

North Grounds Stream Restoration
(Technical Paper)

Changing Gears: The Different Approaches of Bicycling Advocates in Richmond, Virginia
(STS Paper)

A Thesis Prospectus
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By
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On my honor as a University student, I have neither given nor received unauthorized aid
on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Prospectus

General Research Problem

How can walking and biking mode share be increased in the United States?

Pursuing environmental and social benefits, many cities seek to promote walking and biking instead of driving. This is contrary to the prioritization of cars and urban sprawl of most American cities for the past several decades. Modeshare describes the fraction of trips that are made by a particular mode, so, when a higher fraction of trips are made by walking or cycling, a smaller fraction is made by cars (Admin Elitis, 2019). While the primary concern with a high modeshare of cars is environmental, namely greenhouse gas emissions, traditional air pollution, and depletion of non-renewable resources, (Union of Concerned Scientists, 2023) cars also bring negative social impacts, many of which are not solved by cars going electric. These social impacts include death from traffic collisions, irritation from noise and air pollution, degradation of communities and public space, harm to local economies, and high ownership costs. (Price, 2015)

Meadow Creek Stream Restoration

How can the natural environment and multimodal travel facilities be integrated?

The technical project is to design green infrastructure to restore a stream and decrease nutrient outflow from the watershed, earning credits for UVA from the Virginia Department of Environmental Quality (DEQ). UVA is required to earn a certain number of these credits and this section of stream was found to be a good candidate to earn a lot of credits and decrease nutrient load to the Chesapeake Bay without excessive spending. This project will require modeling the current conditions of the stream in HEC-HMS and HEC-RAS, creating a design to slow the

water flow in the channel, decreasing the erosion caused by storm events, and then model those design conditions with the same softwares. The current design to accomplish this is called a step pool stormwater conveyance system, which changes storm surface flow to shallow groundwater flow. Soil and water sampling and testing will also be required to determine the effect of the design on the nutrient outflow. The Rivanna Trail also crosses into the project site, so a plan will be made to reroute the trail during construction and restore it after it is used for construction. The final deliverable will be a Civil 3D design that reduces nutrient outflow and erosion of the streambed, and that can be made into construction documents and built to earn DEQ credits for UVA. The project advisor is Jonathan Goodall and the project team includes myself, Karin Brett, Lucas Bushey, Shayla Utzinger, Dorian Gaines, and Nora Levasseur. This project is in the Civil & Environmental Department.

Active Mobility Activism: The Struggle for Change in Washington DC, Richmond and Charlottesville

In Washington D.C., Richmond, and Charlottesville, how are proponents of walkability and cycling striving to advance their agendas?

Proponents of walkability and cycling work towards policies, infrastructure, and attitudes that make it easier for more people to meet more of their daily travel needs by walking or biking. These proponents point out that walking and biking are environmentally, economically, and socially sustainable ways to travel, compared to driving alone, and that more people should be able to use them in their daily lives. Since the 1930s, cities in the US have been committed to accommodating the private car at the expense of all other modes. This takes the form of both changing older cities with highways and pro-car policies and designing new cities without

considering anyone who wouldn't be driving. Walking and cycling advocates use both political strategies, such as endorsing a certain candidate, and cultural strategies, such as group rides. These proponents are in the context of the transportation sector emitting the largest portion of greenhouse gasses in the US, while a growing number of people in this country are struggling to afford basic needs, and a majority of public space is dedicated to the storage and operation of private automobiles. Walking and cycling emit far less CO₂ and particulate emissions than any type of car, cost their users a fraction of the price of owning and operating a car, and offer more room for social interaction and public space in cities. Much of the research surrounding this advocacy could be considered advocacy in itself, since it often emphasizes the ways that more walking and cycling is good for cities. Research about the advocates themselves is less common, but a few common themes emerge. Chapter 4 of "Cycling and Sustainability" by Rachel Aldred discusses the role of advocacy and activism. Aldred argues that "...cycling has always been constructed in relation to social movements and social identities, and so the politics of cycling varies depending on the relationship of cycling to politics more broadly," (Aldred, 2012). I interpret this as saying that cycling has both a formal side of infrastructure and policies, and an informal side of culture and expression. In a paper by Rosalina Richards, the main challenges that advocates for active mobility face are "a lack of funding, a lack of will-power..., limited council staff capacity ..., and a culture of providing infrastructure for motor vehicles instead of people," (Richards, 2010). This further reinforces the social and cultural nature of walking and cycling advocacy, despite there also being practical benefits to their goals. Current shifts in the strategies of advocates in California are discussed by Melanie Curry in her article "New Models of Bicycle Advocacy." The article discusses the ways newer advocates are differing from traditional ones, how traditional ones are trying new tactics, and how both ends of the advocacy

spectrum are working together (Curry, 2022). These three cities; Washington D.C., Richmond, and Charlottesville, have been chosen based on their different population levels and relative proximity to each other. This should allow a perspective of how the size of a city affects the walking and cycling advocacy in that city.

Participants in this problem include the walking and cycling advocates, affordable housing advocates, real estate developers, local business owners, and city public works and planning departments. In Charlottesville, the most prominent cycling advocate is Charlottesville Community Bikes, a “bicycle shop that promotes environmentally-sound transportation, recycles bicycles, and makes cycling accessible,” (Charlottesville Community Bikes, 2022). The bike shop provides free bikes for kids, affordable refurbished bikes to adults, hosts repair clinics, and offers affordable repairs and replacement parts. There are other advocates that work on walking and cycling promotion and along with other issues, including Livable Cville, who points out that “almost half of Virginia’s carbon emissions come from transportation, so supporting walking and biking over driving should be part of Charlottesville’s climate strategy,” (Gillikin, 2023). Its initiatives include Safe Routes to School, cycling advocacy, and general street safety efforts. In Richmond, cycling advocates range from Walk Bike RVA, a “program of Sports Backers that advocates for comfortable and connected places to bike and walk,” (Bike Walk RVA, 2023) to the Broad Street Bullies, a community critical mass ride that does wheelies through the heart of the city (Harris, 2023). In Washington D.C., advocates range from the Washington Area Bicycling Association, a well organized advocacy who’s goals include: “Empower People to Engage & Take Action, Generate Broad Public Support for Bicycling, Build Political Power, and Strengthen and Sustain WABA,” (McCormally, 2023) to the DC Bike Party, a group ride that distinguishes itself from other “critical mass” rides by being more of a celebration than a protest

(Short, 2023) The advocacies range from formal groups that work with state and local governments to secure pro-bicycle infrastructure and policies to primarily social and casual group rides. Walking advocates are fewer but include RVA Girls Who Walk, a primarily social walking group organized via Instagram (RVAGWW, 2023), and DC Families for Safe Streets, who pushes for pedestrian safety legislation in DC (DCFSS, 2023). It seems as though cycling advocacy is a distinct category of advocacies, but walking advocacy tends to be grouped with general street safety or sustainable transportation advocacy. On the state level, the Virginia Bicycling Federation unites elected officials, transportation professionals, and community leaders to support safe, practical, and enjoyable cycling (VBF, 2023). On the national level, the League of American Bicyclists works on smart cycling education, tracking the bike-friendliness of communities, demonstrating the joy that bikes can bring, and advocating for safer infrastructure (League of American Bicyclists, 2023). On the front of more general community advocates, Richmonders Involved to Strengthen our Communities (RISC) is a group that organizes 22 groups from the Richmond area to hold public officials accountable and address critical issues in the community (RISC) The National Association of Realtors is advocacy whose mission is to preserve, protect, and advance the right to real property for all, and who wrote a blog post arguing that if walking and cycling infrastructure is built, people will inevitably use it and want to move to the area (NAR Blog, 2017).

Within the walking and cycling advocacy community, there is a great diversity of values, goals, and strategies. These range from very formal and organized groups that lobby for bike friendly infrastructure and laws to group bike rides and shops that just hope to get more people comfortable with riding in their cities as they are. Outside the direct advocacy groups, there are many other groups that are also interested in walking and cycling outcomes due to interests like

attracting more foot traffic to a business or uplifting historically disadvantaged neighborhoods with a safe and affordable way to get around.

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