



Planning Homeless Settlement Communities

Western Washington University - ENVS 474 - 2014

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FORWARD AND ACKNOWLEDGEMENTS

“for a while, in the mid-1980s, when they were “new”, they held out attention, but when it became clear that their presence among us was not the result of some aberration in the socioeconomic mix but rather a manifestation that something in the country had gone seriously wrong, we disengaged.

Padriag O’Malley, New England Journal of Public Policy

THE PROBLEM

Appropriate and equitable shelter support for portions of the Bellingham/Whatcom County homeless population is required in order to increase dignity, reduce suffering, manage vulnerability, overcome social disintegration, and help to achieve recovery from transitional periods that displaced persons face. Displaced persons require protection from both the environmental elements and from further social isolation. In order to improve the living conditions faced by our fellow citizens who live in Homeless camps, public resources are necessary to help the Homeless segment of society regain their footing in society.

PROJECT FOCUS

This course examined sustainable design solutions for the immediate improvement to the conditions faced by many Homeless People through the creation of Homeless Settlement Communities as a transitional stepping stone solution. The student’s planning and design concepts were informed, in part, by current public policy and approaches to providing homeless relief, as well as independent research and conversations with informants. The students was challenged to imagine new approaches to providing homeless shelters in a way that would meet the following design objectives:

- Building and maintaining a community with a strong sense of dignity
- Encourage self-help in creating a sustainable Homeless community
- Enable self-maintained and self-governed Homeless communities
- Adapting principles of sustainability in homeless settlement design

The faculty and students at Huxley College of the Environment wish to especially thank our community partners and mentors for their invaluable assistance in helping our students conduct this investigation of alternative approaches that can be taken to address the conditions of homelessness within our Bellingham community: Greg Winter, Director, Whatcom Homeless

Service Center; Theresa Meurs, Hope House Street Outreach; Gail de Hoog, Whatcom County Health Department; Claudia Vizcarra, Bellingham Police Department. We further wish to thank the numerous individuals who live on the Streets of Bellingham for taking the time to talk with out students and help them to gain a better understanding about the conditions that Homeless People face on a daily basis.

We hope some of these design concepts may serve as a short term solution for addressing the still largely unmet needs of so many people that continue to live in Homeless camps throughout our community. Students: Brian Anderson, Lauren Anderson, Jesse Ashbaugh, Claire Bertuleit, Thomas Brissenden, Joshua Dolechek, Nathan Emory, Elliott Fitzgerald, Sabrina Gassaway, Mathieu Gaultier, Jeannine Godwin, Katherine Healy, Bailey Jones, Carson Massie, Ashkon Nima, Nick Peterson, Kyle Roscamp, Colin Strickland, Kirk Turner, John Wachter, Kevin Ward, Cort Wilson, Olin Wimberg.

Instructors: Nicholas Zaferatos and Arunas Oslapas, Western Washington University

INTRODUCTION

Our interest in the tremendous task of improving the quality of care and infrastructure for ostracized groups in today's society are in response to a history of economic, social, and political issues. These conditions have resulted in a significant portion of people today finding themselves unable to provide adequate housing, medical provisions, and often even food for themselves, their loved ones, and their pets. These groups do not have a single face or representation that bears categorization, in fact it is only through the most intimate and individual of interactions with each that one finds that no two stories are the same, and no single solution will fit all.

Despite the best efforts of many, today's economic conditions and often mere circumstance have resulted in a strikingly wide variety in the appearance of homelessness, mental illnesses, domestic violence and abuses, and chronic drug addictions of many forms. As these people are spread out over vast areas and hold such a wide variety of needs, the financial burden of helping them is severe to the entire society. Providing transitional housing for one person at a time can require months of personal attention from caregivers, tens of thousands of dollars per individual to the public, and at the end of the day there is still no guarantee that they will have found a way to reintegrate into society if not given the proper tools to do so.

We began by careful assessment of the conditions evident today in Whatcom County, with the intent of developing a set of goals, along with possible visions for the future of those groups who are currently culturally omitted to be reassimilated into our local society, and have done so with the sincere hope that the information this document contains will be useful to those in any and all

corners of the world also attempting to solve these and similar issues.

People of all walks of life are entitled to livable housing, adequate food and medical needs, and the most basic of social interactions that bind all of us into a civilized, dedicated and productive society; cultural and historic trends aside. This is the core assumption of our research and the resulting work to be found in later chapters. The pages that follow will define the existing issues, and then detail a variety of possibilities for mitigating, and concepts for potentially solving one of today's most impactful societal problems. We hope to provide a framework for future studies, as well as some new ideas that may potentially inspire others to develop their own innovative solutions in whatever local context. Our direct concepts may not be fitting for every situation, but the motivation and the process are.

Throughout this process we must constantly remind ourselves that the people whom we seek to provide for are living, breathing humans who are entitled to the same quality of life as us all, and furthermore that no single magic bullet solution can be introduced that will end homelessness and its related problems instantly. Instead we must understand that it will require a variety of interdisciplinary action from technical, social, legislative, economic and cultural designs that can be woven to form a coherent fabric for reassimilating these groups, and preventing these detrimental circumstances from further developing to affect others in the future.

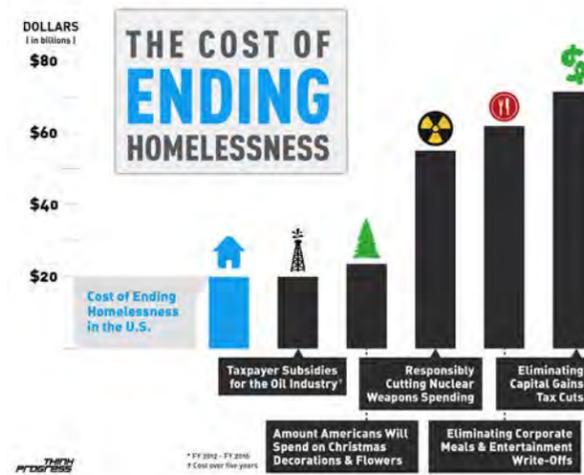
PROJECT CHALLENGE

The purpose of this work is to mitigate the social consequences of homelessness, by providing public infrastructure for the benefit of those in need in order to lessen the affiliated negative societal impacts. This includes the financial tax burden on the community, the loss of social capital from marginalized groups occupy-

ing desirable public spaces, and shifting away from the impersonal nature of many of today's organized efforts combatting homelessness.

We began by taking a close look at several questions relating to our interest in the issue, the answers to which would point towards a new direction to take in providing for marginalized groups in society. The following were identified:

- How can one design homeless communities that provide a sense of dignity and social inclusion for its occupants?
- Are the homeless part of a new insurgent citizenry? Do they have a voice in our society?
- What does self sufficiency look like to a homeless community? What provisions are necessary to make this feasible?
- Is green building limited to those that can afford it? Can greening be integral in our design?



PROJECT GOALS

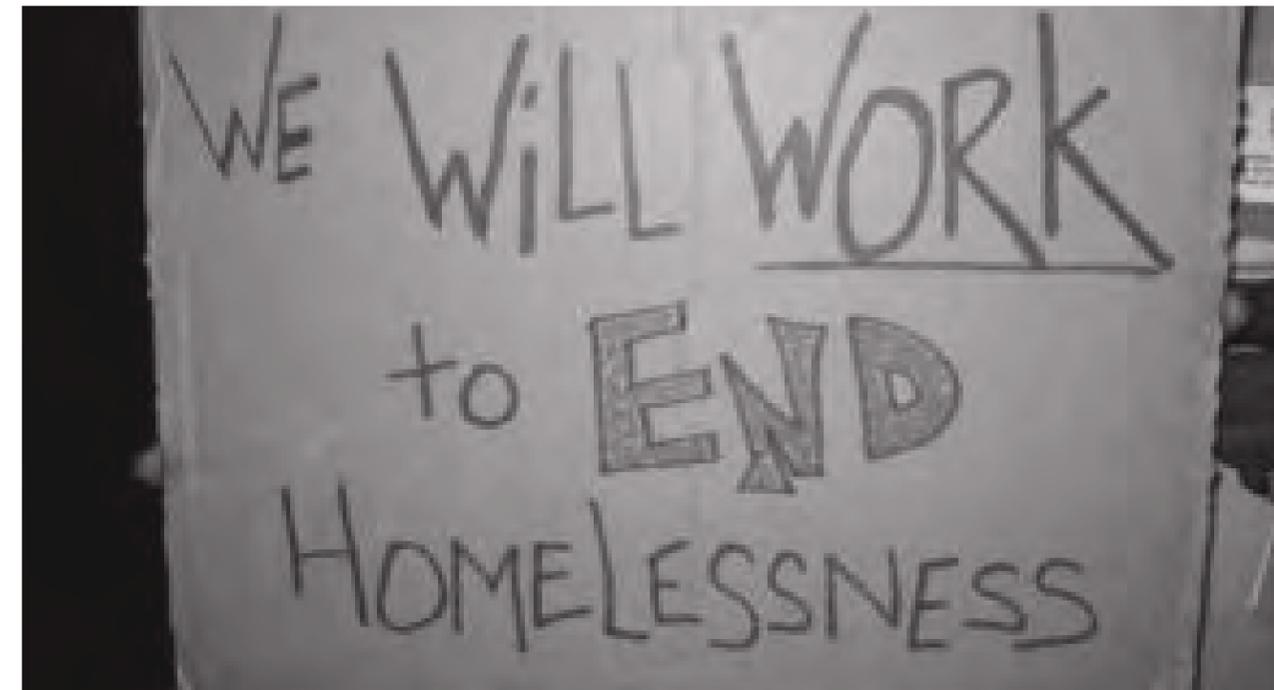
Appropriate and equitable shelter support for portions of the Bellingham/Whatcom County homeless population is required in order to increase dignity, reduce suffering, manage vulnerability, overcome social disintegration, and help to achieve recovery from transitional periods that displaced persons face. Displaced persons require protection from both environmental conditions and social isolation. However, in order to provide an alternative to the current self help conditions of homeless camps, resources and technical assistance is presumed necessary to help segments of the homeless society to regain their footing in society.

We will examine Sustainable Design Solutions for creating Homeless Peoples Settlements to be embedded in the diverse urban fabric. Our design concepts will be informed, in part, on the review of current policy and approaches to providing homeless relief, as well as independent research and conversations with informants. Our ideas and concepts will attempt to respond to the

following objectives throughout this document:

- A community with sense of dignity
- Encouraging self help while creating a sustainable housing community
- Enabling a self-maintained and self-governed community
- Adapting principles of sustainability into modern homeless settlement designs

The clientele for this project are the largely unrepresented homeless community currently underserved by current public and private programs, and maintain temporary residency largely in unorganized, and often, illegal, settlement camps. Assisting in our study includes local professionals in the local Bellingham/Whatcom County area who are engaged in homeless assistance programs.



Introduction to the OCEAN Process: Progressive Action In 5 Steps

OPENNESS, CONSOLIDATION, EDUCATION, ASSIMILATION, AND THE NETWORK

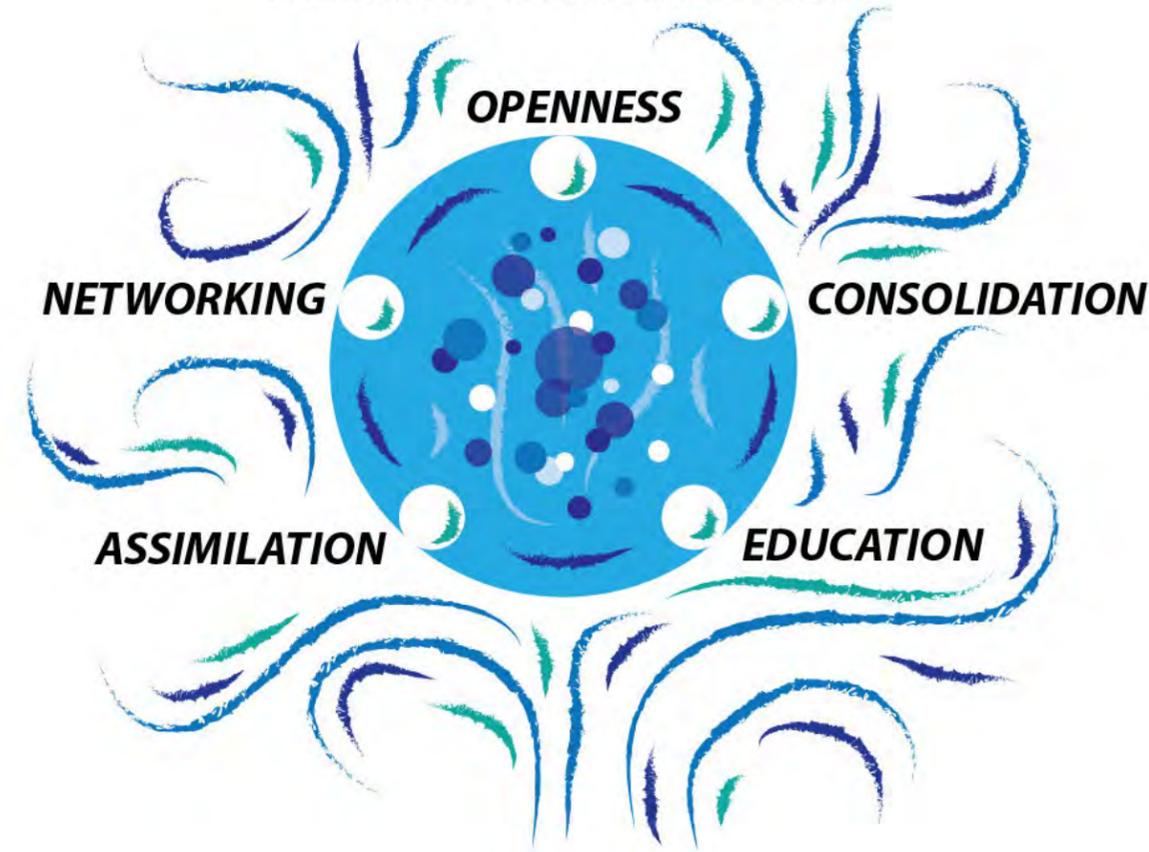
Our plan to successful community care is characterized by five key themes which fall under the acronym OCEAN:

1. The **openness** and willing attitude from the community and lawmakers to shift their perception towards homeless people and those undergoing unfortunate conditions
 - Humanity
 - Collectiveness
 - Patience and Understanding
 - Community Bonds and Inclusionary Measures
2. The **consolidation** of human needs and services to provide for those needs
 - Territory
 - Functionality
 - Community Creation
 - Services and Amenities
3. The **education** that can power a net positive social capital and benefit everyone for the long term
 - Self-empowerment Opportunities
 - Socialization Mechanisms and Reinforcement
4. The seamless **assimilation** back into the fabric of society with safe, secure, long term employment and housing options for all
 - Final Community Integration
 - Reinvestment in the Local Community
 - “Booster” and Incentive Programs Throughout
5. Finally the **network** of people in the process and those who positively contribute to the system as a whole, whether during or afterwards.
 - Role Models
 - Community Members
 - Employers
 - Service Workers and Caretakers

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THE OCEAN PROCESS FIVE STEPS TO COMMUNITY BUILDING



OPENNESS

Openness is the primary stipulation of the entire OCEAN process, and perhaps the most necessary for tangible change. It holds that we all must actively engage ostracized groups and each other to prevent ignorance and negative attitudes from spreading towards people based on appearance, choices, company and overall circumstance. While this is a lofty supposition, it is a

requirement for positive impact to take place in later steps. Without a strong local involvement and goodwill towards all in the community, the trends toward ostracism and judgment will only perpetuate further. This cultural shift is quite necessary to even begin to consider the following steps, though it will take adjustments from the whole community.

HUMANITY

Selflessness is essential in the long run. The natural human impulse to help fellow beings will be extremely beneficial in this case to shift cultural perceptions towards homelessness and its associations. When the entire community embraces a simple consciousness of these issues and chooses not to simply ignore or look down upon those in less fortunate situations, a more equitable and ethical community can be realized.

COLLECTIVENESS

Every human needs to feel pride. This can come from taking part in joint community efforts and bearing responsibility for one's self and others. Our actions undoubtedly have an effect on the system as a whole, and we must consider these at every turn. Close contact with people of all groups keeps us reminded of the range of daily issues we deal with as a society. Social capital is the product of our combined actions, not the success of a few individuals. If we as individuals feel mutual responsibility for the well being of our local community, we will each feel a greater stake in keeping it enjoyable by all.

PATIENCE AND UNDERSTANDING

Though this contradicts many of the urges of modern society, it must be understood that some people are incapable of self-help, or at least cannot find the first step to improvement alone. We all must take part in

this process to help it along; as many follow solely by example when not given the proper methods to do so alone. We must provide societal networks that in turn practice the proper morals, and are forgiving of misunderstanding and difference.

COMMUNITY BONDS AND INCLUSIONARY MEASURES

In line with collectiveness, bonding and inclusion are essential to making sure everyone feels that they are contributing positively to something tangible, and with noticeable gains for all. Society has overemphasized individualism as an honorable trait, but that should be coupled with an equal honor for inclusionary efforts and community solidarity, the tangible manifestation of openness. No significant gains are made alone, and many unseen groups are wrongfully seen as non-contributing members of society. With the proper context and skills, this trend can be reversed for the benefit of everyone.



CONSOLIDATION

The second phase of our process is intended to bring together all the services and provisions needed for the later phases to be successful. This entails a variety of circumstance and local legislative aid, as well as community support and involvement to take place. A current shortfall of existing homelessness programs is their disconnect from each other. Despite their goals being quite similar, the variety of current social groups and programs do not communicate adequately with each other to ensure maximum effectiveness. Therefore, the following criteria must be provided in some form as a basis for the other later steps to carry weight.

TERRITORY

The acquisition of land (the process of which will be discussed in subsequent sections) is the foremost tenet for substantial positive impact to occur. We posit that a mere community space is enough for most needs, but most public spaces are detrimentally affected by over-use from certain demographics, like alcohol/drug users, as well as the general perceived public nuisance from the appearance of “homelessness” on or around public spaces. Therefore we propose that the establishment of formal public land for the sole intention of the gathering and provision of services for ostracized groups be included in any serious effort to provide aid. This does not mean the formation of ghettos with large swaths dedicated for tent communities, as has been seen in many cities. Instead, one or a series of temporary “community centers” will be provided for marginalized people with provisions for those of a variety of needs. In essence one wouldn't have to be homeless or suffer from addiction to benefit from the services at these proposed sites.

FUNCTIONALITY

The overall usability and ability of the site must also

be taken into consideration, assuming that the simple needs of Territory have been met. Discussed in detail in the Chapter 3: SITES, these should be embedded in the urban fabric properly without interrupting adjacent uses, taking the community's openness into account. This incorporates the knowledge of existing utilities as well as the size of the land available for potential outside services to set up temporary medical or employment assistance workshops on site. This is one of the most essential stipulations of consolidation, as we have observed that, at present, many well-intentioned services fall far short of their goals by spreading themselves and their resources thin. Marginalized individuals live along the periphery of society, spread out from each other and the services they need. They would benefit from consolidated locations for services and the information needed to find them.

COMMUNITY CREATION

We view Community Creation as the culmination of all of the OCEAN themes fully realized, but it is included under consolidation as it represents the notion of functional collectivity. We imagine the final appearance of successful implementation of these goals to be a harmonious, self-sustaining community of individuals with completely unique life stories and needs, working and living together while learning from one another on their path back to complete societal reassimilation.

SERVICES

Services are the main provisionary mechanism. These rely on public donation, both financially and in donated time, as well as partnerships with private services from medical help and basic skills workshops to job training and resume building. This also relies on Territory for a space to stage these events and workshops, which would come at a regular, predictable basis and generate a pattern of consistency that forms the building blocks

for Community Creation.

EDUCATION

Education may be the single factor that prevents individuals from reassimilating into society on their own. Capable, intelligent people are kept from contributing tangibly to the community through a lack of basic skills, technical knowledge, and understanding of the social structure. We must provide additional systems of learning in simple formats for a variety of people in places and ways that are available to anyone, user-friendly, easy to find, and encouraging of progress without pretense. This is a huge obstacle to the success of the later themes. We discourage learning that requires a defined tangible result, but instead seek to employ an open forum style of education that allows anyone to teach anyone else skills they know well. We believe the best learning occurs when the individual is engaged and interested in the topic or skill at hand; nothing in this theme can be forced. We want individuals to encourage each other to pick up new skills, and without any administration to monitor progress, which could discourage some from taking part in the process.

SELF-EMPOWERMENT

The best strides to be made under education should come from within the local community, and if possible, from expertised individuals within the marginalized groups alone. We discourage learning services to come and "preach" formal knowledge at those in need, as the information presented will seem distant and pretentious to them. Instead the mechanisms for gaining skills and knowhow can be taught from those already in the system, and informally at that. We see this as the social "workshop" model, with members offering up their own knowledge for the benefit of the community, and anyone who wishes may sit in and benefit. Employing each person's individual wisdom to a variety of skills and dis-

ciplines would yield positive results for not only potential employers, but also the entire marginalized community, while fully embracing the tenets of consolidation within the local society.

SOCIALIZATION

Socialization is the transition from gained self-empowerment into tangible societal benefits. Employing the skills and knowledge gained from within the community to be put towards social capital and long term employment is education's ultimate goal.

ASSIMILATION

The fourth theme is the implementation of the previous themes into something tangible. Our goals for the



OCEAN process essentially flow into assimilation. In a functional community of caring and hardworking individuals, with the responsibility for themselves and the others around them, the final realization of a successful system is societal reassimilation. This would appear as the individuals who started from nothing, joining the community, finding and holding long-term employment without issue, and moving into long-term, livable housing with their needs fully provided. There is no time-frame for ensuring that this happens, instead we expect to see a full range of people completing the system successfully in anywhere from a matter of weeks to a matter of years, depending on their previous social status and mental health. This is the final intent: ensuring that all are cared for and in turn, caring for others. While they take personal strides throughout to increase their desirability to the local community, the community in turn meets them halfway with the openness befitting a modern moral society and the provisions and services necessary to assist for the wide variety of needs of the individuals.

COMMUNITY INTEGRATION

At the end of the OCEAN process, we envision marginalized groups no longer witnessing the same attitudes towards them from the local community. The community will have seen their transition and goodwill, while they in turn will personally no longer be rejecting the community for their inflexibility and judgment. Employment opportunities, housing, and acceptance await at the end of the long road to integration. While not easy by any means, we see this as not a possibility, but the ultimate gauge of success of the process; anything less is a failure on the part of the local community and the individual's will.

REINVESTING LOCALLY

After completing the OCEAN process and reassimilating, we also hope to see individuals returning to those

still in the process to offer advice, training, motivation and positive models for success. The "I did it, so can you" phrase would be fitting in this context. Bringing skills and personal pride back to the community is the greatest builder of social capital. When one person's success is visible by all, it is not only encouraging, it becomes the pride of the entire community.

"BOOSTING" PROGRAMS

Once out seeking work or housing and having completed OCEAN, certain private or public institutions may form to help with the final steps of assimilation. These "boosters" can help link members with existing employers or housing options, in a serious and dedicated manner. These programs should appear at the community center, or in a prominent public location shared by all in order to increase their visibility (included in consolidation), and motivate those still in the process of the goals at hand.

NETWORK

While perhaps not a step itself, this is a theme in the OCEAN process with significant weight. The network is the entirety of the community, participants in the OCEAN process, and individuals with special stake in the outcome of the system. We who form the network and act consciously only increase the solidarity and protect the vitality of our community, by caring for all within it (openness, consolidation).

ROLE MODELS

Role models are the individuals who have completed the OCEAN process and fully reassimilated into society. They will act as social ambassadors of sorts to the community at large, as well as maintaining ties to OCEAN, speaking to, and motivating current participants to meet their potential (see Reinvesting Locally). These people

will have overcome incredible hardship, and their experiences should be shared with the community to impact the openness of the society.

COMMUNITY MEMBERS

These are everyday people, whose interactions with those in OCEAN will have a drastic effect on its outcome. We would encourage everyone to promote social contact with those in the process, to show goodwill towards their efforts, as well as educate themselves socially to the detriment of circumstance. This will help decrease judgment towards homelessness from all angles, and protect Community Bonds.

EMPLOYERS

Employers should be active in the OCEAN process, as it will promote faith in the system, and strengthen local community. They themselves can be responsible for offering workshops and resume training sessions for those working towards employment. Their voice in the system will help those in OCEAN to understand what is needed by the community in terms of productivity and activity. As they have a high stake in the outcome of the process, employers should stay close to OCEAN participants.

SERVICE WORKERS AND CARETAKERS

Those who offer medical assistance, needle exchanges and other services to marginalized groups will undoubtedly be involved in OCEAN. These service people today are closer to these groups than most of us already, so their insight as to the needs and attention required for a functional system will be invaluable in the long run. As long as the rest of the community promotes openness and embraces the positive nature of the program, the burden will shift off of private service providers and charities, and they will free up resources that can be contributed to consolidation and provision.

LIABILITY & SAFETY

Any temporary and permanent homeless settlement community must be covered with a liability and safety insurance protection policy. If an individual party is injured, not due to their own fault, another entity may be responsible for a claim. Transitional communities would need some form of coverage.

The City of Bellingham is self insured with a coverage limit of \$50 million in liability. As the city's contribution to this proposed program addressing homelessness in Bellingham, we would request that our proposed transitional establishments would be covered under the City of Bellingham's liability insurance program. This would ensure that there would be someone responsible for claims made in the case of an accident or injury within the establishment. Potential risk exposures may include, but are not limited to; fires, general injuries, flooding, and personal property theft and damages. As part of the implementation of these homeless housing solutions, the city should agree to extend its umbrella liability insurance to cover these transitional communities.

Within this system, if an individual is hurt within a city facility, such as a city park, the individual must first file a claim with the finance department. The Finance Department forwards the claim to the city's Legal Department for review. The Legal Department shares the case with the pertinent department. The Legal Department then reviews all the case information and makes a decision whether to pay or deny the claim. If authorized, the claimant fills out necessary paperwork and will receive a check with money taken out of the city's liability coverage funds.

SPECIAL CONSIDERATIONS

Approval processes for Bellingham Transitional Homeless Settlement Communities

Bellingham's Comprehensive Plan recognizes the conditions of Homelessness and has developed public housing policies intended to lead to towards solutions that may one day end homelessness. Bellingham's principle approach to addressing the problem of Homelessness is to promote greater access to standardized housing for the Homeless population -- an approach that is intended as a humane and permanent solution to the growing condition of Homelessness. However, adequate funding is rarely available to meet all the Homeless Persons' demand for permanent housing in our community, and, as a result, many people continue to seek their own alternatives to housing, often by creating Homeless Camps on abandoned sites throughout the community. These make shift communities offer less than ideal solutions for people suffering from Homelessness, where basic services are inadequate to protect the health and safety of the occupants living in these camps.

As a transitional step to help alleviate the conditions of Homelessness, and, in particular, to address the conditions found in most Homeless camps, this project proposes short-term measures that can be taken to create Self Sufficient Settlement Communities as alternatives to unplanned Homeless camps. It is intended as a short term gap measure that can be immediately implemented, emphasizing the following design objectives:

1. Make use of currently undeveloped or underutilized public and private sites;
2. Invest public and/or donated funds to improve

3. public health and safety;
3. Build upon the self-initiative and self-reliance of Homeless occupants in the design, construction, and maintenance of the Homeless Settlement Community;
4. Design Homeless Settlement Communities as short term, transitional, and portable, so that the entire settlement may be relocated to other sites when the occupied site is schedule for development to accommodate more permanent uses;
5. Ensure that the beneficiaries of the Homeless Settlement Community benefit from improved connectivity to the local community and to public services that are available to assist them.

OVERCOMING POLICY BARRIERS TO THE CREATION OF TRANSITIONAL SETTLEMENT COMMUNITIES

The concepts proposed in this plan intended as short term, immediate, and temporary actions that can be taken to address unregulated and unplanned Homeless campsites that exist throughout the city. The settlement designs proposed, however, fall well outside conventional public policies and regulations for housing and community development. In order to implement gap measures and bring immediate improvement to the conditions of Homeless camps, special considerations must be made within the Bellingham Comprehensive Plan and Zoning Ordinance in order to permit the development of temporary shelter communities in "temporary opportunity sites" throughout the city. "Overlay" and "Floating" Zoning are methods used in land use regulation that provide for the accommodation of special use activities subject to special or conditional use permits to permit activities for a limited purpose. Upon expiration of the special conditional use permit, the activity could either apply for continuation or may be relocated to another conditionally approved site.

OVERLAY AND FLOATING ZONING

Overlay and floating zones are used by many communities where traditional zoning is not adequately flexible to address unique community needs and development proposals. To address this shortcoming, local governments often establish alternative zoning approaches which provide flexibility in order to solve priority community problems. The overlay zone is a special zone placed over an existing zoning district, or part of a district, and includes a set of special regulations that are applied exclusively to designated properties within the overlay zone. The overlay zone can establish the requirements for special types of development that are otherwise disallowed in those designated sites. Overlay zoning is similar to "floating zones," however, the Floating zones are typically not mapped. An overlay or floating zone supplements the underlying zone with additional requirements and/or incentives while leaving underlying zoning regulations in place. Both zoning forms can be used to permit types of development not permitted outright in the underlying zone and through a special use permit, can serve to allow the establishment of temporary emergency relief housing as proposed in this plan.

A Special Use Overlay or Floating Zone should be developed and adopted within the Bellingham Comprehensive Plan to provide for the development of transitional Homeless Settlement Communities based on the suitability and availability of sites and subject to the special approval by the City. In addition, the zone should provide exemptions from the current building and health and safety codes while concurrently ensuring that protection of the public safety and health of Settlement occupants are assured.

PUBLIC AND PRIVATE LAND ACQUISITION

Private Property Acquisition

The acquisition of private properties for temporary use homeless camps presents a difficult financial challenge. Often, these properties are listed at competitive market values based on their highest and best economic use. For purposes of securing short term use of idle private property, temporary donation by the land owner may provide a solution. Changes to charitable donation laws make it possible to donate commercial property, for a given period of time in exchange for financial benefits to the property owner

When taking into consideration into ongoing property taxes, maintenance costs and income taxes, it is often financially preferable to donate properties to charities than to hold for speculation in a volatile and uncertain market. A charitable donation can significantly reduce these legal and tax liabilities on the donated properties while also supporting a charity.

One of the advantages to the donor is that the size of the tax deduction is determined by the current market value of the property, as opposed to the cost of the property when it was purchased. The donation of commercial property qualifies the owner for a tax benefit based on the current fair market value of the property - not on the purchase price of the property.

VEHICLE ACQUISITION

The donation of vehicles is an important part of the proposed site. To keep costs low there will be a vehicle donation program can be established through a created non-profit organization, the city, or a third party organization. These vehicles can be used to house the

homeless at the site. Vehicle donations can be used as a tax writeoff thereby removing the added cost from the city.

ACQUISITION OF PUBLIC LANDS

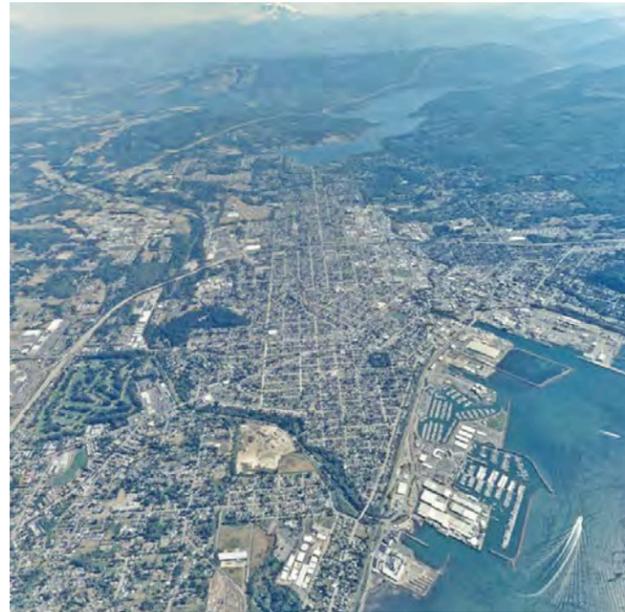
One of the most difficult aspects of implementing a transitional housing settlement on public lands is determining how the acquisition process would be structured. There is plenty of land owned and operated by the City of Bellingham for such an endeavor; however, the uncertain component of the execution strategy is how to get traction with respect to the political and legal processes required, as well as how to get stakeholders involved.

Local elected bodies can acquire land in various ways: negotiated purchase, gift/dedication, eminent domain, or tax default. Utilizing property that is already public for a specific benefit will likely require that some entity, whether public or private, develops a proposal and commits to some sort of contract lease agreement with the City. Perhaps those tasked with the implementation procedures should consider contract zoning in which local zoning authorities accommodate a private interest by rezoning a district – or specific parcel of land within a district – on the condition that the restrictions are accepted. Essentially, one would need a land use right or occupancy permit with conditions and even specific criteria for the target tenants, all under the legal contractual regulations of a lease structure with the property owner (i.e., the municipality). Another implementation model to follow could be lease approvals for temporary emergency shelters. Despite the apparent complications with procedural details, a strong point of such settlements is that they are temporary and revolving, thus making them dynamic and easily adaptable to various local conditions.

RESEARCH: SITES FACTORS AND SUITABILITY

Planning for a homeless settlement confronts a wide range of social challenges. The initial hurdle for the city is to find an appropriate site with a determinable vacancy period. Vacancies may be numerous but this research will outline and show examples of the specific site factors to consider to help create a more functional and accommodating settlement.

The design of the settlement will be greatly influenced by the location and site features. This is why it is important to designate a site location before figuring out logistics and suitable architecture of the settlement. Different sites will vary in scale, proximity, infrastructure, transportation, client appropriateness, privacy, safety, public awareness, amenity access, ground cover, and existing structures.



Scale- The size of the site will influence all planning decisions. Different clientele groups can require different site scales. For example, a site concentrated on single individuals would not need to be as large as a site for families. Its also pertinent to the level of demand a region might have. If the desired region is in a very dense area where interest in a settlement is high a larger site would be more appropriate. Resources will also be related to scale and how much will be invested into the settlement.

Proximity- Analyzing the types and proximity of buildings to a potential site will foster different clients and designs. Travel is more difficult on foot and in some cases carrying possessions along. Some homeless individuals do have a vehicle or a bicycle, however, a site's proximity to bike lanes, trails, and bus routes should be considered. Homeless families further make a site's proximity to schools another important factor.

Infrastructure: While the availability of all infrastructure (water, electricity, sewer etc.) is greatly preferred, it is not always available. Whether or not the homeless settlement utilizes these things will also influence the cost of a site. If a site design uses self sustaining utilities then utilizing the city's infrastructure may be less necessary.

Privacy: The value of privacy is something that can be taken for granted when you have a home. Those without a home are forced to exist under the eye of the public at all times. It stands to reason that a homeless individual would value additional privacy during such a turbulent time in their life. Different groups will require different levels of privacy, and this was taken into account when selecting sites.

Client Appropriateness - The homeless community is comprised of a broad spectrum of people with

different abilities and issues. Some people have debilitating mental health issues or substance abuse issues. Others are families who are out on the street because they haven't been able to find work for too long. The homeless who are the target clientele in this planning endeavor have been interviewed extensively to determine their various wants and needs. The sites chosen were intentionally picked to suit certain groups of the homeless community better than others.

Transportation: A majority of homeless use public transit. Ability to access this resource will be vital to the economic recovery and basic needs of these individuals. If the site is not near the city center it should be within walking distance of one or more transit lines. The site choice should not put availability or ease in front of connectivity for the homeless.

Safety: It is important to create an environment that will be safe for a variety of clients as well as the surrounding community. Staying away from highways, waste zones, and industrial traffic will reduce accidents. Protection from the inclement weather can be offered by some sites and not others. This will dictate the extent of roof cover in the design.

Public Awareness: It is essential that the community where the sites might be located is fully aware of the process and goals of the project. Transparency in the process fosters goodwill for the project as a whole.

Amenity Access: Having close access to grocery, counseling, and health services will make the settlement functional and livable.

Ground cover type: There are advantages and disadvantages to site design on top of gravel, concrete, grass, and soil.

Existing Structures: Sites with various existing structures can yield a specific development focus.

SITE TYPES



DESCRIPTION

Outdoor With Infrastructure - These locations will not contain structures that could be used for housing. They may have hook ups for sewer and electricity on the site already where structures may have once existed or were planned to exist. These would be ideal for plans that would incorporate hooking up to existing city infrastructure.

Port/Industrial Areas - These sites would take advantage of large open spaces on our waterfront and our industrial parks that are currently under utilized. Many of these parcels are owned by the Port of Bellingham and can be considered Public Land. This gives the advantage of not needing to spend the money necessary to acquire the land but instead being able to work out a deal with the city for its use as a temporary homeless community.

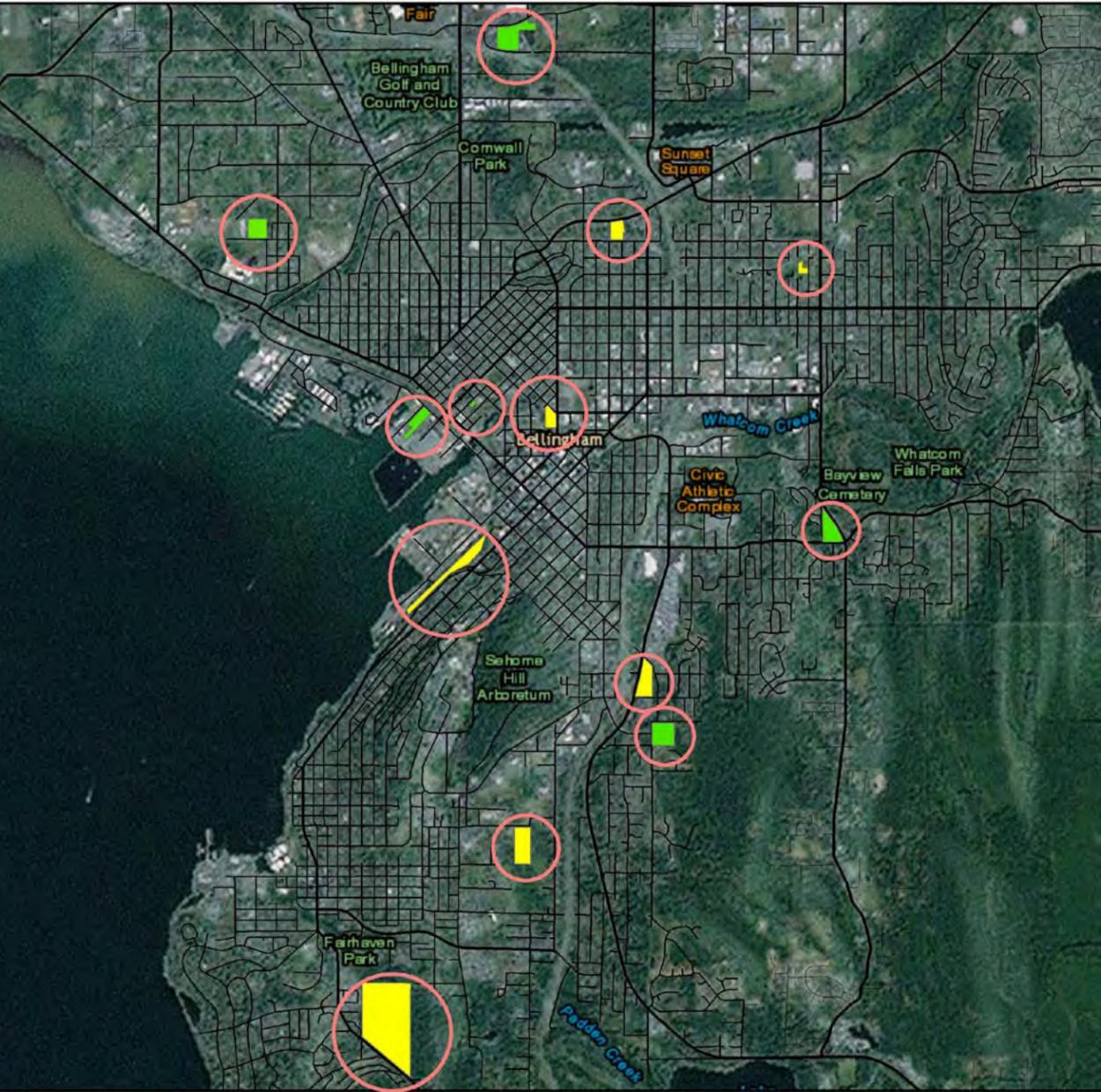
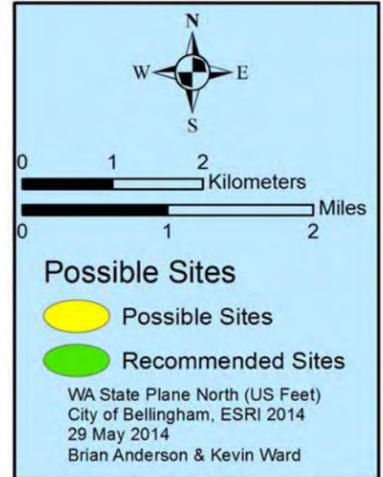
Marine Areas - Similar to the houseboats of Seattle, this community could be living on the water aboard boats or other seaworthy craft. These locations could harbor a diversity of live aboard boats, houseboats and floating houses.

Vacant Buildings - The advantage of this category is that shelter from the elements and utility are provided. The buildings at the locations would be temporarily outfitted with an indoor homeless settlement design.

Outdoor With Limited/No Infrastructure - The advantage to an outdoor site without infrastructure may be its potential. It could be considered a blank canvas ready to accept a variety of different design solutions. These sites also harbor the potential to contain a community completely off the grid.

POSSIBLE SITES LOCATED IN BELLINGHAM

This image displays local sites in context, chosen for their suitability to the criteria identified at the beginning of this chapter. Yellow sites are possible public and private areas that could be dedicated to community building, while green sites are the five specific locations identified later on in the design concept chapters.



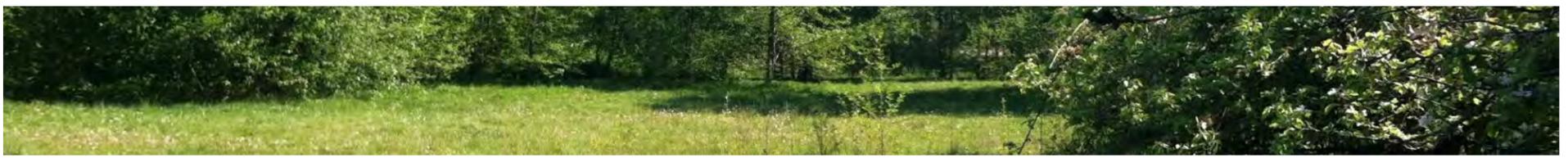
CONCEPTUAL SITES FIVE DESIGN LOCATIONS



Hilton Avenue



Lakeway Gardens



Elwood Heights



Old RV Park



Mercer Field

PROFILE OF CLIENTELE

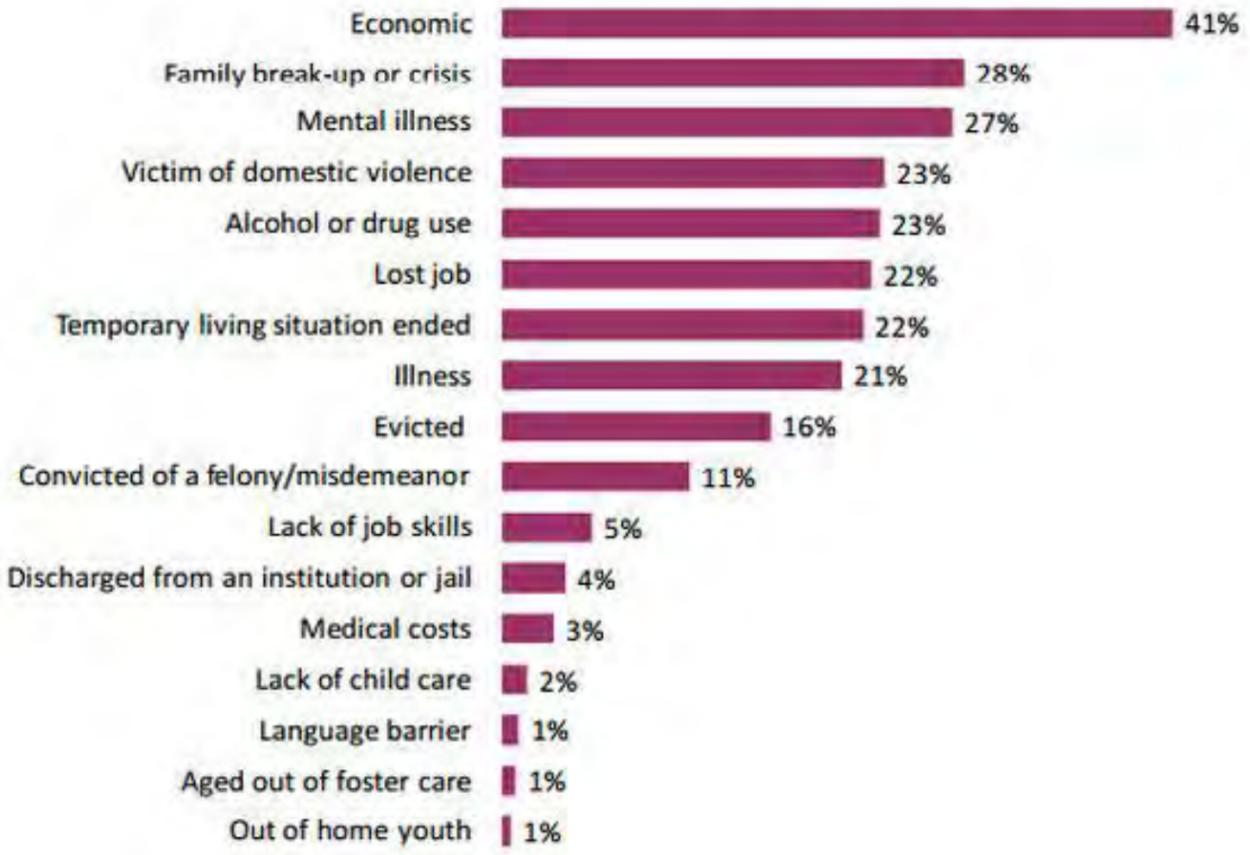
INTRO

With the goal of designing a transitional housing settlement for a diverse group of people who are currently homeless, a familiarity and understanding of the end user was required. A variety of approaches were employed to achieve this insight, including literature reviews, casual observations, and personal interviews with members of the homeless community, individuals working to end homelessness, and members of the business community. Furthermore, in an effort to avoid overlooking the needs of the client and designing a settlement that functions improperly, it was decided that an ethnographic study would shed light on the needs and desires of a population about which little was known; such research will steer the project's development process and the designs of housing and community facilities in a manner that is compatible with the lifestyle preferences of the users. In addition to aiding in design strategies, the findings have allowed us to recognize what capital assets and transferable skills these individuals already have (i.e., employment experiences, education, hobbies) so that they can build capacity amongst each other during the implementation stages, and make community contributions during and after their tenure at the transitional housing settlement.

HOMELESS POPULATION IN WHATCOM COUNTY

As of 2013, there are approximately 561 citizens in Whatcom County that have no place to call their home [1]. Due to a wide range of factors, individuals ranging in ages - from newborns to 73-year-olds - are struggling to find permanent housing establishments [1]. Whether this is a result from socio-economic

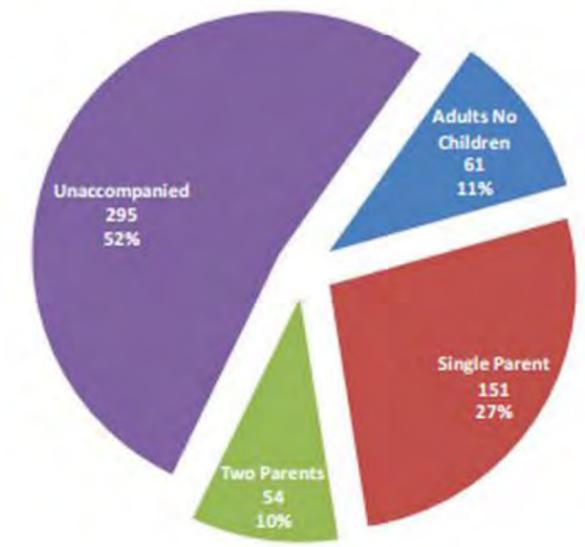
Reasons for Homelessness by Household (2013)



factors, displacement from family ties, mental and physical health issues, and/or substance abuse, such individuals and families are burdened with the responsibility of finding a place for eating, sleeping, and leisurely activities. (insert pic titled reasons for homeless) An identification of the social profiles of the homeless in Whatcom County and the reasons for their vagabondage are necessary to find and implement solutions to their current circumstances.

In Whatcom County 73% of the homeless are single citizens who are forced to endure a self-reliant lifestyle [1]. 133 homeless citizens are under 18 years of age, without a parental figure to seek guidance from [1]. 35 of the 561 displaced citizens were recently released from jail and are currently searching for a way to get back on their feet [1]. The median age of the dispossessed population in Whatcom County is 46 years old, and of the total homeless citizen population,

Homeless Persons by Family Type (2013)



277 of them have a disability and 31 are veterans [1]. 294 of the homeless are single individuals of which 151 are single parents [1]. 138 of the homeless folks are residing in emergency shelter facilities, 109 are currently in transitional housing, and 178 have been homeless for 12 months or more [1]. These statistics were based upon records at a specific time, meaning these number could only be estimates of the real number of homeless people in Whatcom County. A goal of this research was to look past the statistics and find what these people were experiencing and what they as individuals needed from the designers to make a livable community. The following case studies gave some of that insight that was then broken down into qualifiable information.

CATEGORIZATION - BREAKDOWN BY RISK

The homeless population of Whatcom County can be divided into four risk assessment categories: high, medium, low, and beneficial. High risk individuals

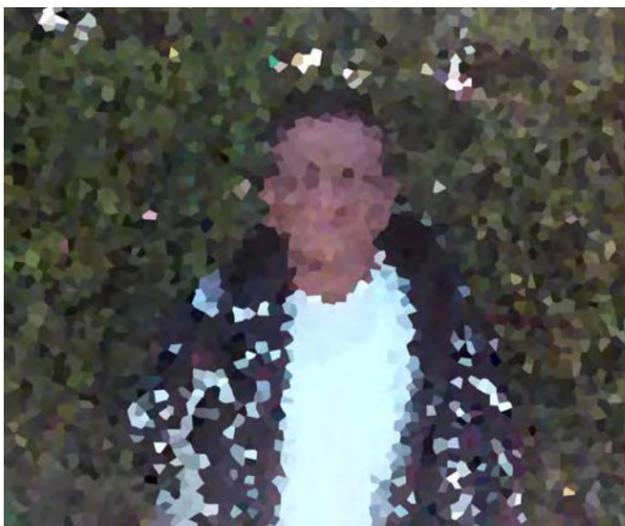
are those that are dangerous to themselves and others. These citizens are illicit drug users, those who suffer from chronic alcoholism, people with severe psychiatric problems, sex offenders, and individuals prone to inciting violence. Although these individuals have their issues, getting them into a home would help them become safer human beings.

Medium risk persons are citizens that are solely dangerous to themselves. These include dependent drug users, alcoholics, and citizens with minor psychiatric issues. The third category is low risk citizens that source negligible nuisances. These vexations include individuals that are recreational drug users and those that hoard belongings to a point of being classified as a degraded entity. Low risk citizens also have behavioral quirks like paranoia, obsessive compulsive disorder, and socially isolated lifestyles. The final group is beneficial individuals who execute positive actions towards their collective groups and society at large. Examples of beneficial citizens are social individuals with high social capital, motivated leaders and mediators, and technically competent persons.

VOLUNTEER COORDINATOR AT THE LIGHTHOUSE MISSION

The volunteer coordinator at the Lighthouse Mission, Jessica, was able to offer unique insight into how the diversity of clientele might affect the settlement. In describing a night at the Lighthouse Mission shelter, Jessica said that everyone shared one large room, and this posed no problems. This reveals that our proposed settlement should be able to accept anyone who is homeless, regardless of age or gender. Jessica also suggested limited entrance barriers to the settlement, and recommended an interview process to screen out any person that would not be a great fit for the settlement, or may need to seek other services.





Free Will, Robert, Jay, and Everett

In an interview with four homeless males, aged twenty to sixty, it was agreed that their ideal transitional settlement would be 'outdoorsy', contain community facilities like a kitchen, and that they would be able to drink alcohol. In fact, many homeless people stated that the alcohol free environment at the Light House Mission kept them from using their services. In addition, there exists an eagerness to learn skills that would help them live better and to be able to secure jobs. It was also implied that the settlement should offer privacy. (insert pic titled Robert (blackout) Privacy is an essential emotional need, and serves as an opportunity for rest and reflection. Privacy is hard to come by when you do not have a place of your own, and therefore will be an important component of any successful community. A sense of privacy is intertwined with the feeling of being secure, another indispensable element of a successfully functioning settlement that is sought after by the potential members of the homeless community.

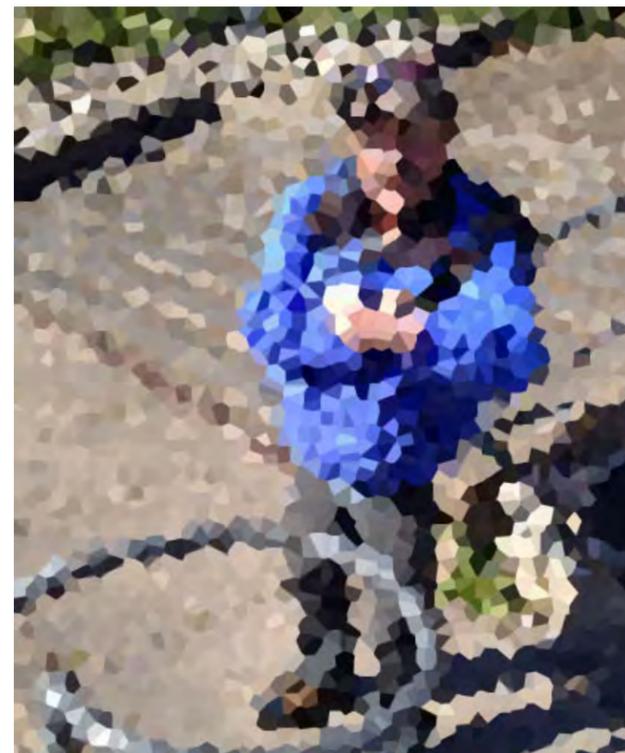


Sonny

After meeting with Sonny, an individual currently looking for work and a citizen without a home, it is apparent that he is a person of clarity working hard to get back on his feet. Sonny made it clear that he became homeless due to conflicts with his employers. After he was let go by these employers, he made it clear that he became lazy and stopped looking for work. Soon, due to not having a job, Sonny's life spiraled towards homelessness and he is faced with the situation he currently lives through daily. Staying at a friend's home in Bellingham, riding miles from interview to interview, Sonny still looks for a job. Although Sonny realizes that he is in his current situation due to his own mistakes, the fact that he does not have a family as a fallback leads to the conclusion why he is homeless. There isn't a doubt that due to Sonny's incredible work ethic, as displayed by his self-propelled commute to daily job interviews miles away, and positive outlook on life, he will soon find a job and a home and get his life back on the right track.

Alvin

Alvin was born Dec. 30th 1954 in Bellingham, Washington. He was raised in Everson where he lived for 30 years. His family operated a farm there with 50 acres right on the Nooksack - he used to drive Studebakers through the fields as a young man. He expressed that his father was "destructive" and that he went astray at 19. He signed up for the Marines and after finishing the writing test, he lasted 11 days in boot camp. His parents are still alive and he mentioned that he recently saw them for their 60th anniversary. He explained that he has spent time in psychiatric wards on multiple occasions and that he even worked at a naval hospital in Palo Alto. During the time of the interview, he explained that he had been sick with the fever and hadn't spent much time outside of his motel room at the Aloha Inn - a place where voucher programs have allowed him to stay with subsidized ("specialized") rent. In his spare time, he watches television in his room and plays his 12-string guitar. Before his tenure at the Aloha Inn, he spent time living at other motels and along the Lincoln Creek trail behind the Fred Meyer (aka "the Jungle"), where he camped out to live five years ago. He explained how people are always running in and out of that area and how he had his Yamaha acoustic guitar stolen from him there. Alvin owns a mountain bike as well as a WTA bus pass. He appears to be a resourceful man, having acquired his bike from the HUB and getting meals from the Lighthouse Mission. He explained that he has experience with electronics, fixing tube amps, television sets, and other appliances. He has some educational background in electronics from Bellingham Technical College (1972 - 1973).



Craig

Craig is a homeless resident in Bellingham who is originally from San Jose, California. He is 52-years-old and he has spent the last 20 years in Washington State. He used to sleep along Whatcom Creek near Maritime Heritage Park where he explained that he had some of his possessions stolen from him. He said, "It's gone. I can't control it - its over. Someone else needed it more than me." Despite this, he still feels that Maritime Heritage Park is a safe place to be because you can surround yourself with good people. At one point he was employed by Heritage Electric out of Campbell, California. He worked a lot of jobs

as an electrician at residences throughout Woodside and Palo Alto - he even did a job for Bill Walsh, the former head coach of the San Francisco 49er's and the Stanford Cardinal Football team.

DOWNTOWN BUSINESSES

To ensure that the public was well represented, businesses were asked to speak about the homeless situation in Bellingham. Everyday Music is in close proximity to the WTA Bellingham station which makes it a destination for transient individuals. Two employees revealed their experiences of encountering the homeless while working at Everyday Music. Potential customers were reluctant to enter Everyday Music due to the crowd of homeless citizens that are believed to be participating in an "open-air drug market". This barrier to customers, combined with incidents of indecent behavior and disorderly conduct, has a detrimental effect on Everyday Music's business operations. Both employees gave positive responses to the proposed temporary homeless settlements. They believe that a safety net for high risk individuals and a safe and supporting community are paramount for the successful transition out of homelessness.

The manager of the Horseshoe Cafe, a small restaurant that remains open 24 hours a day in the heart of downtown Bellingham, explained that the Horseshoe is frequented by a variety of patrons, including the transient population. The manager, who also volunteers at a local men's homeless shelter, described his experiences and gave recommendations for a transitional housing settlement. "They only wanted to sleep, but getting eight hours is hard. At the center they must be out by 6 A.M." He expressed his dissatisfaction with the drain of public resources on utilizing police officers to throw homeless citizens into jail. He presumes that a transitional homeless settlement will help dissolve



the "us and them" social barrier, as long as it is "like a neighborhood".

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County, Whatcom. "Whatcom County Coalition to End Homelessness 2013 Annual Report." A HOME FOR EVERYONE - Whatcom County Coalition to End Homelessness 2013 Annual Report. Bellingham: Whatcom County, 2013. . Print.

RESEARCH: COMMON FACILITIES

PHYSICAL FACILITIES

Community facilities encompass a significant portion of any housing settlement. There are a multitude of basic, daily necessities that any individual resident of a community requires, but specifics will vary greatly depending on the site and qualities of the specific settlement. The biggest decision is whether to create individual private amenities, shared facilities, or to rely upon offsite facilities. For example, individual bathrooms may not be necessary if a common building were utilized and all bathrooms were consolidated together in a single location. The following is an overview of physical assets and facilities that should be considered.

Water is the fluid of life so it's logical to start there. The bare minimum necessities should include bathrooms, sinks, showers, laundry space and kitchen space. When considering numbers, 4-6 individuals per bathroom is a good baseline to start, with fewer facilities necessary for laundry and other shared tasks. In the kitchen, the amenities could be comprised of a sink, stove, microwave, refrigerator, and more kitchen appliances as necessary. This can also be augmented by storage spaces such as a pantry, cupboards and a root cellar. If privacy is a concern these spaces can be lockable. If possible, it seems that utilizing user-friendly appliances could be helpful. Many of these newer appliances, like coffee makers, irons, clock radios, copiers, printers, curling irons and computers, feature automatic shut offs. This feature could prevent health and safety issues that may arise with individuals not accustomed to using standard appliances.

Additionally, a large covered space for social events and gatherings is a recommended asset. The shared space could be fully enclosed or just an outside canopy. A classroom, or continuing education/multi-use space, could be used for many different things like

nutritional consultation, yoga, counseling, job seeking workshops, and resume building. A head office or administration room could be used to help with facilities organization, family/tenant requests, filing complaints, and other organizational functions. This office could either be staffed by an external hired individual(s) or self governed by residents. Community communication is very important and could be maintained using a blackboard/whiteboard to share information. Additionally, a community phone, voicemail system, and computer(s) with internet access would provide community members with the linking capital that is heavily relied upon in today's society.

After initial necessities have been addressed, additional amenities could be included based on budget and needs. The following is just a sample of items that could be included: library, personal or shared garden areas, visitors quarters with cots, a separate room or small private space (that could be used for medical care or job/legal consultation), a phone/computer room with internet access, a work bench area, and/or picnic benches for outside seating. Additionally, a "Take it Or Leave It" type space for donations, a drop off location for local non-profits, community groups, and faith-based organizations, and/or a virtual furniture bank (Opportunity Council's idea) could help furnish residents' rooms. Potential recreation components could include: a playground for kids, horseshoes, basketball hoop/court, pool table, ping pong table, soccer field and the like.

For transportation, the common facility could provide on-site parking for both residents and visitors. Tapping into public services like the Washington Transit Authority (WTA), ride shares, and local school busses provide vital transit links. The WTA offers Reduced Fare Cards if at least one of the following is met: possession of a valid Medicare card, proof of Social Security income eligibility, valid Veteran's Affairs (VA) Identification with at least 40% disability and those 65 years of age and older. The Reduced Fare Card or a Medicare Card can



be presented on fixed route or flex buses to receive a 50% cash fare discount. Additionally, WTA transit buses accommodate people who use wheelchairs and who have hearing and sight disabilities. Busses are a fantastic asset, but many other options exist too. Bicycles are already a common choice for many homeless individuals. To help support and promote this low cost and practical solution, a bike rack, ideally with a covering as shelter, should be included at the facility location. To incentivize this mode of transport even further, a bike share program could further help promote independence for the homeless, while reducing reliance on motor vehicles and increasing freedom of mobility when bus transit schedules are limited, like on nights and weekends. Additionally, cycling provides many health benefits. Washington DC, Oregon, and Florida have all successfully implemented similar programs, just to name a few. Bellingham already has potential partners such as the Hub Community Bike shop, Everybody Bike (everybodybike.com), Smart Trips (whatcomsmarttrips.org), and over half a dozen local bike shops. In locations with a proximity to local greenway trail systems, encouraging biking and walking both can have enormous benefits to residents. Food is also a daily necessity with varied options for meal provision on a communal scale. Meals could be potluck-style on a regular basis with residents expected to participate in group preparation in order to share meals, possible rotating a weekly schedule. There's potential for partnership directly with the Bellingham Food Bank and local restaurants and organizations that are already in the habit of donating excess food. Other available partner include organizations like Joe's Gardens and the community Co-op, both for food growing advice, meal preparation and nutrition classes.

SERVICES

Community facilities provide a vital hub for the wellbeing of a settlement community's residents. At its base, a communal building is an access point for residents to utilize basic necessities like a large kitchen space

and pantry, laundry area and the full range of water-based amenities. Physical features alone don't create a thriving community however. The services offered by a strong neighborhood provide vital connections to the larger Bellingham community, whether they are internalized features offered on-site or part of a network of externalized services offered to residents of these and similar communities.

The first type of services and arguably the most important category are health-based. Though there are some resources available for low-income residents to receive treatment for various conditions, these facilities can be challenging to access or if not well-advertised, unused by populations who particularly need this type of guidance and services. Providing both an on-site meeting space to offer services, and a community blackboard with an updated calendar to advertise the multitude of services available in the greater community constitute a two-part benefit housed in a central communal hub. For women of childbearing age, the "Born in Bellingham" website outlines resources provided at low to no cost for new moms and moms-to-be. The Whatcom County Pregnancy Clinic downtown has a no-cost ultrasound program for qualifying patients, resources for discussing pregnancy options and the Clinic's free "Earn While You Learn" program acts as a hub to provide information on childbirth, development, parenting help and nutrition for moms and newborns. Once participants have fulfilled the learning requirements, they earn "Mommy Money" or "Daddy Dollars" to spend on supplies housed in the Clinic's Shoppe. The YWCA's "Back to Work Boutique" offer free clothing for women seeking employment to be interview-ready. The ParentHelp123 site offers access to local low-cost clinics, family support and other resources.

Additional services for all residents could aid in supplying holistic care to address diverse health needs. Scheduled counseling would provide one-on-one or group help for recent veterans, families struggling with divorce, those in rehab for drug or alcohol treatment

and others. A well-rounded picture of wellness provides non-medical services too, so offering yoga and wellness classes in a small classroom or continuing education space in the communal facility would be a future goal. There are already groups in the community such as 3OMS Yoga offering weekly by-donation classes, so perhaps teachers from these groups could aid in supplying such service resources for the community's residents.

Ideally, the community facility would house an on-site health resources space in the future, so residents could receive basic medical care, nutritional consultations and other services on a weekly or monthly basis from visiting health care experts, counselors and the like. In the meantime, the health and wellness resources available in the Bellingham community are vast and can provide the basis for meeting these needs when residents are appropriately aware and connected. A second important service in need of provision, one at the root of the struggle for a large majority of homeless individuals, is economic-focused aid, especially emphasizing job creation. One resource available to Bellingham residents is LAW: Legal Assistance by Whatcom Advocates which has an Access ID project to help individuals through the process of acquiring an official state ID as well as obtaining disability benefits. LAW also offers free, bimonthly legal advice drop-in clinics at the Bellingham Public Library. Other resources for job-creation are offered through Opportunity Council, such as financial literacy and renter education classes, employment case management support, work first employment programs and the Fresh Start Espresso, a coffee shop that provides on the job training to help gain skills and find employment.

Those seeking employment need access to a working phone and computer with internet access so as to keep-up-to-date and reachable should jobs become available. The community facility would hopefully house at least one internet-connected computer with sign-up

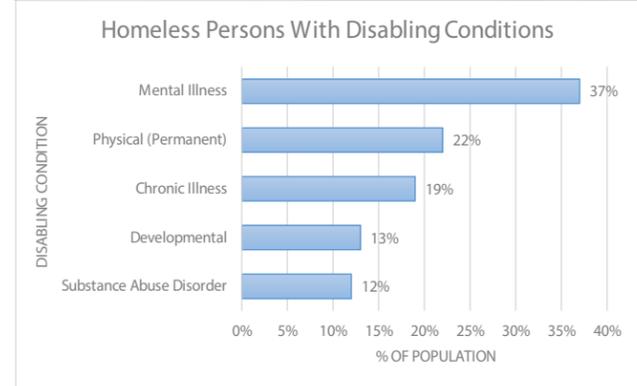
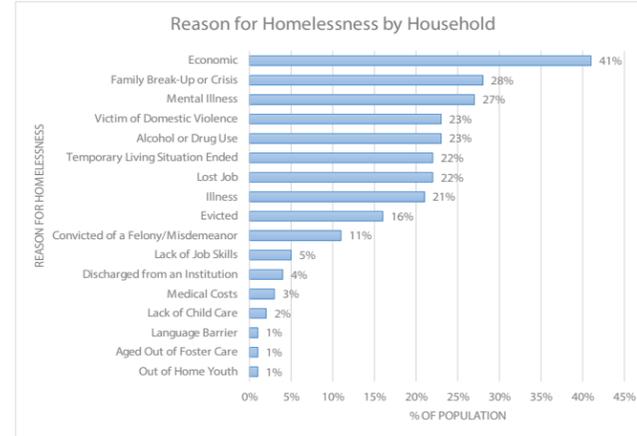
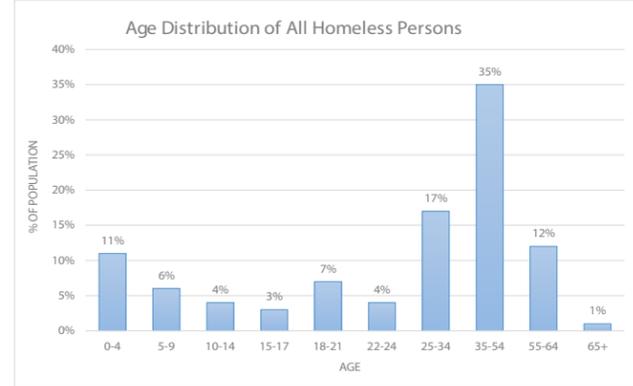
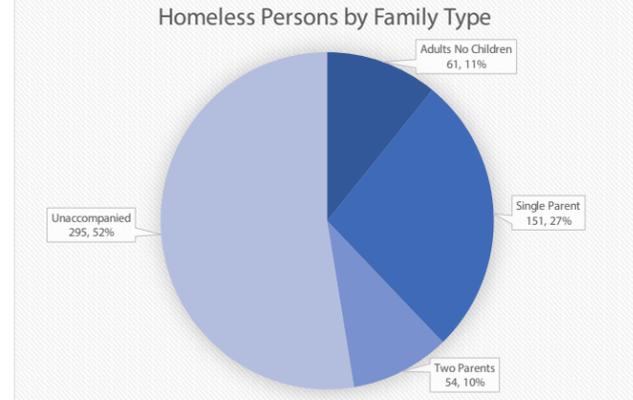
slots, as well as a number of shared phones tied into the Community Voicemail system. To help those who aren't yet computer-literate, Work Source on Prospect St. provides classes on email, Excel and basic literacy, as well as those to help with interviewing and resume writing techniques. Periodic job fairs and aid for those seeking re-employment after being laid off are additional services housed here. Another downtown resource, the Lighthouse Mission on Holly, provides a drop in center from 12-4:30 for trainings through Salvation Army and Good Will.

Additional services encompassed in the communal facility might include gardening and food-based workshops to help families increase their own food security. A potential partnership with WWU Service Learning could aid with site tasks, especially in the first few months of startup. Offering housing and renter-education workshops would aid families transitioning out of their communities into more permanent housing situations.

PRIORITIZING NEEDS

At one point in time during January 2013 there were 561 homeless people (396 sheltered and 192 unsheltered) in Whatcom County. Of those, 295 were unaccompanied adults, 151 were single parents, 54 were two parents and 61 were adults with no children. All of the statistics in these four paragraphs are taken from the 2013 A Home for Everyone: Whatcom County Coalition to End Homelessness Annual Report. The age of the homeless varied, but a majority were adults and 50% were males and 50% were females. With a limited amount of physical and service based resources and such a large number of homeless we will need to prioritize which resources are going to be the most needed so there will be enough to go around.

There are some resources that are equally important for all homeless people. A basic need is stable housing.



There are a few options for the homeless of Whatcom County, and the Opportunity Council and Catholic Community Services are two programs that help get people into safe homes. Resources that would help generate income and benefit those seeking employment are very important since the top two reasons for homelessness in Whatcom are "economic" and "loss of job". Some resources on ways to help get a job are listed in the paragraphs above. General health care is also a must to be able to provide for our communities so people can stay healthy. In these proposed communities there will likely not be enough funding to have the physical facilities of a normal home, so it's important to prioritize. As mentioned above, water-based physical facilities would be the most important, such as bathrooms, showers and sinks. Also a community building would be crucial so all of the residents could gather and have meetings or shared meals while fostering community building.

There are a large number of homeless families in Whatcom and children under the age of 18 make up 24% of the homeless population. Families have unique health needs, as with busy schedules parents may be unable to carve out the time necessary for adequate wellness when caring for one or more young children. Pregnant women have ongoing needs including scheduled ultrasounds, checkups and other wellness measures. Education for the children is necessary so that a community's proximity to schools and bus routes will need to be taken into account to maintain regular school attendance. As far as physical facilities are concerned, the homes that are being designed for the families will need to be larger and have more resources inside to be able to accommodate a greater number of people. A private bathroom with a toilet and shower would be great for each housing unit as well as kitchen area with some appliances to be able to cook meals for the family. Also a living room area would be important for family gatherings. Pregnant women also have

special health care needs that would sometimes need to be very urgent, so easy access to facilities for this population would be crucial.

A large number of the Whatcom homeless also have disabling conditions such as mental illness, permanent physical damage and chronic illness. These individuals would need easier access to specialized health care resources. These conditions may prevent them from getting jobs or having a steady income, so providing services to provide income, possibly from government sources, would be crucial. Counseling services would also be important for this population, especially those with mental illnesses, so having these resources onsite would be very helpful. There was a correlation between mental illness and substance abuse, and it was found that 24% of people that reportedly had a mental illness also had a problem with substance abuse. Counseling services would also be important for those with substance abuse as well as health services that help people maintain control of their health. As far as physical facilities go, a community area would be important so there would be a place for people to gather and do group activities. Another group that could fall into this category of needing a sense of community would be individuals that have had trouble with domestic violence. 23% of the Whatcom homeless reported that one of the reasons they were homeless was because of domestic violence issues. This group would also need access to counseling services, and it would be crucial for them to be part of a community where they would feel safe and comfortable.

RESEARCH: SANITATION AND INFRASTRUCTURE

ELECTRICITY

GRID CONNECTION

Perhaps the most reliable and economical option for electricity access is to simply connect to the power grid. If the community is located within, or close to the city limits, it is likely that a power pole is located nearby for connection.



To avoid unnecessary cost and complications, a temporary power service may be requested. Temporary power is often used in the construction industry and allows for 110v and 220v extension cables to be run from a centrally located power meter, circuit breaker, and outlets provided by the utility company or electrical contractor.

ALTERNATIVE ENERGY

Alternative energy options may be considered if there is no electricity connection readily available, or the community is looking to eliminate or reduce the variable monthly cost of an electricity bill.

Solar panels and small-scale wind turbines are both viable options for raw energy production. A proper system will require solar photovoltaic panels and/or a wind turbine, a battery bank, a charge controller, and an inverter. Some electrical amenities, such as a food cooler, fan, or cell phone, can be connected straight to the 12v battery bank and will not require an inverter. Televisions, computers, and standard lighting will require an inverter. An alternative energy system will Both systems would require a more substantial upfront cost, but that cost comes with the benefit of eliminating an electric utility bill.



SOLAR PANELS

Solar Panels are becoming an increasingly more efficient and less expensive method for producing electricity. During cloudy conditions that frequent NW Washington, solar photovoltaic cells will continue to collect energy, although at a reduced rate.

Solar panels are easily mounted on top of most any type of structure, and for increased mobility, a solar system can be self-contained within a trailer.

WIND TURBINES

Small-scale wind turbines work very well in conjunction with solar panels. They can be integrated into the system, and have the advantage of provide a supple of energy at night and when solar panels are producing at a reduced rate.

Wind turbines should be elevated as high as possible to collect the most energy. A metal pole braced to the ground with cables is an inexpensive method for mounting a turbine, or if available, trees are often used to elevate wind turbines.



WATER

An adequate supply of fresh clean water is essential for the health and wellbeing of any community. Ensuring that this necessary amenity is safely and reliably supplied requires adaptable and scalable solutions that can be custom designed for unique site specifications. There are many alternatives that present options for accommodating communities of any size and delivery techniques for handling water quality concerns.

When negotiating off-grid scenarios, it is important to distinguish “potable” water from “non-potable” water. Potable water is safe enough to be consumed by humans while non-potable water is not. However, non-potable can be used for irrigation and other uses where it is not consumed.

ACCESS - MUNICIPAL SUPPLY

Like utilizing the existing power grid where it is available, the most reliable and economical option for supplying water is to simply connect to the municipal water network when possible.

If the community is located within the city limits and privately owned, accessing the existing infrastructure provides the most logical solution. Municipally supplied water is clean, safe, and requires minimal improvements to infrastructure and no filtering or other treatment to insure its potability.

DELIVERY AND STORAGE

Drinking water holding tanks provide the next-best solution in locations where municipal access is not feasible. Holding tanks may be used to store imported water and/or water harvested on-site. They are available in multiple sizes, styles and fabrics to accommodate the needs and requirements of outdoor, indoor and long-term storage.

Option	Pros	Cons	Notes
Power Grid 	No maintenance Unlimited energy Low upfront cost	Monthly costs Site determines access Service may not exist	Temporary connection may be available
Solar 	No monthly cost Off-grid power for remote sites Mobile	High upfront cost Limited energy Dependent on solar gain Requires maintenance Requires labor/materials	Off grid
Wind 	No monthly cost Off-grid power for remote sites Mobile	High upfront cost Limited energy Dependent on wind Requires maintenance Requires labor/materials	Off grid

With style options ranging from plastic tanks to flexible storage units, these tanks can provide successful drinking water storage where it's needed most. Food Bank and local restaurants and organizations that are already in the habit of donating excess food. Other available partner include organizations like Joe's Gardens and the community Co-op, both for food growing advice, meal preparation and nutrition classes.



RAINWATER CATCHMENT

Rainwater harvesting is the accumulation and deposition of rainwater for reuse before it reaches the stormwater system. Typically, rainwater is diverted off the roofs of structures such as houses, sheds, or other buildings. Uses include water for garden, water for livestock, water for irrigation, and indoor heating for houses etc.



The water collected may be redirected to larger storage tanks. The harvested water can be used as drinking water as well as for storage and other purpose like irrigation. In most cases, water harvested in this way must be treated to be potable.

GROUNDWATER WELL

A water well is an excavation or structure created in the ground by digging, driving, boring, or drilling to access groundwater in underground aquifers. The well water is drawn by a pump and consumed as it is pumped or stored for future use.



Wells can vary greatly in depth, water volume, and water quality. Well water typically contains more minerals in solution than surface water and may require treatment to ensure potability and/or soften the water.

TREATMENT

CHEMICAL

Chemical treatment is accomplished both by filtering out

harmful micro-organisms and also by adding disinfectant chemicals. Water is disinfected to kill any pathogens which pass through the filters and to provide a residual dose of disinfectant to kill or inactivate potentially harmful micro-organisms in the storage and distribution systems.

The most common disinfection method involves some form of chlorine or its compounds such as chloramine or chlorine dioxide. Chlorine is a strong oxidant that rapidly kills many harmful micro-organisms. This method is used by local water utility agencies but requires special training and the handling of toxic chemicals.

ACTIVE FILTRATION

Reverse osmosis (RO) is a water purification technology that uses a semipermeable membrane. This membrane technology is not properly a filtration method. In reverse osmosis, an applied pressure is used to overcome osmotic pressure, a colligative property, that is driven by chemical potential, a thermodynamic parameter.

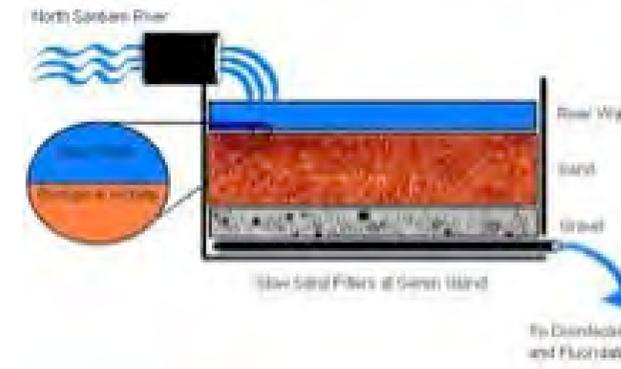
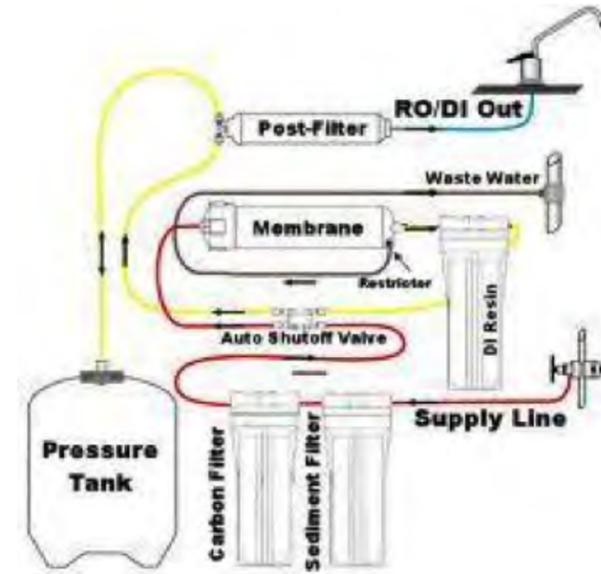
Reverse osmosis can remove many types of molecules and ions from solutions, and is used in both industrial processes and the production of potable water.

PASSIVE FILTRATION

Slow sand filters may be used where there is sufficient land and space, as the water must be passed very slowly through the filters. These filters rely on biological treatment processes for their action rather than physical filtration.

The filters are carefully constructed using graded layers of sand, with the coarsest sand, along with some gravel, at the bottom and finest sand at the top. An effective slow sand filter may remain in service for many weeks or even months and produces water with a very low available nutrient level which physical

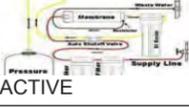
methods of treatment rarely achieve. for all homeless people. A basic need is stable housing.



WATER ACCESS

Option	Pros	Cons	Notes
 BAGS	<ul style="list-style-type: none"> • Portable • Collapses • Scalable 	<ul style="list-style-type: none"> • Expensive • Large Footprint • Need to be maintained • Need to be cleaned • Water must be imported 	<ul style="list-style-type: none"> • Could be installed under superstructure • Multi-purpose • Solar gain
 HOLDING TANKS	<ul style="list-style-type: none"> • Portable • Scalable • Low Maintenance 	<ul style="list-style-type: none"> • Expensive • Need to be cleaned • Water must be imported 	<ul style="list-style-type: none"> • Extremely long life • Multi-purpose • Solar gain • Above or Below Ground
 CATCHMENT	<ul style="list-style-type: none"> • Free • Grey Water Systems 	<ul style="list-style-type: none"> • Must Be Treated 	
 MUNICIPAL	<ul style="list-style-type: none"> • Easy • Constant supply • No servicing 	<ul style="list-style-type: none"> • Service may not exist • Service may not be sufficient (not scalable) 	<ul style="list-style-type: none"> • Well

WATER TREATMENT

Option	Pros	Cons	Notes
 MUNICIPAL	<ul style="list-style-type: none"> • Easy • Potable • Cheap 	<ul style="list-style-type: none"> • Requires Infrastructure 	
 ACTIVE	<ul style="list-style-type: none"> • Portable • Scalable 	<ul style="list-style-type: none"> • Expensive • Maintenance Critical • Water must be imported 	<ul style="list-style-type: none"> • Off-Grid
 PASSIVE	<ul style="list-style-type: none"> • Easy to Build 	<ul style="list-style-type: none"> • Suspect Water Quality 	<ul style="list-style-type: none"> • Off-Grid
 CHEMICAL	<ul style="list-style-type: none"> • Cheap • Any Water Anywhere 	<ul style="list-style-type: none"> • Myths about Technique • On site chemical storage 	<ul style="list-style-type: none"> • Off-Grid

HEATING SOURCES

Heat is a very important aspect of any community especially in the Pacific Northwest where there is often a long cold damp rainy season.

Heat can come in many forms from blankets to electricity to a camp fire. AS a group the class looked into a few different options for heating the home that are designed.



PROPANE - \$4-5 per week



RADIANT SOLAR - \$2,000 / HOME



BLANKETS - \$15-20



ELECTRIC -12 CENTS PER KW



ELECTRIC -- Solar panels--\$150-300 per panel

Option	Cost	Benefits
Blankets	\$15-20	One time Cost
Solar/Wind Batteries	~\$350	One time cost
Propane	\$4-5 per week	Cheap and easy to hook up
Electricity	12 cents per kilowatt hour ~\$5 per week	Cheap and easy to hook up
Mini Split	~\$1,000	One time cost
Radiant Solar	~\$2,000	One time Cost
Solar Panels	\$150-300 per panel	One time cost

SHOWERS AND TOILETS

Often taken for granted, these utilities can vastly improve the quality of life for transient people. There is also a variety of options available that vary by cost or by the site selected.

SHOWER OPTIONS

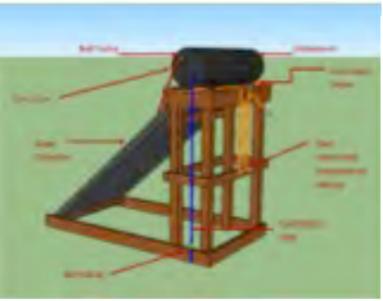
A PORTABLE SHOWER TRAILER- Initial higher capital expenses may deter some, but the benefits of a prefabricated mobile shower trailer more than make up for the upfront cost. Renting or leasing a small trailer can be upwards of 1,000 dollars a month or a used shower trailer can be purchased for a few thousand dollars depending on its condition.

These trailers come in a variety of options and sizes. They require a source of water, power and a way to dispose of wastewater. They come ready to use and can be set up or taken down in a moments notice. They provide all the comforts of a regular shower with the

added benefit of mobility.

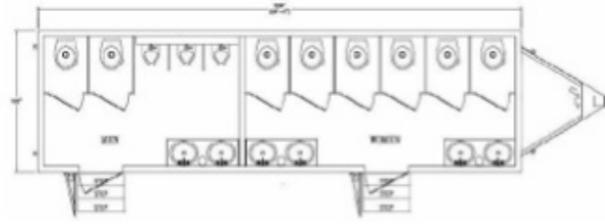
SOLAR CAMP SHOWER- Small camp showers can be both cost effective and sufficient for the needs of a small group. They come in a variety of designs each with their pros and cons. A simple camp shower could be built for under one hundred dollars.

A very basic solar heated shower bag can be purchased for less than twenty dollars. This option is cheap, but it does have drawbacks. For one, they serve far fewer people. Another drawback is that if they are solar heated, people will be taking many cold showers in this climate.



TOILET OPTIONS

PORTABLE TOILET TRAILER- As with the shower trailer, this option has higher upfront capital expenses. And again, it would need a water and power source and also a method to dispose of sewage. These trailers are easy to setup and maintain however. They can quickly provide an essential utility. They come in a variety of sizes. There is even the option to have a complete bathroom trailer that would completely serve the needs of a small community all within one trailer.



COMPOSTING TOILETS- This option is cheaper and requires little in terms of infrastructure. A composting toilet can be built for a few hundred dollars. They require no water or sewer connections. They can also be used to compost food scraps. The drawback to these is that they require periodic maintenance and can only service a few people.

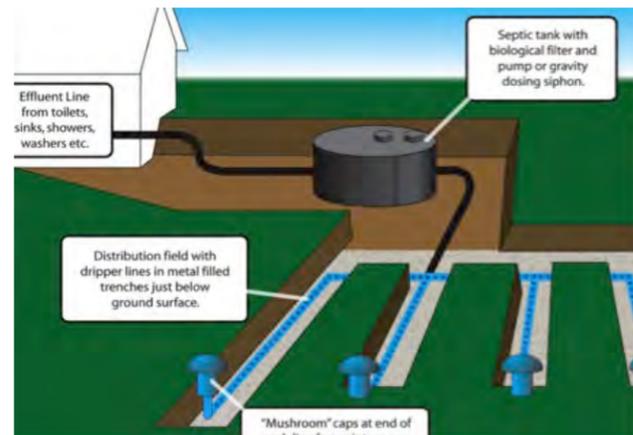
Toilets & Showers	Pros	Cons	Details
Shower trailer	<ul style="list-style-type: none"> scaleable easy setup highly mobile 	<ul style="list-style-type: none"> requires outside connections high capital expense 	<ul style="list-style-type: none"> On-grid
Solar Shower	<ul style="list-style-type: none"> minimal capital expense easy setup saves water and electricity 	<ul style="list-style-type: none"> no sun = no hot water limited water only good for few people 	<ul style="list-style-type: none"> On or Off-grid many different designs
Porta-johns/ Toilet trailer	<ul style="list-style-type: none"> scaleable easy setup highly mobile 	<ul style="list-style-type: none"> requires external water or waste management medium capital expense 	<ul style="list-style-type: none"> On-grid either single occupancy or trailer 10 people per week
Composting Toilet	<ul style="list-style-type: none"> no external hookups provides compost minimal setup 	<ul style="list-style-type: none"> periodic maintenance ineffective in colder temps 	<ul style="list-style-type: none"> On or Off-Grid needs to be aerated

WASTEWATER SOLUTIONS

One of the most burdensome infrastructure needs of a community is what to do with sewage and wastewater. Dealing with raw sewage can be hazardous to the environment and it can be a human health risk as well. Luckily, there are a couple of good solutions to this.

TAP INTO SEWER LINES

Perhaps the easiest and most effective is to make use of existing municipal sewage lines. If a site is within city limits, this can often be a viable solution to a communities sewage disposal issue. For a multi-family sites in Bellingham, sewage disposal rates are under one hundred dollars a month.



HOLDING TANKS WITH PRIVATE PICKUP
When tapping into the sewer lines is not an option, wastewater can be held in storage tanks. A private sewage pumping service would then have to come and periodically pump out the tanks. This option can get rather expensive, but it requires little in terms of sewage infrastructure. Holding tanks range in size and can be as cheap as a few hundred dollars. Pumping services are expensive though and can run as much as a couple hundred dollars per pump session.

WASTEWATER REUSE

In certain setups, water that doesn't contain raw sewage, such as from showers and sinks, can be reused to flush toilets or for other purposes. This greatly reduces the amount of water consumed and the wastewater produced at a site. It requires more complicated infrastructure and therefore the cost of implementing this system can be high.

SEPTIC SYSTEM AND LEACH FIELD-

Where possible, the use of septic tanks and leach fields can be very effective. These systems require minimal maintenance and can serve the needs of a community with little disadvantage. They tend to only be allowed outside of city limits and often require a large empty area for the leach field, so sites capable of using this are few.



Wastewater	Pro	Cons	Dets
City Hookup	<ul style="list-style-type: none"> easy no maintenance 	<ul style="list-style-type: none"> requires existing infrastructure 	<ul style="list-style-type: none"> On-grid
Private Pump Truck	<ul style="list-style-type: none"> easy no maintenance 	<ul style="list-style-type: none"> high capital expense requires periodic pickup 	<ul style="list-style-type: none"> On-grid or off-grid if accessible
Septic/ Leach Fields	<ul style="list-style-type: none"> self contained minimal maintenance 	<ul style="list-style-type: none"> needs space groundwater contamination concerns 	<ul style="list-style-type: none"> Off-grid
Graywater reuse/ onsite treatment	<ul style="list-style-type: none"> saves water most sustainable 	<ul style="list-style-type: none"> more complex onsite infrastructure 	<ul style="list-style-type: none"> Off-grid or certain conditional on-grid

WASTE MANAGEMENT

WHATCOM COUNTY

Whatcom County is serviced by the Sanitary Services Company (SSC), who provide a variety of recycling and garbage options. It's a private company with 3 recycling centers and transfer stations throughout the county. The services they provide include the disposal of household garbage, medicines/sharps, electronics, scrap paper, newspaper, bottles/cans/plastic, cardboard, and Food-Plus! Composting.

The wide variety of services and pickup plans allows for a lot of flexibility in the overall cost and options of

a given site. Size options also vary greatly, from small household pickup to large dumpster service. Education and encouragement of proper sorting will be important for the cleanliness of the site.





COMMUNAL WASTE

Communal waste should be encouraged whenever possible for the sake of accountability as well as reducing the overall cost. Large dumpsters for trash and recycling sorting stations are both important for the health of the site.

CREATIVE RE-USE

Creative re-use is an interesting alternative that provides a productive use of spare time and an opportunity for many unique solutions.

Potential uses include artwork, housing insulation, containers, furniture, and games among others. The image (right) shows the use of old tires as flower planters.



GENERAL INFRASTRUCTURE RECOMMENDATIONS

MINIMIZE ENERGY CONSUMPTION TO VITAL COMMUNAL AMENITIES.

Vital amenities may vary for each situation, but we can look to other transitional communities for an idea. "Dignity Village" in Portland, Oregon provides their residents with communal outlets for charging electronics, food refrigeration and preparation facilities, internet access, and hot water for showers.

CENTRALIZE ENERGY AND WATER CONSUMING AMENITIES TO THE COMMUNAL FACILITIES.

Centralizing electricity access will reduce the up-front and monthly cost of electricity. Eliminating the cost of labor and materials to wire and plumb individual housing units reduces up-front costs, and allows for water and energy consumption to be monitored in central areas.

flush toilets or for other purposes. This greatly reduces the amount of water consumed and the wastewater produced at a site. It requires more complicated infrastructure and therefore the cost of implementing this system can be high.

FOOD PRODUCTION AND SELF-HELP

COMMUNITY GARDEN

A community garden can be used as a stepping stone to reintegrate homeless back into society. Incorporating a community garden into a transitional housing site provides many benefits to its residents. A garden both nurtures and requires nurturing; this results in a therapeutic atmosphere while providing residents with the opportunity to develop a diverse skill set. The skills residents obtain by caring for a garden will play an essential role in securing their future out of homelessness.

Benefits of having an on-site garden:

- On site therapy
- Life skills development, social & character education
- On-site employment experience
- Food production



ON SITE THERAPY

It is of the utmost importance to get struggling individuals off of the street and provide them with a stable environment which promotes personal development. An onsite garden can help support and improve an individual's psyche by providing a therapeutic and nurturing environment.

According to the Substance Abuse and Mental Health Services Administration, 20-25% of the United States homeless population suffers from a form of severe mental illness [Hackett, 2014].

In Portland, Oregon, the Legacy Therapeutic Gardens uses garden environments to provide therapy for depression and anxiety [Legacy Health]. Providing quiet, green and stable environments is important for the personal development of these people. According to Theresa Hazen, the coordinator of Legacy Therapeutic Gardens, "Gardening stimulates the mind in a positive and creative way and helps increase socialization skills and promotes working as a team if gardening is in a group atmosphere."



LIFE SKILL DEVELOPMENT, SOCIAL & CHARACTER EDUCATION

A transitional housing community which offers its residents the opportunity to develop skills while providing services that can help the residents apply them, is a system built for success. It is recommended that the transitional housing community residents are encouraged to help maintain the garden, this instills a sense of responsibility and will act as a safe, consequence free "work-like" environment. An on-site work-like environment promotes and stimulates leadership, life and technical skill development, as well as social and character education.

Instilled life skills:

- Responsibility
- Leadership
- Time management
- Teamwork
- Home economics

Providing these services for struggling individuals will help bring them back to the realities of living out of homelessness. Building upon their sense of self worth and mental health, a garden, no matter how big or small, is an easily implemented tool that can greatly contribute to the generation of social capital and wellbeing for homeless or other struggling populations.

FOOD PRODUCTION

An onsite garden will also help the transitional housing community prosper because the produce grown can be consumed by the residents. Food production and self-help can work hand in hand in this way; in addition to the garden being a means for therapy and skill development, residents will be simultaneously growing enough food to feed themselves and the onsite community. Crops that can be grown year round in Washington state are: kale, carrots, beets, potatoes, yellow onions, and turnips. [Washington Group Vegetable Seasonality Chart]



There are resources within the Bellingham community that can be utilized to train and educate the transitional housing residents about gardening. Joe's Gardens has stated that they would be willing to provide seeds/cold crops as well as informational sessions on site at Joes Gardens to residents. [Gary, 2014]

Another community resource, Cloud Mountain Farms, offers a wide variety of classes which cover nearly all the farming techniques one would need to know in order to start and maintain a thriving garden; these classes range from agricultural techniques to infrastructure and construction techniques for onsite building. The majority of the classes taught at Cloud Mountain Farms are free.



ECONOMIC SELF-SUFFICIENCY & ON-SITE WORK EXPERIENCE

A garden can be implemented on nearly any site to create a self-sufficient community and provide benefits to the residents to ensure both communal and individual success. It is also possible, if the site is permits, to scale up the garden to a profitable farm. An onsite farm would offer an even more abundant range of benefits to the residents, such as real on-site work experience and developing a close connection with the outside community. Not only is there the ability to produce food crops but also room for other programs to be implemented such as beekeeping, canning, gleaning, and livestock such as chickens or goats.

A farm could produce food and other products year round which could be sold to the local co-ops, at Saturday Markets, etc. A "farm model" has the potential to profit, which could be used to help pay off site expenses.

This model would also provide a unique opportunity for homeless individuals to assimilate back into society by making face to face connections with people at the markets and other social events. This up-scaled, farm model will be discussed in depth in Chapter 5: Site Plan 5: Serenity Gardens.

Providing these services for struggling individuals will help bring them back to the realities of living out of homelessness. Building upon their sense of self worth and mental health, a garden, no matter how big or small, is an easily implemented tool that can greatly contribute to the generation of social capital and wellbeing for homeless or other struggling populations.



SITE PLANS

FIVE DESIGN LOCATIONS



Hilton Avenue



Lakeway Gardens



Elwood Heights



Old RV Park



Mercer Field

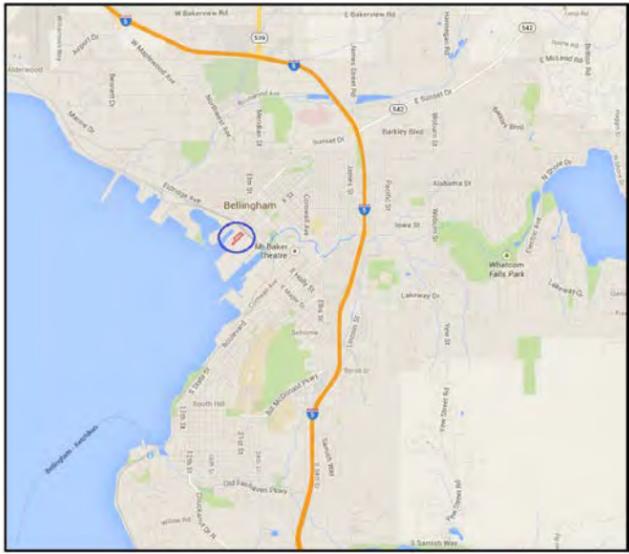
HILTON HARBOR SITE PLAN

SITE FEATURES

The Hilton Harbor site has two main sections to it; the hill and the lower area directly adjacent to Bellingham Bay, with some water access. Our design concept focuses on the area to the Southeast of Hilton ave, shown at right in red. Currently, the site is not subdivided from the land West of Hilton Avenue, however it is zoned for subdivision from the rest of the property, and we propose not using the entire parcel for our design scheme. There are no existing structures on the site, but there are existing utility hook-ups extruding from the ground. If these are not functional currently, utilities would be easily accessible due to the site's proximity to other functional structures. The hill is currently covered in grass, while the lower section is a mixture of grasses and graveled areas. Because of the site's location just outside of downtown, it is highly accessible to emergency, transportation and general health services. This location would also be ideal for providing our clients with employment.

CLIENT PROFILE

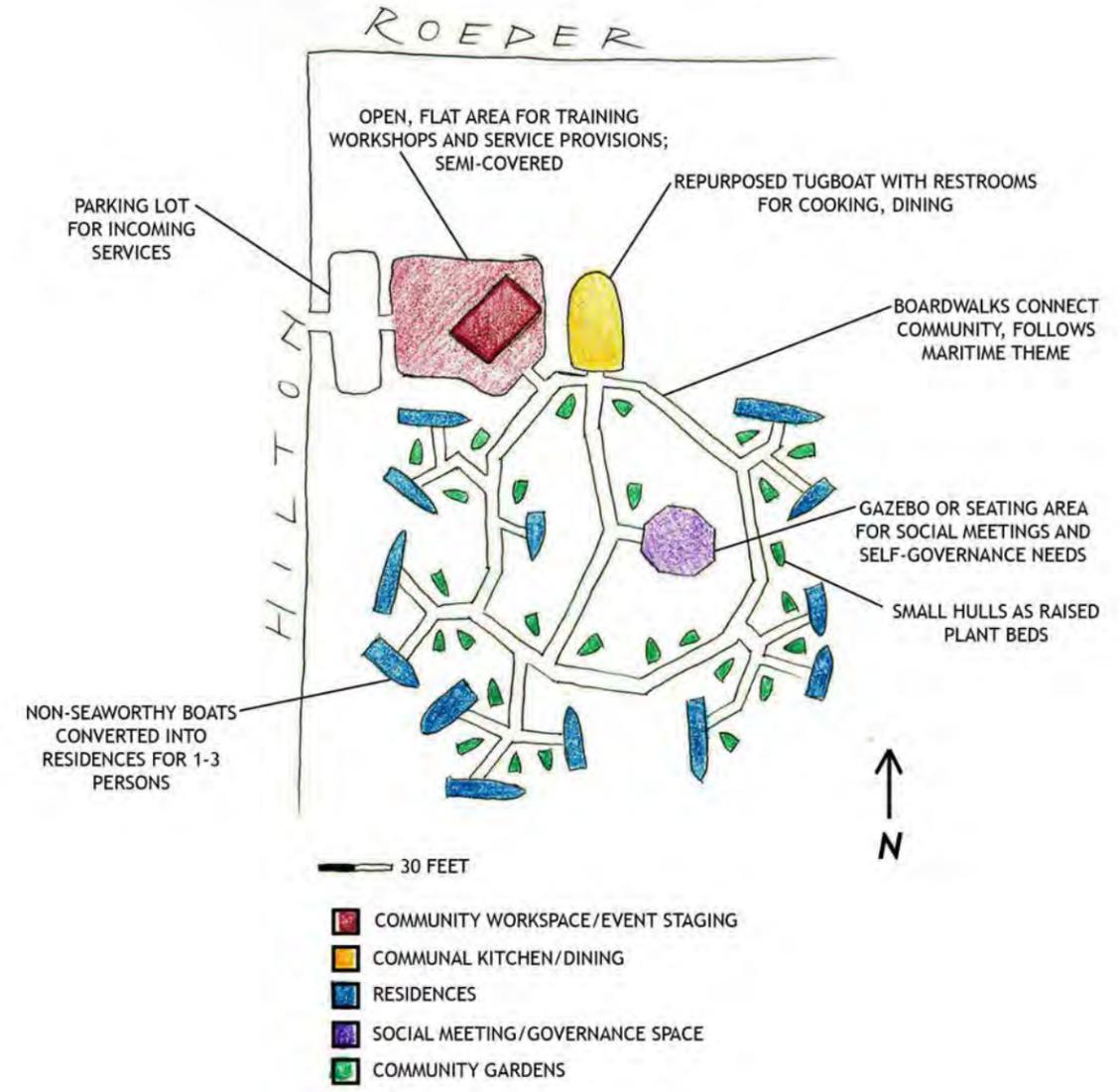
The target demographic for the design process was high risk homeless people. These individuals may have illicit drug use, chronic alcoholism, severe psychiatric problems, or have history of violence and sexual offense. It was important that the design of the settlement reduced stress. This would help residents heal by



SITE LAYOUT

The concept for the proposal at the Hilton Avenue site along the industrial waterfront includes a variety of human-scale designs that can be implemented at minimal cost per unit. It features a community kitchen (situated on a tugboat or otherwise attainable structure outfitted with the proper utilities and cooking necessities, and a communal open space and event/workshop space on the northwest corner of the site, possibly atop a semi-covered barge or otherwise flat, usable space. Living units in this concept appear in the form of re purposed non-seaworthy vessels. These can be acquired through public donation, or found inexpensively from local boat dealers. To be living units the "boats" must be at least 18 feet in length, with the potential for some retrofitting to accommodate long-term housing for between one and three people per unit. If donated boats are under the 18-foot minimum, they can be gutted and the hulls can be re purposed as raised garden beds to be shared by the community. Boardwalks will connect the units to the kitchens and rest room areas, with a public forum space at the center. This can appear as a gazebo or outdoor seating area capable of fitting the entire community for social gatherings and group votes. Boardwalks connect the residences to each other and to the community structures, maintaining the maritime theme and contributing to the atmosphere of the site.

HILTON AVENUE SITE PLAN CONCEPT



HILTON HARBOR DESIGN
THE VISION

The reclamation of non-seaworthy boats as retrofitted homes is an idea that, if seen into fruition, would change the lives of many. Bellingham is a city rich with maritime history and holds an abundance of resources for this project. The project site sits on Bellingham Bay, and is a perfect temporary fit to host a community of boats on land to house the previously homeless. By taking advantage of pre-existing structures, such as old boats, half the work of “building” housing is already done.

This project is unique in that it is intriguing and full of character whilst serving its main purpose; to be a home. Every boat that comes in brings its own stories and harbors a foundation of liveliness for the community group. With the right guidance and support, the community members have a chance to be an active part of building their home. As the community develops, the current members can gain experience and skill in either re purposing old boats to make them fit for living or salvage and recycle parts that would have otherwise gone to waste. This process could turn into a program that can be assimilated into other job skills and/or develop a new local industry.

From preliminary research done in the area, there are plenty of boats that can be suitable as a living unit that are either free or very inexpensive. The structure of the community design calls for a communal facility. This would be one larger boat, such a retired tugboat or commercial fishing vessel. The communal boat could be the sole boat outfitted with full utilities such as toilets and showers, electricity, and kitchen facilities. The consolidation of utilities to one boat would cut down cost and stress on the site location. The communal boat could also be outfitted for solar panels and rain



barrels, as well as composting toilets, to mitigate use of resources. The optimal community size is around 20 to 30 members. The site layout would promote community involvement while maintaining the integrity of one’s own space. The remaining boats would be simple living units to accommodate 1 to 4 people per boat depending on the acquired boats and preference of inhabitants. The boats would be stationed in boat cradles and would not constitute permanent structures. They would be connected by paths of raised boardwalk to define the shape of the settlement and provide the concept of a cohesive community through obvious connectivity.

WATER, HEAT, BATH, AMENITIES

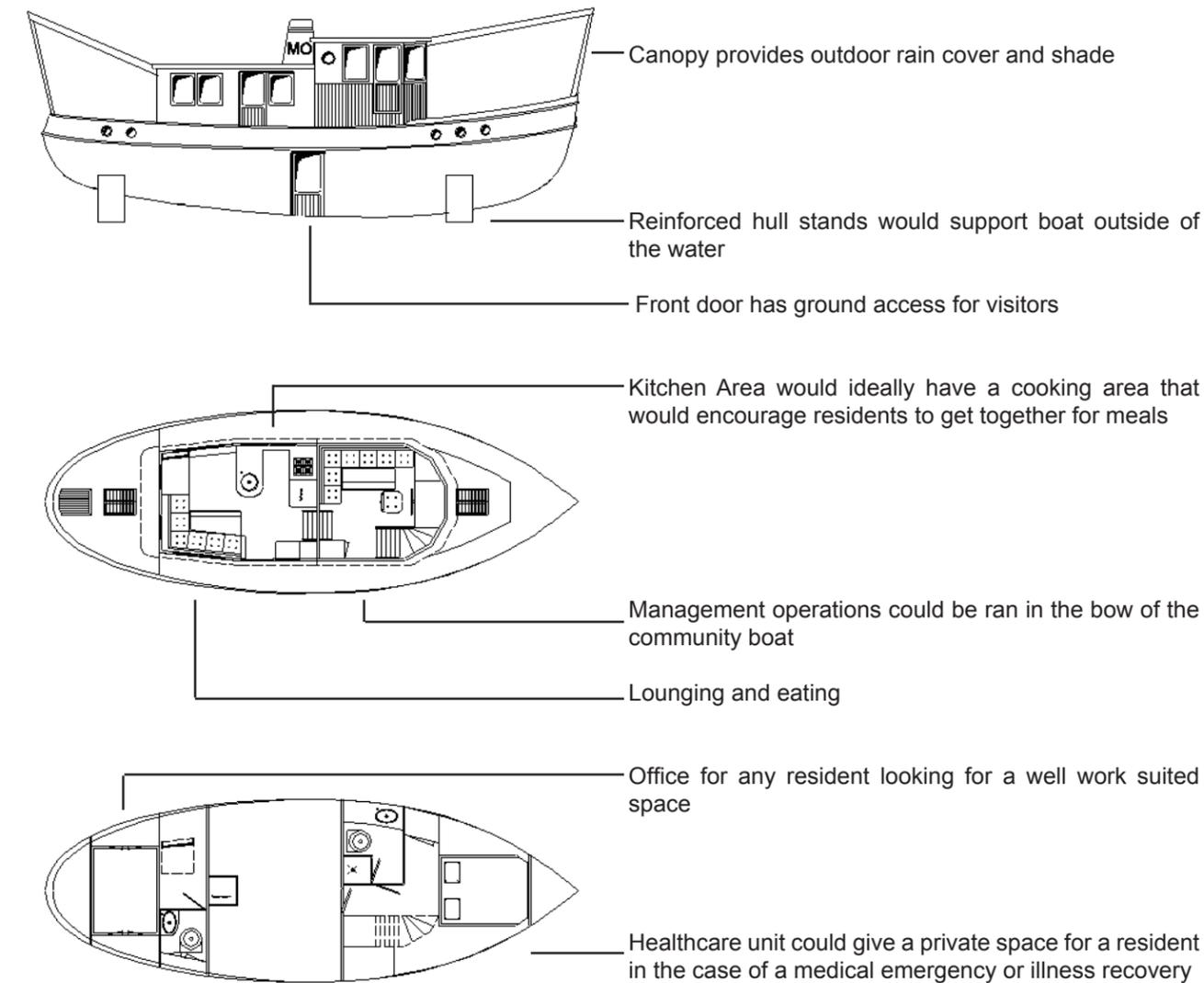
Potable water would be accessible through a community boats existing water systems. Filtering systems, siphons, and pressurizing systems could be removed and water would be supplied directly via piping in the boats hull. Drainage would connect to through-hull fittings and work with nearby sewer systems.

Using Washington State plumbing system code as a guideline it was decided that this site would require 6 toilets. This is based off the assumption that Hilton site would provide space for 20-30 people. If a boat lacks sufficient utilities they can be supplemented with external units. They would be separate bathroom facilities accommodating either men or women.

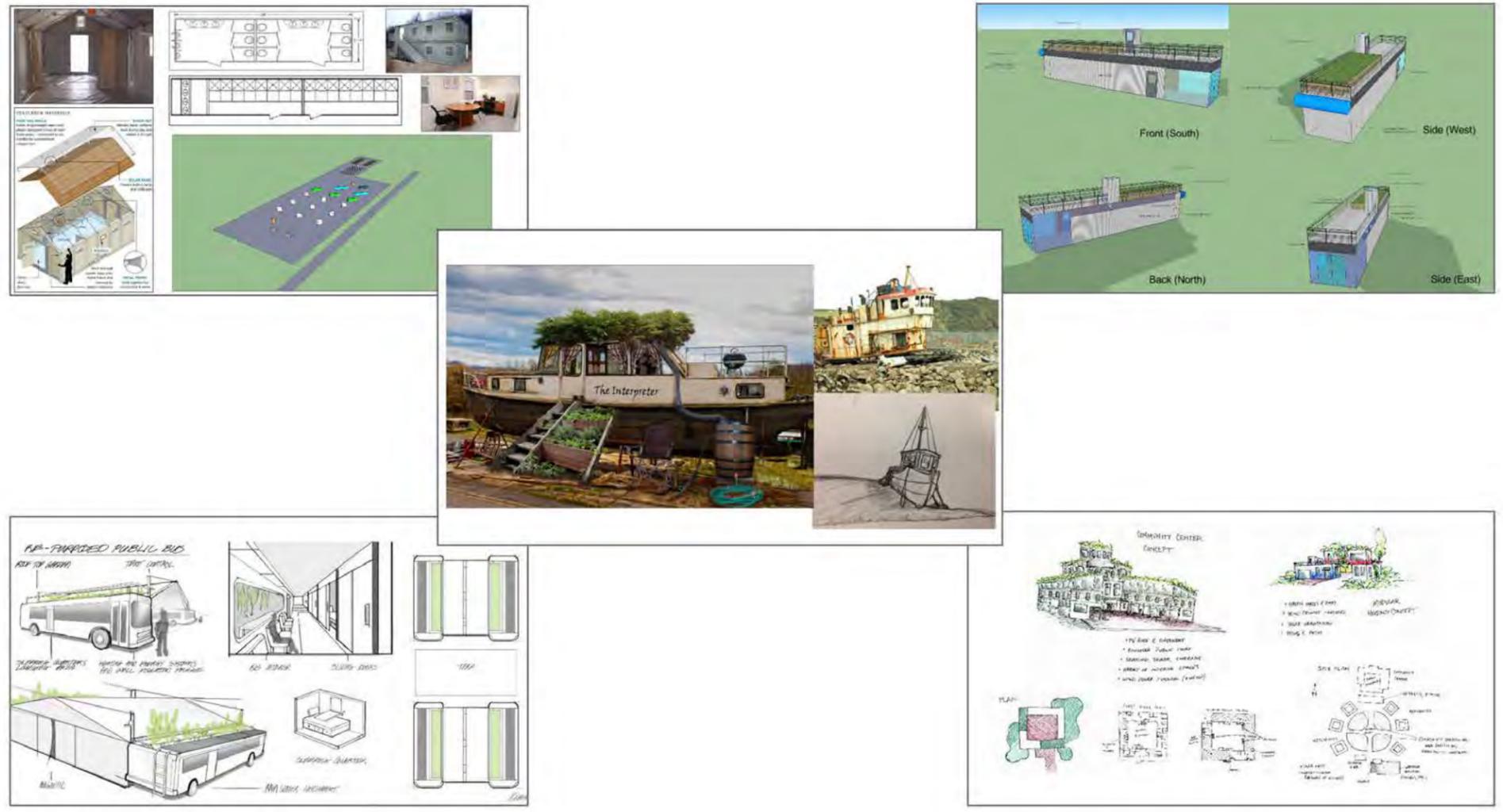
In addition to showers aboard the boat a portable trailer with 6 shower stalls may be appropriate. It is partitioned down the middle with 3 stalls on each side to accommodate separate gender facilities. This trailer does require a connection to water with a minimum water pressure of 40 psi and a flow rate of 5 gallons per minute (<http://www.cohsi.com/rentals.htm>).

The boats may not be designed, or in good enough condition, for keeping the occupants warm during colder months. It is a relatively simple process to add insulation to the boats in the form of some reflective and insulating layers. Each boat will have a layer of Reflectix double reflective insulation, followed by a layer of polyethylene foam, and finally another layer of Reflectix insulation. Further insulation could come in the form of greenery atop the boats, which would buffer the internal temperatures as well as add characteristic aesthetics to the residences.

COMMUNITY BOAT



TEAM CONCEPTS
INITIAL IDEAS AND RESEARCH



HILTON HARBOR IMPLEMENTATION

Hilton Harbor could potentially become a landmark and a strong step towards a self helping community. The abundance of unused boats and proximity to Bellingham's rich maritime heritage makes Hilton Harbor the ideal transitional settlement near downtown.

The approval process for this settlement would begin with building public awareness. This will help mitigate costs as more people may be willing to donate their unused boats. Afterwards boats would be surveyed and selected for based on the needs of the settlement. Volunteers would then help strip the boats of their unneeded components while providing instruction and example for new and future residents. Once the community is established they can set their own ground rules and management plans. Boats could continually be added, installed and modified.

Since the Hilton Harbor design utilizes retired vessels costs are on a lower range for encampment structures. Re-purposing boats is not difficult to do and would require only basic re-engineering. Campaigns to raise funds will help pay for the use of tools and labor, other public involvement could also potentially cut costs. Costs are mostly long term and can be integrated to different extents with different boats.

This settlement would be the stepping stone for high risk homeless to live healthy lifestyles. Individuals wanting to live in the settlement would be required to abide by the communities procedures. Seasoned residents could be elected to be in charge of managing meetings.

Many options were considered in the design process. Hilton Harbor was chosen because of its message in sustainability, equality, and culture. It is a feasible solution and appropriate for the Hilton avenue site, and our client group.

ESTIMATED COSTS

Item	Costs
Housing & Garden boats:	Free/ bought used \$1000-\$2000
Insulation	\$75 liner, \$69 caulk and \$50 foam core per/ft
Solar Panels for small onboard lights	Starting ~\$140 w/o hardware
Outfitting costs	\$500
Community Tugboat	\$10,000 \$5000
Boardwalk:	
Wood	\$7.59 per board foot
Hardware	\$8.25 per 5 lbs box of screws
Lighting (Lights, clips, timer)	\$50 per 48', \$20 per 100, \$13 each
Parking lot	Contracted to company
Community Space	Contracted to company Potential temporary lease of half lot
Heating, electricity, water, and garbage	25 residents: \$4,500 per/year
Weatherproofing	
Total:	\$40,000



LAKEWAY GREEN SITE PLAN

SITE

The Lakeway Green is a proposed transitional housing settlement located at the corner of Lakeway Drive and Woburn Street. Currently, the City of Bellingham operates its Clean Green facility where green waste is recycled and transferred to larger compost facilities. In addition to this site-specific service, the site hosts the Lakeway Community Garden, a newly designed native plant nursery, and woodshop operated by the Parks Department - all of which provide opportunities for the residents to oversee and assist the City's operations in which they could gain work experience and transferable skills.

In addition, the settlement is in close proximity to public transportation and is conveniently located within a mile of the Lakeway Center, thus making grocery shopping easy and accessible. Residents' homes

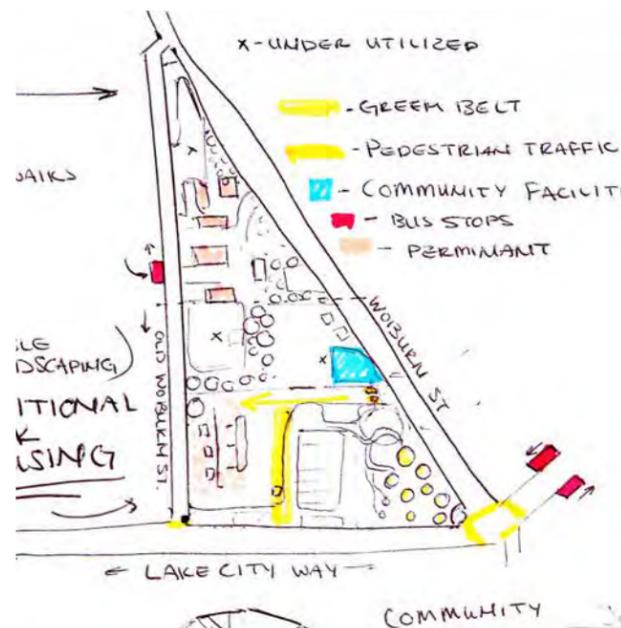
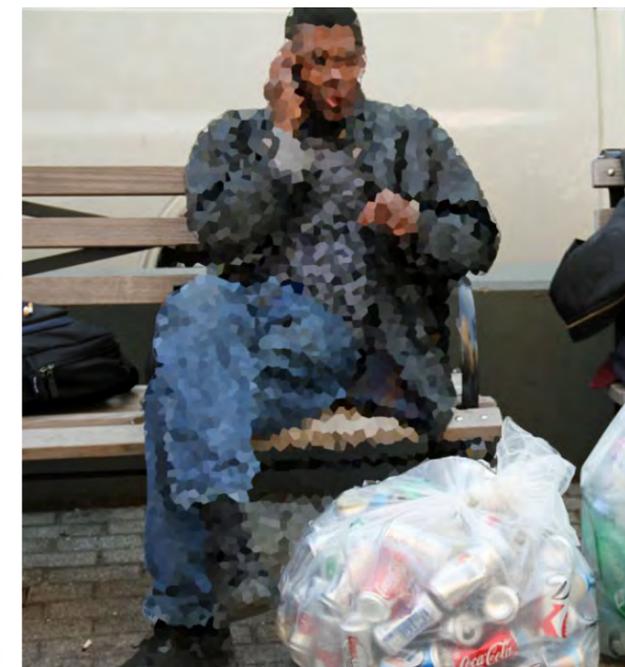
will be located next to the community garden as well as in the forested areas in the lot's southeast corner. This location provides noise mitigation measures and pleasing aesthetic factors. The Lakeway Green's forested segments, with a paved trail system and well maintained lawns, coupled with a new community facility, will allow the residents to live in an engaging community that fosters healthy interactions while simultaneously providing them with quaint and quiet living quarters.

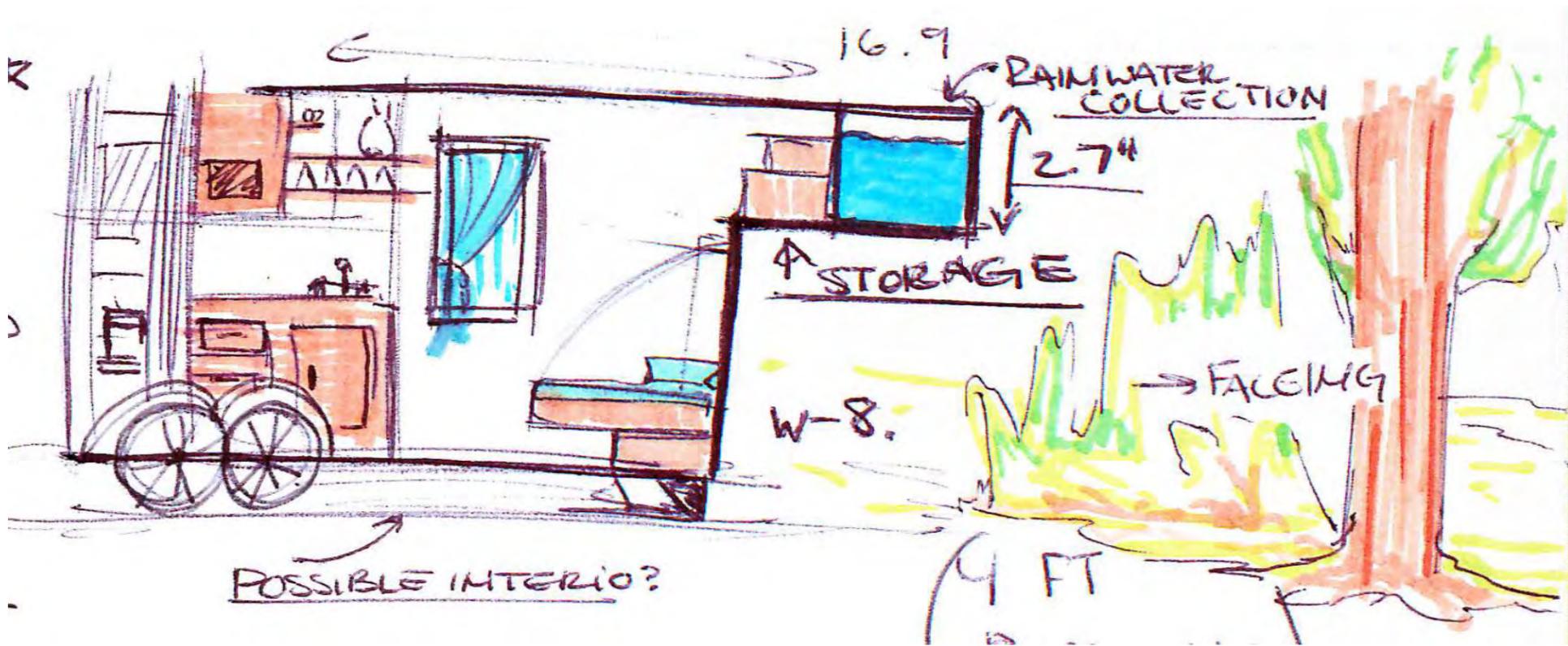
CLIENT

The structure of Lakeway Green is best suited to serve clients who can be identified as low risk and beneficial. High and medium risk clients should not be overlooked, but more intensive services should be focused on these individuals. Low risk and beneficial clients would thrive at Lakeway Green, which offers plenty of capacity building opportunities in a setting with relaxed oversight. This relaxed oversight will be supplemented through beneficial individuals, who have high social capital and are already well suited at making positive influences within their communities. The amount of capacity building and skill training opportunities will provide all residents with skills to learn, keeping themselves busy and igniting positive changes in their habits and state of mind.

SITE PLAN

The overarching goal of Lakeway Green is to provide an opportunity for homeless individuals to get their lives back on track and start acquiring work skills, thereby building their work skill capacity. Building capacity consists of skills training, community involvement, and social development. The extensive opportunities for skills training, including the Clean Green Waste facility, a community garden, a native plant nursery, a community kitchen and a woodshop. These opportunities make Lakeway Green an ideal transitional work-to-housing settlement. This specific site is well positioned to teach residents a variety of skills that they will be able to take with them, thusly allowing them to begin to build the foundation for their new lives. In addition to learning new skills, the residents may allow for Clean Green Waste to increase its hours of operations, making it more convenient for users of the facility. Here, residents have a place to call their own and will have the opportunity to fall into a routine in which they can sleep easy, learn, and become mentally and physically healthier.





Lakeway Green is designed to be a community where neighbors know each other. The layout of the community will be oriented so that the residents' eyes fall onto the community spaces and city-owned facilities, mimicking the style of a traditional neighborhood that encourages favorable behavior and active communication between neighbors by putting individuals under the eyes of others. The communal kitchen and other shared spaces will continue to promote a sense of community.

The goal of Lakeway Greens lies in helping residents

develop social skills and work experience in order to help prepare them for life after their tenure at the transitional housing community, while giving back to the community through their work.

With the skillsets acquired from Lakeway Greens, the residents will be able to get a job and potentially move into low-income housing units. Willow Creek Apartments are an example of such properties, and happen to be located just down the street. Upon graduation from Lakeway Greens, the residents who have found a job, with the help of a contracted

social worker, will surely be on the right path to becoming a successful and self-sufficient individual. In addition, consolidating the homeless individuals into a settlement, beneficial services such as police, social services, and community resources may be more efficiently and effectively applied.

INFRASTRUCTURE

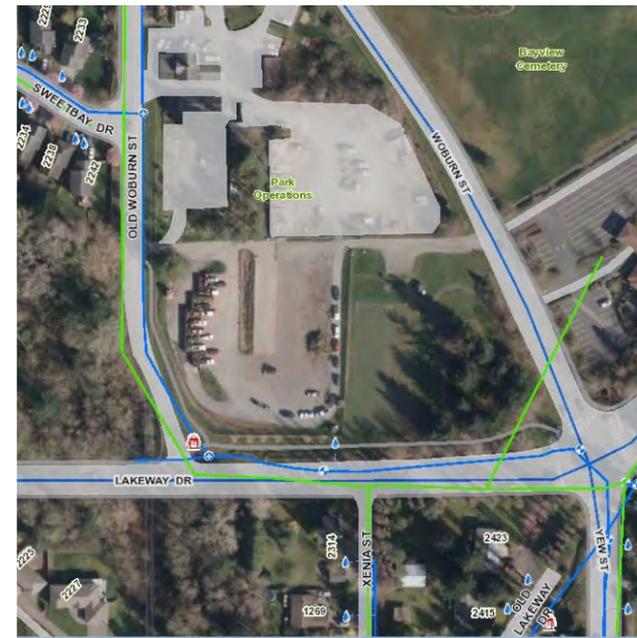
The site is adjacent to city owned and maintained service lines - water and sanitary sewer lines could be readily installed and/or extended to service the proposed community. Since there are currently no building structures and minimal impervious surfaces, the necessary underground infrastructure could be put in place, using traditional open trench methods and situated without constraints from any other existing utility lines. Furthermore, because the proposed housing units are mobile and can be easily rearranged, future maintenance of buried pipelines would not require costly trenchless methods (i.e., pipe bursting, cured-in-place piping). Additionally, the advantages and disadvantages of the various piping materials should be considered. Polyvinyl chloride (PVC) is commonly used and chlorinated polyvinyl chloride (CPVC) can withstand corrosive temperatures up to 122 degrees Fahrenheit. Orangeburg pipe on the other hand is common among older homes – it is relatively cheap material that is durable but easily ruptured under pressure and should be bedded in sand and/or pea gravel to prevent rupture.

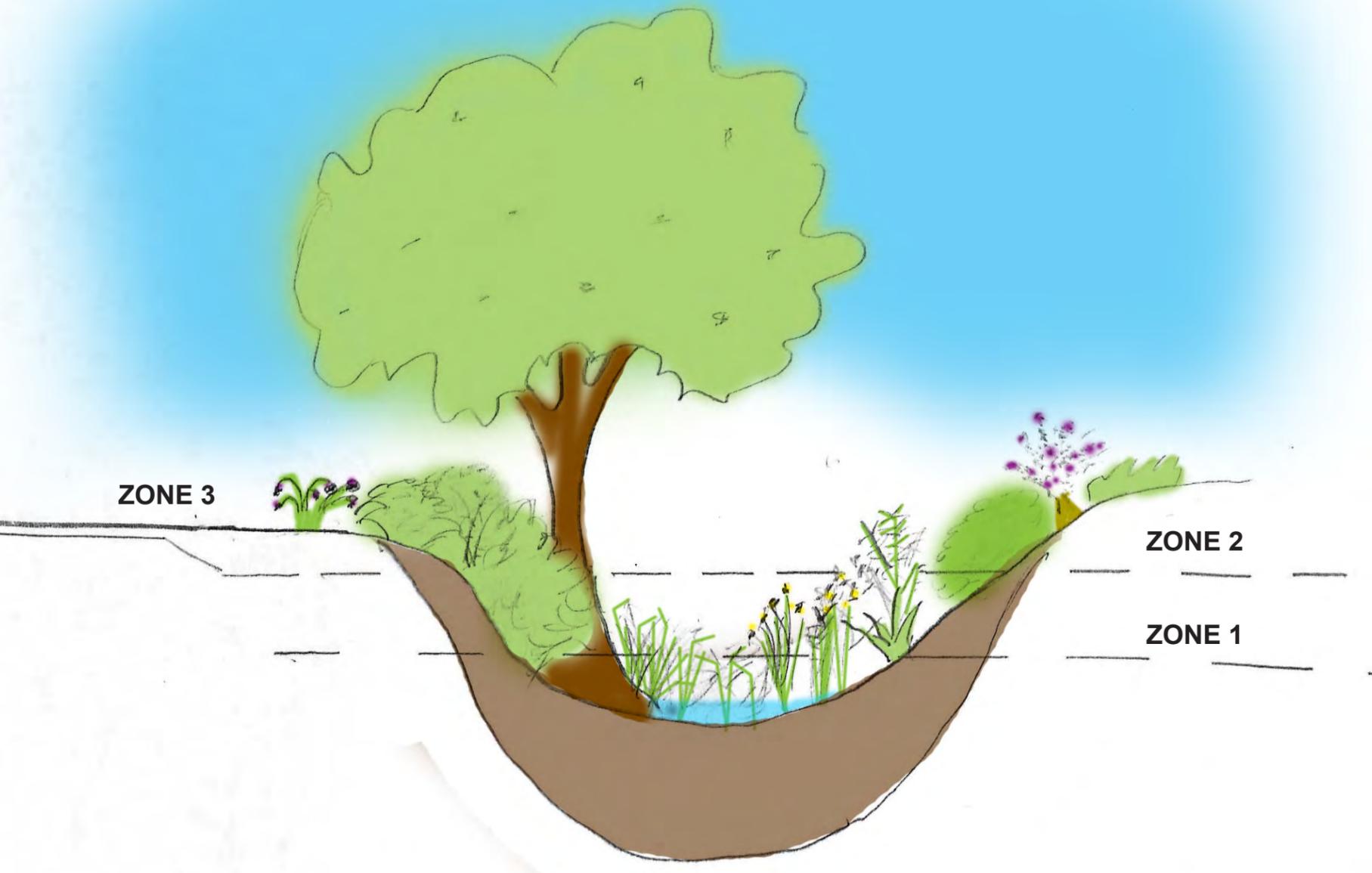
There is adequate space within the site to integrate parking amenities for the tenants with vehicles. However, there are multiple bus stops adjacent to the site that should be taken advantage of as an alternative mode of transportation. The 540 serves the stops on Woburn St. and Old Woburn St. and the stops along Lakeway Drive are serviced by the 512 and 525 - between these three bus routes, residents and visitors could travel to and from various destinations around town including: the downtown station, Lakeway Center, Barkley Village, Sunset Square, Geneva, Sudden Valley, Silver Beach, and Squalicum High School.

Currently in operation on the site is the Bellingham Clean Green facility, which accepts residential yard waste from Whatcom County residents. It is operated

by the Solid Waste Division of Public Works and only accepts certain wastes with certain dimensions and is currently just a transfer station - all of the biomass consolidated there is transported before any significant composting processes take place. The Lakeway Greens transitional housing community would utilize the potential benefits of integrating on-site composting facilities in two different ways. First, compost heat recovery systems could be set up following a model compost-based energy production system that was developed in the 1970's by Jean Pain, a French inventor. From one pile of compost, he heated his home of 1,000 sq. ft and could heat water to 140 degrees Fahrenheit at a rate of four liters per minute. Essentially, the design consists of a large pile of yard debris and/or wood wastes while spiraling piping is embedded throughout the pile to reconvey heat generated by the microbial breakdown of organic material. This heating method would be cost effective and could sufficiently heat the small, enclosed housing designs. Furthermore, on-site composting facilities could supply organic matter to use as mulch layers and compost-amended planting mix for the community garden and the new native vegetation nursery along Woburn Street. The native vegetation nursery is currently maintained by the Parks Department and it is a feature that, if extended around the perimeter of the site, could serve various beneficial functions. Essentially, it would provide a:

- Visual screen for more privacy and increased aesthetics
- bioretention cell to sequester pollutants from stormwater, thus protecting the community gardens from heavy metals associated with high traffic volumes
- green buffers to minimize noise pollution.





BIORETENTION FACILITIES

ZONE 3

Area with dry soils, infrequently subjected to saturation. Plants within this zone should be used to transition or blend with the existing landscape.

Species	Mature Size	Comments
<i>Arbutus unedo</i> – Strawberry Tree	8 – 35 ft.	Tolerant of urban pollution; white flowers
<i>Mahonia aquifolium</i> – Tall Oregon Grape	6 – 10 ft.	Drought resistant; blue-black fruit; bright flowers
<i>Rosa gymnocarpa</i> – Baldhip rose	Up to 6 ft.	Drought tolerant; small pink roses

ZONE 2

Area that is periodically moist or saturated during storm events. Plants within this zone are also applicable in Zone 3.

Species	Mature Size	Comments
<i>Amelanchier alnifolia</i> – Western serviceberry	10 – 20 ft.	Drought tolerant; very cold hardy
<i>Acer circinatum</i> – Vine Maple	Up to 20 ft.	Tolerant of shade & clays soils; pretty fall colors
<i>Rosa nutkana</i> – Nootka Rose	6 – 10 ft.	Tolerates saturated soils; fruits persist
<i>Rubus spectabilis</i> - Salmonberry	5 – 10 ft.	Magenta flowers; nectar source for hummingbirds

ZONE 1

Area with frequent standing or flowing water. Plants within this zone should tolerate summer droughts without extra watering.

Species	Mature Size	Comments
<i>Malus fusca</i> – Pacific crabapple	Up to 40 ft.	Tolerant of prolonged soil saturation
<i>Alnus rubra</i> – Red Alder	30-120 ft.	Highly adaptable; rapid growing; nitrogen fixer
<i>Physocarpus capitatus</i> – Pacific ninebark	6-13 ft.	Drought tolerant; white flowers

*List of appropriate trees and shrubs for the three planting zones of bioretention facilities with respect to soil moisture characteristics and desirable size of mature specimens.



HOUSING DESIGN

The “Green Micro Housing” concept emphasized an energy efficient and environmentally conscious/healthy living environment. The micro homes would be at the pinnacle of energy efficient design, with slanted roofs

for grey water collection, and solar panel attachments for electricity production. The homes would also come furnished with composting toilets for waste management and a reduction in needed sewage links. Bamboo flooring paired with radiant floor heating would help heat the home and eliminate the need for lumber. Twenty units, each occupying 120 square feet could be

placed on the lot, housing between 20 and 40 people, with the possibility of a couple occupying one unit.

Storage containers would be at the foundation of the second housing concept, in which two shipping containers laid horizontally, would be split by a vertically situated housing container. The two horizontally

placed shipping containers, with solar panels affixed to their roofs would act as homes to the Lakeway Green inhabitants. The vertically placed shipping container affixed with a solar panel would act as a divider to the two horizontally placed shipping containers complete with composting toilets. The housing concept with a dimension of 20x8x8.5 feet would take up 388 square feet with every 194 square feet providing a home for one person.

“Housing on wheels” encapsulates using compact, mobile homes complete with a kitchen, bed, dining room, and bathroom complete with a shower for an all-in-one home amenity approach. The small, 120 square feet size of the mobile homes would allow for 30 of the homes to be placed in the Lakeway Green lot, utilizing it’s forested areas efficiently.

RVs would be used in the fourth housing concept, utilizing a cement slab laden composting station across from the community garden. The cement sections would be used as parking dividers and section ends for the RVs to allow for their positioning. At the heart of this housing concept is to utilize the compost being dumped in the proposed RV lot and using the Jean Pain composting technique to capture heat for constant supplies of hot water and heat for the RVs.

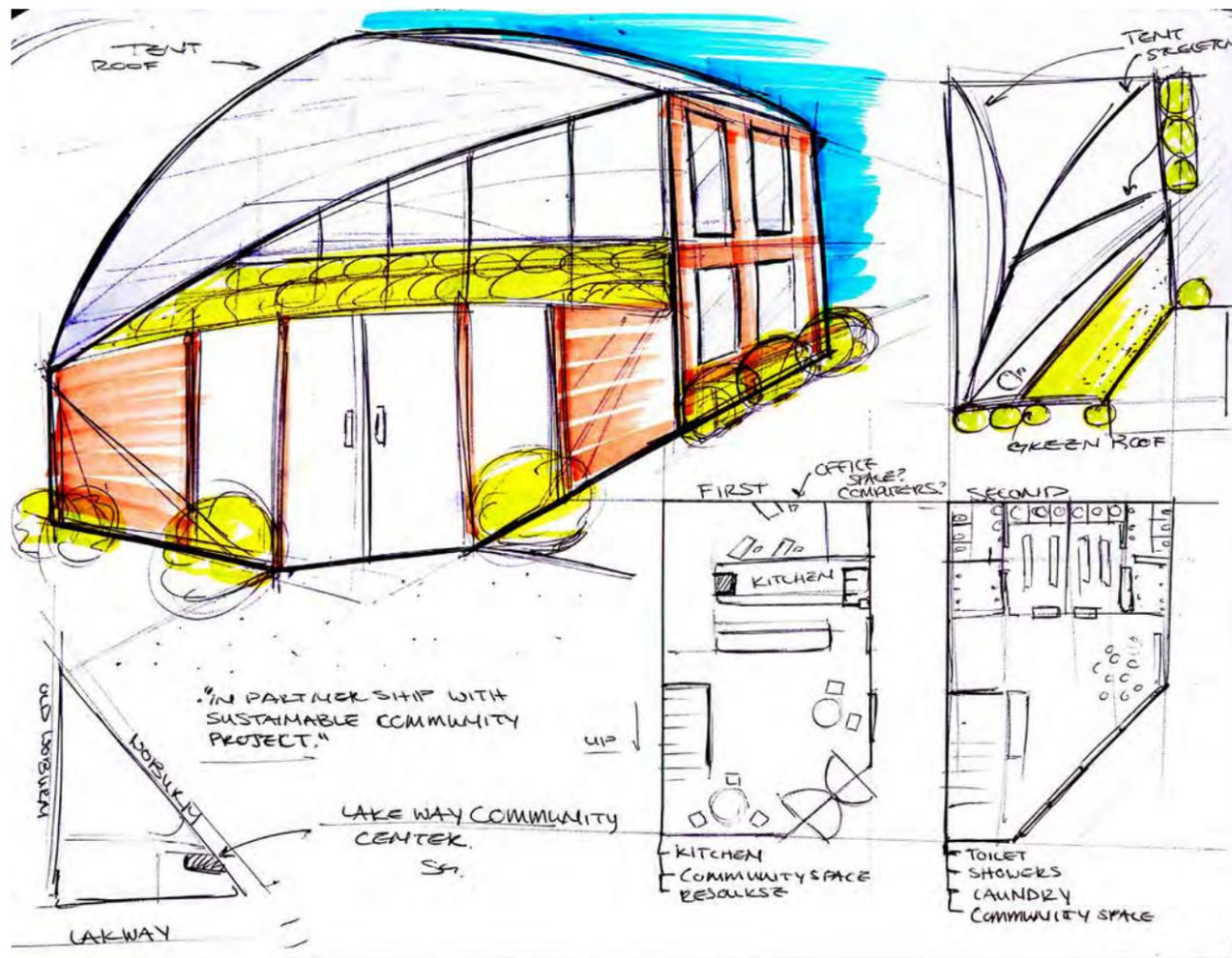
The finalized and selected housing solution for Lakeway Green involves utilizing 17 foot truck trailers/U-hauls and retrofitting them with a bed, kitchen, cutting surface, lower and upper cabinet, sink, composting toilets, bamboo flooring, drywall, and windows. 21 of these units would be placed on the lot allowing for the housing of 21 to 42 citizens in total. Next to these homes ,a community center would be built to satisfy residents need for social interaction and community membership.



COMMUNITY BUILDING

Lakeway Green offers plenty of community spaces, including the forest and trail network, community garden, and native plant nursery. In addition to these amenities, a community building is planned that will provide residents with a place to use the restroom, shower, and do laundry, in addition to common facilities for leisurely activities, recreation, and a large kitchen facility where meals can be prepared and shared in a manner in which the residents can learn cooking skills alongside kitchen safety. The community building will encourage interactions with residents of Lakeway Green and the public, making this space a crucial component in breaking down socio-economic barriers. Case workers can also utilize this space, delivering an efficient way to consolidate services. It is recommended that an onsite manager be present during the day, with an office in the community center. The onsite manager should be an expert in dispute resolution techniques, and may delegate tasks to the residents.

The community facility will add to the aesthetic value of the site, and is designed with sustainability in mind. It is planned to meet or exceed Washington State law, which mandates that public buildings must be certified to at least the LEED silver standard. A green roof, water harvesting system, energy efficient windows, and solar panels will reduce the environmental impact of this building, and make it an attractive and resilient public space.



SITE PLAN 2: LAKEWAY GREEN

ESTIMATED COST

The team has been trying to reach U-haul for a potential corporate partnership in which old U-Haul trucks would be donated and then retrofitted. If this falls through, the option to buy old U-Haul trucks would raise the cost to approximately \$2,000 per unit, and buying the trucks in bulk would reduce the per unit price.

The Lakeway Green's homes will require furnishment to foster a positive and comfortable living environment for residents. Through potential partnerships with Home Depot and Uhaul, homes and community centers could be substantially equipped with little to no cost to the City of Bellingham. The total cost of retrofitting all 21 units, which includes insulation, bedding, and adding windows, a composting toilet and bamboo flooring, comes out to approximately \$20,000. If the U-Hauls are not donated, acquisition of these units would cost approximately \$42,000. The Community Building's kitchen appliances, six shower stalls and toilets, and laundry appliances would amount to \$15,000. The hiring of an on-site manager to help facilitate day-to-day operations would cost approximately \$25,000 a year. Partnerships with local nonprofits and businesses, and a heavy reliance upon work from volunteers and future residents would help cut costs for retrofitting the U-hauls and allow them to build their skillsets.

Partnerships with local non-profits and businesses would also help drive down the cost.

A heavy reliance on work from volunteers and future residents would cut costs for the retrofits and add to the residents' skillset.

COST BRAKEDOWN FOR 21 UNITS

- Adding cabinetry for storage ~ \$6,300 (brand new)
- Bedding ~ \$3100 (beds from the restore and goodwill and value village)
- Insulation ~ \$1680
- Windows and a door would vary upon cost of labor
- A composting toilet \$6,500 for each unit
- Eco-friendly bamboo flooring would be \$1,785
- **TOTAL: Unit + retrofit ~ \$42,000 + \$19,365 = \$61,365**

COMMUNITY BUILDING COST BRAKEDOWN

- Kitchen appliances ~ \$11,400
- Showers for 6 stalls it will be \$983 brand new
- Toilets for 6 it will be \$528 brand new
- Laundry- \$1500~\$2000 for new appliances
- **TOTAL: ~ \$15,000**

OPERATING COST BRAKEDOWN

- On site manager ~ \$25,000 per year? potential for a beneficial member to eventually take over this position



17' Box Truck

\$1,799.00



Sale Price: \$1,450.00

Qty: 1

add



Gas Options:

Natural Gas

Southbend Range Riser Option:

22.5" Riser w/ Shelf (Standard)

Original Retail Price \$3,384.00

Availability: In stock

Condition: New



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ELWOOD HEIGHTS SITE PLAN

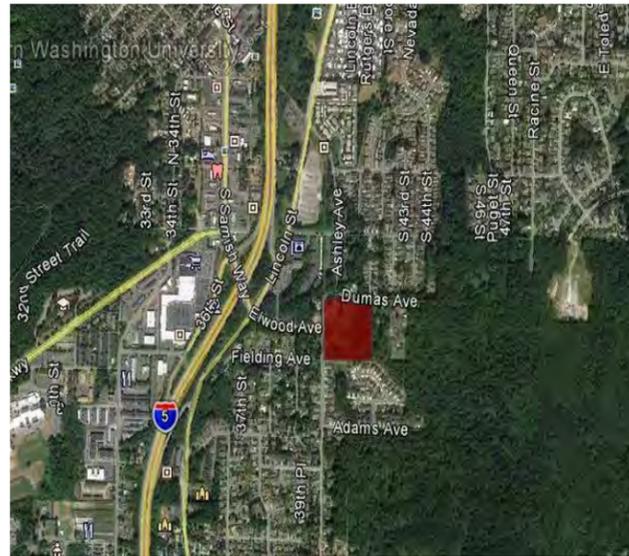
EXISTING SITE

The site proposed for the development of the Elwood Heights neighborhood is a 9 acre parcel located in the Samish Neighborhood. Of Bellingham’s 24 designated neighborhoods, the Samish Neighborhood is the largest, with over 2,000 acres including Lake Padden park. Close to 3,500 residents call his South Bellingham area home. The primary building types are both large and small single-family lots, with dense areas of open green space, trail access and recreational spaces. This specific 9 acre plot is located at the corner of 40th Street and Elwood Avenue. The plot is currently owned by the City of Bellingham and is wholly undeveloped besides a few narrow trails used for recreation. However, the site is well-equipped for future development as its bordered by utilities including power lines, gas mains and sewer lines that serve nearby residential neighborhoods.

In terms of natural settings, the site is densely forested in a curved swatch from the upper Northeast corner around to the lower Southwest corner. The proposal involves working with the tree cover, as it would provide a sound buffer and recreation area for the future residents of the Elwood Heights community. Additionally, there is an unmarked small stream that is a tributary of Whatcom Creek flowing through the canopy cover in the forested area. The biggest consideration in terms of site is the wetland areas. Though only covering certain sections of the plot, they do signify areas of special consideration. Best Management Practices could ideally be exercised in tandem with development, respecting setback requirements and avoiding disturbance of the parts of the land containing wetlands. An additional measure could involve purchasing credits through a wetlands bank such as The Lummi Nation Wetland and Habitat Mitigation Bank, which helps provide

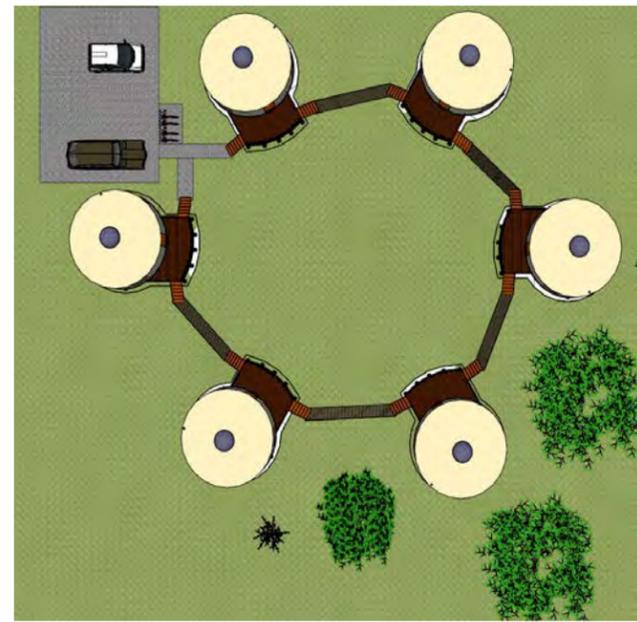
compensation for the unavoidable impacts of building in wetland-containing areas.

In terms of the development timeframe on the site, ideally the establishment of this transitional community with its necessary utilities and other intensive features would cater to a two year plus residency on the site. There would likely be family turn-over cycling in then out of the community, so founding residents would not necessarily reside in Elwood Heights for this entire time period. One consideration to note in terms of the site’s time frame is the nearby location of San Juan Boulevard extending from Yew Street to a very forested cluster of land in the Samish Crest Greenway. There are tentative plans to develop this connector to merge with Elwood Avenue. However, in the city’s TIP plan through 2010, this connector was in the bottom half of development priorities and in a recent WSDOT Whatcom Council of Government Model a two-lane new Boulevard Connector was forecast only in their 2035 model, and that given funding needs are met for the proposal.





A major goal in designing Elwood Heights was to create a housing site within a location that is family-friendly and a place where the residents feel they are actually part of a community. In order to create more of a communal setting the design for the site consists of two pods of 4-6 houses that are arranged in a circle with the fronts facing each other and a unit on the end to serve as the shared shower/bathroom unit. The center of the circle could serve as a communal area where people could garden or children could play. This design would allow for easier interaction between the families. Additionally, Elwood Heights was designed to incorporate a general community building and space. This area would include gardening space, a playground and a community building where all of the residents could hold meetings, make group meals or whatever they desire.



Minimizing the cost of building Elwood Heights was also a priority because the chances are there is not going to be a significant amount of funding for the project. Reducing costs was another reason for having the pods of homes with communal bathrooms since it would be significantly cheaper to provide upkeep for infrastructure for one bathroom unit as opposed to 5 separate ones per housing pod. Also, building the homes close together would reduce costs and require

shorter access roads. The site was designed around the existing vegetation and wetlands so additional resources would not need to be spent on the deconstruction of the area. This would also give the community more of a spacious feel. The natural vegetation that is already on-site is a great buffer to the surrounding neighborhoods. The north, east and south sides of the site all contain a tall tree buffer that would reduce noise from the direct neighbors.



INFRASTRUCTURE

Due to this site's rural location it is ideally suited to tap into and utilize the existing city utilities and infrastructure. These systems include power, water, sewer, trash and recycling. Additionally, Cascade Natural Gas has a line that runs right by the intersection of Elwood and 40th, providing another resource. If the funding was available, solar hot water could be utilized due to the south-facing exposure.

Though gardening can be a very positive and therapeutic activity for individuals of all ages and all walks of life, it can be particularly powerful for families. It allows a break from the stress and anxiety for both parents and children and provides an opportunity to reconnect with the natural world. This site is well-suited to accommodate gardening for community members on both a small and larger scale. Both in-ground or above-ground raised beds could provide gardening work, with larger shared plots for families and/or

smaller personal-sized ones allocated for individuals. Due to the limited attention span and strength of children, extensive production of food for external sales does not seem to be appropriate for this target client and location. However, supplementing local food needs with on-site production could still have a powerful effect on the Elwood Heights community.



COMMUNITY/SHARED SPACES

The large community building will be the center of the community, both metaphorically and literally. The community center will be a large yurt somewhere in the 30 to 40 foot radius range. The community center will include segregated showers, laundry facilities and a large kitchen space suitable for large meals or gatherings. Communal bathrooms will be located next to the housing pods for easy access as well as easy maintenance. The entire housing community will be connected with raised boardwalks that double as thoroughfares for utilities. This will facilitate easy maintenance of utilities as well as quick disassembly if the need to move arises. The community center will also be the place where skill building workshops take place as well as housing administration. A smaller separate yurt may be joined to the large community yurt to provide day care services for single working parents. This separate yurt could house items such as play equipment or developmental learning tools.



HOUSING DESIGN CONCEPT

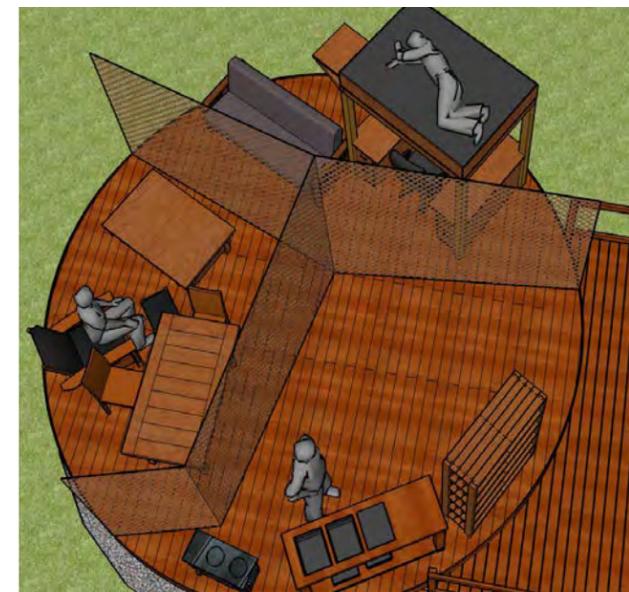
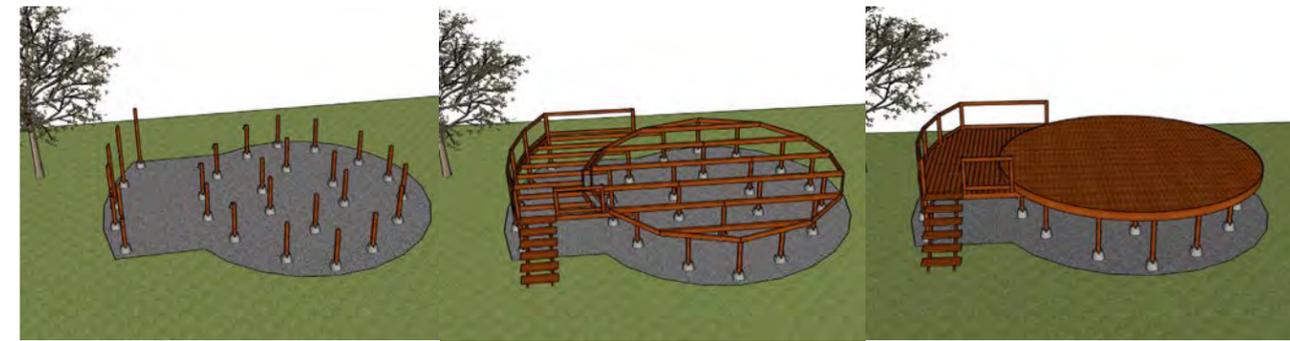
Yurts are circular, semi-portable housing concepts made out of simple materials in a way that provides for strong structural integrity and longevity. The base for a yurt home is a raised wooden platform which can be built with a variety of different styles ranging from \$1,000 - \$6,000, depending on design. The structure of yurt's walls are composed of circular vinyl lattice that is then insulated and finished with a canvas wall wrap on the outside of the structure. The dome shaped roof is built out of wooden rafters and insulation, with a dome ceiling window at the top. The base of the roof structure is held together with a compression ring and tension band that runs around the whole structure, providing incredible strength and requiring no internal support system. This leaves the inside of the yurt completely open and spacious. On average, an entire yurt and platform can be set up in 1-2 days with a 4-5 person team. The structure on top of the platform can

cost anywhere between \$8,000 - \$20,000 depending on diameter size, which ranges from 16 to 33 feet.

The circular yurt design provides for efficient wind/rain/snow resistance, efficient heating, and portability at an affordable price. Heating can be provided using wood, electric or gas stoves. Electricity, kitchens and bathrooms can all be easily installed within a yurt residence for additional start-up costs. Walls and lofts can be erected in larger yurts to create different rooms and more space.

Many families choose to live in yurts due to the low startup costs, limited financial commitments, availability for all resources and facilities that are found in traditional homes and the creative and communal nature of yurt life. For these reasons, this style of housing seems ideally suited for the proposed clientele and site location.

Each individual yurt in this proposal will be around 22 feet in radius and will have a small cooking area consisting of a stove, microwave, and shelves/cabinets. Additionally, each unit will have a small fridge and a sink with hot and cold water. Electricity and water will be wired/routed underneath potential boardwalks to each yurt in order to limit burying of infrastructure and as an attempt to keep this housing concept semi-temporary. The water will pump from the community center at a central boiling location. Several power outlet ports will be present for electric and lighting needs. Basic sleeping necessities will take up most of the yurt layout space, however, layout can ultimately be rearranged based on resident personal preference. Heating will be maintained using radiant floor heating pipes that have hot water pumping from the community center. There are no bathrooms proposed within each individual unit. Bathrooms and showers will instead be offered within a nearby gender-separated shower/bathroom yurt.



Item	One time Cost	Multiple Units
22' Yurt Structure (includes: Roof and wall insulation, Gutter system, windows, door, residential lock)	\$18,000 (Rainier Yurts)	10 residential & 2 bathroom X 12 = \$216,000
22' Insulated Panel Deck	\$1,600 (do it yourself) - \$3,280 (Rainier Yurts)	X 12 = \$19,200
33' Community Center Yurt Structure (includes: Roof and wall insulation, gutter system, windows, door, commercial lock)	\$24,730 (Rainier Yurts)	\$24,730
33' Insulated Panel Deck	\$5,000 (do it yourself) – \$8,170 (Rainier Yurts)	\$5,000
Radiant Floor Heating Job materials & supplies	\$2.67-4.12/sq foot \$25/sq foot	22': (380sqft x \$2.67) + (380sqft x \$25) = \$10,514 x 10 = \$105,140 33' = \$23,657 Total= \$128,797
Ongoing Costs	X	X
Total Costs		\$264,930 \$393,727 (with radiant floor heating option)



CONCLUSION

The goals of the Elwood Heights community development are ambitious and multi-faceted. With careful consideration of site placement to meet the needs of the clientele including location near schools, easy transit access and the naturally-enhanced nature of the site with the forested tree buffer and stream adjacent, the site provides an ideal transitional staging ground for families down on their luck to be safely housed. The nature of the surrounding Samish Neighborhood zoned Residential Single makes placement of this community in-line with current planning paradigms. The yurt housing design concept fosters community building and hands-on, quick start-up housing construction. This allows for neighborhood interaction even before the yurts are fully erected. Yurts provide a low-cost, scalable and mobile option for meeting the needs of this undervalued clientele group in a dignified manner.

RV SITE PLAN

EXISTING SITE

This old R.V. park is located at 341 Telegraph Road Bellingham, WA. The 3.23 acre, commercially zoned property has existing infrastructure and utility hook ups that lend to near immediate occupation. The ground has already been graded and paved and the current R.V. hooks up are ideally placed and can be readily accessed with minimal improvements..

The site is close to many entry level employment opportunities, close to bus lines and groceries, and other amenities.

The site is Privately owned and is listed at \$3,576,696

CLIENT PROFILE

This mobile living solution is targeted at individuals who prefer transient living as a way of life. Rather than requiring a more stationary and permanent residence, this idea offers the flexibility and mobility of existing homeless communities, but more of the amenities that allow for greater levels of health, shelter, security, and belonging.

This site is specifically designed for older males who statistically are the majority of those choosing this lifestyle, but is not exclusive to this demographic. The layout makes it inclusive of all people and situations, though families aren't recommended to be here due to the location of the site and the nature of mobile living.



SITE LAYOUT

- Community Facility
- Shower Facility
- Toilet Facility
- Consolidated Water
- RV's and Housing
- Greenhouses and Planters



This site is already organized in a community setting. By using existing infrastructure, the new community can be set up and established rapidly. A ring of sites for RV's will surround shared community space. There will be sites reserved for people to pull up with their own vehicles, be it an RV or a car. Donated RV's will also be available for people to move into. The individual RV spots have ample personal green space around them that act as backyards. There will be space for temporary greenhouses and/or planters for food production. Most of the infrastructure will be consolidated in the center.

INFRASTRUCTURE / SANITATION

The 341 Telegraph Rd. site has the advantage of existing sewer, water, and electricity hook-ups. Straightforward access to sewer, water and electricity lends itself well to the highly mobile community concept for this site. Mobile RV's and trailers can quickly be placed and connected to these existing utilities. In the event that the community should need to move, dismantling of the site will be equally as efficient as the set up.

SEWER / WATER

Sewer and water utilities will be used for the communal bathroom and shower facilities, and will be made available for any RV or trailer that is equipped to accept a sewer or water connection.

ELECTRICITY

Electricity has the potential to be a highly variable, and expensive monthly cost to the community. It is for this reason that it is recommended to limit electricity access to the communal facility and showers. Limiting access to electricity allows for the use to be monitored, and therefore, minimized. Electricity will be provided to heat water for showers, power the communal kitchen facility, power a computer with internet access, and to provide a centrally located "charging station" for electronic

devices.

BATHROOMS

One bathroom trailer with two stalls will be provided for the community.

SHOWERS

A shower trailer with two separate stalls will be provided for the residences. The shower facility includes propane in-line water heating self-contained within the trailer. The shower unit will also be outfitted with a solar water heating system to boost the temperature of the water before it reaches the propane water heater. For a lower cost option, the shower trailer can be operated with the in-line heater switched off. The solar heated water temperature will be lower without propane heat, but this may not be an issue during the warmer months of the year.

WASTE DISPOSAL

SOLID WASTE AND RECYCLING

Service is available from the local SSC waste management service in Whatcom County for the removal of solid waste and recycling. Waste disposal will come with a monthly cost, but it is the most efficient method for ensuring that the community stays clean and free of litter.

COMPOST

Food scraps and compostable products should be separated from the solid waste and recycling and compiled into compost bins.

HEAT

It is recommended to heat the communal facility during the winter months when nightly temperatures drop be-



low freezing. This centrally located heated space can provide a comfortable sleeping arrangement during the winter for residences, and also act as a cold weather shelter for the county's homeless citizens that are without refuge from the cold.

PROPANE

A propane stove can easily be used to heat the communal tent facility. Propane tanks can be purchased, refilled, and used as necessary. The advantage of propane is that the fuel is pre-purchased before use, and therefore, there will be no unexpected costs associated with heating the facility.

WOOD STOVE

A wood stove can be installed in the communal facility as long as the smoke is safely vented through the roof of the tent. Wood fuel can be sourced locally by community members, and is often available for free in trade for the labor to chop and remove it.

One positive is that the fuel is pre-purchased before use, and therefore, there will be no unexpected costs associated with heating the facility.

NATURAL BODY HEAT RETENTION

Blankets, sleeping bags, and warm clothing are simple, inexpensive methods for retaining body heat during the day and night. Body heat retention methods should be prioritized before wood or propane heat is used in order to minimize costs.

COMMUNITY / SHARED BUILDINGS

To establish more of a sense of community, there will be a number of communal spaces in the center of camp. This not only establishes a community feel but it also minimizes infrastructural needs. Communal space will be used to provide necessary utilities and it can also be used as a central meeting area. Shower and restroom trailers will be located centrally to make them equally accessible for everyone in the community.

A communal kitchen space will be provided in the center as well. Having the kitchen centrally located improves access for emergency vehicles in case of fire. Individuals may cook for themselves, or larger meals may be provided. Food scraps and old grease can be saved and perhaps turned into biodiesel.

To help create job skills, a mechanic/vehicle refurbishing shop will be on site. Here, residents of the camp can learn valuable skills that will help them get a job. With all the donated RV's or their own personal vehicles, they will be able to get them up and running. After they fix up their vehicle, people can feel free to hit the open road if they choose to do so. The refurbishing part of the shop would be for donated vehicles that are unfit to live in. This will also give people the opportunity to make the RV unique and something they would happily call home. The site is in close proximity to a number of existing businesses from which to purchase materials and parts from.

An office space will be located in the center as well. This will provide space for social workers and other "outsiders" to come into camp and have a place to do whatever it is they need to do. This will also be where residents of the camp can have computer access and pick up their mail, therefore, there will be no unexpected costs associated with heating the facility.



HOUSING CONCEPTS

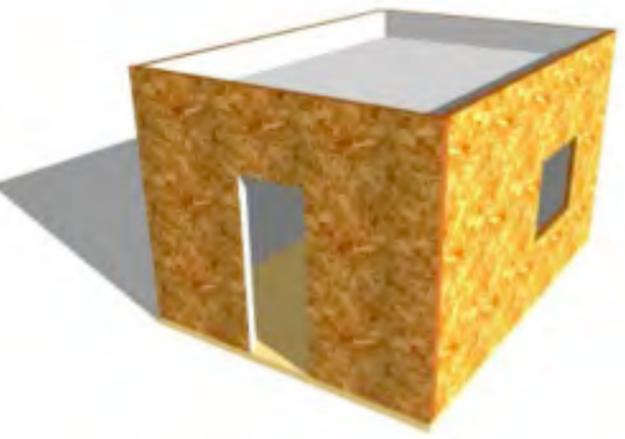
SURPLUS MILITARY TENTS

With the drawdown in Iraq and Afghanistan, there will be a surplus of Military Base-X tents. This surplus will make a huge number of tents available at reduced prices. Prices range from a few hundred dollars to a few thousand. This is dependent on the condition of the tent as well on the size. Sizes range from single occupancy up to space for twenty beds. Styles and usages also vary from housing, offices, a kitchen, bathrooms, or even large garages. These tents are durable and are ideally suited for this climate. Setup and take down of these tents is quick and only requires a few people.



SIPS HOUSING

Structural Insulated Panels are pre-assembled, and consist of insulating foam sandwiched between two sheets of Oriented Strand Board (OSB). SIPs can be custom ordered in various shapes and sizes for ease of assembly. SIPs are structurally engineered and require very little additional support framing. A small SIP structure can easily be transported by truck and placed with a forklift due to the lightweight characteristic of the panels. SIPs have a nearly 50% increase in insulation efficiency compared to standard wood framed structures.



TUBE HOMES

Pre-cast concrete pipes are a carefully designed and engineered product making it an unique material to be used as innovative housing. With a little imagination you can see where this idea could take the minimalist tiny-concrete- village. For example what if you took a few of these and connected them at the center with a common area via some kind of custom breezeway. Add plumbing, power, and some skylights and you'd be in business.

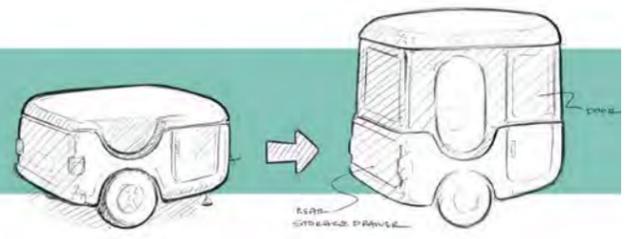


VINYL HOUSING

The vinyl housing consists of vinyl siding a roof area garbage insulation and a bamboo floor all placed on cinder blocks. These dwelling units would be cut off site and then assembled by the occupants of the site. These units would be cheap and create a sense of ownership at the site.

COMPACT CAR TRAILERS

These small units would be lightweight and pack flat. Inside the only amenities would be a bed and small table, making it suitable for a single person. They could be towed behind vehicles or delivered directly to the site as impermanent house structures, and then easily moved again to a new site.



HOUSING DESIGN

EXISTING RVS

Mobile Estates is an homage to the old RV site that closed a number of years ago. By making use of already existing infrastructure, this property is practically "move-in" ready. A short term lease would be procured from the private owner with the added benefit of tax write offs. Residents of Mobile Estates will find a nice and convenient space waiting for them. If they have their own vehicle already, they can just pull up and claim a spot. If not, donated RV's and campers will be provided for them.

Everything a person will need will be available in shared communal spaces in the center of the site. They will be able to take a hot shower, grab a hot meal, and even learn some mechanical skills at the mechanic shop. If a resident is able to fix up their RV to a drivable condition they are free to hit the open road. For those that choose to stay, some level of cooperation is expected of them. They can tend the gardens, clean the rest rooms, work in the shop, or pay rent. therefore, there will be no unexpected costs associated with heating the facility.

ESTIMATED COSTS

WATER	73.81 (monthly)
SEWER	367.9 (monthly)
ELECTRICITY	\$350 - \$600 (monthly)
PROPANE	\$200 - \$400 (monthly)
GARBAGE/RECYC.	\$300 - \$500 (monthly)
SHOWER TRAILER	\$7,000 - \$10,000
RESTROOM TRAILER	\$7,000 - \$10,000
WOOD STOVE	\$300 - \$500
SOLAR HOT WATER (2)	\$2,000



SUMMARY CONCLUSION

Mobile Estates is an homage to the old RV site that closed a number of years ago. By making use of already existing infrastructure, this property is practically "move-in" ready. A short term lease would be procured from the private owner with the added benefit of tax write offs. Residents of Mobile Estates will find a nice and convenient space waiting for them. If they have their own vehicle already, they can just pull up and claim a spot. If not, donated RV's and campers will be provided for them.

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SERENITY GARDEN SITE CONCEPT

A. EXISTING SITE

Address: 3116 Mercer Ave, Bellingham WA 98225



ON-SITE ATTRIBUTES

This site is approximately a total of 620,000+ sq ft and zoned as light industrial. It has been divided into three parcels and currently listed for \$724,129. By viewing aerial photos posted on Bellingham City IQ it has been noted that this property has not been developed or changed much at all in the past 10 years

The property already comes equipped with Mercer Ave stretching about ⅔ of the property length and ending in a roundabout. There is a retaining pond as well as a fire hydrant in case of emergency. Not only are utilities available on Marine street (water, sewer and electricity) but this site is just barely outside of city limits enabling clientele easy access to the downtown area and the amenities available. There is also a trail that extends to the north side of the property enabling connectivity of the site to the surrounding neighborhood. The topography of the site lends itself to agriculture because it is a relatively level and southern facing exposed parcel of land. The soil type is also conducive to agriculture.

OFF-SITE ATTRIBUTES

Busy roads run very close to the *Serenity Garden's* site boundaries. The property is located very close to a bus stop which facilitates easy coming and going from the city of Bellingham. The local business include a recycling center and electrical car production. Ideally trades could be made with these local businesses to take advantage of resources that line up with related on-site needs.



FUNDING SITE

Payment for the use of the property would be separated into short and long term goals. The first option would be leasing the property. Leasing the property for five or ten years would allow for a trial run of the *Serenity Garden* homeless housing project. Through cooperation of the property owner an agreement could be established leasing the property for 3-4% of the total property value per month.[B] This would equate to a total rent of 25344.55 every month. A percentage of this total cost could be covered through the application of grants from sources like the US Department of Health and Human Services.[C] If the farm were to be deemed successful the site could be transitioned into a permanent agricultural area with transitional housing developments to help the homeless.

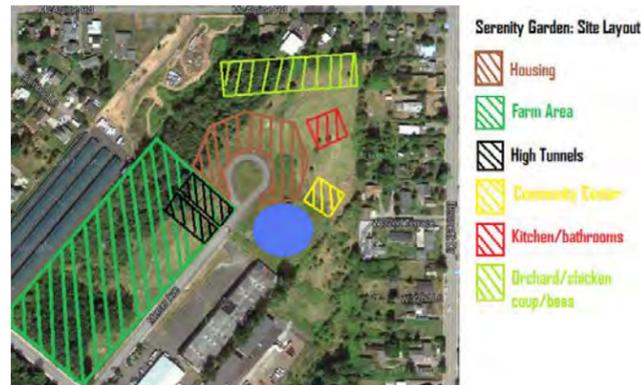
Another option for obtaining this property would be to outright purchase the property for the sum of \$724129. A Housing and Urban Development loan could be a way to make this possible. A HUD loan is guaranteed by the US Government meaning that a bank would be reimbursed by the government if IRA was not able to pay the loan. HUD specializes in financing affordable housing projects. Infrastructure inspections, financial history, and overall risk assessment would be evaluated and when all was said and done, hopefully *Serenity Garden* would be approved by HUD to qualify for the loan.

B. CLIENT PROFILE

Serenity Garden will house males and females over the age of 18. The site is designed to be permanent, however the members are temporary. They can stay in the community for up to 2 years, where they can gain job skills and then become a permanent employee at the site or find a job elsewhere. The members accepted will be beneficial, low, and medium risk. Beneficial people have a lot of social connections within the current homeless community, are calm and want to help lead and take charge. Low risk people includes recreational drug users, hoarders, and people with behavioral quirks, and nuances. Medium risk people include dependent drug users, alcoholics, and people who are dangerous to themselves and have minor psychiatric problems. The incoming members must be able to work on a farm, which includes handling machinery, lifting and other duties. Pets are allowed on site, as most homeless shelters and communities don't allow pets. This will be a trial, and if it's successful pets will be permanently allowed.



C. NEW SITE LAYOUT



Serenity Garden is a transitional housing model designed to help homeless individuals assimilate back into society securely and effectively. The theme of this design is growth. *Serenity Garden* provides the opportunity for homeless individuals to both be helped, and help themselves, get out of a state of homelessness. 3116 Mercer Ave will be turned into a small scale, profiting farm. 260,000+ square feet (a little over 6 acres) of the site will be a year-round garden.

Unlike most transitional housing models which can be uprooted at any moment, *Serenity Garden* is a permanent site with transitional residents. A permanent site allows the establishment to reach a state of rhythm and order for it will have the time it takes for any new institute to become stable. *Serenity Garden* is also designed to bring in a profit which can be used to pay off the cost of the land and other expenses (*Serenity Garden*, section d).

Residents who stay at *Serenity Garden* will make lasting connections with the Bellingham community by attending Saturday Markets and other local events in which food or other goods can be sold (*Serenity Garden*, section d). By actively participating on the farm, *Serenity Garden* residents will gain a wide variety of skills that can be used to help them remove themselves from a state of homelessness. This model is designed to run as a consequence free work-like environment.

As mentioned in *Serenity Garden*, section a, there is already a significant amount of existing infrastructure. There are a few things that will needed to be added to the site, however, to make it a functioning garden:

- Irrigation lines
- Composting area
- A crop wash station
- A shed for storage
- High tunnels
- Resident housing
- A community center
- Bathroom building

D. FARM DESIGN

As depicted in *Serenity Garden*, Figure 1, approximately 270,000sq feet of the property is reserved for a year-round producing garden. A few crops that can be grown year round in the Bellingham community are: kale, carrots, beets, potatoes, yellow onions, and turnips [D]. All of the produce grown will be washed and packaged on site. This will provide more job and skill building opportunities for the residents. See the USDA Washington Crops spread sheet attached for crops and growing season.

Approximately 6.2 acres of the property will be covered in fruit trees and berry bushes. An orchard is the most appropriate use of the uneven ground which makes up the back portion of the site. Livestock, such as chickens and bees, would also be accommodating to the uneven ground.

SERENITY GARDEN INFRASTRUCTURE:

1. Irrigation- During our interviews with Joes Garden we found that having the proper irrigation on the property is essential for the success of a profitable and fully functioning farm. Drip Irrigation is a very important aspect of the farm because it reduces plant stress via consistent watering, reduces water usage and eases overall labor. Compared to conventional sprinkler-style irrigation methods drip irrigation uses only "half to a quarter of the

water".[G] The cost of installation and usage will depend on the size of plot, water payment, and maintenance. According the University of Florida drip irrigation costs \$500-1200 per acre.[G] For a 6.2 acre plot this means an estimated installation cost of \$ 3100- 7440. This number does not include annual maintenance. Low cost PVC tubing can be utilized reducing costs. Training someone to maintain the irrigation will also reduce associated maintenance costs.

2. Crop Wash Station- This could double as a large utility sink that would be used for other purposes as well. Estimated cost \$250-400 from the Home Depot.

3. High Tunnels- Used for extending the growing season and enabling year round growth High Tunnels are essential tools for anyone who is serious about agricultural output. Trapping solar energy high tunnels create a greenhouse effect for larger areas of land. The cost for one Economy Round Style High Tunnel 30' W x 12' H x 72' L from Farmtek costs \$5,369.[H] The farm would need at least two for beginning stages of production. As well as extending the growing season, It is proven that High Tunnels increase both production and quality of produce.[H] It is possible to apply for a grant to help cover this cost. The grant is through the USDA natural Resource Conservation Services "Know Your Farmer, Know Your Food" program.[I]

4. Plumbing/ Sewer System- As well as irrigation, plumbing will be needed to meet the needs of human community on site.

5. Electricity- As stated earlier electricity will be available for connection and use from Marine Ave utilities.

6. Soil Testing and Conditioning- The soil existing on site should be chemically analyzed to determine the nutrients available as well as the nutrients that are lacking. This will reduce costs associated with fertilizers/minerals as well as prevent over fertilization and associated complications. There are several companies that can provide adequate soil tests to determine what is needed to improve soil fertility. Joes Gardens recommends William F. Black Soil testing located in Burlington WA.

7. Community Center- Referred to in depth in section E.

8. Bathroom Building- Referred to in depth in the next section E.

9. Compost Pile- A low cost, sustainable solution for using organic material that would otherwise enter the landfill. Compost Tea, a nutrient packed soup, can be brewed from the compost pile and used as an organic fertilizer for the farm.

10. Tools- To appropriately manage the agricultural environment several kinds of tools will be needed. According to Jason Weston from Joe's Gardens, old tools and machines, which can be found online at a reduced price, are the most reliable and work best for maintaining the garden. Jason strongly suggests investing in the older technology tools than the newer, more expensive ones [F]. The most heavy duty tools will be the Cultivator, Seeder and if funds allow a tractor. A cultivator is used to till the soil before planting effectively aerating the soil before being planted in. A cultivator costs anywhere from \$150-400, dependant on the model, from home depot. [J] A seeder efficiently seeds rows of soil much faster than by hand. A precision Seeder from Home Depot costs \$134. A tractor could be used to till the field and move the land but it is not totally necessary in the first years of production. Aside from these heavy duty tools the farm will need shovels, wheel barrow, clippers, and other miscellaneous tools.

11. Crops- Seeds and saplings, will be donated seasonally by Joe's Garden. Jason also said that he would consider volunteering some time to teach members of *Serenity Gardens* the basics and most important things to know about gardening [F]. This will greatly reduce the overall cost of the garden. A shed will be built on site to store materials, tools, seeds, and other farm products.



RESIDENT LIFE ON-SITE

At *Serenity Garden* residents will develop skills that will provide *Serenity Garden's* members with marketable skills which will be helpful during their transition process out of homelessness., these skills include resume building, canning, meal prep, cleaning, maintaining and selling produce, farm work, small building projects (chicken coop, dog houses, etc.), and more! Different "jobs" will be available to *Serenity Garden's* residents. Such positions include: garden maintenance, livestock caregiver, produce washer, salespersons (goes to Saturday market and other community events), sales managers (makes sales arrangements with community), etc. Each member will have an opportunity to uphold each position.



RESIDENT LIFE OFF-SITE

A full brand identity will be developed to help *Serenity Garden*. This will include a logo, name, and awareness campaign that will all be designed to help the program gain awareness and promote connection within the local Bellingham community. This system allows the community to support the program and feel a connection to the cause. This connection also acts as a bridge to reintegrate the members in the program with the community of Bellingham at large.

The products grown by the residents at *Serenity Garden* will be sold to local co-ops and other food markets. Two days a week *Serenity Garden* will be open to members of the public who wish to come and purchase produce, eggs, and other products.

Residents will be trained by Cloud Mountain Farms, a local nonprofit community farm center dedicated to providing hands-on learning experiences to aspiring farmers [E]. They have many free workshops that *Serenity Garden* residents can attend to learn how to properly maintain the farm, some of these workshops include: Beginning Vegetable Gardening, Learning to Grow Fruit Trees, Learn to Garden Sustainably, Build Tunnels and Cold Frames, Using Tunnels and Hoop Houses for Productive Gardening, and How to Harvest. By attending these workshops *Serenity Garden* residents will gain valuable knowledge and skills that they can apply to both life at, and after, *Serenity Garden*.



E. COMMUNITY/SHARED SPACES

During phase one, the two community buildings will be army tents and with revenue and time during phase two will be double wide trailers. There are the HDT Base-X Model 8D36 large dome shelters, which have a clear span of 31'. There's an integrated floor, outlets and it has ventilation. It is lightweight and portable but at the same time is durable and strong. It takes about 20 minutes to set up with about 6 people. It has HVAC plenum, which means it has heating, ventilation, and air conditioning. The first building will include bathrooms, showers and washer and dryers. There will be 2 showers and 3 stalls for each gender and 2 industrial washers and dryers. In addition, there will also be an office for self-help and outreach, and an office for *Serenity Garden's* management. The second building will include the kitchen and dining hall. When the dining hall isn't in use it can be converted into an event and activity space. Such events include monthly cooking lessons, community BBQ's, game night, movie night and others!



There will be a convenient storage shed for farming equipment and tools. Also there will be a place where the members can 'escape' and relax in that will include benches, a small fountain (or the retaining pond), and a therapeutic garden. The garden will contain plants that are relaxing cool earth tones.

Pets will be allowed within housing units but will need to meet regulations of the establishment. This means well groomed, up to date on medicines/immunizations as well as overall healthy for the living situation.

The community building will have services and programs, such as community arts and building program, employment, resume and skills building program, counseling (mental health, substance abuse, stability, etc.), health and wellness services, health care, support groups, and case management services. Case management services involves helping them find housing after they leave the community, behavioral health issues, finding employment, etc.



F. HOUSING DESIGN

The individual housing will be HDT Base-X Model 103 tents that are military grade. They are 9'5" x 15' (area of 210 square feet) and are sturdy, lightweight, and durable. The frame allows for an easy and quick setup of less than 5 minutes with only two people. The price ranges from about \$400 to \$500 and some tents can even potentially be donated by the U.S. government. It has a pre installed floor, electrical wiring, and a ventilation system (HVAC/air plenum). There's also an electrical outlet every 5'.

G. ESTIMATED COST

The total cost for the *Serenity Garden's* program would sit around \$794232.99 with the potential of having \$22738 of this cost donated.

H. SUMMARY

Serenity Garden is a place to help assimilate the homeless back into society and get them back on their feet. It's a place where they can feel safe and connected, be with people who share the same experiences, and develop skills that can be applied to the real world. They finally can have a roof over their heads, a place to sleep, and food, while at the same time benefitting them to help them in the future. By completing their duties, activities, and counseling they are bettering themselves by learning job skills and improving their overall health. Gardening can be therapeutic, and can be used as a tool for therapy of mental illnesses. *Serenity Garden* offers multiple resources and activities to keep the community members busy.

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