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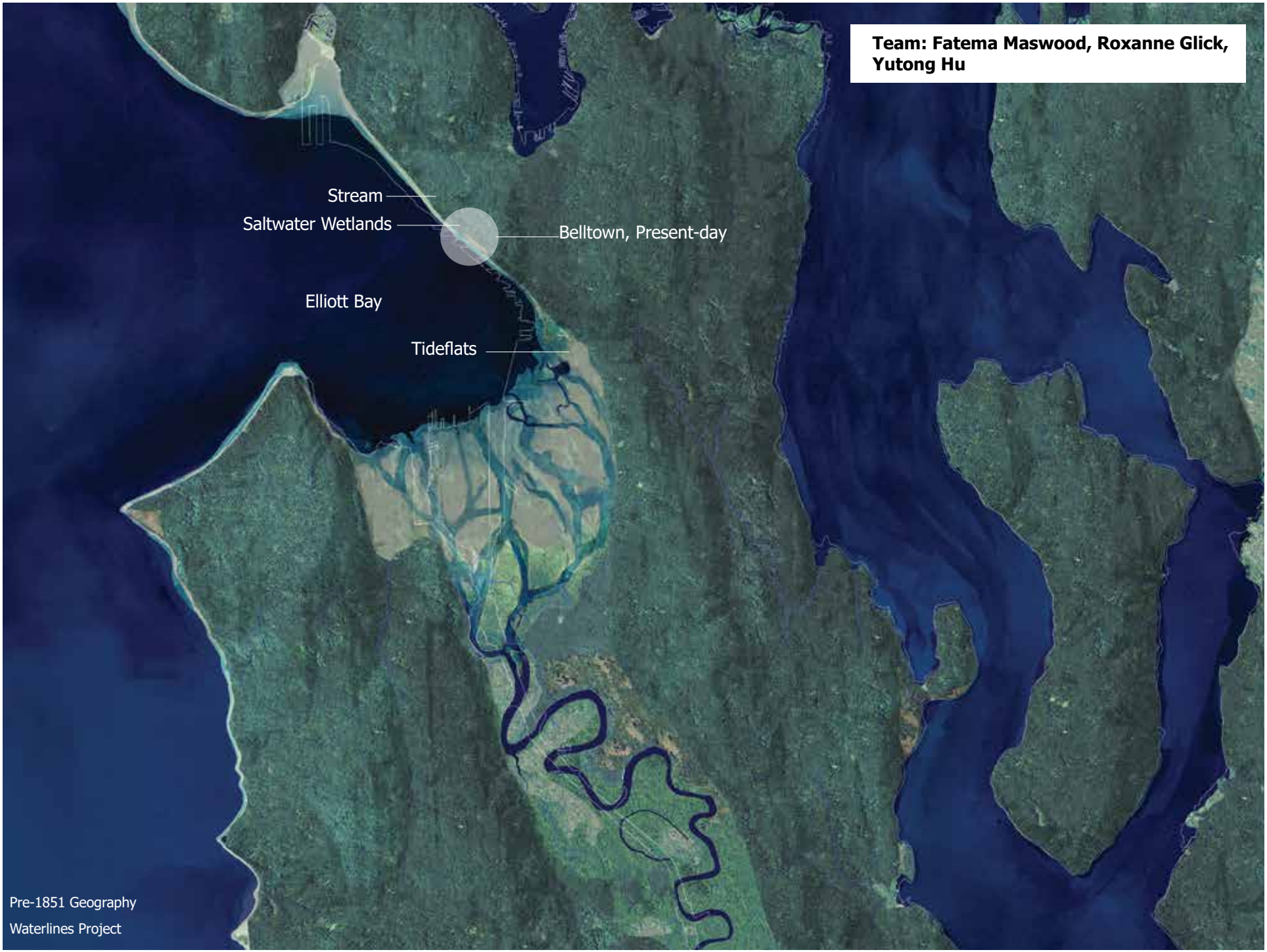
CITY / NATURE FOR URBAN RESILIENCE

DISTRICT ANALYSIS

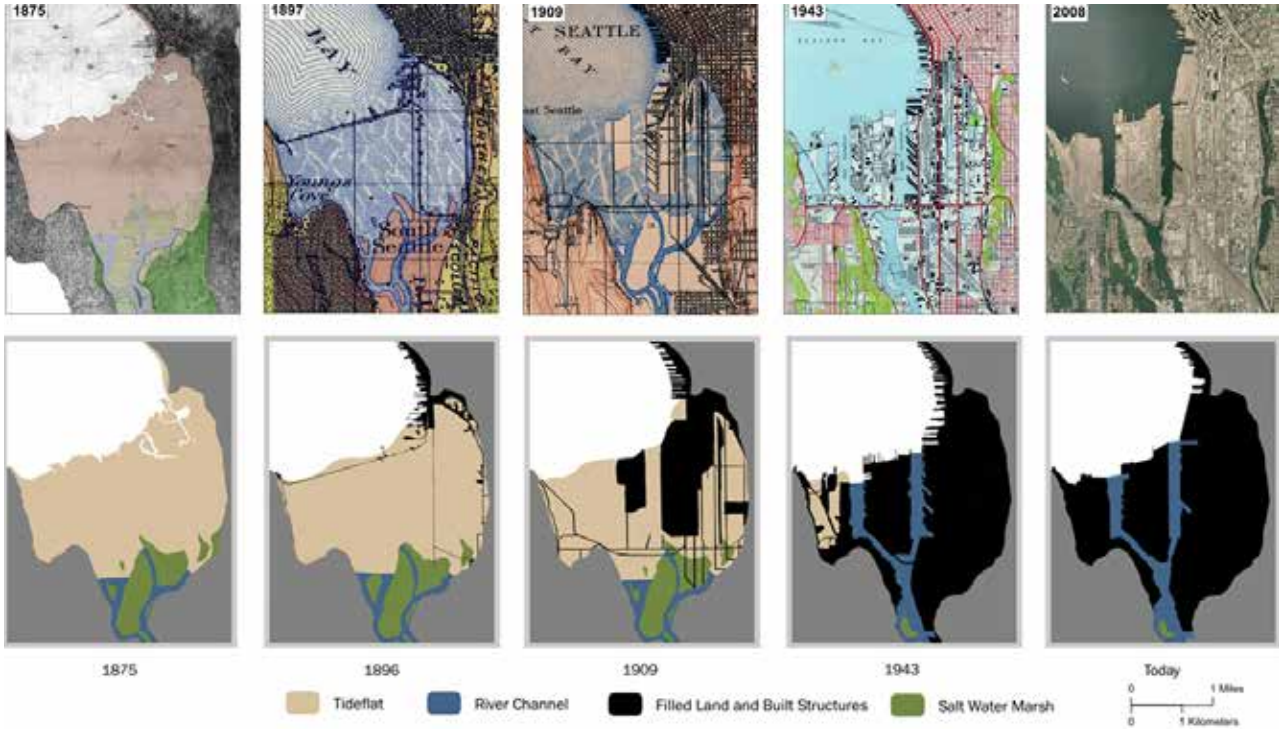
2017 Scan | Design Interdisciplinary Master Studio
University of Washington, College of Built Environments

Belltown Water and Watersheds



Geographic Changes

Seattle's present relationship with its surrounding bodies of water reflect a high degree of engineering; in the aftermath of non-native settlement in 1851, the urban landscape was shaped by city planning and engineering that attempted to rationalize and control flows of water through and around the city. By 1909, the Duwamish River and Lake Washington watershed were reshaped, tideflats were replaced by infill, and industrial pollutants began to have negative effects on salmon runs and other local ecologies. Today, the Duwamish estuary has almost none of the features that existed prior to non-native settlement and development.

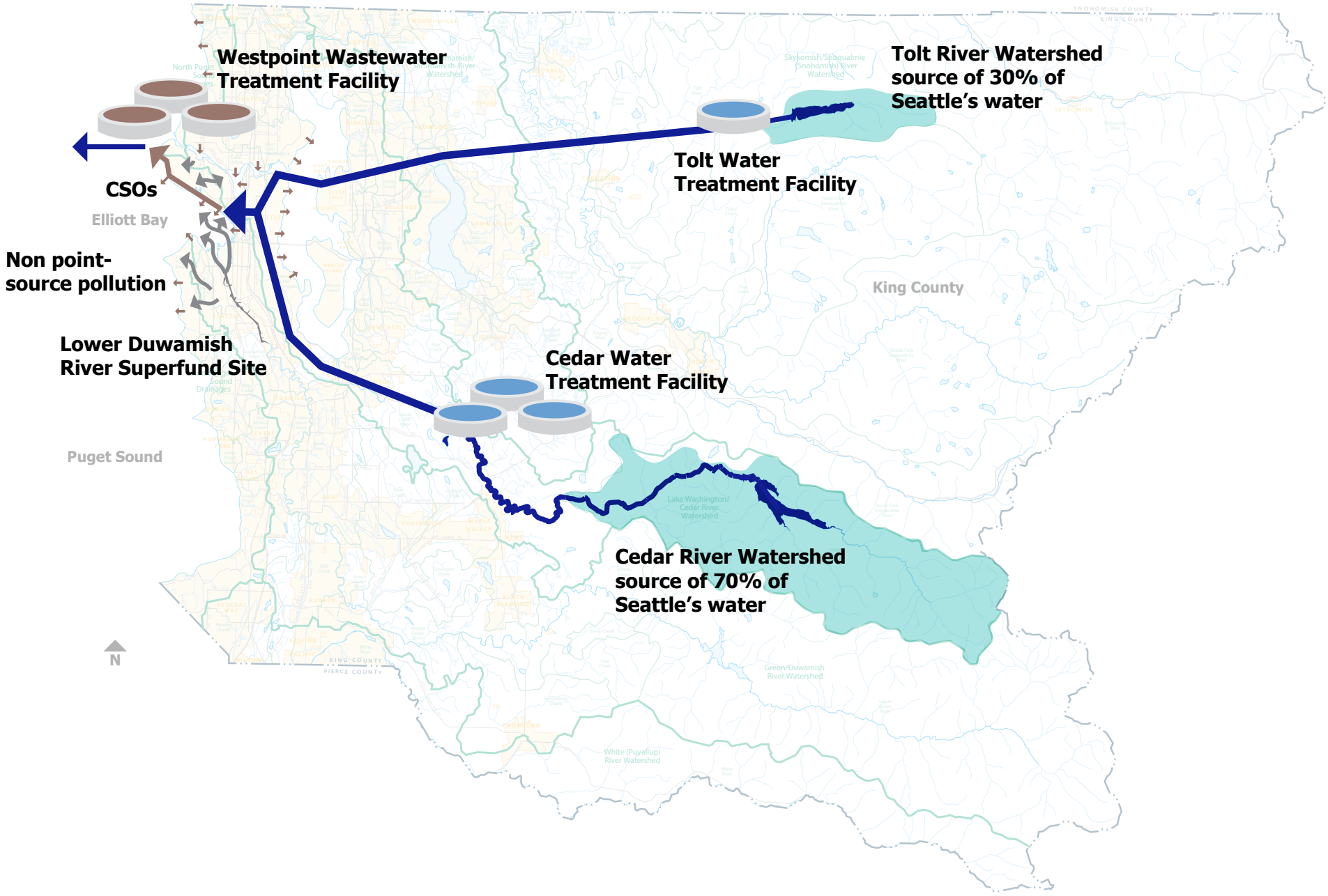


Waterlines Project

Shifting Landscapes

Historical data indicating the transformation of Seattle's waterways and infill of tideflats surrounding Elliott Bay from 1875 to the present.

King County and Seattle Water Systems

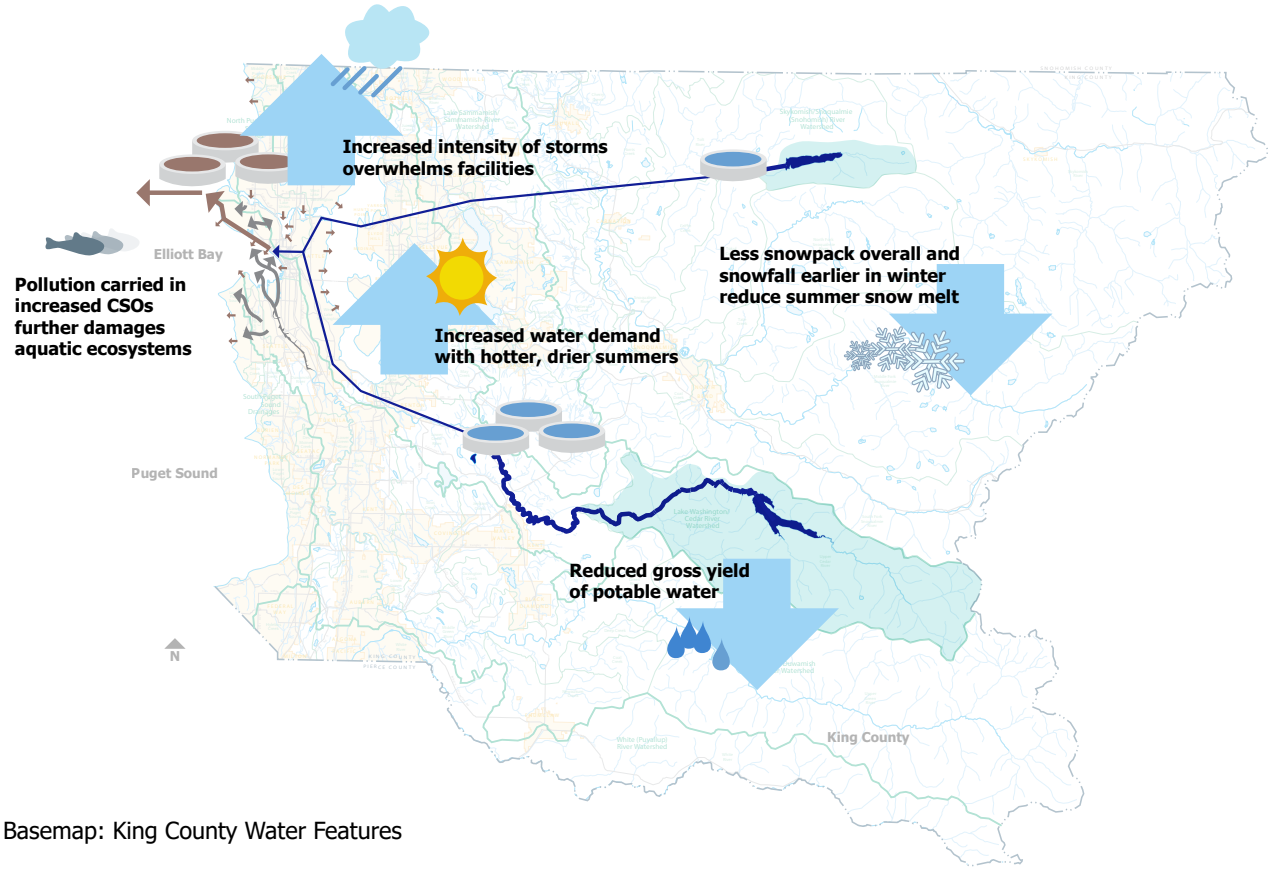


A Transient Watershed

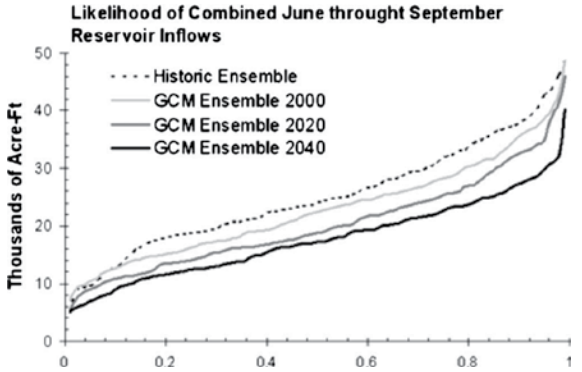
The vast majority of the Seattle metropolitan area's drinking water needs are provided by two surface and one groundwater sources. The surface waters originate in the Cedar and South Fork Tolt Watersheds, which are situated along the western slope of the Cascade Mountains.

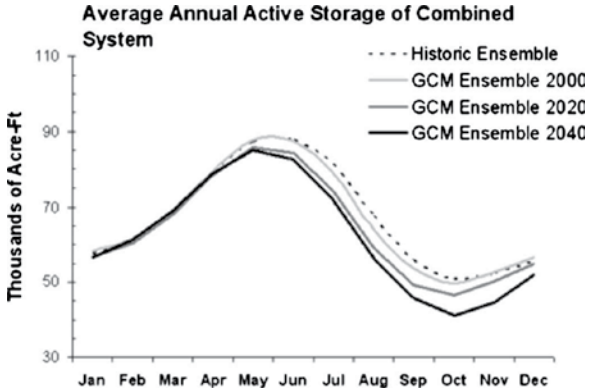
Surface water reserves receive water from precipitation or in the form of snowmelt-driven runoff. The seasonality of precipitation in the Pacific Northwest (between October and March) creates the need for water storage, and mountain snowpack serves as natural storage for summertime water supply in much of the Pacific Northwest. Increasing winter temperatures and earlier snowfall, shift the timing of streamflow to earlier in spring. Though abundant snowpack and the rainiest winter on record means that this year's water supply isn't in danger, snowpack in the Cedar and Tolt River systems is projected to decrease, on average, by 50% by the year 2040.

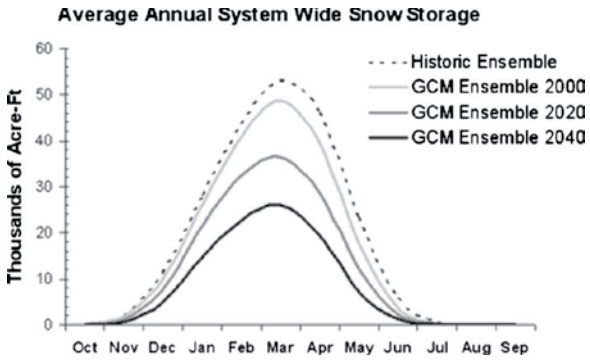
Though it is difficult to predict how local adaptive strategies can mitigate climate change's effect on snowpack storage and streamflow, demands on system yield can be modified. One hundred and fifty millions of gallons per day (MGD) was the approximate, average annual demand for the Seattle region in 2003. Since that time the actual average annual demand has decreased to below 130 MGD, due in large part to a successful campaign by SPU to encourage voluntary conservation.



Basemap: King County Water Features

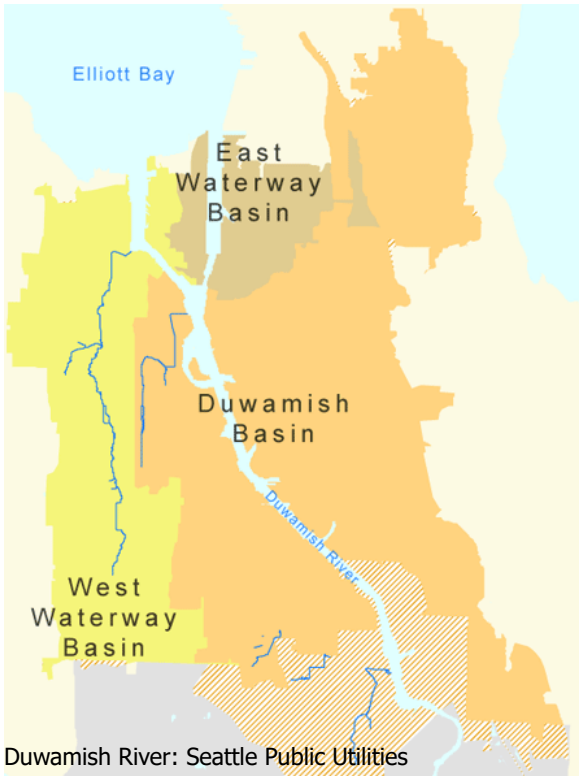






Graphs above indicate results of Global Climate Models (GCM) that predict system yield for Seattle's watershed until 2040 by Matthew W. Wiley and Richard N. Palmer in their article "Estimating the Impacts and Uncertainty of Climate Change on a Municipal Water Supply System."

Pollutants



Duwamish River: Seattle Public Utilities

Seattle's urban watershed has four recieving waters. Of these, Puget Sound and the Duwamish River have a relationship to our site in Belltown and recieve stormwater runoff and Combined Sewer Overflow. Designing for stormwater in Belltown requires considering the ecologies and histories present in these bodies of water.

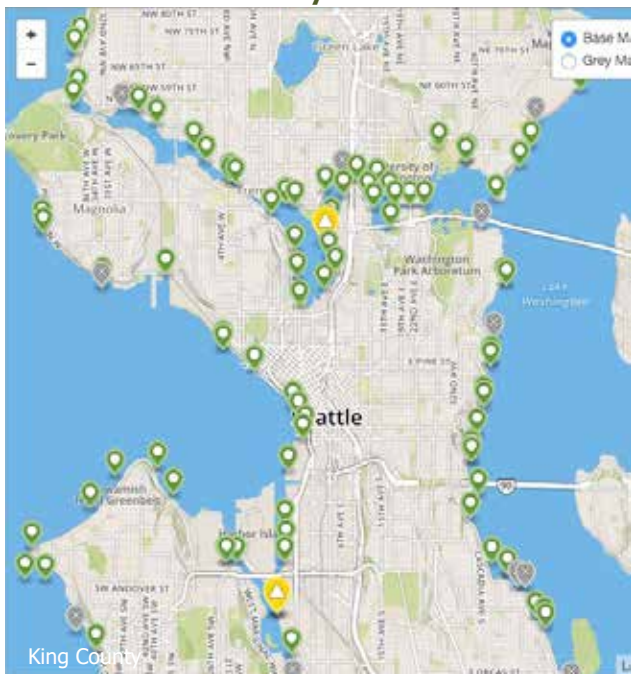
Elliott Bay is located in the Central Puget Sound Basin and supports a deepwater port, as well as commercial and residential establishments. Fish and wildlife species, including use this saltwater area for breeding, rearing, and feeding. Shoreline features like coastal bluffs, sand spits, coastal wetlands and marine riparian areas no longer exist along Elliott Bay, leaving deficiencies in plant life to support water quality. Currently, water quality is impaired by concentrations of fecal coliform, and bottom sediments are contaminated with metals, petroleum-based hydrocarbons, and organic pollutants. Water temperature is also increasing.

The Lower Duwamish Waterway drains into Elliott Bay, and is an estuary used as a migration corridor for salmon and trout, nursery area for Chinook salmon, and breeding grounds for many other species. In the 1800s, the river was dredged and straightened for shipping vessels and industry, and as a result the area is also a Superfund site, with troubling levels of sediment contamination, fecal coliform levels, and Ammonia-N contributing to increasing water temperature and poor shoreline habitat.

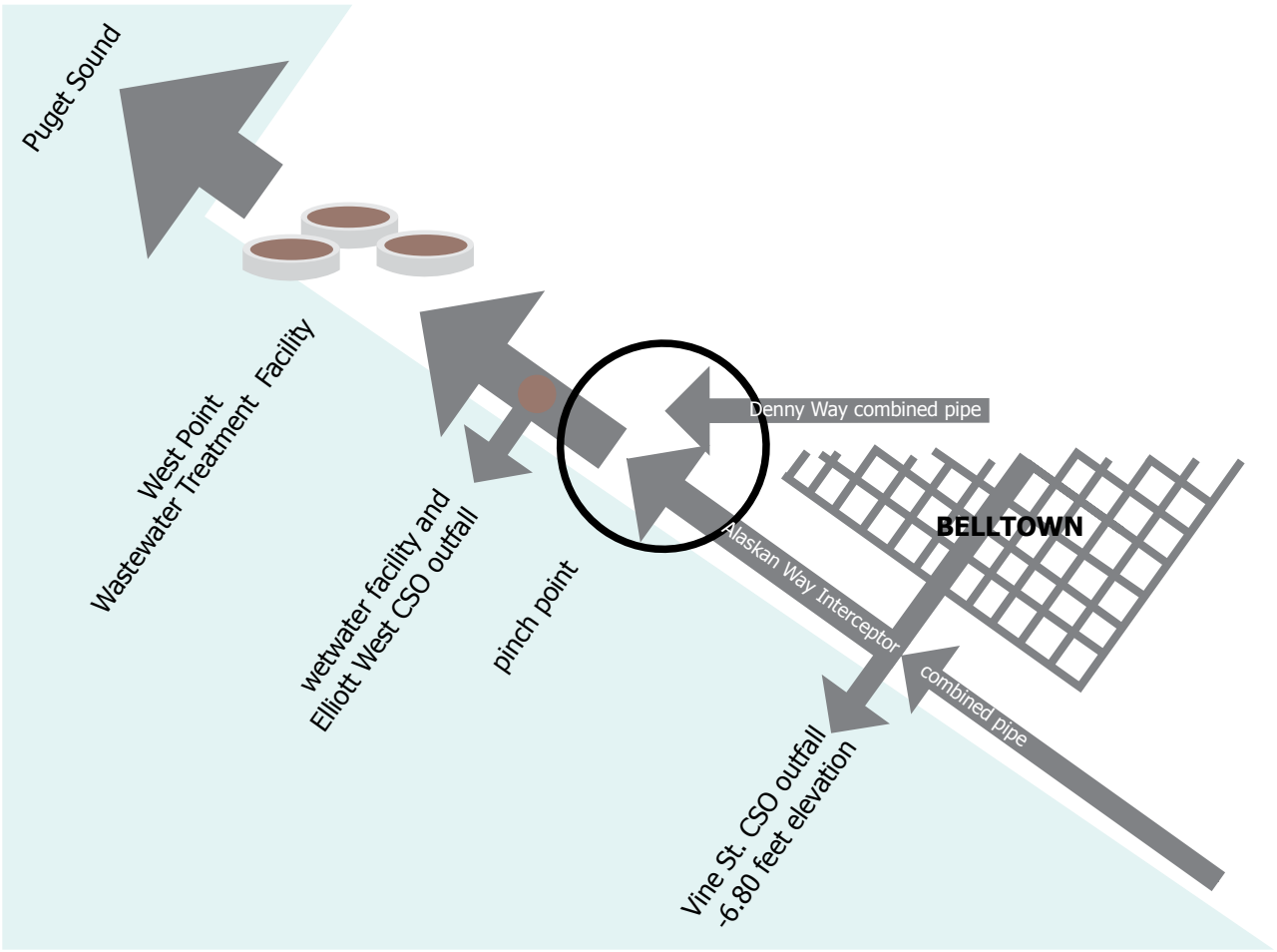
Seattle Public Utilites is working on implementing pollution control through source control to prevent rainwater from coming into contact with known pollutants to support the overall health of Puget Sound.

Diagram of Phthalate Sediment Contamination

Current CSO System



(Above) Map of current CSO outfalls around Seattle. Locations that have overflowed in the last 48 hours are indicated in yellow.



(Left) One of the largest infrastructure catastrophes in regional history happened at West Point Plant on February 9, 2017. Record-breaking rain prompted massive flooding at the plant and resulted in at least 15 million gallons of untreated wastewater flowing into Puget Sound. A post-flood report, released in July, indicated that the plant is ill-prepared for future flood events. The Plant was fined $361,000 and required to make necessary improvements in infrastructure.

(Top) Diagram of the flow of combined sewage through Belltown in existing sewage infrastructure towards the West Point Wastewater Treatment Facility. The meeting point of the Denny Way combined pipe and Alaskan Way Interceptor create a pinch point in the system that backs up to the Vine St. CSO outfall.

Green Stormwater Infrastructure Methods

Be RainWise

Stormwater in Belltown primarily drains to the City of Seattle's Vine Street Basin, a combined sewer system which is directed to the main King County interceptor. The estimated annual flow for this basin is 167 MG/year, or 457,000 gallons/day. Current estimates are that 130,000 gallons of storage are needed to prevent CSO's at outfall 069.
Through RainWise, they've set a goal to manage 700 million gallons of polluted runoff per year with green stormwater infrastructure (GSI) by 2025.

1.Tree Planting

A long-term return of available areas to its original forest cover providing detention/retention of rainfall in the forest canopy.

2.Green Roofs

Areas of living vegetation installed on top of buildings to provide flow contrd via attenuation, soil storage, and losses to interception, evaporation and transpiration.

3.Compost amended soil

A key part of both rain gardens and tre e planting, in which impermeable soils are loosened and become storage volu mes for detention of precipitation.

4.Rain gardens

Bioretention on private property where the creation of planting areas is used to retain water from roof drains for subsequent release through infiltration or weirs.

5.Stormwater Cistern

It slows, stores and allows the reuse of rain. During winter it catches, then slowly releases water to the yard or side sewer to make room for more rain.

6.Permeable Pavement

Replacement of low-traffic areas with pervious structural components that allow rainfall to enter the groundwater rather than run off the pavement.

7.Depaving

Depaving allows stormwater to soak into the ground where it falls instead of picking up and carrying pollutants into creeks and waterways

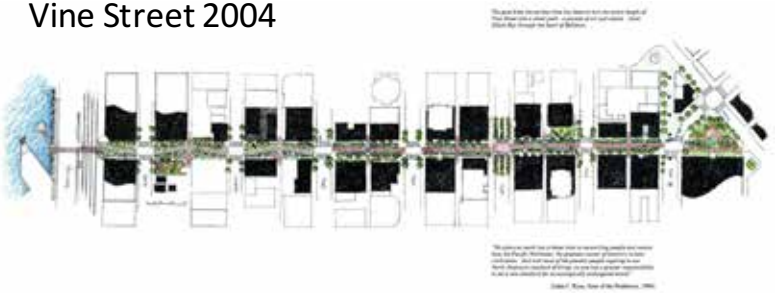
8.Roadside Rain gardens or Bioretention

A bioretention system is larger and more complex than a rain garden. Of all green stormwater infrastructure methods, it handles the most stormwater relative to its footprint.

Growing Vine Street

Vine Street 1998

Vine Street 2004



The Growing Vine Street Project defines the word "green" in relation to environmental sustainability rather than to traditional landscaping. This part of the city was "plumbed" to dispose of rain from roofs and hard surfaces through an antiquated combined sanitary and storm system.

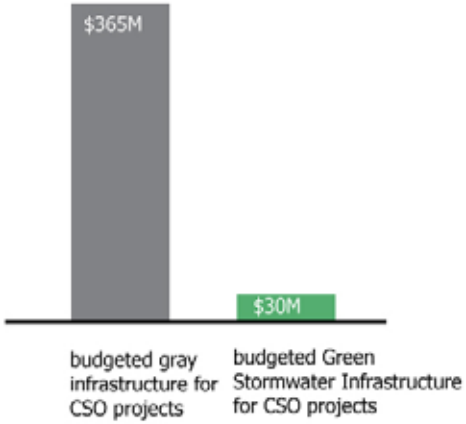
"The design team developed a working logic that equated the street to a crack. We needed to build a structural armature based on street infrastructure, site conditions, ownership, easements, as well as community and business needs. Rather than fighting the infrastructure, we let it reveal itself by working with the existing conditions and taking the path of least resistance. It was a pragmatic approach given the limited funding. Our design mitigated and nurtured the streetscape with the urban watershed through an interconnected system of green roofs, cisterns, detention planters, and street watercourses we called runnels, which are intended as an extension of the urban crack. The watershed journey is episodic and transparent as it makes its way down the eight sloping blocks of Vine Street towards Puget Sound. This project requires the patience of seven generations. We provided a start that will hopefully instill a desire to integrate similar systems in future development."

Typical gray infrastructure project:

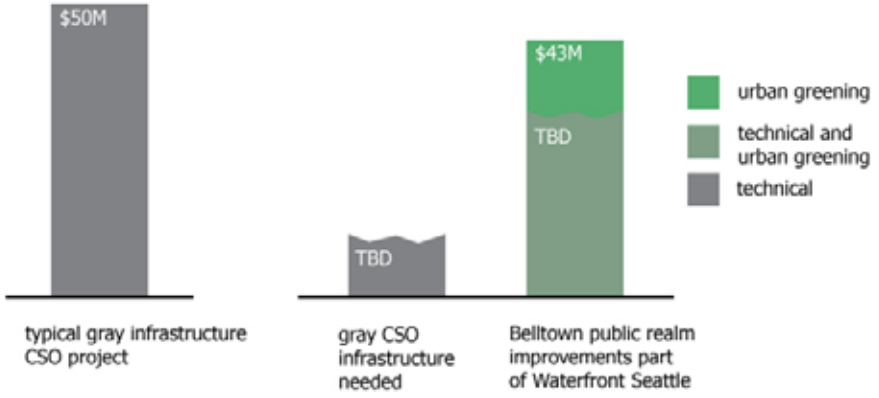
Murray CSO Underground Tank Construction, completed in 2017 in West Seattle.

Green infrastructure with multiple functions and co-benefits.

Seattle Public Utilities 2017-2022 Capital Improvement Program



Gray and Green Infrastructure: Co-Benefit Analysis



There is an alternatives analysis at the planning level being performed for the 2018 Long-term Control Plan Update reviewing Green Stormwater Infrastructure options. (City of Seattle Budge p.502)

Data from: King County, Waterfront Seattle, Seattle Public Utilities

Vox Pop

Q1:Do you know what CSO is?

YES! 1/12

NO 11/12

Q2:Have you noticed any stormwater improvements?

YES! 2/12

NO 10/12

Q3:What do you think of stormwater issues and green stormwater infrasturcture?

I never heard we had a problem here because I consider Seattle so green. The problem doesn't seem visible here.

I've never seen signs or flyers anywhere.

I've seen some signs on the drainage that say the water goes directly into the bay.

I'm aware of stormwater rain gardens in the neighborhood but not in the last 5 years.

There are no sewage problems in my restaurant.

Q4:What do you want to see more of in Belltown?

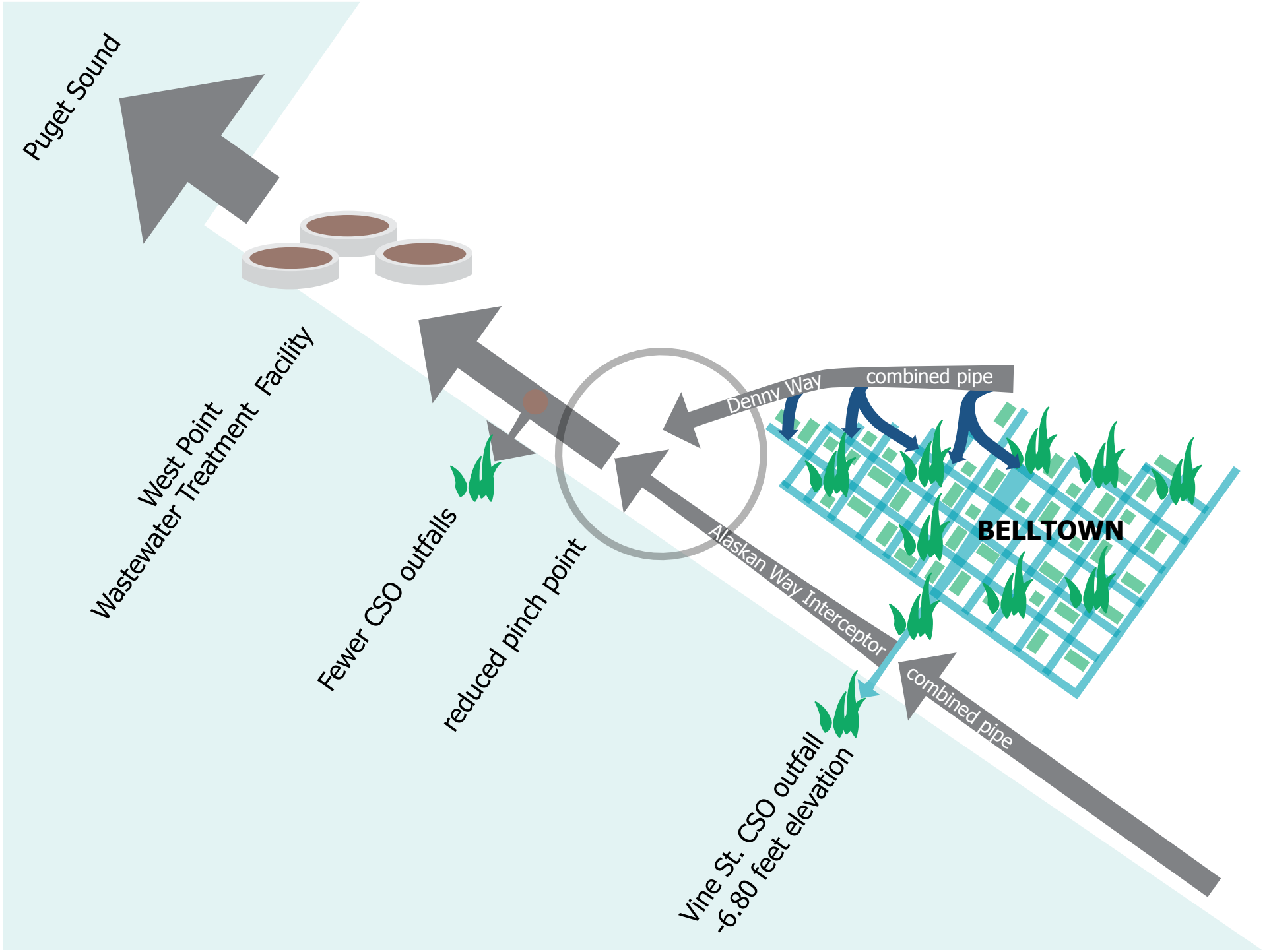
I hope more permeable pavements can slow down the water before rushing down.

We already have good public transportation. This is very, very greedy but if we had a stop for the light rail train that would improve things.

More public street improvements with places to sit and stay or for street performers, spontaneous enjoyment of the outdoor area.

Can waste water and storm water go separately?

Potential Impact of GSI on CSOs



Opportunities

Belltown has a number of underutilized interstitial spaces that are impermeable and currently have negative impact on stormwater flow and non-point source pollution. Considering methods of depaving and restructuring major alleyways and parking lots in the neighborhood could create a network of green stormwater infrastructure with Vine Street as its spine. Other underutilized spaces, such as multiple empty tree pits throughout the neighborhood, could act as small cells for interventions that capture water upstream. The shoreline itself could act as a final intervention, with filtering biotopes in Elliott Bay.

Alleys

Parking lots

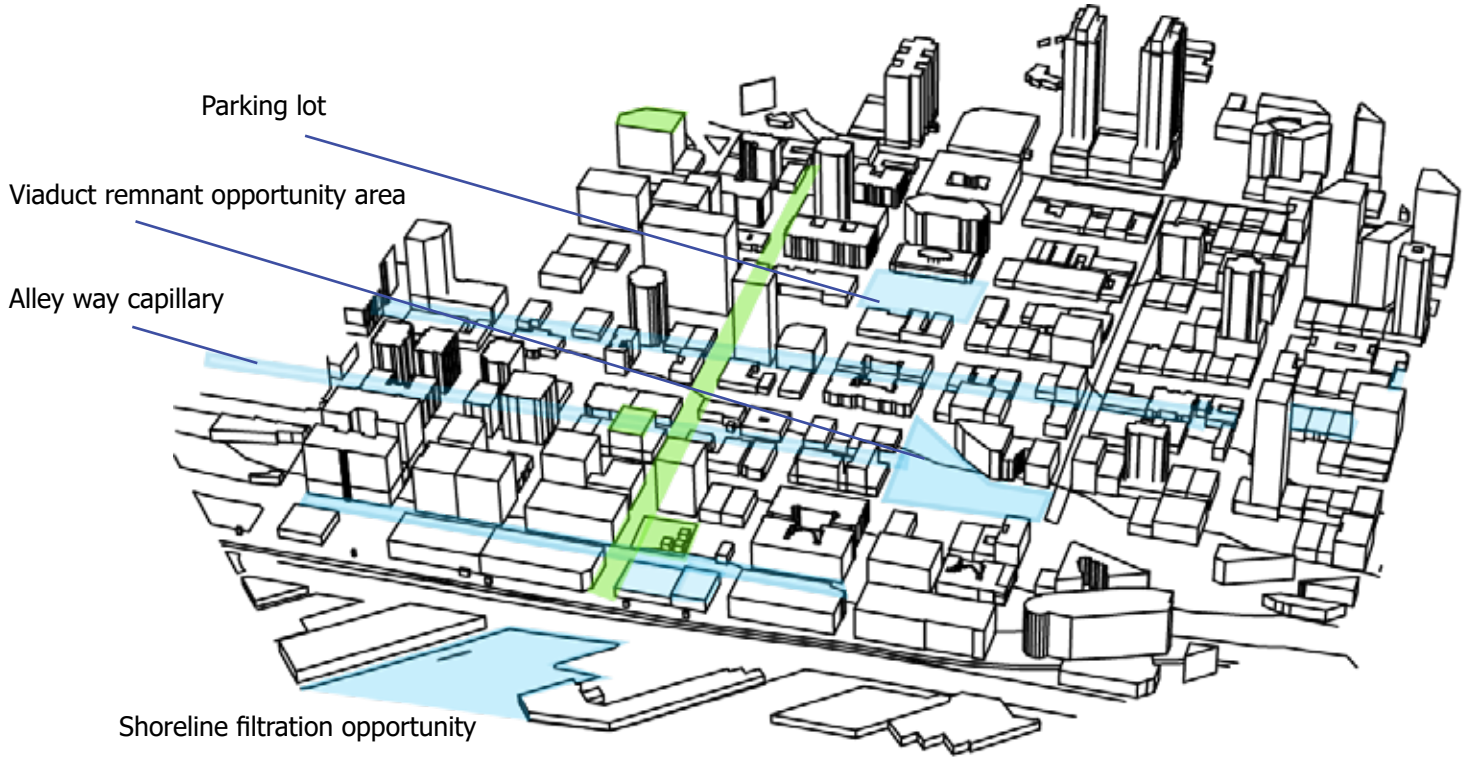
Viaduct soon-to-be remnant space

Empty tree wells

Waterfront and near-shore

Chives - latent potential for urban gardening

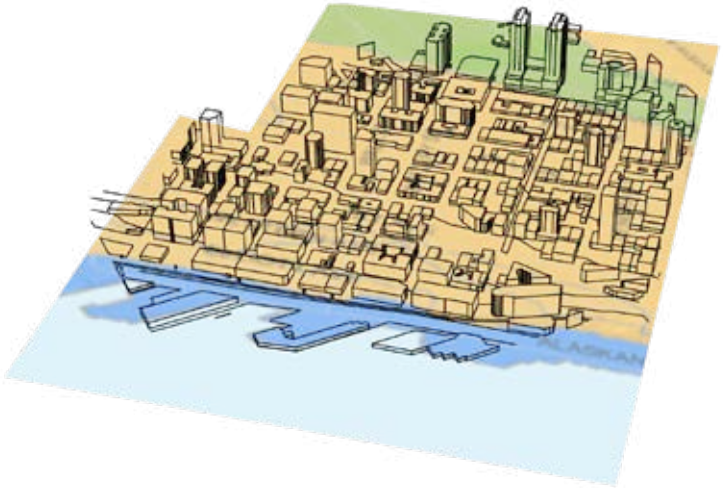
Opportunities



Infiltration Feasibility

Potentially suitable for infiltrating GSI Suitable for non-infiltrating GSI

Soil Infiltration Potential



High Medium Groundwater table near surface

References:

1) King County. “Combined sewer overflow status” http://www.kingcounty.gov/services/environment/waste-water/cso-status.aspx. Webpage accessed October 9th, 2017.

2) Matthew W. Wiley and Richard N. Palmer. “Estimating the Impacts and Uncertainty of Climate Change on a Munic pal Water Supply System” Journal of Water Resources Planning and Management Vol. 134, Issue 3 (May 2008). http://ascelibrary.org/doi/abs/10.1061/%28ASCE%290733-9496%282008%29134%3A3%28239%29. Online version accessed Oct 4, 2017.

3) Seattle Public Utilities, King County. “Right Place, Right Project, A community guide to partnership opportunities”

4) Magnusson Klemencic Associates, Seattle 2030 District. “Beyond Waterfront” Scenarios: Large Scale GSI in the Vine Street CSO Basin in Belltown

5) The City of Seattle. Infiltration Potential Conceptual Level Planning Map. http://www.700milliongallons.org/wp-content/uploads/2015/04/Infiltration-Potential-Conceptual-Level-Planning-Map.pdf

6) Carolyn Geise. “Denny Regrade to Belltown - AN ON-GOING COMMUNITY JOURNEY”

7) Duwamish River. http://www.seattle.gov/util/EnvironmentConservation/OurWatersheds/UrbanWatersheds/DuwamishRiver/index.htm

8) King County Water Features. http://your.kingcounty.gov/dnrp/library/vcgis/maps/county/0004kcWATERfeatures.pdf

Budget Information

1) King County. Capital Improvement Program - Project Summary Report. http://gismaps.kingcounty.gov/cip/CIPDetail.aspx?ProjectID=PR_1038126%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20&Year=2015&Q=4&lat=47.54021&lng=-122.396408. Webpage accessed October 9th, 2017.

2) Seattle Public Utilities Drainage and Wastewater. http://www.seattle.gov/financedepartment/1722proposedcip/documents/SPUCAP.pdf

3) Waterfront Seattle. Budget and Schedule. https://waterfrontseattle.org/budget-schedule. Webpage accessed October 9th, 2017.

Street, Mobility, Circulation Flows

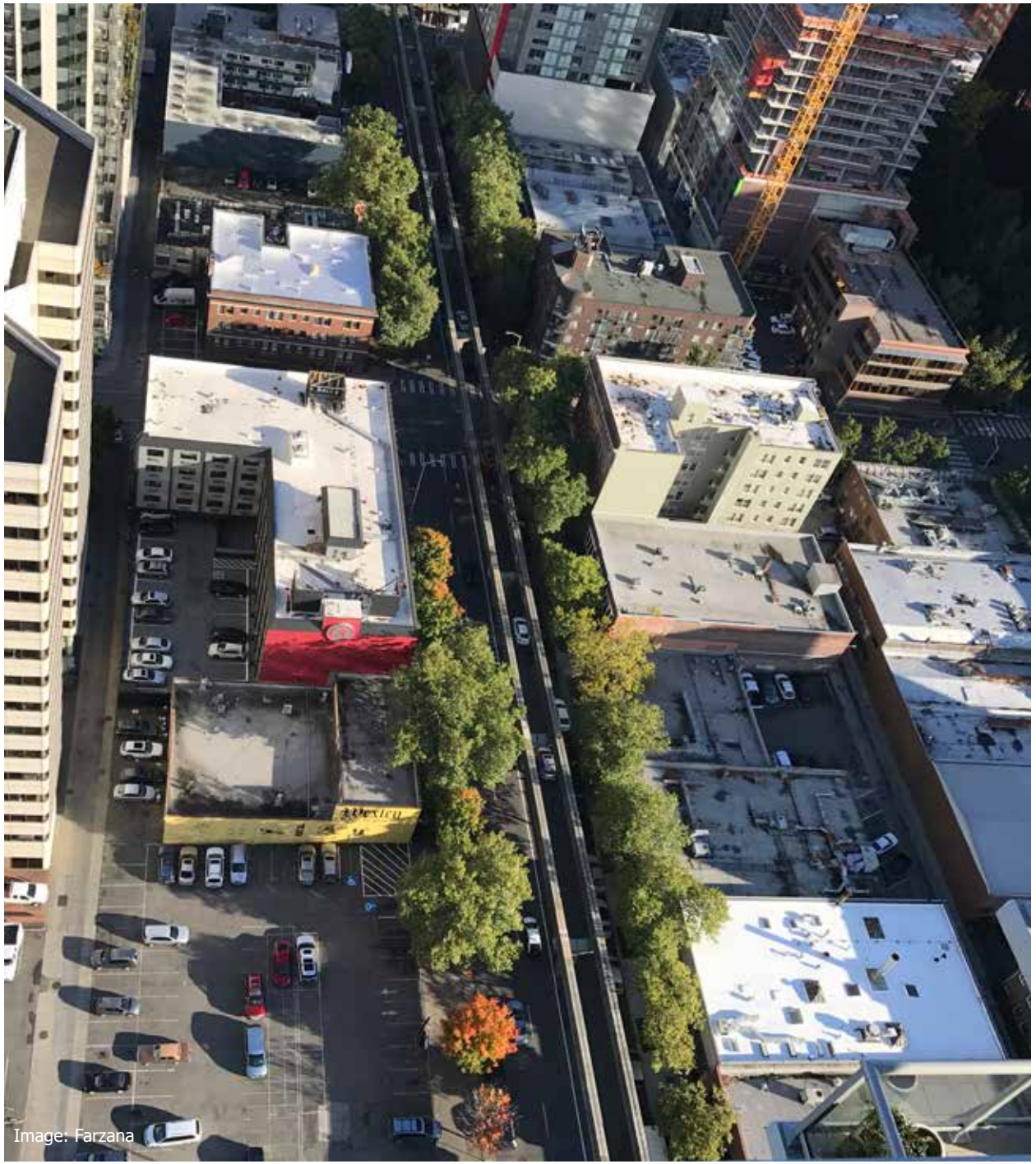


Image: Farzana

Team:

Farzana, Margot, Yunxin, Jiyoung

Flow + Circulation: We developed a street typologies map to show various types of biking lanes and pavements of our site, and then analyzed the facilities of streets. This would be a great help to explain the results of our counting. During the counting, we found some busy place among those streets, then I analyzed the reasons for their popularity.

Street Typology: Based on our observation and various functions on the streets we categorize 4-5 types of streets on our site. Each of them are different in the hierarchy of space, functions, and character and also they offer different pedestrian experiences in the neighborhood. One major challenge for these various streets that we identified is how they gracefully can be merged with the new waterfront design while maintaining their own identity or character.

Alleys: Alleys are located between each of Belltown's Avenues. These alleys are often under-utilized and many of them act as storage for trash and recycling bins. These alleys present excellent opportunities to connect potential and existing points of interest in Belltown and increase the area's green or stormwater networks. Alleys have the potential to serve as important pedestrian corridors.

Alaskan Way Viaduct/SR99: Seattle is experiencing some vast changes to the Alaskan Way/99 viaduct. The viaduct is an elevated highway that currently experiences up to 110,000 vehicles per day. It features a double-decked elevation section of State Route 99 that runs along the Elliot Bay waterfront in the industrial district of downtown. There is a new tunnel, commonly called "Bertha", that is expected to open in 2019 and will transform movement through the city and open up access to the waterfront.

Gaps + Opportunities: According to our observation and research, there are some gaps in the walkway for pedestrians in Belltown. Cross points between the bike lane and walkway have the possibility of causing confusion, separation of the lanes are needed. Between pedestrian and railroad, the connections are needed to improve. Also, Seattle has the future plan to respond the new waterfront design near the Bell St. Near this area can use as urban wetland treatment and water storage.

Typology Analyses

Image: Farzana

Pedestrian crossings need improvement

Future development area to respond the new waterfront design

Waterfront access and pedestrian crossing needs to be improved

Direct and designed waterfront access

Bell Street: Potential area of improvement as a recreational spine for the neighborhood because of its central location and green street design elements

Vine Street: Potential area of improvement as a multifunctional street because of its stormwater mitigation design features.

Promenade Street
Waterfront as a strong feature
Commercial/industrial building frontages

Designated green Streets
Mainly residential/ mixed use building frontages

Implemented green streets

Shared Streets
Designated bike lane/ Bicycle friendly streets
Active commercial/mixed use building frontages

Transit Corridor
Mixed use/ commercial building frontages

Vehicular thoroughfare
commercial building frontages

Map illustrates various types of streets in Belltown Neighborhood, current waterfront access and areas for pedestrian improvement

Street Typologies

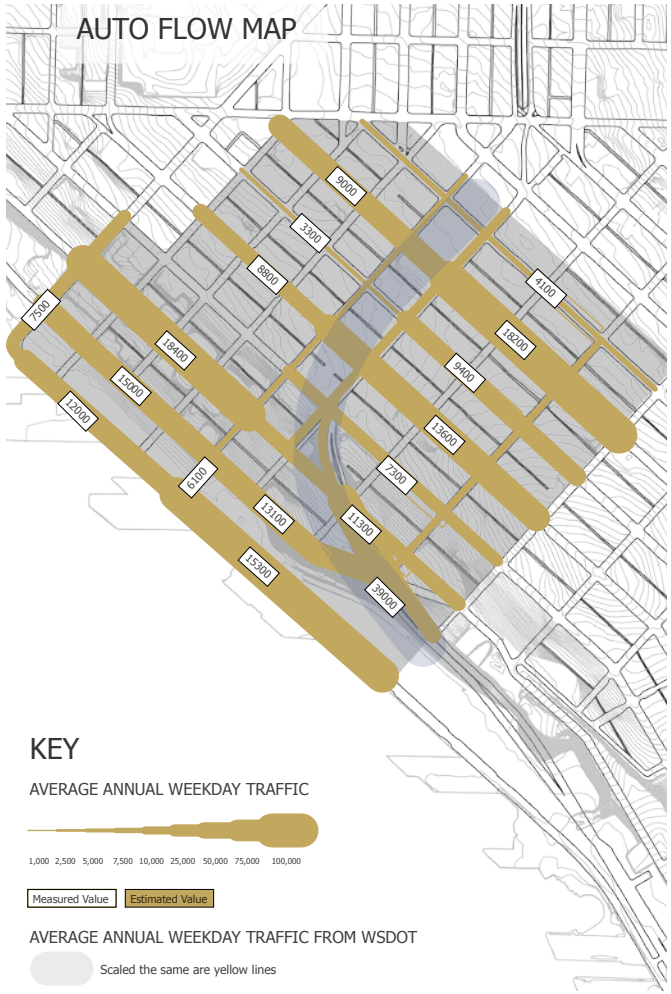


Image: Jiyoung

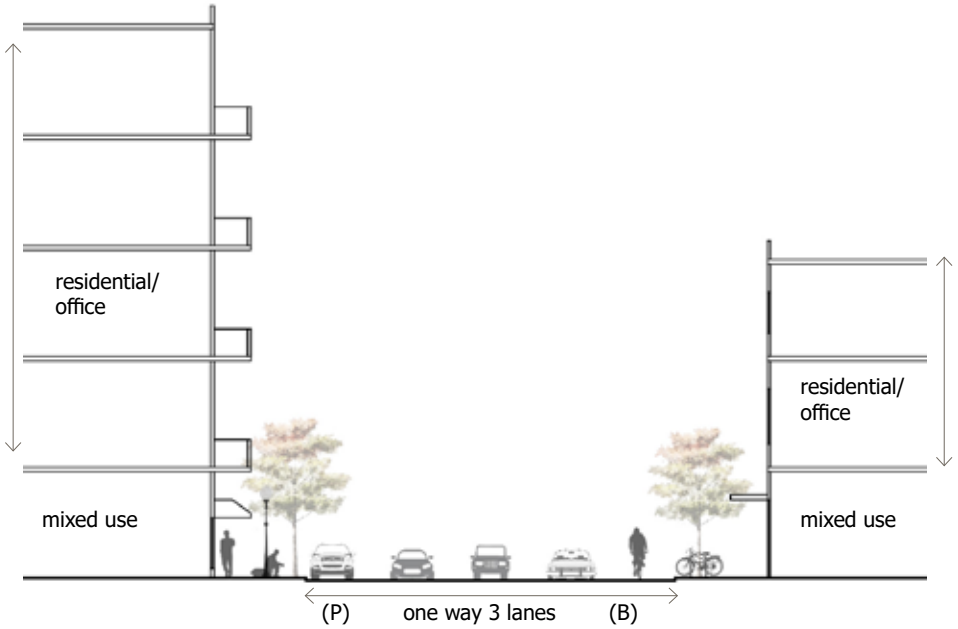
Image: Yunxin

Map on the left is showing the average annual weekday trafic flow. The number is mesured value and the line shows estimated values.

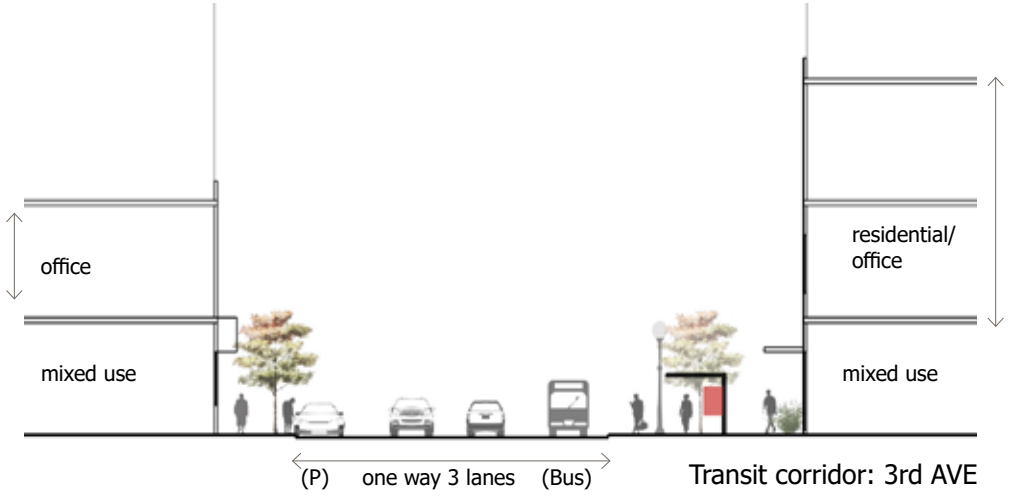
Photos on the left are showing a hierarchy of various types of streets with different number of lanes, functions and building frontages

Map on the left illustrating weekly vehicular traffic flow and map on the right showing various types of biking lanes in Belltown Neighborhood

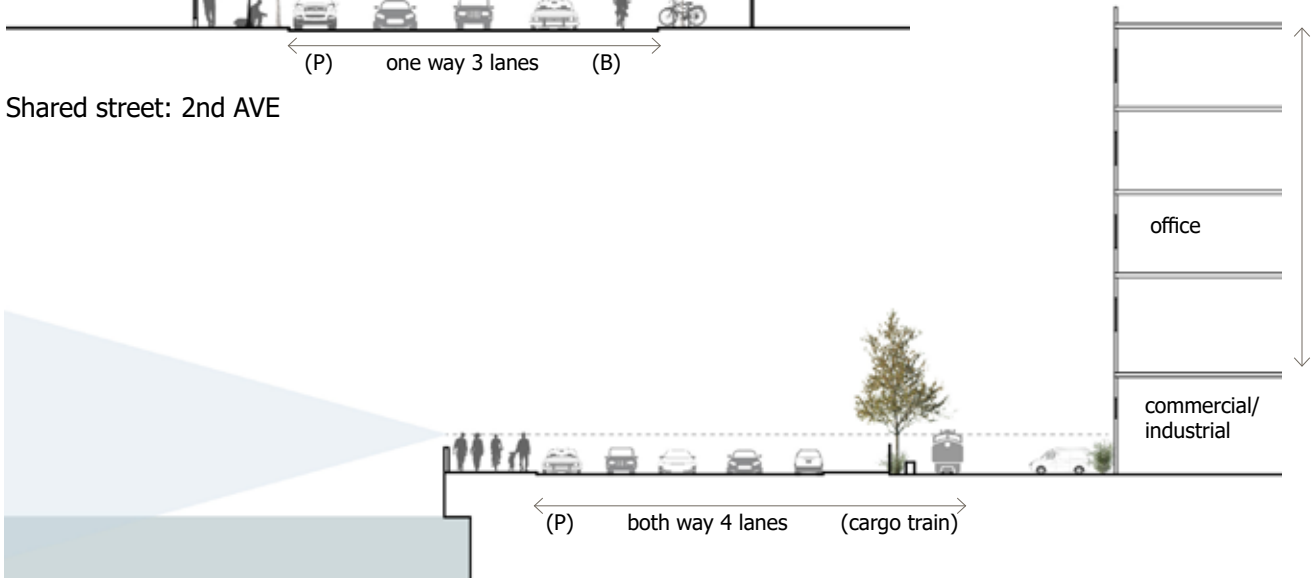
Street Sections



Shared street: 2nd AVE



Transit corridor: 3rd AVE



Promenade street: Alaskan Way

All sections: Farzana

Elements that encourages pedestrian to move:

- Active building frontage with cafe, shopping stores, restaurants
- Transparent/ interactive building facade +nice architecture + Seating areas + sidewalk cafe
- Waterfront
- Trees
- Nice landscape treatment
- View corridors
- Bus stops
- Parking facility
- Minimum number of vehicular lanes with reduced speed

Street Typologies

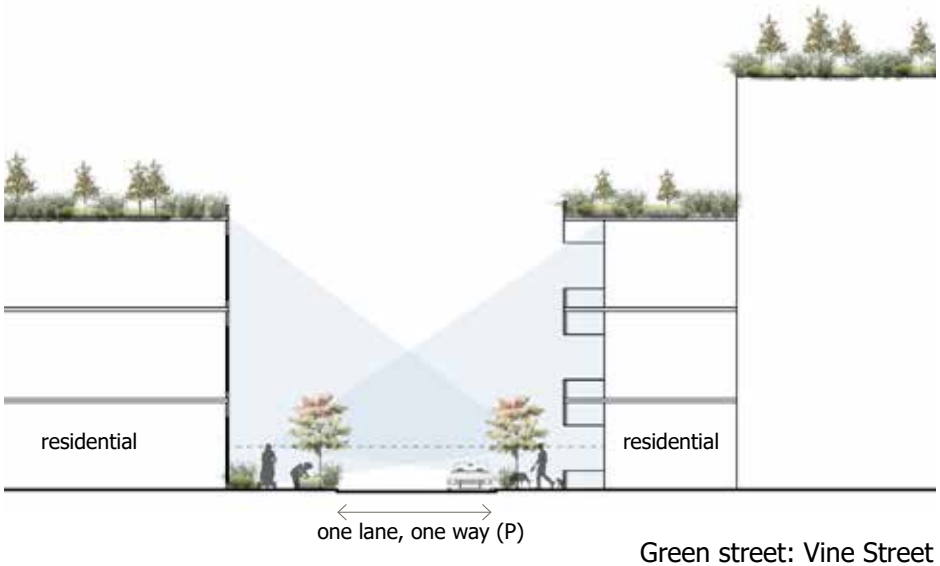
Elements that discourages pedestrian to move:

- More number of vehicular lanes
- Steep slopes
- Building facades with no function
- Noise either from construction sites/ mechanical outlets/ rail track
- Rain

Green street: Bell Street

Image: Google

All images: Farzana



Green street: Vine Street

Pedestrian Count

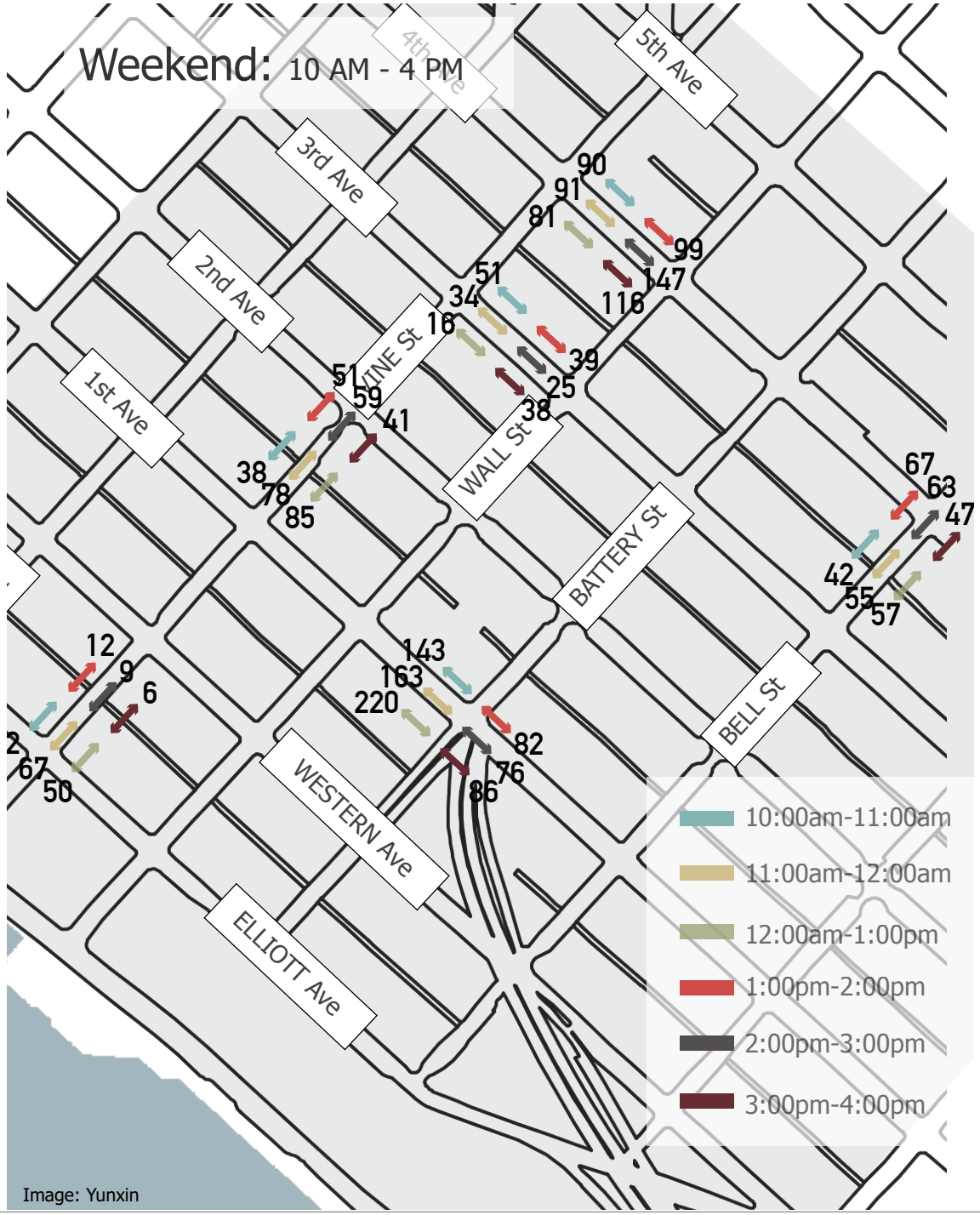
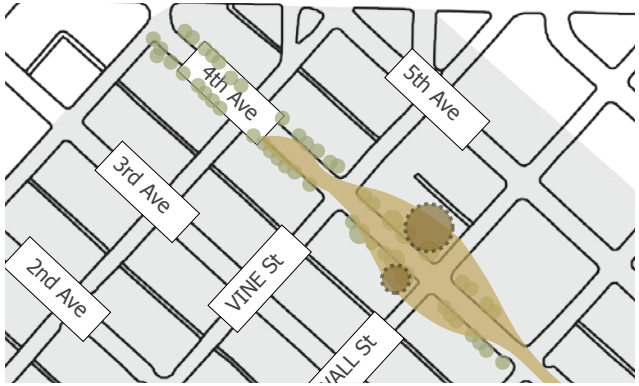


Image: Yunxin

Our team was divided into 2 groups, and each group focused on 3 different locations. During 10:00 am to 4:00 pm on Saturday, we counted people both sides of the chosen street and then did some notes.



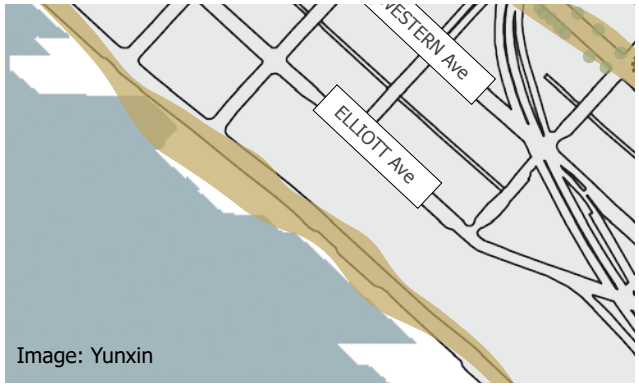


Image: Yunxin

Pedestrian Movement

Group 1: Farzana & Jiyoung

TIME	P-PATCH, VINE St	VINE ST between 1st & 2 nd	1st outside Macrina Bakery
10:00 AM - 11:00 AM	People are heading mostly towards the waterfront. Mainly walkers, joggers and dog walkers.	Two people with disability were moving towards the bus stop, means slops are reasonable on this street.	Popular for brunch. Nice sidewalk cafe, active building frontages. Although there were car noises, it wasn't overriding the ambiance of the street. People were pouring on the restaurants for brunch.
11:00 AM - 12:00 PM			
12:00 PM - 1:00 PM			
1:00 PM - 2:00 PM	Not many people ; Raining	Residential character ; Resident passed by	Lively and popular ; Restaurants and cafes
2:00 PM - 3:00 PM			
3:00 PM - 4:00 PM			

Group 2: Margot & Yunxin

TIME	BELL STREET PARK	3rd Ave between VINE St & Wall St	4th Ave between VINE St & Wall St
10:00 AM - 11:00 AM	Little pedestrian activity; witnessed drug use	Very little pedestrian activity	Lots of mature trees and dogs
11:00 AM - 12:00 PM	People utilizing tables for brunch picnics	Little pedestrian activity; witnessed drug user	Variety of building facades
12:00 PM - 1:00 PM	Smells of dog urine near planting sites		Variety of shops and seating areas
1:00 PM - 2:00 PM	8 dogs; 5 bicyclists	under construction; 1 bicyclist; 2 dogs	3 dogs; families;
2:00 PM - 3:00 PM	1 bicyclist; raining	raining	2 dogs; 1 bicyclist; teatime: lots of people outside the cafe
3:00 PM - 4:00 PM	2 dogs; 3 bicyclists	stop raining	1 dog; 1 bicyclist; most of people drive there and walk

Observations:

4th AVE: BETWEEN WALL ST + VINE ST
PHYSICAL CONDITIONS
- Shady with mature trees; protection from the wind

BUILT CONDITIONS
- Lots of activity on both sides of the street (there are mixed use buildings, residential spaces + coffee houses on both sides)
- Good variety of businesses, residential buildings and facade interest

HUMAN ACTIVITY
- People frequently moving in and out of coffee shops and residential buildings
- People utilizing seating on the outside of cafés
- Parking along both sides of the street; people walking to/getting out of cars

3rd AVE: BETWEEN WALL ST + VINE ST
PHYSICAL CONDITIONS
- Exposed due to construction to the south side of the street - because of this, this street segment is particularly windy
- Some trees and vegetation, however trees are smaller and less mature than the trees on 4th Ave

BUILT CONDITIONS
- This segment of 3rd Ave is under construction; typically there is a bus stop here but it is closed
- No places to sit along sidewalk on either side of the road (I sat on the pavement)
- Little facade interest: there is a residential building and tailor shop on one side of the street; on the other is a business building that takes up the whole block and a State Farm office

HUMAN ACTIVITY
- People were cutting across the middle of the street due to the construction (slight pedestrian confusion)
- Lots of buses moving through, however the bus stop on this block was closed due to construction
- Around noon, there were lots of families with small children and babies walking through

Image: Yunxin

Observations:

BELL ST: BETWEEN 3rd and 4th AVE
PHYSICAL CONDITIONS

- Protected from wind; sunny, warm and pleasant on the north side of the street (in the morning)
- People tended to sit and hang out on the north side of the street, in the sun (in the morning)
- Dog urine odor – many dogs pee in the vegetation on this street

BUILT CONDITIONS

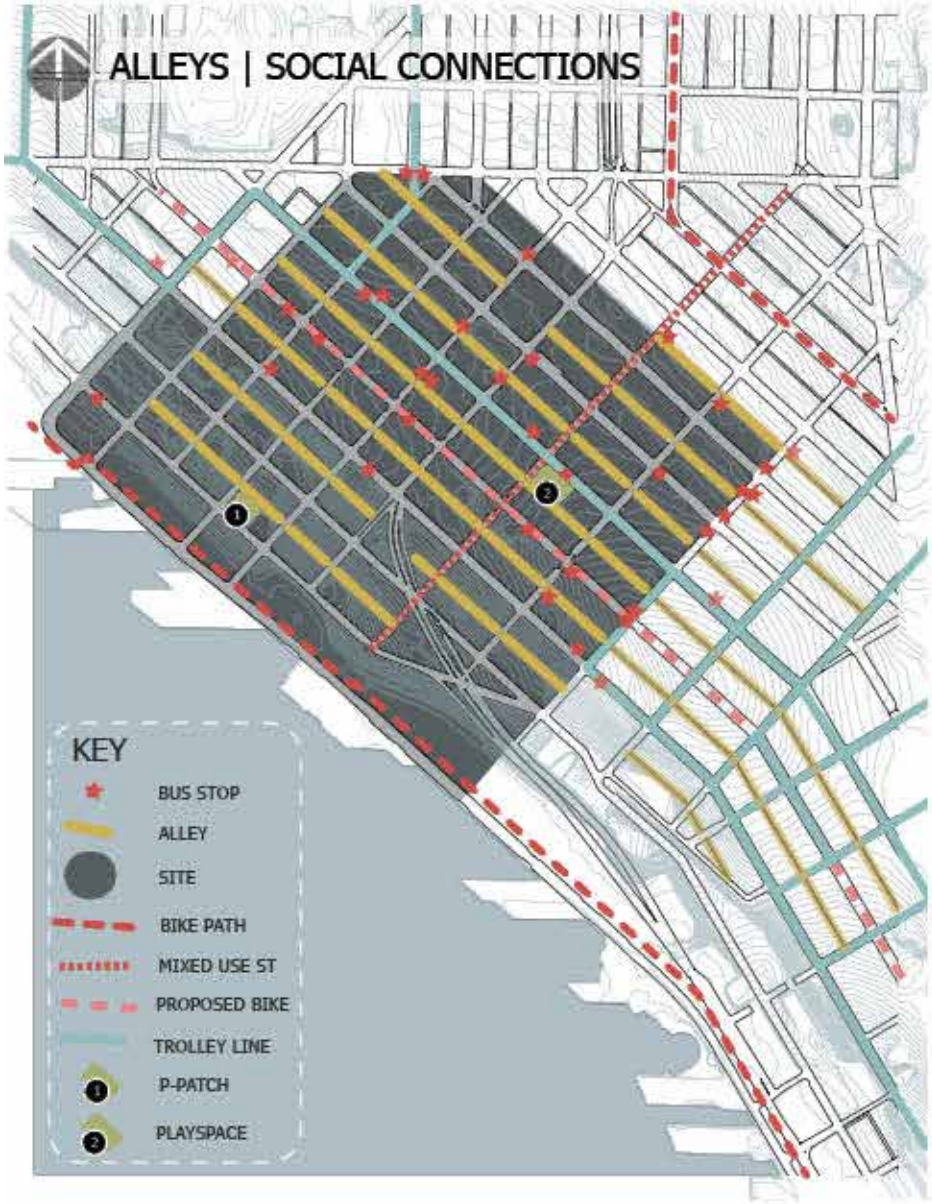
- Lots of seating options (tables, chairs, stones)
- Variety of facades and planting to maintain pedestrian interest
- Variety of plants and greenery acting as a buffer between seating and street

HUMAN ACTIVITY

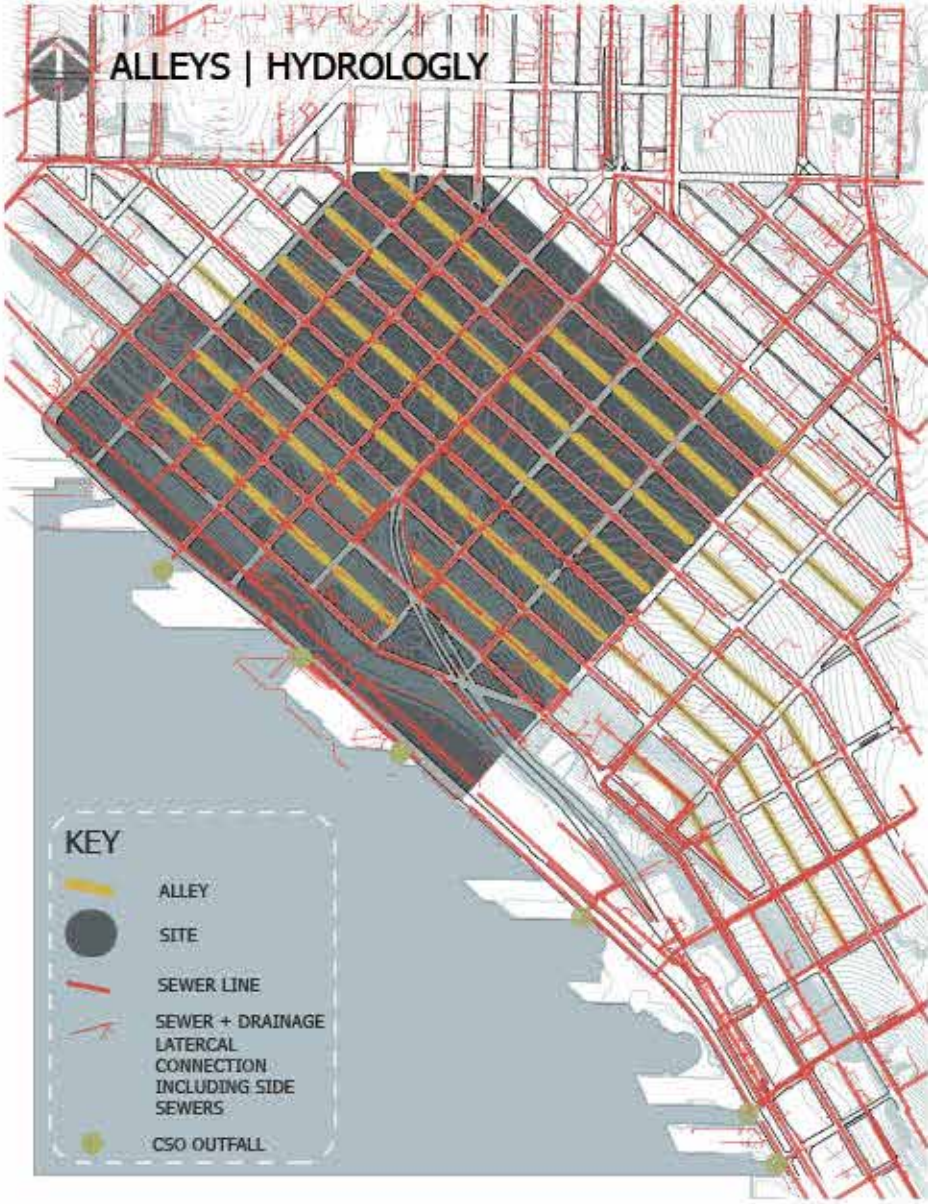
- Most people were just passing through
- Some were sitting and picnicking, or just sitting and hanging out. Tables and chairs were utilized more commonly than the more informal stone seating
- More activity around the intersection of 3rd Ave and Bell St
- At one point, a group of people stopped and appeared to smoke from a crack pipe, but that was the only "sketchy" activity that was observed

Image Citation: Google map

ALLEYS: LOCATION, CONNECTIONS, AND HYDROLOGY



There are a variety of social and transportation connections that surround the alleys. Belltown's alleys hold great potential as serving as connection corridors to bike and public transit opportunities. They could also serve to extend and connect public spaces such as the P-Patch and Playspace off of Bell Street.

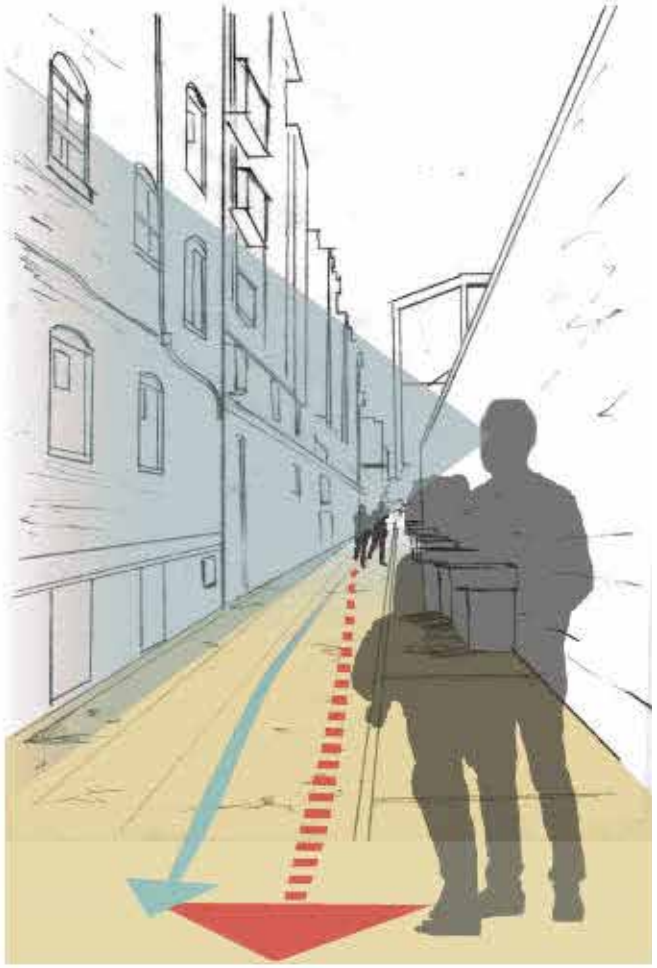


There are ample opportunities to connect Belltown's alleys with green infrastructure. One large advantage to alley renovation is that there are no major sewer lines that run beneath them; this allows for a greater variety of design possibilities to be realized. The alleys could serve as valuable spaces to filter and retain stormwater.

ALLEYS: QUALITIES AND POTENTIALS

Potential Space: Alley off of Bell St, between 3rd + 4th Ave

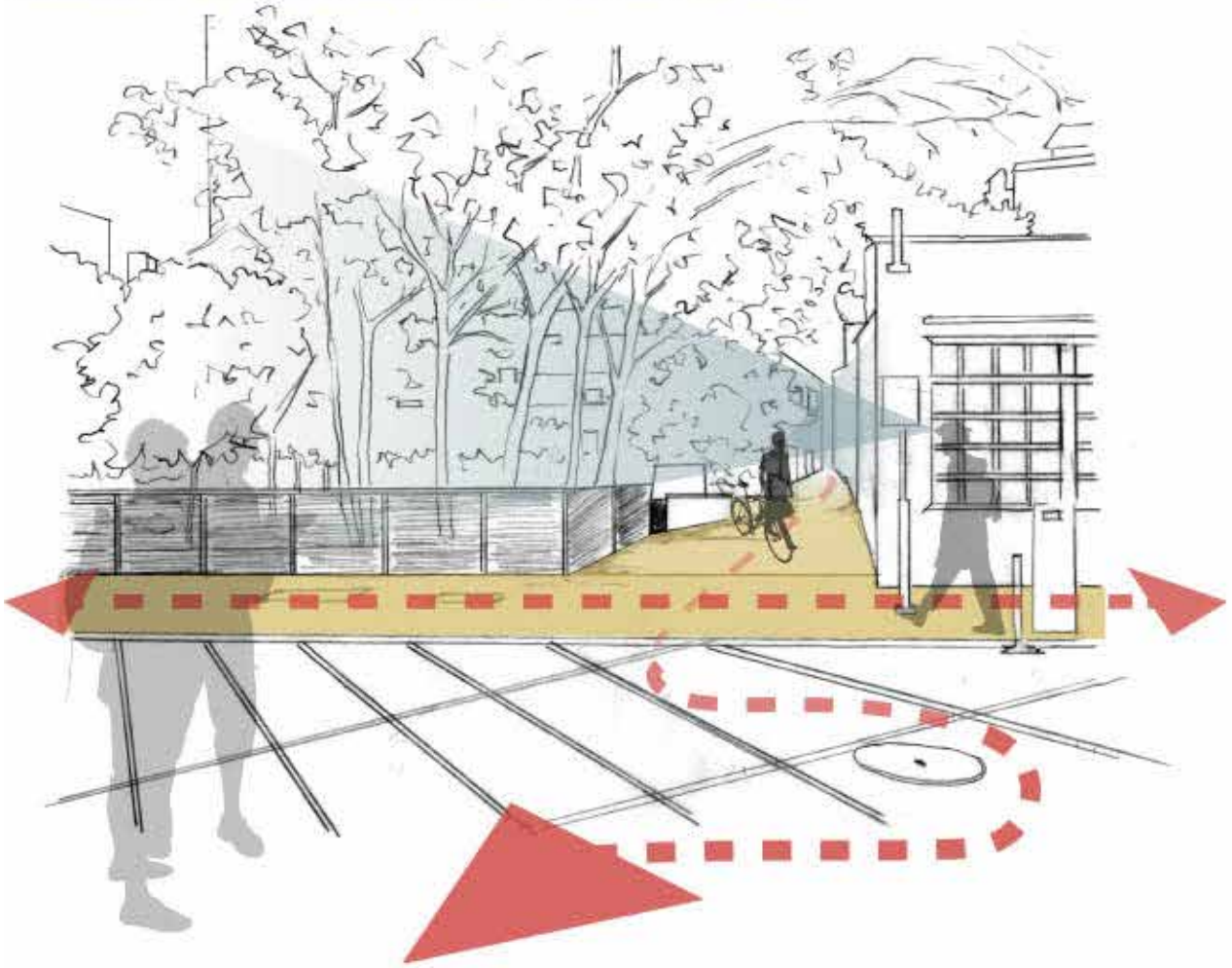
This alley space is located off of Bell St, between 3rd and 4th Ave. Here, the water drains to the center of the street and then down onto Bell St. This space abuts residential areas (left) and commercial space (right). This alley holds potential in connecting in further connecting residential spaces with Bell St, and extending Bell St's greenery.



Typical Alley Quality

This alley represents typical alley space in Belltown. Most of Belltown's alleys are clean and free of debris. However, they lack activation and only serve as spaces to store trash and recycle bins. Many of these alleys lack social programming, as tall residential buildings typically abut them to one or both sides.

ALLEYS: QUALITIES AND POTENTIALS

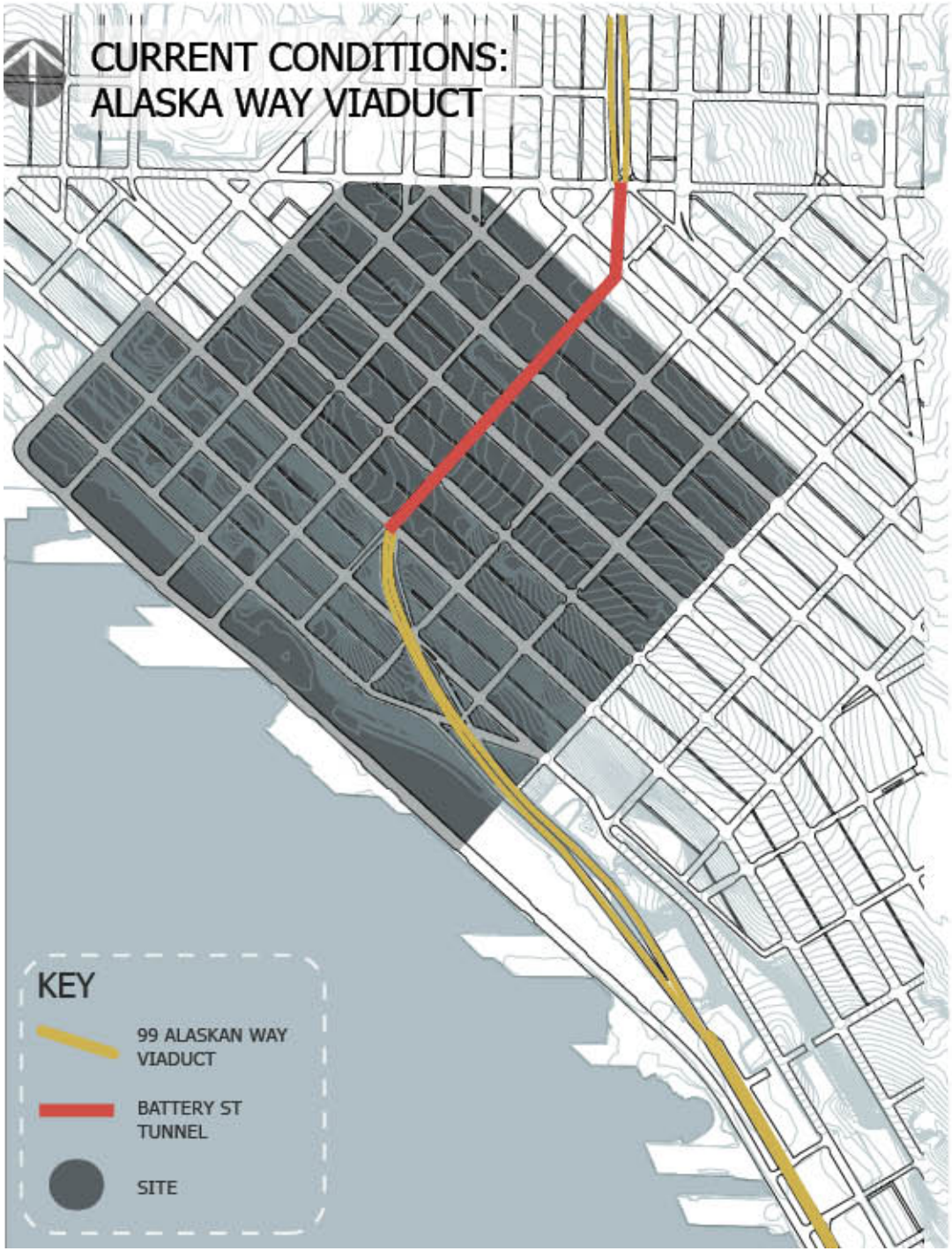


Alley Potential: Extend Green + Social Space

This alley is located west of Regrade Park, on the corner of Bell St and 3rd Ave. This alley presents a great opportunity to extend the park's and Bell St's green space further into Belltown. This particular alley is unique because of its surrounding context. It offers a more open, airy feel due to having a park on one side, and low commercial space on the other. The commercial space's ground-level windows offer an additional element of safety by adding "eyes on the street".

Above: Depictions of this alley's brighter, more open atmosphere, making it a fantastic opportunity to connect extend of the park and Bell St.

99 ALASKAN WAY VIADUCT: EXISTING CONDITIONS



HISTORY:

The Alaskan Way Viaduct/SR 99 is a 2.1 mile-long, elevated highway that opened in 1953. It features a double-decked elevation section of State Route 99 that runs along the Elliot Bay waterfront in the industrial district of downtown. Additionally, it runs above the surface street (Alaskan Way) from S. Nevada Street in the south to the entrance of Belltown's Battery Street Tunnel in the north, following previously existing railroad lines. It is heavily trafficked, carrying up to 110,000 vehicles per day.

In 2001, the Alaskan Way Viaduct/SR 99 and the supporting seawall was damaged in the Nisqually earthquake. The viaduct is now being rebuilt to modern seismic standards for the industrial area south of downtown, and the initial phase of demolition and removal of the souther viaduct began in October 2011. The tunnel boring machine "Bertha" began boring the Alaskan Way Viaduct replacement tunnel in 2013. This tunnel will help remove excessive traffic from Seattle's downtown.

CURRENTLY:

Half of the viaduct is already gone, demolished, and replaced by crews at the south end of downtown, near Seattle's stadiums. This new section of SR 99 connects to the remaining viaduct along the waterfront to keep SR 99 traffic moving until the tunnel opens to traffic

Information source: https://www.seattle.gov/transportation/

99 ALASKAN WAY VIADUCT: PROPOSED CHANGES

NEW PROGRAM:

The new Alaskan Way Viaduct includes a two-mile long tunnel beneath downtown Seattle, and a mile-long stretch of new highway that connects to the south entrance of the tunnel, near Seattle's stadiums. Additionally, there will be a new overpass at the south end of downtown that allows traffic to bypass train blockages near Seattle's busiest port terminal.

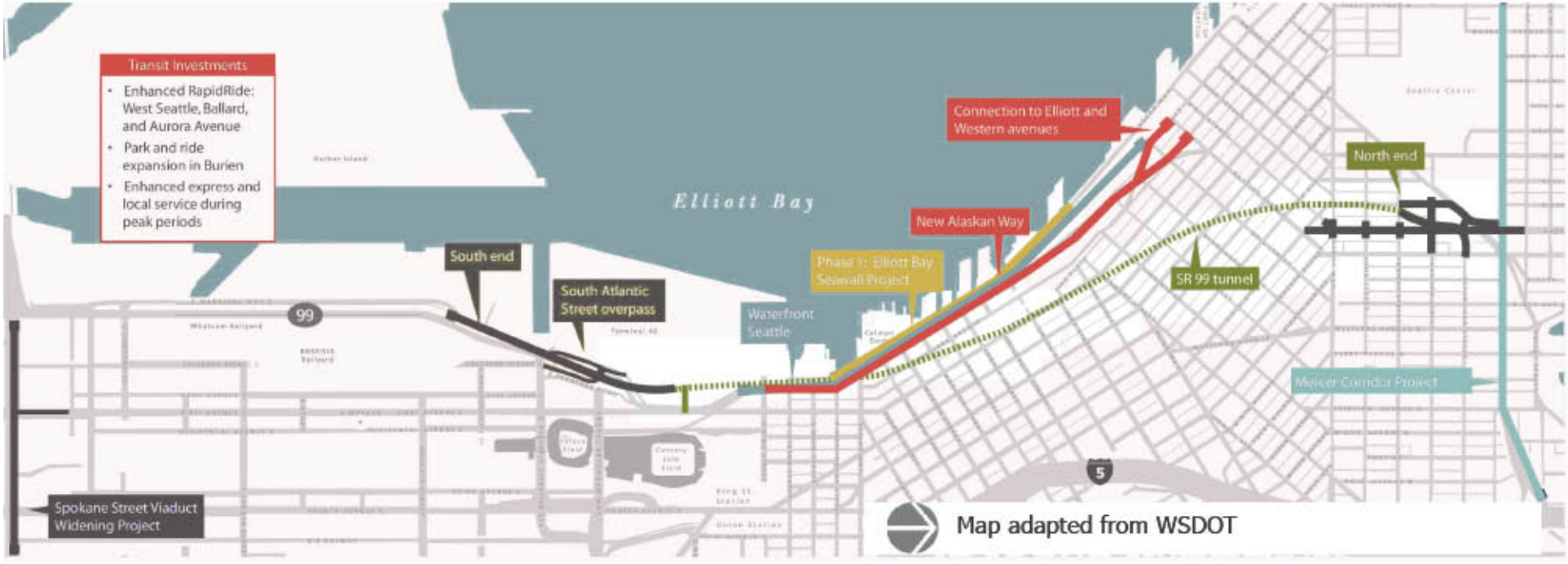
The viaduct's elevated downtown waterfront section will be demolished, and a new Alaskan Way surface street will run along the waterfront to connect SR 99 to downtown. The new tunnel, or "Bertha", is anticipated to open in 2019.

The SR 99 tunnel will change the way traffic uses SR 99 in Seattle, and is expected to alleviate above-ground traffic from downtown. Drivers approaching the tunnel from either direction may choose to either use the tunnel to bypass downtown or exit to city streets and head into downtown. At the tunnel's north end, downtown access will be similar to today, with on- and off-ramps near the Seattle Center. From the south, new on- and off-ramps will connect SR 99 to downtown via the new waterfront street.

WSDOT, King County, and the City of Seattle are all invested in this project.

Source: WSDOT, http://www.wsdot.wa.gov/Projects/Viaduct/About

Above: A section-view of "Bertha", depicting stacked traffic.
Source: Popular Mechanics, http://www.popularmechanics.com/te
infrastructure/news/a24895/seattle-big-bertha-tunnel-boring-mac



SEATTLE WATERFRONT: PROPOSED CHANGES

A variety of street, transit and waterfront improvements are planned as part of the Alaskan Way Viaduct + Elliot Bay Seawall Replacement program. This program spans the waterfront from Pioneer Square to Belltown, and includes the rebuilt Elliot Bay Seawall, improved connections between center city neighborhoods and Elliot Bay, 20 acres of new and improved public space, critical utility infrastructure, and new Alaskan Way and Elliot Way surface streets to serve all modes of transit. There are a variety of projects and designs that are detailed at waterfrontseattle.org.

Map, information, and images source: Waterfront Seattle, https://waterfrontseattle.org/overview

Left: A new protected, two-way bike path will be located between the roadway and the promenade. This path will be commuter and family friendly, and features waterfront views and a serves as a green corridor.

Above: A new Elliot Way and rebuilt Alaskan Way will feature all modes of transit and provide safe and clear pedestrian connections.

Streetscape theme development

SHARED / TRANSIT CORRIDORS	1985 DOWNTOWN PLAN	2004 BELLTOWN DESIGN GUIDELINE	PROGRESS TO DATE	FUTURE CHALLENGES
5th AVE	X	Futuristic architectural streetscape theme to reflect the presence of monorail	X	How to achieve a smooth transition in design from all the arterial streets to the new waterfront? How to integrate five green systems into the streetscape design ?
4th AVE	X	Modern street furniture proposed to reflect current and future high-rise land use along the street	X	
3rd AVE	A theme developed for transit+pedestrian boulevard and a commercial spine	Street furniture installed to reflect a major bus route	Major transit corridor but still missing active commercial ground floor uses	
2nd AVE	Reduce traffic speed to improve pedestrian environment for residential uses	Art installed to reflect the residential theme	Turned into a one way thoroughfare with wide side walk and landscaping	
1st AVE	Streetscape improvements were proposed to promote residential development	X	Visually pleasing streetscape elements and functional art pieces are installed to create an engaging pedestrian environment and that reflects Belltown's blue-collar history	
GREEN STREETS Blanchard, Bell, Cedar, Vine, Bay and Clay Street	Blanchard, Bell, Cedar, and Vine were designated as STREET PARK to create a strong residential neighborhood identity. In 1999 Belltown Neighborhood Plan recognizes the importance of the public right-of-way as an open space resource and designated three more streets as Green Streets: Eagle, Bay, and Clay Street.	Different themes for different green streets are developed	Implemented some portion of Bay, Clay, Cedar, Vine and Bell Street as green street.	
PROMENADE STREET Alaskan Way	X	X	The Waterfront Seattle program will transform Seattle's current waterfront and which includes a major remodeling of Alaskan Way as a promenade street with new landscape and functions.	

Gap & Opportunity

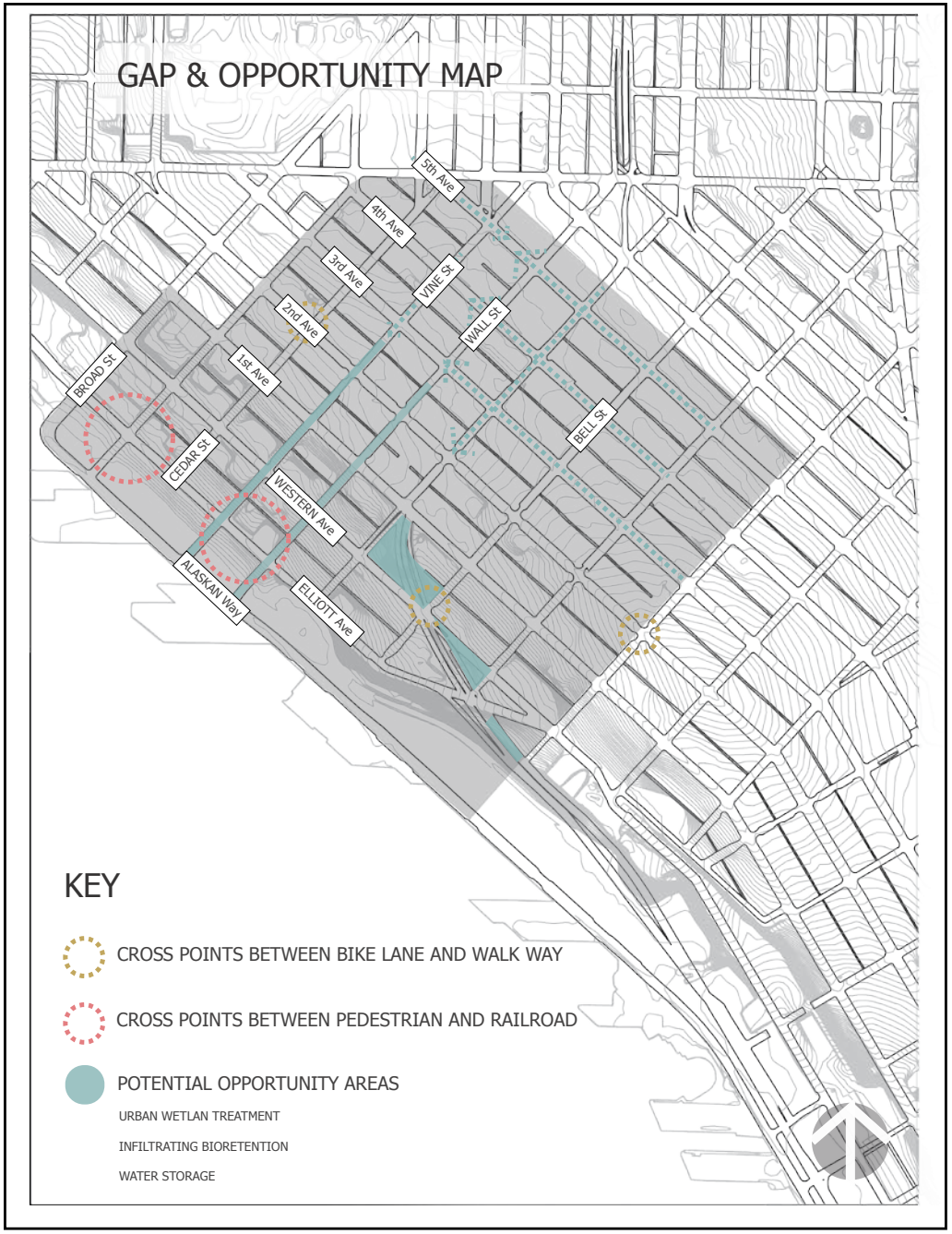


Image: Jiyoung

Image: Google Maps

Image: Farzana

REFLECTION

We observed a fairly defined hierarchy of streets in Belltown. This hierarchy, from greater to fewer lanes, consists of promenade streets, shared transit streets, public transit-only streets, green streets, and residential streets. This hierarchy greatly influences the pedestrian experience and often determines pedestrian concentration.

Overall, we observed people moving throughout Belltown utilizing a variety of transit modes, including walking, bicycling, automotive and bus transit. Additional forms we observed were rollerblading and skateboarding. The promenade streets seemed to receive the most pedestrian traffic; we believe this is partly due to the variety of facades and mixing of residential and commercial businesses; cafes, bars, and restaurants seemed particularly popular. The streets that consisted solely of commercial businesses (excluding those in the food/beverage industry) seemed to have the experience the least amount of pedestrian traffic.

One potential design challenge exists in connecting the new waterfront to the existing streets within the site. Increased bike and pedestrian connections, especially across the larger intersections and railway near the waterfront would create a smooth transition between spaces and improve the pedestrian experience. This connection also has potential to bring in new economic opportunities into Belltown.

The railway currently bisects pedestrian connection between the waterfront and Belltown. Waiting for trains to pass is often a lengthy and noisy experience. It would be useful to look into design opportunities to improve pedestrian and bicycle crossing in this area as well as the interface between the building facades and public space.

References:

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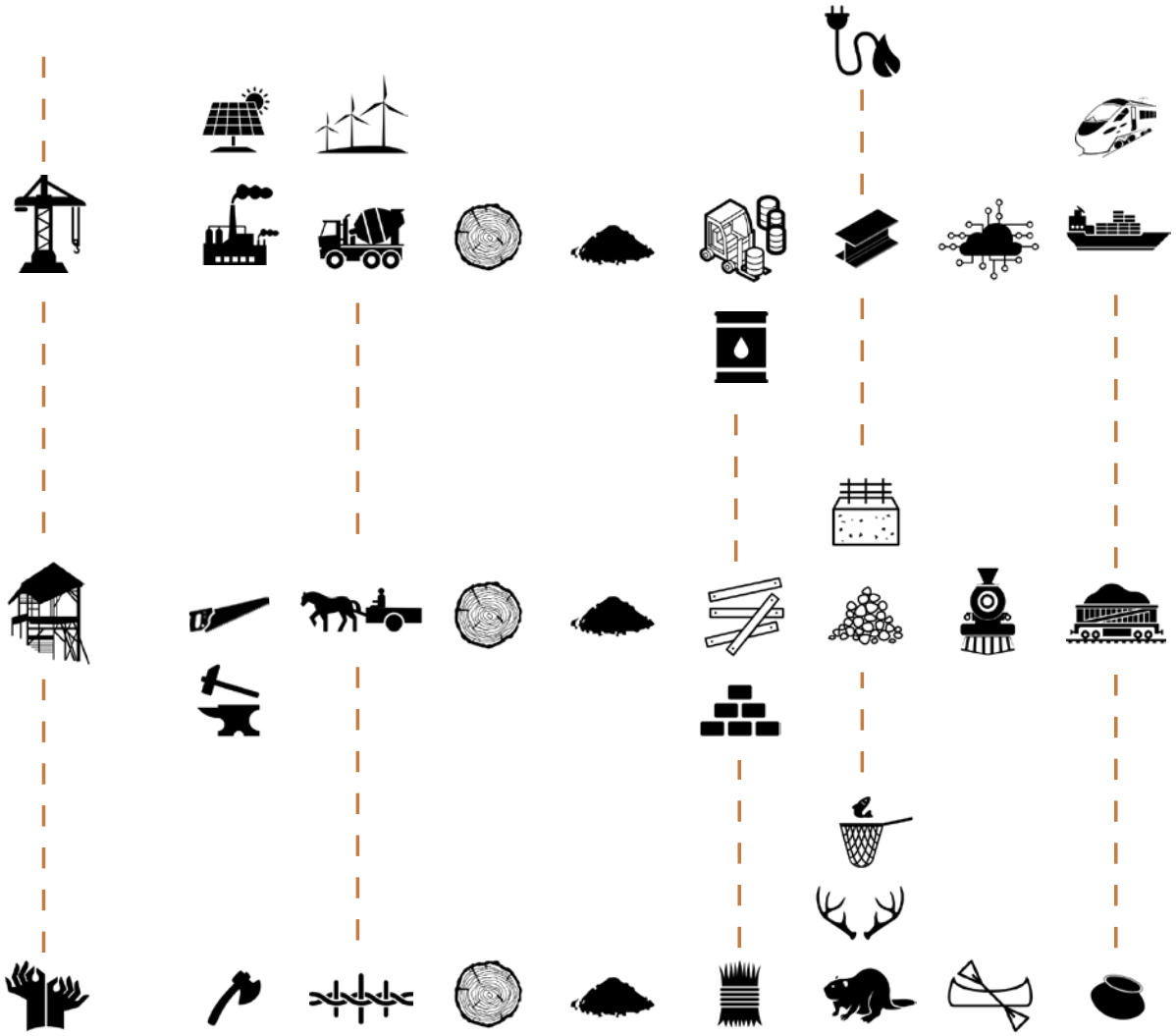
"King County GIS Data." WAGDA Home, University of Washington Libraries, 2 Nov. 2011, wagda.lib.washington.edu/data/geography/wa_counties/king/index.html.

"Latest News." Waterfront Seattle, Seattle Office of the Waterfront, 2017, waterfrontseattle.org/.

Materiality Timeline

From hands...to sawmills...to cranes,
with buckets...to trains...to cargo ships,
and natural...to industrial...to renewable materials,
how is Belltown re-made?

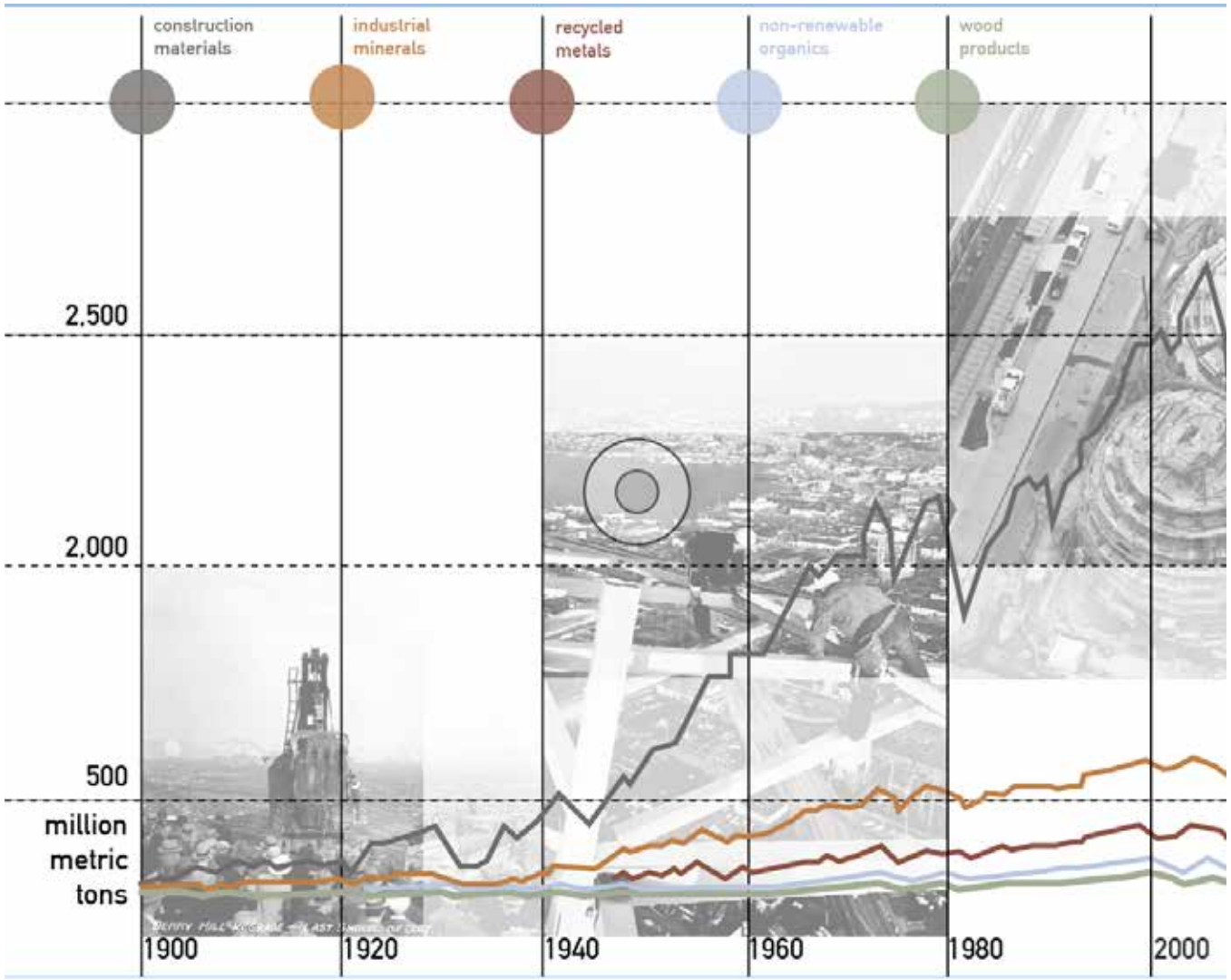


Sophie Krause

Thick Context

Team:
Sophie Krause, Yang He, Nina Mross

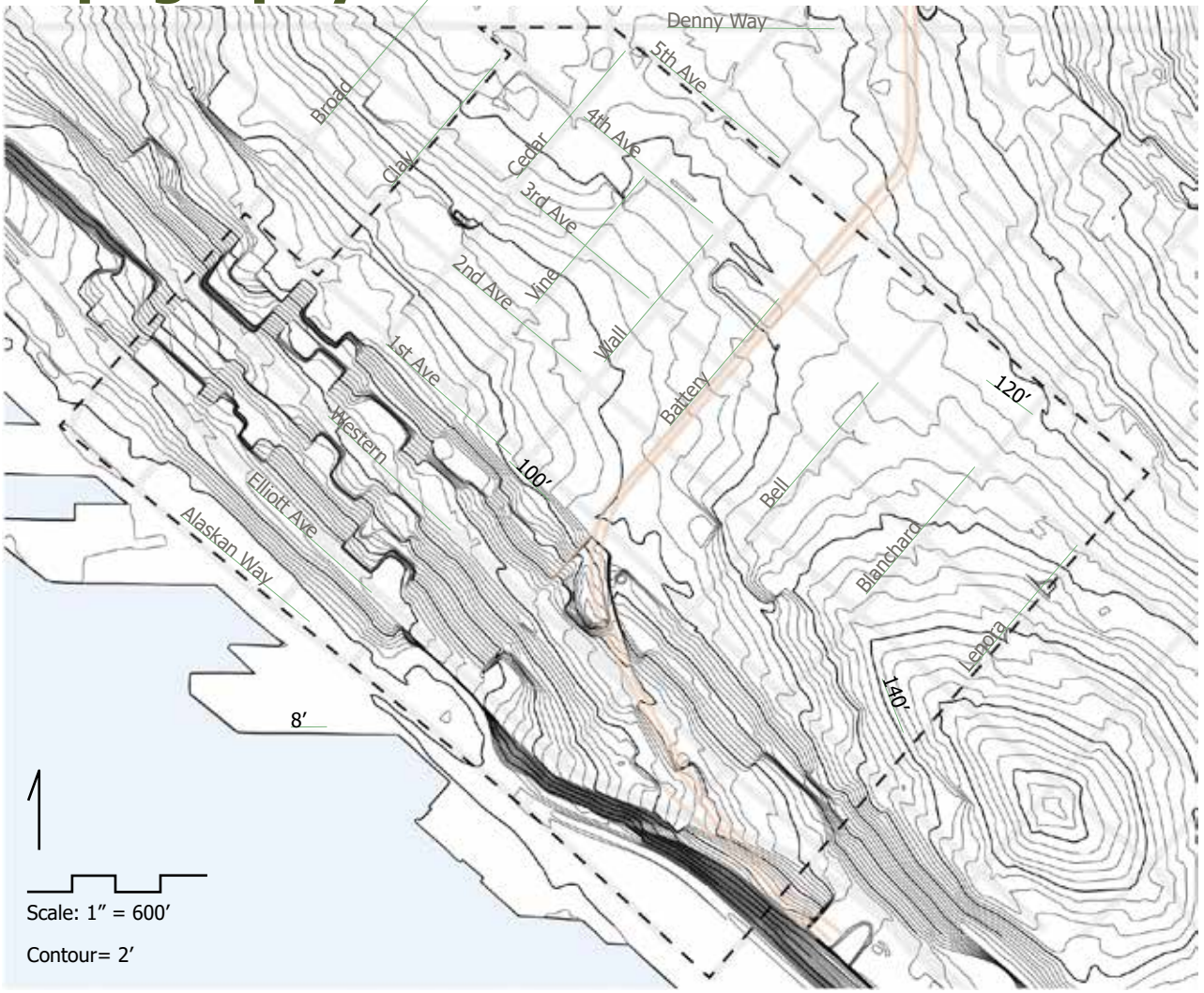
Population Growth and Resource Use



Sophie Krause

Looking at three of Seattle's most iconic periods of growth: the last shovelful of the Denny Hill re-grade, the building of the Space Needle, and the current construction of the Amazon Spheres - resource use in the form of million metric tons of construction materials has increased greatly over the last forty years.

Topography



"Founded on Indian ground by American settlers in 1851, Seattle is one of the most dramatically engineered cities in the United States. Its shorelines have been extended, lagoons filled, hills flattened and rivers re-routed." - Burke Museum, Waterlines Project

Belltown has one of the most highly altered and figured terrains in Seattle, as seen in the contour map above. Tracing eastward from Elliott Bay, one can see hard, artificial waterfront along the southwestern edge, hard architectonic terracing up and over the steep slope, and finally relatively level, densely used and highly compacted land created by the Denny Regrade around the turn of the 20th century (see next page). Overall, the site slopes down from 5th Avenue to the waterfront. The northern slope is more terraced, and the southern sheared into a kind of escarpment.

Apart from the greater regional form, few to no original topographical features remain; the extant and future condition will be one of human construction.

Topographical History

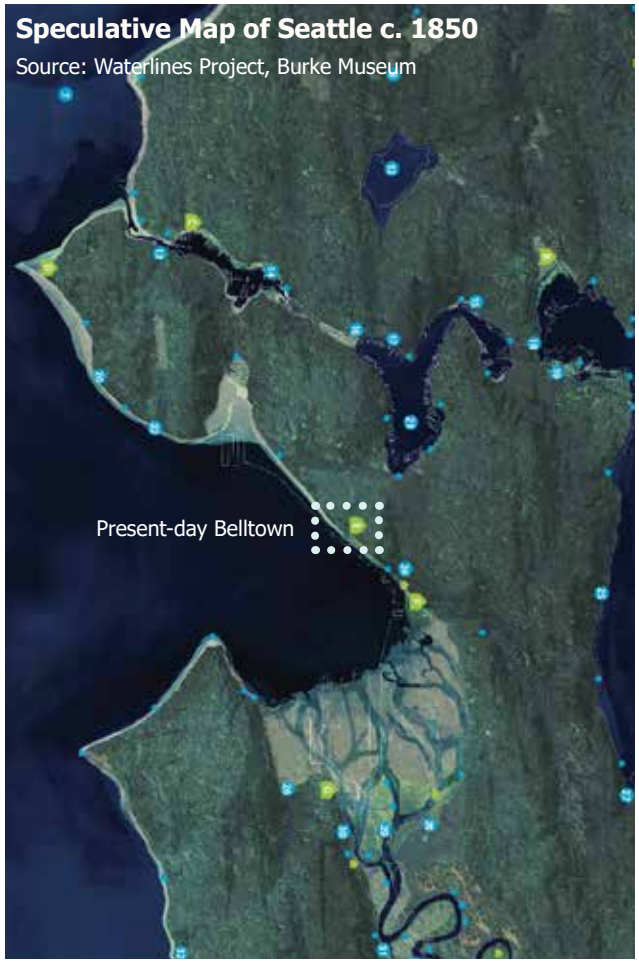
Vashion Glacier: 16,000 Years BP, Created N/S glaciated landforms and soil deposits

Native settlement: Pre 1850, village and boat pull off on the beach at Elliott Ave

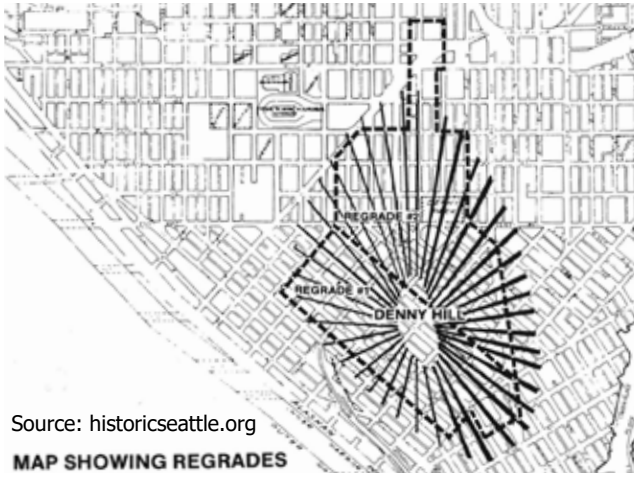
Euro-Urbanization: Mid-Late 1800s, deforestation, erosion, and landfill begins.

Denny Regrade: 1898 - 1930, 16M cubic yards of earth was pushed into Elliott Bay in three stages.

Present and future: 2017~, underground structures, larger building footprints, and the tunnel/viaduct project continue to alter the terrain.

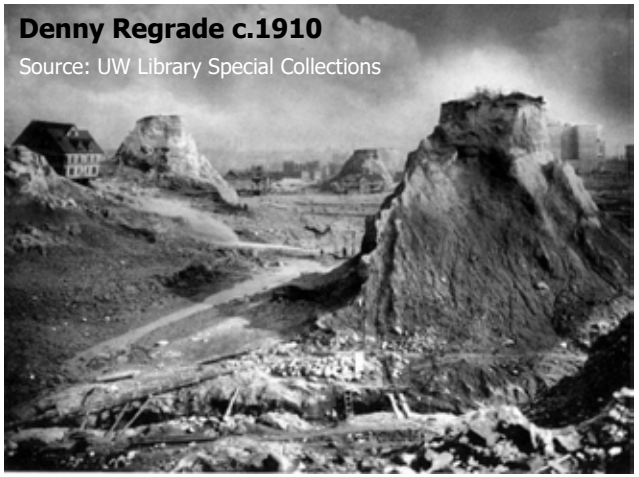


Soils and Geology



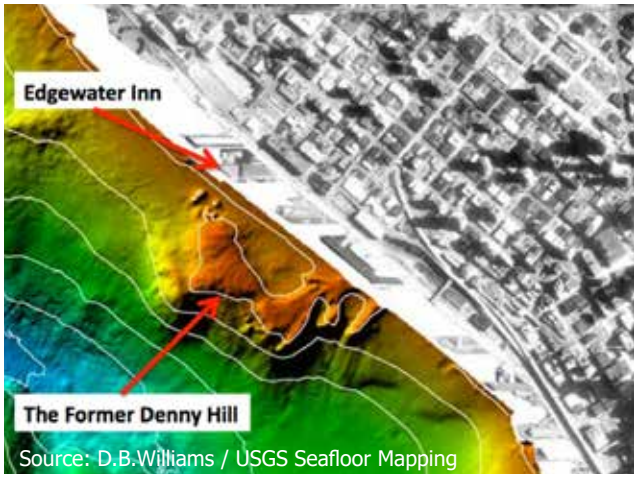
Source: historicseattle.org

MAP SHOWING REGRADES

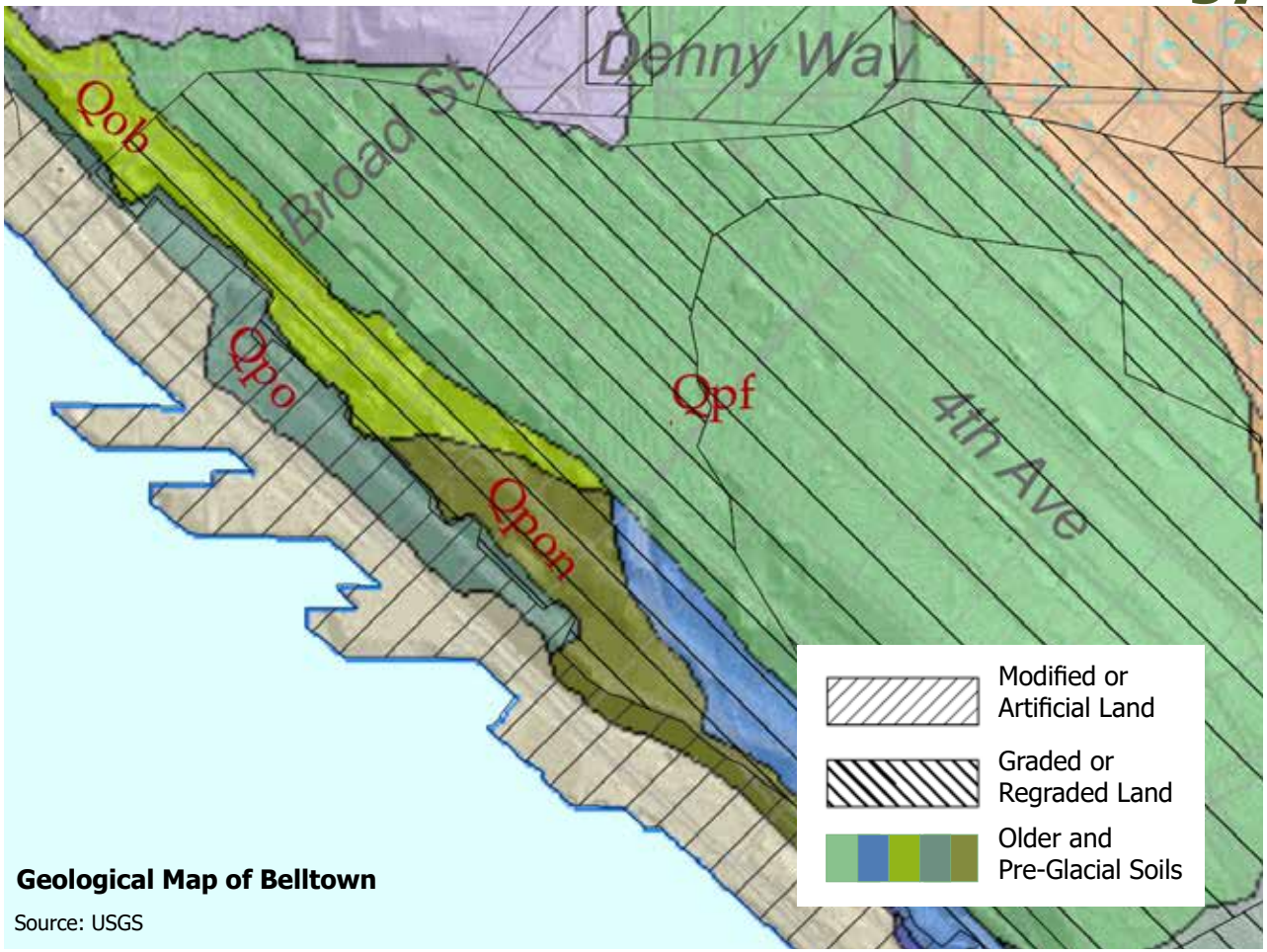


Denny Regrade c.1910

Source: UW Library Special Collections



Source: D.B.Williams / USGS Seafloor Mapping



Geological Map of Belltown

Source: USGS

Left Top: Belltown map showing the location of the former Denny Hill, flattened during the Denny Regrade.

Left Center: Image of the Denny Regrade in process, c. 1910. >150' was taken down.

Left Bottom: Evidence of the soil of the former Denny Hill, now under the water in Elliott Bay near Pier 66.

Top: USGS Soil map of Belltown, showing artificial land, graded and regraded areas, and pre-glacial soil deposits. Topsoil and glacial soils were sluiced away into the bay.

Soil Analysis:

The USGS characterizes the soils types here as all "very hard and dense", mostly sand and silt. Urbanization has further compacted and contaminated the soil layers.

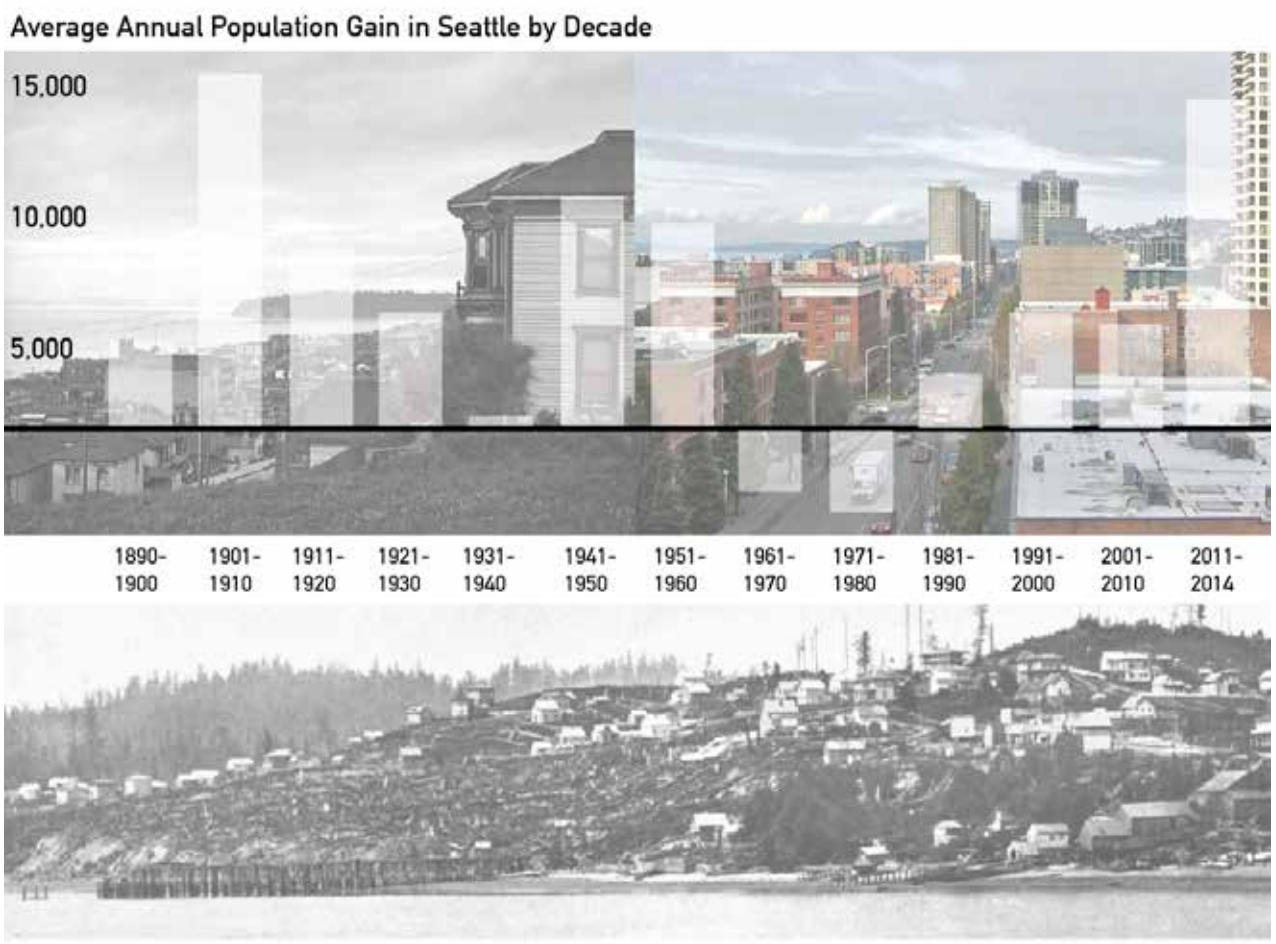
Thus, possibilities for water infiltration and planting in extant soil are low.

New plantings will require imported soil.

Water should be infiltrated only in specific locations deemed appropriate. See Hydrological Analysis.

Puncuated by Growth

Seattle has been a boom town model from timber to tech. As annual population gains each year, how does this change Seattle's view of itself, and of its sense of place?



Sophie Krause

Early Inhabitants

"Native people are not totem poles. They aren't statues. Native people are here and now." - Eagle Bear

Native Belltown Vision:

Belltown used to be the Ba'qbaqwab or site of the-seasonal "Little Prairies" Village, home to many native groups being exiled from the nearby downtown center. "And we are seeing a crisis in identity here in Seattle, as we undergo one of the fastest and largest surges of development we have seen. More cranes than ever before in our history. More canes than in any other City in the US. Our identities are being lost. Our places are being lost. And our communities, are being lost. And some have said – when we tear down our history – we tear down our souls. From Ballard, to the Central District, to here in Belltown, and Uptown, and South Lake Union. Across the City – these areas are being transformed. And this urban transformation is transforming us. And it is displacing many of us. And it threatens our very selves." - Eagle Bear and Steve Hall Design Ideas: Develop a native "landing" or "gateway" at or near the Bell Street Pedestrian Bridge to indicate that people are entering a place of ancestral, historic, and present-day Native people // Create an urban pedestrian Salal Trail overlay as a linear destination for residents to engage with Native run installations, businesses, and vendors.

Uprooting History

One Cherry Tree:

In the autumn of 1979, the block directly north of Virginia Street on 1st Avenue had only one resident, a beautiful old cherry tree. It stood majestically in the middle of a block that had once been occupied by a congeries of cheap hotels and taverns. Hundreds of low-income people had lived in these structures. By 1979, everything but the tree had been torn down. The affluent Market Place North Condominiums, the Seattle Athletic Club, and related ventures now occupy the block.

The day had finally arrived when the cherry tree itself was to be uprooted. The uprooting of the tree was, for many, symbolic of the uprooting of the old neighborhood and a way of life that seemed to be fading into history. An intelligent and sensitive man with a wonderful sense of humor, Mac understood that more than the tree was being taken away. A reporter from the local press came by, and Mac was asked what he thought of it all. As he was lighting a cigarillo, Mac put it simply:

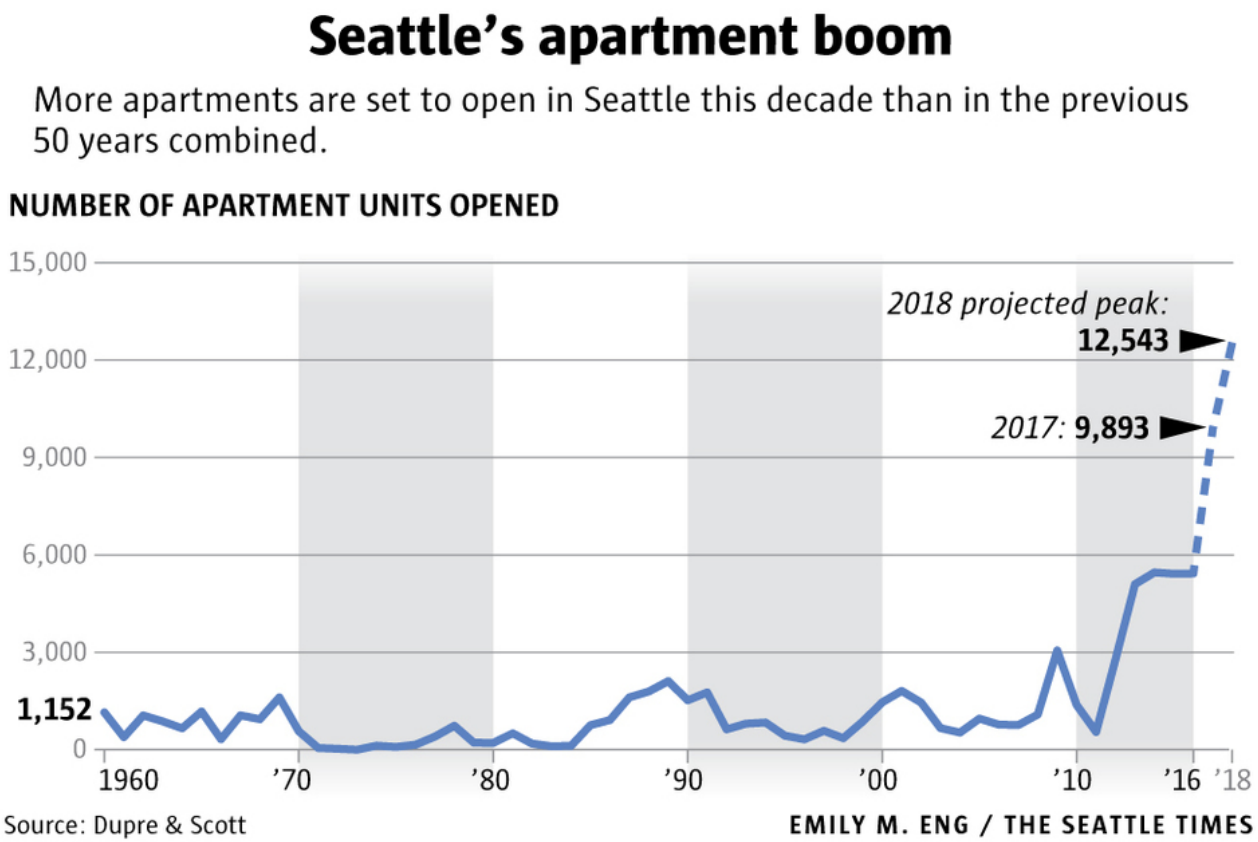
"Some call this progress. I call it decadence."

Seattle Historic Archives

70s Inhabitants

"Native people are not totem poles. They aren't statues. Native people are here and now." - Eagle Bear

Luxury Prices, Shoddy Construction



The furious pace of development, and the kinds of buildings that are popping up all over this neighborhood have gotten people like Gretchen Apgar considerably exercised.

"It's called 'luxury housing,' and the prices attest to that, but many of these new buildings are absolutely hideous in their design, and shoddy in their construction. They are definitely not going to be long-lived structures. The way in which some of these apartment complexes are set up, the occupants are structurally divorced from the community."

"We desperately need to implement a truly community-spirited design review process. This can ensure that we'll avoid economic homogeneity, and prevent architectural blight too."

- Gretchen Apgar, Belltown Resident

Urban Structure

Urban Mix

Belltown is laid out in a system of gridded streets, broken here and there by features such as the viaduct, the tunnel, and the southern curving part of Elliott Ave. A system of north/south alleyways cut through the blocks and add circulatory permeability.

The building topologies include large 4-5 story commercial and industrial buildings near the waterfront, 1-4 story wood or brick historic mixed residential buildings with commercial on the ground floor, and newer residential towers, such as the Insignia Towers at 41 stories.

The small Regrade Park, Bell St. Park parking strips, and the Belltown P-Patch make up the only green spaces. The Battery St. Tunnel entrance and other areas along Elliott Ave that will be daylighted by the viaduct removal have been identified as opportunity areas for greenspace.

Public, street-level views to Elliott Bay are defined by buildings, and are available along E/W street, from the Battery St. Tunnel entrance bridge on 1st Ave, the Bell St. Bridge, and the Lenora St. Overlook.

Views: Due to existing buildings the view at street level will not be opened up after the viaduct is removed. Possibilities exist for elevated public space.

Parks and Buildings: More large, high-rise buildings can be expected. Good possibilities for infill exist, especially where space can be taken from parking lots and where streets are re-arranged following the viaduct removal.

Alleys/Streets: These present good opportunities for softening and greening along edges and interstitial spaces.

Emotive Qualities

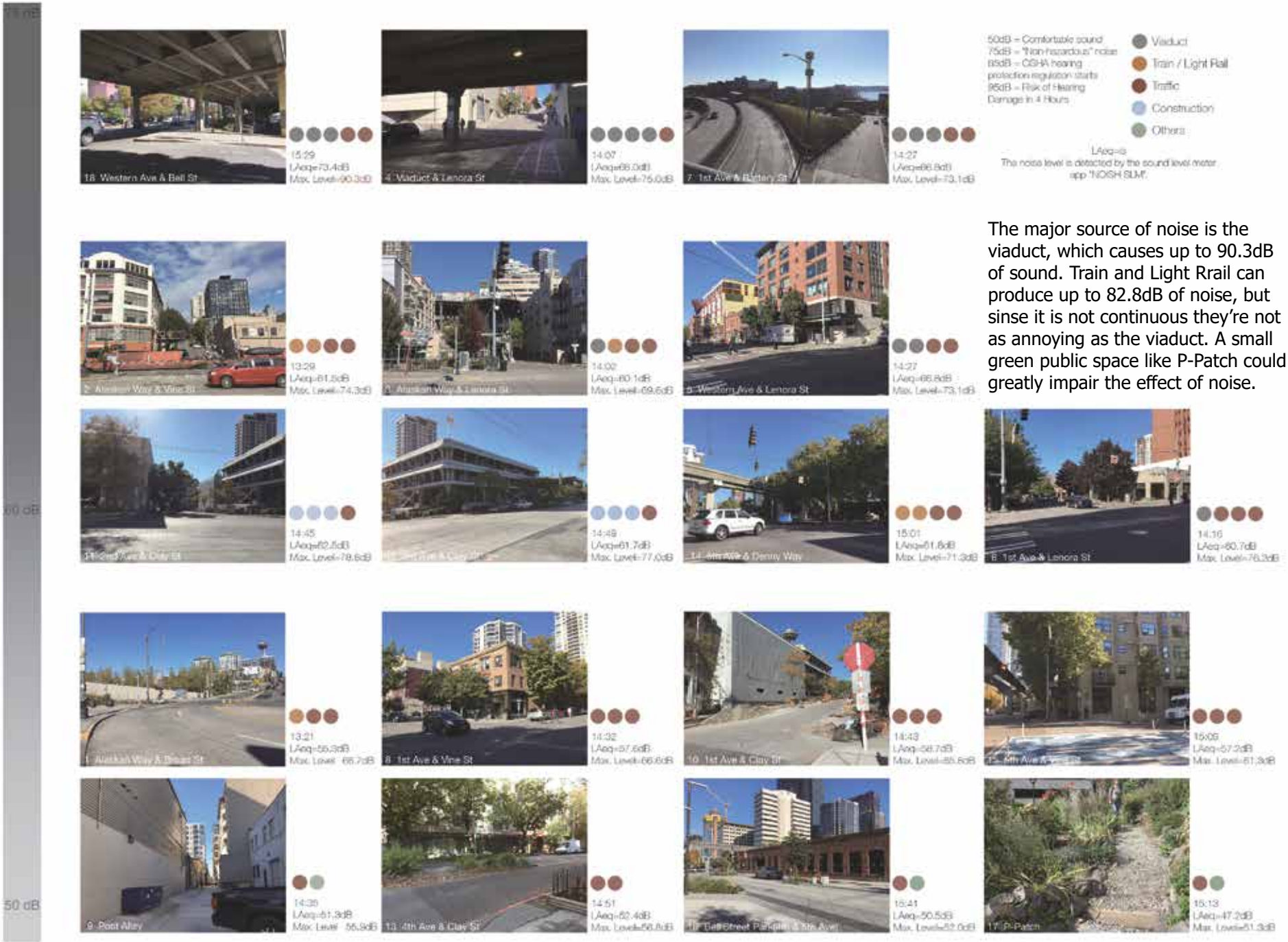

BELLTOWN
STARBUCKS COFFEE
PENSKE
©Wayne Lorentz
www.PNWArchitecture.com

Material Palette

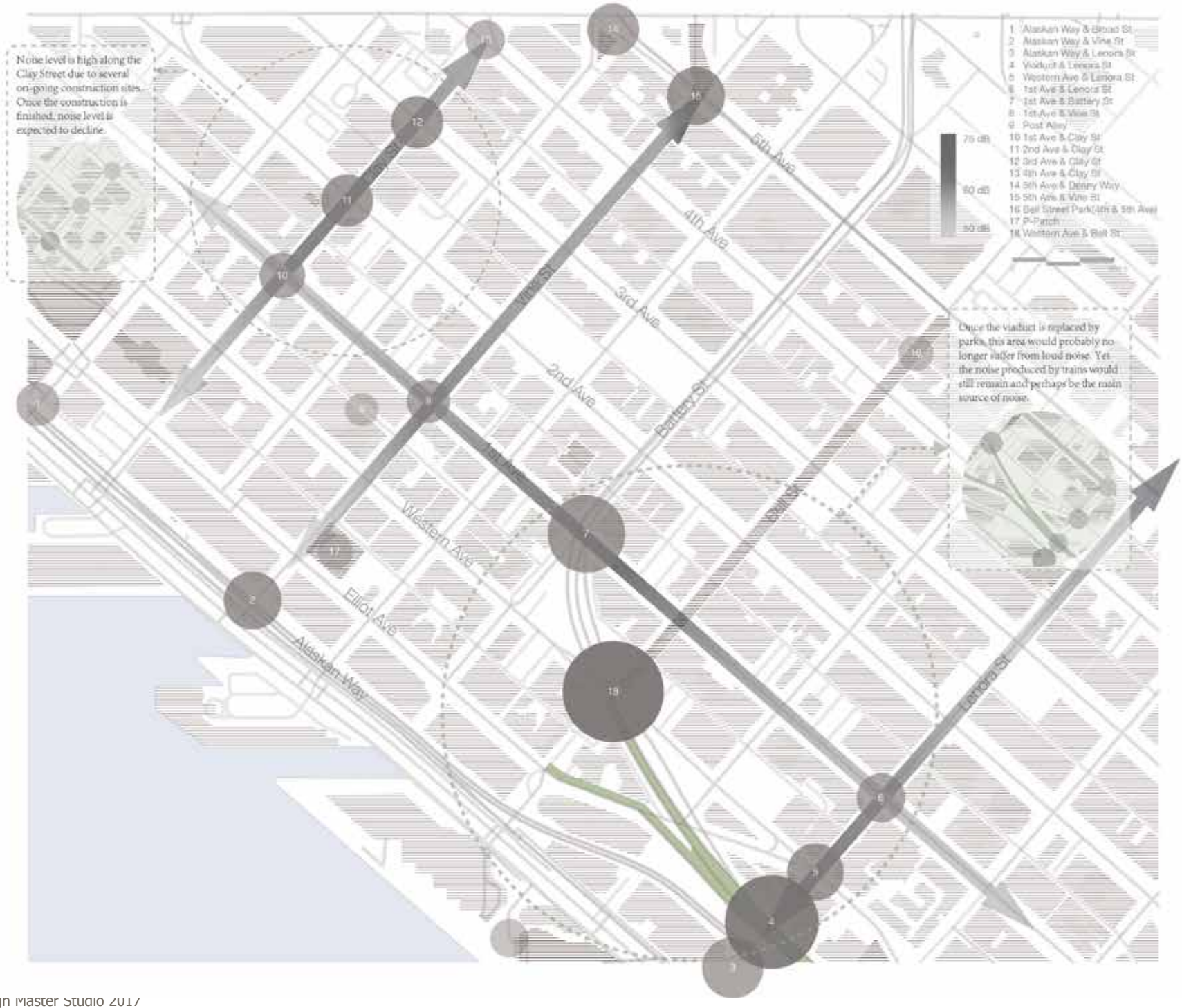
How does design work to uncover material visions of the past, and create new ones for the future? From cobblestone and brick and wood and steel, to concrete and iron and glass and pre-fabricated materials - where are we headed with green infrastructure, photovoltaic cells, and using a combination of technology and green infrastructure to re-define our working palette?

Sophie Krause

Sound and Noise

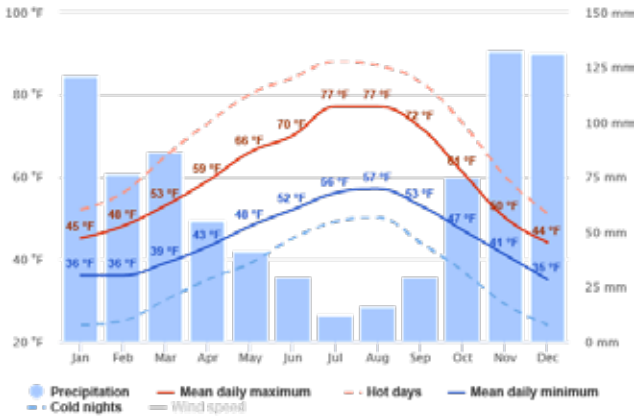


The major source of noise is the viaduct, which causes up to 90.3dB of sound. Train and Light Rrail can produce up to 82.8dB of noise, but sinse it is not continuous they're not as annoying as the viaduct. A small green public space like P-Patch could greatly impair the effect of noise.

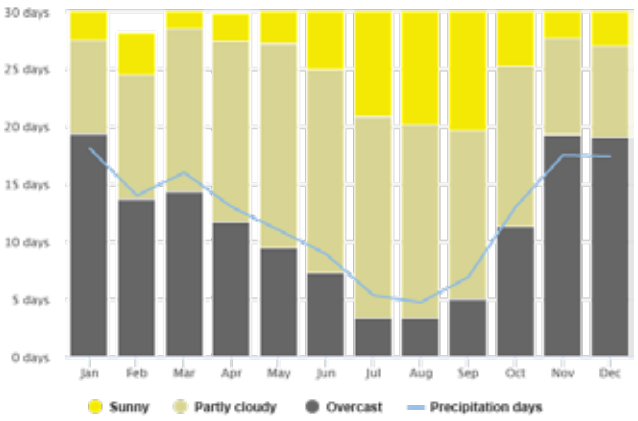

Noise level is high along the Clay Street due to several on-going construction sites. Once the construction is finished, noise level is expected to decline.
Once the viaduct is replaced by parks, this area would probably no longer suffer from loud noise. Yet the noise produced by trains would still remain and perhaps be the main source of noise.
1 Alaskan Way & Broad St
2 Alaskan Way & Vine St
3 Alaskan Way & Lenora St
4 Viaduct & Lenora St
5 Western Ave & Lenora St
6 1st Ave & Lenora St
7 1st Ave & Battery St
8 1st Ave & Vine St
9 Post Alley
10 1st Ave & Clay St
11 2nd Ave & Clay St
12 3rd Ave & Clay St
13 4th Ave & Clay St
14 5th Ave & Denny Way
15 5th Ave & Vine St
16 Bell Street Park(4th & 5th Ave)
17 P-Patch
18 Western Ave & Bell St
75 dB
60 dB
50 dB
Vine St
Clay St
5th Ave
4th Ave
3rd Ave
2nd Ave
Battery St
Bell St
Western Ave
Elliot Ave
Alaskan Way
Lenora St

Climate and Microclimate

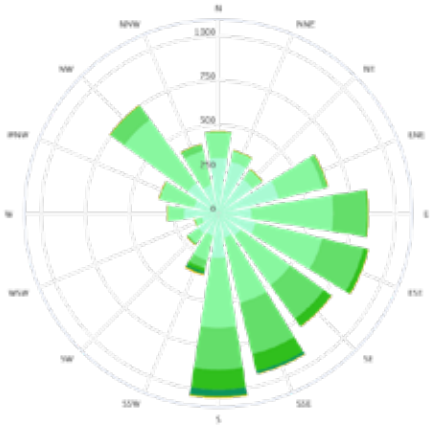
Average temperatures and precipitation



Cloudy, sunny, and precipitation days



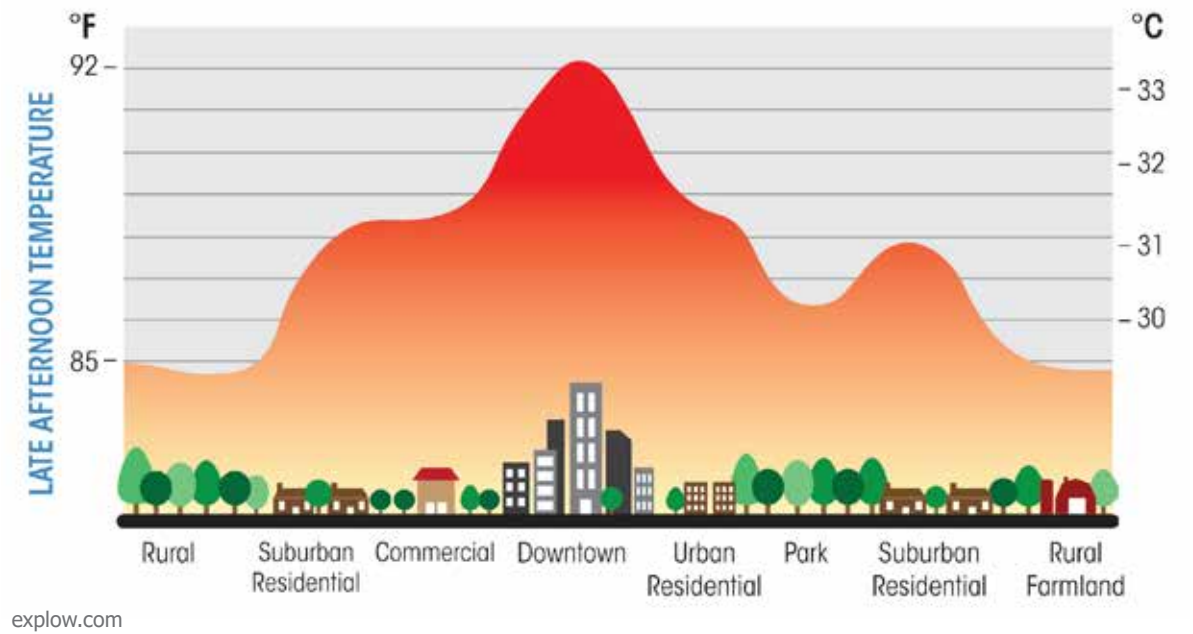
Wind rose



meteoblue.com

Climate in Seattle:

Seattle is generally quite temperate, with few days that are unbearably hot and few that are freezing cold. The average high temperature in winter is between 40 and 50 degrees Fahrenheit, while the daily low temperature is in the high 30s. In summer, the average daily high is in the upper 70s, with daily lows in the high 50s.
On average, there are 152 sunny days per year in Seattle, which is far below US average. Seattle gets around 37 inches of precipitation each year, with the wettest times falling between October and January. The summer months are the driest. Snow falls occasionally, but is not a constant.

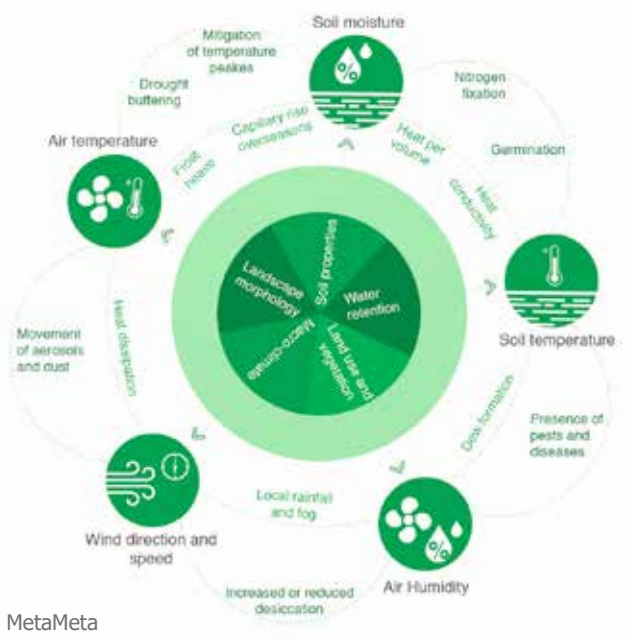


explow.com

Urban Heat Island Effect:

An urban heat island is a metropolitan area which is significantly warmer than its surrounding rural areas. The temprature defference is usually larger at night than during the day, and is most apparent when winds are weak.

In Belltown, the heat island effect is obvious. For example, on the shore and Alaskan Way, wind from the ocean is quite strong, while on the 5th Ave there's less breeze between buildings.



MetaMeta

Microclimate interactions:

Microclimates can be influenced and managed. There are several interventions that can affect the micro-climate and hence the ability of an area to cope with and even make beneficial use of the larger climate change.

Scale Analysis

Two sites in the subject area were analyzed using the Schultz + Grassov "Scale" metrics as defined in their Public Space Parameters.

Bell St.: Recently remade green street. Observations made between 2nd and 3rd Avenues.

Alaskan Way at Pier 66: Arterial street on the waterfront, near the convetion center.

Bell St.

Alaskan Way

Bell St.

Human Scale and Speed:

- Street to Building ratio is approx. 1.5:1
- Speed of cars and bikes is slowed due to woonerf
- Walking speed is unrestricted

Analysis: Good quality

Scale and speed feel comfortable and humane.

Further research into the experience of the visually impaired, physically disabled, or etc. is needed for full understanding.

Urban Conduct and Behavior:

- Narrower road requires and encourages negotiation between types
- Raised crosswalks and frequent traffic lights make crossing feel safe and easy
- Interaction and lingering are encouraged via a complex edge with seating and games

Analysis: Good quality

Further research into the experience of the visually impaired, physically disabled, or etc. is needed for full understanding.

Details and Variation:

- Some facades have good variation and details. Brick buildings add a lot of small-scale interest
- Material variation is high, including plant material
- Social amenities such as games provide more interest

Analysis: Above average

Building variation is high, but the facades are fairly large. Increasing the storefront or kiosk density would improve the streetscape.

Alaskan Way

Human Scale and Speed:

- Street to Building ratio is approx. 3:1
- Speed of cars and bikes is quite fast
- Walking speed is unrestricted

Analysis: Below Average

Scale is overwhelming and tiring to experience. However, the speed functions well for the intended use, and wide sidewalks accommodate crowds who are accessing the buildings.

Urban Conduct and Behavior:

- Wide spaces allow for all types to move easily
- Street is somewhat difficult to cross
- Interaction between people is not encouraged, but not discouraged.

Analysis: Average

Traffic along arterial works well. Wide spaces provide enough room for all types to share the space safely. However, the wide spaces could be greatly enhanced by social amenity and greenspace interventions.

Details and Variation:

- Vast facades and expanses of concrete have little or no detailing
- Variation between types and materials is very low
- Access to and view of water bring a high quality experience - large buildings block this

Analysis: Poor quality

Spaces are too large with little to no detail or variation. Wide spaces could be greatly enhanced by small-scale amenities and design interventions.

Interacting with Place, Interacting with Eachother

Pier 66


Belltown Street Park

Public Space Parameter Comparison

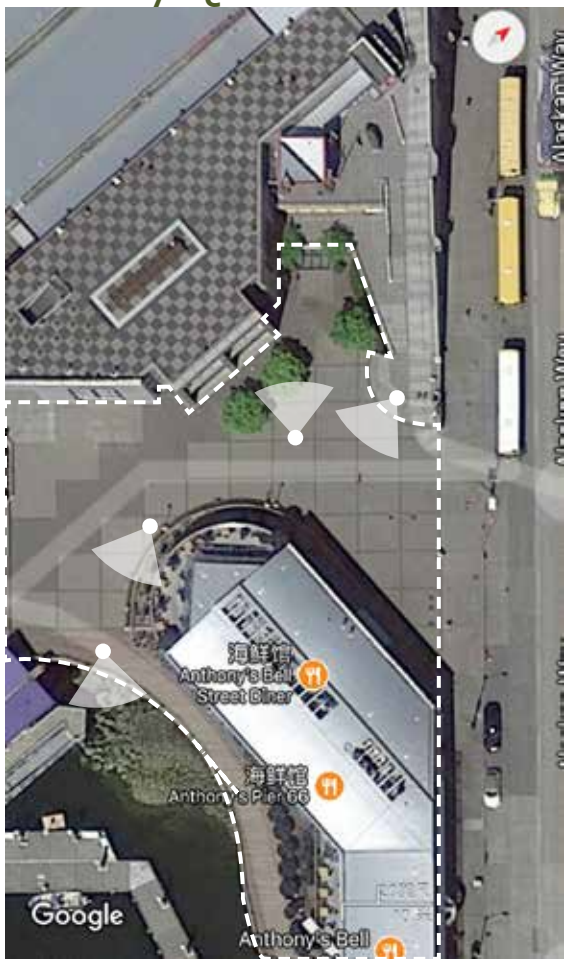
Pier 66:

> Interaction with place
+ Active with spaces to linger
+ Inviting but not balanced
+ Enables choice of level of interaction with other people
+ Connected to active sites and functions
+ Designed to minimize risk of traffic accidents
- Primarily geared towards tourism
- Level of activity affected by event calendar and weather
- Could benefit from more self programmatic spaces
- Open to the elements
- Currently cut off via viaduct

Belltown Street Park

> interaction with public
+ Active with spaces to linger
+ Inviting but not balanced
+ Provides Opportunties for different user groups
+ Connected to active sites and functions
+ Offers daily contact with other people
- Great concept for street fairs but poor location
- Tables were removed
- Could benefit from speed reduction tactics
- Not designed to minimize risk of traffic accidents consistently
- Well-lit but some populations feel unsafe

Sensory Qualities



Pier 66:

Sight and Hearing

Alaskan Way is a busy street and the traffic produces large noise up to 69.6dB. However, the buildings and the pedestrian bridge block out much of the noise from Alaskan Way so the Equivalent Continuous Sound Level on the Pier 66 is 46.8dB, which is a comfortable sound environment to stay.

Somatic Senses

Buildings on the pier are no more than three storeys in height, so there is plenty of sunshine and breeze. While enjoying the sunshine, benched provide with sun-sheds are much more attractive to people. For example, on a sunny afternoon in October, there were four people resting and reading on the bench under trees, while no one was sitting on the curved bench without any sunshed.

Attractiveness

For tourists, Pier 66 is a wonderful place for sight-seeing, where they can go down to the waterfront and take a ferry ride. There are some pretty restaurants around providing fantastic view while having meals. As for those who work or live in the neighborhood, the pier is also a good place to hang out, where people can enjoy a relatively quiet moment outside.

Bell Street Park(4th & 5th Ave):

Sight and Hearing

Historical buildings on both sides are in sharp contrast with the light rail and tall buildings in the background, which tells the street's story from the past to the future. Although it extends from one busy avenue to another, the noise level is relatively low(50.5dB) and it gets louder only when buses pass through. Cars running by and parking alongside the street might be unsafe sometimes and disturb the experience of sight and hearing.

Somatic Senses

Surrounded by buildings, Bell Street Park is affected by Urban Heat Island Effect. Compared to Pier 66, the park has more areas with shades and not much wind. Since there is no shelter from the rain, it would be hard to attract people during rain seasons.

Attractiveness

Different from Pier 66, Bell Street Park mainly serves for people in the neighborhood rather than for tourists. Sittings, tables, buildings, bioswales, plants and other elements contribute to the great experience in Bell Street. Community events take place here on weekends, making it an active urban public space.

http://belltowninseattle.com/wp-content/uploads/2014/05/DT.jpg

District Analysis:
Social + Cultural + Public Realm

Team:
Aaron Parker, Nicky Bloom, Rachel Wells, Kyle Cotchett

Description:

Formerly a low-rent, semi-industrial arts district, in recent decades Belltown has transformed into a neighborhood of trendy restaurants, boutiques, nightclubs, and residential towers as well as warehouses and art galleries. It is now the most densely populated neighborhood in Seattle and offers a wide variety of services for a wide variety of socioeconomic classes.

A rich history of art, music, and food culture has built Belltown into a vibrant social hub bringing together an extensively diverse social base. Historically, 2nd Avenue was known as "film row" bringing in artists from around the country and propagating a social culture thriving on bringing people together around events. Many new businesses have eclipsed older ones, but at the core, Belltown remains a vibrant asset to the culture of Seattle.

Belltown, Seattle, Washington

District Analysis: Social + Cultural + Public Realm

DENSITY OF BELLTOWN:

19,025
/ square mile

DENSITY OF SEATTLE:

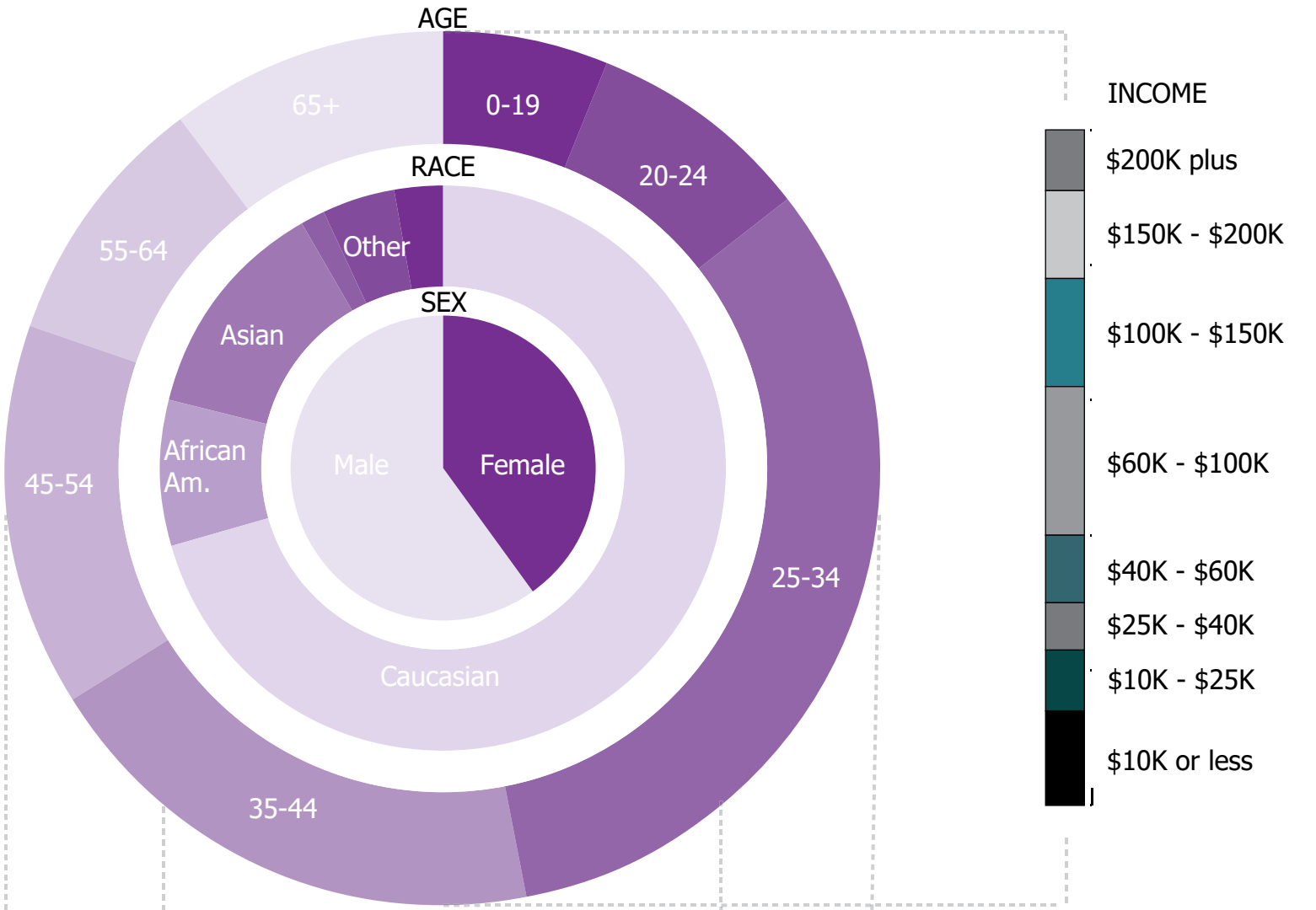
8,161
/ square mile

Belltown is the 6th fastest growing neighborhood in America

8,109
Households

100+
Restaurants, bars and Cafes

50+
Major employers



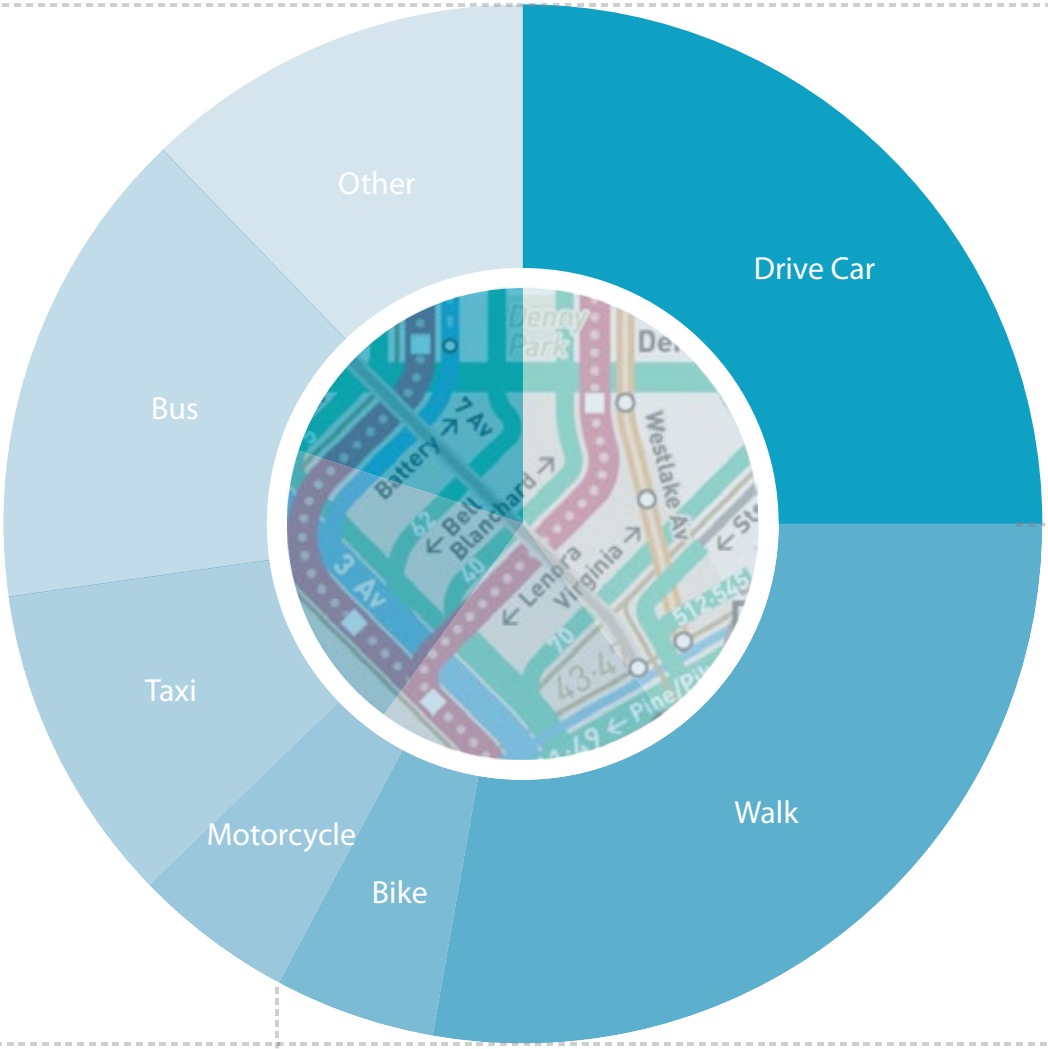
22.5% born in Washington
18.1% Non US Citizens

Total Population of Belltown ~ 12,000

16%
Family Households

Demographics

TRANSPORTATION TO WORK



TRAVEL TIME TO WORK

0-10 minutes

11-20 minutes

21-30 minutes

31-40minutes

40-60 minutes

> 60 minutes

0.6
Vehicles per Apartment

98
Transit Score

97
Walkability Score

71
Bikeability Score

District Analysis: Social + Cultural + Public Realm

Current Residential Developments:

Belltown is a highly dense neighborhood located north of downtown Seattle. In the district, there are no single-family homes. All residential structures are either condominiums or apartments. Many of these buildings not only house a multitude of residents, but land uses as well. On the ground floor, one will find a mix of shops, restaurants, bodegas, art, and nightlife.


Image by Equity Apartments

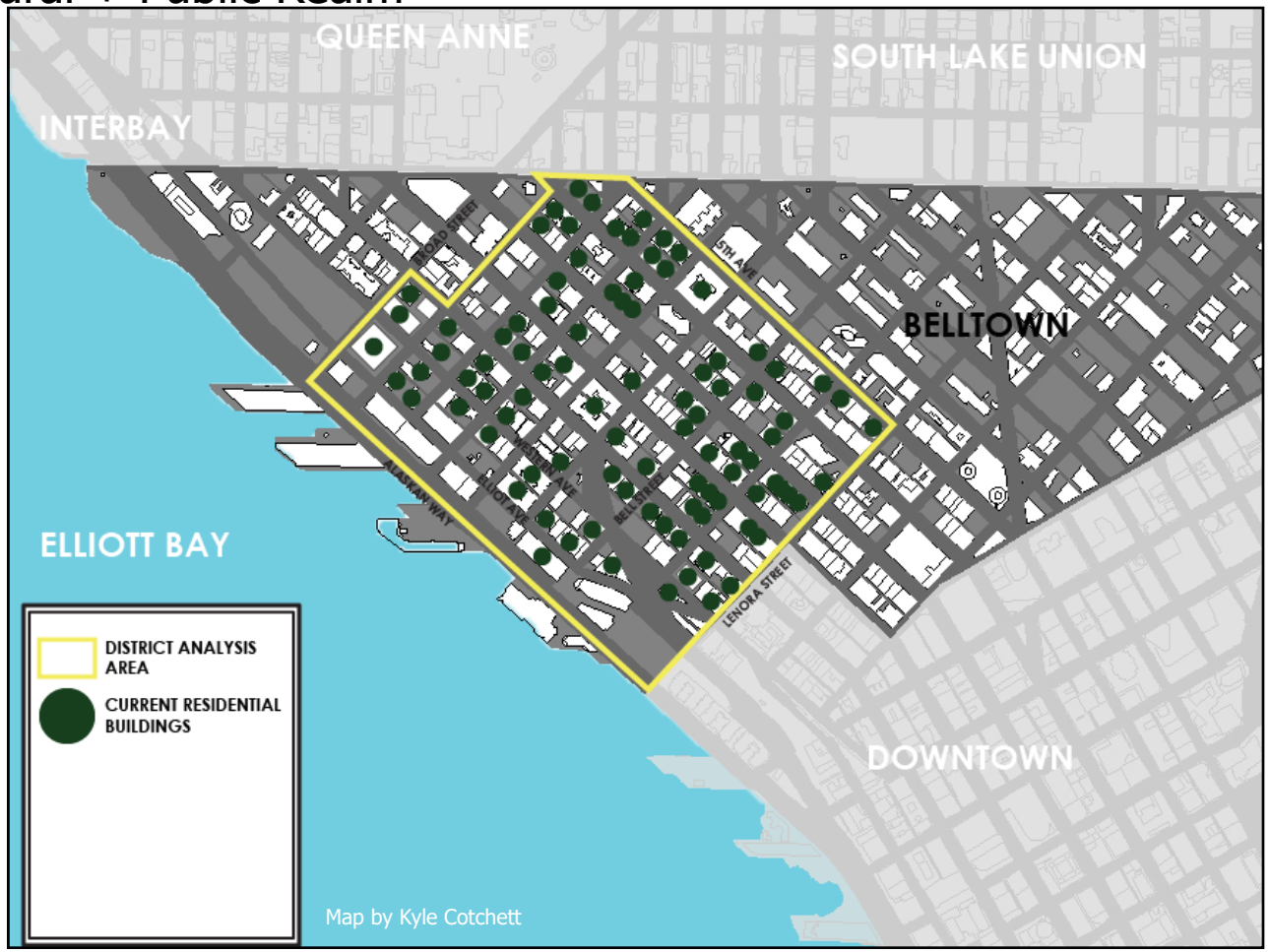


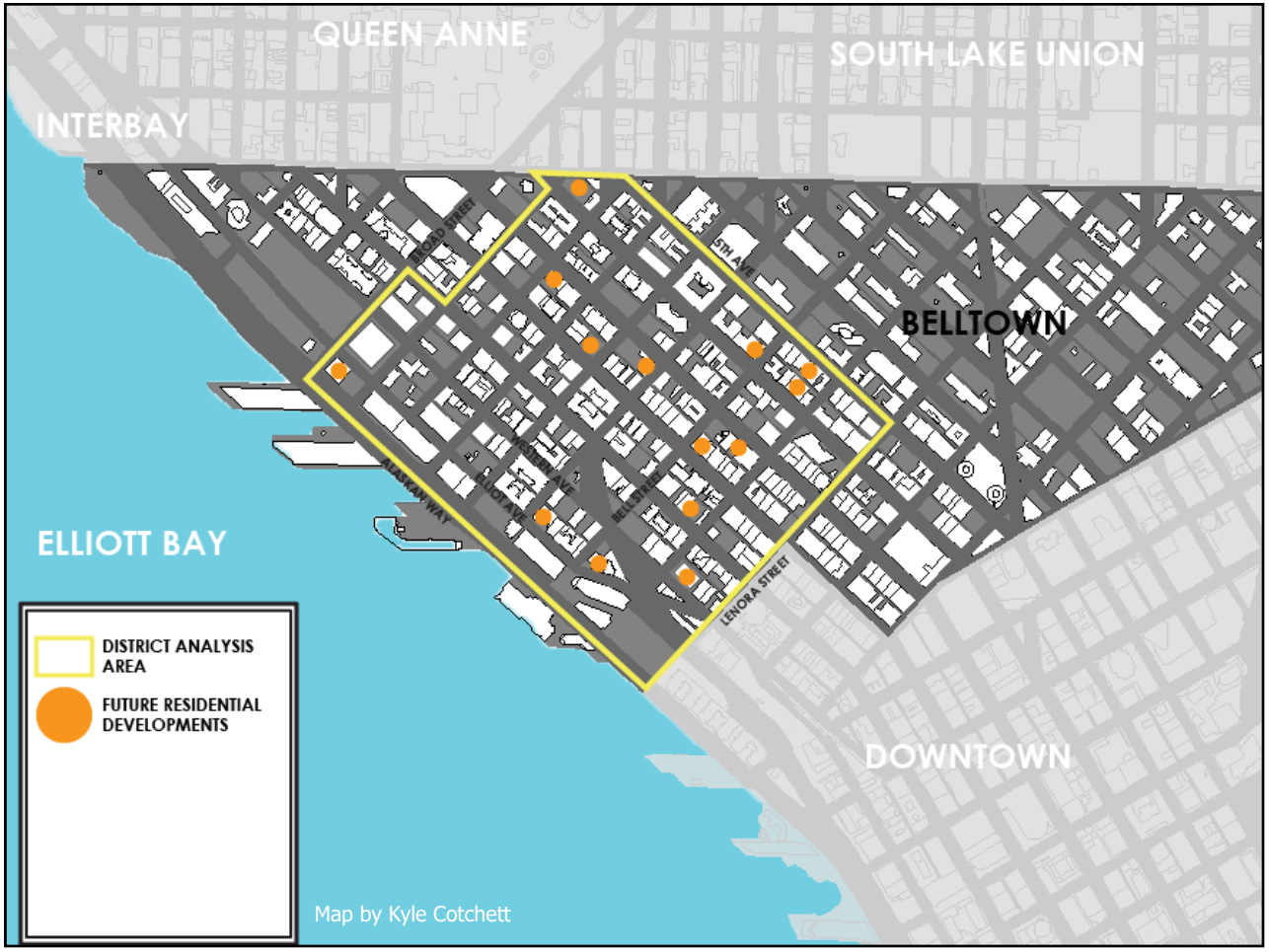

Image by Apartments.com


Image by viaducthistory.com

Housing in the District:

Many of the residential buildings in the district are of newer construction and like many parts of Seattle have increasingly high rental or purchase prices. This is exemplified by the Olympus (top left) and Griffis Apartments (bottom right). However, subsidized housing does exist, like the Josephinum building (bottom right).

Current and Future Residential Development



Future Residential Developments:

In the district, there are 14 new residential buildings that are either in the permitting process, permitted, or under construction. On average these new structures will be 15 stories in height with the tallest being 40 stories and the smallest being 6 stories. The projects underway will being 2,237 new residential units to the neighborhood, which will continue to densify the neighborhood.

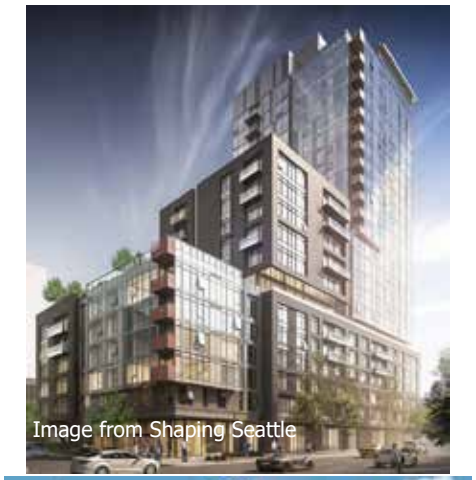


Image from Shaping Seattle


Image from Shaping Seattle

Renderings of Future Housing:

Pictured are renderings of the future housing structures of the district. Some of them reach as high as forty stories in height while others stay at human scale. Many of them are modern in design.

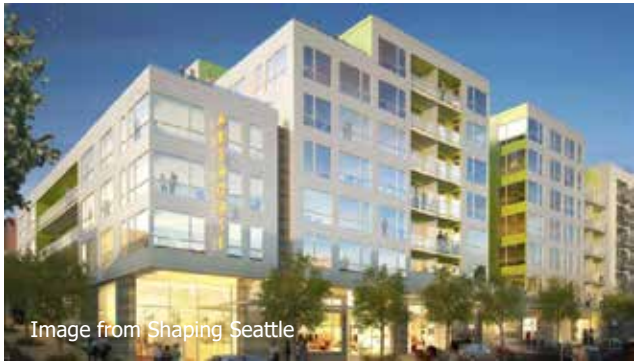


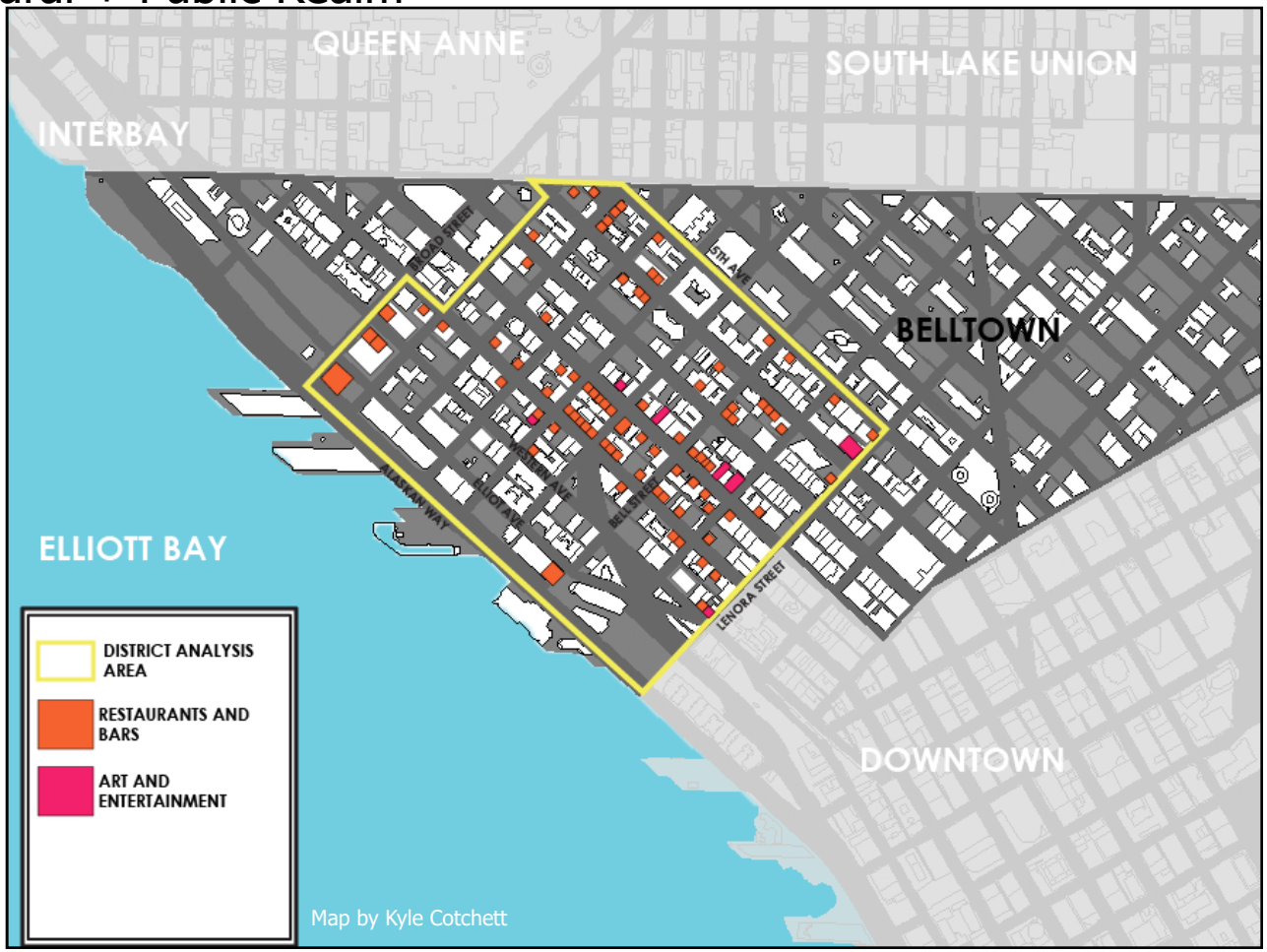
Image from Shaping Seattle

District Analysis: Social + Cultural + Public Realm

Food and Entertainment:

The district has a great number of restaurants, eateries, cafés, and bars. Spatially, there is a large cluster of retail and entertainment venues around the blocks separating 1st and 2nd Avenue. This makes those streets active places for residents and those working in the neighborhood to socialize and get something to eat and drink.

There are a number of art and entertainment spaces in the district as well. Some noteworthy places include Cinerama, The Crocodile, or Tula's restaurant and Jazz Club. These spaces draw Seattleites from various neighborhoods for shows and entertainment and make Belltown a destination for many.



Local Establishments:

Cinerama (left), Local 360 (middle), and the Crocodile (right)

Amenities

Area Services:
Belltown is home to many of the social services available in Seattle including public entities like the Community Psychiatric Clinic, WiC, Seattle Housing Authority, and the Departments of Social & Health Services, as well as many non-profit resources like Mary's Place, YearUp, Noel House, and the YWCA's Opportunity Place.

Though there are many services available, these resources seem to be overwhelmed with area needs, so many area people still sleep outside and go hungry.

Educational Opportunities:
There are several opportunities for adult and continuing education in Belltown, which compliment the social services available.

There are no private or public preschools, kindergartens, elementary schools, middle schools, high schools, or day cares in this Belltown study area.

There are several private schools and day cares in the Denny Triangle, as well as at Pike Place Market, but the nearest public schools are in Capitol Hill or Queen Anne.

There are also no outdoor sports spaces or playgrounds to support childhood education in the area.

District Analysis: Social + Cultural + Public Realm

Public Meeting Rooms and Coworking Spaces:
There is only one coworking space in Belltown (MAKERS), and one outside the study area (WeWork) in Belltown. While there are many corporate offices, there does not seem to be very much infrastructure to support local startups.

There are two meeting rooms that can be reserved without hotel stays and high fees: MAKERS and at the Belltown Community Center. Otherwise area meetings take place at hotels or local restaurants.

Grocery and Food Availability:
There are a few small bodegas where residents can buy odds and ends for cooking, but they need to go elsewhere to be able to stock a kitchen with balanced foods.

The nearest grocery stores are downtown: Kress, which is a small market also lacking necessities, and Pike Place Market, which while having fresh meat and produce, lacks necessities and may be price prohibitive to some residents. The nearest affordable stores stocking all basic goods are in Capitol Hill, South Lake Union, or Uptown.

There are many restaurants in Belltown that cater to tourists and those of a certain income level, but keeping a kitchen stocked can be time consuming for other residents.

Amenities

Rachel Wells

Rachel Wells

Rachel Wells

Balancing Public Space and Public Life:
Though Belltown has limited public space, much of what is available offers views of nature. Both the overlook (bottom left and bottom center) and Belltown P-Patch (bottom right) are somewhat hidden from the public view and feel semi-public. The overlook at the end of Bell Street has hours of operation and is gated at night.

Signs at three of our four viewing areas (4th and Lenora, Bell Street overlook, and Belltown P-Patch - top row) had signs specifically discouraging certain behaviors, and two of those had physical deterrents. The privately-owned "public" space was gated on Saturday (right), and the seating adjacent to the P-Patch has metal barriers to prevent people from sitting (top right) in addition to written warnings.

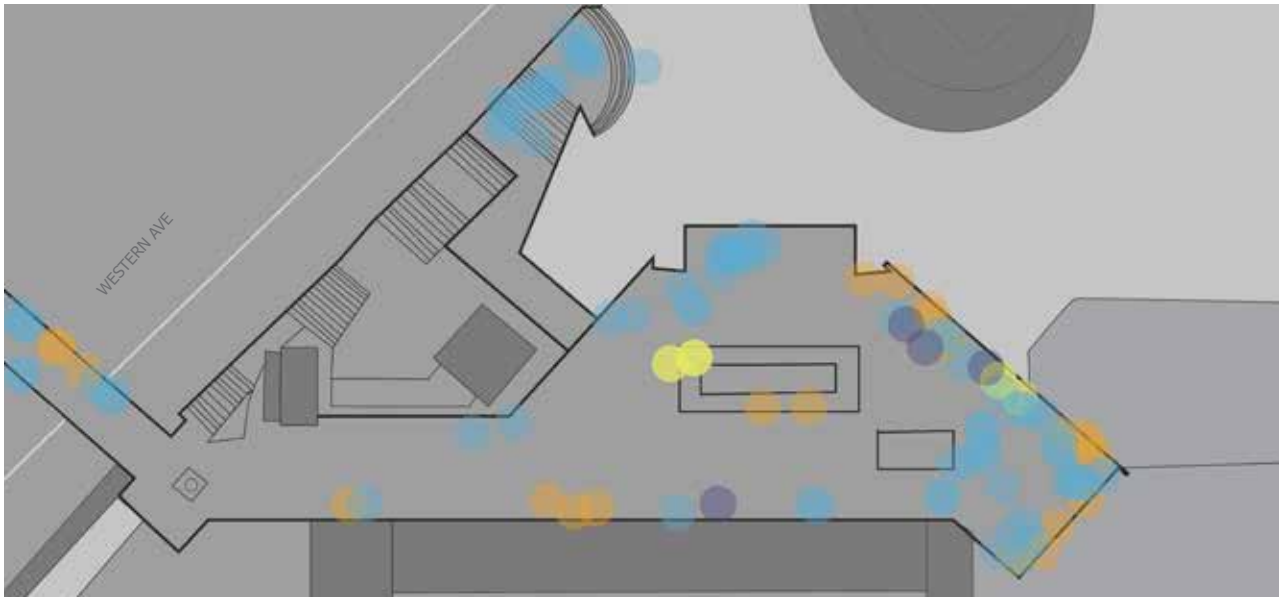

Rachel Wells


Rachel Wells


Rachel Wells

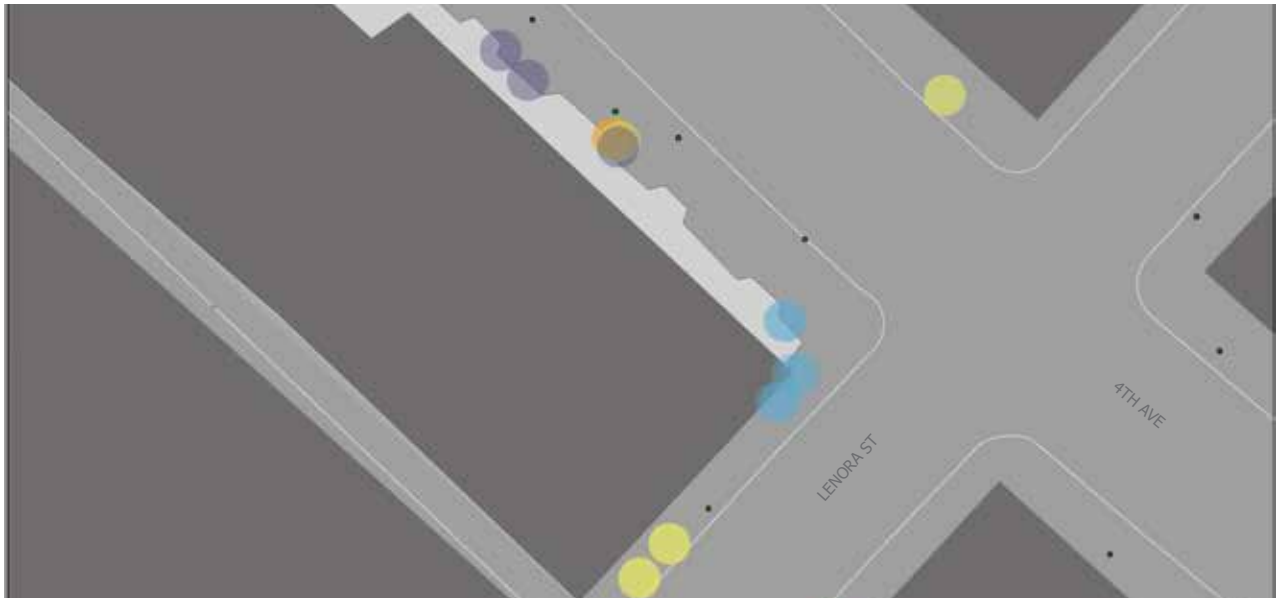

Rachel Wells

District Analysis: Social + Cultural + Public Realm



Pier 66 Lookout:

Mostly short stays from people taking photos, smoking and enjoying the views.



Benches at 4th and Lenora:

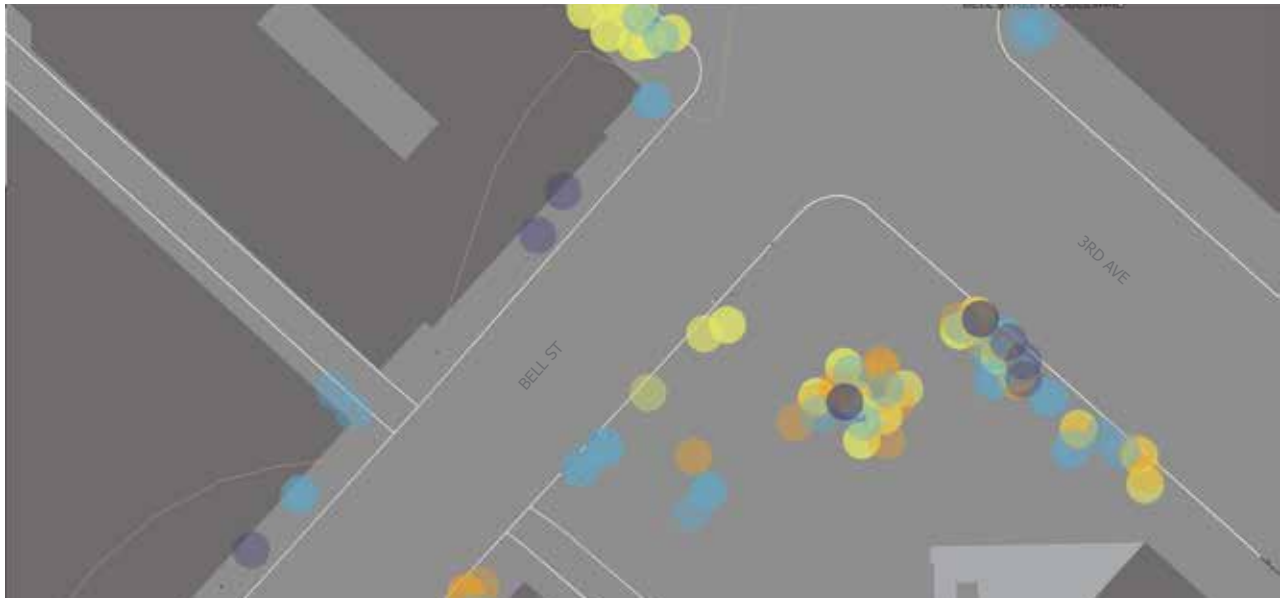
Just outside a private courtyard, these benches provided a sitting place for pedestrians moving along 4th ave.

Morning Afternoon Evening Night

Observation: Staying

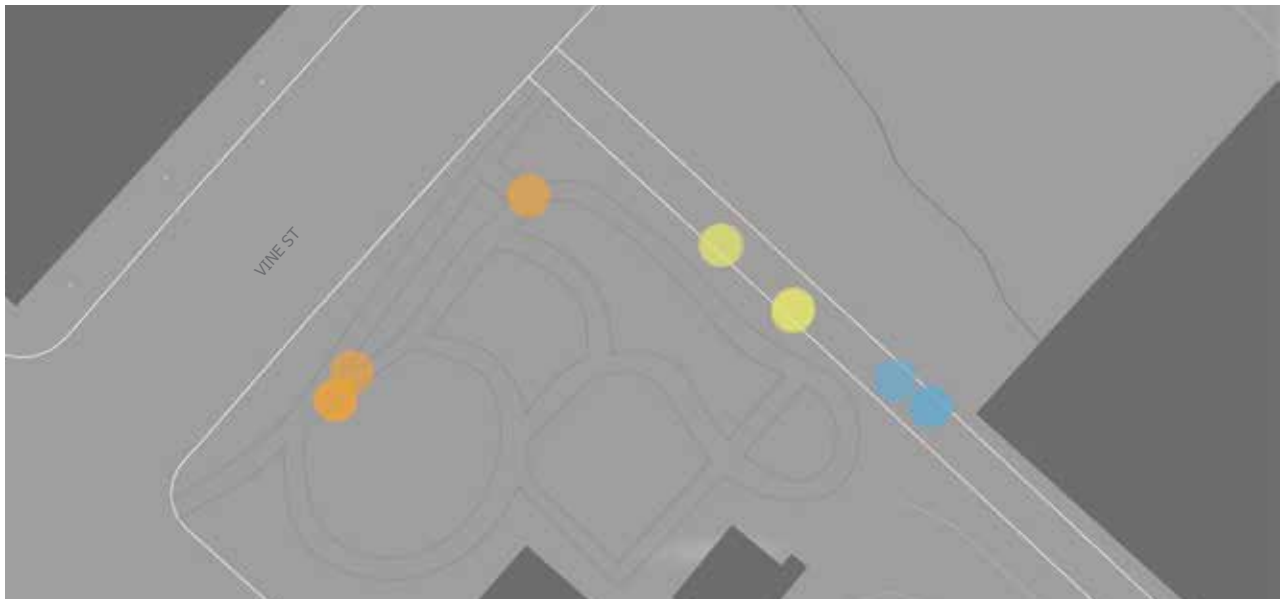
Bell Street / Regrade Dog Park:

One of the few park spaces in the neighborhood provides sitting and socializing space for the community. Located next to transit shops, this is one of the major axis of the neighborhood.



Vine Street P-patch:

This calm park seems to be more of a visual asset than a place for community staying.



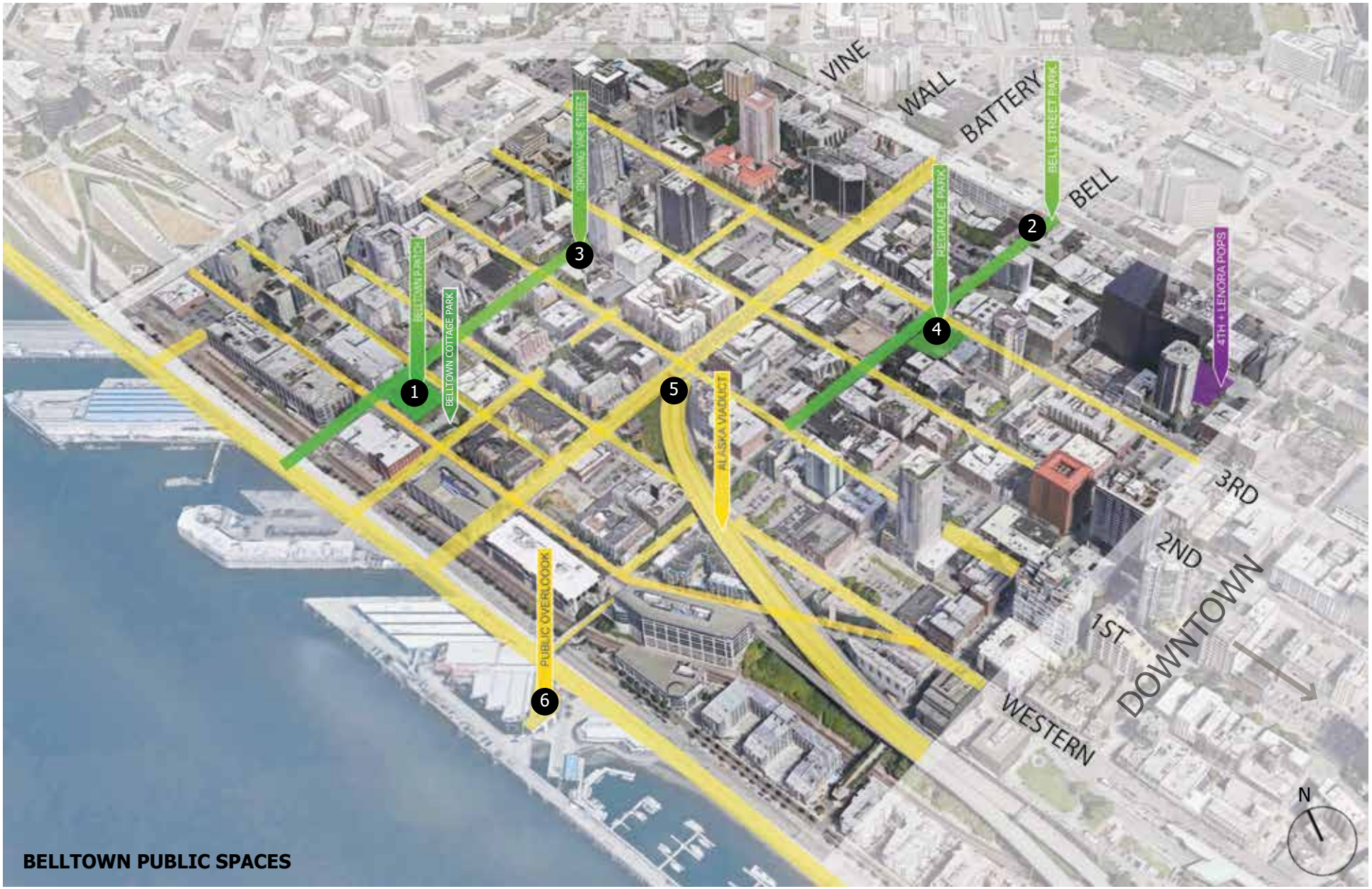
Morning Afternoon Evening Night

District Analysis: Social + Cultural + Public Realm

PUBLIC GREEN SPACE

PUBLIC RIGHT OF WAY

PRIVATELY OWNED PUBLIC SPACE



BELLTOWN PUBLIC SPACES

Public Realm

Belltown P-Patch:

Community-organized garden
Number Of Plots: 35
Established: 1995
Size: 4,400 sq. ft.
Wait Time: 1-2 years

Bell Street Park

This linear park seeks to integrate biking, pedestrian space, and driving space with public street seating, planted areas, and artwork. Neighbors have mixed reviews on the success of the park, but it does seek to create more usable open space in the dense neighborhood.

Growing Vine Street:

Corridor-like streetscape park that manages storm water. Deterrents discourage people from staying on many of the features.

Regrade Park:

0.3 acre dog park in the heart of Belltown operated as an official city park by Seattle Parks and Recreation. Adjacent to Bell Street Park.

Battery Tunnel/Alaskan Viaduct:

A significant chunk of potential public space exists at the mouth of the current Battery Street Tunnel and extends out under Alaskan Way Viaduct.

Lenora Overlook:

A public pedestrian bridge connects walkers and bikers to this overlook with massive, elevated views of the Puget Sound. Tightly regulated.

District Analysis: Social + Cultural + Public Realm

Drawings: Rachel Wells

Public Space Typologies

Flat Waterfront Corridor:

Affordances:
Flat, contiguous walking corridor
Giant views of the mountains and Sound
Interior views up steep Belltown hills
Water and aquatic bird sounds
Sunset views

Gaps: plants, sufficient public seating

Steep Streetscape Park:

Affordances:
Storm water management
Access to trees and plants
Exercise
Walking
Passing through

Gaps: seating, linger spaces

Flat, Planted Open Space:

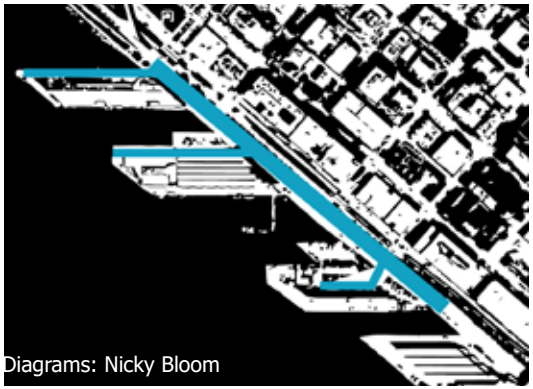
Affordances:
Food growing space
Opportunity to meet neighbors
Rich, sensory experience of plants
Sun

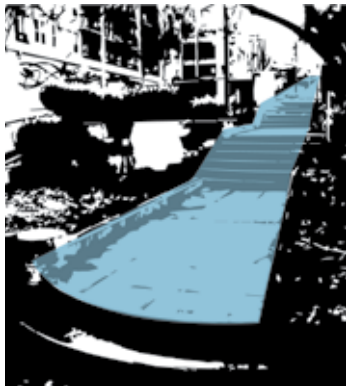
Gaps: seating, invitations to public space

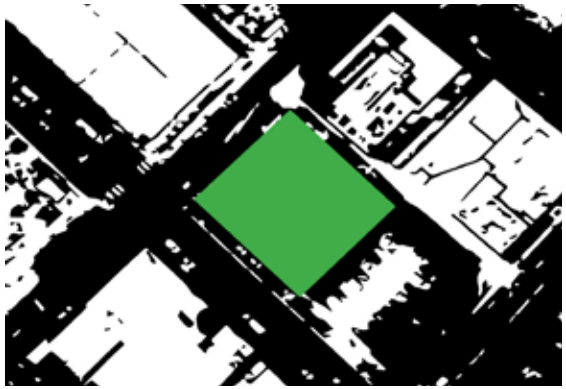
POPS:

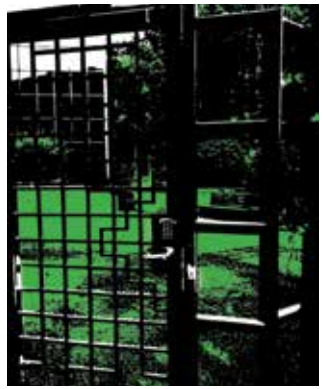
Affordances:
Enclosed, protected space
Trees and plants
Separation from street

Gaps: public access, visual permeability/safety









Diagrams: Nicky Bloom

Public → Private

Analysis and Conclusions

Reflection:

Belltown's population density, proximity to the waterfront and to downtown, diversity of residents and day visitors, commercial vibrancy, and topographic intensity necessitate multi-layered, multifunctional design. Because populations are shifting, new designs must meet the needs of the many young, working professionals, transient or unhoused populations, and daytime visitors while creating new opportunities for families and young people to have their needs met in the public realm.

Due to the density of existing buildings and hardscaped areas, flat, open lands no longer exist, and the primary spatial typology available to design is the linear, corridor "park" and the one undeveloped parcel at the mouth of the Battery Street Tunnel. Public space, especially green, planted public space, is extremely minimal. Storm water projects capitalize effectively on the steep hills of Belltown, but huge opportunity exists for further planted space in the flat buffer zone along the water.

While many spaces exist to move through, few (free, public) spaces exist that invite people to linger. Seating deterrents on hillside corridor parks ensure that those spaces do not function well for sitting or resting. While many seats are available to those who can afford a cup of coffee or an expensive biscuit, desirable public seating is almost nonexistent. There is enormous opportunity for pooling in the flatter North-South street "landings," and further opportunity exists for water capture, filtration, and movement downhill on the East-West streets that lead to the Sound.

Nicky Bloom

References:

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Lower Queen Anne
Belltown
South Lake Union
Belltown
Bell Street
Park
Regrade
Park
Belltown
P-Patch
Belltown
Pike Market
Belltown
Central Business
District
MONORAIL
BATTERY ST
WALL ST
CEDAR ST
VINE ST
BELL ST
BLANCHARD ST
4TH AVE
3RD AVE
2ND AVE
1ST AVE
ELLIOTT AVE
WESTERN AVE
WESTERN AV OFF RP
ELLIOTT AV ON RP
ALASKAN WAY
BN RR
WATERFRONT TROLLEY
AURORA AVE
LEGEND
Project boundary
Neighborhood boundary
Green street
Public park
Open space
Tree
Green roof
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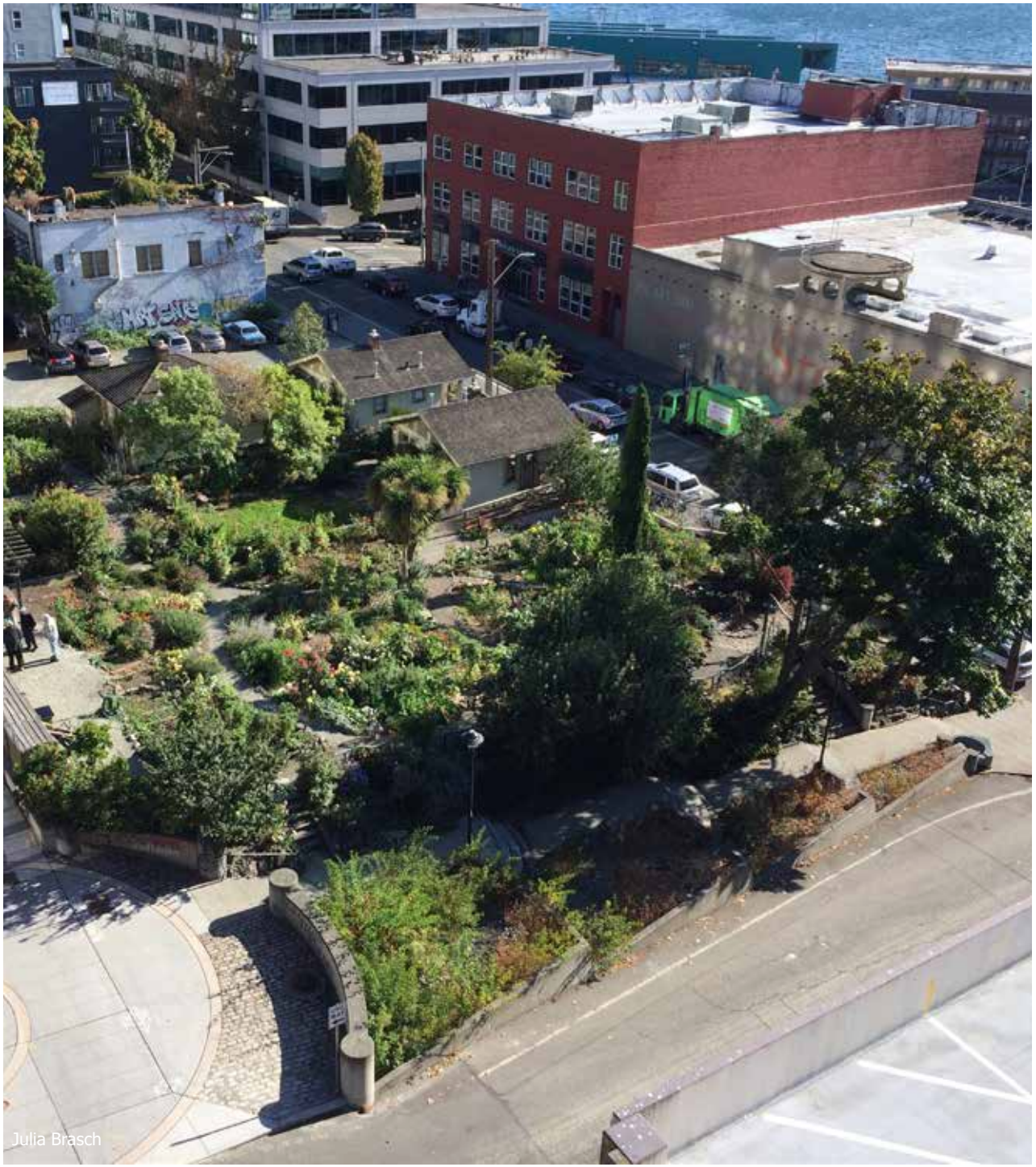
Feet

ECOLOGY



Team:
Allison Ong, Jess Vetrano, Julia Brasch

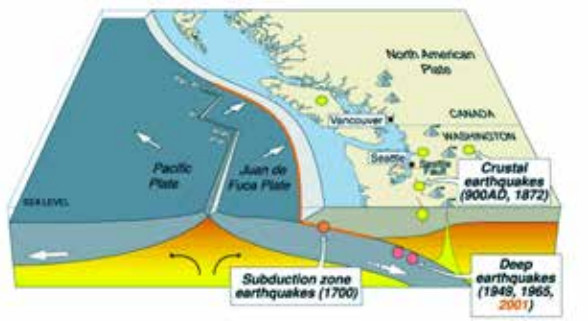
Description:
Analysis of ecology in Belltown, including pre-development conditions, tree canopy, urban vegetation, biodiversity, and climate change.

Location:

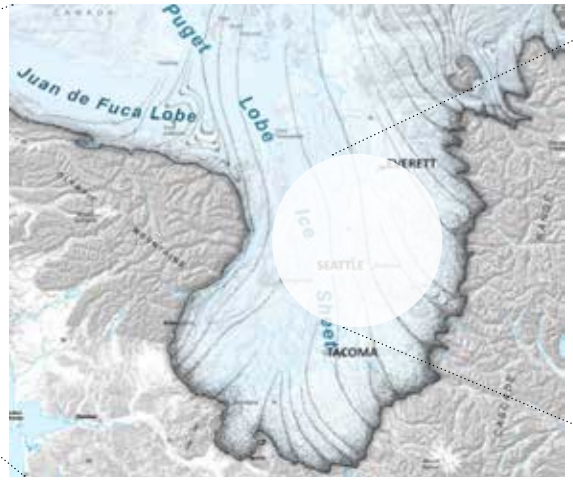
Pre-Development Ecology

Pacific Northwest: Cascadia Subduction Zone

Image: Cascadia Rising



Puget Sound: Puget Lobe Ice Sheet



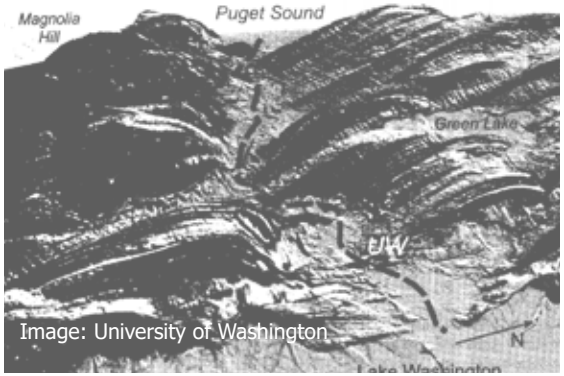


Image: University of Washington

Seattle: hilly topography

Image: USGS

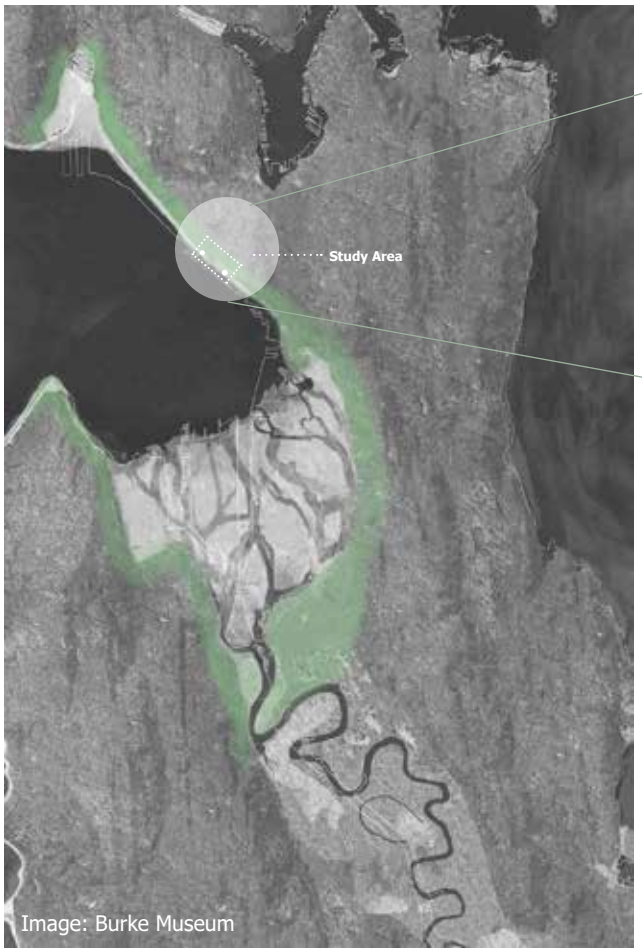
Washington lies within one of the most geologically active areas on Earth. The largest geological force acting upon the region is the Cascadia subduction zone, where the oceanic Juan de Fuca tectonic plate along the Pacific coast is sliding beneath the less dense North American plate. Stretching from British Columbia to Northern California, this action has uplifted mountain ranges, created volcanoes, and has the potential to cause large earthquakes. More recently, during the Ice Age, Puget Sound was covered by the Puget Lobe Ice Sheet. As the glacier receded, it dragged large rocks and boulders with it, gouging depressions in the earth beneath. This process is responsible for the hilly topography Seattle has today.

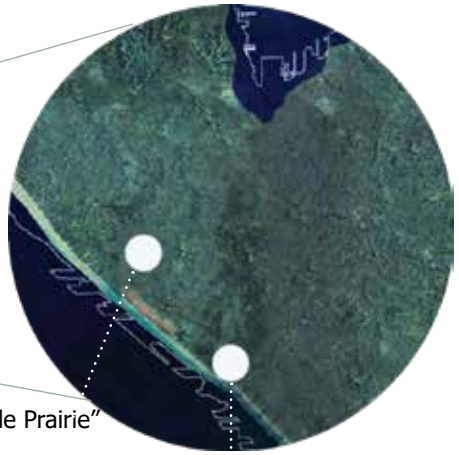
37 Million Years Ago - present

30,000 Years Ago

10,000 Years Ago - present

Analysis: Ecology





historical upland/riparian forest habitat

Belltown was originally **steep upland forest** descending down to a **beach at the shoreline**. The area included a **natural spring** and permanent Coast Salish **villages,** one of which was known as babaqWab, or "Little Prairie".
Native people fished in Lake Union, traversing the forested area between Elliott Bay and the lake for hunting and gathering. A trail ran from the village at babaqWab to the south end of lake, through today's Belltown neighborhood.

Common Upland Species:


Douglas fir


Western red cedar


Western hemlock


Red huckleberry

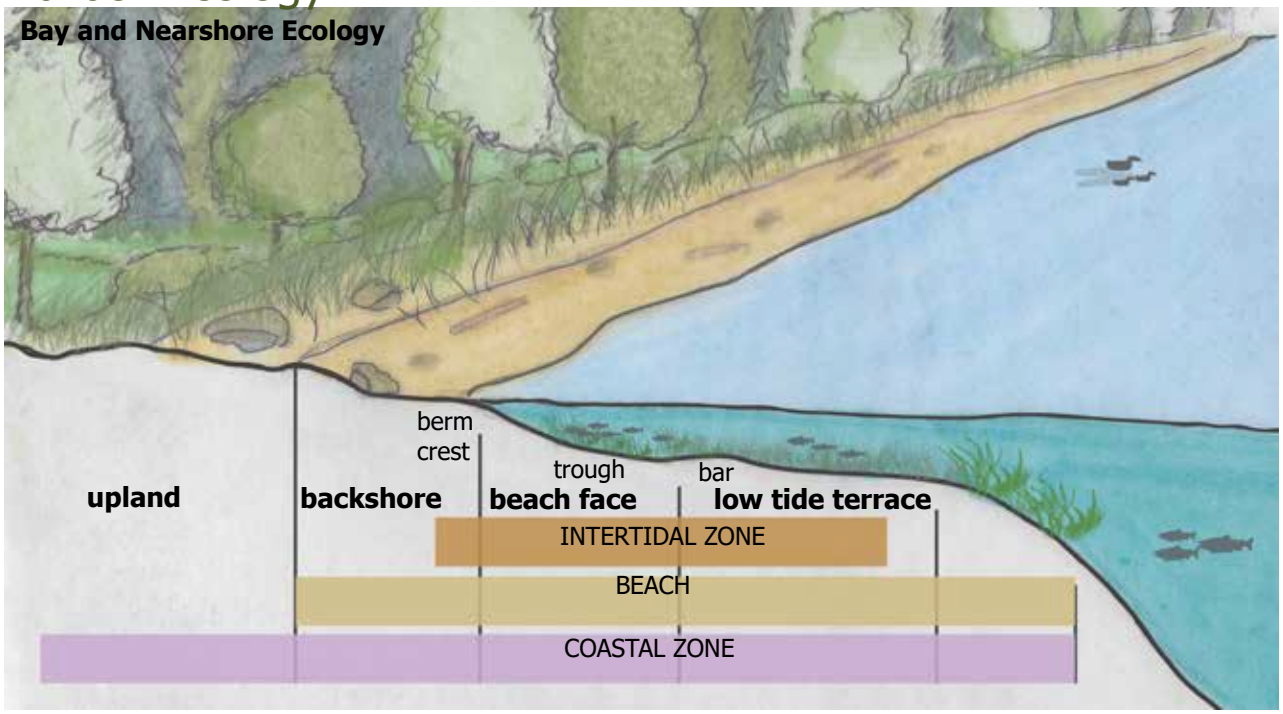

Trailing blackberry

Native encampment on beach near present day Bell St, 1887


Forested Upland


Steep Bluffs

Harbor Ecology



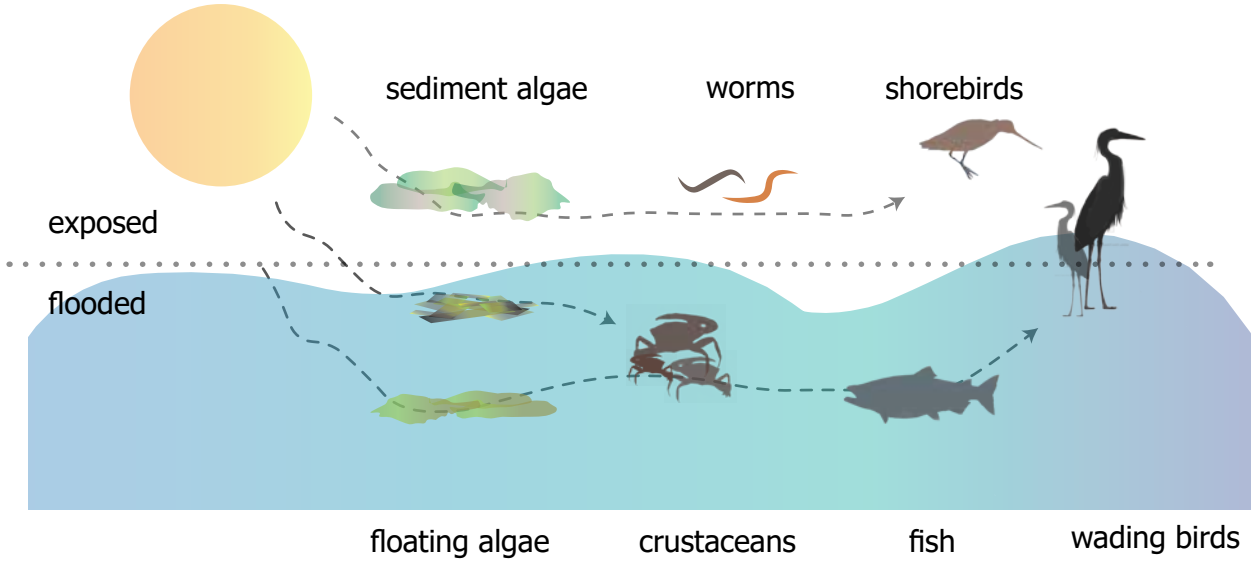
Harbor Ecology

Puget Sound has over 2,500 miles of shoreline. It ranges in character from rocky sea cliffs to coastal bluffs and river deltas. The exchange of water, sediment, and nutrients between the land and sea is crucial to the formation and survival of a diverse collection of critical habitat types.

Challenges + Opportunities

The original habitat of Elliott Bay nearshore were tidal flats. The rivers transport sediments from the mountains to the Sound, where they form beaches and contribute valuable nutrients and habitat to nearshore ecological communities. Gradients in wave action, light, salinity, and temperature create a diversity of habitat opportunities for species.

Tidal Flat Food Web



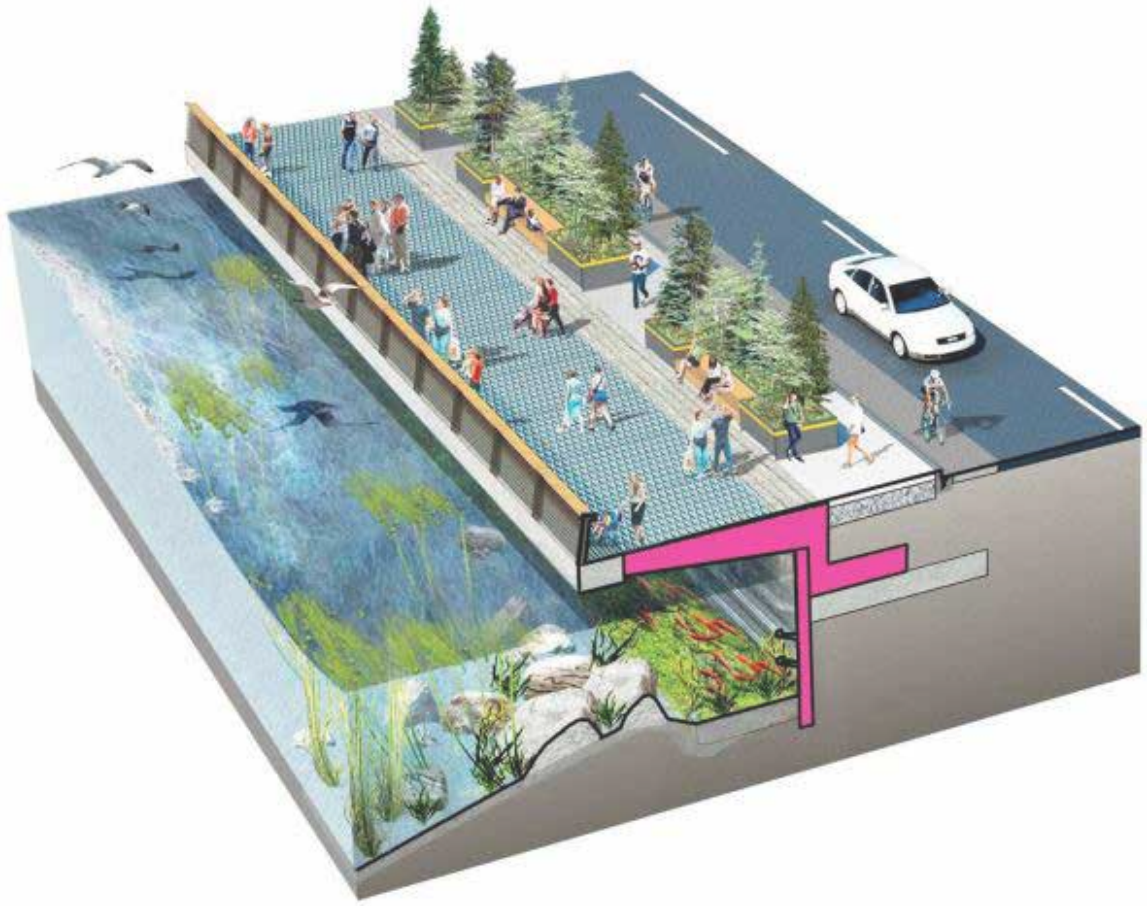
Analysis: Ecology

Due to development, the downtown waterfront no longer offers an acceptable habitat for the juvenile salmon that migrate from the Duwamish River. The Alaskan Way Seawall was constructed and the area behind it, formerly tidal flats, was filled in. The piers make this area of the water too dark for young salmon, and the vertical seawalll displaced a gradually sloping, soft sedimentary environment rich with food for young salmon, offering no replacement habitat opportunities.

Elliott Bay has been a focus for environmental concern. Urban and industrial development along its shores and along the Duwamish River that leads into it have caused concern over the levels of contaminants entering the water. On the southern shoreline are two Superfund cleanup sites: Harbor Island and the former location of Lockheed West Seattle. Polluted stormwater and raw sewage overflows into the bay severely threaten the survival of many species.

The seawall redevelopment project aims to improve habitat in Elliott Bay by installing underwater structures to create shallows where salmon can find food and glass blocks in the sidewalk (cantilevered over the bay) so that sunlight can illuminate the shallows even at the piers. The new seawall offers a possible solution to loss of nearshore habitat in recent centuries, but the threat of combined sewer overflows remains a pressing issue for bay health.


SDOT


Waterfront Seattle

Climate Change Issues + Opportunites

- **Sea level rise, increased surface water temperatures, and changing tides will alter the species that can survive in Elliott Bay**
- **A revitalized sea wall will create better habitat for existing species**
- **Addressing Belltown's combined sewer overflows (CSOs) could decrease the amount of pollutants entering the bay and lessen climate change impacts**

Tree Canopy

Yearly Ecological Impact Of Trees In Belltown

1,528 trees

304,363.05 lbs of CO2 sequestered

816,826 gal of water conserved

38,095.23 kwh energy conserved

$28,244.51 saved

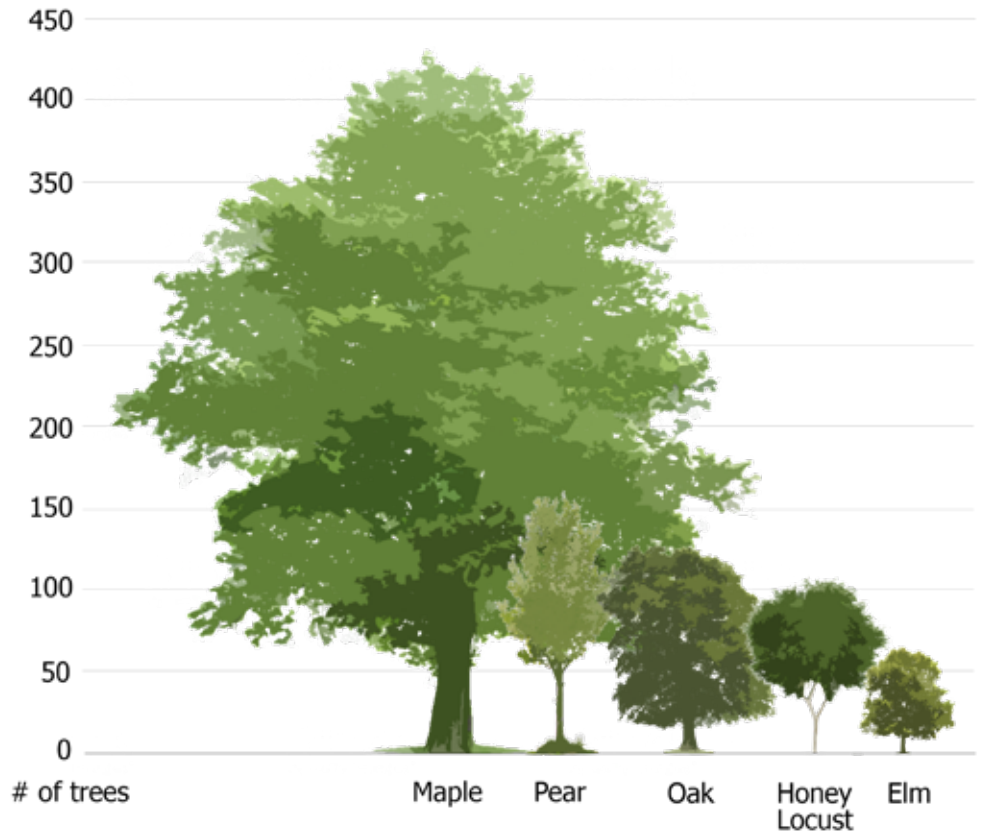
Climate Change Issues + Opportunites

- **Limited numbers of the existing species thrive in extremely hot/dry conditions as well as cool/wet**
- **A robust coverstory will become a necessity as a shading and cooling strategy in the projected hotter summers**

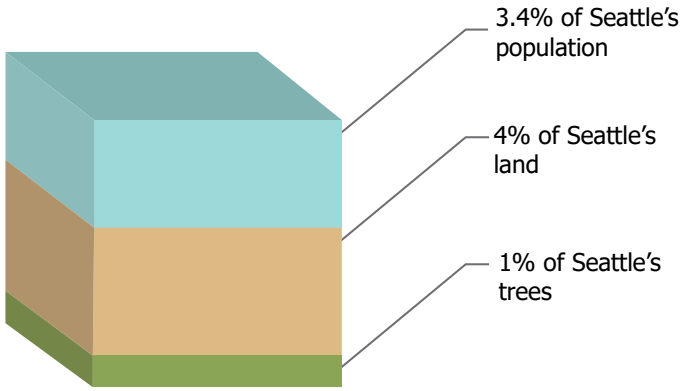
The informationin provided on this page comes from Seattle Tree Map, a part of Canopy Connections which is a project of the Seattle Audobon Society. The goal of these projects is to map, document, and advocate for Seattle's trees and the flora and fauna they support. Many of the trees catalogued come from the Seattle Department of Transportation (SDOT) Urban Forestry with additional trees added by citizens. Yearly Ecological Impact values are calculated using i-Tree software provided by the USDA forest service. "i-Tree takes into account a tree's species and trunk diameter to determine its yearly dollar value based on the pounds of carbon dioxide absorbed, gallons of water conserved, kilo-watt-hours of energy conserved, and pounds of air pollutants reduced." - http://www.seattletreemap.org/about/#ecosource

Analysis: Ecology

Number of Trees by Species

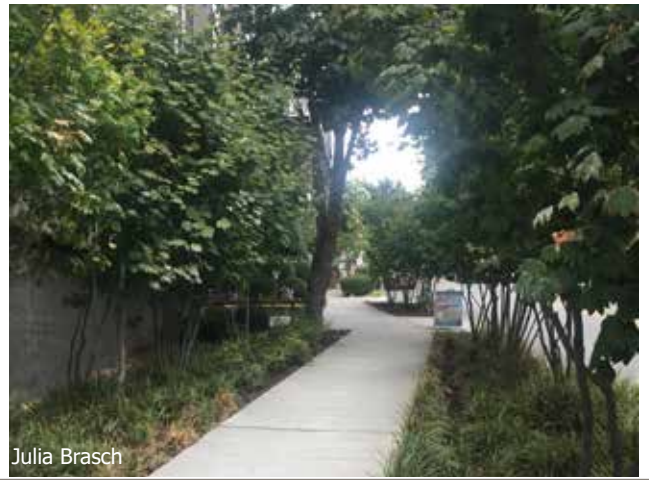


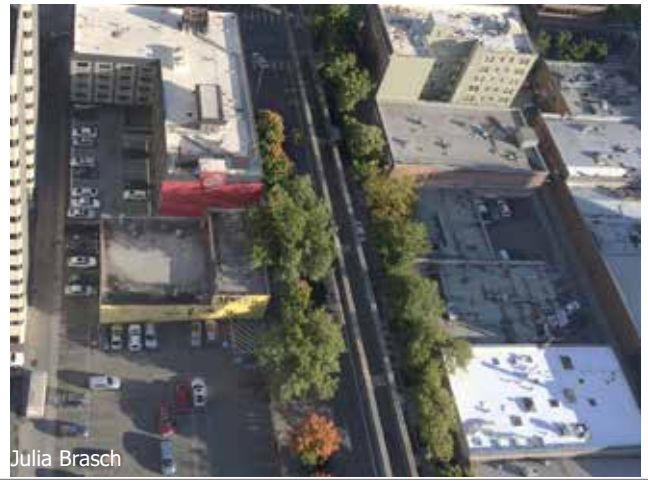
Belltown as a Percentage of Seattle



The diagram to the left indicates the relative dominance of Maples in the planting palette of Belltown, with Pear, Oak, Honey Locusts, and Elms as the next four most populous trees. The above diagram demonstrates Belltown as a percentage of Settle, showing that relative to lands and population, Belltown has a much smaller percentage of Seattle's trees. Images below show examples of tree typologies found in Belltown including open an airy space with young trees (bottom left), dense and darker planting (bottom center), and streets lined with trees that peek above the building roofes (bottom right).

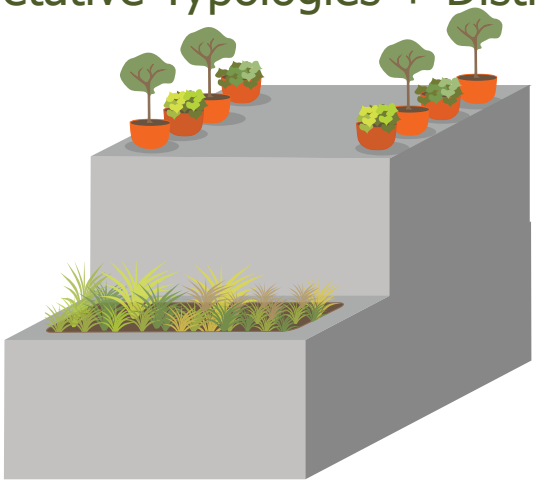

Jess Vetrano


Julia Brasch

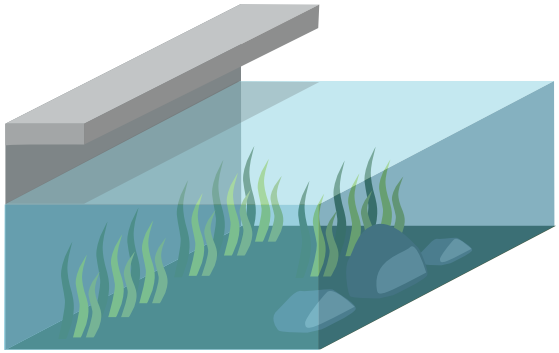

Julia Brasch

Vegetative Typologies + Distribution

Non-street-level Typologies



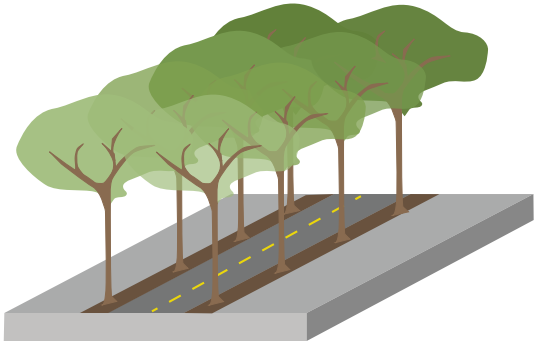
Green Roof & Roof Garden



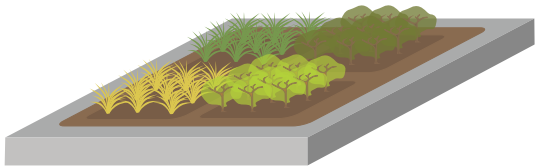
Aquatic

Formal Typologies

Street Planters

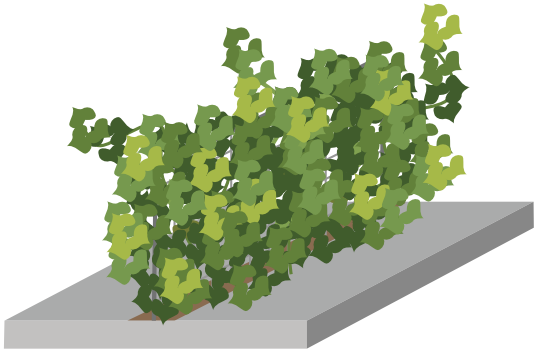


Allee



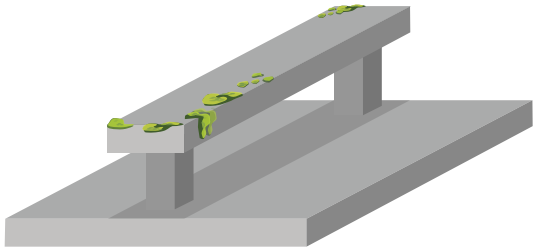
Urban Garden/P-Patch

Informal Typologies



Blackberry Bramble

Ivy

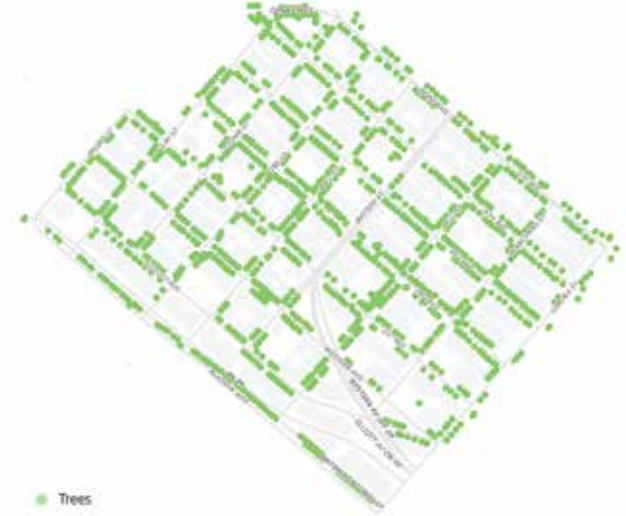


Mosses

Analysis: Ecology

Vegetative Species Distribution

Understory Distribution



Coverstory Distribution

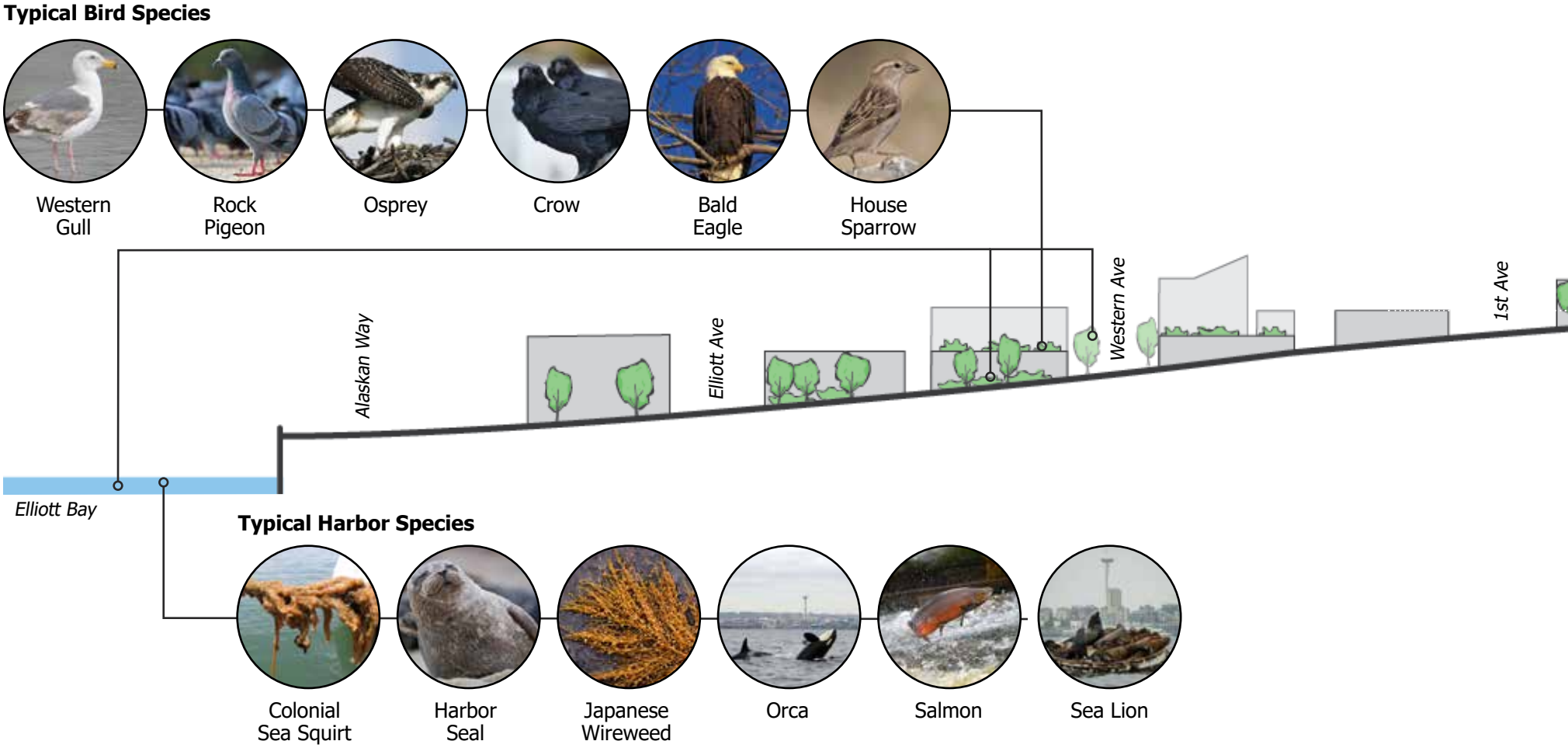
Green Roof Distribution

Vegetative Typologies + Distribution

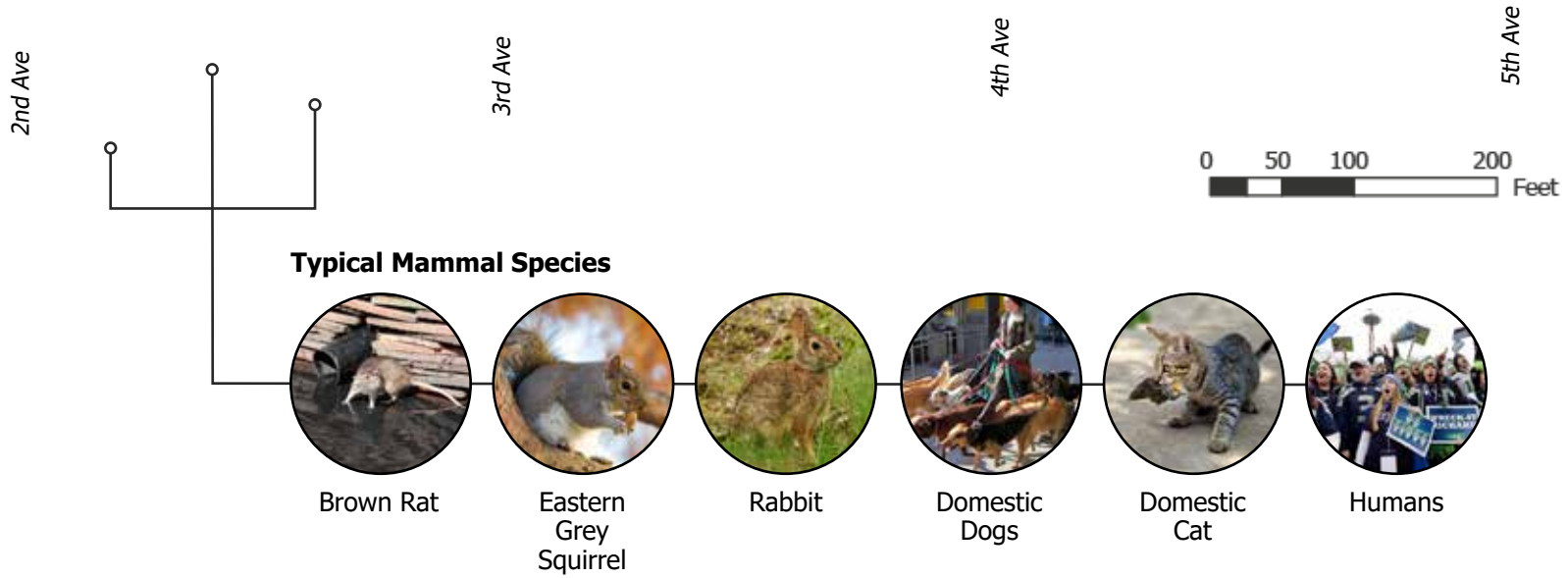
The types of vegetation in Belltown are primarily trees and shrubs found at the street level. Diviations from this can be found in the neighborhood's P-Patch, which contains a variety of vegetable, fruit, and floral species, as well as on private green roofs.

The many types of vegatative typologies found in Belltown can be defined by their level, roof or ground level, and whether they are informal or formal. Each typology influences the environment in different ways. For example, some may provide habitat for animals, some have a higher capacity for storing water, some layer functions by accomodating cars, and some might provide more social benefits to people.

Wildlife Typologies + Distribution



Analysis: Ecology



Wildlife Typologies + Distribution

This section of Vine Sreet (facing northwest) is meant to illustrate the typical distribution of the types of species found in the Belltown neighborhood.

Harbor species are constrianed to the boundaries of Puget Sound and include colonial sea squirt, harbor seals, japanese wireweed, orcas, salmon, and sea lions.

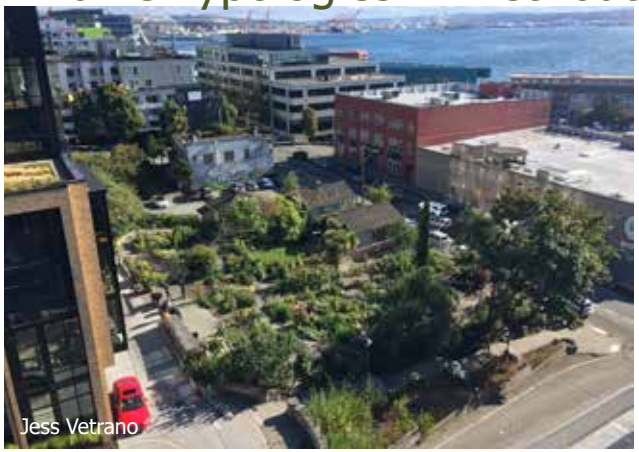
Mammals like brown rats, eastern grey squirrels, and domestic cats have the ability to interact with habitat on both the ground plain and in the coverstory, while domestic dogs and humans are generally limited to the ground. Humans and domestic animals can also access some green roofs, but these are generally private facilities.

The bird species in Belltown are able to bridge all of these terrains, interacting with the ground plain, coverstory, roof vegetation, and even the harbor.

Disclaimer:

All species identified in this diagram as existing in Belltown are limited to those observed in Belltown firsthand, or relayed by a secondhand observer.

Wildlife Typologies + Distribution



Belltown P-Patch

Bell Street Park


Vine Street Stormwater Feature

Green Roof on Bell Street + 4th Avenue

Private Open Space on Blanchard Street + 4th Avenue

Street Trees along 4th Avenue

Climate Change Issues + Opportunites

- **Steep slopes along green streets will amplify velocity of extreme rain events and affect resilience of street plantings**
- **Increasingly hot summers will make plantings across all areas essential for all species as shading and cooling mechanisms**
- **The popularity of green roofs as a climate change response will increase habitat for birds and mammals**
- **Hotter, drier summers and wetter winters will limit vegetative species survival**

Belltown Spaitial Connectivity

The Belltown neighborhood contains a vibrant mix of ecological typologies, offering residents and visitors an array of opportunites to connect with nature. There are six designated green streets in the neighborhood, the most significant of which, Bell Street, also acts as a city park. Other open spaces throughout the area are a mix of private green areas and vegetated right of way. Trees planted along most of Belltown's roadways offer connections between the major vegetative areas.

Currently, there are not many connections to Elliott Bay from the Belltown neighbhorhood beyond viewsheds along southwest-facing roadways.

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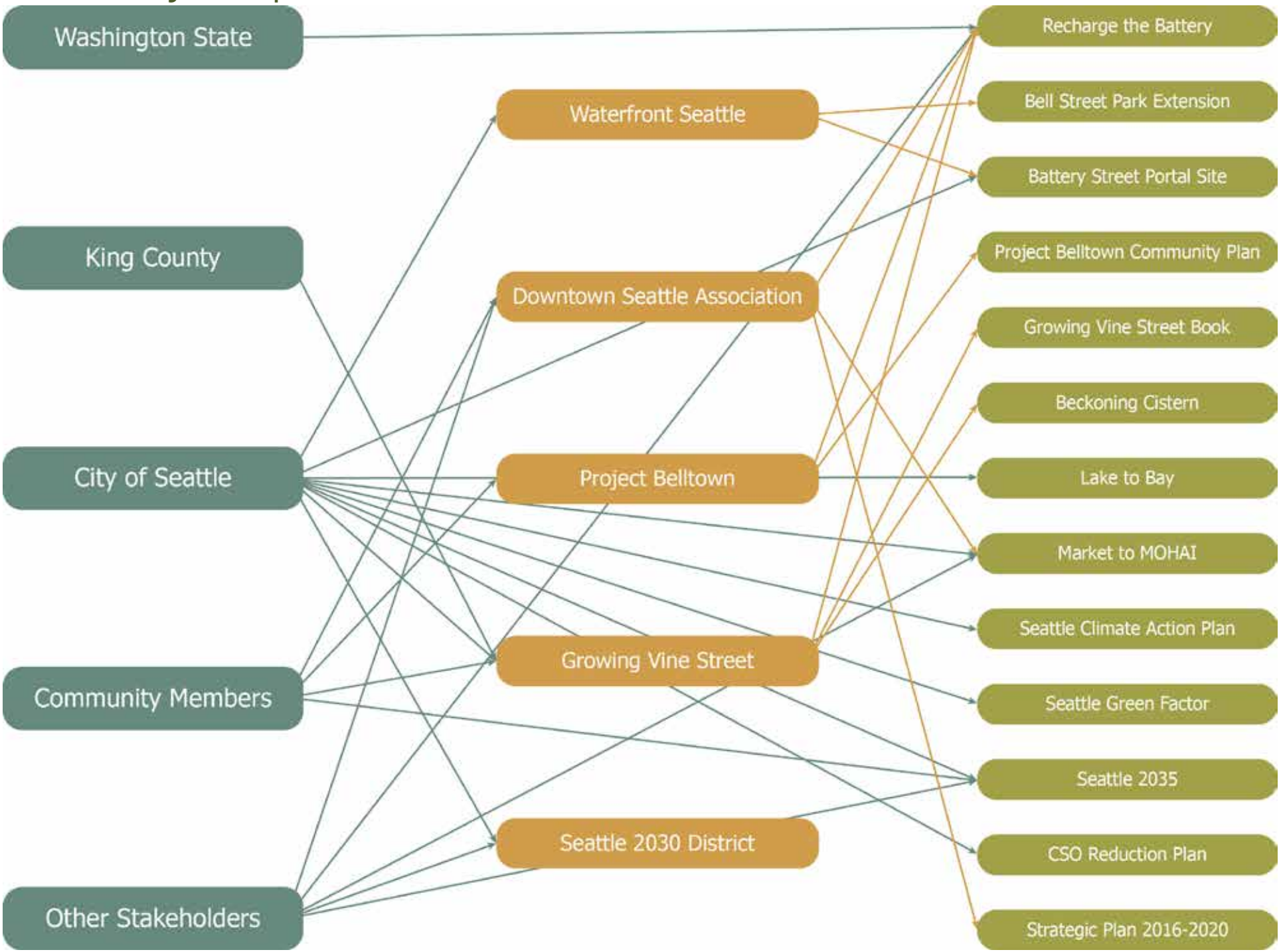
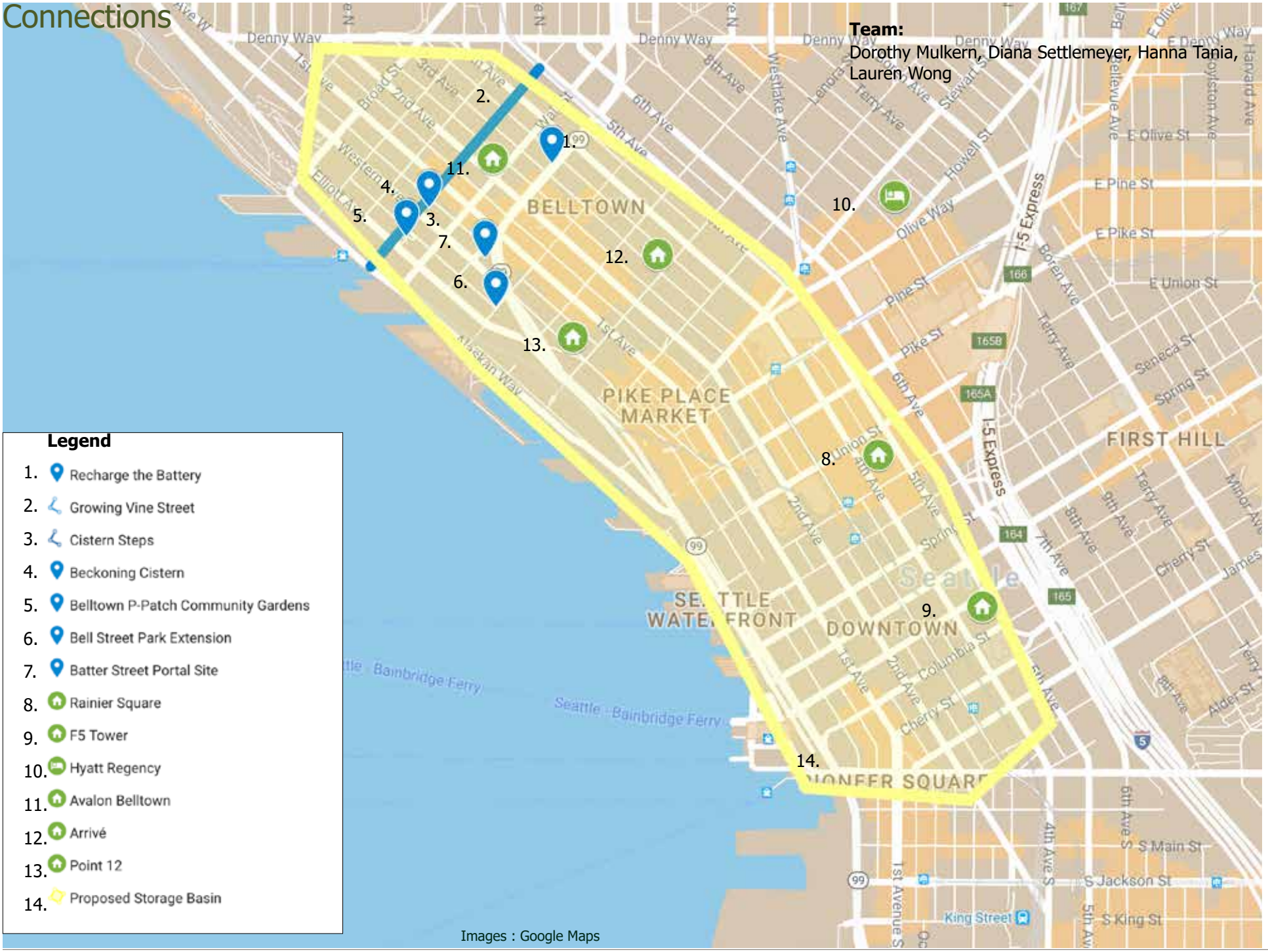
Planned Project Map



DISTRICT PLANS

Connections

Team:
Dorothy Mulkern, Diana Settlemeyer, Hanna Tania, Lauren Wong



Legend

1. Recharge the Battery
2. Growing Vine Street
3. Cistern Steps
4. Beckoning Cistern
5. Belltown P-Patch Community Gardens
6. Bell Street Park Extension
7. Batter Street Portal Site
8. Rainier Square
9. F5 Tower
10. Hyatt Regency
11. Avalon Belltown
12. Arrivé
13. Point 12
14. Proposed Storage Basin

Images : Google Maps

Waterfront Seattle

Waterfront Seattle Projects

A multi-year program to rebuild the waterfront after the removal of the Alaskan Way Viaduct

Waterfront Seattle is led by the City of Seattle's Office of the Waterfront, working closely with civic leaders, stakeholders and the broader Seattle public to create a "Waterfront for All." In July 2012, the City of Seattle released a Concept Design, Framework Plan and Strategic Plan to capture the overall vision for the waterfront. Today, the Office of the Waterfront is delivering that vision.

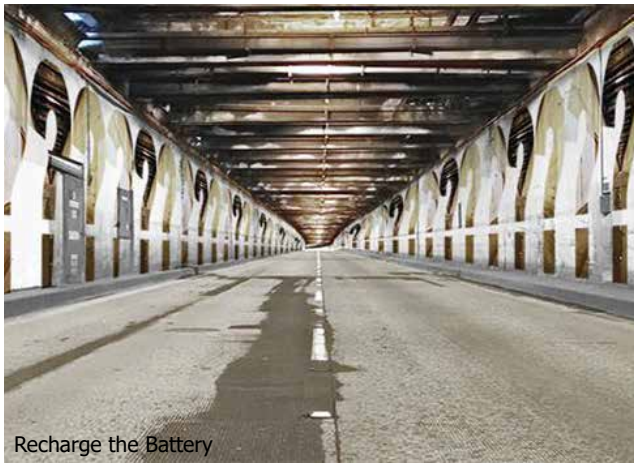
The Waterfront Seattle Program will take place in phases and includes various partner projects. Many other big changes are coming to the downtown waterfront, including the Elliott Bay Seawall replacement project, the Washington Department of Transportation (WSDOT) SR 99 Tunnel Project and Viaduct demolition, and WSDOT's Multimodal Terminal at Colman Dock Project. The following projects are located in Belltown:
The Bell Street Park Extension (Project 17) will include the blocks between First Avenue and Elliott Avenue, adding landscaping, lighting, and more open space.
The Battery Street Portal Site (Project 18) is a future partner project led by Seattle Parks and Recreation, that will create the opportunity for a park to serve the Belltown neighborhood.

Waterfront Seattle Seawall

Other projects that relate to the objectives of this studio include the following:
The Seawall (Project 5) is a great example of the integration of environment, infrastructure, and art. The new seawall will protect critical infrastructure and utilities while enhancing salmon and nearshore habitat, all while using panels designed by local artists.
The Promenade (Project 8) will be a fantastic opportunity for urban greening. It will extend north-south along the waterfront from Pine Street to Pioneer Square, providing space for recreation, as well as landscaping that manages stormwater and showcases native plants.

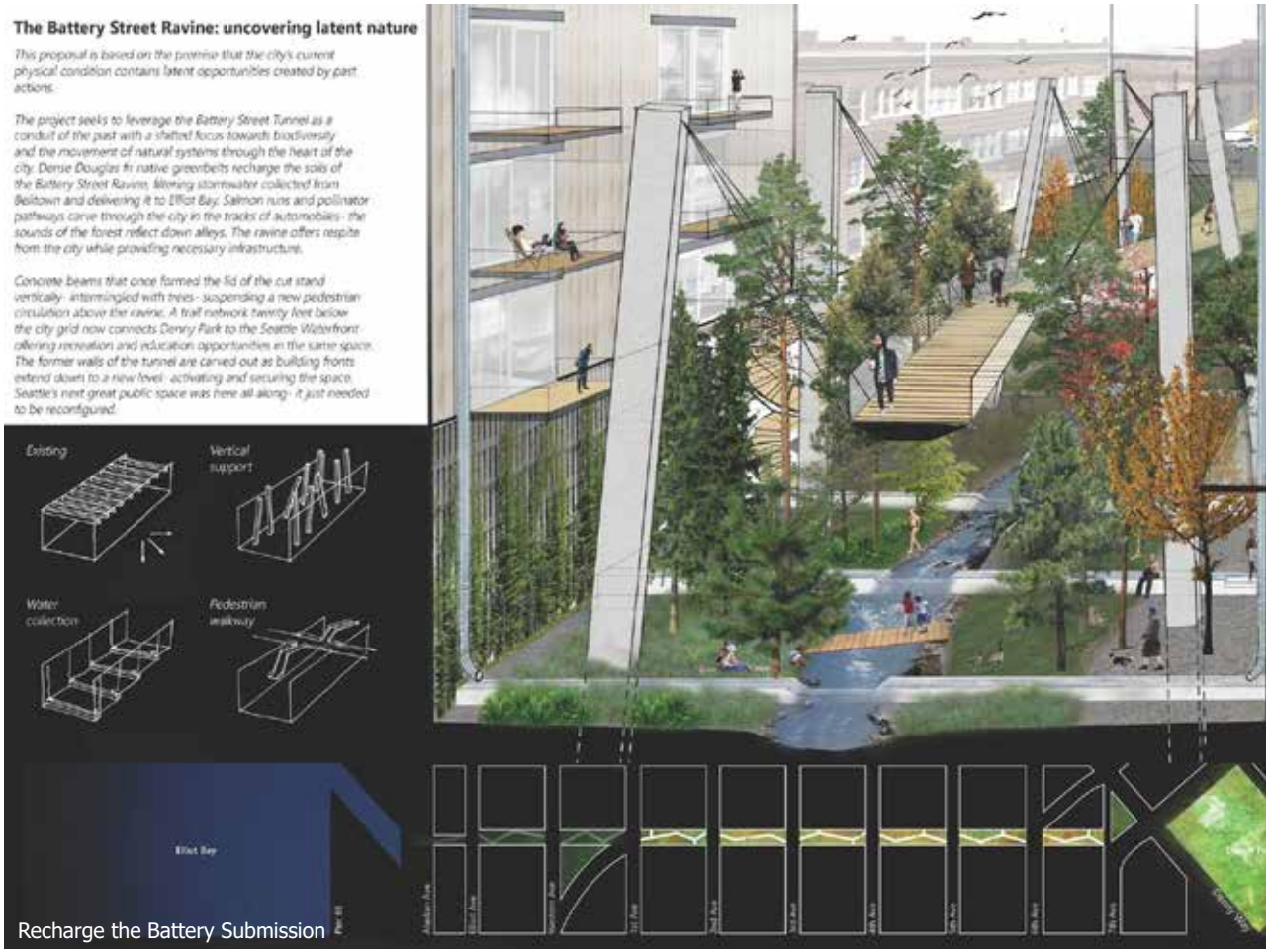
Waterfront Seattle Timeline

Recharge the Battery


Recharge the Battery

Reimagining Obsolete Infrastructure

The Battery Street Tunnel was completed in 1952 and has serviced the City of Seattle for over 65 years as the primary connector between the iconic Alaskan Way Viaduct and Aurora Avenue North. However, after nearly 15 years of debate regarding the replacement of the Viaduct and years of wondering if Bertha (the tunnelling machine) would ever make it to the finish line, the Viaduct Replacement Tunnel is complete and the current plans from the Washington State Department of Transportation (WSDOT) are calling for the existing tunnel to be closed and filled.



Recharge the Battery Submission


Recharge the Battery Submission

The future of the Battery Street Tunnel might still be open to consideration of options which demonstrate creative alternatives to deliver more value to the community. In March 2017, Walk the Battery invited the public into the tunnel to share a one-of-a-kind walking experience through an 'auto-only' public passage. Recharge the Battery then reached out to all Seattle area residents in the summer of 2017, asking for ideas, suggestions, and/or stories which might begin to inspire possibilities beyond the ordinary and encourage an alternative fate for one of Seattle's most under-appreciated infrastructural icons. Recharge the Battery is an open ended 'call for ideas' working to gather a diverse collection of ideas from Seattle area residents of any/all ages, disciplines, and perspectives. Submissions were accepted in a variety of media, including: stories, artifacts, photos, drawings, designs, even suggestions for future events - anything that considered the context of the Belltown neighborhood, the legacy of the Battery Street Tunnel and/or the spirit of the City of Seattle. Walk the Battery and Recharge the Battery represent the first and second phases of the b'End Tunnel Initiative to activate the Battery Street Tunnel by creating a series of events, exhibitions, installations, and gatherings intended to celebrate the historic, structural and cultural significance of the Battery Street Tunnel, in its final years of service. Submissions closed on September 17, 2017.

Project Belltown

A Community Initiative to Protect and Enhance a Neighborhood

Project Belltown is an initiative powered by members of the community to retain and build a culturally rich and economically vibrant community through advocacy, business development, marketing and promotion, programming, and strategic investments in the built environment.

The Community Task Force is intended to serve as the driving force behind the establishment of a Belltown-focused non-profit organization with the capacity to implement a community-driven work program that is supported by a long-term sustainable funding model such as Business Improvement Area.

Project Belltown is driven by 6 elements: Creative Placemaking, Economic Development, Environment, Health & Safety, Mobility & Connectivity, and Workforce Housing. The objectives most relevant to this studio are as follows:

Creative Placemaking: Preserve and promote an art and entertainment district as a neighborhood center for Belltown; as a heart of Belltown. Invest in our public realm: our historic buildings, parks, alleyways, sidewalks, and open spaces.

Environment: Implement the Growing Vine Street public art and water-reclamation project, build more green street projects. Promote sustainable development and explore the implementation of an EcoDistrict throughout Belltown.

Seattle 2030 District

2030 District Water Goals, Strategic Plan, and Belltown Studies

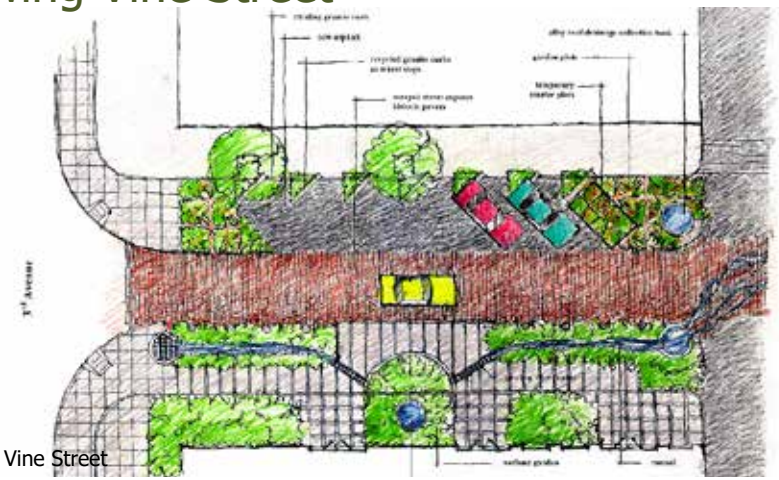
Seattle 2030 District is a membership organization that brings together an array of stakeholders with different investments in the built environment, including real estate owners, developers, industry professionals, and community leaders.

General goals center on energy (making buildings more efficient), water (managing stormwater, installing more efficient plumbing and irrigation), and transportation (increasing use of electric power for vehicle fuel, building commuter amenities). The Green Stormwater Initiative aims to increase the amount of rooftop gardens, on-site vegetation, bioswales, rainwater collection, and permeable pavement to ultimately manage 170 million gallons of stormwater annually by 2030.

Three main themes emerged from a charrette on GSI: keep stormwater on-site, reuse water in buildings, and incorporate water into streetscape and parks. Some design ideas generated by Magnusson Klemencic Associates for the Vine Street Basin:

- Build green roofs to meet stormwater code
- Harvest rainwater in residential buildings for toilet flushing
- Use bioretention in public spaces
- Treat and reuse combined stormwater and wastewater (either through a moving bed bioreactor system or an urban wetland treatment system)

Growing Vine Street



Growing Vine Street

Celebrating Rain in an Urban Watershed:
Growing Vine Street is a community-based organization that encourages public awareness and engagement with urban nature through making stormwater visible. Their efforts are supported by numerous collaborations with local organizations and city partners. Existing projects include the cistern steps and the beckoning cistern.

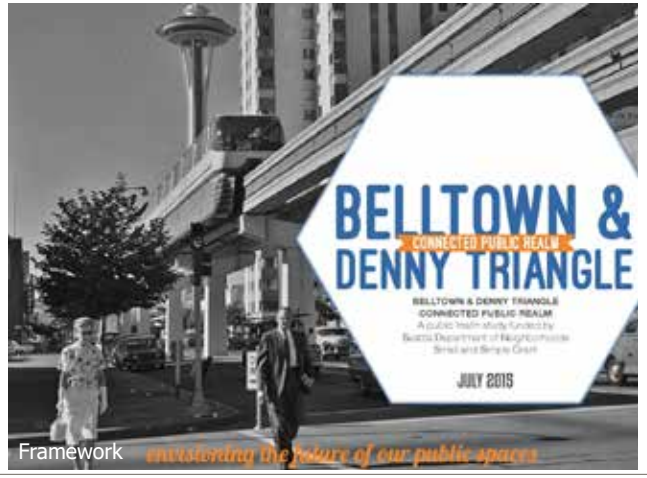
The larger plan considers three zones of Vine Street ("entry," "flat," and "slope") and details a long bioswale (or "runnel") that spans Vine Street from 5th Ave to Alaskan Way and ultimately discharges cleansed water into Elliott Bay. Large cisterns on each block capture runoff from surrounding buildings and supply the runnel with its water. Other visions for the street include one-way traffic with angled back-in parking, exposing the historic paving of cobble/brick, planting on street walls, and planting street trees to create a beautiful community space that also serves ecological benefit.

Growing Vine Street

Belltown & Denny Triangle Public Realm

Working Together Towards a Connected Public Realm:
A collaboration between Framework, JZ Works, Lake 2 Bay, and Seattle Department of Neighborhoods, this plan aims to broaden the focus from individual public spaces to the holistic public realm, in the sense of finding synergies between existing projects/policies/planning efforts in ways that represent stakeholder values and support the vibrancy of both neighborhoods. They created GIS maps to understand current conditions and collected public input to clarify the community's priorities.

Recommendations were to activate alleys, complete Bell Street and Vine Street improvements, develop street concept plans for the entire neighborhood, building on what exists, conduct a study on pedestrian safety (with attention to crosswalks and lighting), enhance neighborhood "sense of place," pursue project opportunities identified in Lake 2 Bay and Waterfront efforts, and review park space and pursue additional open space.



Framework

Market to MOHAI

Improved Connectivity

Intervention on public streetscapes, spaces and adjacent property to create 18 blocks of high-quality pedestrian corridors that create connection between Seattle thriving business districts and encourage travel by foot.

Growing Belltown

Belltown is anticipated to receive more residence and worker. A mix of prototypical or unique, and temporary or permanent interventions will help people navigating the space while creating experience. Which will result in reductions in its carbon footprint and vehicle congestion

The project RFQ begin in April 2016 and study is done in December 2016. The project will be implemented under Neighborhood Street Fund Grant during 2017-2018

Counterclockwise: history blades (information marker), discoveries (pedestrian amenities) and beacons showing photos of the areas and breadcrumbs (sidewalk markers).

Images : Berger Partnership

Lake to Bay "a path for people"

Early Phase Development to Concept Plan

The objective is to develop pedestrian-friendly pathway of beautiful and extensive improvements to the public realm. Ideas begin since 2007 and originally named Potlatch Trail. The concept plan was published in November 2015.

Pedestrian Improvement

Green infrastructure that stretches 4 mile, L2B Loop linking region's most significant public spaces, cultural assets, and four adjacent neighbourhood which is connecting Elliott Bay to Lake Union.

Broad Street Terracess Design elements paving, planting, furnishing, lighting, wayfinding, stormwater, water re-use and art

Images : Seattle Parks Foundation

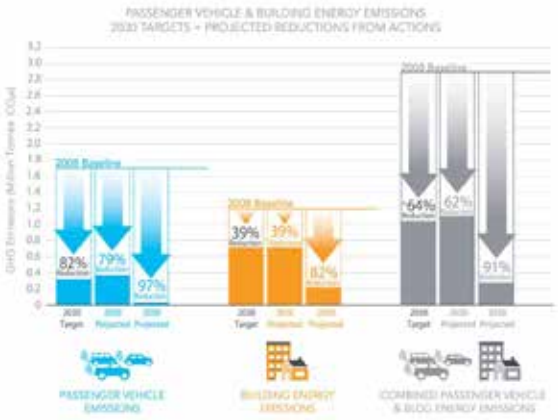
Seattle Climate Action Plan

2030 Vision with Actions to implement in 2015 and 2030

The plan is adopted in June 2013, focuses on city actions that reduce greenhouse emissions and also support vibrant neighborhoods, economic prosperity, and social equity. Actions are focused on areas of greatest need and impact: road transportation, building energy and waste

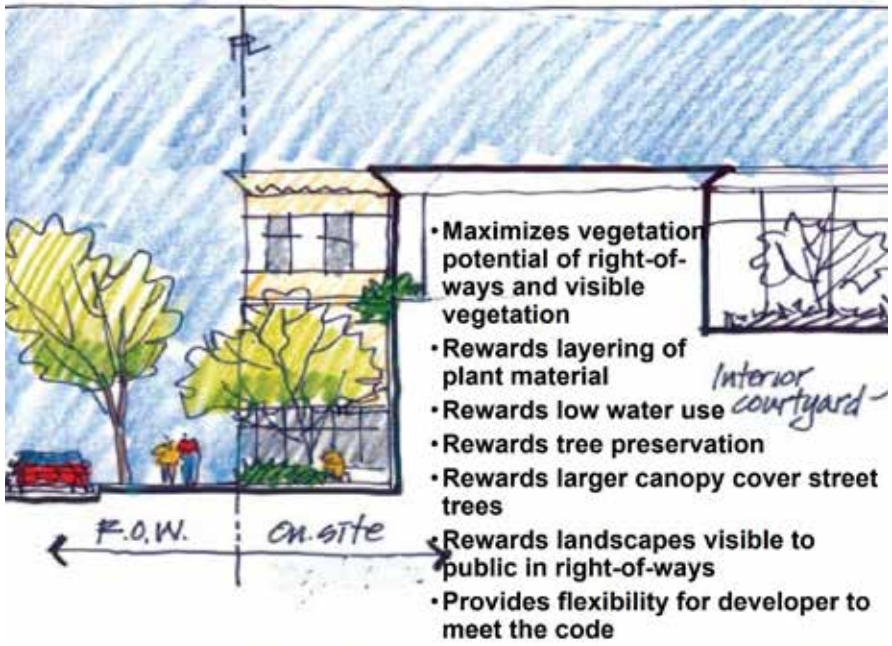
Process

Track the identified actions which is an indicator which many are drawn from other plan such as Seattle comprehensive plan and then Target is being set. The recorded data will be compared with the base line.



Images : Seattle Office of Sustainability & Environment

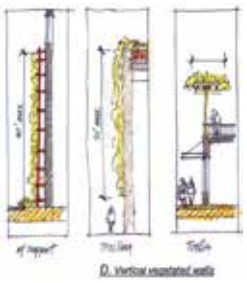
Seattle Green Factor

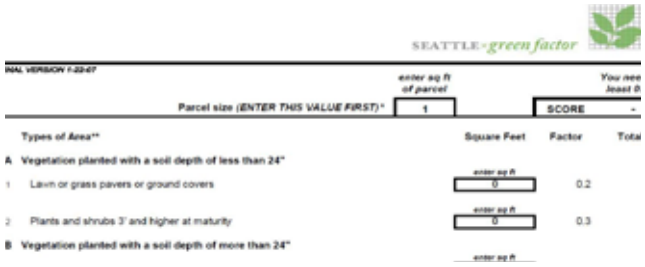


Quality urban landscape

Starting Jan. 20, 2007, new development in neighborhood business districts must meet a new landscaping requirement for Seattle's commercial areas. These landscaping strategies applied for buildings with more than four dwelling units, more than 4,000 square feet of commercial uses, or more than 20 new parking. The standards of Seattle Green Factor are established in Seattle Municipal Code (SMC) 23.86.019. Based on City of Seattle Ordinance 122311 requires the equivalent of 30 % of parcel in the commercial zone to be vegetated by using the Seattle Green Factor.

Urban Greening



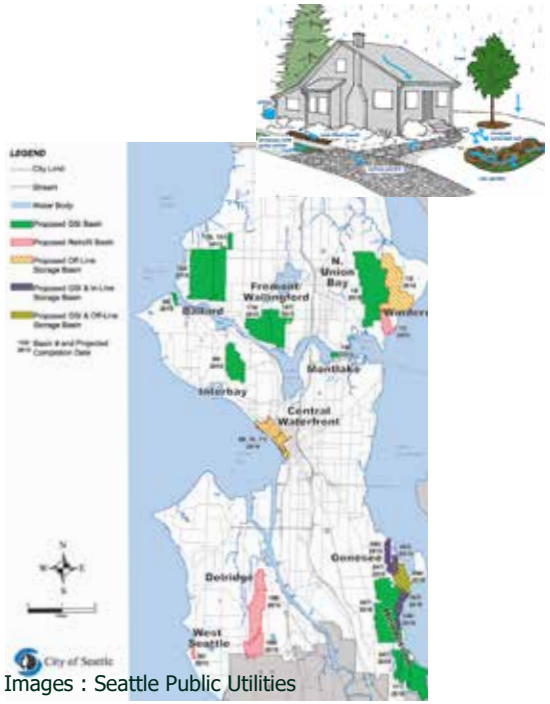


Images : City of Seattle DPD

SPU & Stormwater

Stormwater, Seattle Public Utilities & Reducing CSO Events

Heavy rain events in Seattle often cause combined storm and sanitary sewers to overflow into the nearest water body when they can't handle volume are called "combined sewer overflows" (CSO). In an effort to curtail Seattle's 300 CSO yearly average the Seattle Public Utilities is pursuing a variety of measures outlined in the CSO Reduction Plan.



Images : Seattle Public Utilities

Goals include improving the current system, investing in Green Stormwater Infrastructure (GSI), adding water storage capacity and developing a plan for long term management. A Rainwise public awareness campaign has accompanied Seattle projects. A Rainwise Guide is available for homeowners through the SPU website and a rebate program is available for Seattle residents installing rain gardens and cisterns in targeted sewer overflow basins. Windermere, Genesee and Henderson neighborhoods are the current focus as these areas account for the majority of uncontrolled discharges into Lake Washington totaling an average of 24 million gallons annually.

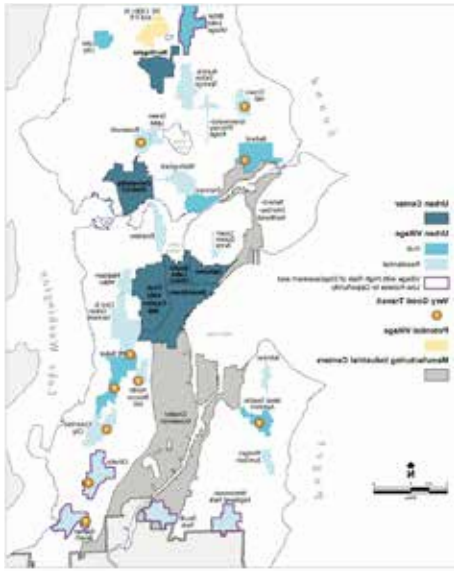
Seattle 2035

A Plan for Growth

Seattle 2035 is a comprehensive plan for managing Seattle's projected growth over a 20 year period. It covers everything from policy implementation, to future infrastructure needs, to land use. This plan budgets for an increase in population of 120,000 and a need for 70,000 additional residences by 2035. This plan was created by the Office of Planning and Community Development, Department of Construction and Inspection, the Mayor's Office and a plethora of cooperating agencies.

Seattle 2035 embraces the "Urban Village Strategy," a planning principle that clusters urban growth into specific urban pockets where new development can be accommodated. This system locates residents, jobs, stores and services close together and reduces residents' carbon footprint. Additionally, planners hope this model increases social equity by coordinating conveinent pedestrian oriented access to goods and services.

Four categories make up urban village strategies: Urban Centers, Manufacturing/Industrial Centers, Hub Urban Villages and Residential Urban Villages. Belltown is classified as an Urban Center and users will be encouraged to continue a mix of housing and employment opportunities on land in the area.



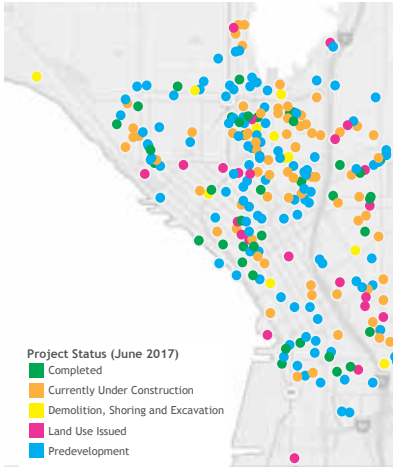
Images : Seattle Office of Planning and Community Development

Construction Projects in the Pipeline

Seattle, Fastest Growing City in the United States

Seattle is the fastest growing city in the United States. As of July 2017, 74 major projects are currently being built throughout downtown Seattle. This is a new record since the Downtown Seattle Administration started tracking construction in 2005. Another 18,000 are planned and 9,000 are being built. In total, Seattle issued $5 billion worth of construction permits for currently being built.

Two-thirds of all new construction in Seattle is residential, with most units intended for the luxury rental market. Most of this building is driven by large technology companies (Amazon, Google, Facebook) recruiting new employees from outside the states. This news confirms a continuing trend. In the last year 20,000 residential units were built downtown.



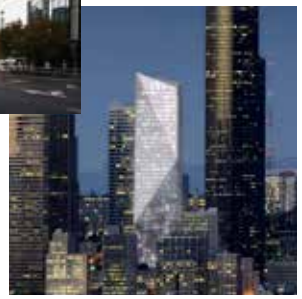
Images : Seattle Times

Upcoming Projects

Construction in downtown Seattle include residential units and additional office and hotel space. The following are the biggest projects happening in the downtown area.

The $600 million Rainier Square development, will be largest Seattle downtown construction project when it starts in late 2017. The project encompasses 1 city block and will include residential, office, retail and dining opportunities. Construction is expected to be done in late 2019.

The Hyatt Regency is a $400 million project which will be the largest hotel in the Pacific Northwest. This 45-story hotel will have over 2,000 rooms and span a Seattle city block. It is located right next to the Seattle Convention Center. Seattle Hyatt Regency is expected to be completed in 2018.



The $400 million F5 Tower is a mixed use office building which will be the 5th tallest building in Seattle when it is completed in late 2017.

Three construction projects are currently being built in our project site boundaries. These buidlings are Avalon Belltown, The Natasha and Arrivé. All of these projects are residential buildings, with Avalon and Arrivé incorporating retail space into ground level plans. Arrivé also has hotel units. Five other projects in predevelopment phases are also planned for this area.

Images : Seattle Times

Public Feedback

Demographic Information

+ Late teens, female, USC students, residents of the apartment, moved from Queen Anne
+ 20's, couple, from Capitol Hill
+ 24, female, lives in Belltown
+ Late 20's, couple, tourists from Nashville
+ Late 20's, male, from Central District
+ Late 20's, female, UW nursing, resident of Seattle her whole life
+ Late 20's, female, resident nearby for <1 year from Virginia, Nyork and Shanghai
+ 30, female, resident at Waterfront for 11 years
+ 30, resident from south Seattle since 2006; working at library nearby and seeing many people used the computer to search new areas to live
+ 30, male, originally from East Coast, resident for 5 months
+ 30, male and 25, queer, former Belltown residents that got priced out of the neighborhood
+ 33, female
+ 38, male, lives in Belltown and takes care of people's dogs
+ 40, male, resident of Capitol Hill for 20 years
+ 40, male, resident of Belltown for 3 years, veteran on Disability
+ 57, male, lives in Belltown
+ Two women in their 60's, tourists living in a hotel nearby
+ 60, male, experiencing addiction; used to live in the area since 1983 and now live in government home in Capitol Hill
+ 60, male, resident

Q: What's your primary purpose here?

Social

+ Here for an event space; I come here twice a year for events or bring a friend
+ Food, shopping, music; I come here a couple times a month
+ Hangout, beers
+ Food but not often
+ Casino; waiting for my friend in Insignia
+ Heading out to Triple Door restaurant
+ Friends are musicians; I came here for recreation
+ Restaurants
+ Visiting a friend
+ Dog park

Living & working

+ Living
+ Live and work around the are; I chose this place close to my office
+ Live in Insignia; close to work in Amazon.

Walkability

+ Convenient to walk
+ Walkability; I'm staying in greenlake and came to Pike Place

Q: What kinds of changes are you seeing in the neighborhood and how do you feel about them?

Transportation & mobility

+ Walkability is improving
+ Improvement in street

Development

+ Condos going; old structures torn down
+ Lots of new buildings
+ I like that Amazon puts in new housing for Mary place
+ All you can see are highrises

Shifting businesses

+ There was more independent retail in the past
+ It's growing; businesses are going out of business
+ An iconic restaurant closed
+ Businesses are struggling around the site
+ I like the restaurants at night

Changing demographics

+ Not community minded as it used to be; a different demographic of people living in the area
+ More drug-selling people in the past; used to be loud in downtown area
+ Disparity income and homelessness
+ Busy areas; noisy; neigborhood party area; many people call the police at night

Other feelings towards the neighborhood

+ The area is cleaning up
+ I like the community and the mix of cultures and backgrounds
+ I appreciate the dog park and its convenience; first time here but plan on coming back
+ I ike how central the neighborhood is and how easy it is to take a bus anywhere you need to go

Q: What do you want to see changed?

Development

+ Rent control and affordable housing
+ Housing affordability
+ Housing affordability
+ Integration between new and old residences
+ Preserve older buildings (integration of different people in the building)
+ Lesser skyscrapers are better; history preservation
+ Currently the street is not cohesive as there are new construction in the old community, so whether the old community can accept the new building is being questioned

Pets

+ Want to walk my dog around the area
+ Belltown is currently not a good place for pets

Transportation & mobility

+ Bike and people friendly
+ Biking situation; 2nd Ave bicycle track is the first one to be build in 90's, it was built only on one side and it is on the wrong side; we need to balance the new money
+ Traffic; it's hard to commute from other neighborhoods

Public spaces

+ Trolley down by the waterfront
+ More gum wall
+ More places like Gasworks Park
+ Open public spaces to chill out
+ I like the liveliness of bell street with parklets
+ More local events in closed streets for neighbourhood activities

Other

+ Design decorative cranes
+ Anything funny

Inclusivity / perceptions of safety

+ To feel more safe
+ For the neighborhood to feel more welcoming to everybody, and not just those who work in tech
+ Less judgemental
+ Balancing the disparity
+ Seattle is homeless-friendly so it raises the question of safety and drug business; also, when I walk my dog at night it feels dangerous
+ Mental health services for those that need it

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