460 South Hill Mobility Final Report

Written by: Shannon, Nathan, Lucca, Tori, Trevor, and Ethan

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Executive Summary

This project examines South Hill's historical development, demographic trends, land-use patterns, and current transportation conditions to identify strategies that improve mobility, enhance safety, and reduce congestion for both drivers and pedestrians. Using historical research, local policy review, case study analysis, and GIS mapping, the study evaluates three primary transportation management interventions: curb cut reductions along Meridian Avenue, expansion of bicycle infrastructure using utility corridors, and development of pedestrian footpaths and improved sidewalks. Each recommendation is supported with research, spatial analysis, and feasibility considerations. Findings indicate that creating multimodal trail networks, reducing the amount of curb cuts, and enhancing pedestrian environments can reduce vehicle reliance, increase safety, and strengthen community connectivity. While each strategy presents challenges related to cost, property acquisition, or political acceptance, the combined recommendations offer practical pathways for Pierce County and South Hill stakeholders to address congestion and support a more walkable, multimodal future.

Introduction

The history and development of South Hill, Washington, reflect the broader patterns of settlement, suburbanization, and planning challenges seen throughout Pierce County. Once the

hunting grounds of the Puyallup Tribe and a crossroads for Indigenous trails, South Hill has evolved into a modern suburban community characterized by its residential neighborhoods and reliance on surrounding cities for economic opportunity. From its early Euro-American settlement in the 1800s to its emergence as a postwar bedroom community, South Hill's growth has been shaped by transportation networks, population expansion, and periodic updates to county planning policies. Today, South Hill remains an unincorporated community that continues to balance its suburban identity with increasing urbanization, reflecting both its deep historical roots and its ongoing transformation in the 21st century. South Hill is generally characterized by "the eastern boundary is defined by the Orting Valley and the northern boundary by Puyallup's urban growth area, the western boundary generally follows 70th Avenue and the southern boundary 176th Street East" (Pierce County, 2015).

As of 2023 South Hill was estimated to have about 69.1 thousand residents, up from 64.1 thousand in 2020, and significantly higher than in 2010 with 52.4 thousand residents. The race distribution of this population is predominantly white at 64%, with mixed race at 18%, Asian at 7%, Black or African American at 6%, with less than 1% being Native American. A majority of the people in South Hill are married with about 53% of the population, whereas about 17% are widowed, divorced, or separated, and the remaining 30% not/never married. Those who are married in South Hill, statistically enjoy a high yearly household median income of $138,000 compared to the $68,000 average income in South Hill, however around 6% of South Hillers experience poverty in some form. Home ownership in South Hill is also quite high with around 75% owning their home where 25% rent. Education in South Hill is also what one may expect from a suburb with 93% graduating from high school and a further 32% with at least a bachelor's

degree. A couple more minor stats include about 13% of the population being foreign born and 12% holding veteran status.

As for current use, 45.59% of South Hill is residential. Single-family developments take up a majority of that residential total, 38%/45%. Every other residential type has considerably less than single-family housing. Some notable ones include duplexes with 1.79%, mobile homes with 2.67%, mobile home parks with 1.60%, and multi-family residences with 0.84%. Other residential types with either less than 1% or completely zero include triplexes, fourplexes, group homes, nursing homes, and college dormitories. As for Civic land use, only 8.55% of the plan area is used for civic activities. The highest percentage belongs to utilities at 3.25%. Recreation comes in at 1.54%, transportation has 1.16%, and education K-12 has 1.10%. Religious assembly, health services, and higher education all come in at under 1%. The total commercial area in the planned area comes in at 1.81%. Commercial services like eating/drinking, entertainment, lodging, and automotive services make up 0.68% of the 1.81%. Offices make up 0.21% of planned space. Lastly, commercial retail makes up 1.22% with services like food, auto, building hardware, furniture, apparel, and shopping centers. Industrial land use makes up a total of 0.89%. A majority of that is made up of manufacturing and assembly, warehouses, with the next most, and then construction services make up only 0.1%. Resources make up 3.38%, mostly used by agriculture, but a small percentage is allocated to forestry and mineral extraction. In the category of others, it's most notable that vacant lots have the next highest plan area of 32.30%. This is extremely important because combining residential and vacant lots makes up 78% of the total land usage of South Hill.

Purpose and Scope

Our project objective was to create and suggest 3 transportation management recommendations for improvements to South Hill's Meridian Ave as well as the surrounding areas that would have major impacts on Meridian's congestion.

Our overarching project goal was to create a detailed list of recommendations containing ideas on how to reduce congestion within South Hill, particularly along Meridian using various strategies, including traffic safety improvements, pedestrian improvements, and bike improvements. Each strategy provided different potential suggestions.

- Traffic safety improvements included: limiting left turns into and out of businesses along Meridian, reducing the number of Curb Cuts in an effort to encourage traffic onto adjacent streets.
- Pedestrian improvements induced: making it safe and pleasant to walk in South Hill, especially from residential to commercial areas.
- Bike improvements included: Improving bicycle infrastructure options to better connect neighborhoods to the central spine of Meridian, to schools, and to other neighborhoods.

The end products of this project were a list of pedestrian sidewalk improvements with examples, ideas for curb cut reductions, block redesign, potential street connections to enhance pedestrian mobility, map of current and potential bike paths, and a Pros and Cons list for each potential solution.

Audience and Client

Within Pierce County, South Hill is located just south in Puyallup. Our clientele for this final report includes the town of South Hill and its residents. More particularly Alon Bassok of Peirce County, Jess Zimbabwe of Environmental Works, and Ray Gastil of Gastilworks Planning.

Alon Bassok: Long Range Planning Manager, Pierce County

Jess Zimbabwe: Environmental Works, Affiliate Instructor: University of Washington Department of Urban Planning

Ray Gastil: Director: Gastilworks Planning & Design LLC

Methodology

Condensed List of Methods: Historical Research, Transportation Management Research, Local Policy Review, Case Study Review, and GIS Analysis.

The group started by making a scope of work to understand what the deliverables were going to look like, as well as some preliminary ideas about what context would be needed to create a final product.

We then moved on to creating a South Hill History and Context Essay. This piece dove into the historical context that South Hill has, specifically surrounding transportation. By looking at the historical society as well as pictures and drawings of the street layout of the time, we were

able to shape a rough timeline for Meridian Ave. This essay also provided the necessary information about land use and demographics to create a more holistic understanding of the layout and residents of South Hill.

The next step was to research comp plans for the town as well as the county to figure out what recommendations were possible to target our main issue of congestion and walkability. Using census data and Pierce County plans, we formulated 3 preliminary ideas that were presented in the Mid-Term presentation along with the demographic data.

With feedback and new knowledge from Pierce County representatives, we dove back into research to find case studies and relevant research being done on mobility to back up/modify our 3 recommendations. We looked at case studies all across the United States in places that had similar compositions to South Hill and in places that looked entirely different. Since we were at a stage of preliminary ideas, we looked for use cases that had positive mobility outcomes for the town.

Once we had our research to back up our claims and recommendations, we gave two presentations to the class about curb cut reductions and pedestrian footbaths. This allowed for the group to teach on what we had researched and develop a deeper understanding by teaching it.

Lastly, we created the final presentation based on the feedback received from the mid-term and the research we did over the second half of the quarter. From our research, we were able to give more specific suggestions as well as a new category of smaller pedestrian

enhancements. Each of the 3 main recommendations had visuals and a pros and cons list of its implementation. Using software like GIS, we were able to analyze already given data and create very preliminary visuals about placement and usage.

Results and Conclusions

We found that although South Hill is a low-density suburb, there are some low-budget methods that can work to enhance mobility and reduce congestion. Our first recommendation would be to reduce the number of curb cuts on Meridian Ave that can work to encourage walking, reduce car usage, and decrease fatalities on Meridian. This strategy has the potential for temporary and permanent implementation, and is preferred by WSDOT. The second strategy would be for Pierce County to develop more bike trails and park/bike infrastructure under utility right of ways.. By using a method pioneered in Detroit, this would be effective in improving community cohesion and health, and reducing congestion along Meridian Ave. This method is expensive and could lead to issues with eminent domain. Finally, Pierce County could work to add pedestrian trails and improve sidewalk conditions. This would work to encourage walking and reduce car traffic. This method also runs into a few property allocation issues when creating pedestrian footpaths in neighborhoods. Other implementations of better lighting, sidewalk buffers, and improved landscaping are smaller changes that can be made to the sidewalk. There are many potential strategies for reducing congestion on Meridian Ave, but each has its own challenges regarding cost and community support.

Recommendations

Utility Line Bike Trail:

Explanation of Solution:

South Hill has a lack of bike lanes, which contributes to high automobile mode share, congestion along main thoroughfares, and car dependent urban form. South Hill could change this by implementing bike lanes. There is a lack of political will to do so, and bike lanes are generally not popular in rural and suburban areas. There are a number of proven ways to build bike lanes in suburban areas to avoid community opposition. First of all, framing the installation of bike lanes as a health benefit. Second, using the development of bike trails to acquire abandoned properties and convert them into community areas. For bike lanes to be successful, they should also go through denser areas, which support the investment that a project of this size would need to succeed, and connect community assets like schools, parks, or libraries.

Considering all of these factors, the best location for this kind of bike trail would be in the north of South Hill, where there are greater densities. The only area in the north of South Hill that has vacant properties to support the community area strategy are areas under power lines, which run from the northeast of South Hill to Fredrickson. There are also multiple schools close to power lines which could benefit from alternative modes of transit. Properties under power lines could be acquired by the county, and converted into community areas, with a continuous bike path running through them. One issue with this strategy is that properties under power lines are privately owned, although there are no buildings under them, due to legal restrictions. Much of the land under the power lines is owned by adjacent houses, and is used as yard space.

Appendix 1 has a map of a potential alignment. This alignment minimizes the area that would need to be bought from houses adjacent to power lines, and runs through areas with parcels that are entirely vacant. This is a concept map, and more analysis will need to be done to ascertain costs, community areas that could be constructed under power lines, and community actors that could support construction

Pros

- Proven to be supported by similar communities
- Reduces congestion, emissions
- Improves health outcomes
- Improves community cohesion

Cons

- Expensive
- Potential need for eminent domain
- Lots of community outreach needed for success
- Potential for political pushback

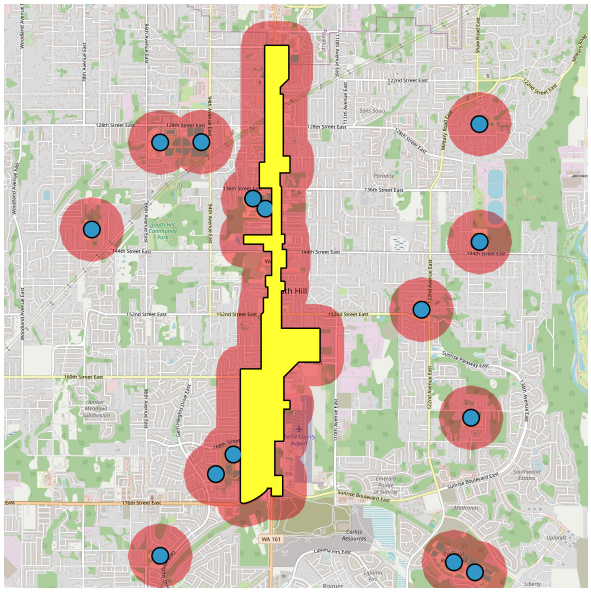
Foot Trails/Pedestrian Paths: Trevor

Explanation of Solution:

To briefly reiterate what has been stated before, the ability for residents and visitors to move through and within South Hill is severely hindered by the over reliance on personal automobiles. This follows the general trend of modern American suburbs where trips made via non-drive modes are nearly non-existent (Wikstrøm & Røe, 2022). This in conjunction with the

greater presence of subdivision and cul-de-sac-like development strategies leads to communities being disconnected from each other spatially, especially without a car (Tao & Cao, 2024). Children too young to drive, or those without cars, must rely on others for their ability to navigate the city due to this disconnection (King et al., 2025). One solution to this problem is to reconnect the community by trails and paths that allow for the movement of pedestrians and cyclists without the interference of automobiles. Multimodal paths, also referred to as pedestrian paths or foot trails, have the potential to reconnect the grid of South Hill and allow for the safer and more efficient movement of people without the need for a car. The use of these trails would take cars off the road by enabling residents to walk, cycle, or roll to their destination rather than be forced into a car.

The placement of these paths is also important in a resident's ability to use them. The goal of these paths is to create connections that do not already exist, but such a connection would have the potential to reduce dependence on personal automobiles (Naghibi, n.d.). These connections should be between destinations like neighborhoods and schools, or commercial developments, parks, and even other neighborhoods. The map of South Hill below identifies local school (blue dots), commercial and uses (yellow polygon), as well as a ¼ mile walkshed (in red) around these areas where paths such as what is described above should be prioritized.



Paths also do not need to be extraordinarily large projects or undertakings. While property acquisition using eminent domain will likely be needed to acquire new right-of-way to create the paths. Especially if side setbacks are large enough, the cost of the land required may not be as high, as these paths would lie on what are currently the property lines between two or more properties. Paths can also take on several forms from clearly defined dirt trails to full on paved and lit pathways.

Next steps for this solution would be to pilot at selection of paths. Pilot projects may see only dirt trials, but once they are proven to be useful, they could be upgraded to a more permanent solution. Identifying exact locations of where paths would be most useful is the first element to be examined (appendix 1 includes a map detailing possible locations in South-West South Hill). Ideally projects like this would see locals choosing to walk or bike to destinations closer to their homes over using a car, thereby reducing cars to congest Meridian Avenue.

Pros:

- Paths create space for the movement of pedestrians and bikes taking cars off the road

- Paths provide health, community, and mobility benefits
- Paths connect key community assets like libraries, schools, stores, and other neighborhoods to each other

Cons:

- May require regular maintenance
- Reduced privacy for homes that abut paths
- Homeowners would need to relinquish property to the county (eminent domain)

Curb cut and Driveway Reductions: Nathan

Explanation of Solution:

Meridian is a classic example of a type of road which has began to be coloquialy known as a “stroad”. Essentially, it is a roadway that is trying to be a highway, which can be seen in its wide lanes, fast speed limits, and administration by the state-level transportation agency, but it is also the main commercial strip and “main street” of the neighborhood. This density of car-oriented commercial establishments creates an environment where vehicles are taking unprotected left turns onto a highway environment that is more akin to an interstate than a city street. It has been well documented in numerous studies that the density of cuts in the street to allow access to commercial parking lots is positively correlated with the amount of crashes and accidents on the street. (Williamson et al., 2014)

Along with this, unsignalized, at-grade turning maneuvers, even if they do not end in a crash, can disrupt the flow of traffic, causing backups and delays for drivers. The walking environment is also harmed by discontinuous sidewalks with varying degrees of ADA

compliance, forcing road users to cross motes of car traffic, which creates a dangerous environment that makes walking less attractive.

Our hypothesis for this solution is essentially that by closing curb cuts along Meridian to car traffic and rerouting commercial access onto perpendicular streets wherever possible, Meridian will become safer for both pedestrians and motorists, as well as more soundly separating the functions of Meridian, letting it act as just an arterial road, not a final destination. Although WSDOT has jurisdiction over the road, these proposals are in line with the agency's vision for their state highways, and a deal could be reached to transfer jurisdiction of the road to Pierce County, just to simplify things.

When imagining what one of these curb cuts would look like, it is important to keep the County's budget situation in mind, as well as to be wary of the potential political unpopularity of the proposal. These considerations have informed our recommended design, which borrows the design language of COVID-era parklets, which utilized planter boxes, flex-posts, and paint to demarcate and reclaim pedestrian space from cars. Essentially, the cut will be closed by creating a passage for pedestrians that is hemmed in with protective planter boxes and posts on either side, giving pedestrians a continuous walking path. Using this type of design is advantageous because it is a recognizable language to drivers, but is also easy to build. A slight risk is that the impermanence of the infrastructure leaves these closures susceptible to a reversal if they are not politically popular, but by framing this as car infrastructure that will speed up commutes of local residents.

Other aspects of this that are to be considered is prioritizing cuts that allow left turns, as many have a median which restricts access to right turns only, as well as prioritizing cuts which exist in the currently designated town centers, such as Sunrise Village or the area around

Safeway. By closing curb cuts strategically and not all at once, it will minimize any sort of political opposition that may occur. In the future, it would be worth looking into creating permanent sidewalk infrastructure, potentially incorporating larger-scale greenery and bioswales, which could be used for water retention.

Pros:

- Increases the safety of pedestrians and motorists
- Decreases congestion caused by unsignalized turns
- Is inexpensive to implement

Cons:

- Will be politically unpopular with businesses
- Temporary infrastructure could be easily uninstalled
- Complicated regulatory structure

Pedestrian Sidewalks Improvements: Shannon and Tori

Explanation of Solution:

Lighting:

- Yellow lighting is more inviting, than brighter white lights.
- A study found that increasing the intensity of horizontal light resulted in an increase of available time for drivers to respond (Freedman, et al. 1975).
- Lights that point directly down make it hard to see outside of the illuminated area

- Lights that illuminate up or all round spread the light out better for pedestrians to see farther than when the light is directly pointing at something.

Sidewalk Buffer:

- A buffer to separate the pedestrians from the street would be a good enhancement for the sidewalks of Meridian. This can look like a landscaping buffer, a trail, or a bike lane separating the pedestrian walkway from the street.
- Landscaping can be a very useful way to separate the pedestrian from the vehicle right of way. It also helps make the pedestrian feel more removed from the street.
- Although landscaping buffers do not dramatically affect the speed of a car if it were to lose control and leave the street, it does help encourage people to walk by providing a more enjoyable environment (O'Donnell, 2007).

Tree Canopy Cover:

- Increasing the tree canopy cover for South Hill can help entice residents to walk more, expanding walking to work and leisure exercise.
- Tree canopy cover helps to regulate sidewalk temperatures during hot summer months. Helping those who rely on this pathway to get to work, stay cool.
- Tree canopy cover not only beautifies the sidewalk but also provides added coverage for pedestrians from sun and rain.

ADA Improvements:

- Pierce County's ADA transition plan is in place to help make the sidewalks usable for all individuals who are walking, riding, or rolling.
- With the ADA Transition Plan, it is imperative that all improvements made to the sidewalks of Meridian comply with ADA requirements. This will also make it so the infrastructure doesn't need to be redone in the future to comply with the transition plan.
- There should also be special attention paid to make sure intersection ramps face the correct direction, and don’t lead individuals into the middle of the intersection.
- Pierce County ADA Sidewalk Compliance
    - Width: Sidewalks must be a minimum of 36 inches wide, with exceptions for shorter sections.
    - Turns: The walkway needs to be at least 42 inches wide when making a turn and 48 inches wide when leaving the turn.
    - Passing Spaces: If the sidewalk is less than 60 inches wide, passing spaces are required every 200 feet.
    - Materials: Sidewalks must be made with hard materials like concrete, asphalt, or wood.
    - Loose gravel or unbound materials are not compliant.
    - Slip Resistance: Ensure sidewalks are slip-resistant to prevent hazards for users with walking aids.

- Cross Slope equal to or less than 1.5%

Resources

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Note: This is the study that the bike lane recommendation is based off of.

Appendix 1: Linked Documents

Final Presentation Viewing link:

https://www.canva.com/design/DAG5oPFkhIw/6MZra1kGht1lD6Fxzuhl5A/view?utm_content=DAG5oPFkhIw&utm_campaign=designshare&utm_medium=link2&utm_source=uniquelinks&utlId=h5e563a5813

Mid-Term Presentation Viewing link:

https://www.canva.com/design/DAG2iP8dFMk/tDRP-CdVSU6ld-PV2FmaKA/view?utm_content=DAG2iP8dFMk&utm_campaign=designshare&utm_medium=link2&utm_source=uniquelinks&utlId=h6508498380

Curb Space Management Presentation:

https://www.canva.com/design/DAG4Ufc__Sg/W-Ck8IVO3tDSUPVohR9Qyw/view?utm_content=DAG4Ufc__Sg&utm_campaign=designshare&utm_medium=link2&utm_source=uniquelinks&utlId=hc622b75eeb

Annotated Bibliograohy:

https://docs.google.com/document/d/1rsIYwx4iipZxs2chiA5EpHVp-xXEdr8MjKCyNNKMkQE/edit?usp=sharing

Scope of Work:

https://docs.google.com/document/d/1l_dsBd3ooFm0jiIa37icpSKyHnadltyOoj1l_wewUuM/edit?usp=sharing

Appendix 2: Extra Photos

Curb Cut Suggestions: Curb Cut Photos.zip

Appendix 3: Contact Information

Point of Contact: Shannon MacDonald, smacd21@uw.edu

Research Co-Lead: Victoria Lopez-Wilkerson, vlopezw@uw.edu

Research Co-Lead: Lucca Howard, lqmh@uw.edu

Project Manager: Ethan LaPlante, ejplant@uw.edu

Graphics Lead: Trevor Roselli, rosellit@uw.edu

Archive Lead: Nathan, nschlick@uw.edu