

Arlington County Commuter Services

Walking and Biking Barriers Study

June 30, 2017



Executive Summary

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- BikeArlington, WalkArlington and Mobility Lab are programs of Arlington County Commuter Services (ACCS), a bureau of Arlington's Department of Environmental Services, that promotes and supports transportation demand management (TDM) in Arlington County. TDM Programs and services aim to influence whether, where, when, why and how people travel. The mission of ACCS is to provide Arlington residents, employees, businesses, and visitors with transportation information and services to support a vibrant and livable community. Through innovative programs and tools, ACCS has been able to change travel behaviors by making it easy for residents, employees, and visitors to use all available transportation options, other than driving alone, to meet their travel needs.
- With this mission in mind, BikeArlington and WalkArlington, in collaboration with Mobility Lab, conducted qualitative research with Arlington County residents or employees who were interested in using walking and bicycling as methods of transportation. The research incorporated a blended photovoice and traditional focus group methodology.
- The goal of the research project was to assess existing factors that serve as barriers for Arlington County bicyclists, non-bicyclists, walkers, and non-walkers from using walking and bicycling as methods of transportation.
- After a weeklong photography taking, participants joined in a facilitated discussion using the focus group approach. A total of 31 participants participated in four focus groups (two on June 13th and two on June 14th), with around 8 participants in each group.
- Participants took photographs and facilitated discussions around the following topics or themes: traffic and cars, personal factors, infrastructure, personal safety, and family/home life.

Executive Summary

Findings from Photovoice and Focus Group Discussions

- Within the theme of traffic and cars, critical factors that influence participants' decision to walk and bike include the time of day, general disregard for traffic laws by drivers, pedestrians and bicyclists, congested roads, and the availability and widely accepted use of alternative modes of transportation (e.g. cars, public transportation).
- Within the theme of personal factors, critical factors that influence participants' decision to walk and bike include the type of job culture, required professional attire, commuting distance, and weather.
- Within the theme of infrastructure, critical factors that influence participants' decision to walk and bike include the availability and conditions of bike lanes and multi-use trails, road conditions, availability and accessibility to bike storage, construction, and new developments.
- Within the theme of personal safety, critical factors that influence participants' decision to walk and bike include nighttime and lack of lighting, presence of law enforcement, perceived harassment of women, shared bike lanes with cars, and carrying capacity.

Executive Summary

Findings from Photovoice and Focus Group Discussions

- Within the theme of family and home life, critical factors that influence participants' decision to walk and bike include the juggling of multiple responsibilities with limited time, responsibilities associated with child rearing, and peer behavior.
- A subgroup analysis found some variations between males and females around the following topics: women perceived personal safety, hair, and responsibilities associated with child rearing as barriers to walking and biking, whereas men did not mention these factors.
- The subgroup analysis did not find differences between respondents based on race/ethnicity or geographical location within Arlington County.
- Key strategies identified by participants as means of improving the likelihood of walking and biking included improving pedestrian and bicycle infrastructure (e.g. separated bike lanes, sidewalks and multi-use trails), organizing community bike rides; providing tips and strategies on maintaining professional attire; and educating drivers, bicyclists, and pedestrians on traffic rules.

Introduction

Overview of Study

Project Goals

- Address existing factors that serve as barriers for Arlington County bicyclists, non-bicyclists, walkers, and non-walkers from using walking and bicycling as methods of transportation
- Assess the facilitating and preventative factors to walking and bicycle use through the implementation of the blended Photovoice and traditional Focus Group methodology

Research Objectives

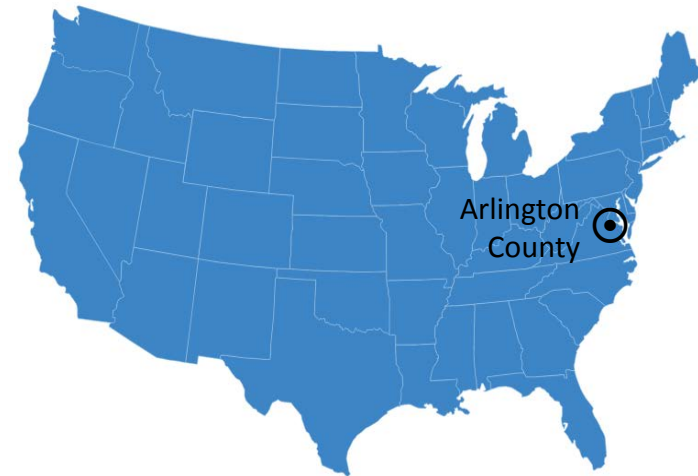
- Learn about the barriers for using walking and bicycling as methods of transportation for all types of trips
- Understand the differences in barriers that exist between types of trips such as commuting to work and non-work commute trips (e.g. running errands and going out to eat)
- Explore the barriers experienced by gender, minorities groups, and underrepresented communities

Methodology

Methodology

Blended Photovoice with Traditional Focus Groups

- Photovoice is a form of participatory action research engaging participants through photography and critical analysis of themes through a facilitated discussion in a focus group format
- Approximately 8 participants per group
- Screened for location of residence, employment, and demographics, including: race/ethnicity, gender, age, educational level, and annual household income
- Participants received training materials on photography ethics and safety, basic photography tips, and exemplar photographs
- Participants spent one week taking photographs with daily prompts, and then joined in a single workshop for a facilitated discussion around the topics
- 4 total focus groups, moderated by Lani Steffens in the month of June



Photography Taking: Tuesday, June 6 – Monday, June 12:

Topics covered: documenting travel, traffic and cars, personal factors, infrastructure, personal safety, family/home life, open-ended

Focus Group 1: Tuesday, June 13, 6 – 8 pm

Predominantly White or Caucasian, younger cohort (25-44 years), most had College Degree, predominantly female, mix of household income levels

Focus Group 3: Wednesday, June 14, 6 – 8 pm

Predominantly White or Caucasian, distributed age group, most had College Degree, predominantly female, mix of household income levels

Focus Group 2: Tuesday, June 13, 8:30 – 10:30 pm

Predominantly Hispanic or Latino and Black or African American, younger cohort (18-44 years), most had College Degree, predominantly female, mix of household income levels

Focus Group 4: Wednesday, June 14, 8:30 – 10:30 pm

Predominantly White or Caucasian, distributed age group, all had College Degree, predominantly female, higher household income levels

General Participant Demographics

Total number of participants: 31

Age	Gender	Race or Ethnicity	Education Level	Annual Household Income (before taxes)	Owning or Renting House	Living and Working in Arlington County	Location of Residence
18-24 years: 16% of sample (5 people) 25-34 years: 48% of sample (15 people) 35-44 years: 23% of sample (7 people) 45-54 years: 3% of sample (1 person) 55-64 years: 6% of sample (2 people) Age 65 or older: 3% of sample (1 person)	Females: 71% of sample (22 people) Males: 29% of sample (9 people)	White or Caucasian: 55% of sample (17 people) Hispanic or Latino: 19% of sample (6 people) Black or African American: 16% of sample (5 people) Asian or Asian American: 6% of sample (2 people) Asian or Pacific Islander: 3% of sample (1 person)	Some College Credit/No Degree: 10% of sample (3 people) Associate's Degree: 3% of sample (1 person) Bachelor's Degree: 55% of sample (17 people) Advanced Degree: 32% of sample (10 people)	Less than \$25,000: 13% of sample (4 people) \$35,000-\$49,999: 10% of sample (3 people) \$50,000-\$74,999: 19% of sample (6 people) \$75,000-\$99,999: 16% of sample (5 people) \$100,000-\$149,999: 29% of sample (9 people) \$150,000 or more: 13% of sample (4 people)	Owning House: 26% of sample (8 people) Renting House: 74% of sample (23 people)	87% of sample (27 people) live but do not work in Arlington County 13% of sample (4 people) do not live but work in Arlington County 48% of sample (15 people) live within a 5-mile radius of their job	Ballston: 29% of sample (9 people) Shirlington: 10% of sample (3 people) Pentagon City: 10% of sample (3 people) Columbia Pike: 10% of sample (3 people) Courthouse: 6% of sample (2 people) Crystal City: 6% of sample (2 people) Other Cities (1 person in each city): Rosslyn, South Arlington-Jefferson Davis, Westover, Arlington Ridge, South Part, BlueMont, Boulevard Manor, and 24 th Rd & 4 So Glebe

Participant Demographics (by Day and Time)

	Group 1: June 13, 6 pm (8 total participants)	Group 2: June 13, 8:30 pm (8 total participants)	Group 3: June 14, 6 pm (7 total participants)	Group 4: June 14, 8:30 pm (8 total participants)
Age	25-34 years: 6 people 35-44 years: 2 people	18-24 years: 3 people 25-34 years: 3 people 35-44 years: 2 people	18-24 years: 1 person 25-34 years: 3 people 35-44 years: 2 people Age 65 or older: 1 person	18-24 years: 1 person 25-34 years: 3 people 35-44 years: 1 person 45-54 years: 1 person 55-64 years: 2 people
Gender	Females: 6 people Males: 2 people	Females: 5 people Males: 3 people	Females: 5 people Males: 2 people	Females: 6 people Males: 2 people
Race or Ethnicity	White or Caucasian: 4 people Hispanic or Latino: 2 people Asian or Asian American: 1 person Asian or Pacific Islander: 1 person	White or Caucasian: 2 people Hispanic or Latino: 3 people Black or African American: 3 people	White or Caucasian: 5 people Hispanic or Latino: 1 person Black or African American: 1 person	White or Caucasian: 6 people Black or African American: 1 person Asian or Asian American: 1 person
Education Level	Some College Credit/No Degree: 2 people Bachelor's Degree: 4 people Advanced Degree: 2 people	Associate's Degree: 1 person Bachelor's Degree: 5 people Advanced Degree: 2 people	Some College Credit/No Degree: 1 person Bachelor's Degree: 3 people Advanced Degree: 3 people	Bachelor's Degree: 5 people Advanced Degree: 3 people

Participant Demographics (by Day and Time)

	Group 1: June 13, 6 pm (8 total participants)	Group 2: June 13, 8:30 pm (8 total participants)	Group 3: June 14, 6 pm (7 total participants)	Group 4: June 14, 8:30 pm (8 total participants)
Annual Household Income (before taxes)	Less than \$25,000: 1 \$35,000-\$49,999: none \$50,000-\$74,999: 2 \$75,000-\$99,999: 2 \$100,000-\$149,999: 2 \$150,000 or more: 1	Less than \$25,000: 1 \$35,000-\$49,999: 2 \$50,000-\$74,999: 2 \$75,000-\$99,999: 1 \$100,000-\$149,999: 2 \$150,000 or more: none	Less than \$25,000: 2 \$35,000-\$49,999: none \$50,000-\$74,999: 2 \$75,000-\$99,999: 1 \$100,000-\$149,999: 2 \$150,000 or more: none	Less than \$25,000: none \$35,000-\$49,999: 1 \$50,000-\$74,999: none \$75,000-\$99,999: 1 \$100,000-\$149,999: 3 \$150,000 or more: 3
Owning/Renting House	Owned: none Rented: 8 people (all)	Owned: none Rented: 8 people (all)	Owned: 2 people Rented: 5 people	Owned: 6 people Rented: 2 people
Living/Working in Arlington County	7 people live but do not work in Arlington County, 1 person does not live but works in Arlington County, 3 out of 8 people live within a 5-mile radius of their job	8 people (all) live but do not work in Arlington County, 6 out of 8 people live within a 5-mile radius of their job	4 people live but do not work in Arlington County, 3 people do not live but work in Arlington County, 2 out of 7 people live within a 5- mile radius of their job	8 people (all) live but do not work in Arlington County, 4 out of 8 people live within a 5-mile radius of their job
Location of Residence	Shirlington: 2 people Ballston: 2 people Courthouse: 1 person Pentagon City: 1 person Columbia Pike: 1 person 1 person – unknown location	Shirlington: 1 person Pentagon City: 2 people Columbia Pike: 2 people Westover: 1 person Crystal City: 1 person 24 th Rd. & 4 So Glebe: 1 person	Ballston: 5 people South Part: 1 person South Arlington – Jefferson Davis: 1 person	Ballston: 2 people Courthouse: 1 person Rosslyn: 1 person Crystal City: 1 person Arlington Ridge: 1 person BlueMont: 1 person Boulevard Manor: 1 person

General Findings

Facilitators and Barriers to Using
Walking and Bicycling as Forms of
Transportation

Facilitators

Factors that encourage and motivate participants to walk and bike

Peer Behavior *“Competition. My wife and I, we both have fitness trackers and brag about who takes the most steps everyday. Then—we work in different places after work we’ll sometimes meet, I’ll meet her at Pentagon city and walk home from there or she’ll meet me at courthouse and walk home from there... We actually do the fitness tracker competitions, that’s pretty funny, but we both have bikes, helmets, a garage to store them in, we’re active, so I feel like that definitely helps. On the weekends we can go ride the bike a lot, whenever possible.” Group 3*

Most participants agreed that having a partner, such as spouse or friend, who regularly engaged in walking and bicycling, motivated them to walk and bike. Often, conversations emerged of couples who opted against using cars and decided to walk to and from work. Accountability to partners was a factor that motivated healthy lifestyle choices. Many participants also agreed that they would consider walking and bicycling with a group of people. Competition between people also encouraged walking and bicycling. One participant mentioned how a step campaign implemented by his employer increased the rates of walking among employees by encouraging healthy competition.

Short Commuting Distance, Particularly to the Grocery Store

“I had to go to the grocery store, and I actually did walk to the grocery store. And it’s right across the street from me. So stuff like that makes it super easy.” Group 2

“Going out to the grocery store. There’s a grocery store not too far from where I live, if I’m not carrying—if I’m not planning on buying a whole lot, then I don’t mind biking because it’s easy to just put on the bike and ride back. But if I really want a decent workout and carry a little bit more then I don’t mind walking.” Group 3

Participants discussed that having a short commuting distance to destinations they frequently visit is more likely to motivate them to walk and bike. Many participants discussed living close to grocery stores, and hence being able to walk or bike there. Some participants mentioned that walking and biking to grocery stores allows them to complete their responsibility of food shopping and get their required exercise at the same time. Knowledge of routes traveled by was also mentioned as a factor that positively influenced walking and biking.

Also mentioned: lack of available public transportation, encouraging workplace environment, availability of clearly marked bike lanes and trails in good conditions, availability of bike racks, road closing to promote bike riding, and law enforcement ensuring safety

Barriers

Factors that deter participants from walking and biking

Disregard for Traffic Laws “Yes, particularly on Columbia Pike where there's somewhat of a disregard for whatever laws or lights or whatever it might be, so at the very least, there is an acknowledgement that pedestrians somewhat have a right of way. So, if there's a-if there is a pedestrian light, warning light on, like I said, Columbia Pike, not too far from Carlin Springs I think is one big one where they have no choice but to stop. But they don't have that same respect for people who are on bikes and they have no reason to stop or to sort of acknowledge their presence as much as they should, particularly because there are a lot of metro buses that take up the right lane all the way down Columbia Pike. So, that's another thing particularly during rush hour because of the frequency.” Group 3

Required Professional Appearance “Because to work, you need to wear heels and stuff so I like wouldn't wear sneakers to work because I thought that, you know, I have to wear heels, I have to take a cab to the metro and then I have to do the same thing the entire week, but I know if I put in some change to my routine I'd definitely make walking or biking more feasible to work.” Group 4

Most participants agreed that drivers, pedestrians, and bicyclists regularly disregard traffic laws. The Columbia Pike and Walter Reed intersection was mentioned several times as the prime example of the location where drivers ran red lights, ignored pedestrian signs, parked on sidewalks, and ignored the presence of pedestrians and bicyclists. Participants discussed how most drivers were distracted and reckless, particularly during rush hour when they were impatient to get home. Drivers of metrobuses were perceived as particularly dangerous, as they often violated traffic rules. Aggressive pedestrians crossed the street in areas without a crosswalk, or when the light was red. Bicyclists also tended to speed and ignore traffic signs, as they are usually not stopped by law enforcement. Some participants accounted these violations to lack of knowledge for driving and biking laws.

Participants discussed professional dress-code required at their workplace as a barrier to walking and biking, especially during the summer heat. Women frequently discussed how their hair would be messy with the use of helmets, how their heels prevent walking for long periods of time, and how their outfit would get wrinkled and sweaty. Most participants desired a job culture that encouraged walking and biking through the acceptance of casual dress and provision of amenities (e.g. showers, changing facilities).

Also mentioned: Rush hour and time of day, congestive roads, extreme weather conditions (too hot/too cold), long commuting distance, and lack of knowledge of routes

Barriers

Factors that deter participants from walking and biking

Conditions and Availability of Bike Lanes and Roads *"I guess just looking at a map, there are bike friendly areas in Arlington, and there, but the arteries that connect some of them aren't. So, Arlington needs to really take a look at a map and figure out, well, OK, biking in Rosslyn or biking Crystal City or Pentagon City might be a lot easier, but there's a whole lot of traffic and congestion in a huge population, for example, along Columbia Pike and that's a huge artery in Arlington. So, how are we going to ensure that getting from one part of Arlington to another is smooth and consistent because you have some areas that are biker friendly and others that aren't. Then, someone might decide just not to take a bike period and use other forms of transportation. So, just consistency."*
Group 3

Perceived Threat due to Nighttime, Bad Lighting, and Harassment *"For lighting; there are just places where there are no lights on the trails and I go to work at five in the morning so there's no natural light either. So, you can hit a pedestrian or - sometimes, you can't even see the stop signs where you're supposed to stop for traffic that's going through."* Group 1

Most participants agreed that their decision to walk and bike depended on the availability of bike lanes, as well as the conditions of roads. Participants agreed that although bike lanes and trails existed, they were not connected throughout major cities and areas, posing as a threat to bicyclists' safety. Additionally, bike lanes and trails, as well as roads, sidewalks, and crosswalks, were often not in the best condition. The presence of uneven pavements, slippery and wide sewage covers, potholes, as well as absence of stripes on sidewalks, pedestrian signs in busy intersections, and street lights, made walking and biking difficult and dangerous for residents.

Most participants, particularly women, felt unsafe walking and biking during nighttime. Many participants discussed the lack of lighting in the streets, and especially in isolated trails. They discussed perceived threats associated with walking during dark hours without lighting and with the absence of people, including harassment, cat-calling, and insulting. Women tended to avoid areas with the presence of drunk crowds, as well as those without people.

Also mentioned: lack of road maintenance, lack of access to sidewalks and crosswalks, lack of areas with bike racks, construction, shared bike lanes, carrying capacity, and juggling of multiple responsibilities

Key Findings

Organized by Theme

Traffic and Cars

Key themes associated with traffic and cars that impact participants' decision to walk and bike

Theme	Assessment	Direct Feedback:
Time of Day	<ul style="list-style-type: none"> Carrying bikes in metro depends on the time of day Rush hour prevents walking and biking Easier to walk during rush hour than to bike 	<p><i>"Just, it's easier maneuvering through a crosswalk as opposed to Columbia Pike, Walter Reed, I have to walk from there. So, it's much more difficult to get around on it get on it. It has trails, of course, but during rush hour, the streets are pretty unsafe."</i></p> <p>Group 3</p>
Disregard for Traffic Laws	<ul style="list-style-type: none"> Aggressive drivers (particularly bus drivers), pedestrians and bicyclists Disregard for traffic laws, particularly on Columbia Pike Bicyclists disregard rules due to lack of consequences 	<p><i>"There are so many bikers that... don't stop at stop signs. They don't look. They don't signal which way they're going. So, I think law enforcement should give bikers tickets if they break the rule."</i></p> <p>Group 1</p>
Congested Roads	<ul style="list-style-type: none"> Buses tend to drive in the right lane, which is typically used by bicyclists; this poses as a threat to bicyclist safety Congested roads lead to impatience and aggressive driving behavior 	<p><i>"And with the amount of traffic, the volume of traffic, the volume of cars and the rest of this—I'm really a little scared to ride."</i></p> <p>Group 4</p>
Alternative Modes of Transportation	<ul style="list-style-type: none"> Participants often preferred to take alternative modes of transportation, including: cars, public transportation (buses and metro), Uber and Taxis Participant use of transportation often relied on the type of transportation used by their peers 	<p><i>"And I was actually born and raised in DC so my primary modes of transportation that I'm familiar with are taking the Metro and the bus. And it's personally through my husband who's a big biker and wanting me to get into biking with him, this is kind of a reason why I'm kind of interested in the whole idea of biking. But it's fairly new concept for me as far as approaching it from a leisurely aspect."</i></p> <p>Group 2</p>

Traffic and Cars: Time of Day



Group 4

"Good to see some signage that reminds drivers of the existence of pedestrians. Despite these, it is often stressful to walk around rush hour while drivers are stressed and make fast & aggressive turns"

The time of day influences walking and bike riding. Participants avoid walking and biking during rush hour due to the prevalence of aggressive and distracted drivers who disregard traffic laws, posing a threat to bicyclists and pedestrians.

Age	55-64 years
City	Blumenton
Sex	Female
Race/ Ethnicity	White or Caucasian

Traffic and Cars: Disregard for Traffic Laws

Most participants perceived a threat from drivers who regularly disregard traffic laws. Drivers typically run red lights, park on sidewalks, and don't pay attention to pedestrian signs. Oftentimes, pedestrians and bicyclists can also violate laws.



No one stopped for me at this crosswalk.

I frequently have to wait awhile for cars to let me cross at crosswalks. I also know specific intersections which cars tend to run the red lights or not look both ways when they're rolling to a stop. I think drivers need to be held more accountable to make walking and biking more enjoyable in Arlington County.

Age	25-34 years
City	Ballston
Sex	Female
Race/ Ethnicity	White or Caucasian

Traffic and Cars: Congested Roads

Congested roads, particularly during the rush hour in the morning and late afternoon, poses a threat to walkers and bicyclists. Participants discuss how drivers are often impatient during this time, and are more likely to violate rules. Also, bus drivers tend to take over the right lane, which is often used by bicyclists. Constant stopping by bus drivers results in congestion and threatens the safety of bicyclists.

Age	25-34 years
City	South Arlington – Jefferson Davis
Sex	Female
Race/ Ethnicity	Black or African American



Figure 5: This picture was taken at the intersection of S. Walter Reed and Columbia Pike. Traffic can be quite heavy during peak hours. Between the cars with slightly aggressive drivers and the number of metro buses constantly stopping to pick up passengers, it's the very ideal place to ride a bike at all.

Dangerous intersections like this one are not only a danger for walkers but also bicyclists. Having a designated bike lane area like this (with some sort of barriers like cones), along with more crosswalk warning light systems would not only curb aggressive driving, but also bring greater safety of pedestrians and bicyclists.

Traffic and Cars: Alternative Modes of Transportation

Many participants choose to take public transportation which is frequently available, including metro and bus, as an alternative to walking and biking.



Group 1

Taking metro from Chinatown on my way back home after work

Age	25-34 years
City	Pentagon City
Sex	Female
Race/ Ethnicity	Asian or Asian American

Personal Factors

Key themes mentioned as “Personal Factors” that impact participants’ decision to walk and bike

Theme	Assessment	Direct Feedback:
Job Culture	<ul style="list-style-type: none">• Employer acceptance and encouragement increases biking• Employer incentives promoting biking: workplace showers, locker rooms, funds for biking, casual dress code	<i>“Yeah. But we do have a shower at work. And I know... one of the vice presidents who is on our site either bikes to work or runs while he's at work.” Group 1</i>
Professional Attire	<ul style="list-style-type: none">• Business-casual/business dress code is often required by employers• Walking and biking tend to wrinkle outfit; helmets mess up hair styles• Difficult to walk in heels, especially for long distances and during the heat	<i>“It's just if you're wearing dress pants, they're just way more likely to get caught in the bike chain than like jeans or something, and you know, jeans are acceptable on Fridays in my office, so that definitely impacts biking or walking.” Group 2</i>
Commuting Distance	<ul style="list-style-type: none">• Lack of time to walk long distance, especially in the heat• Places frequently visited (e.g. grocery stores) may be too far to walk/bike	<i>“Some days I use the Metro, so it's not too far a walk from the Metro, but especially, like, in the summer it can get like hot, so if you wear it to walk a long distance, I wouldn't want to be like sweaty by the time I got to work.” Group 2</i>
Weather	<ul style="list-style-type: none">• Trails are not plowed during winter, preventing walking and biking• Summer heat prevents walking and biking, especially to work	<i>“I believe the Custis Trail is plowed, the others are not. And so, in the winter, the streets are hardly useable. the sidewalks are not - are pretty icy.” Group 1</i>

Personal Factors: Job Culture



Group 4

Age	25-34 years
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City	Ballston
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Sex	Male
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Race/ Ethnicity	White or Caucasian
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Employers that did not offer bike-friendly amenities, including showers, locker rooms for storage of personal belongings, and changing rooms, prevented employees from using bicycles to commute to work.

Having to pay for a dingy gross locker room that looks like it is from a high school gym doesn't make showering and changing attractive before work, which makes biking less appealing.

Personal Factors: Professional Attire



Group 3

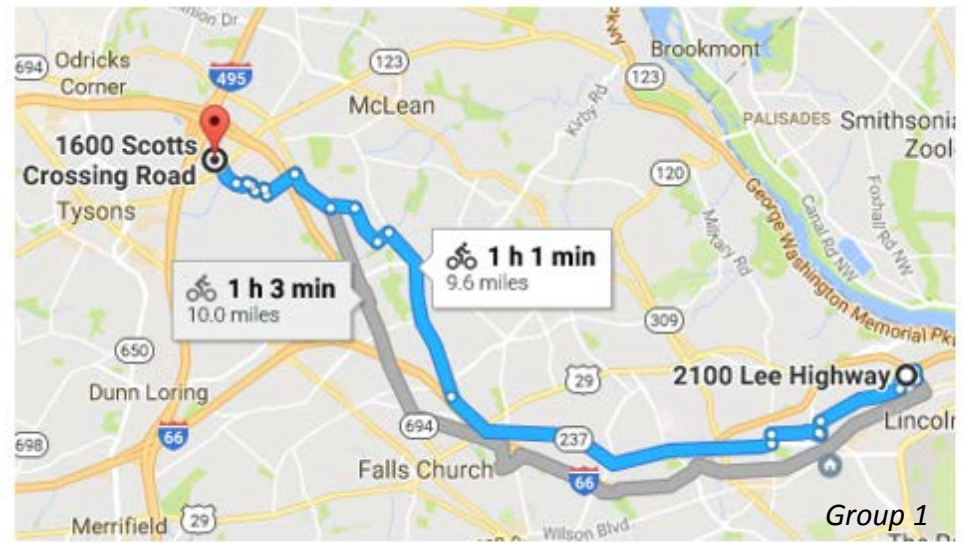
Image 1 (closet): This is the interior of half of my closet. I take my personal style seriously and like looking put together. Wardrobe is a big reason I don't bike or walk to work more than I do - often I tend to favor clothes and shoes that aren't bike friendly, and I value being able to wear whatever I want more.

Most participants desired or were required to dress professionally to work. Wearing heels and ironed clothes prevented walking and biking, as participants would become sweaty and their outfit would become wrinkled.

Age	18-24 years
City	Ballston
Sex	Female
Race/ Ethnicity	White or Caucasian

Personal Factors: Commuting Distance

Many participants did not live within a 5-mile radius of their workplace. Hence, their commuting distance was not feasible for walking and bicycling.



It would be a long commute to work if I decided to ride my bike; only 12 minute via car.



Group 1

As I sent in my post before, my commute to work would be too long to bike or walk/run. Also, with the price of gas being pretty low right now, it is cheaper and more convenient for me to drive to work rather than take the metro. Plus, having my car allows the ease and convenience of virtually unlimited storage space (for what I need) and the ability to choose my own route.

Age	35-44 years
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City	Court House
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Sex	Male
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Race/ Ethnicity	White or Caucasian
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Personal Factors: Weather

Participants did not particularly like to walk or bike in extreme weather conditions, including during the summer heat and winter snow. Participants especially discussed the negative effects of heat, including sweat and wrinkly clothes.

Age	25-34 years
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City	Crystal City
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Sex	Female
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Race/ Ethnicity	White or Caucasian
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Picture 3, Marriot entrance: One of my favorite things about Crystal City is how accessible certain parts of it are with minimal sun exposure. This shortcut takes me to underground shops/restaurants and cuts through to Crystal Drive. Really cuts down on time in the heat.

I'm in a great space, but as Tara said, when you're further out, it's more complicated. I would love:

- more lighting
- more underground passages or shaded walk areas
- pedestrian cross walks with flashing lights + enforcement
- so cars will actually stop
- more water fountains

Infrastructure

Key themes associated with infrastructure that impact participants' decision to walk and bike

Theme	Assessment	Direct Feedback:
Bike Lanes and Trails	<ul style="list-style-type: none">• No access to bike lanes and trails• Bike lanes and trails are not connected to each other• Bike lanes and trails are not in well condition: they have bumps, poor pavement, and potholes	<i>"There are long stretches of Wilson Boulevard that have no bike lanes at all, and... it's a little difficult when the traffic gets really heavy and I'm in a car trying not to hit a bike, and it's just crazy."</i> Group 4
Road Conditions	<ul style="list-style-type: none">• Poor quality and faded signs; street lights may not be functioning• Roads are not paved properly; many potholes• Lack of access to crosswalks and sidewalks in specific areas prevent walking and biking	<i>"Yeah, there's a lot of uneven pavement by my school. I don't like - especially... when I'm wearing high heels or shoes that are harder to walk in, but I think it's something that... would stop me from like walking to school."</i> Group 2
Bike Storage	<ul style="list-style-type: none">• Lack of storage of bicycle in house, especially in apartments• No access to or availability of bike racks	<i>"Someone mentioned storage, I don't really have space for a bike in my house right now... if I had my own bike I would probably bike more but I just don't right now so that has been passed on."</i> Group 3
Construction	<ul style="list-style-type: none">• Construction results in closed roads, street walks, and crosswalks, preventing walking and biking	<i>"in the Pentagon City area because of the construction they—actually they blocked the entire street—the entire lane. So you—basically it's impossible for you to get a bike from a specific bikeshare"</i> Group 1
New Developments	<ul style="list-style-type: none">• Building of infrastructure (e.g. new buildings and bridges), but lack of new infrastructure for bike lanes and trails• New developments prevent walking and biking	<i>"So, they're—not to say at one point, maybe the sidewalk was fine, but it's just a lot of different buildings going up and things being blocked off, so I feel like the areas that have more traffic—foot traffic and vehicle traffic—tend to be less friendly for walkers and bikers at this point in time."</i> Group 2

Infrastructure: Bike Lanes and Trails

The presence of bike lanes and trails in key areas that are connected and in good conditions (e.g. without potholes), as well as signs that clearly and explicitly direct to these bike lanes and trails will encourage residents to walk and bike.



Washington Blvd. is a busy commuter road and while there is a bike path right by where I live, the path doesn't continue all the way down to where the East Falls Church metro is and I don't feel comfortable riding a bike on roads that don't have designated bike paths especially during rush hour.

If there were consistent bike paths ~~separately~~ on roads that are sectioned off separately from car lanes, I would be much more likely to ride a bike consistently. like consistent - all throughout Arlington in a connected (not random) way.

In different color.

Age	25-34 years
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City	Westover
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Sex	Female
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Race/ Ethnicity	Black or African American
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Infrastructure: Road Conditions



Walked to a nearby store after work. Traffic was heavy and some crosswalks like these have no walk light.

* High traffic areas need walk lights!! Aggressive & distracted drivers often won't stop and yield as they should.

Many roads lack traffic lights and pedestrian signs and signals (stop signs, walking lights), compromising the safety of walkers and bicyclists.

Age	18-24 years
City	Crystal City
Sex	Female
Race/ Ethnicity	Black or African American

Infrastructure: Bike Storage

Most participants agreed that it was hard to find bike racks around cities to store their bikes. They were concerned that despite having available bike racks and storing bikes, others could break their locks and steal their bikes. In addition, many participants did not have storage space for their bikes in their apartments and houses.

Age	18-24 years
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City	Courthouse
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Sex	Female
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Race/ Ethnicity	Asian or Asian American
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Glad for the bike rack, but I've heard bikes get stolen off the bus in crowded places. Something more secure would make me feel safe

Infrastructure: Construction



Construction results in closing of sidewalks, crosswalks, and roads, and prevents walking and biking in these areas.

Photo 1: Construction near one of the major biking/walking trails in Ballston can make the status of accessibility confusing.

Age	25-34 years
City	Ballston
Sex	Female
Race/ Ethnicity	Hispanic or Latino

Infrastructure: New Developments

Major neighborhoods in Arlington County are witnessing the construction of new buildings and infrastructure. Despite these new developments, these areas are lacking in the development of the proper infrastructure needed for the promotion of walking and biking (e.g. bike lanes in major intersections).

Age	25-34 years
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City	Shirlington
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Sex	Female
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Race/ Ethnicity	Asian or Pacific Islander
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Rosslyn is getting bigger in both population and building height!

Personal Safety

Key themes associated with personal safety that impact participants' decision to walk and bike

Theme	Assessment	Direct Feedback:
Nighttime/Lighting	<ul style="list-style-type: none"> Being in areas with limited or lack of lighting, especially during nighttime, are perceived as threatening to participants, preventing them from walking and biking Associated with absence of people outside, as well as dark and isolated trails 	<p><i>"If it's later at night and there're not a lot of people out. It's a little more dangerous, you know... especially if you are not on a busy street... or if there's not proper lighting... and there's not a lot of people around, sometimes it's not as comfortable late at night."</i></p> <p>Group 3</p>
Presence of Law Enforcement	<ul style="list-style-type: none"> Some participants (minorities) perceived threat due to racial profiling Some associated the presence of police with perceived safety Others associated police presence with criminal activity, and avoided walking and biking in such areas 	<p><i>"For me, it would probably make me be less likely to drive and be a pedestrian in a biking or a—or, just walking. From my own personal experience with my brothers being profiled..."</i></p> <p>[Moderator] "So, it makes you more likely to use walking and biking?"</p> <p><i>"Yes. It would make me more likely to use—to avoid that, I guess."</i></p> <p>Group 2</p>
Harassment*	<ul style="list-style-type: none"> Women perceived fear in situations where they were insulted, cat called, or harassed, particularly during the nighttime 	<p><i>"I'm less inclined to walk past the bar heavy streets because I've been catcalled many times there. Which makes me feel very unsafe so."</i></p> <p>Group 3</p>
Shared Bike Lanes	<ul style="list-style-type: none"> Most were afraid of sharing bike lanes with cars due to fear of safety Most preferred protected bike lanes or bicycling on sidewalks 	<p><i>"It looks like here, it's certain areas in the city have bike lanes. Because when you see the signs that say share the road, that's just asking for trouble with bicyclists and motorists because they're not going to share the road."</i></p> <p>Group 3</p>
Carrying Capacity	<ul style="list-style-type: none"> Carrying heavy items, including gym bags, groceries, and laptops, compromised the safety of bicyclists 	<p><i>"Carrying stuff – I'm carrying my laptop in my backpack and my bag. It's either on my back, which is weighing me down backwards, which is not going to feel safe if I'm biking - especially if I'm going down or up a hill it will drag me back. Or in the front - in the basket - cause I use the Bikeshare a lot that is also a weight that destabilizes... so if it's a lot of stuff I just don't feel safe carrying a lot of stuff when I'm on a bike."</i></p>

*Note: No photographs were taken for the theme of harassment, but it was discussed frequently during the focus group

Personal Safety: Nighttime/Lighting

Most participants, particularly women, did not feel comfortable walking and biking during the nighttime, due to limited lighting, absence of people, and the threat of harassment and insults.



Age	35-44 years
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City	Ballston
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Sex	Male
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Race/ Ethnicity	White or Caucasian
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2. Would not feel comfortable riding/walking by at night. Recommend installing pedestrian emergency light poles with police call buttons.

Personal Safety: Presence of Law Enforcement

Participants had mixed feelings associated with the presence of law enforcement. Some felt that police presence indicated illegal or dangerous situations, whereas others felt protected with police presence.

Age	55-64 years
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City	Rosslyn
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Sex	Male
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Race/ Ethnicity	White or Caucasian
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Enhanced Police presence to manage busy intersections. 6/14 08:50 PM

Dave Williams



Group 4

06-12-20117-D: Bonus picture shows ACPD conducting a "clear the box" operation. Aggressive drivers can become stranded in the intersection when traffic ahead of them does not clear fast enough. Every few months, ACPD uses patrol officers to manage the traffic and prevent drivers from clogging the box.

Personal Safety: Shared Bike Lanes

Most participants did not feel comfortable biking in roads that did not have dedicated bike lanes, which required them to share the road with drivers. They associated sharing the road with danger.

Age	25-34 years
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City	Columbia Pike
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Sex	Female
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Race/ Ethnicity	Hispanic or Latino
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Group 2

The bike lane pictured here is with traffic.

* I would feel safer if there were bike lanes outside of regular traffic. This is the major reason that I personally do not bike in the city out of fear of being hit. I wish we had more bike lanes!

Personal Safety: Carrying Capacity



Group 2

Participants that had multiple items to carry were concerned about being knocked off balance.

Age	35-44 years
City	Shirlington
Sex	Female
Race/ Ethnicity	Black or African American

"I have a lot to carry today, which makes walking or biking impractical."

Family and Home Life

Key themes associated with family and home life that impact participants' decision to walk and bike

Theme	Assessment	Direct Feedback:
Responsibilities	<ul style="list-style-type: none">Most participants felt that they had multiple responsibilities (e.g. chores, running errands, grocery shopping, child rearing), and hence had little time or energy for walking or biking	<i>"Like I said, last week I was super busy. I had a lot of errands to run, so I was just—the practicality of it—of trying to do that. And then I also—I think it was one time someone had called me, I think, to do them a favor, and I didn't really have time to wait for a bus to walk to the bus station and walk or do whatever, so I just had to hop in the car and go. So, anything when you have to do something right away, it just kind of makes sense to just hop in the car." Group 2</i>
Children	<ul style="list-style-type: none">Most participants said that it was difficult to convince children to regularly walk or bikeParticipants said that childcare and other responsibilities associated with child rearing (e.g. drop off/pick up) prevented parents from walking and biking	<i>"With family, it's a bit difficult. Because you've got the ones that whine all the time 'cause it's so hot. Or it's gonna rain. It's really difficult. If it was just me, get up and go... my tennis shoes on and my sweatpants or whatever, bike shorts, and go for a ride. But when you have kids, and you gotta get the water. You gotta get the snacks. You gotta get this. You gotta get that. Oh, my god. It never ends." Group 1</i>
Peer Behavior	<ul style="list-style-type: none">Positive peer support and influence, especially spousal support, was more likely to influence the behavior of participantsE.g. Having wives that walked regularly increased the likelihood of husbands walking	<i>"So for me my wife is vegan, and she is very environmental, so we lived in Boston and Worcester Joe's walk to every place, walk through a path. Everything we did. So when we look for a bigger place, it's very important for us to have good walkability, even if it meant sacrifice in other things. So that was a factor for us." Group 4</i>

Family and Home Life: Responsibilities



Most participants juggle multiple responsibilities and roles, including child rearing, caretaking, home-related responsibilities (e.g. cooking, cleaning), along with their daily workplace responsibilities. Lack of time and multiple responsibilities prevent people from walking and biking.

I have to make sure my kids get in the school bus and then I have rush to work to be there on time.

I don't think I can make it on time if I ride the bike.... and if I do I need extra time to fresh it up.

Age	35-44 years
City	N/A
Sex	Female
Race/ Ethnicity	Hispanic or Latino

Family and Home Life: Children



Kids with sports activities, coaching sports and needing to transport equipment impacts the decision to drive

It is difficult to walk and bike with the presence of children, and the responsibilities associated with caretaking. Participants discussed how difficult it was to convince children to walk outside, as well as the feasibility of biking when taking children to and from school and extracurricular activities.

Age	45-54 years
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City	Boulevard Manor
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Sex	Female
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Race/ Ethnicity	Black or African American
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Family and Home Life: Peer Behavior



Group 3

We're an active couple that goes hiking & biking regularly, so the physical challenge wouldn't be a hindrance.

The actions of peers, including spouses and friends, were found to impact participants' decisions to walk and bike. Participants said that having a partner to walk and bike with motivated them to engage in the behavior.

Age	35-44 years
City	Ballston
Sex	Female
Race/ Ethnicity	White or Caucasian

Subgroup Analysis

By Gender, Minority Group, and
Geographical Location

Subgroup Analysis: Gender

Personal Safety

Women were more likely to take photographs around the topic of personal safety. Photographs primarily focused on fear for safety as a barrier to walking and bicycling, especially during the nighttime with limited lights and visibility, as well as lack of people. Women and men both talked about common factors that influenced their decision to walk and bike, including: the presence of law enforcement, bike lane and road conditions, and disregard for laws.



Passing empty restaurants or other public places that look abandoned, especially when it's dark outside, make me feel unsafe and wonder where is everyone, why they aren't here?

Subgroup Analysis: Gender

Personal Safety



Crowds during the Day vs. Night, and is the main reason I don't walk much after dark. There aren't as many people out at night. The pictures above are both sidewalks near the perimeter of my apartment complex during the day and after dark just as an example.

Subgroup Analysis: Gender

Personal Safety



However, there are some parts of my community that are not well light at night. This makes walking alone a night a somewhat difficult thing. This picture shows a large area that is dark compared to the surrounding buildings.

*Female
Group 4*

Subgroup Analysis: Gender

Children

A few women discussed their responsibilities associated with child rearing as factors that may influence them to walk and bike. Men did not mention their children, or the logistics of caring for children and meeting their needs (e.g. taking them to activities, drop-off or pick-up from school, etc.).



Needing to take kids to school (not close enough for them to walk) leads to decision to drive

Subgroup Analysis: Gender

Children

“Though I don’t have my own children, I occasionally babysit in the evenings. On days when I have to transport the kids I have a car seat which wouldn’t be feasible on a bike or walking.”

Female
Group 2



Subgroup Analysis: Gender

Hair

Women and men both discussed the influence of professional clothes on their decision to walk and bike. However, women also emphasized their hair as a barrier to walking and biking. They discussed how the use of a helmet during biking would mess up their hair style. Women also spoke about the influence of hair in extreme weather conditions, particularly during the hot and humid summers.

I have curly hair and wearing a helmet to ride a bike would mess up my hair.

Subgroup Analysis: Gender

Hair

“Summers in DC mean frizzy hair so I try to keep my outside time to a minimum on the weekdays.”

Female
Group 3



Subgroup Analysis: Minority Group and Geographical Location

- There were no apparent differences between responses of participants based on their race/ethnicity or geographical location within Arlington County.

Recommendations based on
solutions and strategies identified by
participants

1. Improve Infrastructure

Participants' Recommendations

- Ensure consistency in bike lanes and multi-use trails (e.g. bike lanes should be connected between neighborhoods, multi-use trails should be in areas frequently visited and not just in scenic areas)
- Develop protected bike lanes on roads frequently traveled by and ensure that bicyclists have the ability to bike on separate bike lanes instead of roads or sidewalks
- Improve signage around the County, including signs for pedestrians and bicyclists
- Install bike racks around the County for easy and secure storage of the bicycle
- Quickly fix broken street lights, and install additional street lights in neighborhoods and multi-use trails that don't have them (particularly near isolated multi-use trails)
- Install traffic lights, especially for pedestrians, in busy intersections and streets that do not currently have them

"They are very nice bike paths that don't cross traffic and are walled off and stuff like that. But none of them are any of the routes that I would take to really anything, I guess you would say... Also, sometimes really nice bike paths just seem to end for no reason... there's one going right into Washington Blvd. there and it's a bike path and then it becomes a sidewalk, and a smaller sidewalk alongside a road where people are just going 45 miles an hour, so, I don't if they just said, ah, to hell with it or what." Group 1

"Well, I think it's also important for apartment complexes to make sure that there are bike racks for people who do have bikes, because it's important for them to have a place to lock their bike." Group 2

2. Education and Awareness for Drivers, Bicyclists, and Pedestrians

"In order for me to bike, I just need to know the regulations, the biking regulations of Arlington County. Because I don't wanna get a ticket. I know, for instance, in DC, anything below Massachusetts Avenue Northeast, you can't bike at all. You'll get a ticket. But above Massachusetts Avenue, other parts of DC that are not in the Golden Triangle, you can bike. But that changes, depending on the street you are. So just knowing the codes. And so see – I think, in Arlington, it's legal to bike on the sidewalk. And if that's the case, I would do so." Group 2

Participants' Recommendations

- Regularly educate drivers on driving laws, as well as rules and regulations concerning bicycling and bicyclist safety, as well as pedestrian safety (driver's education should not be limited to acquisition of driver's license)
- Educate pedestrians and bicyclists on traffic rules, as well as maintenance of pedestrian and bicyclist safety
- Educate bicyclists on the biking regulations of Arlington County (e.g. locations that allow bicycling, sharing a road vs. bike lanes, etc.)

3. Tips and Strategies on Maintenance of Professional Attire

Participants' Recommendations

Tips and Strategies mentioned include:

- Tips on cleaning up at the workplace without using showers after walking and biking
- Tips on maintaining professional appearance (preventing clothes from wrinkling)
- Tips on maintaining hair style through helmet use

"I think it would be helpful, I mean, if it, it depends on the person and what their daily routine is, right. So, if it's something where, you know, you have to bring a whole lot of stuff with you to get ready, it, I don't know, the tips may be really helpful, and may not be. But, I would be open to it, if someone could give me, and if I didn't have access to a shower. If someone could give me tips on well, you know you could do this to make sure your blouse isn't wrinkled by the time you get to work three miles later, or your pants, or whatever it is. I would be open to it." Group 3

4. Community Bike Rides

"[Moderator] Would something like community rides to learn bike friendly areas? Would something like that be helpful? Would you- would you personally want something like that?"

Yeah, I think that's fine.

[Moderator] Would you be willing to participate in something like that?"

I think depending on levels, yeah. Because if you have novices, just people who are new to riding bikes, I think it would be good to have them. And on a separate day than folks who sort of are avid bike-riders." Group 4

Participants' Recommendations

- Organization of regular community bike rides to encourage bike riding
- Community bike rides should be organized by level of ability to accommodate for beginner, intermediate, and advanced bicyclists

5. Employer Amenities & Incentives

Participants' Recommendations

- Employers should provide amenities to encourage bicycling, including:
 - Showers
 - Storage facilities and bike lockers
 - Changing rooms
- Employers could encourage bicycling through the following incentives:
 - An extra day of leave for biking to work
 - Flexible dress code (casual)
 - Monthly monetary incentives for using the Capital Bikeshare program

"Suppose the government, suppose you flip it around and have political jurisdictions, offer incentives to employers to have showers, to have storage facilities and bike lockers... to address some of the issue... Like if an employer, you're like an extra day of leave a month or something." Group 3

"I think dress code is the big thing. I think if more companies were more flexible in the dress code - I think a lot of places are way too strict on that. I think that would make it a lot easier." Group 2

6. Education through Schools

Participants' Recommendations

- Have classes in the school system for bike riding and bike safety
- Incorporate bike riding within the required physical education curriculum in middle or high schools
- Teach the rules of the road to children at a young age through the educational system
- Raise awareness of the importance of bike safety education for children and teens through the Arlington County's educational system

"Going back to sort of making it part of the culture—I mean, I went to high school... and elementary school... in Arlington—and there are certain things you have to do in PE. For example, you have to learn how to swim... so maybe incorporating bike riding within the physical education curriculum, so—if you haven't learned how to ride a bike by the time you graduated high school—you should know how to ride a bike, for example—and there are enough... bike-friendly areas within the high school or even a lot of these middle schools, where—I mean—I don't know if the county wants to use the Capital BikeShare system or invest in a certain number of bikes themselves, but having that at least be an option for some students who may not have that culture already built-in within their family structure would be, would be interesting." Group 3

7. Advocacy

"If the community comes together and put their concerns together and then go to the board and present all of these issues that they have in the neighborhood, our community, and hoping that you will be heard as a community. We are owners. We are tax payers. We are the ones that go and keep the county going. So, these are our concerns." Group 1

"I mean, community activism and showing up at these really boring city council meetings when they're talking about buses and bike lanes and pot holes and things like that. I mean, I've never done that, but that's a good way to—or writing letters to council members." Group 1

Participants' Recommendations

- Raise awareness of community concerns through participation in local government and/or committees
- Write letters to elected officials expressing desires for changes concerning walking and biking, as well as infrastructure related changes

Conclusion

Facilitators and Barriers

- Factors that encouraged and motivated participants to walk and bike included positive peer behavior and short commuting distance
- Factors that deterred participants from walking and biking included general disregard for traffic laws; lack of access to, and availability of, a comfortable route; the condition and type of infrastructure; and required professional appearance at places of employment

Strategies to Increase Walking and Biking

- Improving infrastructure of bike lanes and multi-use trails, particularly ensuring consistency in bike lanes, providing physical separation from vehicles and establishing network connections between neighborhoods will encourage biking
- Improving infrastructure of sidewalks, crosswalks, traffic signals, lighting and signage will encourage walking
- Employer incentives, including on-site amenities (e.g. showers, storage facilities, bike lockers, changing rooms) will increase the use of walking and biking as a means of commuting to work

For additional information, please visit:

BikeArlington.com

WalkArlington.com

MobilityLab.org