City of Monroe, WA, Multi-Modal Trail: Preliminary Outreach, Design and Research

Project Report
Community Development and Participatory Methods
ENVS 475, Fall 2018

Report No. 01 January 2019

WESTERN
WASHINGTON UNIVERSITY

SUSTAINABLE
COMMUNITIES
PARTNERSHIP

About SCP

Western's Sustainable Communities Partnership (SCP) program focuses the expertise, energy, and ideas of faculty and students upon the issues that communities face as our society transitions to a more sustainable future. SCP partners with communities each academic year, facilitating a program in which many Western courses complete community-engaged learning projects that address problems identified by the partner.

Sustain.wwu.edu/scp
SCP@wwu.edu
360-650-3824

SCP Partner for 2018-2019: City of Monroe, WA

SCP is proud to partner with City of Monroe, Washington, during the program's third year. Four Western courses will tackle projects identified in collaboration with city staff.

Acknowledgement

The Association of Washington Cities (AWC) has provided invaluable assistance as SCP has grown and developed in its third year. AWC has provided advice on program development, and has assisted in promoting the program.
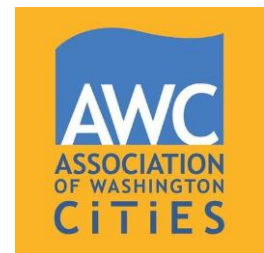
SCP is housed within Western's Office of Sustainability

PREFACE

The fall 2018 Community Development and Participatory Methods course (ENVS 475) worked with the City of Monroe, Washington, on preliminary plans for a multi-use trail. Under the guidance of Dr. Tammi Laninga, three student teams addressed planning elements including: community outreach, conceptual design, and implementation research. In order to understand the needs and interests within the community, students traveled to the City of Monroe on November 14, 2018, to conduct a community outreach meeting. The feedback from this meeting as well as the other teams' findings are included in this report. Future WWU courses will also have the opportunity to work with the City of Monroe on the continuation of this project.

Instructor (ENVS 475, Fall 2018): Tammi Laninga, Ph.D., AICP

Contents

This page intentionally blank.

CITY OF MONROE, WA, MULTI-MODAL TRAIL: PRELIMINARY OUTREACH, DESIGN AND RESEARCH

Executive Summary

The City of Monroe has been updating their Parks, Recreation and Open Space Plan for over 20 years, making efforts to improve their park and trail networks. Having a continuous and reliable network of non-automobile-oriented transportation routes throughout the city serves to increase accessibility for residents. The City of Monroe's multi-model trail proposal aims to implement a high quality, well-utilized trail that provides residents with additional recreation opportunities.

The trail area, which extends from Chain Lake Road to 179th Avenue, is currently a Washington State Department of Transportation (WSDOT) right-of-way. At this time, WSDOT ownership requires any trail building to be classified as temporary, which places restrictions on the path's surface materials and supporting infrastructure that can be developed. The area connects the Evergreen State Fairgrounds to the business district along Highway 2. There is considerable development in both housing and retail directly surrounding the proposed trail area. In response to the increasing number of residents and visitors, City of Monroe aims to provide recreation opportunities as well as options for non-motorized travel through this right-of-way.

As part of a course on community development (ENVS 475), students from Western Washington University (WWU) assisted the City of Monroe with preliminary planning of a multi-model trail within the WSDOT right-of-way. Preliminary planning took place during WWU's 2018 fall quarter. The three student teams focused on outreach, design, and research for the proposed trail.

Chapter one discusses outreach in the City of Monroe community. Students hosted a community outreach meeting, which served as a useful tool for assessing community member investment and interests in the project. Students asked for feedback on design alternatives for trail amenities, access points, and priorities for use. Community members represented a variety of stakeholders with different visions for the trail project. Community attendees answered questions while rotating through three stations: conceptual design, trail access point, and trail priority. A brief summary of each station's findings can be found below.

- The conceptual design station asked four specific questions:
    - What do you want at access points and how should access points be designed?
        - The installation of items like benches, trail maps, water fountains, native plants, doggie bag dispensers, and trash receptacles.
        - The installation of clear signage regarding pathways and allowed uses.
        - A variety of parking amenities for vehicles and horse trailers along with possibly gated parking lots.
        - The installation of lighting for safety at all hours of trail use.
    - What kind of materials should be used to construct the trail?
        - Suggestions included dirt, gravel, and wood fibers with specific requests for bridge materials that would not spook horses.
    - What would you like to see at crossings?
        - The installation of well-marked cross-walks, flashing lights, and clear signage.
        - Crosswalk design that accommodates horse travel.

- The trail access point station asked community members to look at a map of the proposed trail and provide suggestions on where access points could be located.
  - Some community members interested in equestrian trail use requested an access point near the Evergreen Equestrian Park.
  - Community members were interested in creating access points near existing parking. One community member mentioned that depending on location this could be a nuisance to current homeowners.
  - Community members expressed interest in trail connectivity with the downtown, other trails, and neighborhoods.
- The trail priority station asked community members two specific questions:
  - What should the priorities of the trail be?
    - Community members shared their requests regarding safety. They wanted lighting and were curious if the city would patrol and maintain the trail.
  - What should the specific uses of the trail be?
    - Community members were open to an all access trail for pedestrians, bikers, equestrians, and stroller users. There was a push for mountain biking from a youth mountain bike club who attended the community outreach meeting.

Though community members shared diverse interests in the use, design, and implementation of this multi-modal trail project, there was unanimous concern regarding resident safety. All recommendations incorporate this concern along with community investment in seeing a project like this actualized.

Chapter two covers potential designs for the multi-modal trail project. Access points, bridges, road crossings, and pet stations are represented visually. These drafts are the same drafts that community members reviewed at the community outreach meeting.

Finally, chapter three covers extensive background research regarding facets of multi-modal trail installation in communities. Research includes information on economics, health, home values, homelessness, crime and safety, trail connectivity, and trail use and impact. The research demonstrated that the addition of a multi-modal trail in the City of Monroe has the potential to provide recreational activities that support community health, provide alternative commuting options, and stimulate economic growth.

CHAPTER ONE: OUTREACH TEAM

Introduction

Under the guidance of Dr. Tammi Laninga, students held an open house meeting on November 14, 2018, to gather feedback on drafts of ideas for the multi-modal trail project. Twenty-three attendees signed in, and there were likely a handful of others. City of Monroe community member participants were encouraged to visit three stations around the room, each tailored to capture feedback about a specific aspect of the proposed project. Station one allowed participants to comment on trail and facility design, station two collected feedback on access points and parking locations, and station three was designed to understand the community's needs and overall ideas on the purpose for the trail.

To maximize community participation and input, the student outreach team researched best practices in facilitation techniques for community meetings of this nature. They were particularly interested in encouraging generative discussion at each of the three stations. The outreach team's research looked at the findings of Andrews, Sippel, and Strain (2015); Futurewise (2014); and the Virginia Department of Transportation (n.d.). An annotated bibliography of the Team's findings can be found in Appendix A.

Project Objective(s)

Vision: "Provide pathways and information for the community of Monroe, and give community members opportunities to provide input through means of public outreach and engagement."

Goals: This project was designed to gain meaningful insight from the City of Monroe community regarding public access points, conceptual designs, and concerns/opportunities for the proposed trail location. Through the city outreach meeting, ideas will be gathered so that an effective trail can be developed that is directly related to the community's needs and interests.

Objectives:

- To understand the community's priorities for the trail
- To identify concerns for the proposed trail area
- To identify potential access points to the trail
- To identify good/bad aspects of trail design

Figure 1.1 Community Outreach Meeting

Results

<u>Conceptual Design Feedback</u>

Description of activities

Participants were shown design alternatives of the proposed trail area. The designs depicted different trail amenities: access points, bridge crossings, pet stations, and road crossings (these designs are included within Chapter Two: Design Team). Additionally, the community was asked four questions, including: 1) what do you want at access points, 2) how should access points be designed, 3) what kind of materials should be used to construct the trail, and 4) what would you like to see at crossings. Respondents were encouraged to write their feedback on sticky notes and then post that feedback to the question board. Student facilitators took notes on various discussions happening between participants as well. The raw data for the responses from this station can be found in Appendix A.

Summary of findings

Participants were asked what amenities should be located at access points, and how they should be designed. Recommendations for benches, trail maps, water fountains, restrooms, native plants, doggie bag dispensers, and trash receptacles at access points were among the responses. Several participants also expressed their concern for safety and wanted to ensure that access points would be well lit and designed to be open and inviting so that users feel safe. Many participants suggested that if the trail were to be multi-use, there should be clearly marked signs for paths/loops to prevent potential conflict between activities. Many participants advocated for parking at access points. One person suggested locations at the Fairgrounds and off of Chain Lake Road, but only wanted the lots to fit 10-20 cars, at the most. Several participants suggested the lots be large enough to fit horse trailers, which is an important accommodation if the trail were to allow equestrian use. Another person also suggested that the parking lot be gated, so it could be closed at night.

Another question asked the community what they wanted to see at road crossings. Several participants expressed safety concerns and wanted to improve pedestrian visibility with clearly

defined and marked crosswalks. Participants also suggested that the design include flashing crosswalks, with strobes on the ground, and at eye level for cars. One participant suggested including signs at the crossings, to define its designated use (walking, mountain biking, equestrian use, etc.), and referred to the design of Paradise Lake trails as an example.

The final design question asked participants to comment on what type of materials should be used to construct the trail. Participant answers varied according to which activity they preferred as an intended use. Both pedestrian-use advocates as well as those interested in mountain biking suggested the trail be made of dirt. Others recommended using gravel or wood fibers. Additional comments from equestrian advocates suggested researching the best materials for bridges to avoid spooking horses.

Several participants expressed interest in improving connectivity between different neighborhoods, trails, and the downtown, and suggested that there be as many access points as possible to do so. Participants also expressed interest in winding trails for mountain biking as well as specific trails that be used exclusively for mountain biking.

Trail Access Point Feedback

Description of activities

Participants were provided a general outline of where the proposed trail could be located. They were encouraged to observe the map and give input on areas that would make the best access points. Participants used stickers to indicate which access locations would be the most and least ideal. Comment cards were matched with a corresponding sticker on the map (See Appendix A).

Summary of findings

A common request from the community was to include an equestrian access point located near the Evergreen Equestrian Park. Community members shared that the versatility of an equestrian trail would be good for providing a unique mixed-use experience for the community. Common interest regarded the benefits of access points in areas closest to parking. Examples of the proposed access points were the Monroe Seventh-Day Adventist Church as well as adjacent to the Walmart parking lot. One of the access points proposed by the participants was identified as being of potential concern to the neighborhood north of Rainier View Road SE. In this person's opinion, placing an access point, which might also require parking, could pose a nuisance to the community members living in the neighborhood.

It was also recommended by one participant that access points be located south of the trail area. They thought that north of the trail would be inefficient because the majority of existing commercial development is located on the south end of the trail. This individual thought that by placing access points closer to the south region of the trail, more of the community could effectively utilize access points.

There was commentary on access points that have the potential to be problematic. The majority of the comments identified access points that would contribute to making the trail an accessible and enjoyable destination. One thing that came up in the discussion of access points was a number of homeless camps within the existing WSDOT right-of-way. Participants were trying to be thoughtful about access point location in the context of these homeless camps. Within this context, there were

questions regarding safety and the impact of adding access points. The well-being of everyone involved was expressed as important to the community.

Trail Priority Feedback

Description of activities

At this table, participants viewed a map of the proposed trail area and made comments on the map. Additionally, they were asked two general questions regarding the priorities and expected use of the trail. These questions included: what should the priorities of the trail be and what should the specific uses of the trail be. Participants could comment by writing their feedback on sticky notes and posting them to the question board and area map. Student facilitators took notes on discussion. Raw data can be found in Appendix A.

Summary of findings

The first question asked participants to comment on the priorities of the trail. The feedback the Outreach Team received highlighted lighting and safety. Participants wondered if the trail would be patrolled and maintained by the city. The primary identified preferred purpose of the trail was general recreation, followed by mountain biking, and then equestrian. Neighborhood residents surrounding the trail want to see the trail be integrated into existing trails and bike paths.

The second question asked participants to comment on the desired use(s) of the trail. In general, the community was open to an all access trail (pedestrians, biker, equestrian, strollers). Of the community members who showed up, the most prevalent distinct stakeholder was the Monroe youth mountain bike club. Several parents and youth were there to advocate for a trail system that could be used by the club for practice. Currently the team (most of which who are not of driving age) have to travel outside of the city.

Most participants expressed their eagerness to see this trail plan put into action. This eagerness revealed some unclear notions about the trail. First, participants were unclear about the term "temporary trail" and what that could mean for the design and longevity of the trail. Additionally, participants expressed interest in knowing the city's timeline for completing the project.

Additional Comments

Description of activity

A general comment box was provided for participants to leave additional comments or questions.

Summary of findings

Two participants commented on the need of City of Monroe's mountain bike community to have a space to practice locally. An additional comment was made about how the trail would accommodate E-bikes. Since E-bikes have 3 classifications for speed, the respondent recommended referring to King County's ordinance for classes 1 & 2 (20mph v. 30mph) when considering how the trail could accommodate their use. Another comment was made in hopes to improve the connectivity between other walking trails, "to go from Lake Tye trails to Fryelands trails etc." The final comment card recommended different path materials for different uses. These recommendations were similar to

the comments received at the design concept table. The respondent also questioned the possibility of having multiple paths that run alongside each other or cross paths periodically.

Conclusion

At least twenty-three community members attended the meeting and provided feedback about the proposed trail area. This information will be used by the City of Monroe and other Western Washington University courses in future planning phases of this project. Community outreach is an engaging and rewarding process for both the participants and the facilitators. The outreach team's meeting was the first step in a longer process of community engagement and planning. It is recommended that those who pick up this project continue conducting community outreach, since this was just an initial sampling of community interests. In general, participants expressed concern regarding the safety of the trail, and were curious to know which measures the city would take to ensure safety once the trail is fully constructed. They suggested ample lighting and explicit signage to make the trails safe at night. As for the use of the trail, there was interest in walking, equestrian use and mountain bike paths. Several participants wanted separate trails for each use to avoid conflict. Several participants advocated the trail to be designed as a loop, with smaller trails leading from surrounding neighborhoods as well trails designated for equestrian or mountain biking purposes.

As outsiders to the community, and in implementing this project in just one academic quarter, there were certain limitations to the project that should be acknowledged. Based on limited time, distribution of materials for this public meeting might not have been as comprehensive as it could have been. There might have been certain groups within the city that learned about the meeting, and certain groups that did not. Working within a small window of time, there was little opportunity to identify all stakeholders within the community. The members of the community that were present at the outreach meeting were generally in favor of the trail and were excited about the potential benefits. What was not represented was the general concern or negative consequences of the proposed trail. As this project progresses, and planning moves forward, we encourage the city to engage a broader group of community members.

References

Futurewise. (2014). Community Engagement Toolkit: Guidance and Resources
    for Engaging Community in Planning and Policy Development. Retrieved from
    http://www.futurewise.org/assets/reports/CET.pd.

Andrews, B., Sippel, Z., Strain, S. (2015). *Community Engagement in Parks &*
    Recreation Planning Carver County, MN. Carver County Parks and Recreation Department.
    Retrieved from https://conservancy.umn.edu/bitstream/handle/11299/185012/RCP_24c-
    PA_5253-report.pdf?sequence=2&isAllowed=y

Virginia Department of Transportation. (n.d.). *Community Trail Development*
    Guide. Retrieved from
    http://www.virginiadot.org/VDOT/Programs/bikeped/asset_upload_file816_81999.pdf

CHAPTER TWO: DESIGN TEAM

Introduction

This chapter outlines the Design Team's work to conceptualize reasonable and accessible trail options for the City of Monroe. This chapter provides preliminary visuals of trail features such as: Americans with Disabilities Act (ADA) compliant road crossings and bridges, pet stations, and informative access points. These designs were presented to the community for critique and feedback during the November 14, 2018, outreach meeting. The critiques and discussed solutions are included in this chapter. The community deliberation concerning these designs recognized that the proposed designs are only a sampling of trail amenities worth including. In this sense, the outreach meeting proved to be a valuable tool in exploring other potential trail designs to incorporate and consider during future planning phases. Community knowledge and community priorities expressed during the meeting directly informed what is included in this chapter. Future exploration of community interests and assets will benefit the community's efforts to create a recreational walking, equestrian, and bike trail.

Project Objective(s)

The goal of the design team is to encourage the expansion of the city's current trail system by offering conceptual improvements for infrastructure design. Based on community feedback, the trail should be:

- Modern
- Safe
- Efficient
- Bike, mountain bike, equestrian, and foot traffic oriented
- Pet-friendly
- ADA accessible

These are all key objectives used to create the series of conceptual trail designs detailed in this chapter. The designs were used during the November outreach meeting to spark discussion on trail design with community members. Design visuals created for the proposed trail illustrate:

- Access points
- Pet stations
- Bridges
- Road crossings with ramps and other ADA features such as:
    - Epoxy and natural dirt surface: consistent, durable, and level
    - Rest stations located every 500 feet

Project Design Elements

ADA Trail Requirements

To encourage use of the trail by all community members, it is important that it be developed in the most accessible way possible. In doing so the trail surface must consist of a stable, level, consistent, and durable material that will not obstruct wheelchairs or other forms of assistance (Richards, 2007). To be ADA compliant the trail must, at minimum, be 36 inches wide and preferably constructed of an epoxy-based resin mixed with natural dirt and organic materials. This creates a smooth, inexpensive, and accessible surface (Richards, 2007). Another important factor for ADA compliance is integrating periodic rest areas along the trail route. This provides space to recuperate after exertion. A practical solution to this need is placement of trail benches next to pet stations. This not only provides people with disabilities a rest area, but also creates a more coherent and thematic trail experience for its patrons (Richards, 2007).

Access points

Figure 2.1 depicts an example for an access point to the proposed multi-modal trail. This style of access point is fairly simple and requires minimal low-cost materials. The trailhead map design is inspired by a similar urban trailhead in the City of Monroe area. This sign is simple to construct, is sheltered from the rain, and does not require significant permanent foundation. There are trash and recycling bins for people to dispose of their waste appropriately. Also included is a dog station equipped with a dog waste disposal bin and bag dispenser. This serves to reduce litter on the trails.

At the outreach meeting, multiple concerns were expressed. These concerns included: lack of lighting, bathrooms, benches, parking and water fountains. While these are great ideas that could greatly improve safety and access point infrastructure, this trail is meant to be temporary. Given the temporary nature of the trail, some of these components might be more challenging, or impossible, to implement. The City of Monroe might consider planning for utility connections for lighting and plumbing to the area in order to meet the community's desires. Portable restrooms, on the other hand, could be a solution to the request for restrooms.

Figure 2.1 Access points and information hubs

Road crossing

Figures 2.2 and 2.3 illustrate a potential road crossing across 191st Avenue SE. The crossing allows for the safe passage of pedestrians, bicycles, and equestrian riders. The current road is made of concrete, but is not currently in use. This design was created with the idea that once the trail construction is completed, 191st Avenue SE would be reopened. There are a variety of design aspects included in this conception. The crossing is equipped with both a trash and recycling bin. These can help mitigate litter on the trail and the impacts on the environment as a result. The bollards at either end of the trail prevent vehicles from driving or parking too close to the trail outlet. There were two proposed streetlights to keep the area illuminated and allow the public to see easily at any time of day. The lights would also help illuminate the white crosswalk stripes and stop signs to make the crossing even more visible to cars.

Participants provided feedback on several design elements. For example, based on the width between each protective pillar, the design only accounted for pedestrian and bicycle use. When horses were considered, respondents asserted that the bollards would be too narrow for a horse to travel between them comfortably. As the project moves along, this must be researched in greater detail and incorporated into the design, if deemed necessary. Although not limited to road crossings, another concern regarding horses was the material with which the trail surface was made.

Figure 2.2. Road crossing (profile view)

Figure 2.3. Road crossing (perspective from trail)

Pet stations

Pet stations are a necessary asset for any park system, as trail use inevitably brings along waste from pets. The typical pet station includes trash cans with an attached dispenser to distribute waste bags for picking up after pets. They are placed at trailheads and along the trail. In addition to the pet stations, small signs can be added that inform people of the dangers of leaving pet waste behind. The objective of these pet stations is to encourage the users to enjoy the trail safely with their pets. Figure 2.4 illustrates one possibility for a pet station.

The outreach meeting participants did not have specific feedback on the pet stations other than that they would like to see them. The generally positive feedback from the community and the relative low cost of the stations deems this aspect of trail design to be something that should be pursued during the next phases of design. For user ease and pickup logistics, more specific discussion with community members and city staff should be conducted to figure out exactly where these stations should be located.

Figure 2.4. Preliminary pet station

Bridges

Figures 2.5 and 2.6 illustrate conceptual bridge ideas for the proposed trail. The use of primarily wood structures was selected because the trail is designated as a temporary trail. Using interlocking wood parts, this bridge could be assembled and disassembled fairly easily. This design is meant to be functional as well as aesthetically pleasing. It has a slight gradient change for fluctuation in stream capacity, but still meets all ADA requirements. The majority of the trail is designed to be compacted dirt and epoxy, so there should be a smooth transition abutting the bridge entrance and exit. Furthermore, small features were included to help with accessibility and safety. The hand rail is designed to extend to the very start and finish of the bridge on both sides. There are also six small LED lights atop the railing supports to help increase visibility. The proposed bridge is ten feet wide, which allows for multiple people to cross in different directions easily, regardless of their mode of transportation.
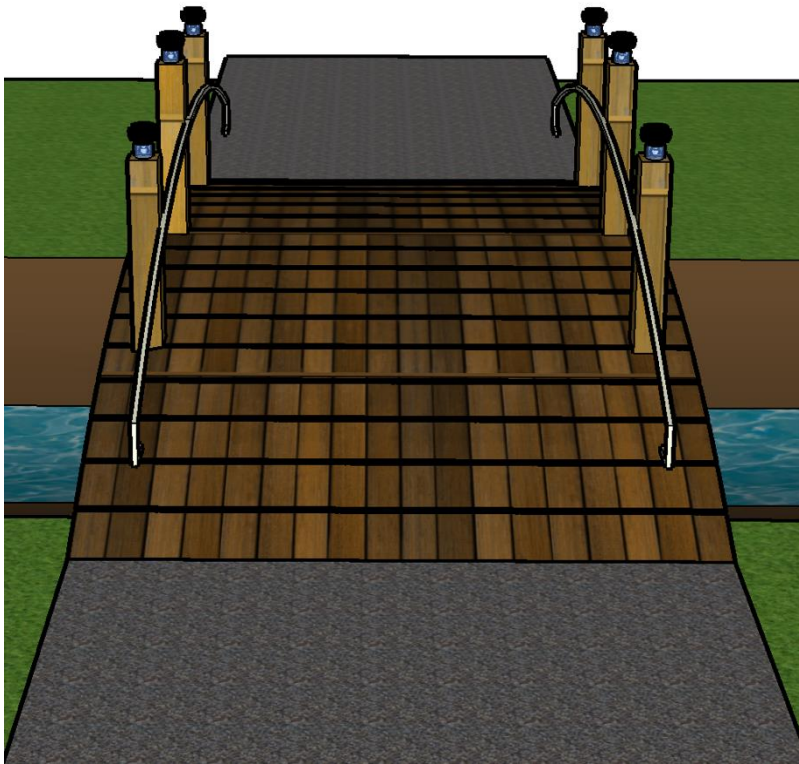

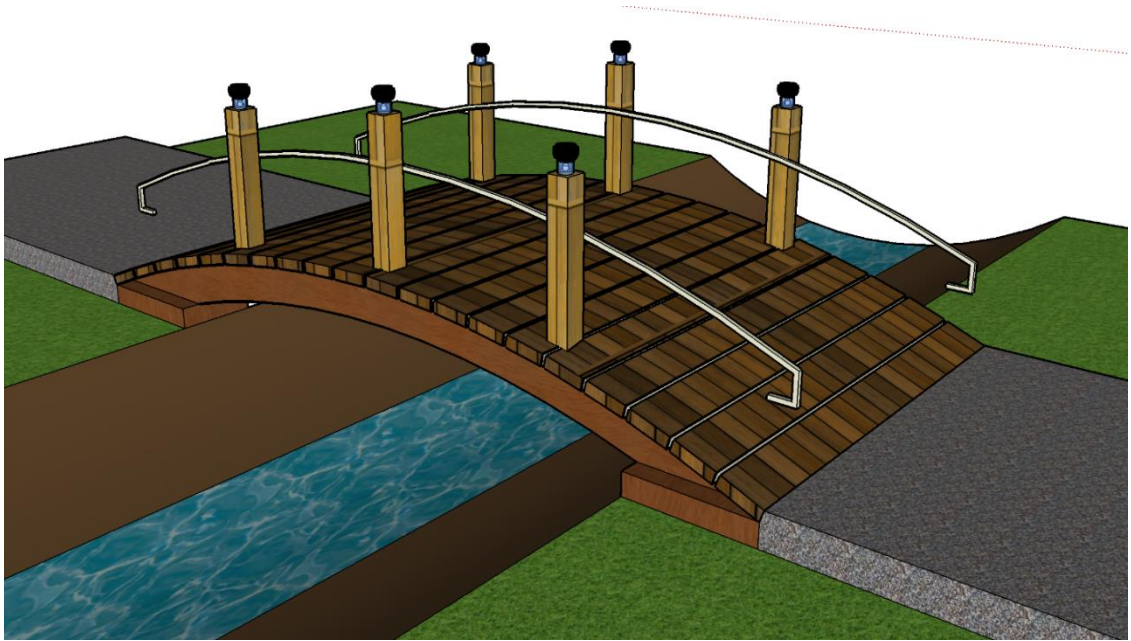Figure 2.5. Bridge design (perspective from trail)

Figure 2.6. Bridge design (profile view)

When this bridge design was presented at the outreach meeting, some concerns were expressed regarding the accessibility. According to some participants, the wood structure might spook a horse. A proposed solution for this challenge is to incorporate packed dirt or fine-crushed gravel on the bridge to make it one cohesive junction (Mclean, 2015).

Overall Trail Design and Future Opportunities

Proposed trail features include: access points, bridges, road crossings, and pet stations. The proposed trail shown in Figure 2.7 includes a theoretical line established by the design team for the purpose of visual aid. Through insights from meeting participants, it was clear that this theorized route did not serve the community's vision of the trail area. Public input for the trail route improvements included:

- Connecting it to similar trail routes that already exist to the north of the Evergreen State Fairgrounds.
- Creating a loop that could be utilized by mountain bikers in some areas and equestrian traffic in others.

References

Mclean, A. (2015). Understanding the Horse's Fear Response: Spooking, Bolting, etc. [Web log post]. CRK Training *Blog*. Retrieved from http://www.crktrainingblog.com/horse-training/horse-fear-spooking-bolting/

Richards, V. (2007). ADA Accessibility Guidelines, Tennessee Department of Environment and Conservation Recreation Educational Services Division Greenways and Trails Program.

Additional Resources

City of Bellingham. (n.d.). Pet Waste Belongs in the Trash. Retrieved from https://www.cob.org/services/environment/stormwater/Pages/pet-waste.aspx

Dolesh, R. (2018). Dogs in Parks: Managing the Waste. *Cityofbellingham*. The National Recreation and Parks Association. Retrieved from https://www.nrpa.org/parks-recreation-magazine/2018/november/dogs-in-parks-managing-the-waste/

Flink, C., Olka, K., & Searns, R. (2001). *Trails for the twenty-first century: planning, design, and management manual for multi-use trails*. Island Press.

U.S. Department of Agriculture/U.S. Forest Service. (n.d.). Standard Trail Plans and Specifications. Retrieved from https://www.fs.fed.us/managing-land/trails/trail-management-tools/trailplans

Wiki Pets. (n.d.). Danger of Dog Poop. *Alamo Area Partners for Animal Welfare*. Retrieved from http://www.aapaw.org/education/dangers-of-dog-poop.html

CHAPTER THREE: RESEARCH TEAM

Introduction and Project Objectives

The research team's goal was to examine the different outcomes of multi-modal trail implementation on surrounding communities. This chapter summarizes the benefits, challenges and opportunities a multi-modal trail could bring to the Monroe community. Topics covered include: trail modes and materials, physical health of trail users, and effects of a multi-modal trail on surrounding property values.

Research Results

Economics

Urban trails and greenways have a number of effects on local and sub-regional economies. Urban trails, such as the proposed City of Monroe project, are a public amenity. This means that the financial cost associated with building the trail will not see a direct return on investment, but rather will support the community as an added financial asset through indirect economic benefits. One of the most valuable ways that urban trails contribute to a local economy is through property appreciation, as properties in proximity to the trail will have more access to the amenities offered (American Hiking Society, 2004). This is a significant benefit of urban trails and merits its own discussion, separate from other aspects of the economics of urban trails (Bergerson & Dove, 2008). More research on this topic can be found under the section titled 'Home Values.'

The total economic impact of an urban trail system is measured as the sum of four types of economic effects: direct, indirect, induced, and dynamic. Whether these effects are more economically beneficial for a local or regional community than the initial financial investment cost and maintenance costs is contingent upon three things. The three things include: 1) whether or not the trail connects nodes of economic activity to consumers, 2) whether or not the trail accommodates uses associated with market stimulation, and 3) the overall public perception of the trail's uses and benefits.

Findings

Examining the impacts urban trails have on local and/or regional economies brings a better understanding of community investments, and which investments are likely to be the most successful. The most inclusive format of measuring economic effects of an urban trail system is by studying all four economic effects, the combination of which outline a holistic perspective of what urban trails have to offer their communities (McDonald & Brown, 2015). Economic modeling is also a method of measuring the overall economic impact of a development yet is beyond the scope of this research.

The direct effects of multi-modal urban trails include all gains and expenditures as a direct result of the trail. Included in direct effects are the costs to the public for the construction and maintenance of the trail, as well as the money spent by the public on the access or various uses of the trail, such as bike and equipment services or gasoline. Although access exclusivity (e.g., charging a fee) is a method used by some to increase revenue from trail systems, it is difficult to enforce in urban areas and may decrease overall use of a trail. Trail-based tourism is a major economic asset for many

communities and provides millions of dollars annually to small communities across the United States (Rails-to-Trails Conservancy, n.d.).

Indirect economic effects refer to more broad changes in the economy, such as inter-industry transactions, that result from the publicly implemented amenity. An example of this would be the result of implementing bicycle-oriented trails increasing the sale of bicycle related products for a local business, which in turn means that more of these products must be ordered, increasing revenue to all sources required to make those products.

Changes in the buying power of entities as a result of changes to personal income are considered induced economic effects. Induced effects differ from indirect effects in that although induced economic effects consider broad changes in the economy, as indirect effects do, the purpose is to evaluate changes in the personal income of those affected in those industries so that the additional income can contribute to the economy in markets outside of those markets impacted by the amenity. Trails are a cost-effective mechanism of job creation, as the design, engineering, and construction of multi-modal trails create more jobs per dollar than any other transportation infrastructure (Rails-to-Trails Conservancy, n.d.).

Dynamic effects refer to social or structural changes to a community, that have wider implications for the future of a community, such as changes to populations, land value and use, and the locations of businesses. Dynamic effects are difficult to account for with economic modeling, as they inherently subvert the existing economic conditions by which the initial economic models are based. Dynamic effects also tend to happen as a reaction to the development, such as the opening of businesses specifically tailored to trail uses.

Recommendations

Direct, indirect, induced, and dynamic economic effects demonstrate that despite the requirement of publicly funded direct financial expenditures, multi-modal trails have the potential to be powerful economic assets for communities. As a multi-modal urban trail accommodates more uses, it can stimulate the economy in more beneficial and diverse ways. The benefits of implementing these uses might not always outweigh the incurred costs, financial or otherwise. Although equestrian uses are observed as an option in this research under the section, 'Trail Use and Impacts,' the primary observed uses of multi-modal trails are "biking, running or walking" (East Coast Greenway Alliance, n.d.). In developing this trail, one might consider prioritizing these uses to inspire economic development.

Recreational biking as a use of a multi-modal urban trail presents the most opportunity for a beneficial economic impact on the Monroe community. There are multiple bike shops in the City of Monroe which would greatly benefit from the expansion of bicycling amenities and use. Many bike shops in small communities can attribute entire incomes to the availability of bike paths and trails. These trails can also stimulate retail and food service economies significantly (East Coast Greenway Alliance, n.d.). Although recreational biking facilities are primarily used by middle to upper class residents, use is relatively even among gender and age. Attractive multi-modal trails can help support networks of local hotels, restaurants, and shops (Eastin, n.d.).

Health

Findings

The health crisis in the United States has been in the spotlight for several years. Evidence of the health crisis related to physical inactivity continues to accumulate (Rails to Trail Conservatory, n.d.; Burbidge & Goulias, 2009). Approximately 300,000 U.S. citizen deaths per year are related to obesity and weight problems (U.S. Department of Health and Human Services, Public Health Services and Office of the Surgeon General, 2001). The total direct and indirect costs attributed to these conditions were approximately $117 billion in the year 2000 (U.S. Department of Health and Human Services et al., 2001). According to a study done by the American Heart Association, about 600,000 people died from heart disease in 2006, which another study estimates will cost the nation $316.4 billion in terms of medication, treatment and lost productivity (Lloyd-Jones et. al., 2009).

Many Americans live predominately sedentary lives with less than one third of Americans meeting the federal recommendation of at least 30 minutes of moderate physical activity five days a week (U.S. Department of Health and Human Services et al., 2001; U.S. Department of Health and Human Services, 2011). The U.S. Department of Health and Human Services emphasizes the importance of the relationship between exercise and health. Physical activity not only helps control weight but also helps prevent heart disease, slows bone loss associated with advancing age, lowers the risk of certain cancers, helps reduce anxiety and depression, and helps control cholesterol levels and diabetes (Rails to Trails Conservatory, n.d.; American Hiking Society, n.d.; U.S. Department of Health and Human Services, 2011).

Mental health is as important as physical health. Anxiety can be reduced through regular physical activity. When adrenaline accumulates in the body, which is produced regularly to cope with real or perceived danger, it causes the muscles to become tense and releases feelings of anxiety (American Hiking Society, 2004). Exercise can release this built up adrenaline. Results have shown that there are immediate decreases in tension and anxiety after walking, regardless of the intensity. Endorphins released by the body after exercise can lift your spirits throughout the day, keeping your brain as healthy as your body (American Hiking Society, 2004).

One of the most frequently cited barriers to physical activity is lack of safe areas (U.S. Department of Health and Human Services, 2011). Improved pedestrian and cycling infrastructure may promote physical activity by making walking and cycling more appealing, easier, and safer. Trails and greenways create healthy transportation and recreation opportunities by providing citizens of all ages with safe, accessible places to walk, jog, bike, hike or skate, and makes it easier for people to engage in physical activity (Rails to Trails Conservatory, n.d.). Trails and greenways can connect neighborhoods to schools, business districts, and other parts of the city, especially if the communities lack adequate sidewalks. This promotes walking or cycling to work, school, and for running errands, which reduces road congestion and mitigates pollution (Rails to Trails Conservatory, n.d.). Trails and greenways also offer a low-cost alternative to exercising at high priced indoor gyms and health clubs.

A number of studies have looked at exercise rates before and after having close access to a trail. For example, in a study done in southwestern Missouri, 55% of trail users who responded to the survey indicated that they were exercising more after having access to a trail (Brownson, 1999). In a study performed in Indiana, researchers found that in six locations surveyed, over 70% of trail users reported to be getting more exercise as a direct result of the trails and greenways (Wolter & Lindsey,

2001). Living in areas with walkable green spaces can positively influence the longevity of older citizens in large cities as found by researchers, Takano, Nakamura, and Watanabe (2002).

Recommendations

It is clear that having access to outdoor recreation opportunities can be beneficial to a community's health. The placement of the multi-modal trail will promote healthy, alternative transportation options and support walking and biking.

Home Values

Findings

The literature analyzing the effects of a multi-modal trail on nearby property demonstrates increasing values with proximity to a trail. The increase in home and property value reflects the benefits property owners experience by living close to multi-modal trails. These benefits include having alternative transportation options (biking, walking) and easy access to trails for recreation, which can cultivate health and relaxation.

A multi-modal trail enhances the perception of a community through the above benefits, making the community a more attractive destination for potential homebuyers than compared to a neighborhood without trails. In a survey completed by the Conservation Fund and Colorado State Parks and Trails Program, 55% of real estate agents indicated that a home in proximity to a trail would sell for more than a comparable home in a different neighborhood without one (Webel, 2000). Furthermore, participating real estate agents claimed that "urban trails are regarded as an amenity that helps to attract buyers and sell property" (Webel, 2000). Among the agents, 73% believed a home near a trail would be easier to sell, 82% used the trail as a selling point and 100% considered trails to be a desirable amenity to the community around it (Webel, 2000).

Furthermore, Dhanju and Racca (2006) show supporting evidence for higher property values for properties in close proximity to a trail. In one aspect of the study neighbors of a trail expressed that they felt their quality of life was improved by living near a trail. This study is relevant to the City of Monroe multi-modal trail project as the conclusions of this research found that even those who initially opposed the construction of the trail eventually became "very happy with the trail" (Dhanju & Racca, p. 22, 2006). It is important to acknowledge that although the literature shows that proximity to a trail has a positive impact on property values, it is small amongst the many factors that contribute to property values. All studies address the reality of real estate sales, which combine a multitude of property features for a total assessment of the home, including "the number of bedrooms, years since sale, acres, land, buildings, total number of rooms" etc. (Dhanju & Racca, 2006).

There is some research that shows a slight drop in property value near trails. However, this reduction is usually only present at the time of trail development (Headwaters Economics, 2016). This is shown to occur based on speculations of noise, traffic or crime/safety impacts. Results in such research reveal that once trails are widely accepted and used by the community, home values increase as reflecting an appreciation by the community and a desirable community asset.

Implementing the trail could improve the home values of properties in areas connected to and by the trail. If the trail is implemented, there might be some time needed to acclimate to the trail. Increased home values could result over time.

Homelessness

Findings

There is little information specifically about the effects of a multi-modal trail through a community and its effects on homelessness. The larger pools of applicable information in this case comes from statistics on homelessness in the City of Monroe and Snohomish County. Snohomish County statistics from 2012 showed that 10.4% of residents lived in poverty and 79,000 people lived below the poverty line (Snohomish County Human Services Department & Homeless Policy Task Force, 2012). Frequently, people experiencing homelessness take advantage of the public nature of parks to establish makeshift homes and temporary shelters in what are intended to be shared public spaces (Taylor, 2018). Their behaviors and belongings are seen as a nuisance by some and can dissuade people from using a park. This frustrates many members of the public, but shelters and services are not always in enough supply to meet the demand (Taylor, 2018). Fortunately, the gathering of homeless people, which frequently occurs in public parks, provides an opportunity for local agencies to collaborate and connect individuals with much needed social services. The community can still regulate some actions and protect homeless people's rights in an effort to shift the greater culture towards compassion and positive actions (Dropinski, Layton & Rainey, 2018).

After speaking to community members at the outreach meeting, new information came to light about homelessness and its effects. The research team was informed that the main area in which homeless people congregate on the site is near the Evergreen State Fairgrounds, where there is a semi-public restroom (it is intended to be used by the users of the fairgrounds). Members of the police department and county agreed that building this area up into a multi-modal trail, combined with the increased use of the area would likely push these people out of the area. With this in mind, it is important to think about how to best support these individuals during the installation of the trail.

Recommendations

This trail is not making anyone homeless. So, the number of people in Snohomish County experiencing homelessness will not change. However, it is frequently shown that a park may attract homeless people who are erecting shelters and temporary structures in the park at night. This potentially provides the community with the opportunity to use its existing programs with better effectiveness to help people within the park.

Crime & Safety

Findings

The implementation of trails in communities throughout the United States has shown increasingly positive effects on the residents of the area. For the most part, questions of safety pertaining to trails cover issues ranging from lighting, density of vegetation, visibility, maintenance, litter and crowding (Reynolds et al., 2007). Tracy and Morris, authors of "Rail-Trails and Safe Communities: The

Experience of 372 Trails" (1998) have found that crime rates are lower on trails than they are in the surrounding public and private areas, such as highways and parking lots. Largely, the implementation of trails promotes exercise, provides recreational opportunities and alternative transportation routes, fosters a sense of community, and lowers crime rates.

Well utilized trails often have lower crime rates due to the concept of "eyes on the street," which is a motivator for well-planned and desired trail systems as well as urban street networks (Tracy & Morris, 1998). Trails are ideal routes to keep pedestrians, bicyclists and alternative transportation users safe and separate from automobile traffic. In 1995 and 1996 less than one fourth of Tracy and Morris (1998) study participants experienced any minor crimes on trails, and approximately three percent experienced a major crime, with slight differences between urban, suburban and rural land types. Based on the lower crime rates on trails of all kinds, the tendency for people to fear crime on dark and dense trails is a misperception (Eaken, 2001). Nevertheless, safety concerns are legitimate responses from the public that should be addressed through a process sufficient for examining and mitigating the situation. A positive correlation has been found between trail use and presence of street lights, and a negative correlation has been found between density of vegetation and trail use (Reynolds et al., 2007).

According to the Santa Fe Conservation Trust, a nonprofit dedicated to conserving cultural and environmental landscapes in New Mexico, 69% of urban trails, 67% of suburban trails, and 63% of rural trails are patrolled in some form or another, either by local volunteers or a police force (Alexander, 2010).

Recommendations

Trail design should result from an assessment of the community's needs, resources, and values. Based on crime and safety research, trail development should include ample visibility at all times, including lighting and trimmed vegetation, which improves line of sight and decreases available hiding places (Tracy & Morris, 1998). Encouraging trail use is an easy way to promote safer trail environments. While there is not statistically significant data to support these efforts, other measures the city might consider include installing emergency phones and posting use rules along the trail or at the trailhead (Tracy & Morris, 1998). Educating the public on trail safety and user precautions is another way to inform the community members who use the trail on what to be aware of when using the trail. Volunteer or professional patrolling is often successful in lowering crime rates on trails (Tracy & Morris, 1998). A well-planned trail would cater to multi-modal transportation options and should be considered a valuable component of the local community. There is reason to believe that community members would support and work toward ensuring that this trail is a safe and sustainable community asset.

Trail Connectivity

Findings

The proposed trail linking the Evergreen State Fairgrounds at 179th Avenue and the commercial district around Chain Lake Road aims to provide convenient recreation and transportation opportunities for residents. "Monroe citizens expressed a need for a trails system, which includes trails of various classifications linking parks, the river, the downtown area, schools and providing recreation opportunities in open space/natural areas" (Studio Cascade & the City of Monroe, 2015). For those without automobiles, a trail network enables people of many different abilities and circumstances to access city amenities.

Trails serve as safe, environmentally friendly and cost-effective avenues of transportation for city residents. One benefit of having urban trails is providing people with more options for moving throughout the city. As automobile traffic increases, residents may find it quicker to travel by foot or bicycle on trails or sidewalks. "US 2 serves as major north/south divider, bisecting the community as signal timing favors highway traffic and the width of the roadway makes it unappealing for pedestrians" (City of Monroe, p. 111, 2015). Highway 2 is an intimidating area for pedestrians and cyclists because of the sheer automobile volume. Additionally, there are not currently adequate sidewalks or bike lanes. The proposed trail would provide residents with a connecting route that bypasses Highway 2 completely.

The proposed trail location is nestled between residential and commercial development. Its location has the potential to serve several different audiences and purposes. Where Chain Lake Road and North Kelsey Street meet, there is access to a residential neighborhood through a greenway. This trail would serve residents by providing a convenient place to get outside for a walk or bike ride. It is not necessary for residents to drive to this southeast trail entrance, making it appropriate for younger people to participate in recreational activities. The Evergreen State Fairgrounds sits at the northwest end of the trail at 179th Avenue, serving people staying at the Fairgrounds for events. Often people stay in tents, motorhomes and trailers, not always having access to day-use automobiles. This multi-modal trail would allow visitors to comfortably access the commercial district to pick up items needed for their stay. Having a well-developed trail network helps to mobilize a greater portion of a city's population and decrease the necessity of automobiles.

Recommendations

Residents of the City of Monroe have expressed the need for linking existing parks with urban greenways. There is potential to connect the proposed trail with Al Borin Park on the south side of Highway 2. A safe crossing point for pedestrians and cyclists would require further research and planning, but if feasible, it would improve the value of this proposed trail. Having a destination such as Al Borin Park and the Skykomish River at one end of the trail would increase interest in, and use of, the trail.

Trail Use & Impacts

Pedestrian and bicycle traffic are known to have a relatively low impact. Horse impacts, on the other hand, are more unknown. Most research was done to review equestrian impacts and not pedestrian or bicycle. After review, horses on multi-modal trails do not cause significant harm environmentally, but could pose a challenge to other users.

Findings

Although research has been conducted on the impact of equestrian traffic on trails, more research needs to be done to create conclusive evidence. It is hard to distinguish whether a higher impact can be attributed specifically to equestrian traffic over other modes because of their interconnected use and similar impact (Pickering, Hill, Newsome, & Leung, 2010; Beavis, 2005).

The primary environmental concerns regarding trails are erosion, damage to surrounding plants and animals, introduction of invasive species, and trail runoff. Other traffic, specifically bike and pedestrian, are widely considered low impact, when users stay on the trail. Horses tend to have similar levels of impact. A major issue arises, however, when traffic of all kinds travel off trail. Impact related to horses, specifically, is described below.

- Environmental Impact - Soil: Horses are considered by many to be low impact trail users. This sentiment has been reinforced from agencies including the National Park Service, the USDA, and the US Forest Service (Quinn, 2004). This statement has been scrutinized, however, for being broad; there are varying levels of impact severity (Pickering et al., 2010). For example, Beavis (2005) shows that the hoof of horses delivers significant force onto the soil, which can displace it more than other modes (e.g., hiking, biking).

  Regardless, many studies have shown that trail erosion has primarily to do with soil composition type (e.g., fine sediments or rocky gravel), average rainfalls, and grade (e.g., steepness) of a trail (Marion & Wimpey, 2016). Many of the main drivers of erosion are naturally occurring phenomena, and trail users, particularly traffic associated with horses, do not have considerable effect on erosion itself.

- Environmental Impact - Water & Plants: Although horses have been found to be less likely to scare off wildlife than hikers or bikers (Quinn, 2004), they do have the potential to have an impact on the flora around them. Horses may eat plants from the edge of the trail, disrupting the natural environment around them (Pickering et al., 2010). Consumption of plants can also be a source of invasive seed transmission, although many seeds are unable to germinate in horse waste (Quinn, 2004; Pickering et al., 2010). Additionally, their waste has the potential to create higher nitrogen and phosphorus levels in the soil, ultimately having the potential to affect what plant life can grow near the trail (Pickering et al., 2010, p. 554). Many of these nutrients, however, dissipate quickly (Quinn, 2004).

  Horse waste has been shown to have minimal impact on water sources unless directly deposited into the water source. Horses will be coming from a stable of some kind where most of the defecation will happen and waste on the trail will be minimal (Quinn 2004). As stated above, many of the harmful nutrients that horse waste could add to water sources (excess nitrogen causing algae blooms, for example) dissipate quickly. Diseases harmful to humans, such as E-coli and salmonella, are at an insignificant level to begin with, and are neutralized completely within 24 hours (Quinn, 2004). The main concern to be considered in this context is the City of Monroe's wet, temperate environment with rainfall as a potential catalyst for runoff into waterways in a short period of time.

- Surface Material Considerations: The surface commonly suggested is a mixture of fine and course materials. Marion and Wimpey's (2016) research on trail soil loss suggested that this mixture is important because the course material creates a hard surface while creating drainage, and compacts over time with finer material, making a much more cohesive solid path (Wimpey, 2016, p. 50). Quinn, with American Trails, recommends "spreading 3/4" hard native rock, decomposed granite (DG), or basalt" to provide a firmer trail tread (Quinn, 2004, p. 18). Additionally, the manual, Trails for the Twenty First Century, stipulates ten feet of clearance from the trail surface to accommodate equestrian riders (Flink, Olka & Searns, 2001).

- Social Impact: The possible downsides of having horses share a multi-modal trail with other users are minimal, but there are two distinct issues: aesthetic loss and modal conflict. In terms of aesthetic loss, a trail with horse use will have some waste either on or directly next to the trail, which could be a potential issue for walkers and bikers. Further, conflict can arise from interaction between equestrian traffic and other modes. Horses can be easily scared by quickly

moving objects, as well as being approached from behind (Quinn, 2004). On a multi-modal trail, where there are potential walkers and bikers from both directions, this could be problematic and dangerous. Quinn (2004) suggests communicating with the rider for instructions on how to pass safely. Generally, these issues can be mitigated, and equestrian traffic can be integrated into a multi-modal trail successfully.

Trails open to equestrian use do not face very many drawbacks, particularly in the case of a constructed multi-modal trail. Horses are not significantly more damaging to their environment or the trail itself than their bike or foot traffic counterparts. All three of these modes can also be successfully implemented on the same trail surface. The main drawback of equestrian traffic is the problematic issue of passing a horse safely, which is easily done, but the public must be educated to understand how to do so to avoid dangerous situations or injury to either party.

Recommendations

Speaking specifically of equestrian traffic, the main area of equestrian use should be centralized around the Evergreen State Fairgrounds, between the fairgrounds and 191st Avenue SE. This would give equestrian traffic enough space to have a functioning trail system, while also keeping the impact more centralized and manageable, reducing construction cost of a longer equestrian trail system.

If possible, the city should consider providing separate trails for different users. One option is separating bikers and walkers from a secondary trail for equestrian only use. This secondary trail would be slightly offset from the other, giving equestrian riders the ability to avoid direct interaction with other trail users. This recommendation, however, does not separate bikers and walkers, creating a shared path that would have to support the two uses together.

Another option would be creating three different trail networks. At the public meeting there was expressed concern of horses being spooked by bicycle riders or walkers, as well as an interest to have trails designated solely for bike riding. Providing three different trail systems in the area remove all dangerous encounters between bikers, walkers and equestrian traffic, while providing the three uses freedom of their own space. Additionally, this option could also include trails that intermix bikers and walkers. These mixed trails would be less abundant than the single use trails and could be utilized as trailhead arterials that lead into the trail system from park entrances.

Conclusions

The findings of this chapter indicate that a multi-modal trail could create positive health and economic impacts for the community of Monroe without negatively affecting the environment in any significant way. The trail could create greater opportunities for a variety of outdoor recreational activities that support personal and community health as a whole. The trail system would create an alternative commuting option, as well as the potential to establish a network of connected parks throughout the City of Monroe area. The trail has the potential to accommodate hikers, bikers, and horses. Lastly, it might also stimulate economic growth. As the City of Monroe continues its efforts to implement a multi-modal trail, these areas of inquiry and recommendations should be considered.

References

American Hiking Society. (2004). *A Step in the Right Direction: The Health Benefits of Hiking and Trails. American Hiking Society*. Retrieved from, https://www.americantrails.org/files/pdf/AHShealthben.pdf

American Hiking Society. (n.d.). *Health Benefits of Hiking*. Retrieved from, https://americanhiking.org/wp-content/uploads/2013/04/Heath-Benefits-of-Hiking-fact-sheet.pdf

Alexander, M. (2010). Neighborhoods and trails: why trail? *Santa Fe Conservation Trust*. Retrieved from https://sfct.org/trails/neighborhoods/

Beavis, S. (2005). Biophysical Impacts of Recreational Horse Riding in Multi-use National Parks and Reserves. *Australasian Journal of Environmental Management*, *12*(2), 109–116. https://doi.org/10.1080/14486563.2005.9725079

Beeton, S. (2006). Sustainable tourism in practice: Trails and tourism. Critical management issues of multi-use trails. *Tourism and Hospitality Planning & Development*, *3*(1), 47–64. https://doi.org/10.1080/14790530600727227

Bergerson, T., Dove, A. (2008). Benefits of Trails & Greenways [brochure]. Retrieved from https://www.cdlandtrust.org/sites/default/files/publications/Benefits%20of%20Trails-NPS.pdf

Brownson, R. C. (1999). Promoting and evaluating walking trails in rural Missouri. *Saint Louis University School of Public Health*.

Burbidge, S.K., and Goulias, K.G. (2009). Evaluating the Impact of Neighborhood Trail Development on Physical Activity of Suburban Residents. *Transportation Research Record,* 2135, 78-86.

City of Monroe. (2015). Appendix D - Transportation Plan. *In the City of Monroe's, 2015-2035 Comprehensive Plan*. Retrieved from https://www.monroewa.gov/DocumentCenter/View/3682/Appendix-D---Transportation-Plan

Dhanju, A., & Racca, D. P. (2006). Project Report for Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas. *Center for Applied Demography & Survey Research*.

Dropinski C, Layton R, Rainey J. (2018). Homelessness and How It Affects Parks and Recreation Agencies. Retrieved from https://greenplayllc.com/wpcontent/uploads/2018/02/Homelessness-Article.pdf

Eaken, A., & Hart, J. (2001). Tunnels on Trails. Retrieved from http://www.americantrails.org/resources/railtrails /Tunnels.html

East Coast Greenway Alliance. (n.d.). Benefits of Greenways and Trails. Retrieved from

https://www.greenway.org/uploads/attachments/cj4oa2ra401nw79qixmt4ooj1-benefits-of-greenways-and-trails.pdf

Eastin, T. (n.d.). The Business of Trails: A Compilation of Economic Benefits. *American Trails* Retrieved from https://www.americantrails.org/resources/the-business-of-trails-a-compilation-of-economic-benefits

Flink, C. A., Olka, K., and Searns, R. M. (2001). *Trails for the twenty-first century: Planning, design, and management manual for multi-use trails*. Rails-to-Trails Conservency. Washington, DC: Island Press.

Headwaters Economics. (2016). *Measuring Trails Benefits: Property Value: Overall Benefits*. [Brochure]. Retrieved from https://headwaterseconomics.org/wp-content/uploads/trails-library-overview.pdf

Lloyd-Jones, D., Adams, R. J., Brown, T. M., Carnethon, M., Dai, S., De Simone, G., ... & Go, A. (2009). Heart disease and stroke statistics—2010 update. *American Heart Association*. Circulation.

Marion, J. L., & Wimpey, J. (2017). Assessing the influence of sustainable trail design and maintenance on soil loss. *Journal of Environmental Management*, *189*, 46–57. https://doi.org/10.1016/j.jenvman.2016.11.074

McDonald, J., & Brown, L. (2015). The Economic Impact of Greenways and Multi-Use Trails. Naugatuck Valley Council of Governments.

Pickering, C. M., Hill, W., Newsome, D., & Leung, Y.-F. (2010). Comparing hiking, mountain biking and horse-riding impacts on vegetation and soils in Australia and the United States of America. *Journal of Environmental Management*, *91*(3), 551–562. https://doi.org/10.1016/j.jenvman.2009.09.025

Quinn, A. (2004). Environmental Aspects of Horses on Trails. Retrieved October 31, 2018, from https://www.americantrails.org/resources/environmental-aspects-of-horses-on-trails

Rails-to-Trails Conservancy. (n.d.). Investing in Trails: Cost-Effective Improvements – for Everyone. Retrieved from https://www.railstotrails.org/resourcehandler.ashx?name=investing-in-trails-cost-effective-improvementsforeveryone&id=3629&fileName=Economic%20Impacts%20of%20Trails.pdf

Rails to Trails Conservancy. (n.d.). Health and Wellness Benefits. Retreived from, https://www.railstotrails.org/resourcehandler.ashx?name=health-and-wellness-benefits-of-trails-and-greenways&id=3070&fileName=HealthandWellness.pdf

Reynolds, K. D., Wolch, J., Byrne, J., Chou, C. P., Feng, G., Weaver, S., & Jerrett, M. (2007). Trail characteristics as correlates of urban trail use. *American Journal of Health Promotion*, 21(4_suppl), 335-345.

Snohomish County Human Services Department and Homeless Policy Task Force. (2012). Point In Time Count of Homeless Persons in Snohomish County. Retrieved form http://snohomishcountywa.gov/DocumentCenter/View/7269

Studio Cascade and the City of Monroe. (2015). Appendix F - Parks, Recreation and Open Space. In Studio Cascade's and the City of Monroe's, 2015-2035 Comprehensive Plan. http://www.monroewa.gov/DocumentCenter/View/3712/Appendix-F---Parks-Recreation--Open-Space-Plan?bidId

Takano, T., Nakamura, K., and Watanabe, N. Urban Residential Environments and Senior Citizens' Longevity in Megacity Areas: The Importance of Walkable Green Spaces. *Journal of Epidemiology and Community Health*, Vol. 56, pg. 913-918, 2002.

Taylor, D. (2014) Out of the Shadows. Retrieved from: https://www.nrpa.org/parks-recreation-magazine/2014/january/out-of-the-shadows/

Tracy, T., and Morris, H. (1998). Rail-trails and safe communities. Rails-to-Trails Conservancy, Washington, DC.

U.S. Department of Health and Human Services/Centers for Disease Control and Prevention. (2011). Strategies to Prevent Obesity and Other Chronic Diseases: e CDC Guide to Strategies to Increase Physical Activity in the Community. Retrieved from https://www.cdc.gov/obesity/downloads/PA_2011_WEB.pdf

U.S. Department of Health and Human Services, Public Health Services and Office of the Surgeon General. (2001). Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity. Retrieved from https://www.cdc.gov/nccdphp/dnpa/pdf/CalltoAction.pdf

Webel, S. (2000). Trail Effects On Neighborhoods: Home Value, Safety, Quality Of Life [web article]. Retrieved from https://www.americantrails.org/resources/trail-effects-on-neighborhoods-home-value-safety-quality-of-life

Wolter, S., and Lindsey, G. (2001). Summary report: Indiana trails study. *Bloomington IN: Eppley Institute for Parks & Public Lands*, Indiana University.

APPENDIX A
Outreach Team Findings

Annotated Bibliography of Outreach Techniques

Futurewise. (2014). Community Engagement Toolkit: Guidance and Resources
for Engaging Community in Planning and Policy Development. Retrieved from
http://www.futurewise.org/assets/reports/CET.pd.

"SpeakOut." This outreach approach is organized around local issues, with a number of issue stalls set up that relate to results of community surveys, topics of concern or to specific project goals (Futurewise 2014).Heavily resourced "SpeakOut" will have a trained Listener and a trained Recorder in each issue stall. The Listener pays close attention to what a participant is saying and asks relevant questions while the Recorder writes down the person's comments (Futurewise 2014). Our plans for the community meeting will model this approach, as we will have several tables addressing trail access points, conceptual designs, and discussion of the trail area. We will also have a recorder and a listener at each table, as well as a representative from the design team and the research time available to address community comments.

Youth Component. Adding a table that engages youth provides a way for them to participate while their parents are interacting with the "adult" components (Futurewise 2014). Our plans for the community meeting include a Kid's table, where youth in the community can answer what they want to use the trail for by drawing a photo of themselves using the trail.

Andrews, B., Sippel, Z., Strain, S. (2015). *Community Engagement in Parks &*
Recreation Planning Carver County, MN. Carver County Parks and Recreation Department.
Retrieved from https://conservancy.umn.edu/bitstream/handle/11299/185012/RCP_24c-PA_5253-report.pdf?sequence=2&isAllowed=y

"Sticker Voting." This approach acts as a simple method to effectively gain immediate feedback on ideas (Andrews, B., Sippel, Z., & Strain, S. 2015). Our plans for the community meeting will utilize this table-top exercise at Table 1, where we will ask for community insight on possible access points. We will provide sticky dots of different colors that members can place on the trail area map to provide comment for why this would be a good/bad space for an access point.

Virginia Department of Transportation. (N.D). *Community Trail Development*
Guide. Retrieved from,
http://www.virginiadot.org/VDOT/Programs/bikeped/asset_upload_file816_81999.pdf

Maps. The use of maps to mark possible trail routes, destinations of importance, and areas with possible hazards can help create trail alignments that have the greatest amount of community support, and ensures that the trail will be utilized. Having maps for each person in attendance is the best way to get individual input to routing, while a large map creates a means of consensus (VDOT N.D.). Our plans for the community meeting will utilize this approach in our table-top exercise at Table 1 and Table 3, where community members will provide insight for trail access points and identify areas of concern on one large map.

Priorities. Discussing top priorities for trail use and alignment is critical at meetings, including signage, possible uses, trail type, and desired destinations (VDOT N.D). These include a few of the key discussion topics that we will address at Table 3: Trail Area Discussion.

Conceptual Design

Raw Data (*'s indicate additional counts of similar comments made).

<u>Question one: What do you want at access points?</u>

- Lighting
- Benches
- Native plants
- Maps * *
- Parking *
- Clear signs
- Water fountains
- Restroom
- Gated parking lot to close at night
- Large enough parking lots for horse trailers
- Dog bag dispensers
- Trash cans

<u>Question two: How should access points be designed?</u>

- To allow enough space for some horse trailer parking
- Suggested design example: Redmond Watershed Preserve Trail
- Packed dirt, clean and manicured
- Open as many connecting access points as possible, connect to chain lake trail
- Open and inviting so people feel safe
- To connect neighborhoods together

<u>Question three: What kind of materials should be used to construct the trail?</u>

- Bridge material needs to be safe for horses

- Can we have multiple uses?

- Dirt for mountain bikes

- Gravel or wood fiber

- Wood chips

- Consider horses and any bridges

- Asphalt- Bicycling & Walking

- Gravel- Wide enough for horses & bikes, could be shared.

Question Four: What would you like to see at crossings?

- flashing crosswalks *

- strobes on ground & eye level for cars

- clearly defined and marked crosswalks

- signs to designate if its equestrian, mountain bike, walking, - refer to design of paradise waters trail?

Additional feedback/facilitator's notes:

- One respondent suggested the use of solar powered lights along the trail to improve visibility, safety, and night use.

- One respondent would like the trail to be designed as a loop.

- One respondent was interested in having exclusive sections of the trail designated for mountain biking and suggested several characteristics they would like to see including meandering trails, small exists, a steep zigzag pattern, and having connections to major roads.

- One respondent was wondering if the trail length could be expanded farther north to connect to the developments on 179th Ave SE/Robinhood Ln.

- One respondent suggested that the trail connect to the foothills trails.

- Several respondents suggested that if the trail were to be multi-use, there should be clearly marked signs for paths/loops for the different uses to prevent potential conflict.

- Several respondents want a separate trail from walkers, equestrian users, etc. for mountain biking, and want the design to have switchbacks.

- A respondent mentioned liking the conceptual crossing design and how it addressed safety concerns.

- A respondent suggested that the trail provided connection to the downtown to increase walkability from surrounding neighborhoods.

- One respondent mentioned liking the design of the Burt Gilman Trail in Bothell, which has an asphalt path for bicycling & walking.

- One respondent had many recommendations for additional research that should be conducted in order to best design the trail. Trees will have to be removed, so he mentioned how someone will have to decide what to preserve & take out, and how it'll impact the root system. He also mentioned that a loop trail would double the length which could be beneficial. Additionally, he mentioned how elevation has to be considered, and if there's switchbacks how this will affect ADA accessibility. He also stressed how the use of the trail will determine the width/overall design. Finally, he recommended some resources for additional research, chapter 9 from the Manual on Uniform traffic Control Devices (MUTCD), and the National Park Service Trail Design Handbook.

Access Points

Question one: How many access points should the trail have?

- Multiple *

- 4-5

- North neighborhoods, by church *main, equestrian main east, 1-2 smaller south edge

- potential trail model systems (multi use)
    - Lord Hill Park
    - Paradise Lake
    - For combining equestrian, mtn biking, walking, running

- As many access points as possible

- connect to existing pedestrian trail on north

Question two: Where should the access points be located?

- parking only at chain lake road and at fairgrounds

- fairgrounds *

- walmart *

- where trail could connect to pedestrian trail along the north *

- chain lake road * *

- connection to walkways at south

- top of 191st and Rainier

- at each end

- any possibility to connect with trail system behind foothills neighborhood which is also on DOT HWY 2 bypass land?

- access points where trail could connect to pedestrian trail along north and on chain lake road. - Also connect to walkways to south

- Parking at fairgrounds and at chain lake road (10-20 cars max)

Trail Priorities

<u>Question one: What should the priorities of the trail be?</u>

- family and pet-friendly***

- walking*

- family oriented

- maintenance

- lighting

- safety

- lights, solar?

- Will the park be patrolled?

- emergency accessible

- connect to bike path

- lighting for safety

- perimeter walking trail across access on 191st south

- Interior mountain biking trails twisting and meandering around interior acreage

- Priority- recreation fitness & walking. Secondary priority- mountain biking, equestrian

<u>Question two: What should the specific uses of the trail be?</u>

- all access *

- multi use, dirt, gravel, and paved

- Walking *

- Biking

- running *

- strollers

- horses

- mountain biking trails * *

- this could be a rougher trail (not so stroller, walker, wheelchair friendly) as we develop a smoother material trail near Sky River Park.

Additional feedback/facilitator's notes:

- One respondent wanted the city to express their long-term goal for the trail. Would it eventually connect to other future trails in the area? Is there potential for connecting it to other existing community and regional trails (like the Centennial Trail)?

- Another respondent expressed the concern that the proposed trail would not be big enough to classify as a regional or intercommunity attraction and wanted clarity from the city on the project's scope. Would the trail be scaled for community use only, or is the city expecting some level of regional attraction? The same respondent expressed concern about the location of the trail and the community's accessibility. What plans does the city have to make the trail accessible for the entire community, keeping in mind the highway two divide?

- Several respondents talked about the homeless populations known to reside within the WSDOT right of way, and the routine sweeping/clearing of campsites done by city law enforcement. In general, participants saw the trail as a way of "citizen patrolling" of the area. The increased pedestrian traffic and community use of the area has the potential to reduce the demand for law enforcement intervention.

- Several respondents asked about the timeline of the trail. When would the community see a "groundbreaking," and completion of the trail?

- Lighting was a concern that was brought up by two individuals at the meeting. The concern was that the trail needed ample lighting to provide a safer atmosphere, it was also mention that lighting that is too intense may be a bother to local residences that surround the trail.

Raw Data. Submitted via comment card

- Somehow tie trail in to other walking trails so we can go from Lake Tye trails to Fryelands trials, etc. Connectivity is key.
- Mt Bike groups
  - Monroe mountain bike team 6-12 grade
  - WA student cycling league
  - Would love a local, intown area to practice.
- Need to consider e-bikes - They are here!
  - 3 classifications
  - Look at King County ordinance for class 1+2 (20mph v. 30mph)
  - How will these be accommodated?

- There is a student Mtn. bike team for Monroe that currently utilizes Lord Hill Park & the Paradise Conservation Park. Having a dirt trail with differing elevations at this park would enable the team to use it every week or every other week for practices.
  - Lisa Brown 425-770-5922
  - lisa.m.brown3@comcast.net
- Materials of path?
  - Runners prefer gravel or paved
  - Bikes prefer dirt
  - Horses?
  - Is it possible to have multiple paths that run alongside each other or cross paths periodically?

APPENDIX B
Meeting materials, maps, and comment posters
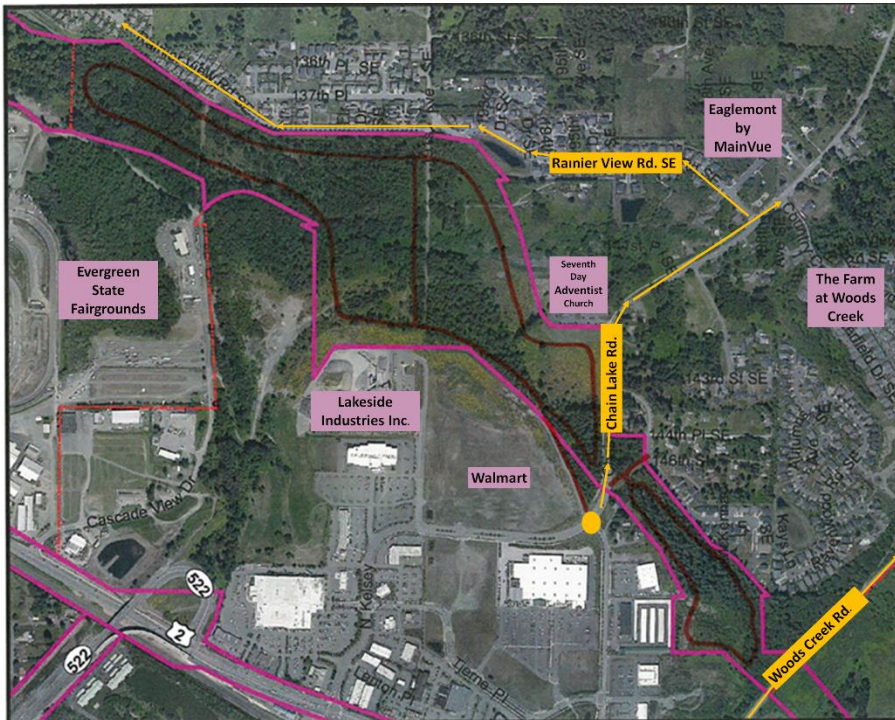
Figure B.1. Proposed trail area map. Used for table activities 2 and 3.
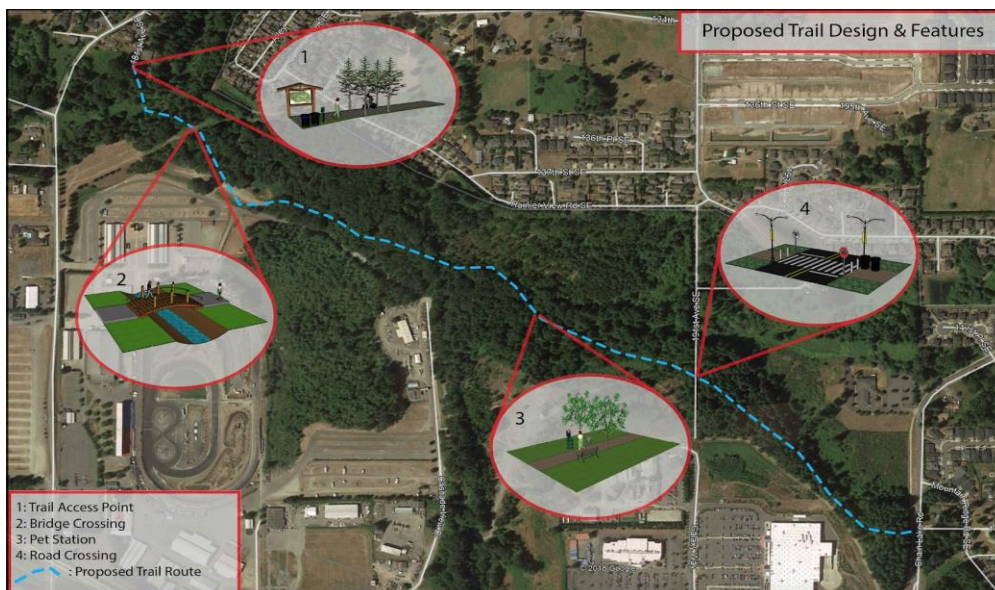
Figure B.2. Conceptual design map. Visual used for table one
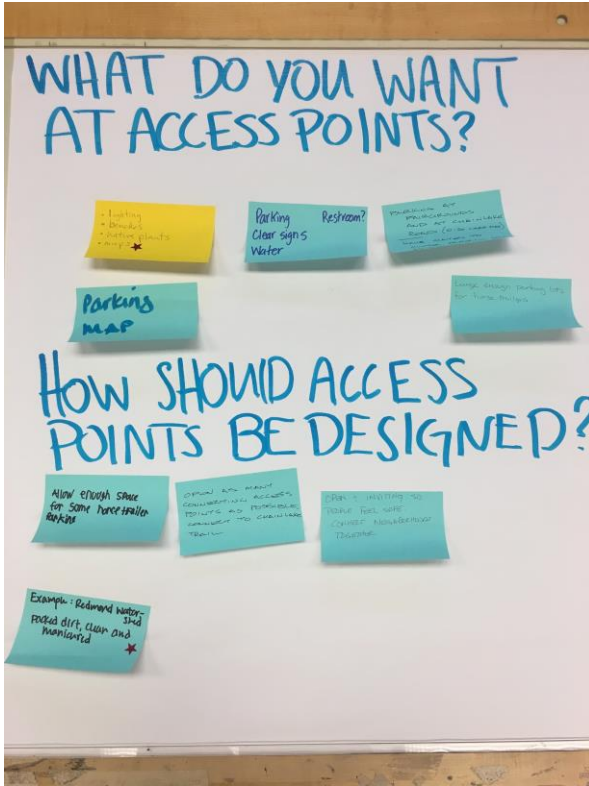
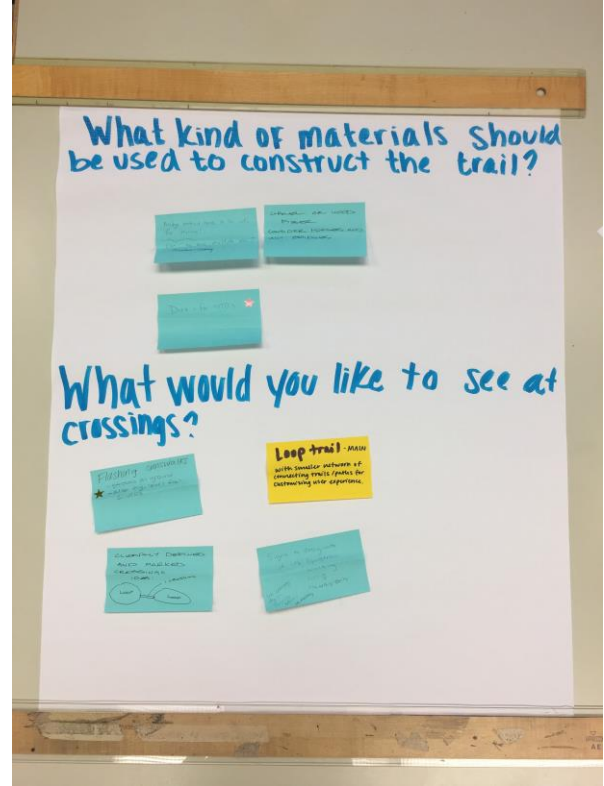Figure B.3. Comment card for activity 1.
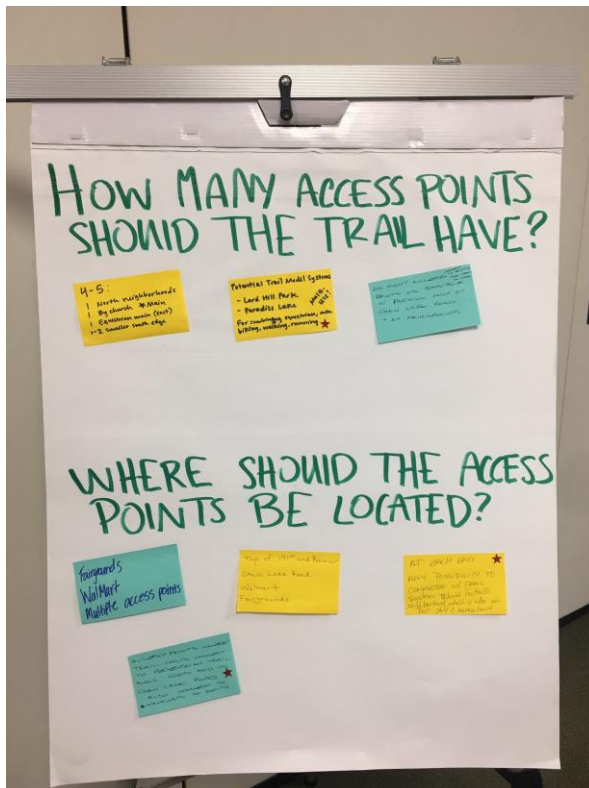

Figure B.4. Comment cards for activity 1.

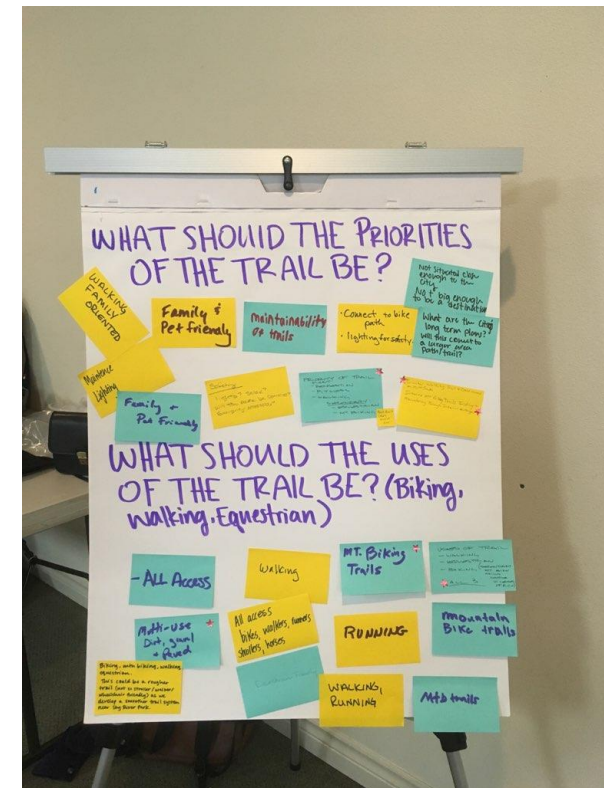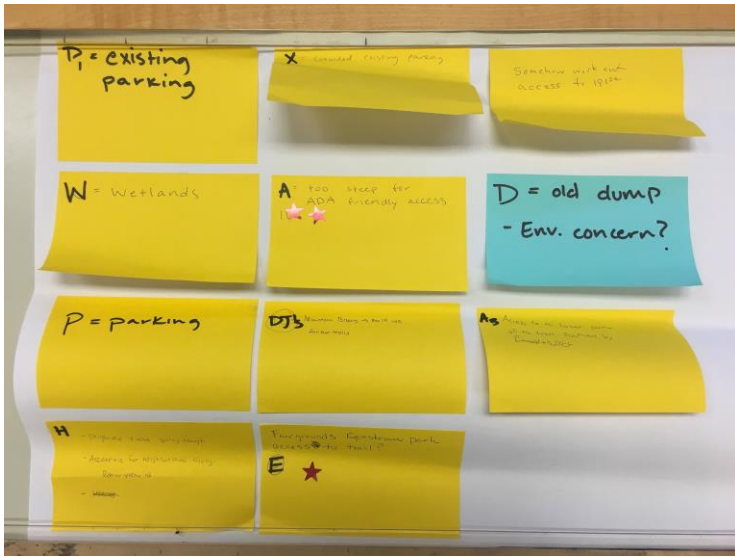Figure B.5. Comment cards for activity 2.

Figure B.6. Comment cards for activity 3.

Figure B.7 Comment card for activity 2.