Central Business District (CBD). It encompasses the W. Chestnut St. Bridge which lies at the Northeastern corner of the site, Cornwall Avenue, which intersects the Waterfront development, and Boulevard St., which lies atop the bluff on the South Eastern corner of the site. The study area includes the old Georgia Pacific paper mill site now owned by the Port of Bellingham and the old City of Bellingham landfill site, along with the Bellingham Public Development Authority land for the Army Street area and the bluff.

The Port of Bellingham owns the majority of the property in the study area. With exceptions to the PSE plant which sits on Cornwall Avenue and the Burlington Northern Santa Fe (BNSF) railroad which runs through the site (it is assumed that the rail way will be moved when future development begins), the City of Bellingham and Port share property on the old landfill site. The last portion not owned by the Port is five parcels towards the North entrance of Cornwall Avenue onto the Waterfront site.

The Lower Cornwall Avenue area was chosen as the primary focus for development study because of the potential development possibilities of the site and its central location between the Downtown and waterfront. Plans for Cornwall Avenue are currently minimal, which led to collaboration with the future waterfront design proposed by the Port.

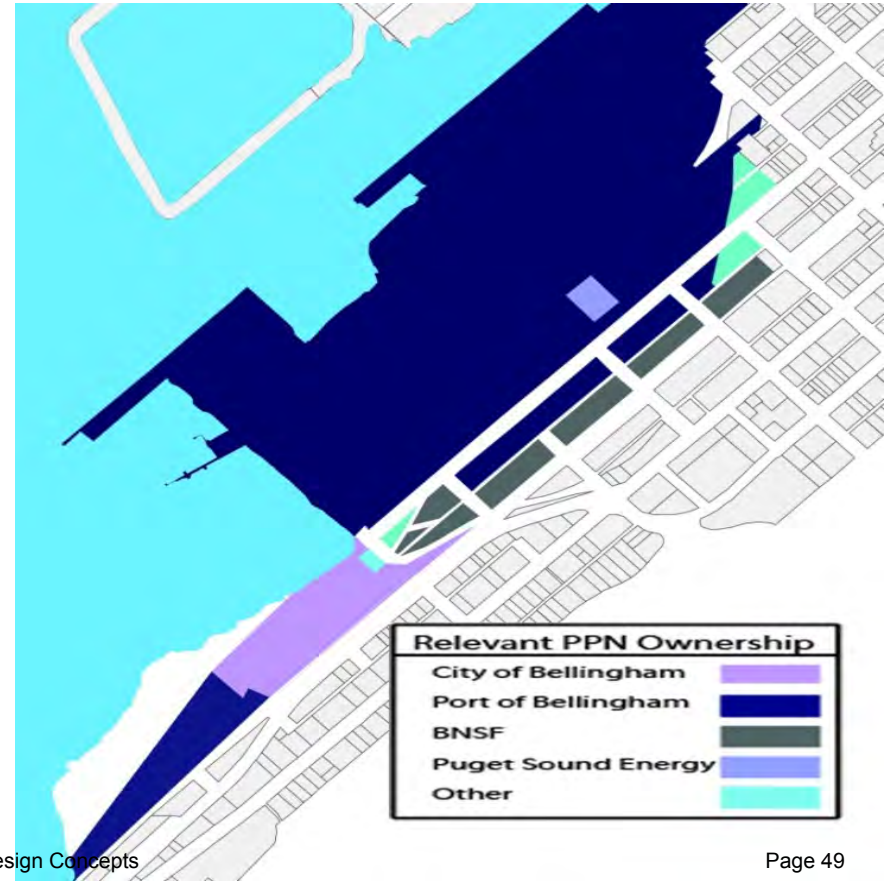


Figure 1.3.2 Property Ownership within Study Boundary

The Lower Cornwall Avenue transition development site integrates the Downtown and waterfront in a way which accommodates future population growth and enhances the economic vitality of the area.

Nearby Plans and Development

Port of Bellingham

The Port of Bellingham[1] (P.O.B.) has established a set of design considerations through a long-term phasing plan. The plan includes environmental changes, economic viability, transportation and parking, open space and recreation, and connections to downtown culturally, socially, and physically.

A key aspect is to create a walkable urban environment implementing a long term pedestrian pier and improving Central Avenue. They plan to complete the core street network and a variety of pedestrian friendly streets for primary access to the waterfront. Along with this development will be Western Washington University.

Once Cornwall Beach has begun to undergo restoration and development a trail system and park will connect Boulevard Park to the Downtown CBD and the waterfront by using pedestrian bridges and pathways.

City of Bellingham

The City of Bellingham[2] (C.O.B.) developed a Downtown Plan which e the Old Town, Waterfront, and the Downtown Districts. The plans involve:

- Enhancing connections to surrounding districts and neighborhoods
- Supporting business, building renovations, and new commercial and residential development.
- Creating an ambitious framework for future investments, amenities, and improvements.

Figure 1.3.3 Bellingham Public Development Authority Site Plan

Bellingham Public Development Authority

The Bellingham Public Development Authority[3] (BPDA) was established to promote the use of City-owned property for financial, social, and

[1] http://www.portofbellingham.com/index.aspx?NID=172

[2] http://www.cob.org/services/neighborhoods/community-planning/city-center-planning.aspx

[3] http://bellinghampda.org/images/content/GenlDevelPlanWebsite.pdf

environmental well-being for the community. Their Army Street Project and 1100 Cornwall Project are nearby developments and directly correlate to the Cornwall Avenue Downtown Transition. The Army Street Project extends into the Waterfront and Old Town Districts with mixed-use, open space, pedestrian-only access, increased street connectivity, historic preservation of the Granary building, and the approved relocation of the Library. Pertaining to the 1100 Cornwall Project, the BPDA plans to leverage private ownership to construct a 45,000-60,000 square feet structure, providing parking and some mixed-uses.

The figure below collectively joins the main planning goals from each of the separate jurisdictions plans. In the center of the Venn-diagram is a summarized list of goals taken from each other groups' plans which will be incorporated into the Lower Cornwall Avenue Transitional Edge plan.

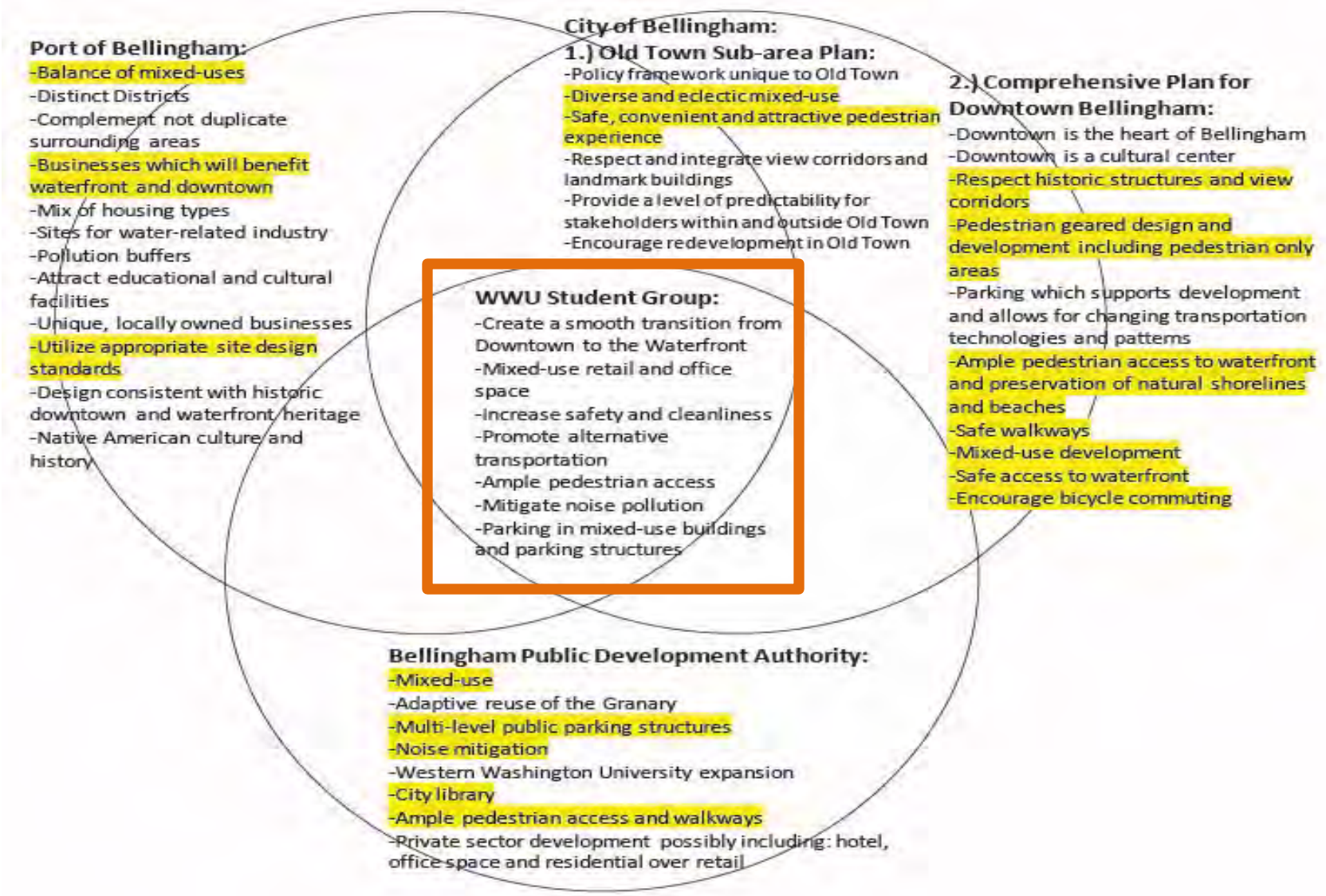


Figure 1.3.4 Venn diagram displaying the use of each party's goals to create the WWU Student Group goals applied in the Lower Cornwall Avenue Development.

Figure 1.3.5 Lower Cornwall Avenue Site Boundary

1.2 Lower Cornwall Avenue Transition Development

Design Concepts

The Lower Cornwall Avenue Transitional Edge plan exhibits four overall concepts that incorporate the use of the Bellingham Development Authority (BPDA), the City of Bellingham, and the Port of Bellingham's plans. This site will (1) *establish a residential district* by providing a large increase in residential development to cater to Bellingham's growing housing demand. This will include increasing density, diversity of housing types, and variation of rental prices.

With the appropriate density of nearby residents, lower Cornwall Avenue can support a mix of uses which will (2) *create a retail corridor.* Upper Cornwall Avenue currently has retail opportunities and the corridor will attach lower Cornwall and Cornwall Park to the CBD.

The retail corridor will be used as a connector from the Downtown to the Waterfront District and will lead to (3) *the Park/Art District*. This area is

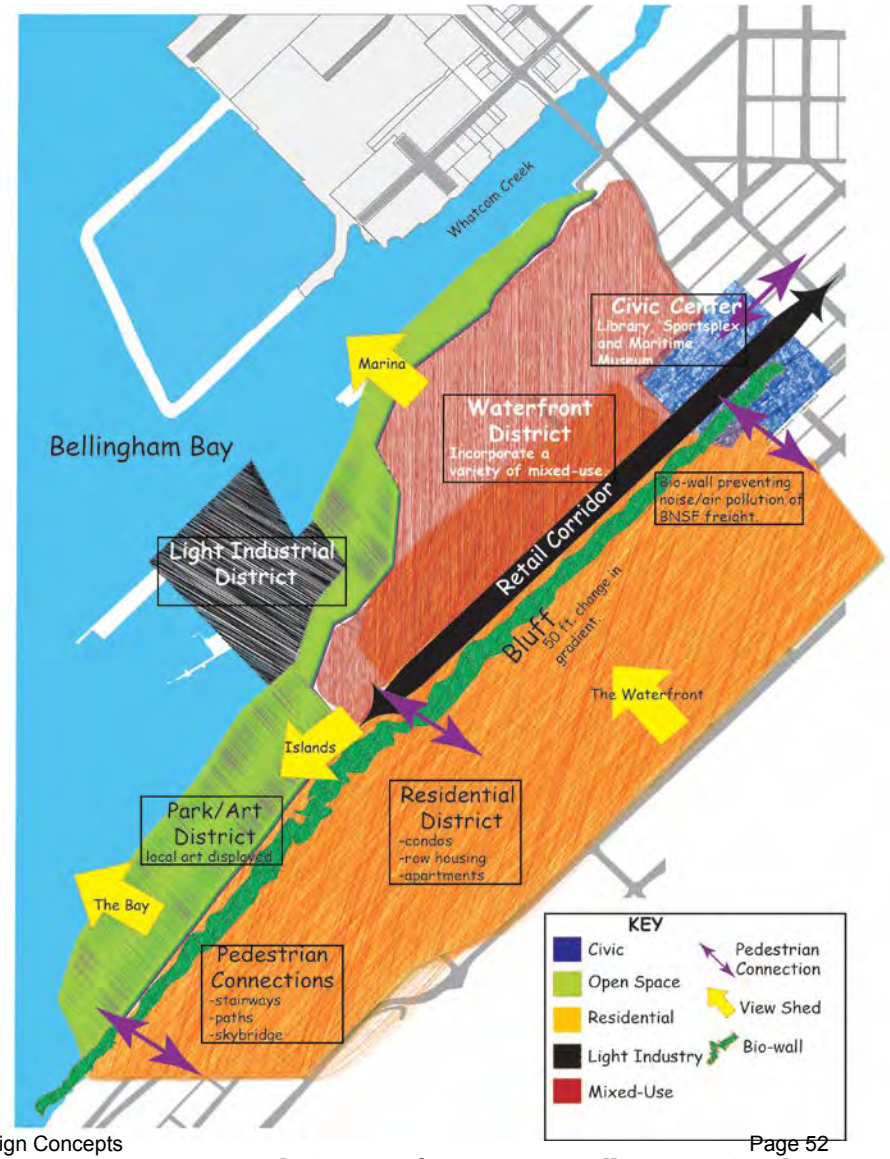


Figure 1.3.6 Conceptual Diagram of Lower Cornwall Avenue Site Plans

dedicated to pedestrian oriented open space. While enhancing the draw for future residents it will give local artists a chance to display art work amongst peers and visitors. Finally, towards the North end of the site there will be a (4) *Civic Center* which will include the relocation of the Maritime Museum and Bellingham Public Library. In addition, there will be construction of a new Sportsplex with outdoor field.

Plan Objectives

The plan relates closely to that of New Urbanism goals. The plan establishes a walkable and human-scale development through urban design, attention to streetscape, and network connectivity. It provides an increase in density through infill practices and a range of housing diversity concerning to income and type. The plan will concentrate on a mix of uses pertaining to buildings and land uses; the mixed-use will encompass sustainable and green infrastructure. Finally, the plan provides street and trail networks that support multi-modal transportation.

1.3 Relationship of Cornwall Ave. Transition Development to Washington State's Growth Management Act (GMA)

Figure 1.3.7 View of Squalicum Harbor Marina sunset from Lower Cornwall Avenue

The Growth Management Act[4] (GMA) was enacted in 1990 in order to establish protection of the environment, sustainable economic development, and the health, safety, and high quality of life enjoyed by residents of Washington State. The foundation of the GMA rests in the public interest that citizens, communities, local governments, and the private sector cooperate and coordinate with one another in comprehensive planning. The plans and regulations for cities and counties of the GMA are guided by 14 goals. The downtown transition development plan emphasizes the following GMA goals:

- *Focused urban growth in urban areas*
- *Provides efficient transportation*
- *Encourages affordable housing*
- *Encourages sustainable development*
- *Ensures open space and habitat areas and develop recreation opportunities*
- *Encourage regional coordination*
- *Ensure adequate public facilities and services*

The City of Bellingham provides a baseline study area growth forecast in Bellingham; the population is projected to reach around 110,000 people by the year 2022. With Bellingham's growth forecast the residential land in the City proper can support population densities close to 9.5 people per acre in Urban Growth Areas. (UGA)

1.4 Relationship of Lower Cornwall Avenue Transition Development to Bellingham's Comprehensive Plan

The Comprehensive Plan is the guide for Bellingham's growth and development.[5]

[4] Revised Code of Washington (RCW), Chapter 36.70A
[5] http://www.cob.org/documents/planning/comprehensive-plan-code-amendments/comprehensive-plan/chapter-1-comp-plan.pdf

The Visions for Bellingham (VB) outline the plan's goals and policies to establish processes such as creating a downtown transitional edge. Bellingham must accommodate growth and the need for housing through infill and encouraging private development (VB)1), while maintaining natural infrastructure (VB)3) and complimenting the current neighborhood. (VB)4).

In creating a smooth transition from downtown to the waterfront, the citizens of Bellingham value the Bellingham Bay and emphasize access and visibility of the water. (VB)8). Along with access, maintaining view sheds, and preserving community character, new development, (i.e. a possible extension of Western Washington University) will retain community coordination and ensure positive impacts. (VB)11). To aid in access and smooth transitions, the development will enable multi-modal transportation (VB)15) and a system that is consistent with the current network. (VB)18). Cornwall Avenue Transition Development is implementing an equal and affordable housing opportunities (VB)29) along with infill and innovative mixed-use. (VB)25,26) This mixed-use leads to cultural diversity (VB)32) and will lend itself to community health, welfare, and safety. (VB)Sect.6)

The downtown transitional edge should encompass a mixture of all the Visions for Bellingham Goal Statements in Section 7-Downtown and Waterfront. Of all the Visions for Bellingham, providing safe walkways and linkages between the Central Business District (BCD) with the Bay (VB)53) highlights the most important goal of the Cornwall Downtown Transition.

Figure 1.3.8 BNSF freight train running through Downtown Bellingham and the Waterfront District

1.5 Issues and Opportunities

The top priority issues involving the Lower Cornwall site include the BNSF railroad and the lack of connection between the Downtown and Waterfront Districts.

Figure 1.3.9 Image of Lower Cornwall Avenue of existing development

Freight traffic will increase with the implementation of the Pacific Coal Terminal, causing an increase in noise and air pollution. The current position of the tracks cuts through Cornwall Avenue making pedestrian and auto connection difficult and dangerous. Noise mitigation will be crucial to development of residential neighborhood. Several methods will be used to mitigate train noise, one being the use of a ramp coming down from Boulevard Street in the proposed Bay Park area. This feature is featured further down in section 2.2 of the plan.

Other methods which will be used to offset noise pollution the Lower Cornwall Avenue plan are sound barriers which will include water features and bio-walls.

Water features

Figure 1.3.10 Example of a water feature used to mitigate railway noise pollution

In order to mitigate noise the plan includes water walls which provide an aesthetically pleasing alternative to concrete sound walls. A water wall will use storm drainage water and provide a protective barrier to noise and air pollution emitted by passing trains.

Figure 1.3.11 Bay Park Ramp is used for multi-modal transportation and a deterrent of rail noise and assures pedestrian safety from railroad tracks

Bio-walls

Another method of diminishing train noise is the use of Bio-walls. Bio-walls are planted vertical structures that can surround or follow a path thus separating a nuisance from an occupied space. The Cornwall Transition plan will use bio-walls to absorb and block train noise. A planted surface will provide a more appealing view than traditional concrete barricades.

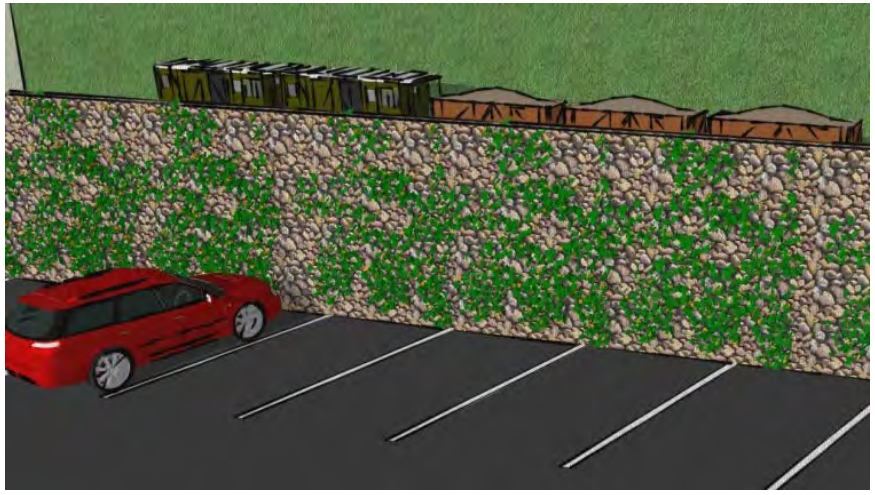


Figure 1.3.12 Sketch demonstrating the use of a bio-wall to mitigate railway noise pollution

Roadway Buffer

A dual role ramp will be built which will be used as a connection point for auto and bike traffic from Boulevard St to the South end of Cornwall Avenue. The BNSF coal trains will pass underneath as well as run along the ramp creating a buffer between the condos that reside on the opposing side of the roadway and the railway. The ramp will act to mitigate noise and air pollution along with create a safe barrier for pedestrian traffic. The bio-wall and roadway will act in partnership in order to create a safer environment and easy passage for freight.

The Lower Cornwall Avenue site also includes a variety of opportunities, holding potential in creating a sense of place and establishing many connections from Fairhaven, downtown, and the waterfront. The lack of development and location of the site are situated in a place which will allow the use of the downtown street grid and the Port's proposed grid network to be implemented into the plans for Lower Cornwall Avenue.

Located in-between Downtown, Bay Park, and the Waterfront District, Lower Cornwall will function as a transitional area with the capability of and capacity for retail, residential, civic functions, and beautiful scenery enjoyed by a connected trail network.

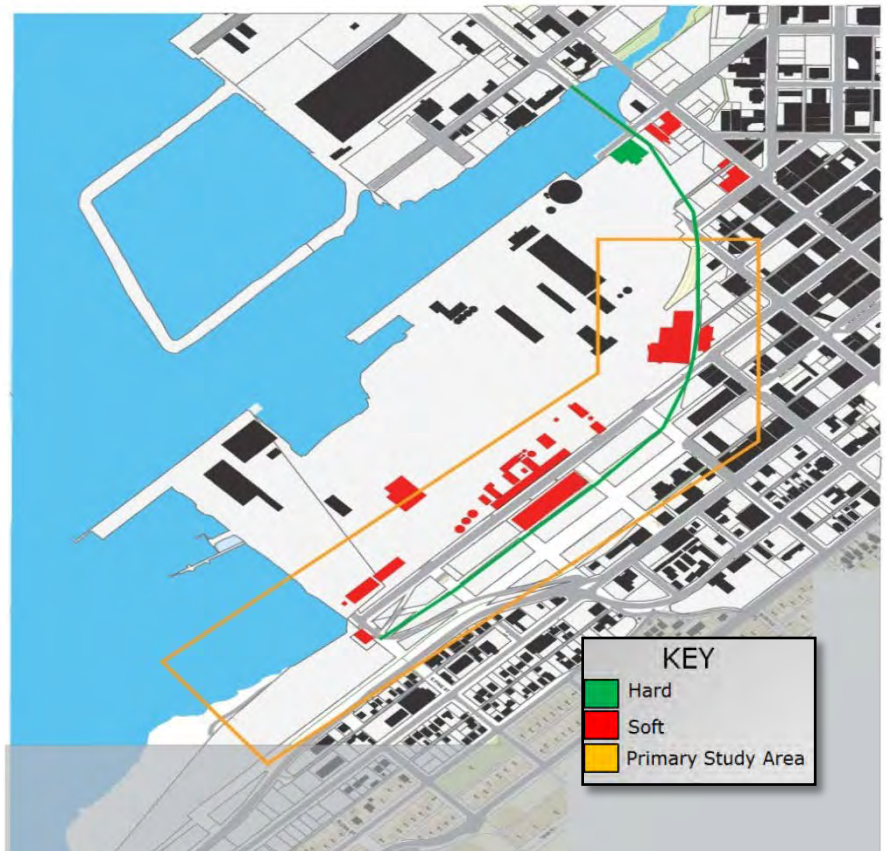


Figure 1.3.13 Hard/Soft Analysis including the Primary Study Area

Figure 1.3.14 Puget Sound Energy Encogen Generating System

Existing Buildings and Land Uses

The Puget Sound Energy (PSE) power plant is one of a handful of existing buildings in the study area. It is located on Cornwall Avenue. The PSE Plant is pictured on the hard soft analysis in red on the map to the right hand side of the street roughly midway down as you enter onto Cornwall Avenue from the Downtown. From current information the PSE will be decommissioned within 15 to 20 years which is when the Cornwall Transition plan will begin development.

Figure 1.3.15 Existing Maritime Museum

The Maritime Museum is located directly across the street from the PSE plant pictured and is on the left hand side of Cornwall. The Lower Cornwall Avenue plan will move the Maritime Museum to the entrance of Cornwall to create the Civic Center core. Currently, the Museum's façade is unwelcoming to passing pedestrians. By moving the structure closer to the library and sportsplex, the museum becomes more accessible and aesthetically pleasing.

Proposed Land Use

The Lower Cornwall Transitional plan proposes significant increases in Residential and Mixed Use development. There is currently no residential use on Lower Cornwall Avenue as shown in the existing land use map. The plan will create roughly 600,000 ft^2 of residential which will accommodate future population growth in Bellingham. This will include roughly 420 living units of mixed types.

Figure 1.3.16 Existing Land Use Map

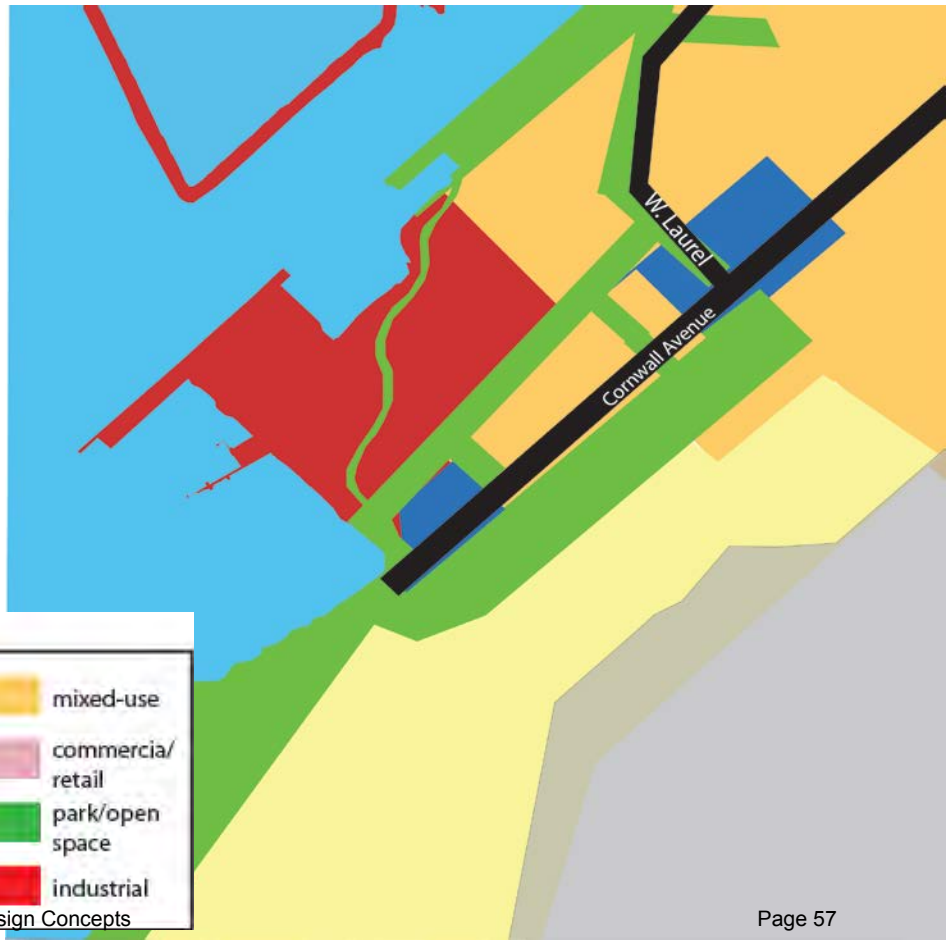


Figure 1.3.17 Proposed Land Use Map

Figure Ground Models

Figure 1.3.18 Existing Figure Ground

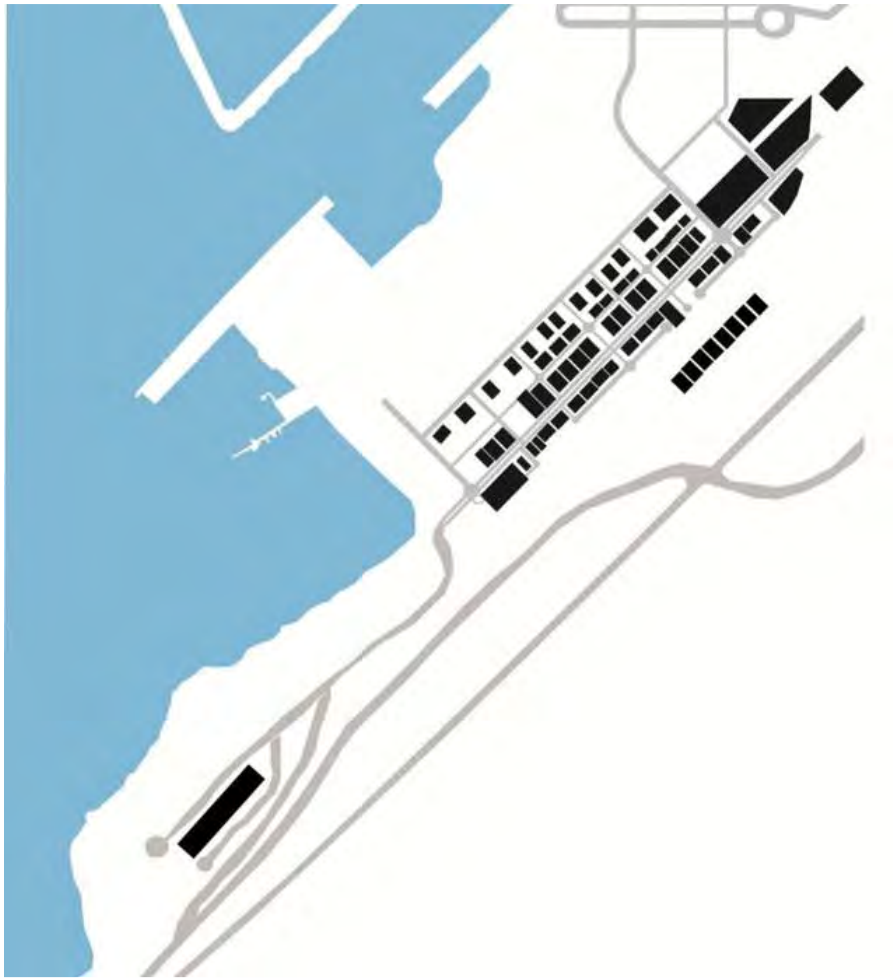


Figure 1.3.19 Proposed Figure Ground Map

As described with the land uses, the Lower Cornwall plan will greatly increase the amount of development along Cornwall Avenue providing ample opportunities for new residents and entrepreneurs looking to start up a business.

Use	Existing Area (ft^2)	Proposed Area (ft^2)	Existing and Proposed Total (ft^2)
Residential	0	590,000	590,000
Commercial/Mix Use	90,600 (Removed from plan)	326,000	326,000
Civic/ Institutional	48,400	112,000	160,400
Power Utilities	50,500	-50,500	0

Figure 1.3.20 Land Use Metrics including proposed and existing totals

Natural Features, Parks, Trails, and Vegetation

The bluff which borders our site contains the majority of vegetation in the study area. The Interurban Trail runs along the bluff providing a sense of enclosure when walking or running along the path.

Located at the end of Cornwall on the waterfront is Cornwall Beach which leads up and down the shoreline until you reach the concrete berms which were built for the GP site.

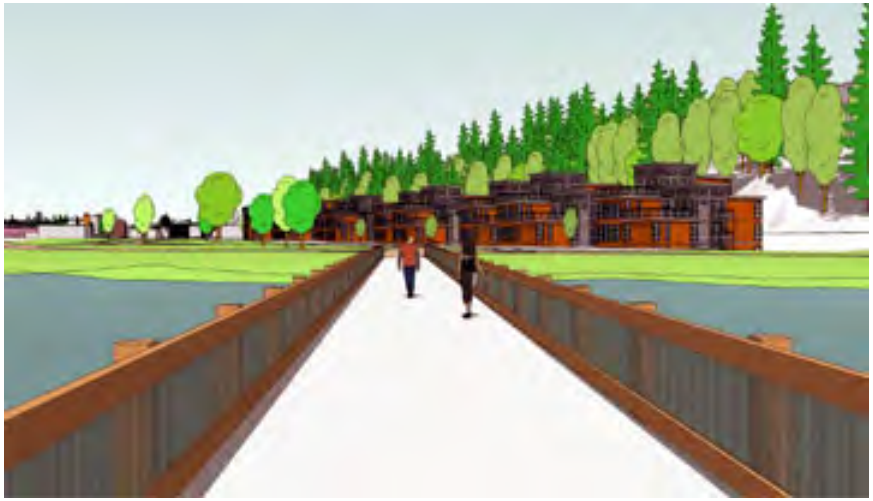


Figure 1.3.21 The Port's bridge sketch demonstrating the connection of a boardwalk from Boulevard Park to Bay Park

At the most Southern end of the Lower Cornwall Avenue Transitional Edge site boundary, the new Bay Park will be open to the public with a trail connection from Boulevard Park through the Waterfront District.

Transportation, Transit Lines, and Parking

Automobiles

Vehicles can access the waterfront site from either taking Cornwall Avenue or Wharf St. which leads across the tracks. Currently, Wharf Street crosses the railroad tracks at the South end of the site. In order to ensure safety and efficiency, the Lower Cornwall plan is transforming Wharf Street into a pedestrian right-of-way using a bridge to cross the tracks.

Bikes and Pedestrian

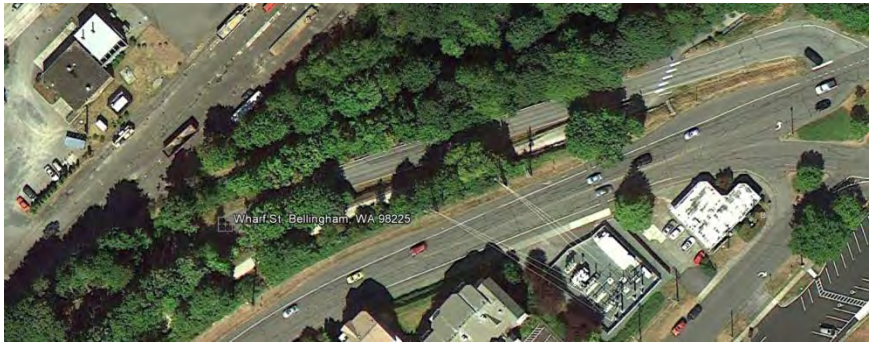


Figure 1.3.22 Existing Wharf Street

There are currently no bike lanes on either Cornwall or Wharf St. Bike travel is permitted but no infrastructure is provided for safe travel. Also, pedestrians aren't the focus when walking down Cornwall Avenue. There are sidewalks present, but do not line the entirety of the street with a minimal 4 foot width.

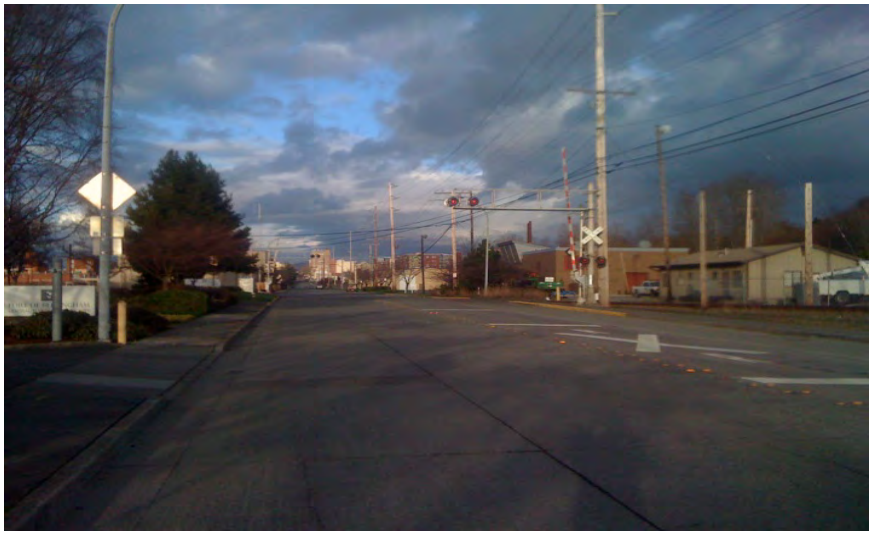


Figure 1.3.23 Existing Cornwall Avenue leading to downtown

The Lower Cornwall Avenue plan is providing for 14 foot wide sidewalks with on street parking that will act as a buffer. Alongside the parking, 6 foot wide bike lanes will exist running parallel to traffic.

Incorporated into Bay park Bridge, a high-speed bike path will allow for an alternative way to commute to the CBD.

Regional and Local Bus

The bus service does not come down Cornwall Avenue or travel up or down Wharf St. This lack of access gives Cornwall a sense of emptiness and was devoid of all pedestrians when walking through.

The Lower Cornwall Avenue Transition will create transit demand; therefore, the regional and local bus will enter into downtown rather than bypass it. With the implementation of three new bus stops on the already existing go-line, alternative transportation will be more accessible.

Parking

Parking exists along Cornwall but it is the only place to park in the public realm. The Port of Bellingham has parking in front of their offices as does the Maritime museum. Very few cars parked on-site along the street and even fewer parked in designated parking lots.

The Lower Cornwall plan will provide on street parking, ample space within parking garages, and off-street parking tucked behind residences in alleyways. Parking Garage 1 will be excavated down underground to accommodate the increase in automobiles in the Lower Cornwall area.

Profile of Clients

Dean and Natasha

Figure 1.3.25 The Student

Dean and Natasha are college students attending Western Washington University. Neither of them owns a car in Bellingham and use public transit to commute to the grocery store, school, and any other destination. They prefer to work close to their current rented residence. They are after affordable housing and a place to relax, study, or go out on the weekends.

Estimated Parking for Lower Cornwall Avenue Site			
Parking Garage	Spaces per story	Stories	Spaces
1	140	7	980
2	80	2	160
3	80	2	160
4	80	3	240
5	80	4	320
		Total parking garage spaces	1860
		On-street Parking Spaces	244
		Off-street Parking Spaces	220
		Total spaces	2324

Figure 1.3.24 Estimated Parking to accommodate future development

Peter and Margaret

Figure 1.3.26 The Elderly

Peter and Margaret have lived in Bellingham for a majority of their married life; they are looking for a place to retire with a breathtaking view of Bellingham Bay and have the expenses to afford a higher-end residence. As they are getting older, they are seeking a neighborhood where everyday living needs are easily accessible. With an excess of time on their hands the elderly couple enjoys spending a lot of time outdoors on leisurely walks and the occasional bike ride, with the option of an ice cream cone or coffee.

The Skillman Family

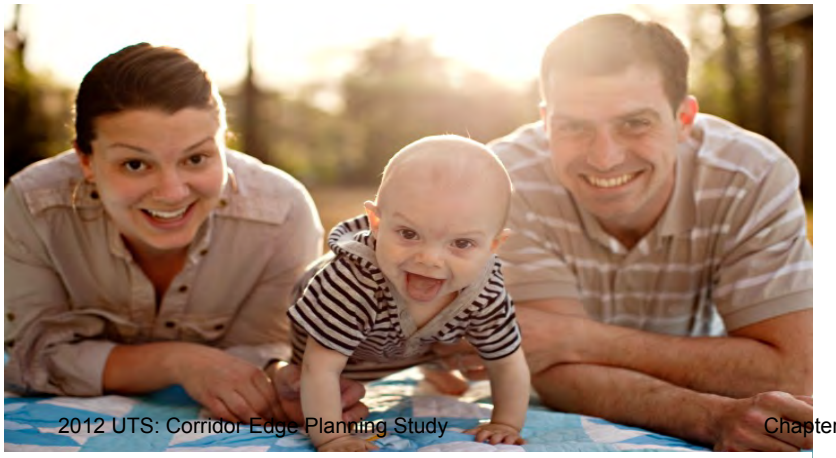


Figure 1.3.27 The Family

The Skillman family earns a modest income and own one car that they prefer to use only on the weekends. Brain is an avid biker and uses this mode of transportation to get to work. Anna is working part-time; her commute includes walking and using the bus. They want to raise their family in a safe area surrounded by other families. The Skillmans' love taking baby Bode to parks and interacting with a lot of different groups of individuals. An ideal house would include an affordable 2-bedroom.

Jennifer and June

Figure 1.3.28 The Visitor

These visitors are drawn to Downtown Bellingham for its beautiful landscape including the view of the waterfront and the availability of pedestrian friendly activities; such as, visiting Cornwall Park and trail systems, the proposed Civic Center, and the retail corridor providing a variety of shopping opportunities. They love how connected and close knit Bellingham feels, with the flow from the Downtown right into the Cornwall Avenue retail corridor.

2. Characteristics of Lower Cornwall Avenue Transitional Development District Plan

2.1 Infill Strategy

The Lower Cornwall Avenue Plan

Mixed Land Use and Building Types

The composition of Lower Cornwall Avenue will include services such as a corner grocery store, bike shop, coffee shop, large varieties of retail, and office space, servicing the community, inclusive to all of its members and promoting a high level of pedestrian activity. Buildings will reach 3-4 stories; commercial/retail prospects reside on the street level and office or residential will compose the remaining levels of the building.

These buildings will form to the urban design; including awnings at street level and balconies on every floor above, and architectural details consistent with that of the cities' design

These buildings will provide a variety of rental prices appealing to the client profiles as listed above in order to meet housing demand and accommodate all demographics.

Housing Diversity

<u>Diversity in Residential Types</u>

There are two main components to the housing implementation in the Lower Cornwall transitional edge development. This includes serving different levels of income and creating diversity in the housing types. Comprising the housing development includes:

- Apartments and Condos
- Row Housing

Apartments and Condos

Apartments will be located along Lower Cornwall Avenue in the upper stories of the mixed-use buildings interchanged with office space. These apartments are not provided with parking directly associated with the building but will allow for on-street parking and some alleyway parking. The apartments will accommodate future residents whom earn a budgeted income.

The Condos are located in the western end of the site boundary in the new Bay Park. Condos also are located on the upper ridge of the southern boundary slope. This housing type will provide a view of the bay and will be up to 3 stories high. Parking will be included underneath and will have access from North State St. They will cater to different levels of income and provide a fitting option for retirees. Located underneath the Bay Park Condos on the first story will have the occasional coffee shop to tailor to the residents and encourage pedestrian traffic.

Row Housing

Row Housing will be facing the waterfront and allow for alley access and parking. These buildings will be 3-4 stories high and have a portioned setback from the street to encourage human interaction and a chance for families to have a porch and a small lawn. The front view of the homes will entail many windows and have staggered alignment.

The row houses will be a walkable distance from various services located on Cornwall Avenue and within the waterfront development. The street grid will lead to the trail system connecting to the boardwalk.

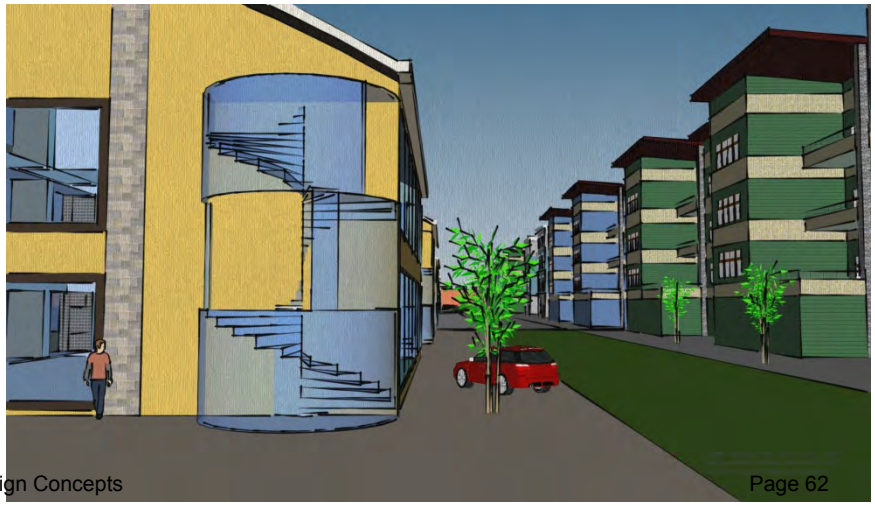
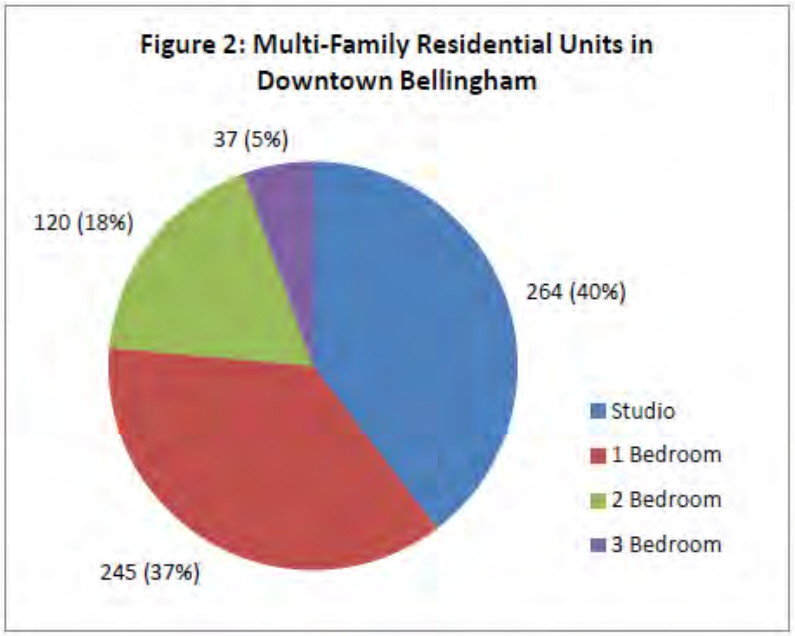


Figure 1.3.29 Detailed sketch of Row and Condo residential units

Figure 1.3.30 Figure Group Map displaying the location of different types of land uses including green space, residential, and mixed use buildings

Providing for Diverse Incomes and Demographics



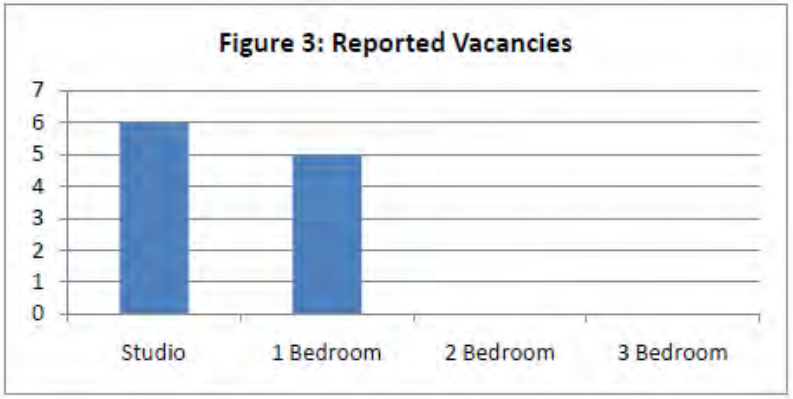


Figure 1.3.31 Demographics survey performed by the City of Bellingham

These housing types meet the needs of affordable housing in Bellingham and within the downtown area along with providing an option for other demographics.[6]

The apartments located within the mixed-use building tailor to students and single occupants allowing for affordable housing and easy access to transportation and services.

Condos will provide an option for those earning a moderate to high income, whether it is families, single persons, or couples. Condos provide fast and easy access to everyday necessities that are readily available.

Row housing caters to young families that earning a moderate to high income allowing for lawn space and a neighborhood of citizens that are seeking similar needs.

Increase Density

Housing option (ft^2)	Number of Units	Total Housing option plus Number of Units (ft^2)
800	150	120,000
900	125	112,500
1000	62	62,000
1100	100	110,000
1300	100	130,000
1500	37	55,500
Total:	574	Total: 590,000

Figure 1.3.32 Residential Units and square footage

As included in Washington State's GMA, a city should establish an urban growth area.[7] The City and Port of Bellingham have stated in their planning goals a need to increase residential in the Downtown and Waterfront District. In creating a transitional development the Lower Cornwall Avenue plans will include residential where currently none exist. Measures to meet density requirement consist of 3-4 story buildings.

Future employment growth in Bellingham will likely be the primary driver of population growth. This will depend upon the supply conditions in the beginning phase of the Lower Cornwall Avenue plan. The development of dense housing is priority in supporting the retail corridor and employment.

2.2 Connection of Downtown Bellingham to Waterfront

Connected Street Network

Figure 1.3.33 Proposed street network

[7]ftp://ftp.cob.org/plan/pl/publications/population/eco_northwest_report/Exec_Summary_Memo.pdf

Roadway Connection (ramp)

The proposed ramp off of Boulevard follows the 5% grade requirement by ADA standards. The ramp serves as a sound barrier from railway noise pollution, serves as a connection from the top of the bluff to Bay Park and the Waterfront District, and provides multi-modal transport.

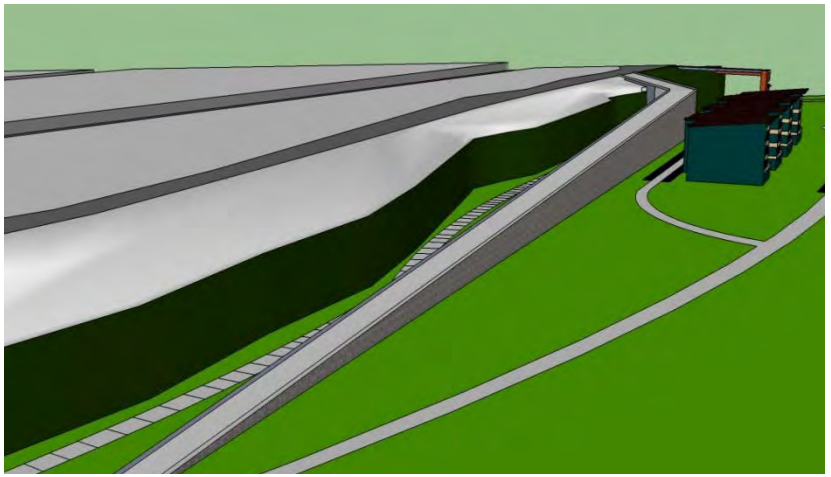


Figure 1.3.34 Bay Park Ramp model

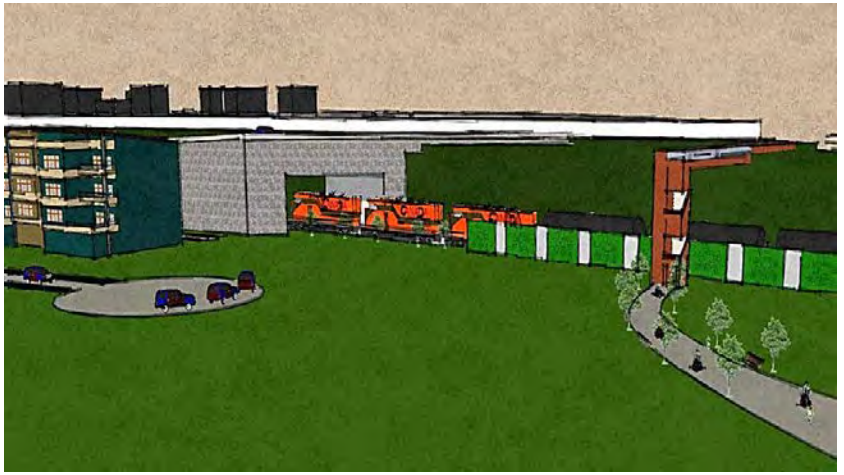


Figure 1.3.35 Perspective of Pedestrian Bridge in Bay Park

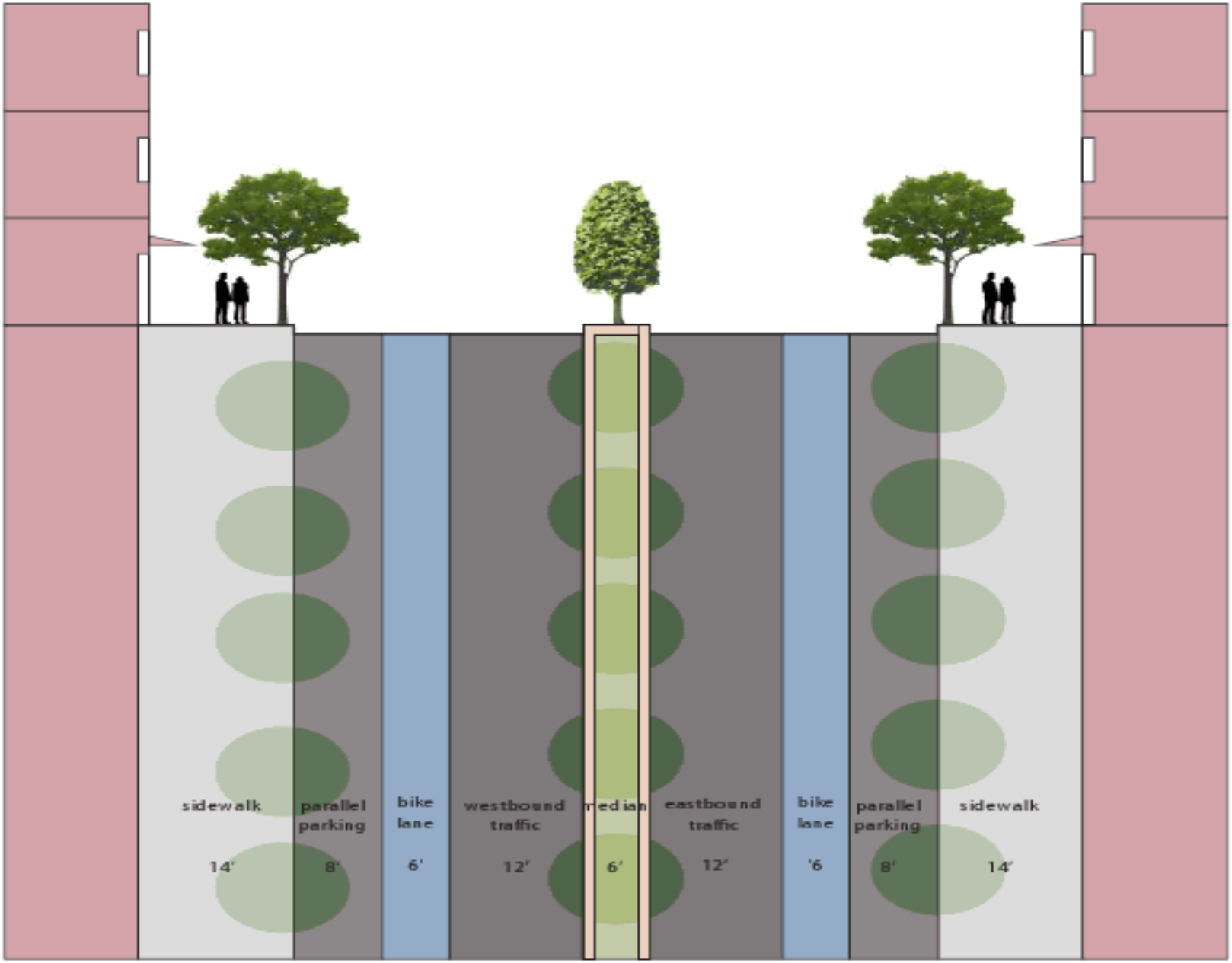


Figure 1.3.36 Streetscape of Lower Cornwall Avenue

Figure 1.3.37 Cross-section of Lower Cornwall Avenue

2.3 Multi-Modal Transportation

Increase Trail Connection

Lower Cornwall Avenue Transition Development functions as a multi-modal network including bus, pedestrian trails, and bike. The connection between Bay Park and the Waterfront District will provide a high-speed bike path allowing for quick commutes and bike right-of-way. Along Cornwall Avenue and other streets within the grid network there will be 6 foot bike lanes and ample bike parking.

Cornwall Avenue will represent a boulevard creating a pedestrian friendly environment. In the heart of the new civic center will be a WTA transit stop on the current go-line providing trips leaving and entering the area every 15 minutes or less. With continual access throughout the day there will also be a night shuttle to cater to night life in the area and a variety of schedules.

Wharf Street, which is currently auto-oriented, will become strictly pedestrian access only. Here, there will also be another bus stop along the go-line. The plans allow for an extension on the boardwalk, connecting from Fairhaven (Boulevard Park) to the Waterfront District (Cornwall Park). Along this trail network will be parks and open space with the opportunity for some dining.

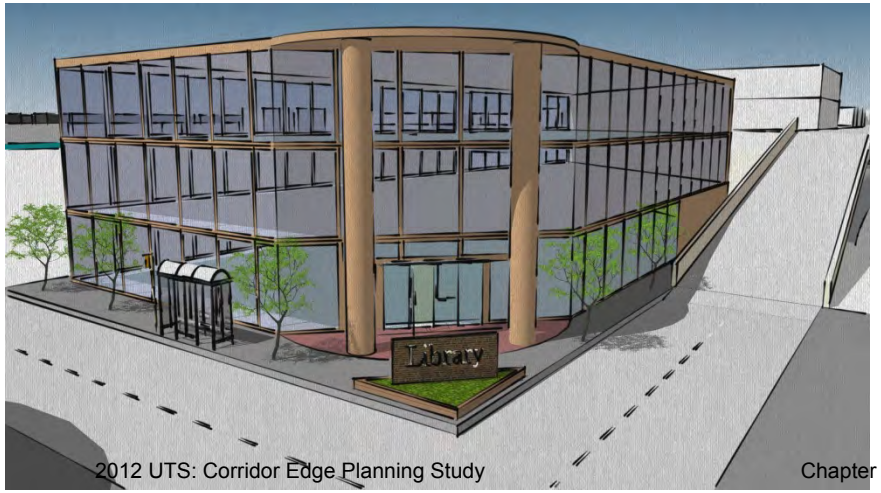


Figure 1.3.38 WTA bus stop located alongside propose relocated city library

Improved Connections and Circulation

Multi-modal transportation networks in place for the Lower Cornwall Avenue will allow for easy and efficient travel. An emphasis will be placed on alternative forms of transportation through provisions for pedestrian and bike only access points in addition to streets which provide generously sized bike lanes and pleasant sidewalks and trails. Regular and reliable bus service will also aid in the promotion of alternative transportation.

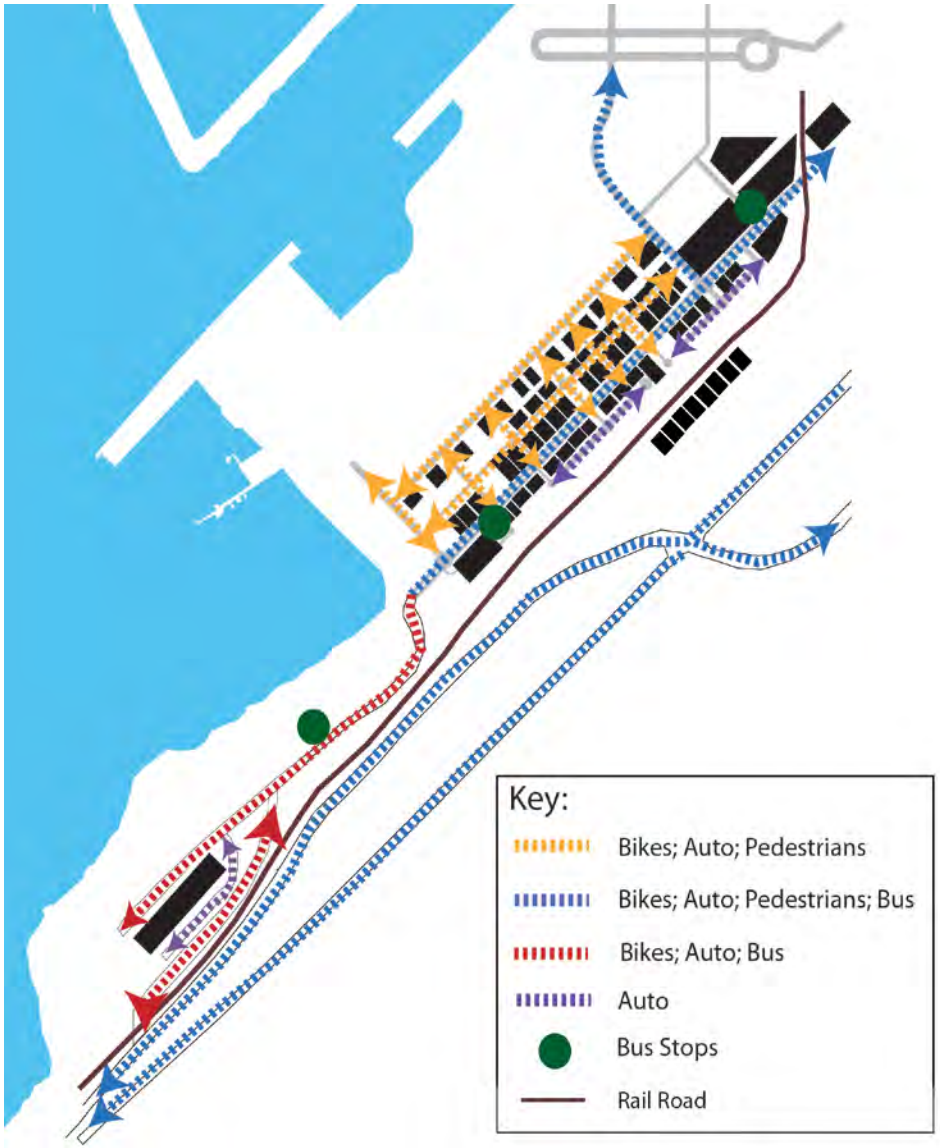


Figure 1.3.39 Proposed Circulation Map of Lower Cornwall Avenue Plan

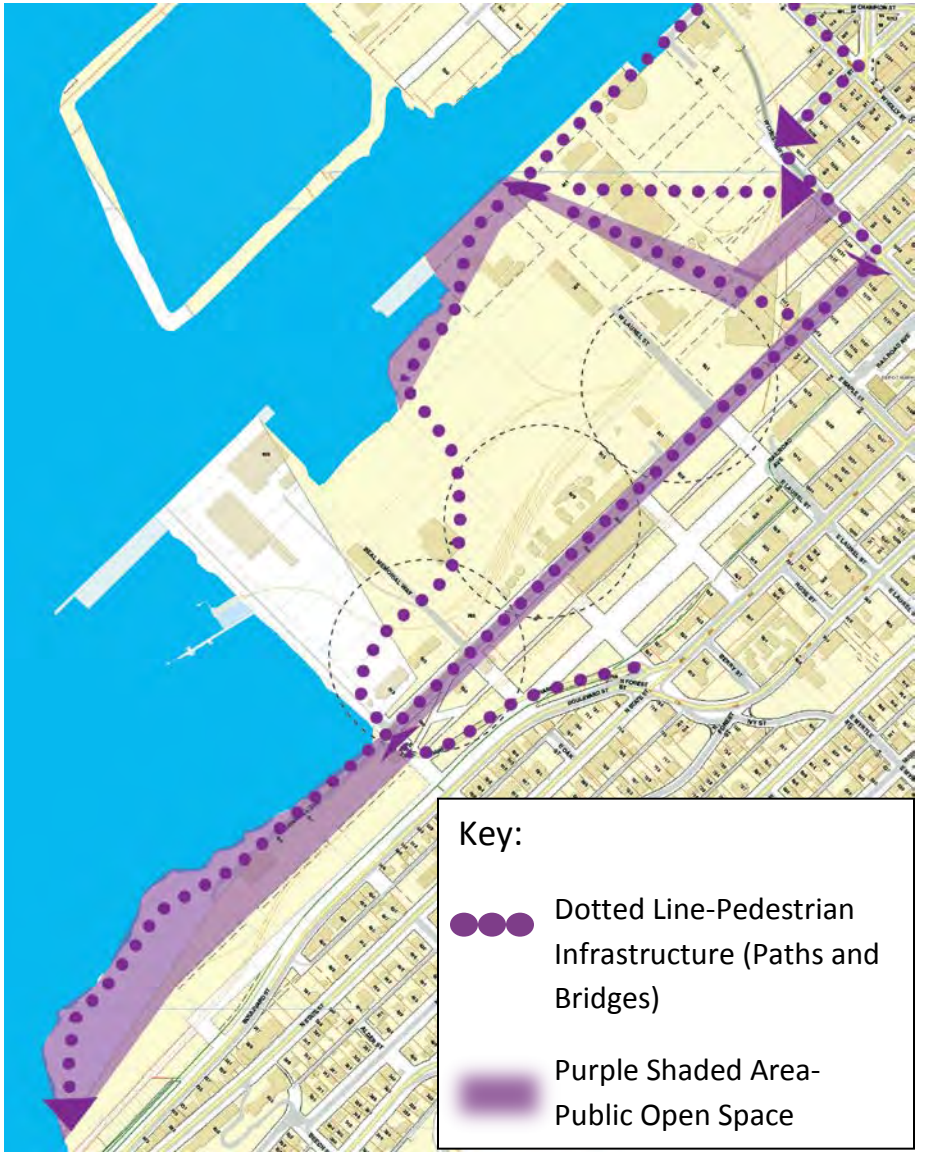


Figure 1.3.40 Proposed Circulation Map of Lower Cornwall Avenue Plan

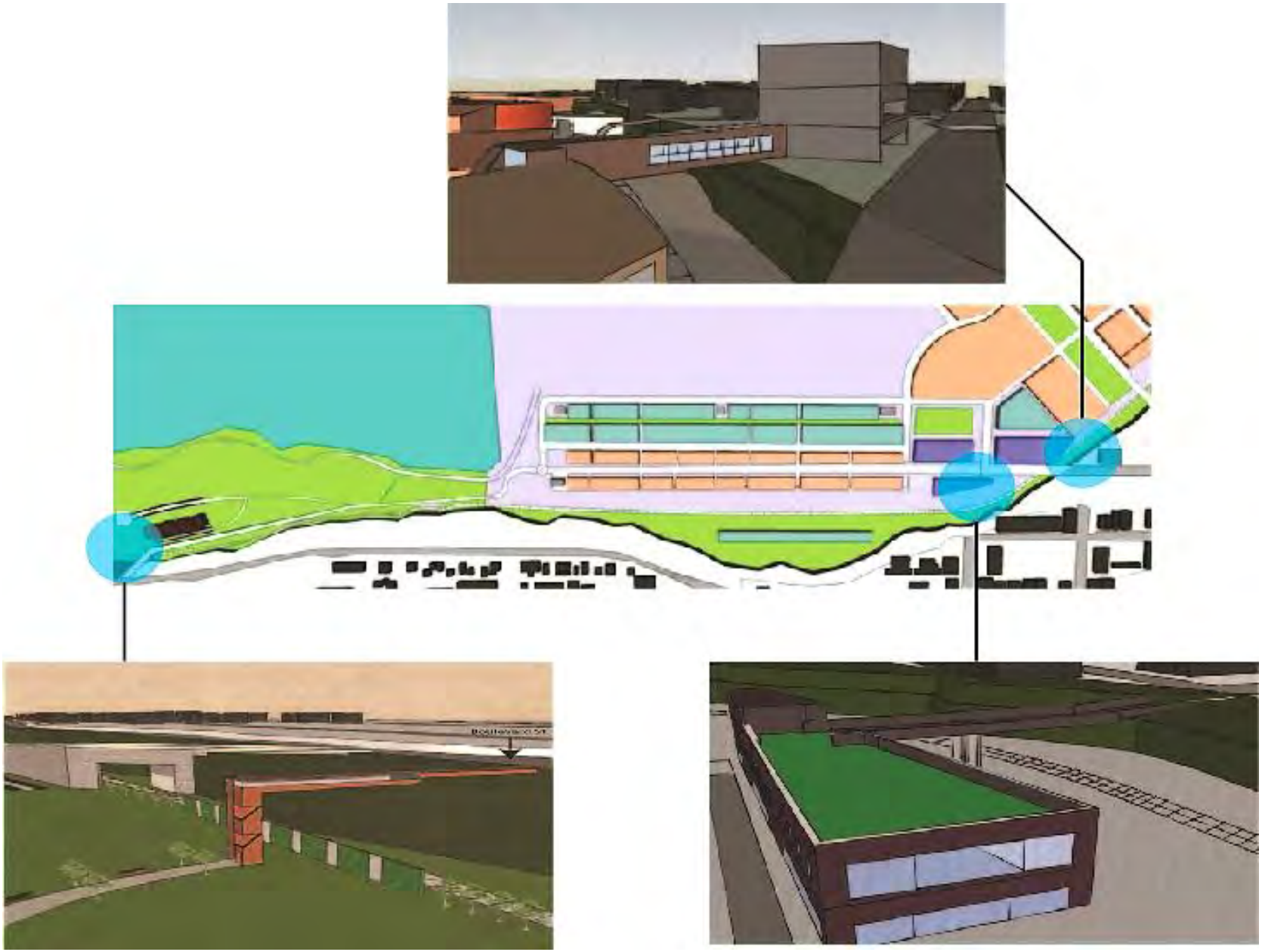


Figure 1.3.41 Land Use Model used to display locations and detail of pedestrian bridges

2.4 Sustainable Infrastructure

Storm Water Control

Mitigation of rainwater runoff from streets and sidewalks will allow water to travel below grade into a drainage ditch or in our case; bioswales. The bioswales are landscape elements designed to filter silt and pollution from surface runoff water. They consist of a swale drainage coursed with gently sloped sides filled with vegetation and compost. This vegetation and compost acts as a biological filter.

Rain Gardens/ Green Roofs

Figure 1.3.42 Bioswale

Popular trends in green infrastructure have influenced our design concepts to reduce the impact human beings have on the environment. Such practices incorporated in our Waterfront plan include green roofs, roadside rain gardens, bioswales, permeable surfaces, and grey water recycling.

Figure 1.3.43 Green Roofs implemented atop of a majority of proposed housing types

<u>Rain Gardens</u>

Roadside gardens will provide an aesthetic, human scaled appeal as a part of the Lower Cornwall Avenue plan. Subsequently, road side gardens can act as “containers” for excess water by slowing the journey water takes to its final destination. All these are measures to capture, absorb, and slow water transport and reduce the need for compensation by traditional storm water drains and containment ponds. Grey water can also be diverted to bio-filtration systems that incorporate planted containers.

3. Conclusion

The Lower Cornwall Avenue Transition Development describes a long-term development project which will convert an under-utilized industrial site on the Bellingham waterfront to a vibrant mixed-use neighborhood accommodating many different types of demographics and incomes.

The City, Port, and BPDA will be working together to complete the detailed planning process and implementations strategies to allow this vision to move forward.

The following additional actions will allow the first phases of development of begin, thus setting the stage for long term cooperative relationship as the site fully develops:

Implementation Strategies

- Adopt a comprehensive plan for all districts within the Downtown, Waterfront, and Lower Cornwall Districts.
- Begin construction on affordable housing within the Lower Cornwall Transitional Development
  - Establish a partnership with private developers, create environmental incentives, and phase installation of public infrastructure and railway mitigation implementation.

Figure 3.44 Conceptual Land Use Map of Lower Cornwall Avenue Transitional Edge

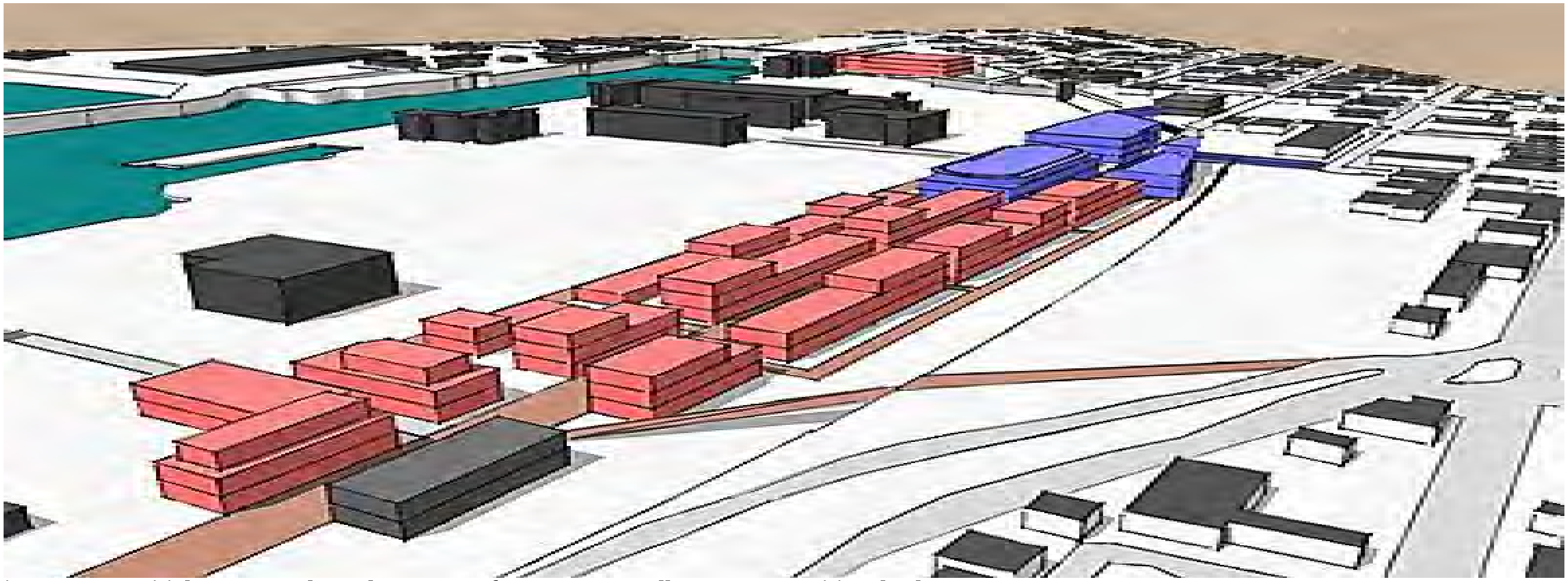


Figure 1.3.45 Initial Conceptual Land Use Map of Lower Cornwall Avenue Transitional Edge

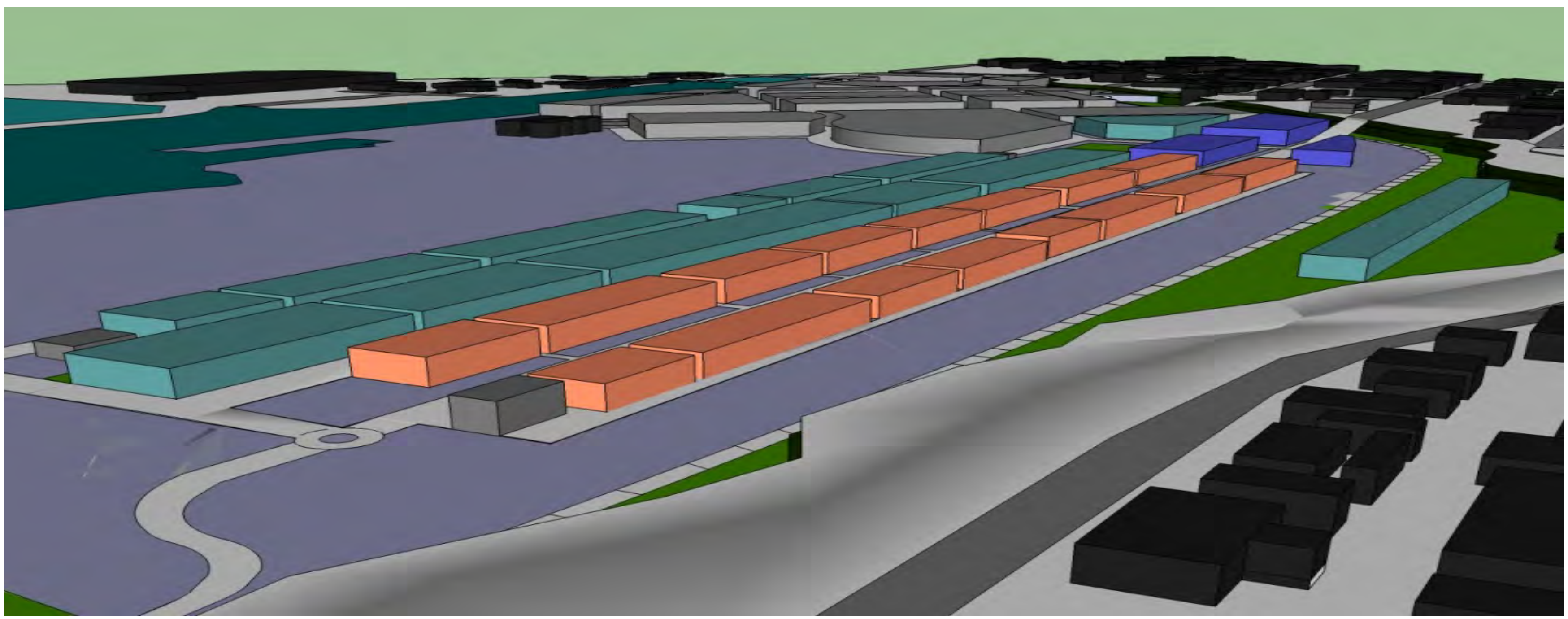


Figure 1.3.46 Final Conceptual Land Use Map of Lower Cornwall Avenue Transitional Edge (Building height not accounted for)

4. References

COB. City of Bellingham, Department of Planning and Community Development (2006). *City of Bellingham Comprehensive Plan*. Retrieved from website: http://www.cob.org/services/neighborhoods/community-planning/comprehensive-plan.aspx

COB. (2011). *Central business district neighborhood plan amendments*

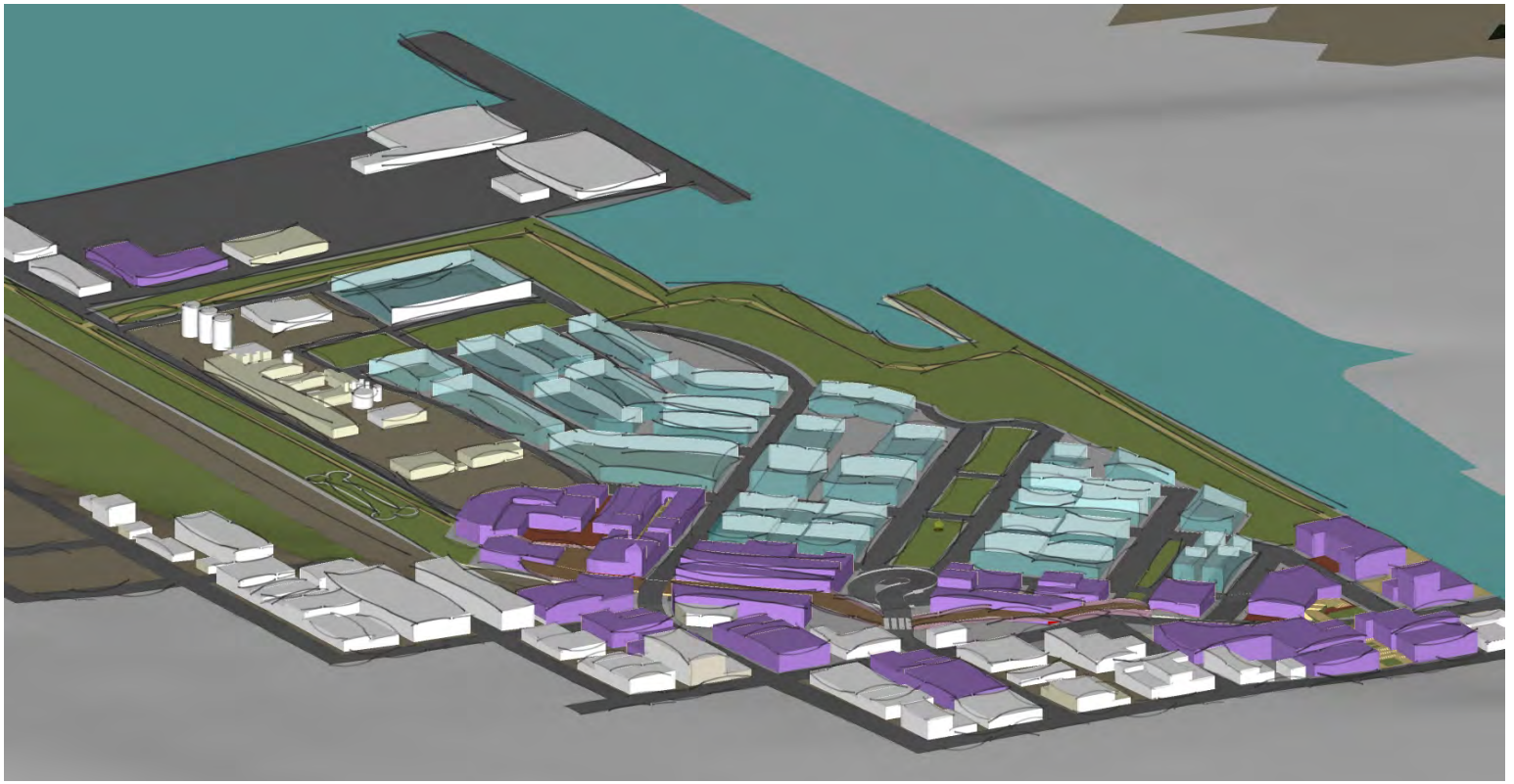
COB. (2012). *Bellingham Public Development Authority*. Retrieved from City of Bellingham website: http://www.cob.org/cob/cal.nsf/Article/241C70179E980F0B88257958006DDAD8?OpenDocument

POB. Port Of Bellingham, Port of Bellingham (2011). *Waterfront Draft Sub-Area plan*. Retrieved from website: http://www.portofbellingham.com/index.aspx?nid=172

CHAPTER 1. BELLINGHAM EDGE DEVELOPMENT DESIGN CONCEPT 4

1.4 Unique Districts Working Together

Erin Bren, George Bryan, Reginald Christor, Hilary McGowan, Sierra Saunders, and Christian Shope



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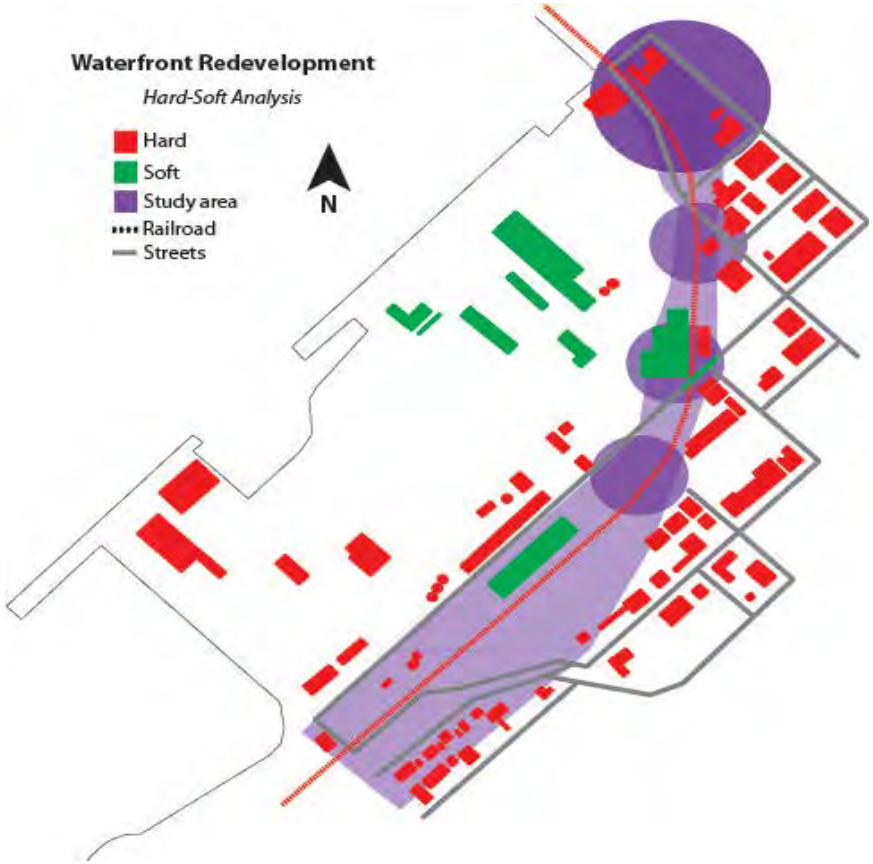


1. Introduction

The goal of developing the downtown EDGE is to provide dense urban housing for future growth along with a mix of other uses while expanding on the existing downtown to build the entire area into a connected and complementary urban waterfront. This plan recognizes existing unique districts and merges them with new ones so they work together as a whole and build upon the natural space. The area will be a home and a destination that serves the needs of residents and visitors alike in a human scale, pedestrian-oriented space that fosters the continued development of Bellingham's unique culture.

1.1. Study Area

The main study area encompasses the entire bluff from the Whatcom Creek crossing to Wharf Street between Bellingham's waterfront and the current downtown. This area serves as a transitional zone between the downtown and the waterfront. The focus of this plan centers around the Cornwall Avenue Bridge and its immediate surroundings on both sides of the railroad tracks.

Many areas in the site are dilapidated structures that can either be demolished or reused for an adaptive purpose. There is a large structure near Cornwall Bridge that can be used for many years until development encroaches on the location and the bridge must be rebuilt. Iconic structures such as the Granary Building and the high density tanks should be preserved but other less iconic structures in disrepair should be torn down.

Because Ecogen is still in operation and because they present the opportunity for district heating for the entire waterfront development it should be preserved. Across the street from Ecogen is a historic warehouse. It can remain in its current location until development encroaches; however, the valuable historic contents of this warehouse are suitable for a more suitable public purpose that can be potentially utilized in the area of development.

The southern portion of the site currently is industrial and should remain so if the industries desire to stay. Likewise, buildings bordering the waterfront should remain in their current use as those businesses prefer. Aged buildings serve a critical purpose in an area that will eventually undergo infill.

1.2. Issues and Opportunities

The waterfront site has historically been industrial and was created through land infill for that purpose. Since filling in the bay for human use would not be allowed today, it presents an opportunity for urban development now that industry has largely left the site. A major problem associated with the site is the toxic waste and harmful substances that resulted from industrial

uses. The harmful substances have seeped into the ground in several locations throughout the site. As of the time of this writing, some cleanup efforts are underway. The site should be capped with ten feet of fill to prevent the hazardous substances from contaminating Bellingham Bay through ground water flow. Ten feet of fill will protect the site from future flooding from sea level rise, as well as bring the site ten feet closer to current Downtown Bellingham.

Although the bluff creates a barrier between the site and the downtown, it is also a major design opportunity. The ten foot layer of fill would somewhat address the elevation difference and increased fill could further solve this issue. The bluff creates an opportunity for scenic vistas and corridors along the site. Tall buildings can make use of outdoor seating areas that overlook Bellingham Bay and roof tops can be utilized for many purposes while taking advantage of the incredible view.

A second design challenge is working around the BNSF railroad tracks, which currently bisect the waterfront. Existing plans for waterfront redevelopment propose positioning the railroad tracks next to the bluff which would combine the two design barriers into one and make mitigation easier. BNSF Railway perceives a need for 25 feet of clearance (15 feet above fill) and 50 feet in width for two tracks. Additionally, BNSF Railway does not want to tunnel in the tracks, primarily for safety reasons, so this plan utilizes a structure that is not a tunnel yet covers most of the tracks, mitigating the noise and pollution affects and providing pedestrian access into the site.

The Granary Building is an iconic historic building that is loved by many Bellingham residents and should be preserved for as long as possible. Despite the high cost of restoring the Granary Building it could be a particularly attractive investment to a future developer because of its height which is exceeds current regulations for waterfront structures. Partial demolition would allow for greater auto accessibility to the site, but usable square footage wood be lost.

An adaptive reuse assessment conducted by the Port of Bellingham and the City of Bellingham concludes that the "Granary would have storage uses in the basement, a ground floor of commercial/retail uses and offices and a restaurant/pub on the upper floors."[1] It should be an attractive investment when density is higher because buildings of its height can no longer be built in such close proximity to the waterfront.

1.3. Land Use

This plan presents a solution for the city's current and future need to accommodate a growing urban population and eliminate the need to expand urban boundaries by, instead, promoting urban infill in locations suitable for more intensive development. When commercial vacancies are filled in downtown the commercial expansion will accommodate future commercial growth.

Land Use	Proposed Sq. Ft	Proposed Dwelling Units (DU)
Residential	761,500	760 total Residential DU; 135 Live Work DU
Commercial	498,000	
Office	356,800	
Institutional	183,000	
Soft Industrial	43,000	
Parking Spaces	850 spaces	Majority of parking resides in parking garages.

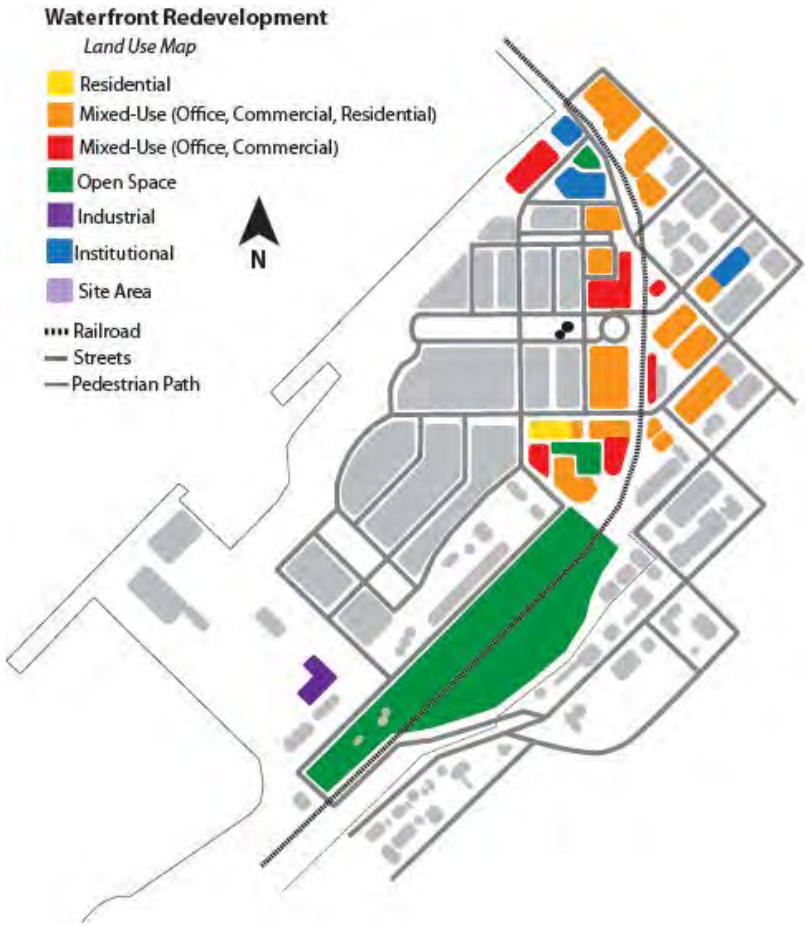
Residential

This plan incorporates most residential use in combination with other uses that take greater advantage of first floor street access. Increasing residential space in the downtown area to meet future population growth is a primary objective. One strictly residential building is proposed within the site. Other residential is proposed within mixed-use buildings. A total of 760 dwelling units will have a significant impact. The urban environment necessitates a mix of uses for a dense, lively district.

[1] Waterfront District Adaptive Reuse Assessment

Mixed-Use (Office, Commercial, Residential)

This plan adopts mixed-use buildings comprised of office, commercial, and residential throughout the site to accommodate future population growth in a high density downtown that will also require commercial growth. Most residential space will be provided through this type of land use to continue the downtown's already established character. Combining residential space with commercial and offices provides for a dynamic urban environment.



Institutional

Institutional space will provide a place where residents and visitors can go to enjoy the culture Bellingham has to offer. The proposed city library and the reuse of the Granary building will add character to the site and offer residents and visitors civic functions.

Open Space

Open space throughout the site will provide areas for human activities. This plan aims to take advantage of the site's natural features and to supply residents and visitors with space for recreation, leisure, and human interaction.

Industrial

The waterfront has historically been an industrial site. Opportunities exist to incorporate light industrial use with urban infill. The area near Ecogen and the railroad tracks is flexible space that could accommodate light industry if opportunity permits. There is potential for the waterfront to be home to green industrial uses in the future.

1.4. Districts and Character of Districts

The three major existing districts in the downtown and waterfront area are the Civil Center, the Central Business District, and the Industrial District. The Civil Center is comprised of the court house, city hall, and museums in the northern section. South of this lies the Central Business District, a mixed use commercial center with apartments inhabited primarily by young individuals, some offices, and lively streets. The Industrial District is located in the southwest portion of the waterfront. Ecogen, an elongated steam generating facility, is located near this plan's primary study area. Ecogen's close proximity allows it to be incorporated into redevelopment of the waterfront.

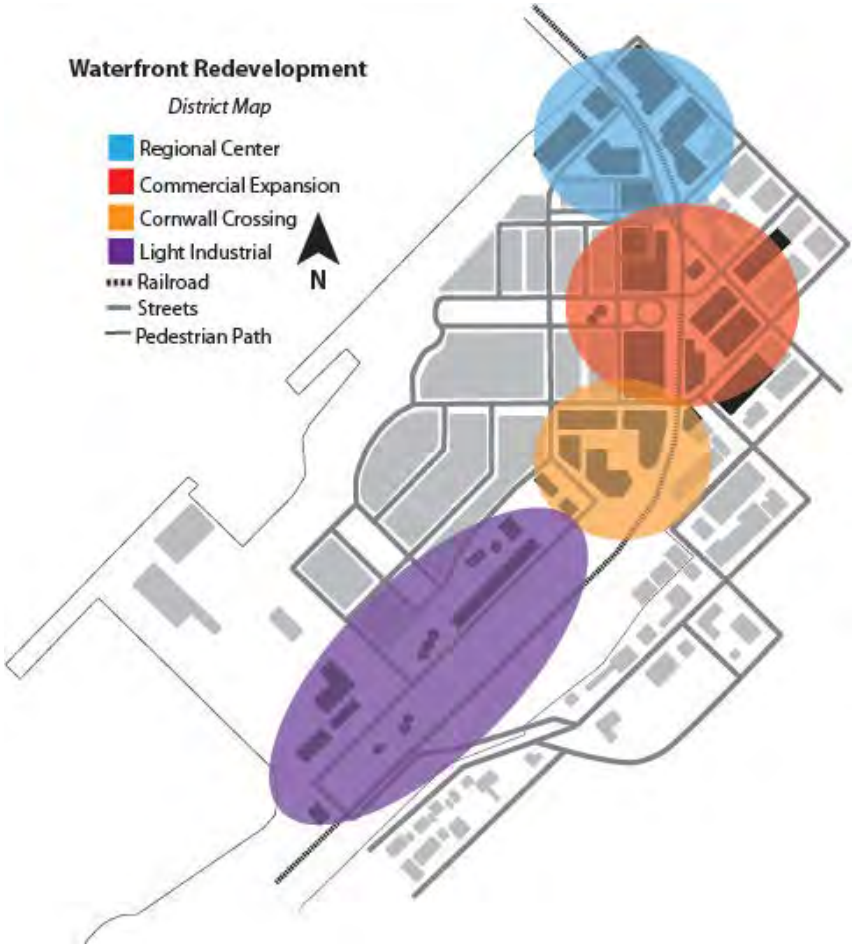
In addition to these three existing districts, a residential area is emerging. Two large residential buildings featuring retail on ground level have been constructed recently on Maple Street, which borders the waterfront. Nearby

is a low income housing unit, and apartments and condos are common along State Street.

There is an opportunity to add three additional districts within the waterfront site. A Regional Center, comprised of a hotel, conference center, and public library, will be in the northern portion of the site where the Granary building currently resides. Directly south will be the Commercial Expansion district with opportunity for residences and offices when the market permits. South of the Commercial Expansion district will be the Cornwall Crossing district which will merge into the Light Industrial district.

1.5. Relation of Districts to Downtown –Unique Districts Working Together

An essential characteristic of this plan is the emergence of unique districts within the waterfront and their seamless connection to existing districts. Redevelopment of the waterfront will require opportunities to be capitalized on to obtain what many stakeholders have to offer.



Regional Center and Library

The Regional Center's hotel and conference center will be a regional draw and the first stop for many waterfront visitors. Additionally, the Maritime Heritage Boardwalk, pedestrian connectivity to the Bellingham Public Development Authority's proposed Army Street Plaza, and other pedestrian-oriented features will shape a walkable environment and resemble the existing Maritime Heritage Park and, thus, attract visitors and promote tourism.

Adjacent to the Regional Center will be the existing Civic Center, which contains museums, City Hall, and Maritime Heritage Park. The hotel and conference center will present a regional draw and be the first stop for many Bellingham visitors. The proposed Maritime Heritage Boardwalk, pocket parks, and stairs to Army Street Plaza will mirror Maritime Heritage Park and create a walkable, human scale space. Maritime Heritage Park will connect the Civic Center to the library, conference center, and hotel. Western Washington University's satellite campus could be located nearby and will add to the civic corridor, linked together by pedestrian paths.

Commercial Expansion

The Commercial Expansion district will be a mixed-use district adjacent and directly connected to the downtown commercial district via the proposed pedestrian walkway. Although many of the mixed-use buildings within this district will contain residential and office uses, their street-level commercial uses will complement the downtown's Central Business District. Buildings within this area will allow for pedestrian connectivity from the upper pedestrian pathway to the lower street level commercial expansion.

The buildings will be approximately three to five stories high with no setbacks and wide sidewalks for pedestrian-orientation. This will provide a vibrant sidewalk with storefronts lining the pedestrian paths for tourists, residents, and visitors. Architectural review in this area should ensure new buildings include elements for the protection of pedestrians from the elements.

Cornwall Crossing

The Central Business District, the emerging Residential District to its south, and the Industrial District meet at the Cornwall Avenue Bridge and create a unique trifecta of uses. The Cornwall Crossing will contain a plaza that brings together the three uses in a compatible setting where some noise and industrial use is expected, yet is compatible with residences above the street. The industrial use, together with the commercial/residential partnership, represents a creative opportunity to expand pedestrian space within the area.

A live/work housing structure will give is individuals the opportunity to live above a commercial space which is served by a shop space below, all in one compatible vertical format. The Ecogen site is compatible with this development as well as the Commercial Expansion across the street comprised of housing, jobs, and shopping.

Light Industrial

The Light Industrial district will be comprised of the Ecogen site and the southwestern portion of the site. The Ecogen site has a significant impact on future development, and, along with the railroad tracks, contributes to the need for Cornwall Crossing district to have an industrial edge. Ecogen also presents an opportunity to make use of district heating within the waterfront. The Light Industrial District will require truck access at the new Cornwall Avenue access point into the site. The Cornwall Crossing District will allow current industrial uses to remain and connect to urban development.

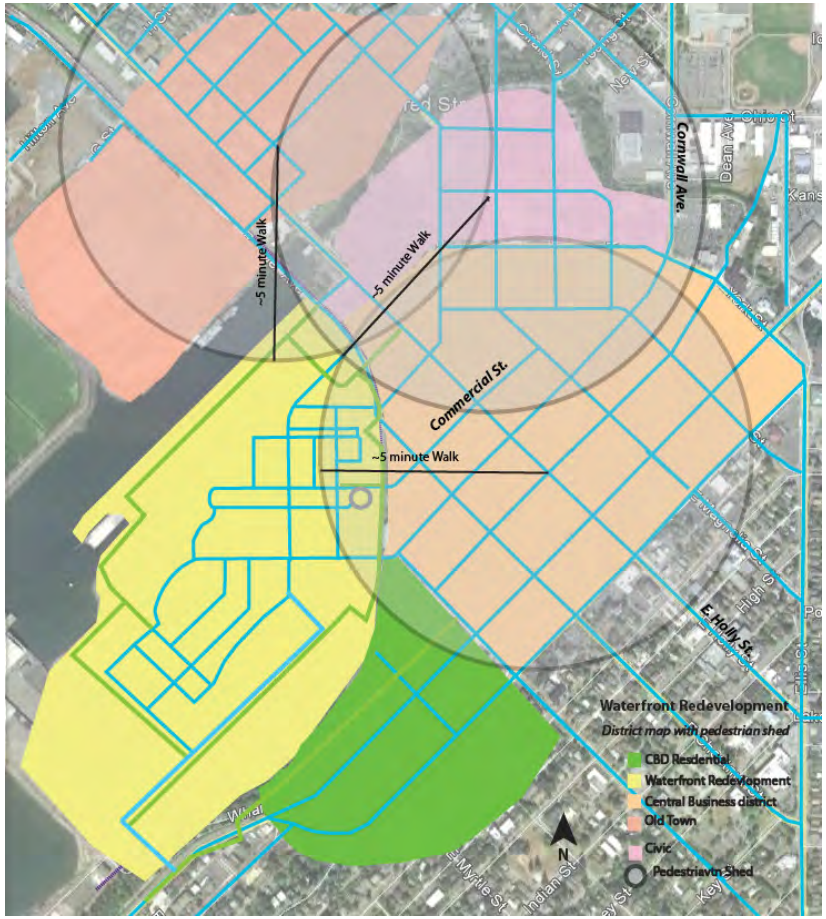


Figure 1.4.1: District map showing how existing pedestrian sheds relate to the waterfront redevelopment

1.6. Relationship to Existing Plans

The City of Bellingham, the Port of Bellingham, and the Bellingham Public Development Authority have already made contributions to waterfront redevelopment. The aim of this plan is to harness those contributions and expand on them.

The Bellingham Public Development Authority (BPDA)

This plan borrows heavily from the strategic waterfront plan produced by the BPDA. The Central Avenue, Army Street Plaza, and Commercial Avenue site entrances proposed by the BPDA have been adopted and incorporated into this plan.

The Port of Bellingham

The Port of Bellingham's plan is incorporated into this plan as well. Much of the waterfront and a major priority of waterfront redevelopment is to get the site back into productive use. The Port's proposed street grid and the BPDA's street grid are utilized within this plan and adjusted to create a new street grid that works effectively with the proposed rerouting of Cornwall Avenue.

The City of Bellingham

This plan was designed in accordance with the parameters of the assignment; however, it should merge with the plan already in place in Downtown Bellingham. Because this plan aims to merge seamlessly with downtown, the land-use, design characteristics, and overall character of waterfront redevelopment should be compatible with the downtown.

2. Vision

Core design elements will be utilized to tie the interrelated districts of downtown together and to create activity points. All the land use, design elements, and policy should work together to create a mature, interdependent district that is attractive to a variety of individuals, including families, all age levels, and all income levels. Development should be phased over a time frame that supplements downtown rather than competes with it.

2.1. Core Design Elements

Relocation of Railroad Tracks

Relocating a section of the Burlington Northern Santa Fe (BNSF) railroad tracks from their current location within the site towards the bluff would allow for an ideal street grid and more connectivity within the site.

Pedestrian Walkway

A pedestrian walkway, similar to New York's High Line, will span the relocated railroad tracks from the Cornwall Avenue Bridge to the Bellingham Public Development Authority's proposed Army Street Plaza. Benefits of the walkway will include reduced noise and pollution from trains, increased pedestrian and bicycle connectivity, and a pedestrian friendly environment.

Figure 1.4.2: Image of the proposed pedestrian walkway looking towards the new Cornwall Avenue bridge

The design of the pedestrian walkway bordering the downtown and the waterfront above the railroad tracks is subject to a handful of factors. These factors include the width of the railroad and the public private partnership and policy for funding. These factors influence the types of noise and pollution mitigation available, as well as the pedestrian experience on the pathway itself. The proposed pedestrian pathway is not a tunnel, but it does have similarities to a tunnel. BNSF Railway is sensitive to the effects of a tunnel and the pathway should take into account those needs. The pedestrian pathway is a study in itself.

Rerouting of Cornwall Avenue – "Cornwall Crossing"

Turning Cornwall Avenue to cross the railroad tracks perpendicularly will have two critical outcomes. It will direct traffic towards the center of the development and allow for a shorter, less costly Cornwall Avenue bridge to be constructed. To further mitigate the cost, a parking garage would be constructed as part of the bridge, giving public purpose to the area beneath the structure and generating income that could pay for some of the costs of the bridge over a long term. Mixed use will be constructed which become part of the structure, and make use of the parking garage.

Figure 1.4.3: Illustration showing the existing Cornwall Avenue and the proposed reroute

Because Cornwall Crossing district is in the last phase of this plan, it allows for the continued use of the existing Cornwall Avenue bridge and time to work with BNSF Railway on the span of the new bridge. It is ideal for new Cornwall Avenue extension to have a five percent grade. BNSF Railway requires at least 24 feet of height clearance between the tracks and the bridge to accommodate double decker trains. Additionally, the bridge must span 50 feet in width before descending into the site to space two sets of railroad tracks. If opportunities arise in the future to meet these needs in

another way, the Cornwall Avenue bridge could be a less costly public expense and fit more adequately to the site.

School

To create a new residential urban neighborhood that attracts and retains family residents, the site should contain an urban school. Not only would the waterfront's proposed parks be a useful asset to the school, but the school, as a community center, would be an important asset to the community. Children could utilize the parks for recreation in the day for recreation and education. The school could serve as a gathering place because community events could be held during non-school hours.

Figure 1.4.4: An image of the proposed school

Children would give fresh life to the waterfront, generating a well-populated, lively atmosphere at times when business most needs it. Because schools produce the most traffic at times when business is typically slow, it will give the downtown a critical boost. Not only will it produce ripple effects in downtown businesses, but it will contribute to a busy, safe urban environment.

Plaza

A plaza within the Cornwall Crossing district will connect to the proposed pedestrian walkway and provide open space within the site. The plaza will work with the pedestrian walkway to mitigate the effects of the railroad, while utilizing rooftop space to allow pedestrian access into the plaza and for a pedestrian passage onto old Cornwall Avenue to continue towards Boulevard Park. The plaza should be constructed so that the old Cornwall Avenue corridor is preserved and so a new corridor is created.

The plaza space is open to a variety of uses depending on market factors. The plaza will reside at the intersection of commercial, residential, and light industrial uses. It should reflect the unique intersection of uses but can favor whichever one is more desired. The plaza space could potentially be oriented toward the public or it could be an open space that the various shops utilize to their own purpose.

Maritime Heritage Boardwalk

The Maritime Heritage Boardwalk, which will begin at Central Avenue and span the Whatcom Creek waterway, will complement the nearby Maritime Heritage Park. The Boardwalk is a quintessential aspect of many waterfront locations and will serve as a pedestrian pathway in the Regional Center district. The Maritime Heritage Boardwalk should serve as a vendors row or house mobile cuisine for transitional use.

Figure 1.4.5: An image of the proposed Maritime Heritage Boardwalk

2.2. Flexibility

This plan takes into account many aspects of site design can change as public involvement and negotiations with stakeholders occurs. There are

ideal outcomes of design highlights, phasing, and general development for the site that may require compromise with given stakeholders. There are a range of features of each flexible piece of development that can flex according to the given needs.

2.3. Phasing

The Regional Center district should be developed first, then the commercial Expansion district, lastly, the Cornwall Crossing district.

Currently there is a high vacancy rate for commercial units downtown. A growth of 30,000 people from 2002 to 2022 is predicted for the City of Bellingham. Much of this population growth should be placed in infill development downtown, and only when that is maximized, in the adjoining waterfront development. The relocation of the railroad tracks is flexible, but needs occur before the construction of the Commercial Expansion district and the Cornwall Crossing district.

Residential infill downtown and the creation of the Regional Center district should minimize commercial vacancy rates downtown before implementation of the Commercial Expansion district. The scale of development within the Commercial Expansion needs to be large enough to justify the use. Transitional uses should be strategically placed before development of the Commercial Expansion is completed, to create a 'pop-up' activity center that meets the needs of a variety of people contributing to a lively, family-friendly urban district.

The proposed Cornwall Avenue bridge will be the last phase of construction. The fate of the current bridge is dependent on the needs of BNSF Railway. In the future, industrial uses may occur within the Light Industrial district. If not, transitional uses can be moved to this site to contribute to the livelihood of the new development.

2.4. Profile of clients:

According to the 2010 census, the majority of residents in downtown are in their twenties. Because much of the growth in Bellingham's future will be families and elderly, it is important that new development appeal to demographics beyond those in their twenties.

<u>Jackie Studabaker</u>

Jackie is a single woman and recent WWU grad. She works as a full time manager of a locally owned pizzeria. Jackie works hard, but has not yet begun what she would call her career. She earns enough to get by and to afford some simple pleasures but still qualifies for housing assistance. Jackie doesn't own a car because of both the expense and because her lifestyle doesn't necessitate a vehicle.

Jackie enjoys living in the new waterfront development because it allows her walk to her workplace downtown on a daily basis. Since it seems as though people are always out and about she feels comfortable walking home late in the evenings after a long day's work. On days off, it is not uncommon for Jackie to hop on her bike for recreation and running errands because she can utilize a network of trails that connect her with several nearby neighborhoods. Although she isn't an expert cyclist on the street, bike lanes and trails connecting her to nearby areas make her bike an easy choice for easy accessibility to her daily needs.

<u>Fredrick Stamphandler</u>

Fredrick is 80 years old and has been on his own for nearly ten years. Although Fredrick is retired, he spends an ample amount of time volunteering, and his kids take him fishing some weekends. Because he prides himself on being frugal, it is not unusual to find Fredrick at the thrift shops which are in walking distance, even for an elderly man.
Fredrick has a car, but it spends most of its time parked in the underground lot below his Condo. Sometimes his kids use it to drive him fishing, and he hires a student across the hall to drive him on occasional errands as well. However, often times for an unforeseen errand, or to get to his volunteer jobs, his car is useless. Fortunately for Fredrick there is a bus stop only a block away from his house. He brings a small cart with him when he might need to bring some groceries or cat food home. When he feels like a stroll it's not uncommon to see Fredrick down at the boardwalk observing the goings on of the morning or afternoon.

Elderly people such as Fredrick appreciate places such as the waterfront development because many of the amenities they need are readily available. Fredrick merely needs to walk downstairs and catch a bus, or walk down the street for a stroll in the park. While elderly would be deserted a suburb or many retirement homes, the urban environment allows for much more accessibility.

Mallory and Larry Frampton

Mallory and Larry have been Married 10 years and have an 8 year old son named Junior. Mallory and Larry both work in town but sometimes Mallory travels locally for work. Junior goes to elementary school in nearby Fairhaven. Between the 3 of them they have one car and sometimes utilize the car share vehicle which is managed by the apartment they live in. On warm days the family eats breakfast together on the balcony where they can view the day's beginning on the streets below and a piece of Bellingham Bay. Today Mallory needs the car for her job so she continues to get ready for the day while Larry and Junior mount their bikes for a fun ride down the Boulevard trail. While Larry drops Junior off for school, Mallory is just leaving for work.

Families like the Frampton's will prefer to live in urban neighborhoods such as the waterfront because it allows them to simplify their lives and spend more time together. Living in a suburban location would mean a long commute and less time together, whereas living downtown gives them immediate access to parks and negates the need for multiple cars. Since there are clearly marked places for people and for cars the downtown streets and parks are a safe place for Junior and his friends.

Jane Freeman

Jane is a business executive from Vancouver and is here to meet with colleagues at a convenient central location. The conference center isn't enormous, but for her business's needs it is quite adequate. She arrived on the train on Monday and will stay until the end of the week. At the hotel on the waterfront all her needs are at her fingertips. There are restaurants and shopping just around the block, as well as beautiful waterfront parks nearby.

Businesses would choose to meet in a place like the Bellingham Waterfront because it is a central location between two major cities, and large enough to have everything they need but also a nice place to get away. Transportation would not be a problem with a well-connected, multi-modal network and amenities such nightlife, parks, restaurants and shopping would all be nearby.

3. Characteristics

Circulation, human scale space, character, and transition use are objectives within this plan that will work together to address the missing puzzle pieces of downtown and fit those pieces into the whole. A family friendly residential district and regional destination offered together are part of our unique districts working together for a complete downtown.

Circulation

Human Scale Space

Character

Transitional Use

Throughout the following objectives are the plan's core design elements which should be built in accordance with the opportunities presented as development approaches. The concepts developed here solve real conflicts presented by the unique nature of the site and stakeholders involved. As development unfolds, opportunities will present themselves with key stakeholders such as investors, and right of way holders such as BNSF, to maximize the benefits of these concepts.

3.1. Circulation

Multi-modal circulation throughout the waterfront redevelopment site will create an attractive environment for all users. Pedestrian, bicycle, transit, and automobile connectivity will ensure all members of the community can access and enjoy the site. The Transportation Chapter of Bellingham's Comprehensive Plan states "The City of Bellingham strives to provide, manage, and maintain a safe, well-connected, and efficient multi-modal city-wide transportation network. The ability for people to travel safely and efficiently, using various means of transportation, contributes to the high quality of life that Bellingham residents enjoy."[2]

Reconstruction of existing access points to the site and the addition of new ones is necessary to connect the waterfront to the downtown. Relocation of the railroad tracks will require new infrastructure to continue Cornwall Avenue into the site. Turning the road would reduce the bridge's span across the railroad tracks and would direct traffic towards the redevelopment's center. Granary Avenue and Bay Street should also serve as access points through the addition of infrastructure.

<u>Automobile Access</u>

While emphasis should be placed on alternative modes of transportation, automobiles should be accommodated through a variety of strategic ways. In addition to Cornwall Avenue and Wharf Street, two northern access points into the site will be constructed. Commercial Street will act a primary entry point for automobiles and direct traffic into a parking structure, reducing automobile use throughout the site. The plan's grid-like street network will improve circulation for all modes of transportation.

[2] Bellingham Comprehensive Plan, Chapter 3, Part 1

Transit

In addition to serving automobile access, new roadways would support the public transportation system. In keeping with the 2006 Bellingham Comprehensive Plan, the proposed high density waterfront redevelopment allows for the incorporation of Whatcom Transit Authority (WTA) high-frequency transit service. Public transit provides accessibility for all members of the community, unlike private automobile use which excludes "elderly, disabled, youth, and low-income individuals" (TP-80).

Pedestrian and Bicycle

Throughout the edge of the site along the bluff are pedestrian access points that give the site connectivity. Multiple access points will allow pedestrians and bicyclists to move between development on both sides of the bluff and railroad tracks. Mixed use buildings adjoining the walkway would line it with storefronts and various uses. The activity this generates will produce an atmosphere of activity and safety. There are various opportunities for pedestrians to access existing trails in the vicinity such as South Bay Trail, and Maritime Heritage Park.

Figure 1.2.6: An image of the New York's High Line
www.thehighline.org

Additionally, streetscape throughout the site should promote walking and bicycling. Human scale streets will provide pedestrians with necessary comfort. Bicycle lanes and infrastructure, such as parking, would encourage the use of bicycles and reduce automobile dependency. All locations within the site are within a five minute walk from the center of development, making the entire site walkable. The entire district is located within a 5 minute walk from other various development centers such as Old Town, the Civic Center, and Downtown.

Parking

To encourage multi-modal transportation, parking structures will be located underneath buildings along the bluff, taking advantage of the site's natural topography. As development is proposed on infill, some parking could be located underground in certain buildings. In keeping with the downtown, on-street parking will be included on most streets to provide additional parking, rather than parking lots.

3.2. Human Scale Space

Developing for the human is a key element in the design. Effective urban design should be utilized to create an environment that encourages human interaction and activity. Streetscape elements such as proportions, setbacks, porches, street furniture, and concealment of parking will create a pedestrian scale.

A street width to building height ratio of 2:1 provides pedestrians with a sense of enclosure and safety.[3] Building heights of three to five stories and street widths of roughly 50 feet with sidewalks around 10 feet on each side will achieve human scale and with the current downtown. Mixed-use buildings will front sidewalks without setbacks, and residential buildings will have small setbacks serving as semi-public space. Porches, balconies, outdoor dining, and overhangs will assure human interaction with the sidewalks. Wide, tree-lined sidewalks with street furniture such as benches, lamp posts, and art will encourage use of the space. Additionally, 30% of buildings' windows will face the street to ensure a feeling of safety for pedestrians, as well as to support retail along much of ground level. The plan also utilizes small block sizes to ensure connectivity a five minute walk. To complement these streetscape elements and to create a safe environment for pedestrians, low speed limits of 25 miles per hour should be implemented within the site. Concealment and strategic placement of parking will contribute to a pedestrian friendly environment. On-street parking throughout most of the site will create a buffer between sidewalks and traffic and aid in traffic calming. Also, locating parking underneath buildings along the bluff will decrease automobile use and promote walking and bicycling.

[3] Anton Nelessen, *Visions of a New American Dream: Process, Principles, and an Ordinance to Plan and Design Small Communities*, (American Planning Association, 1994), 199.

Figure 1.4.7: An example of human scale space in Downtown Bellingham
http://www.flickr.com/photos/mytravelphotos/3605508880/sizes/m/in/photostream/

The proposed pedestrian walkway, which will span the railroad tracks from Cornwall Avenue to Bay Street, will further contribute to a human scale environment by dedicating a significant amount of space to pedestrians and bicyclists and mitigating nuisance from passing trains. Implementation of a walkway over the railroad tracks is essential to reclaiming space dedicated to the railroad and opening it up for the community's use, as well as to dealing with barriers between the site and the downtown. Retail within mixed use buildings will line the walkway and serve as attractions. At a minimum of fifty feet wide, high pedestrian flow in both directions and outdoor dining can be accommodated. Modeling New York's High Line, street furniture, lighting, and vegetation will be incorporated to make the walkway's users feel comfortable. Multiple plazas near access points into the waterfront site will provide pedestrians with views of Bellingham Bay and the waterfront development.

Expanding greenways and providing vegetation where possible give the plan a natural feel. Pocket parks are an effective way to turn dead space into usable space. The plan accomplishes this by utilizing pocket parks in areas that are under used. Small plazas along the walkway will allow for viewpoints into the site and serve as an entry point as well. It creates a place for leisure, relaxation and provides space for social interaction. Vegetation should be incorporated into much of the site to mitigate noise from passing trains, as well as to create an aesthetically pleasing environment.

3.3. Character

Landmarks, Art, and Adaptive Reuse

Throughout the downtown art is utilized to show the unique character that is attributed to the place and the people of Bellingham. Bellingham is currently ranked second for arts businesses per capita in America according to Americans for the Arts. Art is vital to the character of downtown as it becomes seamlessly engrained in residents day to day existence such as art is the personal lives of many people who call Bellingham home. Whether art be in form of a mural, a resting place, camouflage for an electrical box, signage or a sculpture, art has a home in Bellingham's downtown. It can be created locally or imported, and can be privately owned or publicly commissioned.

As an extension of downtown, art on the waterfront should both unify the entire waterfront as its own district and unite it with the values of downtown. Since the waterfront is a place with unique history and connection to the marine environment, its art should be distinct from downtown. Because of the opportunity a clear site offers, forethought should be taken to utilize the culture of Bellingham art to maximize its purpose. Art and landmarks should be used to guide people, whether on bike, foot, or in a vehicle, smoothly from the current downtown into the waterfront or from the waterfront to downtown.

By adding interest and breaking up trips into smaller pieces, art effectively shortens a person's trip on foot. By placing art or landmarks in strategic

places along a walk from point A to point B, the walk is broken up into a series of short walks from point A to point to the sculpture at the edge of the waterfront, past the mural at the corner, and onto the destination of point B. Additionally, art should be utilize to create gathering places for human interaction and to enhance the community feel and safety of the development.

Figure 1.4.8: An example of art serving as a landmark
www.unigroupworldwide.com

To effectively incorporate landmarks into the site, an 'arts grid' should be developed. Such a grid would map out the size and locations of art instillations to assure properly spaced, human-scale elements of interest.

Finally, art and landmarks should reflect the history and geography of the site. The feel of art and landmarks should be industrial or marine in nature to reflect the waterfront's history and geography. The rich resource of building materials and parts of historic buildings should be preserved for planned and potential reuse. Because the future holds unforeseen opportunities, older buildings should be left standing or preserved for future investment if feasible. Art and landmarks should utilize recycled building materials from existing buildings in the waterfront. Recycled bricks from the deconstructed site can be refined into paving material for the pedestrian element which emphasizes the focus on environmental, social, and economic considerations.

Existing Buildings

While existing buildings can hinder new development, the reuse of structures and preservation of their history is valuable to the community. The current economic climate, population, and clear slate of the waterfront present a risk for developers undertaking a project involving the cost of restoring a historic building. In the future, unknown opportunities may present themselves to make such an undertaking a feasible one, either by a private party or a public entity. There are numerous examples of other communities where historical buildings have been successfully reused and welcomed by the communities. Tearing down existing buildings within the waterfront eliminates opportunities to utilize them in the future. Most importantly, there histories could be forgotten. However, if development requires buildings to be torn down in later phases, opportunities may present themselves before demolition dates arrive.

Corridors

Corridors are essential to connecting the waterfront to the downtown. Cornwall Avenue will act as a main corridor, drawing all modes of transportation into the new development. Turning Cornwall Avenue will direct the flow from downtown towards the center of the waterfront development, instead of skirting it. A landmark building next to the new Cornwall Avenue bridge will act as a visual termination point for people traveling southwest on Cornwall, towards the waterfront, and help orient them.

Smooth Transition

The goal of the waterfront redevelopment is to create an extension of the downtown through urban infill. Barriers between the downtown and the waterfront should be eliminated to prevent competition between the two spaces. A variety of characteristics will create a smooth transition between the waterfront and the downtown and mitigate the physical barriers separating these two spaces such as elevation differences and the railroad tracks.

Locating development right along the entire study area on both sides of the railroad tracks, as well providing a pedestrian walkway with multiple access

points will seamlessly draw people into the waterfront. Despite the lower elevation of the site, buildings will rise several stories above the top of the bluff to make the waterfront seem less distant.

Additionally, urban design throughout the waterfront site should imitate that of downtown. Similar block sizes and a grid network of streets will be in keeping with the surrounding area. Utilizing building design and characteristics that resemble downtown, such as no setbacks from the sidewalk and similar varied building heights, will additionally contribute to a smooth transition.

Figure 1.4.9: An existing building in Downtown Bellingham
http://www.mgtmagazine.com

3.4. Transitional Use

An empty canvas such as the waterfront is a rare opportunity for creativity, but a hard place to live during development. Transitional uses should utilize empty space, offer services and creative outlets to Bellingham residents, and ultimately integrate the new development into the lives of the people who live in the surrounding districts. As these transitional uses develop into well used and loved ingredients of the district and the lives of those who use them, the concepts behind their use will become engrained in the culture of the district. Because of this, policy should be created to ensure future development will account for the transitional uses it is replacing by either relocating it in a nearby location or incorporating it into the new structure.

Dog Park

A dog park would be an effective transitional use within the waterfront site. It could utilize the southern portion of the site, along the existing Cornwall Avenue, bordering the bluff and railroad tracks. A dog park requires minimal infrastructure. Landscaping and fencing would be sufficient provisions. The dog park would bring families from downtown, old town, and North Campus and contribute to a family environment. One in three American families own one of more dogs.[4] If a dog friendly culture emerges in the waterfront by the time development reaches the dog park, it can be incorporated into the site permanently. If a nearby area is not available for relocating the park, it could be incorporated into its current location with new development, perhaps on a green roof. Also, an existing park within in the area could integrate the dog park.

[4] Susyn Stecchi “So you want to build a dog park?”

Figure 1.4.10: Nancy Truax throws a ball for Josie, left, and Delilah Blue at Lake Oswego's temporary dog park. Lake Oswego constructed a temporary 3 acre Dog Park which encouraged a residential development nearby which will incorporate two dog parks to replace the temporary park.[5]

Community Garden

Bellingham has a community character of health and recreation. Food contributes to this community identity, and should be pieced into waterfront redevelopment. Community gardens create quiet space, require small amounts of land, and are less expensive than parks to develop and maintain.[6] Similar to the development in Lake Oswego that utilizes dog parks to create an attraction and a community within the development, community gardens can be installed on roofs to offer a unique accommodation for the 'creative class' and attract a group of people to the waterfront development. Bellingham Urban Garden Syndicate (BUGS) has already demonstrated that temporary community gardens can be successful and that they are valued in our community.

Figure 1.4.11: Before and After- The work of Bellingham Urban Garden Syndicate in Bellingham Neighborhoods

Mobile Cuisine

Also known as food trucks and food carts, mobile vendors can take on a number of forms including bicycles, trailers and other movable structures. In some cities such as Portland, OR, the dirty grungy image of food trucks and carts is becoming a thing of the past as more food carts are established every day and need to position themselves in competition with other vendors. Groups of food trucks have come to be called 'Pods.' With the public provision of luxuries such as bathrooms and shelter from the elements, even in Bellingham's sometimes temperamental climate pods such as the one pictured in Portland below can be successful.

Since food trucks are an effective transitional use and central attraction, while the waterfront develops over a long term, there are several locations within the site where a pod could be permanently located. An ideal location for mobile food would be the Maritime Heritage Boardwalk along the Whatcom Creek waterway. However, as development occurs this may not be the key location for a mobile cuisine destination. The Pod should be placed in a strategic location as it will surely be an attraction that will add to foot traffic in the area. Like community gardens, mobile cuisine draws members of the creative class, adding to the culture of the new district as distinct but similar to the current downtown.

[5] Sam Bennett The Lake Oswego Review August 2, 2007

[6] Gardenworks "The Multiple Benefits of Community Gardening"

Figure 1.4.12: A food truck "pod" or mobile cuisine market featured from Portland Or.

4. Sustainability

Sustainability should be incorporated into the site design, from neighborhood development to the design process. The LEED checklists created by the U.S. Green Building Council allow for sustainable accountability, without the need to be certified in the current future, but to provide possible LEED certification in the future. These LEED New Development and New Construction checklists provide a comprehensive analysis of the sustainability of the proposed waterfront redevelopment as well as to create a framework for the future. Through creating a sustainable site that is created through the design and encouragement of building owners, the waterfront will be a green destination that is environmentally, economically, and socially responsible.

4.1. Relationship of Planning Concepts to LEED ND and LEED NC for Waterfront District

Smart Locations and Linkage

The waterfront is located next to downtown Bellingham and had been traditionally used for primarily industrial uses.[7] Being created entirely out of fill, the site is man-made. The waterfront district will provide more economic development than its stagnant and unused older buildings that currently reside. The location, with its linkage to downtown and the Whatcom Transit Authority, will reduce automobile dependence. Locations for bicycle storage and shared lanes for automobiles and bikes will be available.

To avoid flooding and potential harm from the toxic substances left from industrial use, the site is to be raised 10ft or more. This will address brownfield redevelopment in the LEED ND criteria. It will allow for bridges to have less distance and height to overcome and will create connectivity and linkage between the current downtown Bellingham and the waterfront district.

Neighborhood Pattern and Design

The infill design of the varied districts in the waterfront will provide walkable streets that will increase the network of pedestrian paths and roadways. The streets will be lined with interesting signs, awnings, trees, art, and other visuals that relate the buildings, streets, and parks together. Throughout this compact network, a connected community can interact and move effectively and efficiently without sacrificing space. The street design of the waterfront will provide maximized views of Bellingham Bay and will create a distinguished grid that is accessible for industrial vehicles, buses, personal vehicles, and bikes.

To reflect the mixed-income and diverse communities, low-income to high-income housing will be provided. This will allow for diversity within the waterfront as well as make the waterfront a balanced community.

Along with the compact design of the neighborhood, alternative transportation, including bus routes and stops and shared lanes, will allow for transportation demand management to reflect the growing need for community transportation. Personal automobile parking will also be

[7] U.S. Green Building Council, *LEED 2009 for Neighborhood Development Rating System*, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148

reduced through placement in proposed structures, underground parking, and on-street parking. By incorporating parking into building design and road placement, the parking footprint will be reduced.

Green Infrastructure and Buildings

The infrastructure, along with the waterfront as a whole, is designed to maximize sunlight exposure. The natural light provided will decrease the needed energy use as well as contribute to the health of the waterfront's greenery. Green roofs can be utilized to decrease the amount of water flow on impervious surfaces. The buildings will be encouraged to be built with sustainable features that will preserve heat and be made from sustainable materials.

In order to reduce the heat island effect, greenery is a focus in the design of the waterfront. Bordering roads and incorporated in plazas and public parks, these green spaces will mitigate pollution as well as decrease the amount of exposed pavement.

The historical buildings and landmarks on the waterfront site will be used and adaptively re-used throughout the site plan. The granary building will be preserved then rebuilt eventually to reflect its true form. The brick storage buildings will also be conserved to be used as visual landmark. The buildings that must be removed for construction are having certain elements, such as bricks, being re-used, and other portions that cannot be reused to be recycled.

Figure 1.4.13: Example of green roofs

Innovations and Design Process

The waterfront has many stakeholders that range from residents, city officials, the Port of Bellingham, BNSF, etc. These many influences all require a myriad of uses that must fit together to create usable, walkable, and economically viable options.

The design process is taking into account these many stakeholders and their needs to create a waterfront design that is comprehensive. Through meeting with the various stakeholders and recognizing their input, the design is innovative with alternatives to the many needs proposed.
Through creating a design that complements the current downtown and the future needs of the Bellingham community, the waterfront will allow for smart growth. Innovative ideas such as train noise and pollution mitigation with a green wall, a connected elevated pedestrian path that will connect the downtown to the waterfront, and a bridge that facilitates movement and parking, will allow for LEED ND concepts to be exemplified.

Sustainable Sites

The waterfront is prime for infill redevelopment. The proposed development will create a site that is sustainably developed that takes a contaminated site and makes it usable.[8] As with neighborhood design, street design, community connectivity, and increased development density will create a sustainable site for the future.

The streets will foster increased alternative transportation through creating grids that allow for bus and bike use, streets that are human-scaled, and alternative parking that is behind/below buildings rather than solely occupying the street edge. Through increased greenways and parks, the heat island effect will be mitigated. Building owners will be encouraged to also include green rooms to alleviate the heat island effect.

Materials and Resources

The current buildings from retired industrial use are being recycled and reused. Bricks and other materials are to be reused for sidewalks and featured art displays that will supplement the sustainable sites and overall historical feel of the community. Although unusable for human development, a brick tower is to be reused as a landmark in the site design and will provide a historical connection to the waterfront.

Figure 1.4.14: Existing waterfront buildings and their materials

Sustainable materials are to be encouraged for use in new building structures, and industrial buildings are to be reused for alternative uses. Waste from the development will be primarily recycled, in order to reduce landfill waste.

[8] U.S. Green Building Council, *LEED for New Construction and Major Renovations* , http://www.usgbc.org/DisplayPage.aspx?CMSPageID=2464

Figure 1.4.15: An example of a greenwall
http://www.archithings.com/tournesol-greenwall-systems/2009/08/23