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Abstract

From the 1970's to the early 2000's, the suburban fabric saw unprecedented growth, resulting in vast land consumption. The effect resulted in the increasing distance of required vehicular travel through suburban neighborhoods: a hurdle for access to daily destinations and needs for residents. These vehicular-dependent neighborhoods that make up the suburban fabric are developed with minimal standards of pedestrian accessibility, walkability, livability, and community. This project seeks to heal the negative effects of suburban sprawl development in Southwest Boise. This is a challenging endeavor, with numerous barriers to change. With so many individual property owners and stakeholders, how can implementing positive change in an isolated suburban world be possible?

This project explores the opportunities and benefits of the retrofit of suburban neighborhoods, to reach goals of accessibility, walkability, livability, and enhanced sense of community. It also delves into the dynamics of communication and cooperation with private landholders of Southwest Boise suburban neighborhoods, and the importance of easement programs that make a retrofit of suburbia possible.

Using easement programs that seek to benefit all parties involved, new easements can be formed to serve as pedestrian pathway corridors to provide access to desired destinations. By increasing connectivity through a retrofit of the landscape, the walkability of the area improves, and residents begin to use a safe pedestrian landscape for exercise

and travel. As neighbors begin to walk through the landscape, there is an increase in the likelihood of social interactions among the neighbors, thus promoting a healthy sense of community. Positive aspect of the landscape including access, walkability, and community attribute to high livable standard for the suburbs.

Offering a design-solution, this project seeks to create a looped pathway along existing canal easements in the Southern Boise Suburbs, linking suburban residents to their daily amenities and needs. This is accomplished using a pedestrian-oriented landscape that puts emphasis on people, rather than vehicles. This presents the perfect opportunity for healing the suburban fabric from sprawling development precedents that have adversely affected the average suburban resident.

Introduction

Research Question

Problem Statement

Context and Purpose

Project Goals

Conceptual Framework

Theoretical Approach

Research Question

How can suburban neighborhoods in Southwest Boise be retrofit to improve connectivity and walkability in order to reduce automobile-dependence and promote healthy lifestyles, by adapting existing easements and utilizing incentive programs to create and maintain new easements?

Problem Statement

As trends from suburban low-density development shift to higher-density sustainable growth, there are many suburban areas left with car-dependent, unsustainable designs. The need to retrofit these outdated suburban developments is imperative to achieve improved walkability, and thereby create an enhanced sense of community, increased access and connectivity, and proposed ecological function. Using proven methods of sustainable development and incentivizing retrofits in a way that benefit private land owners, suburban developments can be retrofit to better serve the community and the environment.

Context and Purpose

There are many suburban areas in the Treasure Valley that would benefit from an enhanced sense of community, enabled walkability, and environmentally-conscious retrofit development. After World War II, there was a push to provide more housing for returning soldiers and domestic workers contributing to the war effort. Changes in lending, planning policies, transportation systems, and housing construction, coupled with a growing desire to live in suburbs, lead to urban sprawl. Such a development trend saw unprecedented land consumption at an alarming rate. What we have now are suburban neighborhoods that are completely automobile-dependent, and promote isolation rather than community. The Southern Boise suburbs would

benefit from an enhanced sense of community, enabled walkability, and environmentally-conscious retrofit development, that counter-acts the post-WWII urban sprawl development trend that saw a dramatic rise from the 70's to the early 2000's (Duany 2000).

Suburban neighborhoods consist of predominantly private land. In order to create easements required for retrofit development, communication and collaboration with private land owners is mandatory. Through incentive programs that detail obtaining and maintaining easements, private and public users can come to an agreement that achieves desired goals for improved connectivity, especially improved walkability.

This project contributes to Landscape Architecture, as it acknowledges, and seeks solutions to, several issues that are apparent in the suburban world. It acknowledges the need for positive change in suburban development, the fact that most of suburban land is owned by many different private owner, each with their own needs. Retrofitting the suburban world requires that a variety of people be considered and incentivized to achieve goals that seek to benefit all involved. This project goes further than offering a physical solution to the lack of walkability in existing suburban neighborhoods. It goes into the dynamics of the people of the neighborhood, their needs, and their willingness to contribute to a cause that realizes a greater suburban world that is a home for people and pedestrian activity.

Project Goals

This project seeks to identify easement incentives, mechanisms, and strategies with private landowners for the use of the public and neighborhood community to retrofit suburban neighborhoods in Southern Boise, to achieve increased walkability, connectivity, sense of community, and opportunities to integrate ecological processes. Shared-use, non-motorized pathways are proposed through neighborhoods to increase circulation. These pathways stem from a nearby canal (retrofitted as a trail), which serves as the "spine" for the trail system.

The vision is to identify suburban neighborhoods in Southern Boise, which are located relatively near to existing canal easements, and are also in need for improved connectivity throughout the subdivisions. Legal incentives that support easement creation through private landholder properties are researched and utilized. This is for the sake of improving connectivity to nearby amenities and needs, improving walkability to provide recreational opportunity and to promote healthy lifestyles, to enable social interaction between neighbors along these new paths, to incorporate wetlands and stormwater management tactics that support riparian habitat, and to ultimately reduce dependence on the automobile as the primary traveling source.

The goals are as follows:

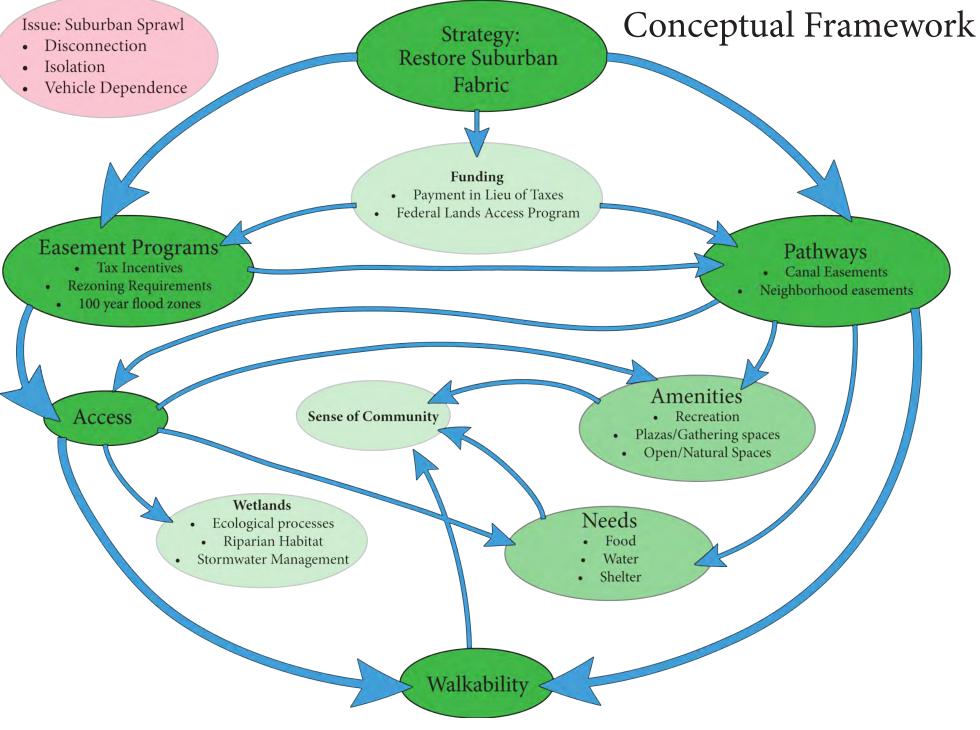
Demonstrate the need and benefits of retrofitting Southern Boise's suburban neighborhoods to be walkable and amenity-rich.

Research and analyze mobility, accessibility, and connectivity to the needs and amenities of residents, to design safe trailway systems.

Understand the suburban neighbor's perspective and needs, finding appropriate accommodation for them in easement programs that seek to create trailways through neighborhoods.

Emphasize qualities of walkability and sense of community through biking and walking as alternative modes of transportation, thus promoting exercise and increasing the likelihood of casual interaction between neighbors.

Propose the integration stormwater retention techniques, and promote native wildlife and riparian habitat.



Conceptual Framework

The Conceptual Framework diagram, as shown on the previous page, reveals how all the major concepts of the Boise Loop Project are interconnected. There is, however, a "main path" or logical process through the framework, showing the orderly path in which the concepts occur chronologically, thus revealing the cause-and-effect relationship between several of the project concepts.

It begins with the major issue to be solved. The issue is the precedent of suburban sprawl in the Boise area. Symptoms of sprawl include: disconnection, isolation, and vehicle dependence for those who live in the suburbs. The strategy to solve the issue, is to restore the suburban fabric to a more amenable state. The framework includes major concepts such as: access, walkability, pathway creation, and easement programs. These are the pillars on which the project is built. The goals which the pillars set to achieve are: wetland creation, need and amenity access for the suburban resident, and an overall greater sense of community for the suburban resident.

The "main path" or logical process through the conceptual framework is as follows: Beginning with the issue and continuing with the strategy to solve the issue, funding must occur to aid the creation of easement programs. Funding methods include an alternative transportation grant, federal lands access program grant, and payment in lieu of taxes. These funding methods help start the easement programs that are required to create pathways through the suburban fabric. Easement programs include tax incentives for the landholder, a set requirement for the rezoning of parcels

to allow for easements, and the easements set within 100year flood zones that, due to its flooding nature, are unable to host any development other than the facilities and features of this project. Easement programs allow for pathways through the suburbs by establishing a fair agreement that yields easement pathways through existing canal easements, and proposed neighborhood easements through private and common lots. These pathways create access to the needs and amenities that, in sprawling suburbs, are more difficult to get to than in traditional developments seen in the Boise downtown area. These needs consist of basic human needs such as food, water, and shelter. Amenities consist of recreational spaces such as parks and other nature spaces, as well as plazas and other gathering areas. Providing access to needs and amenities restores walkability in the suburban fabric, which, as studies will show later in the report, has a direct link to an increased sense of community for the area.

Theoretical Approach

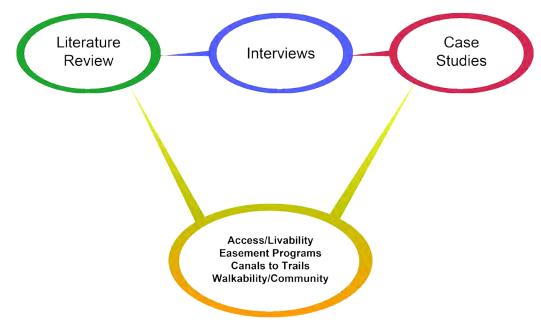
The epistemological position that is being taken in the project is that of constructivism. This position is based on an individual's interactions with the world, in terms of defining truth and meaning. The project addresses the needs of many separate individuals, each of whom construct their own meaning in different ways. Based on all the individual's potentially unique perspectives, there can be multiple contradictory, yet valid, meanings to come out of the same situation.

The theoretical perspective of the project will be interpretivism, which is a perspective holding that social and natural realities are independent of each other, thus require different methods. Natural reality consists of data consistencies which lead to the creation of laws, i.e., laws that are currently in place. Social realities relate to the actions of the indi-

vidual. Individuals have separate, but valid social realities, which stem from their individual perceptions and which detail their individual needs. The project involves easement programs based on a study of the individual's needs. Each individual involved will most likely have a different need that cannot be based on the natural reality used to create uniform laws. Thus each individual will live by their own appropriate law.

The research methodology used in the project will be action research.

The research methods that will be used in the project are observation in site analysis, interviews, questionnaire, literature reviews, case studies, and secondary data (Gray, 2004).



Literature Review

Access & Livability

Easement Programs

Walkability & Community

Literature Review

We have inherited a suburban form that is not conducive to walkable, pedestrian access, and does not promote healthy lifestyles from a recreational exercise standpoint. Starting in the 1970's this suburban form became the top development trend for housing. This quick-to-produce product has realized many missed opportunities for functions that benefit humankind outside of just creating a place to be housed. Using research from the constructivist epistemological position, the theoretical perspective of interpretivism, and the methodology of action research, a solution to counteract the inherited suburban form seeks to achieve several goals. The goals include improving livability and accessibility standards, creating easement programs that allow for the retrofit of suburban neighborhoods, improved walkability, and an increased sense of community for suburban neighborhoods in Southern Boise.

Access & Livability

Concepts of access and livability matter in suburban neighborhoods, because they are homes to people. Resi-

dents are affected by perceptions of livability and ease of access, by way of form, aesthetics, and function in the environment in which they live. Both mental and physical benefits are to be gained from increased access and livability in resident's daily lives (Zue, 2014). Access connects people to their daily needs, and livability is a measure of the comfortability of the area they live; it is a measure of how habitable their home is.

Issues associated with access and livability in retrofitting neighborhoods include creating clean, livable neighborhoods; using pre-urbanization patterns of development that are mindful of existing conditions and resources; and retrofitting to create accessible areas.

There is a valuable precedent study that still applies today. To address the need for clean air and reduced congestion, the Public Health Act of 1875 was established in England. The resulting product was known as the "Bye-Law Street." These streets were essentially widened, and displaced 238 inhabitants in the process. These street dimensions were generalized, and applied to industrial streets as well as residential streets (Southworth, 2005). However, the

new residential streets were not appropriate for the residential setting. Little or no vegetation lined the streets, and the experience was described as "emotional emptiness." The streets were normalized at 40-50 feet in right-of-way dimension. Although the intimate feel of the past street scale was gone, this trend caught on as a way to improve the quality of air, light, and access. This dimension subsequently became a standard (Southworth, 2005).

Instead of predetermining a street form before the design process, it is important to consider the topography, the place, and the context in which the district or neighborhood is being designed. Using forethought to garner design strategies, results in the most appropriate design response for any given area. The horizontal dimension should relate to the vertical dimension of any planned structures or buildings. The dimension of streets should vary, when necessary, depending on the scale of the area it runs through (Southworth, 2005), and the type and amount of traffic it will accommodate.

The effect of scale in development suggests that a proposed path should respond to the area around it, and at times, it can vary if the scale of the surrounding environment changes. The varying dimensions of streets (as well as the prevalence of vegetation) suggested by Southworth, can be applied to trails that are retrofit in the suburban environment. The emotion and experience had from a poorly, generalized streetscape design serves as an example of what to avoid when designing a vegetated trail system through suburban neighborhoods.

For a retrofit of a suburban development to be successful, it must achieve a number of goals. These goals consist of, but are not limited to:

"(i) increasing diversity, accessibility and connectivity of the overlapping suburban growth; (ii) reinforcing the synergies among interconnected urban regeneration projects; while (iii) integrating urban retrofitting strategies with the unique characteristics of each place" (Vall-casas, 2011).

Retrofit of suburban neighborhoods is possible, and can heal large scale developments (Vall-casas, 2011) as well as neighborhood-scale developments in a similar fashion. Retrofit can produce a cohesive, defragmented network, with an emphasis on cultural, natural and historical context, achieved through pre-urban forms (Vall-casas, 2011). These forms are mindful of existing conditions and resources, in a way that sprawling development overlooked. Honoring cultural, natural, and historic context, can reinvigorate the area and bring a sense of place, which has been lacking in recent development trends. There is a growing awareness that the type of sprawling development that has dominated the landscape in recent years has created homogenous, look-alike areas that lack an identity with any connection to the pre-development landscape. There is a cause and effect relationship between the loss of area identity and the loss of sense of community. Inevitably, a lack of sense of community leads to a lowered sense of physical and social identity for the resident (Vall-casas, 2011). Pre-urban patterns consist of water routes and agricultural plots that represent sustainable methods of development. Using the methods that have worked in the past assists in the battle against sprawl and other unsustainable trends. Areas such as Phoenix, Arizona that have lost agricultural plots and historic water resources, can certainly benefit from a consideration of the pre-urban form. From a cultural, natural, and historical standpoint, the pre-urban form method for redevelopment

can improve the health of residents through identity, and restore cities to a sustainable state (Vall-casas, 2011).

Literature topics researched in regard to concepts of access and livability relate to the initial research question, as these are concepts that are set to be achieved through the retrofit of the suburban environment. This research lays out the importance of clean-livable neighborhoods, being mindful of existing conditions and resources, and creating accessible areas with identity and regional context, as pivotal factors in the success of a suburban retrofit. The research here demonstrates the need to provide a level of comfortability and access to that make a neighborhood more desirable.

Easement Programs

Easement programs introduce incentive for private landholders to create easements for trails essential to improving connectivity and walkability through suburban neighborhoods in southern Boise. Easement programs should be tailored to each individual landholder, as they have different interests and goals (Moon, 2011).

Creating new easements in a suburban environment requires careful consideration of a number of concerns. The easement programs and strategies should address the landholder's needs and concerns, focusing on how to incentivize landholders' participation in the easement program. The long range maintenance of the easements must also be addressed. Focusing on both social and ecological benefits of easements can help communicate their value to local landholders, while also addressing issues of sustainability, safety, and environmental quality. Evaluation is also help-

ful in understanding how the easements are used, and how to maintain them so that they continue to be an asset to the community over time. These easement programs form the base around which these suburban retrofit developments will take place. To heal the loss of connectivity through the suburbs, a trail system shall be created on private suburban lands in the form of easements. These easements are very delicate in their creation, and require a substantial amount of effort to obtain and maintain.

Private landholder easement programs present an opportunity to create more walkable, quality of life enhancing developments. However, obtaining and maintaining easements to retrofit suburban neighborhoods hinges on communication and cooperation with private land owners (Moon, 2011). As an example of success: Larimer County in Colorado has benefitted greatly from implementing and actively pursuing private land conservation programs, leading to the majority of its land conserved (Wallace, 2008). These private land conservation programs are very much like small scale neighborhood easement programs (sought after in this project). Many legal tools, methods, and mediatory agreements were used and achieved to obtain conservation lands. A critical technique in land conservation methods is conserving land that is contiguous. The more connected the parcels are, the more opportunity the parcels can provide for the user in regards to connecting them to their needs (Wallace, 2008). In translation from large conservation parcels into neighborhood-scale easements, the same principle applies.

To achieve such success, the design of conservation or easement programs must be delicately produced and diligently enacted. The design of private-landowner incen-

tives programs are based on an analysis of two types of landholders, those who have income that is dependent on the land, and those who do not. Tools are developed from this analysis to comprise a greater conservation program that works with the needs of all parties involved. Those who do generate an income from the land (product landholders), were more likely to agree to a conservation plan that offered them a lot of short-term, financially-appealing incentives (Moon, 2011). Pre-emptively knowing the needs of these different types of landholders leads to greater success in retrofit efforts, and the higher likelihood of enhancing walkability and quality of life. The attitudes of the landholders play a significant part in the involvement and participation of incentive to easement programs. A relationship must be formed between conservation agencies and landholders based on knowledge and understanding (Moon, 2011).

The attitudes of participants are a crucial component to the success of easement programs. Understanding is key. A more common pursuit than easement programs in suburban neighborhoods is ecological restoration on private lands. Because of this, the enlightening information that has come from ecological restoration studies and the attitudes from the people participating can be applied to suburban neighborhood-scale easement programs. In these restoration programs, people are less likely to participate in ecological restoration programs if they perceive any danger to their land: such as weeds, fire, and pests, and general lack-of-safety concerns that would have an undesirable impact. Studies show that people are likely to cooperate if their land is protected by such factors (Jellinek, 2013).

Owners that participated in ecological restoration, were typically members of a land-care group and owned

land that was not used in production or generated an income. This article infers that owners would be more likely to maintain the area if they were compensated for weedspray, or were provided assistance in mitigating fire-hazards and pests and other safety concerns (Jellinek, 2013). The same principle applies to aiding those involved in suburban neighborhood easement programs, to help mitigate safety concerns that come out of the creation of easements. Incentive programs would be more effective in understanding the owner's needs and desires. Proper compensation and support incentives would enable the owner to produce the desired outcome of the public and private landowner.

Retrofitted corridors, dedicated to ecological function and human recreational use, would be better preserved and protected if the former landowners who exchanged these easements took care in seeing that it maintained its functional integrity.

When speaking to the compensation for the land exchange (obtaining easements) itself, a keyword is fairness. Obtaining land from private land owners can put a burden on the land owner (especially if the land happens to be producing an income), and as a result, they should be compensated for the change (Wallace, 2008). On the other hand, this exchange could become a burden on taxpayers. The term "windfall" has been used to describe the profits or rather, advantageous outcome for the private land owner after the exchange has been made. A balance, and a "fair" exchange must be made to ensure a positive relationship between private and public parties (Wallace, 2008).

"Tax breaks, mitigation techniques, regulation assurances, and cost-share agreements are tools for encouraging voluntary engagement in wildlife or natural resources conservation" (Knipps, 2011).

The same principle applies to neighborhood-scale easement programs. Tax breaks are the beginning, and drive the easement creation. Mitigation techniques help eliminate perceived new dangers to private lands, and regulation assurances and cost-share agreements help maintain the easement in the future.

In the endeavor to obtain portions of privately owned land to designate as easements, or simply land conservation to serve the needs of the public and the environment, there is a fundamental question to be asked: "who is going to take care of the land (by enforcing restrictions in use, if any) after it has changed hands from private to public, and in what way is it going to be paid for?" (Echeverria, 2005). There are two methods to this upkeep, one of which states that it is regulated by the government, the other stating that the government will pay the private land owner to maintain and enforce any restricted use. Perhaps the greatest method is to use these in tandem, applying each where most appropriate in a given situation. The correct method should be decided based on the person, the situation, and the context of the exchange (Echeverria, 2005).

In the case of retrofitting suburban neighborhoodscale developments, tax breaks are the prime methods. However, one must ask the question, is the landowner incentive program working? And if not, should it be reevaluated for greater success.

"The purpose of my study was to gather perspectives of LIP stakeholders to help answer the following questions: (1) How do stakeholders view the program (goals, successes)? (2) What methods do they believe are the best to achieve the goals of the program? (3) How did exogenous factors affect program suc-

cess? (4) How do stakeholders think LIP could be improved?" (Knipps, 2011).

These questions address the success of the landowner incentive program by putting emphasis on the landowner perspective. The answers from these questions assist in the future success of the incentive program. Communicating with stakeholders in this way improves the relationship between private landowners and administrators that enact the land exchanges and physical changes, as well as with the public users (Knipps, 2011).

At times, incentives for private landowners to provide easements are required. Incentives can come in many forms, and are tailored to each owner's needs. Once the easements are obtained, and the method of maintenance is established, suburban neighborhoods can begin to be retrofit in a way that produce outcomes synonymous with walkability, livability, connectivity, and enhanced quality of life, that are actively emphasized in the landscape.

Creating easement programs is a crucial component to retrofitting suburbia. In fact, a retrofit that achieves the desired goals, cannot be successful without these programs. Because of the essential need for easements, a substantial amount of research has been conducted on topics that concern easements. These concerns include the landholder-based approach to easement-program design, an analysis of the social and ecological benefits of easement programs, how to maintain easements, the evaluation of the success of easement programs, and the primary methods to incentivize landholders for the creation of easements.

Walkability & Community

The preceding research addresses the structural and spatial characteristics of a walkable environment, and relationship between walkability and community. The walkability measure of an area has an effect on how the resident or user positively perceives the environment. As well, sense of community is more apparent in walkable neighborhoods. Walking increases the instance of casual interaction between neighbors creating a greater sense of community (Wood, 2010). The walkable retrofit development of suburban neighborhoods speaks to the goal of enhanced sense of community, and its connection with walkable environments.

Neighborhood form has an effect on walkability, particularly from the pedestrian resident's point of view; their perception of the safety level of the neighborhood. At the very least, desirable neighborhoods should be safe for pedestrians and be walkable for all age groups. Neighborhoods have the potential to be a great place to live in and grow old in. Walkable neighborhoods have positive effects on the physical health of the resident, by enabling exercise in the environment. Walkable neighborhoods also have positive social benefits, increasing the instance in which social interaction occurs, resulting in an enhanced sense of community.

"Walkability is the extent to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network." (Southworth, 2005). Walkability is the measure at which the area connects people to where they want to go, safely, and pleasantly. Walkability brings the desire to walk back again, by accommodating the pedestrian's needs. There are six major points of walkability to consider in a walkable design. These include: Linkage with transportation modes, safety, quality of pathways, path context, connectivity, and fine-grained land use patterns (Southworth, 2005).

Southeast Boise is a typical suburban layout, with winding streets, cul-de-sacs, with only streets and sidewalks to move people through neighborhoods. There is no independent path system, no bike lanes, nor any linkage to alternate transportation modes outside of the private vehicle.

Walkability has suffered from past trends of development. Common street layouts of all scales have changed over the years, from the traditional "gridiron" form of the past, to the suburban "loops and lollipops" that became popular in the 1970's. The change presents a loss in connectivity and walkability over time, resulting in looped streets and cul-de-sacs that create dead-ends. In the name of high speeds and traffic efficiency, walkability has suffered with every new advance in vehicular technology. Before cars, there was a need for fine-grained pedestrian routes, and dense development. This need shaped the walkable city. Now, we have an auto-dependent society associated with a dominantly sedentary population, and a reduced emphasis on walking (Southworth, 2005).

The trend to seek transportation alternatives other than the personal vehicle, is rapidly gaining a foothold in modern society (Southworth, 2005). Whether by foot or bike, the quality of the landscape is a determining factor in the success of pedestrian transportation. Accommodation

for alternative modes of transportation forms the basis for defining parameters of a "walkable city." Dimension, connection, and other such criteria make up the needs for safe pedestrian activity.

Retrofitting our suburban neighborhoods to be more walkable, supports safe pedestrian activity and helps to reduce vehicle-miles traveled. The most common method to achieving this change is to address the structure of the neighborhood, by implementing a grid-pattern (Ruffenach, 2009). Corridors of green space that double as vegetated buffers, user-friendly pathways, as well as nodes of pocket parks, can substantially increase the chance of social interaction. Introducing these features would add opportunity and user-friendliness that has become increasingly soughtafter. (Ruffenach, 2009).

There is growing realization that suburbs might have been a safe place to grow up, but they are difficult to grow old in. The town of Fayetteville, Georgia, is transitioning into a "lifelong community" for all ages to enjoy. The benefits of vast personal space, privacy, and affordability, that suburbs were expected to provide into the future, are fading fast as a direct effect of the exponential land consumption. With every expansion, the distance needed to travel to reach new suburban neighborhoods increases. As one grows older, the thought of leaving these hard-to-agein areas crosses the mind. Fayetteville, Georgia, however, wants to retain residents, and create neighborhoods people would rather not leave (Ruffenach, 2009). Bridging connections between neighborhoods, between amenity hotspots, and between food sources via a trail system will create the opportunity for all age groups (including aging residents) to opt for an alternative mode of transportation rather than

the vehicle. This system would make a neighborhood more accessible, walkable, and more desirable to live in, not to mention it would have positive physical and mental effects on residents.

The walkability of a neighborhood, or lack thereof, has interesting effects on its residents. There is an obesity epidemic exacerbated by recent city and neighborhood development trends (Zue, 2014). There is a correlation between the type of activity done by residents and the structure of neighborhood they live in. Studies have been done on several groups of people, all with varying physical activity levels. The authors found that when residents moved from a typical suburban neighborhood with a low walkability rating, into a neighborhood with a high walkability rating, there was an increase in the level of physical activity in the majority of the groups measured. In fact, all groups reported an increase in physical activity, except for a group who were already reporting high instances of physical activity in their previous neighborhood. The study concludes that all those who had a low or average rate of physical activity in the past, increased their physical activity in their neighborhoods, inferring their new walkable neighborhood structure influenced an increase in physical activity. The study also explored social health benefits. Increased walkability led to a higher instance of social interaction among the residents. The built environment around us influences our behavior, whether consciously or sub-consciously. The way we build our cities and structure our neighborhoods has a profound effect on physical and mental health, assisting in the battle against the obesity epidemic (Zue, 2014).

An enhanced sense of community stems from interesting pedestrian-oriented development as the essence

of the neighborhood to commercial connection (Wood, 2010). Experiences in which travel to a commercial zone requires the use of a vehicle, or if the commercial building has a parking lot that enables the use of a vehicle, prevent social interaction that is a vital part of sense of community. Lively, walkable neighborhoods produce positive social effects on residents and ultimately strengthens sense of community. It is necessary that lively, walkable neighborhoods use methods of neighborhood design that focus on shorter rather than longer routes to resident needs and amenities, to achieve the desired outcome of resident's walking to their destination (Wood, 2010). The implementation of attractive features along the way has proven to increase the occurrence of walking. Sense of community can be measured by the residents' sense of safety and friendliness in the area. High safety and friendliness levels result in a greater sense of community. The frequency of traffic and the number of parked cars that can be seen result in a lowered sense of safety and area friendliness. The presence of more people than cars has a positive effect on the perception of the area (Wood, 2010). Walking rather than driving leads to a higher frequency of social interaction with neighbors. This is a vital aspect of sense of community, as well as a factor for improved physical and mental health. The design of neighborhoods and their walkability measure play a pivotal role in the formation of sense of community. Neighborhoods that enable walking to retail or park areas result in desired social interactions, thus forming the basis for sense of community (Wood, 2010).

These literature topics present the points that justify the need for suburban retrofit. This research exposes the neighborhood form and its effect on walkability, how retrofitting the neighborhood to be walkable for all age groups, walkability's effects on residents, and the relationship between walkability and sense of community.

Summary of Lessons Learned

- The context of how the private landholder uses their land, the size of their land, and what they want out of their land plays a critical role in choosing the right incentive program.
- An analysis of the potential ecological and social benefits of easement-incentive programs should be undertaken and used to justify any suburban retrofit.
- The key word is balance: the incentives provided for private landholders must not include "windfall profits" for the landholder, and conversely, should also not be a burden to the landholder.
- Incentive programs should be followed up with discussions (or interviews) with participants, to determine its success.
- Tax incentives are the primary incentive program techniques that worked to conserve land in Texas. However, the results can be extrapolated to other areas with similar conditions, i.e., large areas of working landscape.
- Suburban neighborhoods and communities are to be life-long developments: a place to grow up in, and a place to grow old in, while enabling social connections through walkable environments.
- Designing the walkable city consists of six essential principles: Linkage with transportation modes, Safety, Quality of pathways, Path context, Connectivity, Fine-grained land use patterns.
- Street and landscape dimension should be appropriate

to its placed-based context, and should vary from place to place, regarding density levels and appropriate use.

- Retrofit suburban structure can look at precedents of preurban structure (of the European perspective) for ideas.
- The walkable community has a positive effect on physical and social activity of residents: walkable communities encourage social interaction and physical activity.
- Sense of community is relative to walking and neighborhood design, in the sense that walkable neighborhood structure has a direct effect of the likelihood of achieving sense of community.

Interviews

Creating Pathways

Obtaining Easements

Fund Gathering Methods

People

- Jay Gibbons: Meridian Parks & Pathways Project Manager
- Deanna Smith: Idaho Smart Growth Program Coordinator
- Andy Dinauer: City of Tucson Bicycle & Pedestrian Program Coordinator

The three professionals interviewed for this study are...Deanna Smith: Idaho Smart Growth Program Coordinator; Jay Gibbons: Meridian Parks & Pathways Project Manager; and Andy Dinauer of the City of Tucson Bicycle & Pedestrian Program. Topics discussed include, but not limited to: Creating recreational walking and biking paths along existing canal easements; obtaining entity-owned, private land easements to complete a recreational pathway loop; and fund-gathering methods for designing, building, and maintaining pathways.

Interview Method

One-on-one conversation with guided questions and topics pertaining to the project goals.

Interview Topics

1) Creating pathways

- Use the City of Meridian path design standards and agreements with local canal districts
- 10' Multi-use pathways for pedestrians
- 18' Maintenance pathways

2) Obtaining easements

- Make easement creation a requirement of the parcel rezoning process
- Identify 100 year-storm flood zones that are better used for a path system than other developments

- A discussion with local canal districts to assure safety and no-liability scenarios when using their canal easements
- The city must take on responsibility for maintaining, designing, upholding safety standards, and preserving good water quality

3) Fund gathering methods

- Payment in lieu of taxes (PILT)
- Alternative transportation grant (USDOT TAP program)
- Federal Lands Access Program (FLAP)

The City of Meridian Pathways Master Plan offers detailed dimensional and features standards that comprise the path system. A 10 foot width of pathway is used, with 2 feet on either side of the path as clear buffer space, typically sloping downwards, slightly, away from the path. The path has a 2% cross slope allowing for water to flow off of the path. The path itself is constructed with 3" class "C" asphalt paving, with a 6" aggregate base. Below the aggregate surface is a geotextile layer of fabric, above undisturbed earth. A drafted section of a portion of the path system shows the area of pathway activity, from the bordering fence to a variable green space planted with plant life, to the combined path width and clear space of 14, to another bordering fence separating the path from an 18' canal-maintenance access road. At times, when the overall easement is thinner in dimension, the Meridian path system is incorporated on one side of the canal, and the maintenance road is incorporated into the opposite side of the canal.

There are a number of ways to obtain easements to create path systems. The proposed southern Boise canal-

path system requires the cooperation with the canal district. Project Boise has the jurisdiction over the portions of the New York Canal and Ten Mile Feeder Canal that are to be converted to path systems. While the Idaho cities of Meridian and Nampa have been successful in the past, Boise has not managed to create a successful canal system within their city limits. To accomplish this task, there must be a delicate discussion with the canal district, one that releases the canal district from liability, and required the city to plan, build, and maintain the path system, while keeping consistent communication with the canal district. A document, such as the master pathway agreement between the city of Meridian and the Nampa-Meridian canal district, is required so that the city and canal district can reach a legally binding understanding of the rules, regulation, and expectations of the path system to be constructed within the canal easement.

For land areas that do not fall under the canal district's jurisdiction, such as parcels that belong to other private owners, there are a number of ways that cities have successfully and fairly obtained them for a path system. In Tucson, the desired lands for paths were in natural floodways. The city explained that these areas could not be built on, and were more suited for a pathway system that would help mitigate flood hazards. Different regions have different methods to obtain easements, using logic and sound reason. There are no flood hazards in the southern Boise suburbs, but there is another method that may work. There are several acres of open land that will most likely be developed into subdivisions. These areas do have the Ten Mile Feeder canal running through them. An option to obtain easements along these stretches of canal, would be to require

the developer to allow the easement to host the proposed pathway system, as a requirement upon any rezoning of the land. Many of these open, undeveloped parcels are zoned as agriculture, and as part of the city-required rezoning process for future development, the owner would be required to comply with this measure.

In efforts to obtain funds for the planning, building, and maintaining of these pathways, there are a few options to consider. The city of Meridian has applied for tap grants and alternative transportation grants from the federal government, and successfully received them. Two other options are that of the FLAP: federal lands access program. This applies to any area seeking to make connection to existing federal lands, or seeking to make connections to already existing connections to existing federal lands. This federal funding is designed for propositions that offer to make physical connections for residents to federal lands. The other option is PILT: payment in lieu of taxes. This is designed for cities to maintain their taxes incomes, if there has been a deal between an entity and the city, to cut that entities taxes in return for a service. If a deal was made between the city and another entity to develop an easement through that entity's lands for the general public to use (such as the proposed pathway system in southern Boise), and the deal consisted of the city cutting a portion of the property tax required by the entity, then the federal government would make payments to the city to replace the lost tax amount. This deal is a win-win for the city seeking the easement, and for the entity that allows for the easement.

Case Studies

Village Homes

Anza Trail Coalition

Logan-Hyde Park Canal

The Loop

Village Homes

Summary Data:

Project Name: Village Homes

Location: Davis, California located in Central Valley, 15 miles west of

Sacramento.

Date Designed/Planned: Designed from 1973-1975.

Construction Completed: Began in 1975 - Full Buildout by 1982.

Cost: (Costs of 1974) Land: \$434,000, Development: \$2,329,241, Site

Improvements: \$313,107, House Construction: \$38 per sq. foot

Size: 60 acres

Landscape Architects: Michael Corbett

Client/Developer: Michael and Judy Corbett

Managed by: Village Homeowners Association

Context, Background, and Project Genesis

Village Homes was designed and developed by Michael and Judy Corbett, as a sustainable, forward-thinking neighborhood layout of 60 acres, complete with the values of social responsibility and environmental-consciousness of the time (the 1960's and 70's). They were met with a lot of pushback in regards to almost every aspect an idea in the design. For instance: narrow roads were not accepted by the fire department at first, the planning committee did not approve of dense apartments near single-family homes, and it took trips to many different banks before they could get a loan to apply to the project. Finding funding for such an unconventional project was the most difficult aspect of the process. Corbett stated: "There was a lot of resistance to the project from local banks. We went to 30 different banks before we got a loan" (Owens, 1993). Eventually, the concept was approved, and the construction began in 1975. The Village Homes Homeowners Association dispersed funding out to the residents to design the open spaces. \$600 was given to each homeowner to help landscape the open spaces and corridors of the neighborhood. This way, residents who participated got to meet their neighbors through a common goal, thus having a profound impact on cooperation and community of the area. "An important benefit of resident participation is creating a sense of symbolic ownership. Surveys have shown that this participation has led to a stronger sense of attachment to the neighborhood and greater satisfaction" (Lenz 1990).

Role of Landscape Architects

Michael Corbett and his wife, Judy, designed and planned the development based on their own alternative ideals for creating neighborhoods. Their ideas were contrasting to other neighborhood development styles of the time.

Program Elements

The program included mixed housing types, dense apartment living, and single-family homes. The overall design was based on a pedestrian perspective, setting it apart from typical vehicle-oriented development. The pedestrian paths and open spaces were laid out first, to prioritize pedestrian movement and activity, the roads were then laid out, although made much narrower than tradition neighborhoods streets. The open spaces and corridors make up 25% of the development, and were designed to be edible landscapes, where people can grow food and build community through working the land. Design elements included in these open spaces were: the central green, vineyards, orchards, common areas, playgrounds, drainage swales, community gardens, bicycle and pedestrian pathways, and private courtyards.

Case Study Comparison Questions

• How is it used?

It is used as a residential neighborhood, with emphasis on pedestrian circulation, community spaces, and an integrated on-surface water drainage and collection system.

• What is the context of development?

Everything was designed as a whole, nothing was retrofitted or changed.

• What are the connections?

The neighborhood is designed to conveniently connect residents to open space corridors and commons from the streets outside their homes.

• How are social conditions of neighborhoods affected?

Positive social effects, like sense of community and involvement, are numerous and more prevalent than other

conventional neighborhoods. Village Homes is built to connect people by providing convenient, physical access to community areas, where people are brought together with common goals of recreation, and growing food.

• What is the connectivity with respect to suburban form?

Village homes is the polar opposite of a typical suburban neighborhood. This is because of Village Home's emphasis on pedestrian connectivity, open space system (which makes up 25% of the overall development), and community-focused interaction.



Anza Trail Coalition

Summary Data:

Project Name: Juan Bautista de Anza National Historic Trail (Anza Trail

Coalition)

Location: Southern Arizona (specific trail section discussed, is in Santa Cruz County, between the presidio

of Tubac and the mission of Tumacacori)

Date Group founded: 1994 (Anza Trail Coalition)
Date Trail Created: 1990 (by U.S. Congress)

Cost: Anza Trail Coalition is a non-profit organization: 50% of local merchant sales are donated to the

Coalition to fund trail creation, and maintenance

Size: Full Trail: 1,210 miles long, Santa Cruz County trail section discussed (that which used

easement programs) is 38 miles long

Client/Developer: Richard Williams (founder)

Managed by: Anza Trail Coalition



Image Credit: Desertusa.com

Context, Background

The Juan Bautista de Anza National Historic Trail runs for over 1200 miles along the Southern California Coast, parts of Arizona, and South through Mexico. It is a historic trail marking the path Anza took with 225 settlers and 1000 cattle from Arizona to California in 1776. There is a 38 mile stretch of trail that goes through various private properties in Santa Cruz County, Arizona. The Anza Trail coalition was founded in 1994 by Richard Williams, to ensure that the trail is maintained, and is able to be preserved through areas such as the 38-mile private land easement. When a developer or builder wants to develop an area that the trail resides on, the Anza Trail Coalition meets with them to discuss the involvement and protection of the Historic Anza Trail through easements and good public relations (Gonzales, n.d.)

Case Study Comparison Questions

• How is it used?

The Anza Trail is used is mark a historic route connecting Arizona and California. It is used by pedestrians, and bicyclists for recreational activity and exercise.

• What is the context of development?

Thirty-eight miles of the trail in Arizona goes through private land. All of these landowners have come to the agreement that it be included and preserved when development occurs.

• What are the connections?

The trail connects 1210 miles through the Southwest United States, between Arizona and California. It connects

residents and user to recreational opportunities that involves walking, running or bicycling.

• How are social conditions of neighborhoods affected?

The Anza Trail Coalition has positive relations with the planning and zoning committees of jurisdiction, as well as with the public and private landowners that comprise the land in which the trail passes through. This has led to the preservation of a historic path in which residents are welcome to use freely and safely, based on agreements and deals struck with land owners.

• What is the connectivity with respect to suburban form?

This trail system provides direct access along a historic route, to move through existing developments. Suburban form would benefit from such a trail system that could take residents through the existing developments, to access their daily destination and needs by foot or bicycle. The Anza Trail coalition is at the forefront of efforts to continue the preservation of the trail, and is the force behind retaining the trails history context and connectivity.

Logan-Hyde Park-Smithville Canal

Summary Data:

Project Name: Logan-Hyde Park-Smithville Canal

Location: Logan, Utah
Construction Began: Early 1870's
Construction Completed: Late 1880's
Size: 9.7 miles

Owner: City of Logan, Utah Managed by: City of Logan, Utah

Context and Background

The Logan-Hyde Park-Smithville Canal is an icon in Logan, Utah (Culberson, 1975). It is primarily used for agricultural purposes, and ranges in size from 9' to 20' in surface width, and 1.6' -3' feet in depth. The canal runs through the City, predominately at the surface level. Recently there have been plans to submerged the canal, as a response to the tragedy that killed two people when part of the canal broke. Other proposals have suggested that the canal remain at the surface, and have bicycle and pedestrian trails safely implemented along the edges.

Case Study Comparison Questions

• How is it used?

Currently it is used for agricultural purposes, to carry water over long distances efficiently. Some Logan, Utah residents use it for recreational purposes to float down the



Image Credit: Cachehighline.com

canal.

• What is the context of development?

There is a proposal to turn it into a multi-functional corridor that accommodates bicycle and pedestrian trails.

There is also a proposal to bury the canal and pipe it under the earth, this has been explored for safety reasons. There is a controversy, however, if the canal was submerged, then the iconic water flow would no longer run along te surface where it can be celebrated as a historical and sensational aspect of Logan, Utah.

• What are the connections?

The canal connects Cache County Fairgrounds to Merlin Olsen Central Park, which is a major recreational connection opportunity if the canal can safely incorporate a trail system.

• How are social conditions of neighborhoods affected?

Many view the canal as unsafe, especially after the

tragedy of two lost lives, when the canal broke a flowed towards an adjacent house. However, many more residents use it to recreate in or around. There is an opportunity to positively affect the neighborhoods adjacent to the canal, if a trail system that safely navigated the canal was implemented. The canal must also be properly maintained to avoid future disaster.

• What is the connectivity with respect to suburban form?

There are many properties adjacent to the canal.

Property lines run right to the border of the right-of-way access along the canal. A canal-to-trail system would greatly enhance the connectivity of the suburban area.



Image Credit: Desertnews.com

The Loop

Summary Data:

Project Name: The Loop

Location: Pima County, Arizona

Cost: 70\$ million invested in improvements over the last 40 years

Size: 131 miles of shared-use path

Owner: Pima County Managed by: Pima County

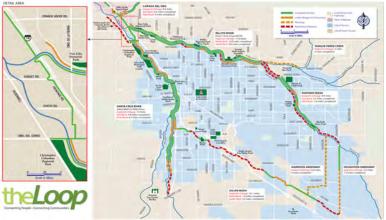


Image Credit: www.azpm.org/

Context and Background

The Loop is a pathway planned, designed, and built by and for residents and guests in Pima County, Arizona. The 131-mile shared-use pathway system makes up the natural floodways of both sides of four major waterways and/or rivers in the county. The land that hosts the loop system was initially obtained by the regional floodway district, in efforts to mitigate flood hazards and damage from the waterways. The appeal of using this land was a benefit to both the private landowner, and the general public. It was demonstrated that the floodplain along the waterways was unable to be



Image Credit: http://webcms.pima.gov/government/the_loop

developed in regards to buildings and most structures, due to the liability of inevitable flooding of the area. Instead, the land was obtained for use as a path system and opened to the general public. Over the last 40 years, over 70\$ million dollars has been invested into improvements for the loop. These investments been funded by Pima County.

Economic Benefits

Weighing the viability, and economic impact of a recreational corridor is difficult to accomplish. There are few ways to successfully quantify the multiple values associated

with daily access to a 131 mile pathway system along natural rivers and waterways. The most well-known method to this, however, is the cost-benefit analysis. This involves assigning a monetary value to the project positive or negative impacts on the social well-being of the daily users. Employment is a factor that can be evaluated based on the cost-benefit analysis method. Per one million dollars spent, the loop project has seen a creation in activity related jobs. For instance, per one million dollars spent, 9.6 jobs have been created where they did not formally exist, thus contributing positively to the economy. In total, 675 jobs associated with the loop have been created in Arizona, ninety percent of which were created in Pima County.

Home Values

When it comes looking for a desirable place to live, one of the major factors considered in choosing a location is access to recreational facilities. In this case, the loop pathway fills that desire.

"For instance people may pay a premium to live near a bike path even though they do not ride because they might want to in the future. The National Association of Realtors and the National Association of Home Builders found that residential properties increase 10 to 20 percent in value the closer they are to green space (Pima County, The Loop: Economic, Environmental, Community, and Health Impact Study, pg. 7).

The same results occur in other places in the world. Southern Boise suburban neighborhoods would see an increase in home values if the option for a walking or biking trail presented itself. Conversely beneficial, a decrease

in crime rate is associated with investments in public open space.

"Investing in public space restoration can lower crime rates by 33 percent" (Ogden Utah Recreation report).

Alternative Transportation

"Nearly half of urban household trips in America are two miles or less. These trips can be completed within a 15-minute bike ride. A quarter of all trips are within a 20-minute walk. Yet the vast majority of these short trips are taken by automobile."

Enabling alternative transportation can help heal the suburban fabric that solely emphasizes transportation by vehicle. The cost of investing in walking and biking related activity is far less than the savings projected when cutting down on traditional transportation (by vehicle), and the negative impacts associated with mass-daily vehicle transportation.

"In a national study reviewing a variety of scenarios for public investment in alternate modes, savings between \$10 billion and \$65 billion annually were identified. These benefits dwarf historic spending for bicycling and walking, which was \$453 million per year for 2005-2007 under the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and only \$4.5 billion in cumulative federal investment in these modes since 1992, when bicycling and walking first received documentable federal funding" (Pima County, The Loop: Economic, Environmental, Community, and Health Impact Study, pg. 9).

The negative impacts associated with mass-daily vehicle transportation include increased fuel consumption

and greenhouse gases in the atmosphere as well as increased negative health concerns and health care costs. Cutting back on the negative factors saves billions of dollars in the U.S. annually. This is a national cost-savings analysis that can be applied to any location in the United States. Boise, Idaho would also benefit from investing in alternative modes of transportation.

Health Benefits

Over the last several decades, the instance of children walking or biking to school fell sharply, and obesity has risen dramatically. These facts have a cause and effect relationship, directly relating to one another. States in the U.S. that have higher instances for all ages walking and biking are known for having lower obesity rates and heart-related health concerns. Promoting they nationally recommended 30-minutes of physical activity daily through biking and walking, would help combat trends of obesity, heart disease, and high health care costs.

Environmental Quality

Biking and walking are healthy forms of transportation all over the world. Not only do they provide exercise and positive health benefits, but they are environmentally safe. Biking and walking give off no greenhouse gases, do not consume non-renewable resources such as oil, and do not contribute to noise pollution.

Cost-benefit analysis

Through a cost-benefit analysis of several factors (some not previously mentioned), such as jobs created, outdoor recreational tourism, regional sales tax, increased home value, property tax revenue, and averted health care costs, a monetary value of savings has been associated with every dollar spent. Some of these factors are a benefit to the government, and some are a benefit to the Pima County residents. For every dollar spent: \$1.03 is returned on investment to the government. For every dollar spent: \$8.37 is returned on investment to the Pima County residents. In total: \$9.40 is returned for every dollar spent on investment into the Pima County loop.

Case Study Comparison Questions

• How is it used?

It is used as a biking and walking trail, as for equestrian use. It winds through native vegetation along four natural rivers and waterways.

• What is the context of development?

It is located within natural floodways in efforts to provide a functional and recreational space that offers public access, as well as a buffer space for local development.

• What are the connections?

The trail provides access through numerous parks in the area, also connecting residential to commercial areas.

• How are social conditions of neighborhoods affected?

Positively, by enabling healthy alternative transportation means, connecting to recreational amenities and basic human needs of food, water and shelter.

Analysis

Inventory

Connections

GIS Analysis

Inventory: The existing and the proposed



The above image shows the an existing canal easement in the Boise suburbs along Riva Ridge Way. It is fenced as a safety precaution. The Boise Loop's proposal it to turn the situation above, into the situation represented by the next image. This latter, offers a well groomed pathway along a canal easement, instead offering a pleasant experience along

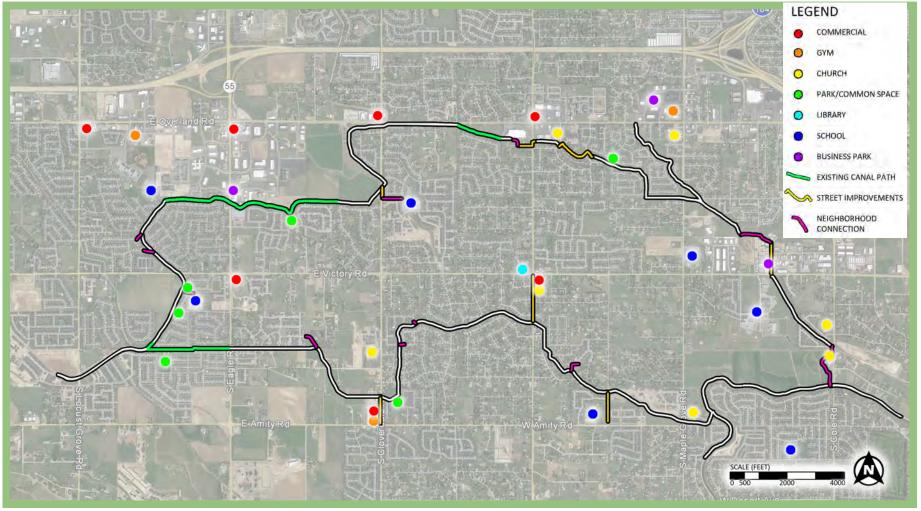


the canal. User's of the canal path can enjoy a pedestrianoriented experience that connects them from their homes, to the park, or food source they desire to be at.

Connections

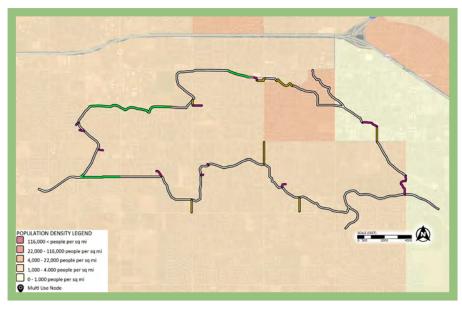
To maximize the connection potential of the Boise Loop, important nodes have been mapped out and labeled on the connection map. These nodes are vital to the overall success of the Loop's connective fabric. The nodes respresented are the locations of major commercial zones, gyms, churches, parks, libraries, schools, and business parks.





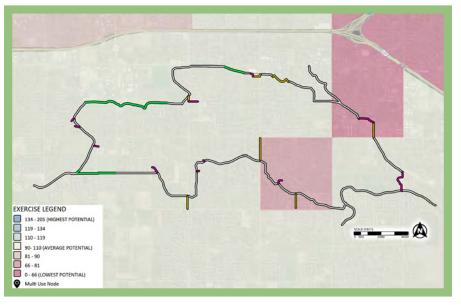
These areas were chosen because they are destinations. Mapping these destination connections helped form the Boise Loop's location and overall shape. The white path represents the canal pathway, the green path segments represent existing Ridenbaugh canal pathways to be linked to, the pink represents neigborhood easement pathways that help complete the Boise Loop through the suburban fabric, and the yellow pathways represent street improvements (such as the conversion to shared roads or the addition of a bike lane). The Boise Loop was formed in this manner to maximize its connectivity to destination nodes in the Boise suburbs.

GIS Analysis



Population Density

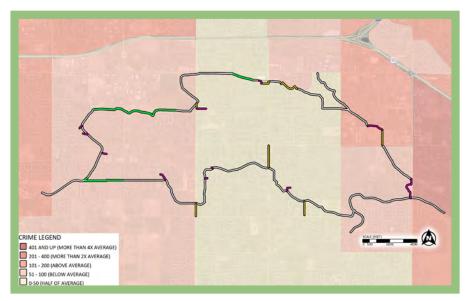
A GIS (Geographic information System) analysis using 2014 census data, reveals a study of key demographic factors in the Boise suburbs. The above figure is a population density map. The more dark the color, the higher the population. Areas that are higher in population are reinforced in the design of the Boise Loop, as these are the areas that more people will be accessing the pathway.



Level of Activity

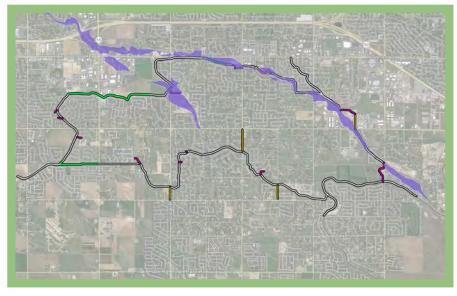
A "level of activity" map (or exercise map), shows the liklihood that people are to exercise, or use the pathways, in a given area. The more dark the color the least likely people who live in that area are to use the pathways. Areas that people are more likely to use the pathways, will be reinforced through design elements.

GIS Analysis



Crime Rates

A crime rate map shows the level of crime in a given area. All crime is factored into the analysis, especially vandalism and violent crimes. The more dark the color, the higher the crime. Areas of the pathway that fall into an area of higher crime will have safety elements proposed in order to counteract potential criminal activity. These elements include: more lighting, bicycle cop patrols, and "eyes on the path" encouragement from the neighborhood.



100-year Floodplain

The above figure is a map showing the location of the 100-year floodplain in purple. These areas reveal the potential for spatial development that tends towards open space, parkways, and pathways. These areas, because of their natural flood risk, are more suited for open space, parkway, and pathway development, over the development of homes and other buildings. These areas are opportunity for the Boise Loop to expand its scope beyond the main pathway, to develop park spaces and natural wetlands.

Design

Program

Materials

Design Development

Program and Materials

A) General Design Standards

1) Allowed Path Loop Activities

- a) Biking
- b) Walking/jogging
- c) Skating
- d) Wheel chair
- e) Other non-motorized users

2) Pathway standards

- a) Paved pathways 10' wide multi-use pathway
 - i. 2% cross slope across path for water drainage
 - ii. Variable canal buffer space (minimum 5')
- b) Micro paths (through neighborhoods)
 - i. 5' 8' wide
 - ii. 4' wide buffers on both sides
- c) Unpaved natural/open space pathways
 - i. 3'- 8' wide (dirt, gravel)
- d) Maintenance pathway 18' wide
 - i. Along top of bank (Ridenbaugh, Ten Mile feeder, New York Canal)
- e) Bike Lane
 - i. 10' Thermoplastic (green-colored) bike lane



10' Multi-Use Path



Micro Pathway



Thermoplastic Bike Path



Shared Bike Lane Symbol

Program and Materials

3) Facilities

- a) Pedestrian Scale Furniture
 - i. Wooden benches placed every quarter-mile
 - ii. Stone seatwalls near major plazas and gathering nodes
 - iii. Polycarbonate seatwalls near major plazas and gathering nodes
- b) Bike Facilities
 - i. Bike Racks at major plazas and gathering nodes
 - ii. Bike tool stations (air pumps) at major plazas and gathering nodes
- c) Lighting
 - i. LED lighting around plazas/gathering nodes and path/road intersections
 - ii. Polycarbonate color panels (at Five Mile Park and West Victory Park)
- d)) Parking
 - i. (3) Parking Lots varying number of parking spaces
 - ii. ADA spaces
 - iii. Indoor and outdoor parking spaces (Five Mile Apartments)
- e) Other features
 - i. Trashcans at pathway intersections, trailheads, major plazas, and gathering nodes
 - ii. Polycarbonate Solar Panels
 - iii. Polycarbonate Planters
 - iv. Bathrooms



Polycarbonate Panels



Polycarbonate Planters



Polycarbonate Solar Panel



LED Lights



Bike Racks



Polycarbonate Seatwalls

Program and Materials

4) Signage

- a) Pathway safety rules
- b) Safety warnings for sharp canal slopes/unsafe areas
- c) Trailheads
- d) Street names
- e) Native vegetation/habitat information
- f) Renewable energy stations



Decision Signage



Safety Rule/Warning Signage



Wayfinding Signage



Interpretive Signage



Rapid Flashing Beacon



Pedestrian Crossing Signage



Trailhead Signage

Program and Materials

5) Canal Safety Features

- a) Metal grates over culvert entrances/exits
- b) Posts (non-service vehicle access prevention)
- c) Safety railing along steep canal edges

6) Fund Gathering/Land Acquisition

- a) Tax incentive programs
 - i. Lowered property tax incentives for easement obtainment
- b) Payments in lieu of taxes (PILT)
 - i. Federal compensation for lost city taxes from tax incentive programs
- c) Federal Lands Access Program (FLAP)

7) Marketing/Advertising

- a) Facebook page
- b) Phone Application recognition/integration
- c) Event planning/coordination
- d) Community contribution encouragement
- B) Neighborhood Amenity (South Cloverdale)
- C) West Victory Park
- D) North Cloverdale
- E) Five Mile Crossing
- F) East Victory Wetlands
- G) New York Canal
- *H) Five Mile Park/Apartments*



Canal Safety Grate



Vehicle-Prevention Bollard



Protective Canal-Path Railing



Protective Chain Link Fence

Native Tree and Shrub List

This proceeding tree and shrub list is a list of native plantings from the **ACHC Revegetation Guide**, to be used in the Boise Loop's design.

Trees:

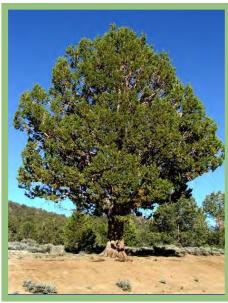
Rocky Mountain maple Western juniper

Shrubs:

Antelope bitterbrush Big sagebrush Blue elderberry Chokecherry Creeping barberry Fourwing saltbush Golden currant Mountain snowberry Netleaf hackberry Rocky Mountain juniper Rubber rabbitbrush Saskatoon serviceberry Skunkbush sumac Snowbrush ceanothus Utah serviceberry Wax currant Woods' rose Wyoming big sagebrush Yellow rabbitbrush



Rocky Mountain maple



Western juniper



Blue elderberry



Golden currant



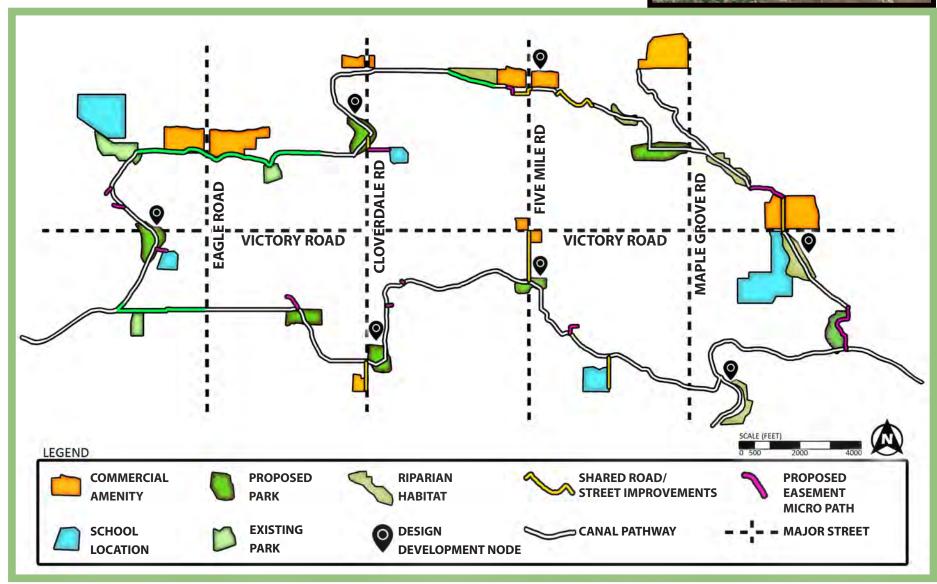
Utah serviceberry



Woods' rose

Design





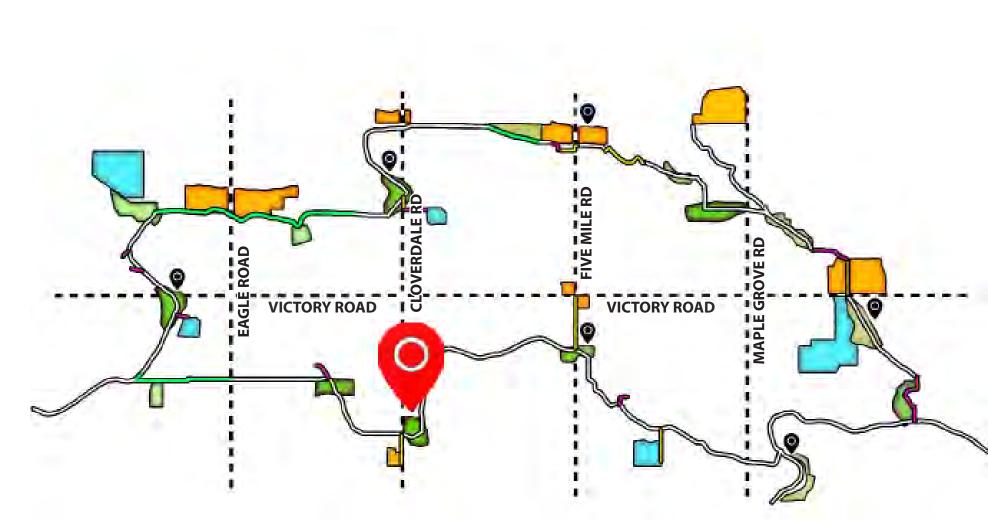
The Boise Loop

The Boise Loop is located between Locust Grove Road and Cole Road, South of Interstate 84. The Boise Loop is made up of canal easement pathways that make up the "spine" of the path system, neighborhood easement micropaths the connect people from their homes to the spine, stretches of existing roads with street improvements such as bicycle lanes and shared road markings, and "nodes along the path" that provide rest, recreation, park access, commercial access, and school/church/civic access.

The map on the previous page shows the main pathway along existing canal systems in white, the neighborhood micropaths in pink, the street improvements in yellow, as well as existing pathways along the Ridenbaugh Canal in green (which are to be linked by proposed pathways). Commercial areas are shown in orange, parks (existing, proposed, and natural riparian zones) are in shades of green, and school zones are in cyan.

This map reveals the connective fabric that is proposed along the Five Mile Creek, Ridenbaugh Canal, Ten Mile Feeder Canal, and New York Canal. The black node markers represent seven design development areas that were analyzed and designed to enhance the experience along the Boise Loop. They have been chosen because they offer unique design elements that contribute to the project goals.

Cloverdale Neighborhood Amenity



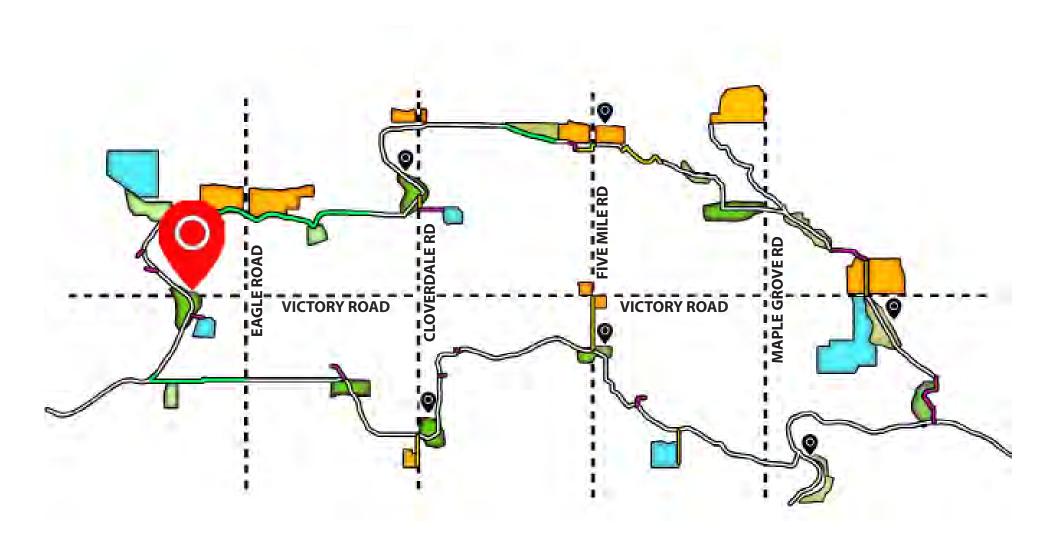
^{*}The design development area is denoted in a red node marking on the map above.

S. Cloverdale Neighborhood Amenity

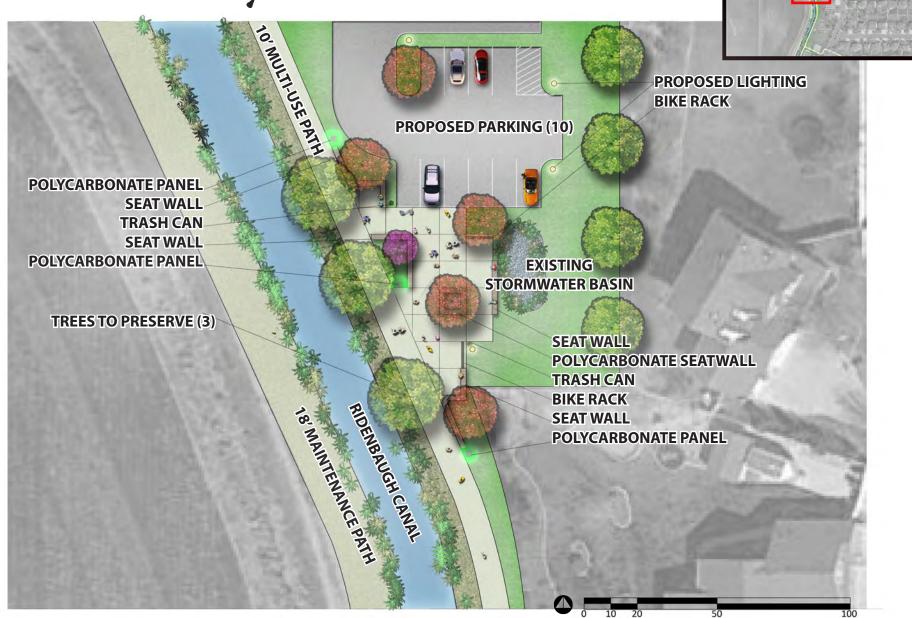


South Cloverdale Neighborhood Amenity

The South Cloverdale Neighborhood Amenity, is located near the intersection of Cloverdale and Amity Road. The pathway as shown on the previous path, is a two-path system, with an 18' maintenance path on the north bank of the Ten Mile Feeder Canal, and a 10' multi-use path on the South bank. Along the path is a proposed plaza (complete with seating, signage, lighting, and bicycle features), within an existing park. The pathway connects the park to a vital commercial node on the Cloverdale and Amity intersection. This connection is made by a green-colored, thermoplastic bicycle path (as is seen in downtown Boise), that runs Souh down cloverdale road. This commercial node is the site for the restaurant/bar and local gym, which serves the entire neighborhood around it.







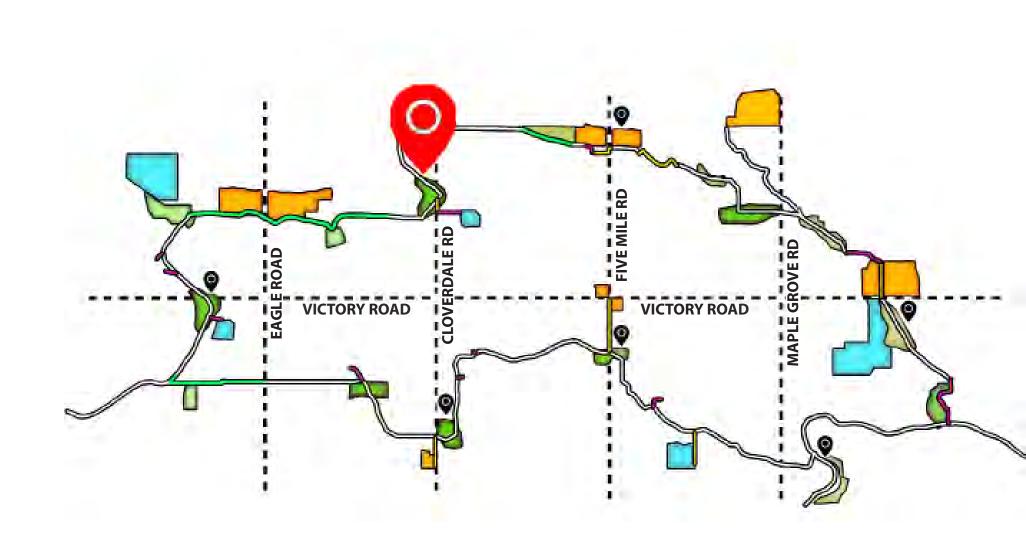
West Victory Park Perspective



West Victory Park connects an existing park, to an underdeveloped parcel along Victory Road, essentially expanding the park Northwards. This parcel hosts am existing maintenance building and a stormwater basin with river rock. The pathway system also connects the existing neighborhood park across Capulet Way to a nearby school.

The expanded park along Victory hosts a proposed plaza for seating and gathering, while offering bicycle facilities. The park also makes use of colorful, vibrant, and appealing polycarbonate materials from the company 3form. In the perspective graphic on the previous page, three green-colored polycarbonate panels offer visual interest to the area, as well as acting as a method of wayfinding. This area could be dubbed "the green zone" by park and pathway users, allowing for a convenient way to coordinate and meet with friends and family along the Boise Loop. This design development node allows for a leaisurely stroll, a bike ride, or a chance to rest and catch some shade along the Ridenbaugh Canal.

North Cloverdale



North Cloverdale

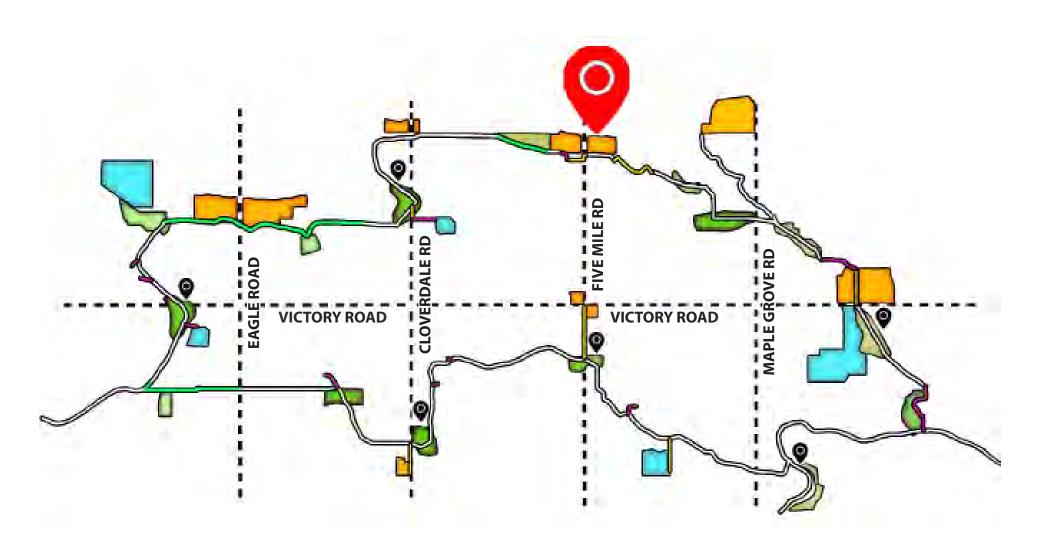
b) (2) ADA stalls



North Cloverdale

North Cloverdale is a classic example of the negative effects of suburban sprawl. Notice the culdesac (dead-ends) within the neighborhood. These areas do not allow for convenient pedestrian circulation, putting emphasis on vehicle-based transportation. This design has proposed a pathway connection from the culdesac near Rushmore Way, through the fence and into an underutilized parcel along a bend in the Ridenbaugh Canal. The pathway crosses the canal via a bridge, and moves into an ADA-compliant parking lot for 18, and across cloverdale with pedestrian crossing signs. The pathway then splits North or South along the Ridenbaugh.

Five Mile Crossing



Five Mile Crossing



E) Five Mile Crossing Program

a) 10' multi-use pathway

i. LED lighting

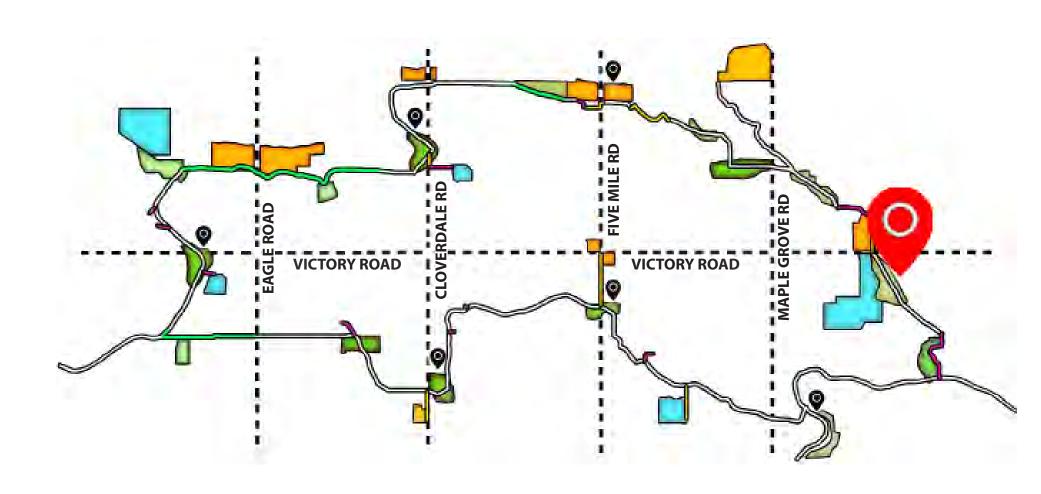
c. Trashcans

1) Pathways

Five Mile Crossing

Five Mile Crossing is a critical design development area, as it showcases neighborhood easement micropaths, and safe pedestrian street-crossing methods. A 10' multiuse pathway moves along Five Mile Creek and moves Southward through a private lot via an easement path enframed by shrubs and a privacy fence. The user then continues along a shared road with appropriate markings, and comes to another easement path on the corner of Southerland Drive and Five Mile Road. Using a hand-activated rapid flashing beacon, vehicles will be notified of pedestrians attempting to cross on the high-trafficked street. Pedestrians will cross two lanes at a time, then move along a concrete median, and then cross the last two lanes with the same rapid flashing beacon method. This area is also of unique as it is the largest commercial node in the southern suburbs (Overland and Five Mile Road). Providing safe pedestrian access is of utmost importance.

East Victory Wetlands



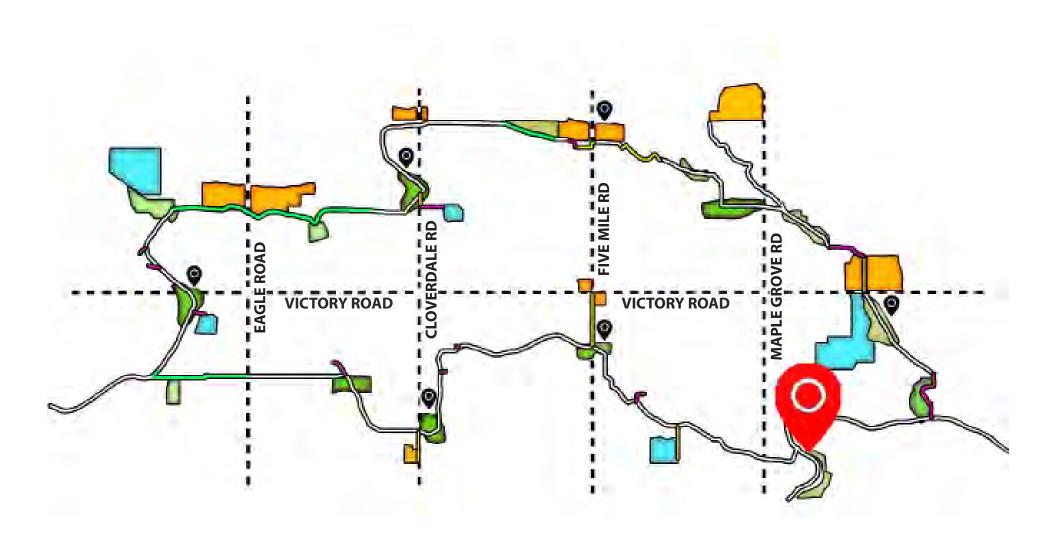
East Victory Wetlands



East Victory Wetlands

The East Victory Wetlands is a natural wetlands and riparian zone, and within the 100-year flood zone. This area is South of Victory Road, to the East of Maple Grove. As a natural floodplain and also near to three school (two high schools and one technology school), there is a unique opportunity for education of natural wetland processes within the landscape. Two interconnected pathways move along the upper banks of the wetlands, providing rest stop nodes for people to recuperate when traveling through this large area. These nodes will be equipped with interpretive signage that help to education about the wetlands. These areas will also have adequate lighting, seating, trash cans, and way-finding signage.

New York Canal



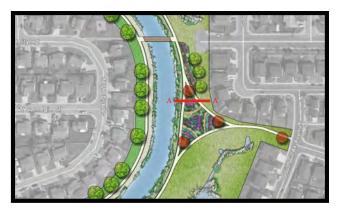
New York Canal

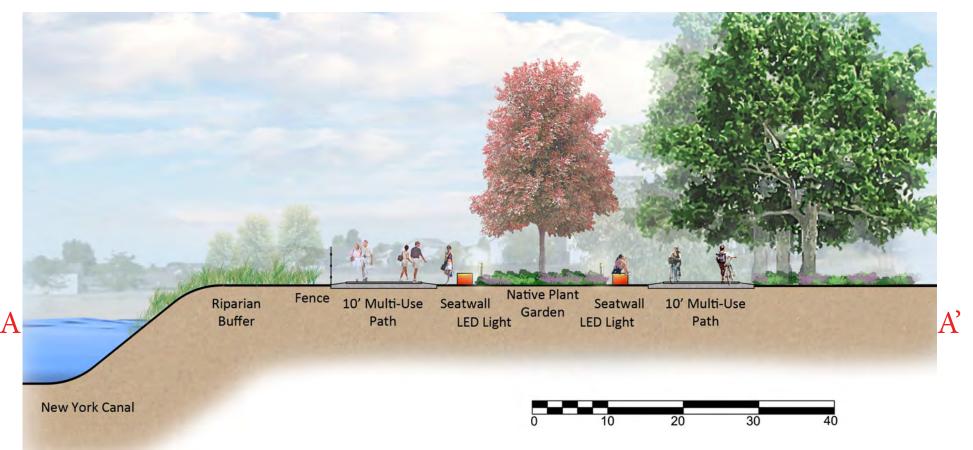
d) Native Garden

i. Native Plant List



New York Canal Section





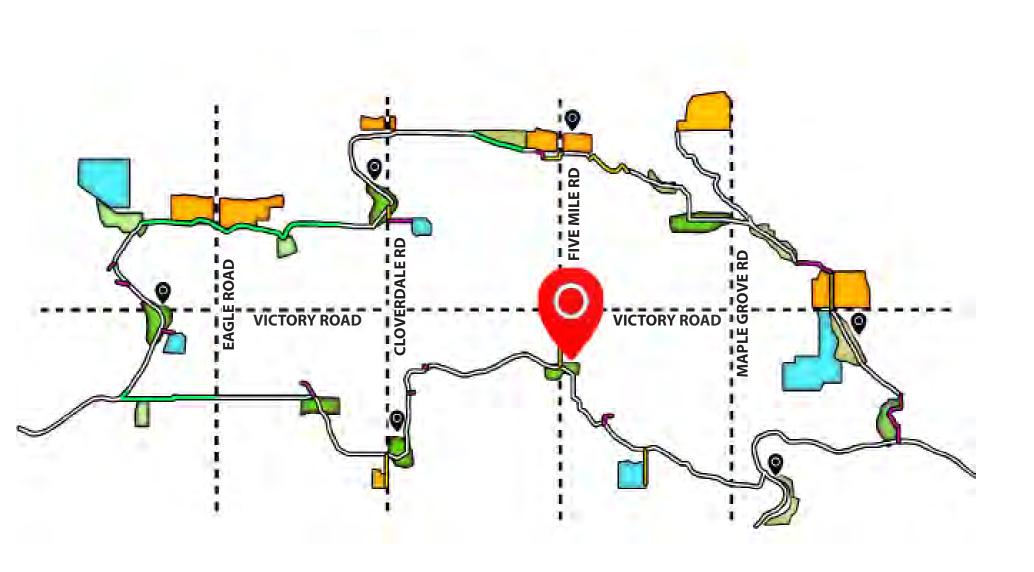
New York Canal

The New York Canal design development area is located on a large open parcel owned by ACHD, used to store runoff water from the nearby neighborhood. This area has been design to enhance the water collection function and serve as a wetland/riparian zone. Pathways move pedestrians through the riparian landscape, and offer two seating/plaza areas along the way. One such plaza area is located near the native plant garden, which is placed in the middle of a three way path junction. This area has seatwalls and LED lighting, and will be planted with native vegetation from the previously shown native plant list.

The New York Canal is Boise's largest canal; it feels like a river. Because of this, there is inherent danger. As shown in the section on the previous page, there is a generous riparian plant buffer along the bank of the canal, as well as a fence to keep people safe along this large, fast-moving water body.

The second plaza area is in the North, making use of a underutilized common lot that served the neighborhood. This area will contain bike facilities, seating, lighting, trash cans and other convenient amenities. This entire New York Canal design development area is in a higher-than-average area for crime, thusly, strategies to "keep eyes on the path" will be proposed such as: more lighting and bicycle cop patrols to keep the area safe.

Five Mile Apartments and Park



Five Mile Apartments and Park

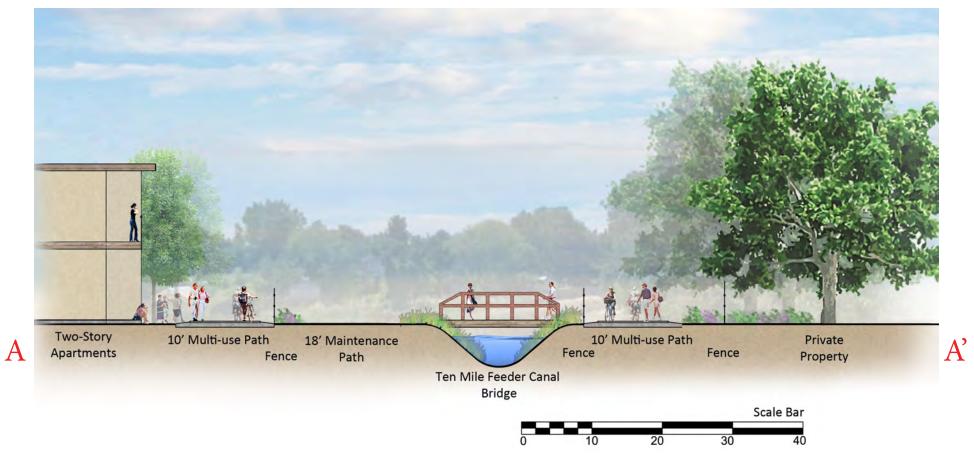


- H) Five Mile Apartments and Park Program
- 1) Pathways
 - a) 10' multi-use pathway
 - b) 18' maintenance pathway
 - c) (2) Wooden Bridges
- 2) Plaza/gathering node
 - a) Pedestrian Scale Furniture
 - i. Wooden Benches
 - ii. Stone Seatwalls
 - iii. Polycarbonate Seatwall
 - g. Polycarbonate Materials
 - i. Polycarbonate Solar Panel
 - ii. Polycarbonate color panels
 - h. Lighting
 - i. LED pedestrian scale lighting
 - ii. Bike Facilities
 - iii. Air pump station
 - j. Bike racks
 - k. Trashcans
- 3) Apartments
 - a) Outdoor Parking
 - i. (16) spaces
 - b) Indoor Parking
 - i. (10) spaces
 - c) Living Units
 - i. Two-stories
 - ii. 28 units
 - d) Square Footage
 - i. Ranging 750-1250 square foot units

- 4) Park Features
 - a) Open Lawn Recreational Space
 - b) (2) Multi-Use Sport Courts
 - c) "Exploratory" Playground
 - d) Bathrooms
- 5) Signage
 - a) Pedestrian crossing signs
 - b) Wayfinding signs
 - c) Canal safety signs
 - d) Pathway rules sign
- 6) Canal Safety Features
 - a. Metal grates over culvert entrances/exists
 - b. Posts (non-service vehicle access prevention)
 - c. Safety railing along steep canal edges

Five Mile Section





Five Mile Perspective



Five Mile Park and Apartments

The Five Mile Park and Apartments make use of two open parcels near the existing low income Casa Blanca apartments. In the proposed design, more low-income apartments have been proposed in answer to the high demand for low-income housing that Boise is facing now. Five new, two-story apartment buildings are proposed with 28 units in total, ranging from 800-1200 square feet each. The area is equipped with sufficient indoor and outdoor parking spaces for residents.

The Five Mile Apartment section shows the relationship between the proposed apartments, a 10' multi-use pathway, an 18' maintenance path, and an opposite 10' multi-use pathway across a bridge over the Ten Mile Feeder Canal. The canal is protected with a decorative chain link fence for safety.

The Five Mile Park across Five Mile road to the East of the Casa Blanca apartments, is a design solution to the lack of recreational spaces in the vicinity. The park has a plaza for passive recreation, an art piece at a split in the path, bathrooms, an open lawn area, an "exploratory" playground for children, and two multi-use sport courts for active recreation.

The perspective graphic on the previous page shows a view into the park though the plaza, with delightful planters and ornamental gardens, continuing into the open lawn. Visitors to the park will enjoy passive and active recreation along the Ten Mile Feeder Canal, in which safe access has been previously denied them. Polycarbonate Panels also adorn the pathway, using a blue light for appeal and wayfinding purposes.

Project Goal Review

Create a pathway that follows Meridian's dimension and facility standards.

Foster a sense of care by promoting canal safety, safety education, and safety facilities.

Create "nodes along the way" that tie into the existing park, school, and commercial fabric.

Utilize easement programs that entice landowners to participate in formation of easements.

Find funding methods to aid in the creation of the Boise Loop while seeking mutually

beneficial relationships between all stakeholders.

Enhance areas of riparian environment and stormwater management.

Engage the community to encourage and inspire daily use of the Boise Loop and all its associated offerings.

Conclusion

Suburban Walkability Issues

- Often a lack of municiple-code required sidewalks along many existing Boise suburban streets.
- The design helps improve current conditions by presenting a connected system of safe, walkable landscape where it was previously not apparent.

Design Matters

- The Boise Loop is a project a large scope (15-mile path).
- Much detail has gone into the design of a pathway .through the Boise suburbs, including activities, design standards, and safety features, etc...
- Design development area were carefuly studied and picked to aid in achieve project goals.

Spreading the Word (Where to go from here)

- Marketing/Advertising
 - Facebook page.
 - Phone Application recognition/integration.
- Event planning/coordination
 - Community contribution and encouragement.
 - Community "buy-in" Demonstrating the value of the Boise Loop amenity.
 - Hosting fundraisers and charity events for good causes in the form of running and bicycling events.

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