

Campus Bikeways Project



UNIVERSITY OF
MARYLAND

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FORWARD**

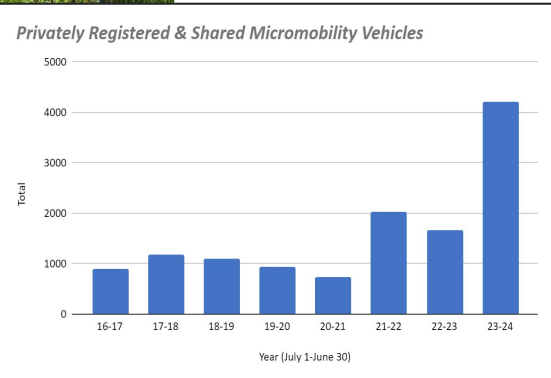
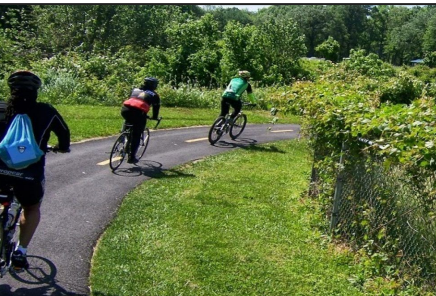


Nick Webb, a senior civil engineering major and the founder of the University of Maryland's Bike Advocacy Club, pictured on his bike on December 6, 2023. (Jordan Salow/The Diamondback)



Agenda

- Welcome
- Project History & Scope
- Feasibility Study Overview
- Timeline & Next Steps
- Open House - Concept Design Review & Comments
- Q&A, Discussion, & CTA



Project History & Scope

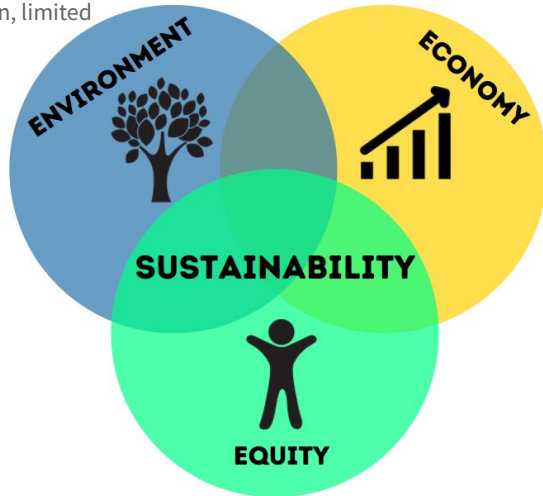


CAMPUS BIKEWAYS STUDY

Purpose & Need

Climate Action Plan
(UMD policy commitments)
Constrained Land Use
(new housing, campus construction, limited road width)

Demand: 3K+ bikes/scooters
(shared & private) on campus
Affordable Commute Needs



Public Health Needs
(clean air, physical activity)
Accessibility and Safety Needs
(Near-misses, sidewalk riding, collisions)



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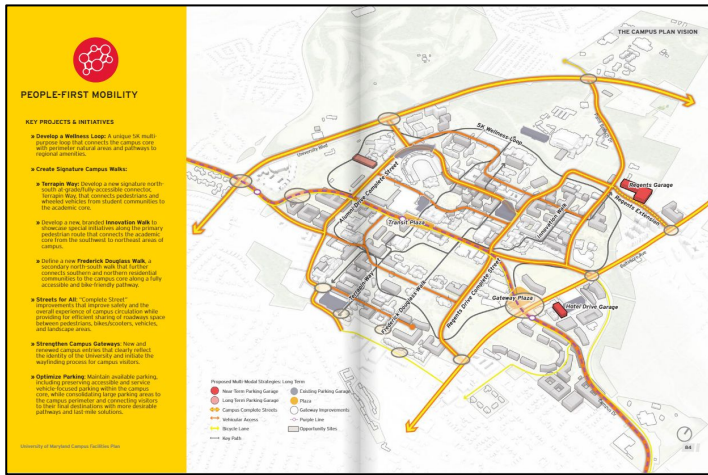
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Graphic: [UCLA Sustainability](https://www.sustainability.ucla.edu/)



In FY23, UMD was awarded funds from the State of Maryland's Kim Lamphier Bikeways Network Program to conduct **preliminary technical and design studies** to enhance the campus bike network.

This study and subsequent implementation puts the **Campus Facilities Plan's** People-First Mobility principle into action.



- **Funding Source:** MDOT Bikeways (80%) + DOTS Plant Fund (20%)
- **Project Scope:** Feasibility Study + 30% Design Plan
- **Project Team:** Dept. of Transportation Services & Facilities Planning
- **Supported By:** UMD Office of the Vice President of Administration, UMD Office of Sustainability, UMD Terps 4 Bike Lanes, Student Government Association, Resident Hall Association, and the City of College Park



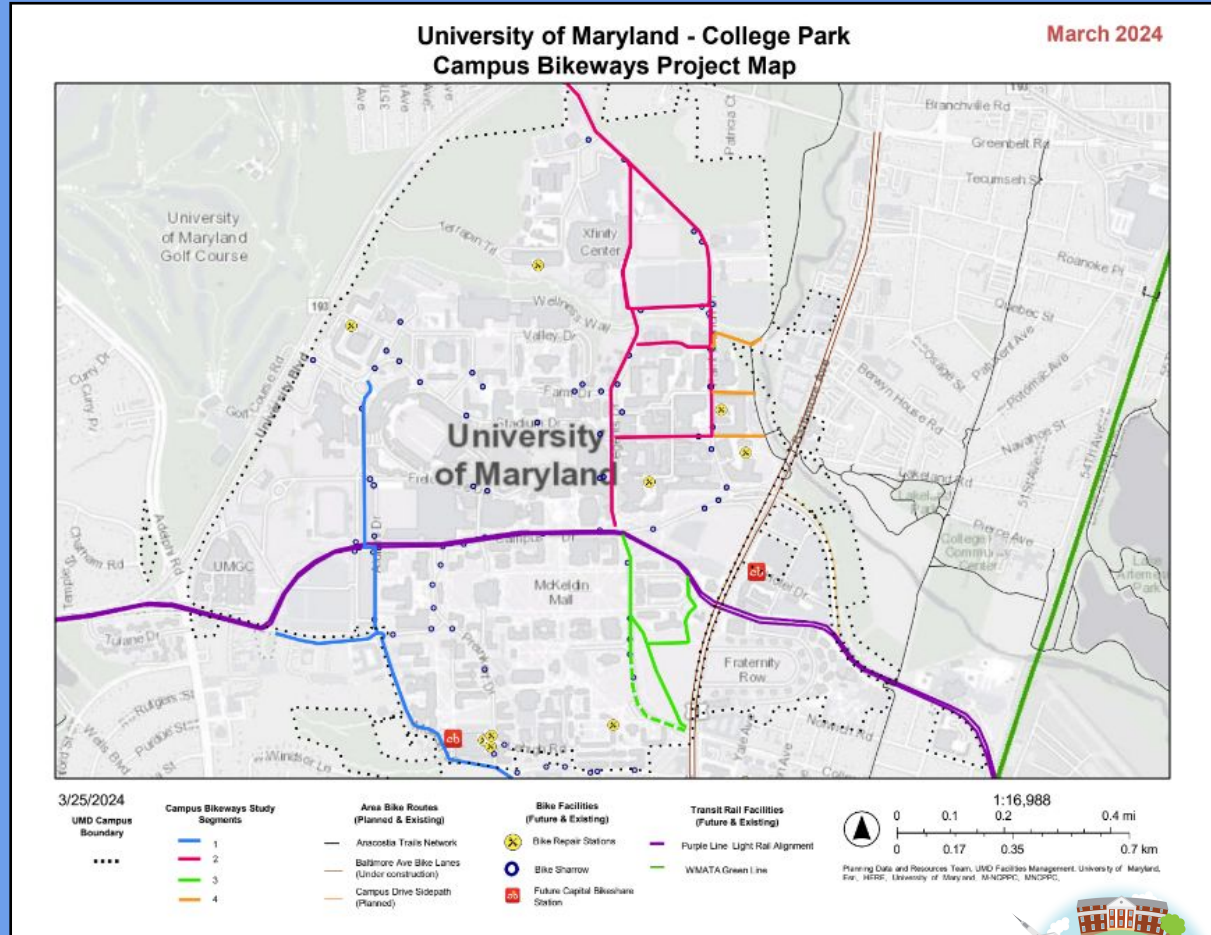
Study Area + Project Goals

- Increase **safety** and **reduce/eliminate conflict between modes**
- Greatest number of bicyclists/e-scooters and road users served
- **Cost and environmental** impact
- **Traffic** circulation impacts (shuttle, bus, motorist, pedestrian activity, parking, and flow)
- Connection to **planned or existing bikeways** (ie. Purple Line campus bike lane, Baltimore Ave bike lanes, etc.)
- Connection to **broader transportation network** including transit hubs, bicycle parking, trails, and cycle track



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Segment Selection



High Volume Corridors & Risk of intermodal conflict



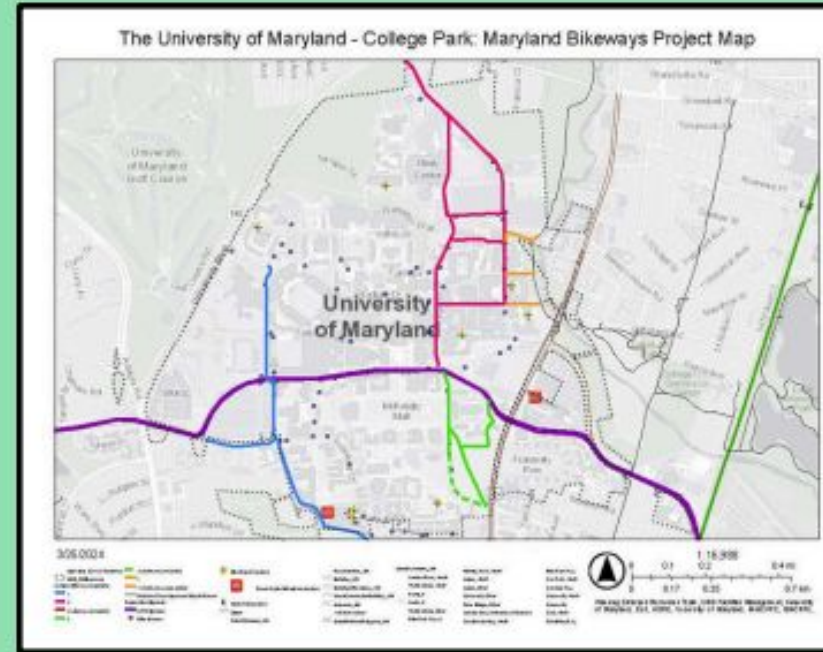
Assessed housing development patterns & growing bikeshed along Baltimore Ave and Knox Road



Leverage and connect to existing and planned bike/transit investments (*ie. Purple Line bike path, CaBi stations, and Paint Branch Trail*)



Congruence with other campus and area planning studies/initiatives (*ie. Route 1 Bike Path, 2018 Bike Study, Campus Facilities Plan*)



Campus Bikeways Project

University of Maryland Bike Lanes, Paths, and
Trails Network & Safety Enhancements
Concept Designs



April 2024

PREPARED BY
**Mead
& Hunt**

➤ Feasibility Study Overview



FEASIBILITY STUDY - METHODOLOGY

01



A purple circular icon containing a white calendar page with the year '2026' written on it. Above the circle is a purple tab with the number '01'. A vertical dotted line connects the bottom of the circle to the text below.

**COMPILE EXISTING &
YEAR 2026 BASE
CONDITIONS**

02



A blue circular icon containing a white document with a magnifying glass over it. Above the circle is a blue tab with the number '02'. A vertical dotted line connects the bottom of the circle to the text below.

**CONDUCT TRAFFIC
ANALYSIS**

03



A green circular icon containing a white diamond-shaped sign with the text 'SAFETY FIRST' inside. Above the circle is a green tab with the number '03'. A vertical dotted line connects the bottom of the circle to the text below.

**APPLY DESIGN
PRINCIPLES**

04



A yellow circular icon containing a white road with a dashed center line, a bicycle, and a person walking. Above the circle is a yellow tab with the number '04'. A vertical dotted line connects the bottom of the circle to the text below.

**DESIGN MULTIPLE
CONCEPTS**

05



An orange circular icon containing a white calculator and a pencil. Above the circle is an orange tab with the number '05'. A vertical dotted line connects the bottom of the circle to the text below.

**DEVELOP COST
ESTIMATES**

06



A red circular icon containing a white circular flow diagram with three numbered steps (1, 2, 3) and arrows indicating a sequence. Above the circle is a red tab with the number '06'. A vertical dotted line connects the bottom of the circle to the text below.

**PRIORITIZATION TO
ADVANCE SEGMENTS
TO 30%**



Design Principles

1. Designing to **promote safety of multimodal users**.
2. Designing to **reduce conflict points** between walkers, multimodal users, and drivers.
3. **Separating walkers, multimodal users, and drivers where the density of one, or all modes, is high** (e.g., in the campus core and around academic building clusters and residence hall quads).
4. Recommended **off-road shared-use facility width is 14 feet**.
5. Where separate parallel facilities are proposed, place dedicated cycling infrastructure in between walkers and drivers **to keep slowest speeds away from fastest speeds**.
6. At uncontrolled junctions, prioritize walkers over micromobility users over vehicles.
7. Design **to minimize modal crossing at junctions/intersections**.
8. **Minimize vehicle turning conflicts** where feasible.
9. Provide **direct and efficient micromobility routes**.
10. Design network segments for **ease of use and continuity throughout the campus** setting.
11. **Apply International Best Practices** in designs.



FIGURE 3: SHARED-USE PATH, NORTH OF TECHNOLOGY DRIVE



FIGURE 4: VARIOUS ON-ROAD CYCLETRACK VERTICAL PROTECTION ELEMENTS



Contextual Guidance for Selecting All Ages & Abilities Bikeways

Roadway Context				All Ages & Abilities Bicycle Facility
Target Motor Vehicle Speed	Target Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any		Any	<i>Any of the following:</i> high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts [‡]	Protected Bicycle Lane
< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	Shared Street
≤ 20 mph	≤ 1,000 – 2,000		< 50 motor vehicles per hour in the peak direction at peak hour	Bicycle Boulevard
≤ 25 mph	≤ 500 – 1,500	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane
	≤ 1,500 – 3,000			Buffered or Protected Bicycle Lane
	≤ 3,000 – 6,000			Protected Bicycle Lane
	Greater than 6,000			Protected Bicycle Lane
Greater than 25 mph [†]	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	Protected Bicycle Lane, or Reduce Speed
		Multiple lanes per direction		Protected Bicycle Lane, or Reduce to Single Lane & Reduce Speed
	Greater than 6,000	Any	Any	Protected Bicycle Lane
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		Any	High pedestrian volume	Bike Path with Separate Walkway or Protected Bicycle Lane
			Low pedestrian volume	Shared-Use Path or Protected Bicycle Lane

NACTO Urban Bikeway Design Guide



Feasibility Study - Data Inputs

- Micromobility Report & Heatmap
- Numina™ in-house multimodal sensor data.
- 2018 & 2023 traffic counts
- Purple Line Construction drawings.
- Campus CAD drawings.




FIGURE 12: FUTURE CAMPUS DR INTERSECTION AT LOT 1/2

- Site visits and field measurements.
- Site plans and construction drawings for recent or ongoing building construction
- Campus Facilities Plan (latest update)
- UMD DOTS Mobility Audits - Bike/Walk Site Visit and Community Survey.



Feasibility Report - Community Mobility Audit



Campus Bikeways:
Mobility Audit Toolkit for Terps 2023

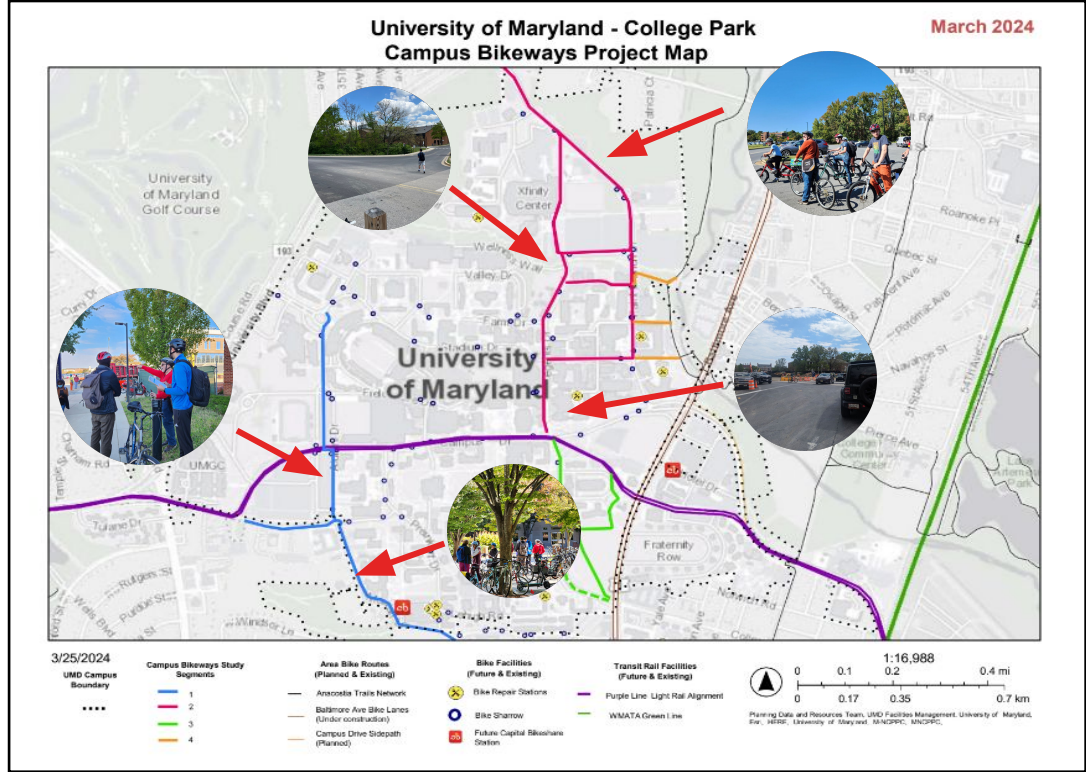
1. SAFETY at: Sp22 - duration/consistency at Howatt Ln

Disclaimer: Items marked with two asterisks (**) in gray are not in this Campus Bikeways Project's scope, however, your feedback will be shared with campus entities, who are working in conjunction with our project on these important issues for a safe and comfortable commute!

#	Safety Audit Category	1	2	3	4	5	Comments?
1	Adequate lighting. Is lighting: (1) regularly and frequently spaced, (2) bright enough, and (3) directed towards where people walk or roll?			3			could use lights leading to circle
2	Eyes-on-the-street.** Are people nearby who would see or hear me if I need help? Are ground-floor windows and entries covered or obscured?					5	road traffic good
3	Maintenance and repair of the public realm.** Are the roads and crosswalks smooth and without debris, potholes, or other obstructions?					5	Good
4	Safety buffer as your ride and roll. Are drivers giving you 3 feet minimum distance as your ride? Is it comfortable to pass by another rider ahead of you?		2				not aggressive, not paying attention. Some people are careless
5	Traffic speeds and roadway courtesy. Do drivers and riders yield to each other at crosswalks? Is traffic calm, or are traffic speeds high? Are there conflicts between drivers and riders during right or left turns?	1					aggressive cars a lot of pedestrian conflict. Would benefit from raised crosswalks or
6	Safety signage. Are traffic signs clear, easy-to-understand, and in good condition to help people navigate the campus and ride or drive safely?		2				signs are clear more visible. Feel like caride needs signage to make use for visibility
7	Overall, this area feels safe. Overall, is this a space all road users, especially women, children, the elderly, and people with limited mobility, would feel safe in during the day or night?		2				

SAFETY SCORE = $\frac{19 + 7(35)}{[Sum of Answers] + [# of Questions Answered]}$ = $\frac{19}{19/35}$

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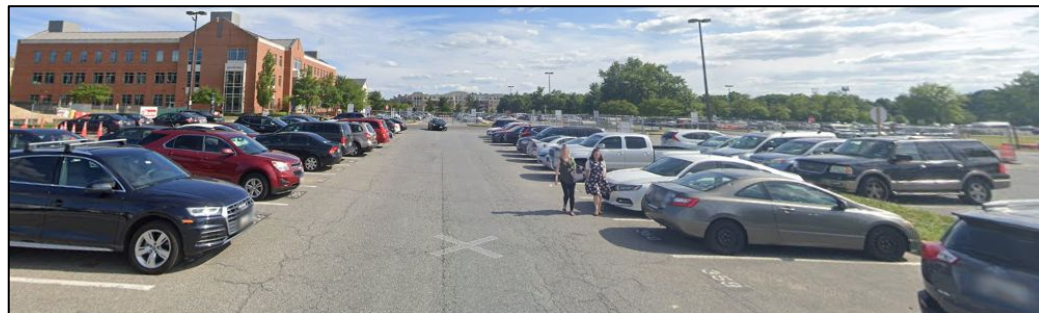
Points across the study area with the lowest scores across accessibility, safety, behaviors, aesthetics, transfers (connectivity) from the Community Mobility Audit

Segment 1: Western Corridor

Denton Quad - Lot 1/Z - Alumni Drive - Mowatt Lane

Challenges Addressed

- **Heavy bicycle, scooter, and motorist volume** through these campus gateways. Limited signage/markings present for cyclists
- Currently **riders and pedestrians travel through parking lot drive lanes**. Drivers reversing may not anticipate or check for cyclists.
- Narrow **intersections + roundabouts**
- **Shifting traffic patterns** due to construction introduces **complexities and variable visibility**
- **No sidewalks, bike paths, or other means of separation** between modes
- Mowatt Lane- Wide/curvy road + **low lighting at night** makes shared roadway undesirable for VRUs



Segment 2: Northeastern Corridor

Paint Branch Drive - Regents Drive/Engineering Quad

Challenges Addressed

- Heavy **multi-modal vehicle traffic** conditions, especially during special events at Xfinity & on Regents Drive on this shared road environment
- **Wide 12+ foot** travel lanes on Paint Branch Drive inducing higher speeds, risky driver behavior & rolling stops
- Major gateway to campus & underdeveloped bikeshed opportunity (approx 800-bed Courtyard residence and neighborhood areas north of 193)
- Gap in sidewalk connections on north side of Regents Drive
- Gaps in signage and markings
- Future signalized intersection at the “Old M” at Regents/Campus Drive needing plans for bike connectivity

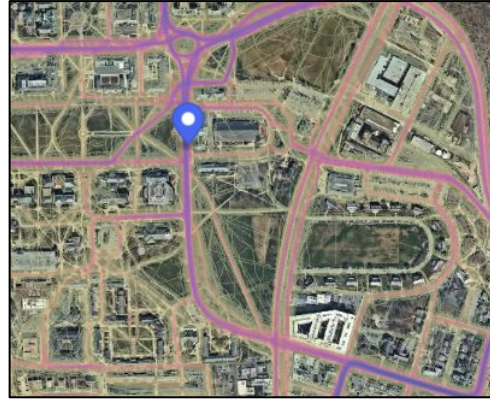


Segment 3: Southeastern Connection

Regents Drive to Baltimore Ave

Challenges Addressed

- Major traffic spine for all vehicle types
- Single-travel lane in both directions; Limited road width
- Desired connection to South Campus and Baltimore Avenue destinations
- 2nd highest street segment for Veo riders routes (115 Average Daily Vehicles)
- Some median/street parking spaces



Heatmaps from Strava Cycling Data (Left) & Veo Data (Right)



Segment 4: Trail Connectors

Paint Branch Drive - Paint Branch Trail

Conditions/Challenges Addressed

- Channels high volume of bicycle traffic to/from Anacostia Trail System and Baltimore Ave destinations including the 1,647 additional beds in the new housing development north of the trail;
- Multiple trails access points to streets/pedestrian plazas, some with limited visibility or outlets to parking areas
- Lacks clear and consistent separation of uses between pedestrians and cyclists
- Lack of signage/markings in the transition to the street grid



“Combined, the proposed paths and bike lanes would add approximately 4 miles of dedicated cycling/scooter infrastructure on the UMD campus, splicing together a network of existing and planned trails to develop an off-road and protected-lane multimodal grid network.” - p.41





➤ Timeline & Next Steps



Timeline

Phase 1: Kick Off

Summer 2023

Complete

Phase 2: Feasibility Study &
Preliminary Drawings

Spring 2024

Complete

Phase 3: 30% Design
Drawings

Spring/Summer 2024

In Progress

Next Steps: Identifying & Securing Funding



Paint Branch
In-Road Cycle Track Pilot

Target: Summer 2024

Phased Final Designs

*(Preparing Funding
Applications)*

Phased Construction

*(Preparing Funding
Applications)*



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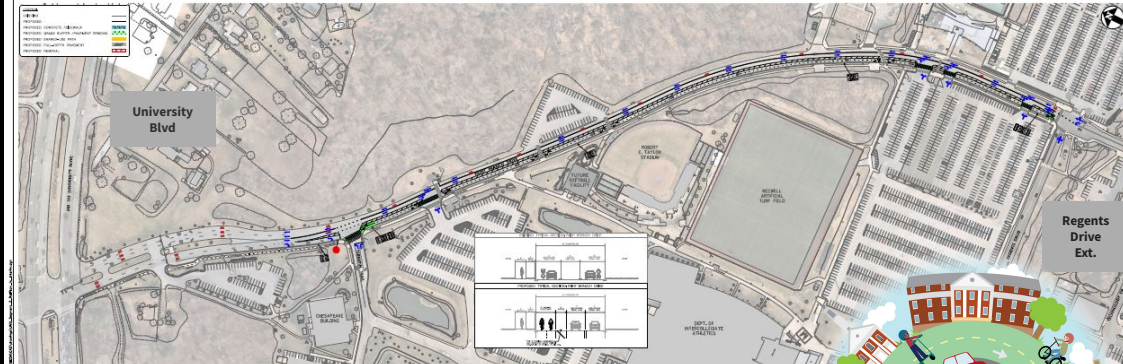
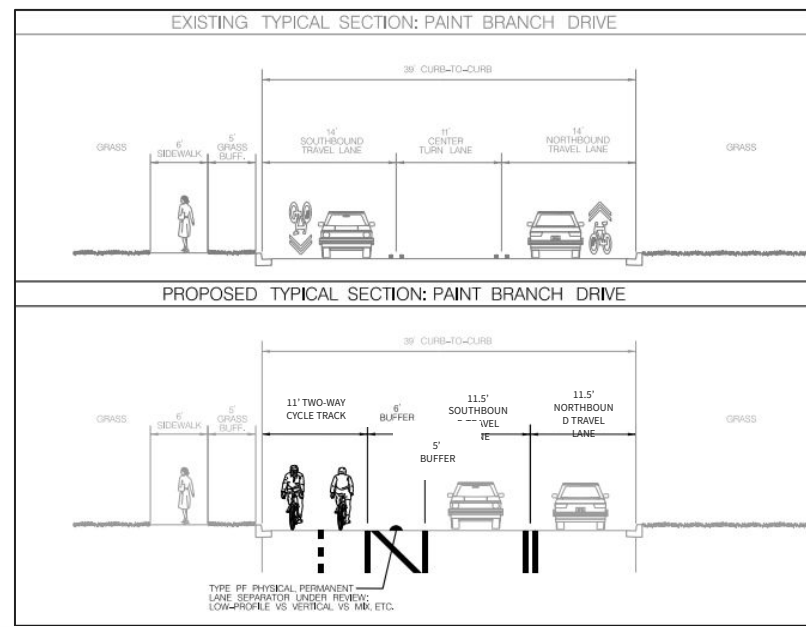
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Summer 2024 Pilot:

Paint Branch Drive Road Diet & in-road cycle track

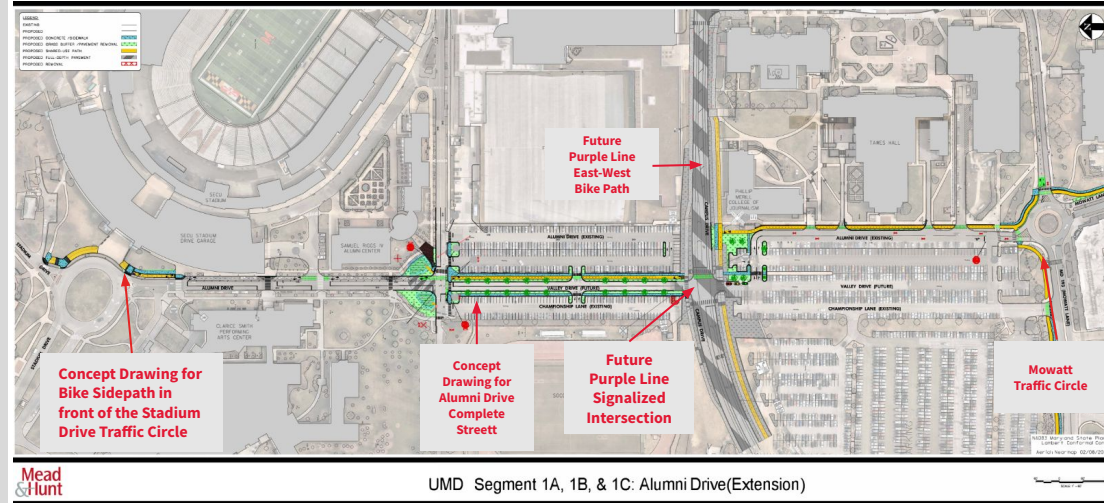
- **Segment:** Paint Branch Drive between University Blvd & Regents Drive Extension
- **Road Diet:** Three travel lanes reduced to two.
- **In-Road Cycletrack:** 16 feet re-dedicated for a protected cycle track
 - 11-ft cycle track is wide enough to be converted to a third travel lane by UMPD during high traffic events (ie. basketball games, graduation)
- **Funding proposal for final design and construction submitted to Student Facilities Fund. Student Facilities Advisory Committee recommended the project move forward**
- Target Construction: Summer 2024



Summer 2025 Construction Target

Alumni Drive Complete Street

- **Segment:**
 - Phase 1.1: Alumni Drive between Stadium Traffic Circle and Campus Drive (future Union Drive)
 - Phase 1.2: Alumni Drive/Mowatt Lane between future Union Drive & Knox Rd
- **Complete Street:**
 - Reconfigures Lot 1 Parking Lot to construct a true bi-directional roadway that aligns with the forthcoming signalized intersection
 - Conceptual design incorporates dedicated bike paths, sidewalks, and tree-line buffers to separate modes and calm traffic
 - Multi-modal north-south connection is enhanced and offers seamless integration with Purple Line east-west bike path
- **Funding proposal for final design submitted to Student Facilities Fund. Student Facilities Advisory Committee recommended the project move forward**
- Funding proposals for construction are in development
- Target Construction: Summer 2025



Mead
& Hunt

UMD Segment 1A, 1B, & 1C: Alumni Drive(Extension)



Open House

10-minutes: ID Exercise

- **Blue:** protective elements
- **Yellow:** intermodal conflicts mitigated
- **Green:** dual/multipurpose landscaping

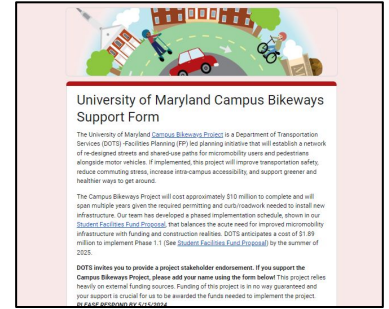
20 min: Open House review of concept drawings

Use post it notes, dry erase boards, or QR codes to add comments, questions, feedback, and curiosities

15 min: Report Back/Reflections



Ways to Engage & Show Your Support!



**Read the Study
Report**



Provide Comments



**Write a Letter of Support
for Implementation!**



Thank You!



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