BICYCLE MASTER PLAN

# PRELIMINARY BIKEWAY RECOMMENDATIONS

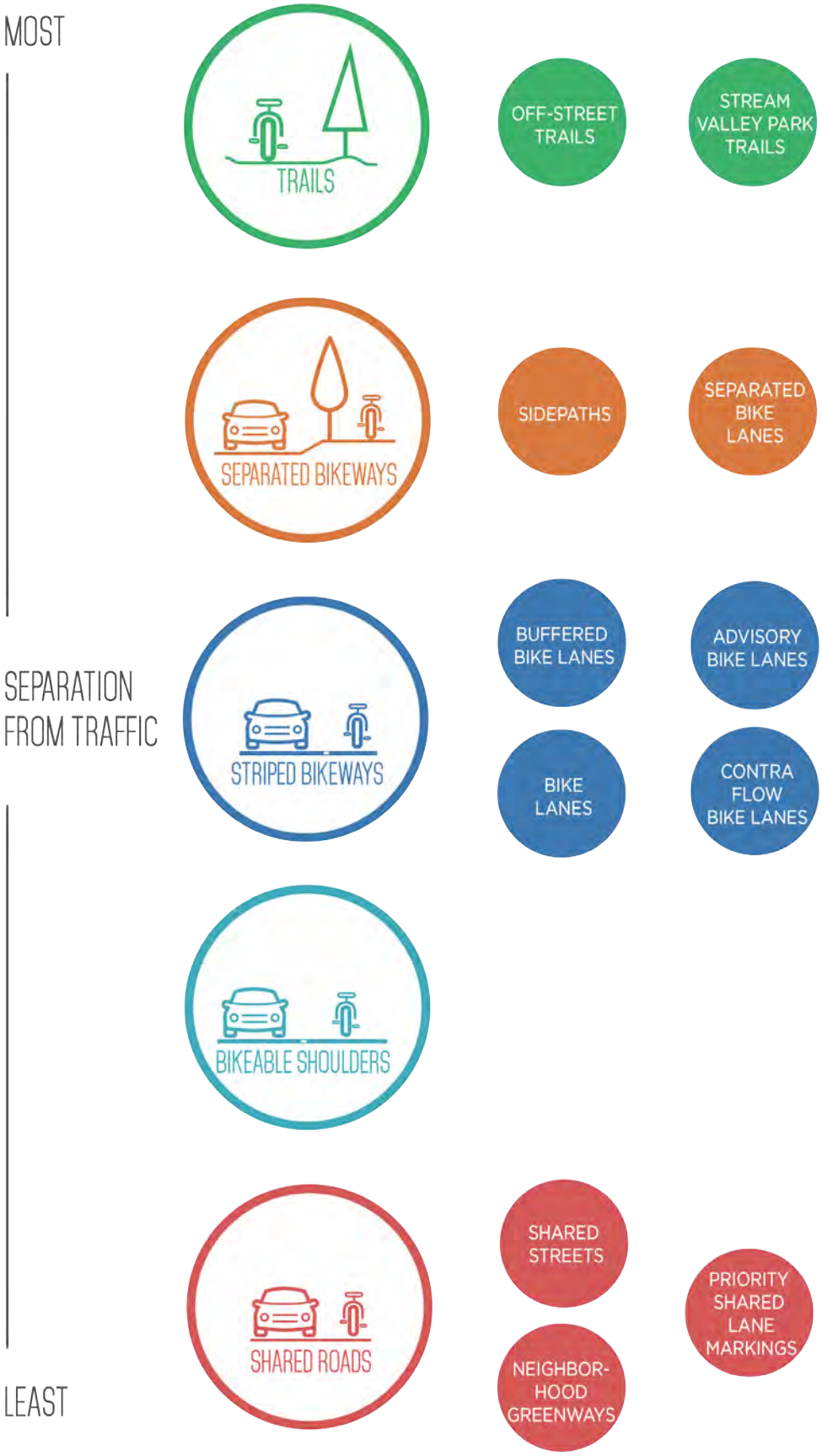
## MEETING PACKET | JUNE 12, 2017

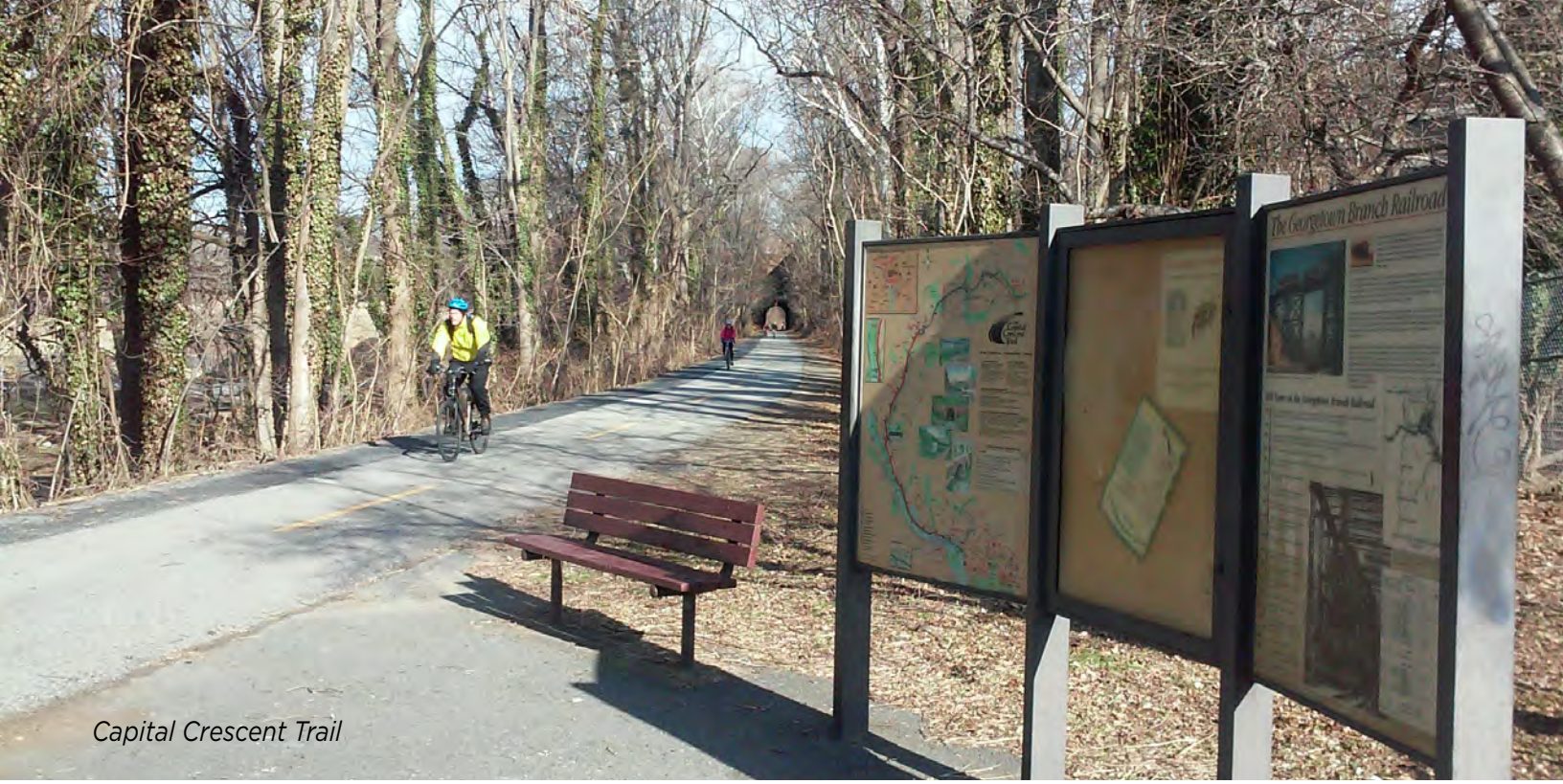
THE BICYCLE MASTER PLAN

MONTGOMERY COUNTY PLANNING DEPARTMENT

ACCEPTING COMMENTS AT **MCATLAS.ORG/BIKEREACT**
THROUGH JULY 17, 2017.

# BICYCLE FACILITY CLASSIFICATION






*Capital Crescent Trail*

# TRAILS


Trails are paths that are located outside of the road right-of-way. They provide two-way travel designated for walking, bicycling, jogging and skating.

Trails are typically 10 feet wide, but can vary between 8 feet (in constrained locations) and 14 feet wide (where usage is likely to be higher). On trails with very high levels of walking and bicycling, spaces for pedestrians and bicyclists are often separated to reduce conflicts and improve comfort. In these situations, trail can be widened to between 15 and 24 feet wide.

Trails include **off-street trails** and **stream valley park trails.**

*Bethesda Trolley Trail*

# OFF-STREET TRAILS






**Off-street trails** are shared use paths located outside of the road right-of-way that provide two-way travel for people walking, bicycling, and other non-motorized users.

**Benefits**

- Provide a bicycling environment suitable for all ages and abilities.
- Tend to have fewer at-grade crossings than other bikeways.

**Typical Application**

- Often located within existing or unused railroad rights-of-way or utility rights-of-way, land dedicated for planned but unbuilt "paper" streets and through public land.

**Examples in Montgomery County**

- Bethesda Trolley Trail
- Capital Crescent Trail

*Rock Creek Trail*

# STREAM VALLEY PARK TRAILS


**Stream valley park trails** are shared use paths located within a M-NCPPC stream valley park that provide two-way travel for people walking, bicycling, and other non-motorized users.

**Benefits**

- Provide a bicycling environment suitable for all ages and abilities.
- Tend to have fewer at-grade crossings than other bikeways.

**Typical Application**

- Located along stream valley parks.

**Examples in Montgomery County**

- Rock Creek Trail
- Sligo Creek Trail
- Matthew Henson Trail

*Separated Bike Lanes on Woodglen Drive, North Bethesda*

# SEPARATED BIKEWAYS


Separated bikeways provide physical separation from traffic and include **sidepaths** and **separated bike lanes**.

Once the decision is made to provide a separated bikeway, planners must determine whether the bikeway should also be separated from pedestrians.

**Pedestrian demand will be the primary consideration for determining whether a separated bikeway should be implemented as a sidepath or a separated bike lane.** All other things being equal, **sidepaths** will be recommended where observed or anticipated pedestrian demand is lower, since conflicts between people walking and bicycling will be infrequent. **Separated bike lanes** will be recommended where pedestrian volumes are observed or anticipated to be higher.

**Another closely related factor is the land use type and density of the surrounding environment. Sidepaths** tend to be more appropriate in suburban areas where pedestrian travel is less and where pedestrian movements tend to be more predictable. In urban areas, pedestrian travel is characterized by meandering and stop-and-go movements as people socialize, enter and exit stores, dine outdoors, access transit or walk to and from on-street parking. Pedestrians movements are less predictable in urban locations, so providing **separated bike lanes** and sidewalks is recommended in the vicinity of commercial and higher-density mixed-use areas and major transit facilities.

## TYPICAL APPLICATION

- TRAFFIC LANES **3+ LANES**
- POSTED SPEED LIMIT **30 MPH OR FASTER**
- TRAFFIC **6,000+ VEHICLES PER DAY**
- ON-STREET PARKING TURNOVER **FREQUENT**
- BIKE LANE OBSTRUCTION **LIKELY TO BE FREQUENT**
- **DESIGNATED AS TRUCK OR BUS ROUTE**

*Sidepath on MacArthur Boulevard, Bethesda*

# SIDEPATHS


**Sidepaths** are shared use paths located parallel to and within the road right-of-way. They provide two-way travel designated for walking, bicycling, jogging and skating. Sidepaths are typically 10 feet wide, but can vary between 8 feet (in constrained locations) and 14 feet wide (where usage is likely to be higher). Sidepaths are separated from motorized traffic by a curb, barrier or landscaped panel.

**Benefits**

- More attractive to a wider range of bicyclists than striped bikeways on higher volume and higher speed roads.

**Typical Application**

- See section overview.
- Adjacent to the roadway.
- Recommended on higher volume and higher speed roads where pedestrian volumes are low, including suburban streets.

**Examples in Montgomery County**

- MacArthur Boulevard
- Key West Avenue
- Olney-Laytonsville Road
- Briggs Chaney Road

*Separated Bike Lanes on Nebel Street, North Bethesda*

# SEPARATED BIKE LANES


**Separated bike lanes** are exclusive bikeways that combine the user experience of a sidepath with the on-street infrastructure of a conventional bike lane. They are physically separated from motor vehicle traffic and distinct from the sidewalk. They operate one-way or two-way.

Separated bike lanes can provide different levels of separation:

- Separated bike lanes with flexible delineator posts ("flex posts") alone offer the least separation from traffic and are appropriate as an interim solution.
- Separated bike lanes that are raised with a wider buffer from traffic provide the greatest level of separation from traffic, but will often require road reconstruction.
- Separated bike lanes that are protected from traffic by a row of on-street parking, such as shown in the image of Woodglen Avenue, offer a high-degree of separation, but would benefit from additional design features.

### Benefits

- More attractive to a wider range of bicyclists than **striped bikeways** on higher volume and higher speed roads.
- Eliminate the risk of a bicyclist being hit by an opening car door.
- Prevent motor vehicles from driving, stopping or waiting in the bikeway.
- Provide greater comfort to pedestrians.

### Typical Application

- See section overview.
- Adjacent to the roadway.
- Recommended on higher volume and higher speed roads where pedestrian volumes are high, including higher density areas, commercial and mixed-use development, and near major transit stations.

### Examples in Montgomery County

- Woodglen Drive
- Nebel Street
- Spring Street (forthcoming)


*Bike Lanes on Battery Lane, Bethesda*

# STRIPED BIKEWAYS


**Striped bikeways** are designated spaces for bicycling that are distinguished from traffic lanes and shoulders by striping and pavement markings. Until a few years ago, **conventional bike lanes** were the gold standard of North American bicycle planning in urban areas. But over the past few years, a variety of new bike lane types have arisen, including **buffered bike lanes** and **advisory bike lanes**. Collectively, this reports refers to the variety of bike lanes as striped bikeways.

While striped bikeways remain a useful tool to reduce traffic stress, they are insufficient to attract "interested but concerned" bicyclists in many environments because they do not provide sufficient separation from traffic and are often obstructed by motorized vehicles.

## TYPICAL APPLICATION

TRAFFIC LANES
**3 LANES OR FEWER**

POSTED SPEED LIMIT
**30 MPH OR SLOWER**

TRAFFIC
**9,000 VEHICLES PER DAY OR FEWER**

ON-STREET PARKING TURNOVER
**INFREQUENT**

BIKE LANE OBSTRUCTION
**LIKELY TO BE INFREQUENT**

**WHERE A SEPARATED BIKEWAY IS INFEASIBLE OR NOT DESIRABLE**


*Buffered Bike Lanes on East Capitol Street SE, Washington, DC*

# BUFFERED BIKE LANES


**Buffered Bike Lanes** are conventional bike lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane to increase the comfort of bicyclists.

**Benefits**

- Provides greater separation between motor vehicles and bicyclists.
- Provides space for one bicyclist to pass another without encroaching into the adjacent motor vehicle travel lane.
- Encourages bicyclists to ride outside of the door zone when the buffer is between parked cars and the bike lane.
- Provides a greater space for bicycling without making the bike lane appear so wide that it might be mistaken for a travel lane or a parking lane.
- Appeals to a wider cross-section of bicycle users.

**Typical Application**

- See section overview.

**Examples in Montgomery County**

- None

*Buffered Bike Lanes on East Capitol Street SE, Washington, DC*

# CONVENTIONAL BIKE LANES


**Conventional bike lanes** (or simply bike lanes) are portions of the street that have been designated by striping, signage and pavement markings for the preferential or exclusive use of bicyclists. They are typically 5 to 6 feet wide in Montgomery County.

**Climbing lanes** include a conventional bike lane in the uphill direction and a shared lane in the downhill direction. These lanes are used to improve safety on hills where there is a higher speed differential between bicyclists and motor vehicles.

**Benefits**

- Increases bicyclist comfort and confidence on busy streets.
- Creates separation between bicyclists and automobiles.
- Increases predictability of bicyclist and motorist positioning and interaction.
- Increases total capacities of streets carrying mixed bicycle and motor vehicle traffic.
- Visually reminds motorists of bicyclists' right to bicycle in the street.

**Typical Application**

- See section overview.

**Examples in Montgomery County**

- Dufief Mill Road
- Battery Lane
- Bonifant Road
- Fairland Road
- Marinelli Road

*Advisory Bike Lanes on Potomac Green Drive, Alexandria, Virginia*

# ADVISORY BIKE LANES


**Advisory Bike Lanes** are dashed bike lanes that allow motorists to temporarily enter the bike lane to provide oncoming traffic sufficient space to safely pass on narrow, unlaned roads in residential areas.

**Benefits**

- Require less space to implement than conventional bike lanes.
- Encourage motorists to safely pass bicyclists.
- Visually reminds motorists of bicyclists' right bicycle in the street.
- Removing the center line reduces the speed of motor vehicles.
- Are likely to reduce traffic speeds.

**Typical Application**

- Where there is insufficient space for conventional bike lanes and two lanes of traffic.
- Residential land uses.
- Number of travel lanes: un-laned, bi-directional streets.
- Street width: The un-laned two-way travel space should be 12 to 18 feet wide.
- Posted speed: 30 mph or less.
- Traffic: 2,000 to 4,000 vehicles per day.
- Parking: May be used on streets with or without on-street parking.

**Examples in Montgomery County**

- None

*Contra-Flow Bike Lane on Cedar Avenue*

# CONTRA-FLOW BIKE LANES

STRIPED BIKEWAYS | BUFFERED BIKE LANES | BIKE LANES | ADVISORY BIKE LANES | CONTRA FLOW BIKE LANES

**Contra-Flow bike lanes** are bike lanes designed to allow bicyclists to ride in the opposite direction of motor vehicle traffic. They convert a one-way traffic street into a two-way street: one direction for motor vehicles and bikes, and the other for bikes only.

**Benefits**

- Enable bicyclists to travel against traffic on one-way streets.

**Typical Application**

- See section overview.
- One-way streets.

**Examples in Montgomery County**

- Cedar Street

*Bikeable Shoulders On Clarksburg Road in Boyds.*

# BIKEABLE SHOULDERS


**Bikeable shoulders** are portions of the roadway that accommodate stopped or parked vehicles, emergency use, bicycles and motor scooters and pedestrians where sidewalks do not exist. Bikeable shoulders of at least four feet in width can improve comfort on some roadways for some bicyclists. They are most appropriate in rural locations in the county, often where posted speed limits are 40 mph and higher.

Bikeable shoulders do not create low-stress environment on roads where the posted speed limit exceeds 30 mph.

**Benefits**

- Provide separation from traffic.
- Intended primarily for recreational bicyclists.

**Typical Application**

- Primarily found in rural locations.
- Posted Speed Limit: ≥ 40 mph

**Examples in Montgomery County**

- River Road
- New Hampshire Avenue from MD 198 to MD 108
- Norwood Road from MD 182 to MD 650

# SHARED ROADS


Shared Roads are bikeways that share space with automobiles. They include **neighborhood greenways** in suburban areas, **shared streets** in urban areas and **priority shared lane markings** where there is insufficient space for a dedicated bikeway. Of course, all streets where bicycles share space with automobiles are de facto shared roads, but only some are master-planned.

*Bell Street, Seattle (Source: NACTO)*

# SHARED STREETS


**Shared streets** constitute an urban design approach where pedestrians, bicycles and motor vehicles can comfortably coexist. They prioritize pedestrian and bicycle movement by slowing vehicular speeds and communicating clearly through design features that motorists must yield to all other users. Motorists are considered "guests" in this environment.

**Benefits**

- Create conditions where pedestrians and bicyclists can walk or ride on the street and cross at any location, as opposed to at designated locations.

**Typical Application**

- Low traffic volume, low traffic speed and high pedestrian volume streets.

**Examples in Montgomery County**

- None.


*A neighborhood greenway on SE Lincoln Street in Portland, Oregon. Source: Toole Design Group*

# NEIGHBORHOOD GREENWAY


**Neighborhood greenways** (also called bicycle boulevards) are streets with low motorized traffic volumes and speeds, designed and designated to give walking and bicycling priority. They use signs, pavement markings and speed and volume management measures to discourage through trips by motor vehicles and create safe, convenient crossings of busy arterial streets.

Neighborhood greenways incorporate several design elements:

- Traffic diverters at key intersections to reduce through motor vehicle traffic while permitting passage for through bicyclists.
- At two-way, stop-controlled intersections, priority assignment that favors the neighborhood greenway, so bicyclists can ride with few interruptions.
- Neighborhood traffic circles and mini-roundabouts at minor intersections to slow traffic but allow bicyclists to maintain momentum.
- Traffic-calming to lower motor traffic speeds.

**Benefits**

- Attractive to a wide range of bicyclists.
- Reduce the speed and volume of traffic.
- Prioritize walking and bicycling at minor street crossings.
- Improve safety and reduce delay for walking and bicycling at major street crossings.

**Typical Application**

- Posted Speed Limit: ≤ 25 mph.
- Context: areas where through traffic can be diverted to parallel streets.
- Street pattern: where a continuous route for bicycling is possible.

**Examples in Montgomery County**

- None.

- Wayfinding signs to guide bicyclists along the route and to key destinations.
- Shared-lane markings (sharrows) where appropriate to alert drivers to the path bicyclists need to take on a shared roadway.
- Crossing improvements where the boulevard crosses major streets (including traffic signals, median refuges and curb extensions).


*Market Street, San Francisco (Source: Toole Design Group)*

# PRIORITY SHARED LANE MARKINGS


**Priority shared lane** markings communicate bicyclist priority within a shared lane and guide bicyclists to ride outside of the door zone. Colored backing and more frequent spacing make priority shared lane markings more conspicuous than standard shared lane markings (also known as sharrows). This treatment does not improve most bicyclists' comfort in shared lanes with traffic.

They can be installed in limited instances on roadways where it is not feasible to install bicycle lanes, separated bike lanes, or shared use paths, but it is desirable to communicate bicyclists priority within a shared lane.

**Benefits**

- Make bicyclists more conspicuous in locations where it is not possible to provide a low-stress bikeway.

**Typical Application**

- Narrow streets with high on-street parking turnover, typically those with ground floor retail and dining or on low-speed, low-volume frontage roads.
- Separated bike lane mixing zones where a protected intersection is not provided.

**Examples in Montgomery County**

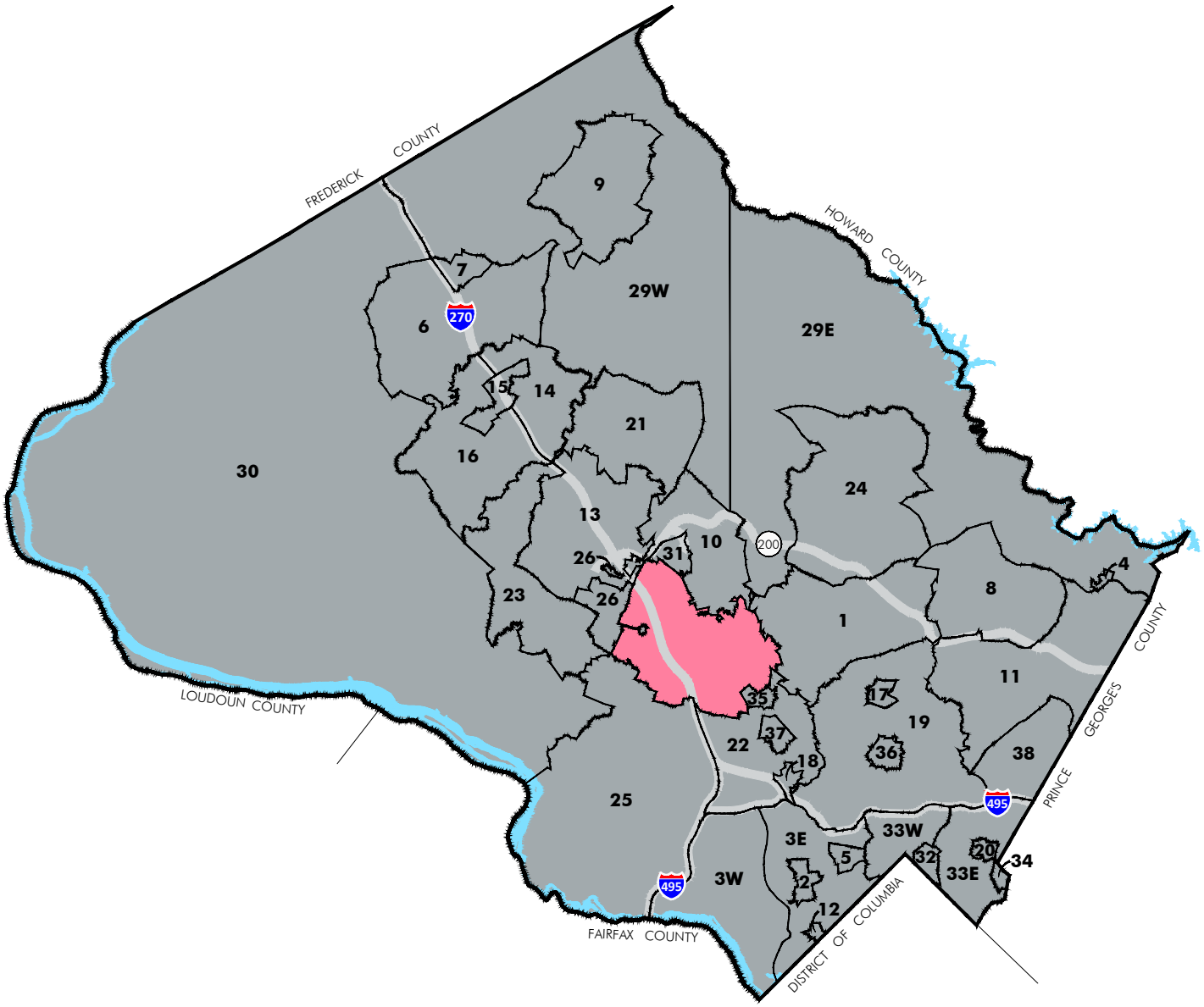
- None.

## GENERAL BIKEWAY APPLICATION

| ROADWAY CLASSIFICATIONS | NUMBER OF LANES | HIGHER ACTIVITY AREAS | LOWER ACTIVITY AREAS |
|---|---|---|---|
| Controlled Major Highway | 4+ | Two-Way Separated Bike Lanes (Both Sides of Street) | Sidepath (Both Sides of Street) |
| | | Great Seneca Hwy (South of Sam Eig Hwy) | Great Seneca Hwy (North of Longdraft Rd) |
| Major Highway* | 4+ | Two-Way Separated Bike Lanes (Both Sides of Street) | Separated Bikeway Sidepath (Both Sides of Street) |
| | | Rockville Pike (White Flint) | Veirs Mill Rd (north of Wheaton CBD) |
| Arterial* | 5 | Two-Way Separated Bike Lanes (Both Sides of Street) | Sidepath (Both Sides of Street) |
| | | Darnestown Rd (East of Shady Grove Rd) | Bel Pre Rd (East of Connecticut Ave) |
| | 2-4 | One-Way Separated Bike Lanes (Both Sides of Street) | Sidepath (One Side of Street) |
| | | Spring St (Silver Spring) | Wilson Ln (Bethesda) |
| Minor Arterial* | 2-3 | One-Way Separated Bike Lanes (Both Sides of Street) | Sidepath (One Side of Street) |
| | | Few examples at this time | Few examples at this time |
| Country Arterials | Any | N/A | Bikeable Shoulders |
| | | | Dickerson Rd |
| Business District Street | 2-3 | One-Way Separated Bike Lanes (Both Sides of Street) | One-Way Separated Bike Lanes (Both Sides of Street) |
| | | Norfolk Ave (Bethesda) | Westbard Ave (Westbard) |
| Primary Residential | 2 | N/A | Sidepath, Conventional Bike Lanes, Advisory Bike Lanes |
| | | | Artic Ave |
| Secondary Residential | Un-Laned | N/A | On-Road Bikeway |
| | | | Gelding Ln (Olney) |
| Tertiary Residential | Un-Laned | N/A | On-Road Bikeway |
| | | | Gelding Ln (Olney) |

*Where space is available and does not substantially detract from the default bikeway, bike lanes or bikeable shoulders can be added.

## Overall Policy Areas

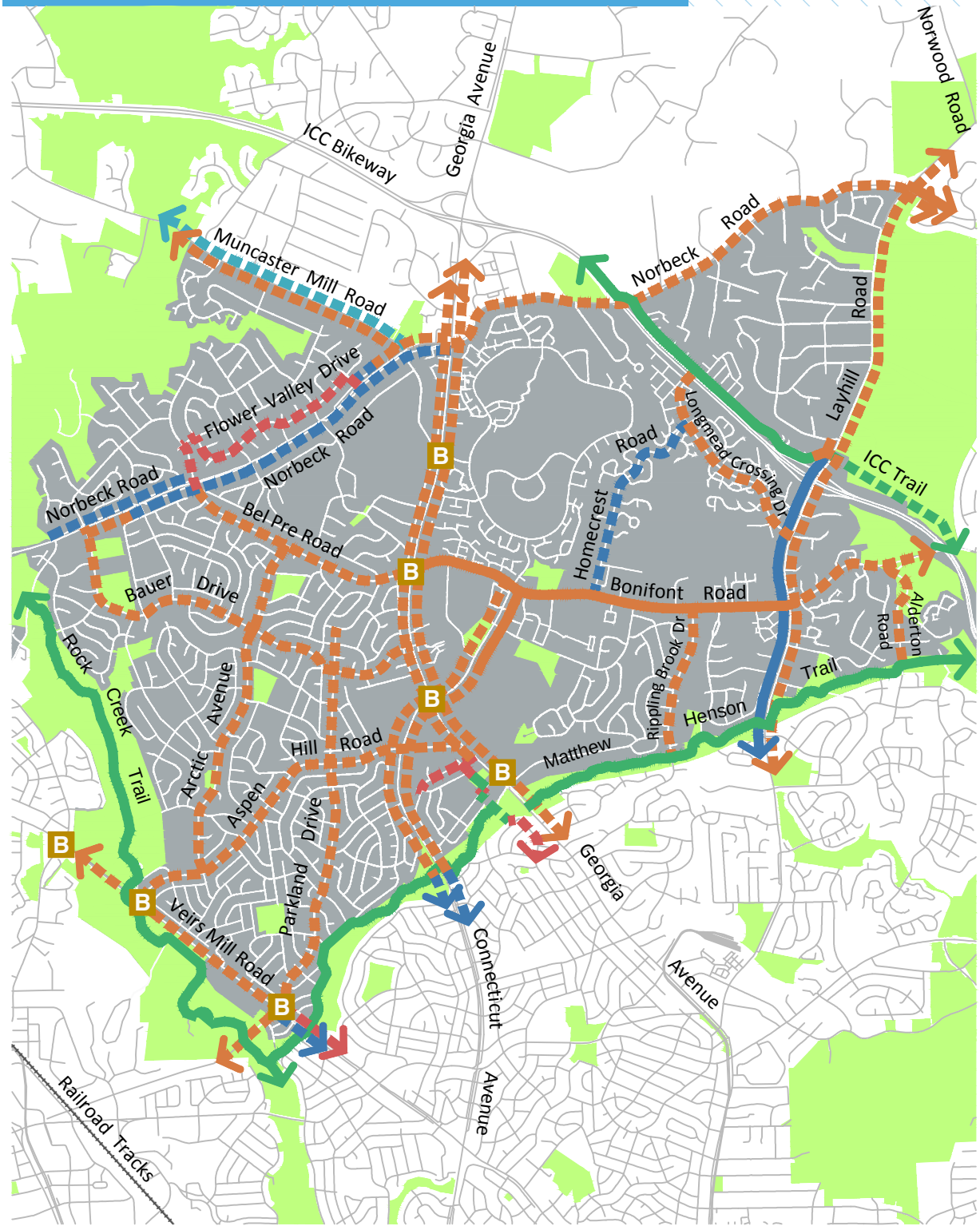



Montgomery County Boundary

City of Rockville

| | | | | | |
|---|---|---|---|---|---|
| **1** | Aspen Hill | **13** | Gaithersburg City | **26** | R&D Village |
| **2** | Bethesda CBD | **14** | Germantown East | **29E** | Rural East (East) |
| **3E** | Bethesda/Chevy Chase (East) | **15** | Germantown Town Center | **29W** | Rural East (West) |
| **3W** | Bethesda/Chevy Chase (West) | **16** | Germantown West | **30** | Rural West |
| **4** | Burtonsville Town Center | **17** | Glenmont | **31** | Shady Grove Metro Station |
| **5** | Chevy Chase Lake | **18** | Grosvenor | **32** | Silver Spring CBD |
| **6** | Clarksburg | **19** | Kensington/Wheaton | **33E** | Silver Spring/Takoma Park (East) |
| **7** | Clarksburg Town Center | **20** | Long Branch | **33W** | Silver Spring/Takoma Park (West) |
| **8** | Cloverly | **21** | Montgomery Village/Airpark | **34** | Takoma/Langley |
| **9** | Damascus | **22** | North Bethesda | **35** | Twinbrook |
| **10** | Derwood | **23** | North Potomac | **36** | Wheaton CBD |
| **11** | Fairland/Colesville | **24** | Olney | **37** | White Flint |
| **12** | Friendship Heights | **25** | Potomac | **38** | White Oak |

# ASPEN HILL




Policy Area

Parkland

B Bus Rapid Transit Station (Proposed)

| Existing | Proposed | |
|---|---|---|
| | | Trails |
| | | Separated Bikeways |
| | | Striped Bikeways |
| | | Bikeable Shoulders |
| | | Shared Roads |

Note: White lines represent non-master planned bikeways

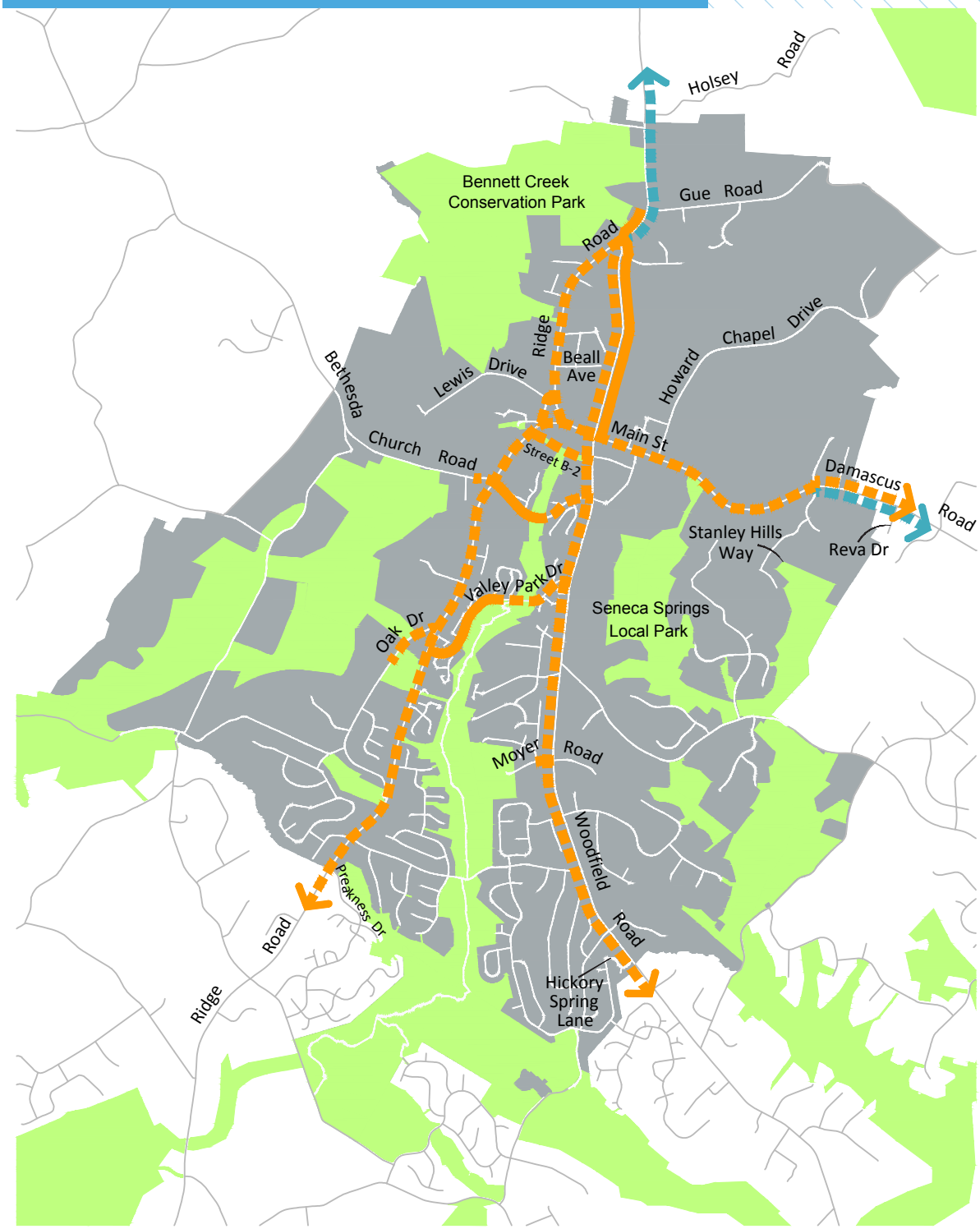
| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Alderton Rd | Bonifant Rd | Matthew Henson Trail | Separated Bikeway | Sidepath (East Side) |
| Arctic Ave | Bel Pre Rd | Aspen Hill Rd | Separated Bikeway | Sidepath (side TBD) |
| Aspen Hill Rd | Veirs Mill Rd | Connecticut Ave | Separated Bikeway | Sidepath (North Side) |
| | Connecticut Ave | Georgia Ave | Separated Bikeway | Separated Bike Lanes (Two-Way, North Side) |
| Bauer Dr | Norbeck Rd | Marianna Dr | Separated Bikeway | Sidepath (side TBD) |
| Bel Pre Rd | Norbeck Rd | Layhill Rd | Separated Bikeway | Sidepath (South Side) |
| Bonifant Rd | Layhill Rd | ICC Trail | Separated Bikeway | Sidepath (South Side) |
| | ICC Trail | Pebblestone Dr | Separated Bikeway | Sidepath (South Side) |
| Connecticut Ave | Bel Pre Rd | Grand Pre Rd | Separated Bikeway | Sidepath (East Side) |
| | Grand Pre Rd | Georgia Ave | Separated Bikeway | Sidepath (East Side) and Separated Bike Lanes (West Side) |
| | Georgia Ave | Aspen Hill Rd | Separated Bikeway | Separated Bike Lanes (Two-Way, Both Sides) |
| | Aspen Hill Rd | Independence St | Separated Bikeway | Sidepath (West Side) and Separated Bike Lanes (East Side) |
| | Independence St | Matthew Henson Trail | Separated Bikeway | Sidepath (Both Sides) |
| | Matthew Henson Trail | Littleton St | Separated Bikeway | Sidepath (Both Sides) |
| Georgia Ave | Norbeck Rd | Bel Pre Rd | Separated Bikeway | Sidepath (East Side) |
| | Bel Pre Rd | Wendy Ln | Separated Bikeway | Sidepath (Both Sides) |
| | Wendy Ln | Weller Rd | Separated Bikeway | Sidepath (East Side) |
| Georgia Ave Access Road | Norbeck Rd | Bel Pre Rd | Separated Bikeway | Sidepath (West Side) |

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Harmony Hills NP Trail | Loyola St | Loyola St | Trail | Off-Street Trail |
| Heathfield Rd | Parkland Dr | Georgia Ave | Separated Bikeway | Sidepath (side TBD) |
| Homecrest Rd | Longmead Crossing Dr | Bel Pre Rd | Striped Bikeway | Conventional Bike Lanes |
| ICC Trail | Norbeck Rd | Park Vista Ct | Trail | Off-Street Trail |
| ICC Trail | Layhill Rd | Bonifant Rd | Trail | Off-Street Trail |
| Layhill Rd | Norbeck Rd | Baughman Dr | Separated Bikeway | Sidepath (East Side) |
| | Baughman Dr | Park Vista Dr | Separated Bikeway | Sidepath (Both Sides) |
| | Park Vista Dr | Briggs Rd | Separated Bikeway and Striped Bikeway | Sidepath (East Side) and Conventional Bike Lanes |
| Longmead Crossing Dr | ICC Trail | Layhill Rd | Separated Bikeway | Sidepath (North Side) |
| Loyola St | Wendy La | Harmony Hill Neighborhood Park | Shared Road | Neighborhood Greenway |
| Loyola St | Harmony Hill Neighborhood Park | Ralph Rd | Shared Road | Neighborhood Greenway |
| Marianna Dr | Bauer Dr | Parkland Dr | Separated Bikeway | Sidepath (side TBD) |
| Matthew Henson Trail | Rock Creek Trail | Alderton Rd | Trail | Stream Valley Park Trail |
| Matthew Henson Trail connector | Rippling Brook Dr | Matthew Henson Trail | Trail | Off-Street Trail |
| Montrose Pkwy | Rock Creek Trail | Veirs Mill Rd | Separated Bikeway | Sidepath (North Side) |
| Muncaster Mill Rd | North Branch Rock Creek | Norbeck Rd | Separated Bikeway and Bikeable Shoulders | Sidepath (West Side) and Bikeable Shoulders |

| BIKEWAY | | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|---|
| Norbeck Rd (North Side) | Norbeck Rd Access Road | Rock Creek Regional Park | Emory Ln | Shared Road | Contra-Flow Bike Lane |
| | Emory La | Norbeck Rd | Sunflower Dr | Shared Road | Neighborhood Greenway |
| | Sunflower Dr | Emory La | Red Clover Dr | Shared Road | Neighborhood Greenway |
| | Red Clover Dr | Sunflower Dr | Flower Valley Dr | Shared Road | Neighborhood Greenway |
| | Flower Valley Dr | Red Clover Dr | Hannans Way | Shared Road | Neighborhood Greenway |
| | Hannans Way | Flower Valley Dr | Norbeck Rd | Shared Road | Neighborhood Greenway |
| | Norbeck Rd Access Road | Hannans Way | End of Access Rd | Shared Road | Contra-Flow Bike Lane |
| | Norbeck Rd | Norbeck Rd Access Road | Layhill Rd | Separated Bikeway | Sidepath (North Side) |
| Norbeck Rd (South Side) | Norbeck Rd | Bauer Dr | Norbeck Rd Access Road | Separated Bikeway | Sidepath (South Side) |
| | Norbeck Rd Service Road | 400' West Of Nadine Dr | Georgia Ave | Shared Road | Contra-Flow Bike Lane |
| Palmira La | | Aspen Hill Shopping Center | Wendy La | Shared Road | Neighborhood Greenway |
| Park Vista Dr | | ICC Trail | Layhill Rd | Separated Bikeway | Sidepath (North Side) |

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Parkland Dr | Chesterfield Rd | Marianna Dr | Separated Bikeway | Sidepath (side TBD) |
| | Marianna Dr | Veirs Mill Rd | Separated Bikeway | Sidepath (side TBD) |
| Ralph Rd | Kilburn Ln | Loyola St | Shared Road | Neighborhood Greenway |
| Rippling Brook Dr | Bel Pre Rd | Matthew Henson Trail | Separated Bikeway | Sidepath (East Side) |
| Rock Creek Trail | Avery Rd | Veirs Mill Rd Trail Connector | Trail | Stream Valley Park Trail |
| Trail | Kilburn La | Matthew Henson Trail | Trail | Off-Street Trail |
| Veirs Mill Rd Access Road | Montrose Pkwy / Gaynor Rd | Matthew Henson Trail | Striped Bikeway | Contra-Flow Bike Lane |
| Veirs Mill Rd | Twinbrook Pkwy | Parkland Dr | Separated Bikeway | Sidepath (North Side) |
| Wendy La | Palmira La | Loyola St | Shared Road | Neighborhood Greenway |
| | Loyola St | Georgia Ave | Shared Road | Neighborhood Greenway |

# DAMASCUS

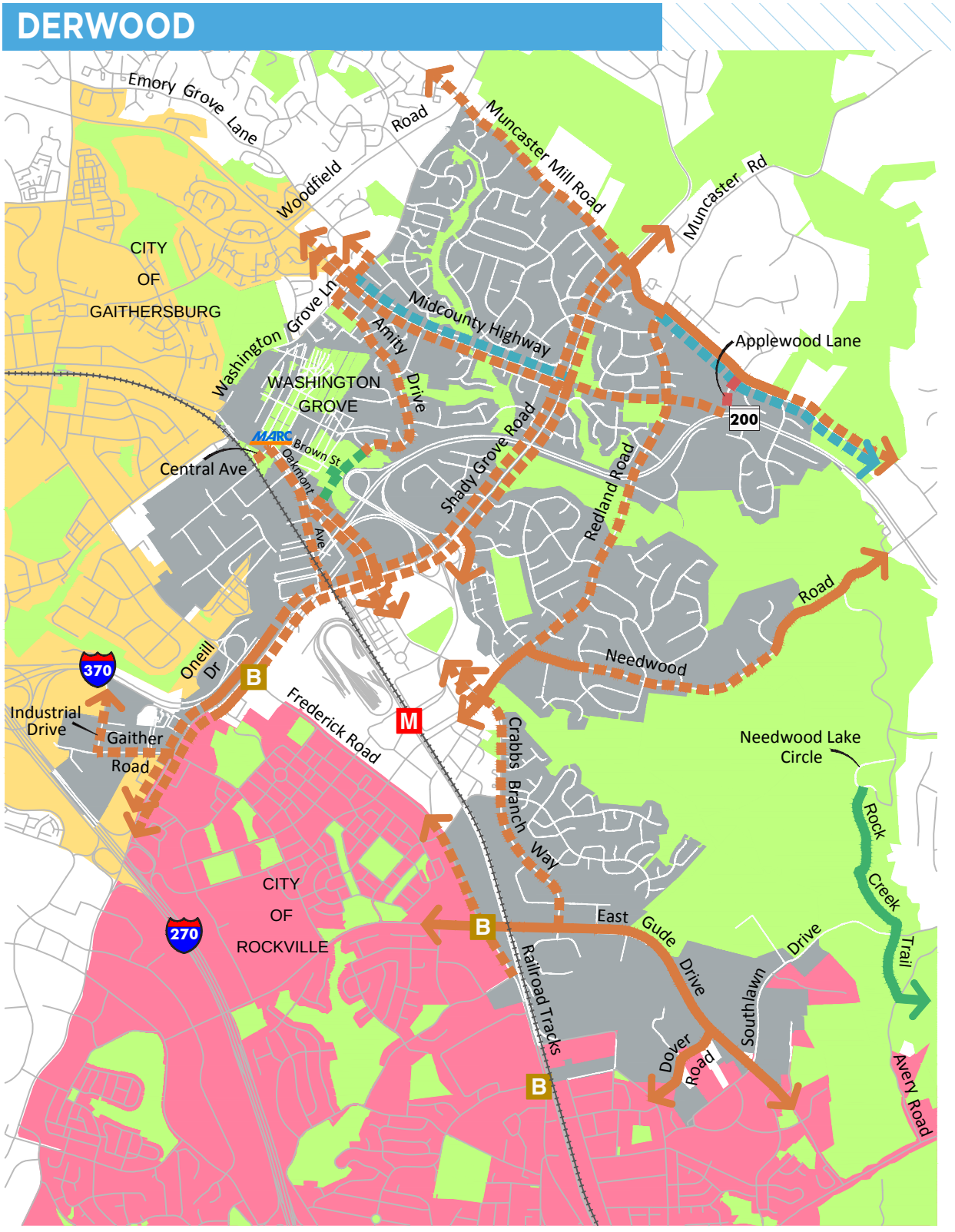



Note: White lines represent non-master planned bikeways

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Bethesda Church Rd | Damascus Elementary School | Ridge Rd | Separated Bikeway | Sidepath (North Side) |
| | Ridge Rd | Woodfield Rd | Separated Bikeway | Sidepath (South Side) |
| Damascus Rd | Howard Chapel Dr | Stanley Hills Way | Separated Bikeway | Sidepath (South Side) |
| | Stanley Hills Way | Reva Dr | Separated Bikeway and Bikeable Shoulders | Sidepath (South Side) and Bikeable Shoulders |
| High Corner St | Ridge Rd | Lewis Dr | Separated Bikeway | Separated Bike Lanes (Two-Way, North Side) |
| Lewis Dr | High Corner St | Main St | Separated Bikeway | Separated Bike Lanes (Two-Way, West Side) |
| Main St | Lewis Dr | Woodfield Rd | Separated Bikeway | Separated Bike Lanes (Two-Way, South Side) |
| | Woodfield Rd | Howard Chapel Dr | Separated Bikeway | Sidepath (South Side) |
| Moyer Rd | Clearspring Elementary School | Woodfield Rd | Separated Bikeway | Sidepath or Separated Bike Lanes (south side) |
| Oak Dr | Ridge Rd | John T Baker Middle School | Separated Bikeway | Sidepath (West Side) |
| Ridge Rd | Holsey Rd | Gue Rd | Bikeable Shoulders | Bikeable Shoulders |
| | Gue Rd | Woodfield Rd | Separated Bikeway and Bikeable Shoulders | Sidepath (East Side) and Bikeable Shoulders |
| | Woodfield Rd | Main St | Separated Bikeway | Sidepath (East Side) |
| | Beall Ave | Main St | Separated Bikeway | Separated Bike Lanes (East Side) |

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Ridge Rd | Main St | Bethesda Church Rd | Separated Bikeway | Separated Bike Lanes (Two-Way, East Side) |
| | Bethesda Church Rd | Oak Dr | Separated Bikeway | Sidepath (East Side) |
| | Oak Dr | Preakness Dr | Separated Bikeway | Sidepath (West Side) |
| Street B-2 | Ridge Rd | Woodfield Rd | Separated Bikeway | Sidepath (South Side) |
| Valley Park Dr | Ridge Rd | Woodfield Rd | Separated Bikeway | Sidepath (North Side) |
| Woodfield Rd | Ridge Rd | Beall Ave | Separated Bikeway | Sidepath (Both Sides) |
| | Beall Ave | Main St | Separated Bikeway | Sidepath (East Side) and Separated Bike Lanes (West Side) |
| | Main St | Hickory Spring La | Separated Bikeway | Sidepath (West Side) |

# DERWOOD




Policy Area
Parkland
City of Gaithersburg
City of Rockville
M Metro Rail Station
B Bus Rapid Transit Station (Proposed)
MARC MARC Station

| Existing | Proposed | |
|---|---|---|
| | | Trails |
| | | Separated Bikeways |
| | | Bikeable Shoulders |
| | | Shared Roads |

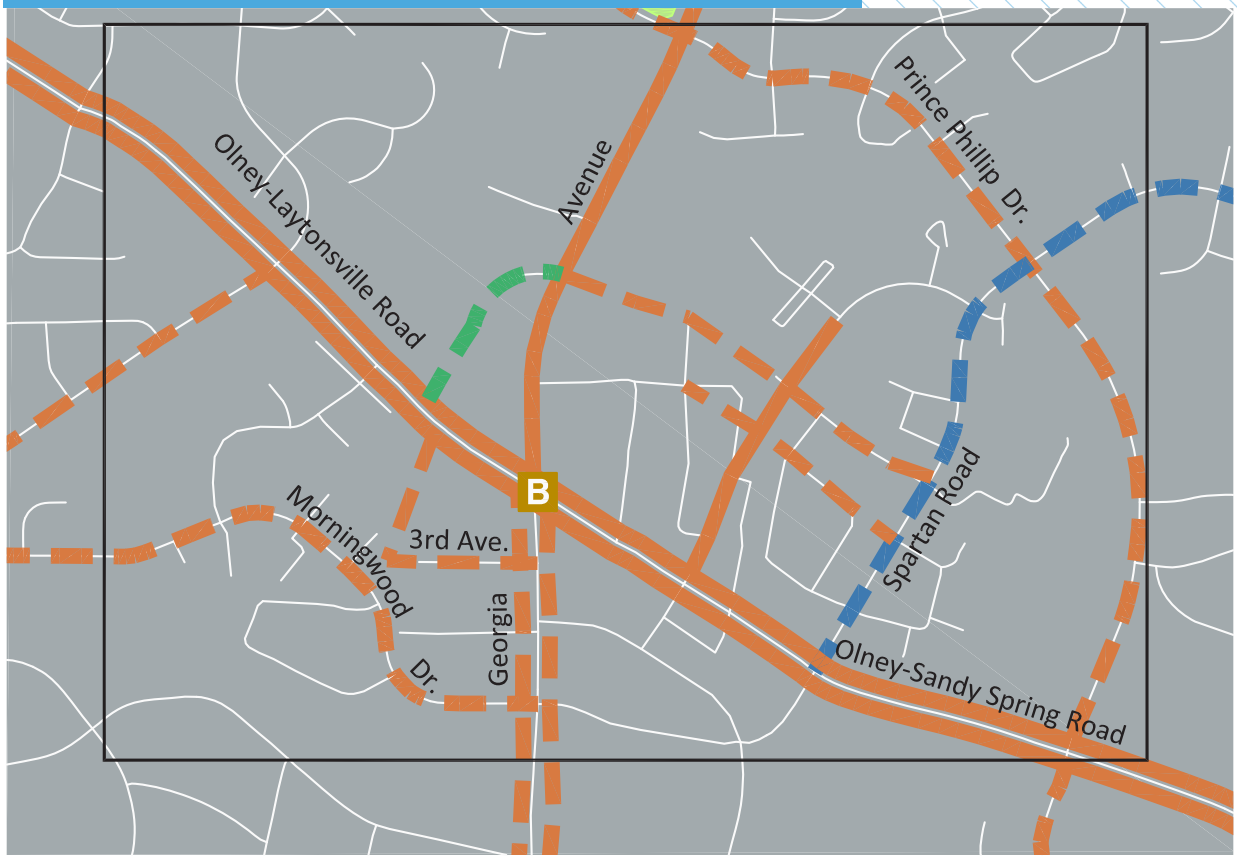
| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Amity Dr | Washington Grove Ln | Piedmont Crossing LP Trail | Separated Bikeway | Sidepath (North Side) |
| Crabbs Branch Way | Redland Rd | East Gude Dr | Separated Bikeway | Sidepath (West Side) |
| Crabbs Branch Way | Northern Terminus | Shady Grove Rd | Separated Bikeway | Sidepath (Both Sides) |
| East Gude Dr | Frederick Ave | Southlawn La | Separated Bikeway | Sidepath (West Side) |
| Frederick Rd | O'Neill Dr | Shady Grove Rd | Separated Bikeway | Sidepath (Both Sides) |
| Frederick Rd | Paramount Dr | College Pkwy | Separated Bikeway | Sidepath (East Side) |
| Gaither Rd | Industrial Dr | Shady Grove Rd | Separated Bikeway | Sidepath (side TBD) |
| Industrial Dr | City of Gaithersburg | Gaither Rd | Separated Bikeway | Sidepath (side TBD) |
| Midcounty Hwy | Washington Grove Ln | Shady Grove Rd | Separated Bikeway and Bikeable Shoulders | Sidepath (side TBD) and Bikeable Shoulders |
| | Shady Grove Rd | InterCounty Con-nector | Separated Bikeway | Sidepath (side TBD) |
| Muncaster Mill Rd | Woodfield Rd | Muncaster Rd | Separated Bikeway | Sidepath (West Side) |
| | Muncaster Rd | North Branch Rock Creek | Separated Bikeway and Bikeable Shoulders | Sidepath (West Side) and Bikeable Shoulders |
| Needwood Rd | Redland Rd | Beach Dr | Separated Bikeway | Sidepath (South Side) |
| Oakmont Ave | Central Ave | Shady Grove Rd | Separated Bikeway | Sidepath (East Side) |
| Piedmont Crossing LP Trail | Amity Dr | Crabbs Branch Way | Trail | Off-Street Trail |
| Piedmont Crossing LP Trail | Brown St | Crabbs Branch Way | Trail | Off-Street Trail |
| Redland Rd | Muncaster Mill Rd | Crabbs Branch Way | Separated Bikeway | Sidepath (North Side) |
| Rock Creek Trail | Needwood Lake Cir | Avery Rd | Trail | Stream Valley Park Trail |

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Shady Grove Rd | City of Rockville | Muncaster Mill Rd | Separated Bikeway | Sidepath (Both Sides) |
| Washington Grove La | Emory Grove Rd | Amity Dr | Separated Bikeway | Sidepath (West Side) |

# OLNEY


Note: White lines represent non-master planned bikeways

# OLNEY INSERT

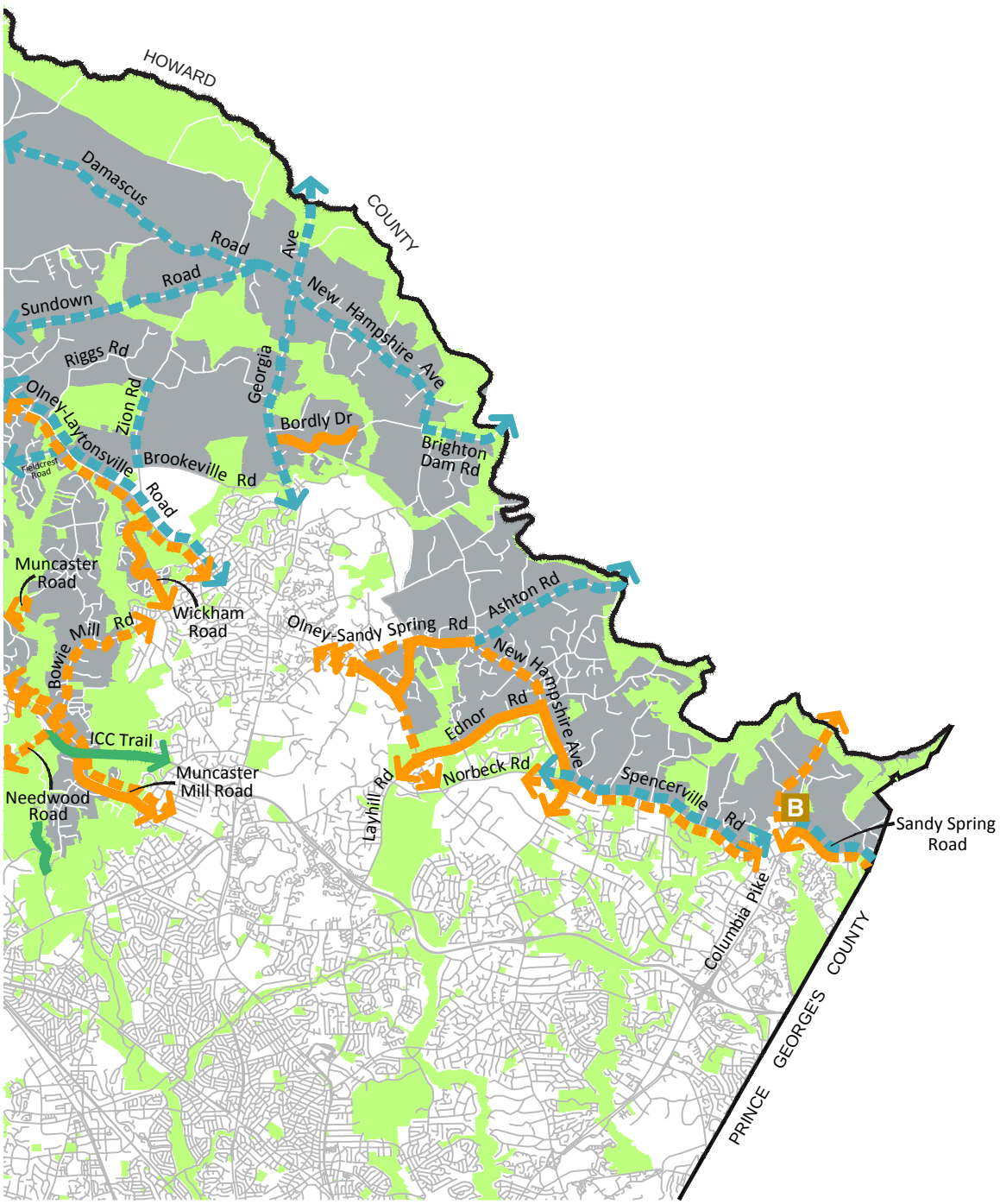


| STREET | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| 3rd Ave | Olney #1 | Georgia Ave | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| Appomattox Ave | Hillcrest Ave | Spartan Rd | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| Batchellors Forest Rd | Olney #5 | Farquhar Middle School | Separated Bikeway | Sidepath (side TBD) |
| Bowie Mill Rd | North Branch Rock Creek | Olney-Laytonsville Rd | Separated Bikeway | Sidepath (South Side) |
| Brooke Rd | Meadowsweet Dr | Olney Sandy Spring Rd | Separated Bikeway | Sidepath (East Side) |
| Brookeville Bypass | Brookeville Rd | Gold Mine Rd | Bikeable Shoulders | Bikeable Shoulders |
| Buehler Rd | Spartan Rd | Trail | Striped Bikeway | Conventional Bike Lanes |
| Cashell Rd | Bowie Mill Rd | Emory La | Separated Bikeway | Sidepath (East Side) |
| Cherry Valley Dr | Wellfleet Dr | Cashell Rd | Separated Bikeway | Sidepath (North Side) |
| Dr. Bird Rd | Olney-Sandy Spring Rd | Norwood Rd | Separated Bikeway | Sidepath (East Side) |
| Emory Church Rd | Olney #4 | Olney #5 | Separated Bikeway | Sidepath (South Side) |
| Emory La | Georgia Ave | Muncaster Mill Rd | Separated Bikeway | Sidepath (East Side) |
| Georgia Ave | Brookeville Rd | Olney-Laytonsville Rd | Separated Bikeway | Sidepath (East Side) |
| | Olney-Laytonsville Rd | Queen Mary Dr | Separated Bikeway | Sidepath (West Side) and Separated Bike Lanes (East Side) |
| | Queen Mary Dr | Bel Pre Rd | Separated Bikeway | Sidepath on Both Sides of Street |
| | Silo Inn Dr | Parking Lot entrance | Separated Bikeway | Sidepath |
| Gold Mine Rd | Olney Mill Rd | Chandlee Mill Rd | Separated Bikeway | Sidepath (South Side) |

| STREET | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Headwaters Dr | Olney-Laytonsville Rd | Morningwood Dr | Separated Bikeway | Sidepath (South Side) |
| Hillcrest Rd | Georgia Ave | Appomattox Ave | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| Hines Rd | Cashell Rd | Georgia Ave | Separated Bikeway | Separated Bike Lanes (Side TBD) |
| ICC Trail | North Branch Rock Creek | Norbeck Rd | Trail | Off-Street Trail |
| Layhill Rd | Norwood Rd | Norbeck Rd | Separated Bikeway | Sidepath (East Side) |
| Morningwood Dr | Cashell Rd | Georgia Ave | Separated Bikeway | Sidepath (side TBD) |
| Muncaster Mill Rd | North Branch Rock Creek | Norbeck Rd | Separated Bikeway and Bikeable Shoulders | Sidepath (West Side) and Bikeable Shoulders |
| Norbeck Rd | Muncaster Mill Rd | Layhill Rd | Separated Bikeway | Sidepath (North Side) |
| Norwood Rd | Dr. Bird Rd | Ednor Rd | Separated Bikeway | Sidepath (East Side) |
| Old Baltimore Rd | Gold Mine Rd | Georgia Ave | Separated Bikeway | Sidepath (West Side) |
| Old Vic Blvd | Olney-Sandy Spring Rd | Batchellors Forest Rd | Separated Bikeway | Sidepath (West Side) |
| Olney #1 | Olney-Laytonsville Rd | Morningwood Dr | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| Olney #2 | Appomattox Ave | Spartan Rd | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| Olney #3 | Hillcrest Ave | Spartan Rd | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| Olney #4 | Park Road | Emory Church Rd | Trail | Off-Street Trail |
| Olney #5 | Emory Church Rd | Batchellors Forest Rd | Trail | Off-Street Trail |
| Olney #6 | Olney-Laytonsville Rd | Georgia Ave | Trail | Off-Street Trail |

| STREET | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Olney Mill Rd | Olney-Laytonsville Rd | Gold Mine Rd | Separated Bikeway | Sidepath (West Side) |
| Olney-Laytonsville Rd (North Side) | Brookeville Rd | Olney Mill Rd | Separated Bikeway and Bikeable Shoulders | Sidepath and Bikeable Shoulders |
| | Olney Mill Rd | Queen Elizabeth Dr | Shared Road | Neighborhood Greenway |
| | Queen Elizabeth Dr | Georgia Ave | Separated Bikeway | Sidepath |
| Olney-Laytonsville Rd (South Side) | Olney Mill Rd | Georgia Ave | Separated Bikeway | Sidepath |
| Olney-Sandy Spring Rd | Georgia Ave | Dr. Bird Rd | Separated Bikeway | Sidepath on Both Sides of Street |
| | Dr. Bird Rd | Brooke Rd | Separated Bikeway | Sidepath (North Side) |
| Prince Phillip Dr | Georgia Ave | Olney-Sandy Spring Rd | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| | Olney-Sandy Spring Rd | Georgia Ave | Separated Bikeway | Sidepath (East Side) |
| Queen Elizabeth Dr | Olney-Laytonsville Rd | Georgia Ave | Separated Bikeway | Sidepath (North Side) |
| Queen Mary Dr | Olney Elementary School | Georgia Ave | Separated Bikeway | Sidepath (North Side) |
| Spartan Rd | Georgia Ave | Olney-Sandy Spring Rd | Separated Bikeway | Separated Bike Lanes (One-Way on Both Sides of Street) |
| | Olney-Sandy Spring Rd | Old Baltimore Rd | Striped Bikeway | Buffered Bike Lanes |
| Utility Corridor | Bowie Mill Rd | Morningwood Dr | Trail | Off-Street Trail |
| Utility Corridor | Olney-Laytonsville Rd | Queen Elizabeth Dr | Trail | Off-Street Trail |
| Wellfleet Dr | Hines Rd | Cherry Valley Dr | Separated Bikeway | Sidepath (West Side) |
| Wickham Rd | Stream | Bowie Mill Rd | Separated Bikeway | Sidepath (West Side) |

# RURAL EAST (EAST)




Policy Area
Parkland
County Line
B Bus Rapid Transit Station (Proposed)

| | Existing | Proposed |
|---|---|---|
| Trails | | |
| Separated Bikeways | | |
| Bikeable Shoulders | | |

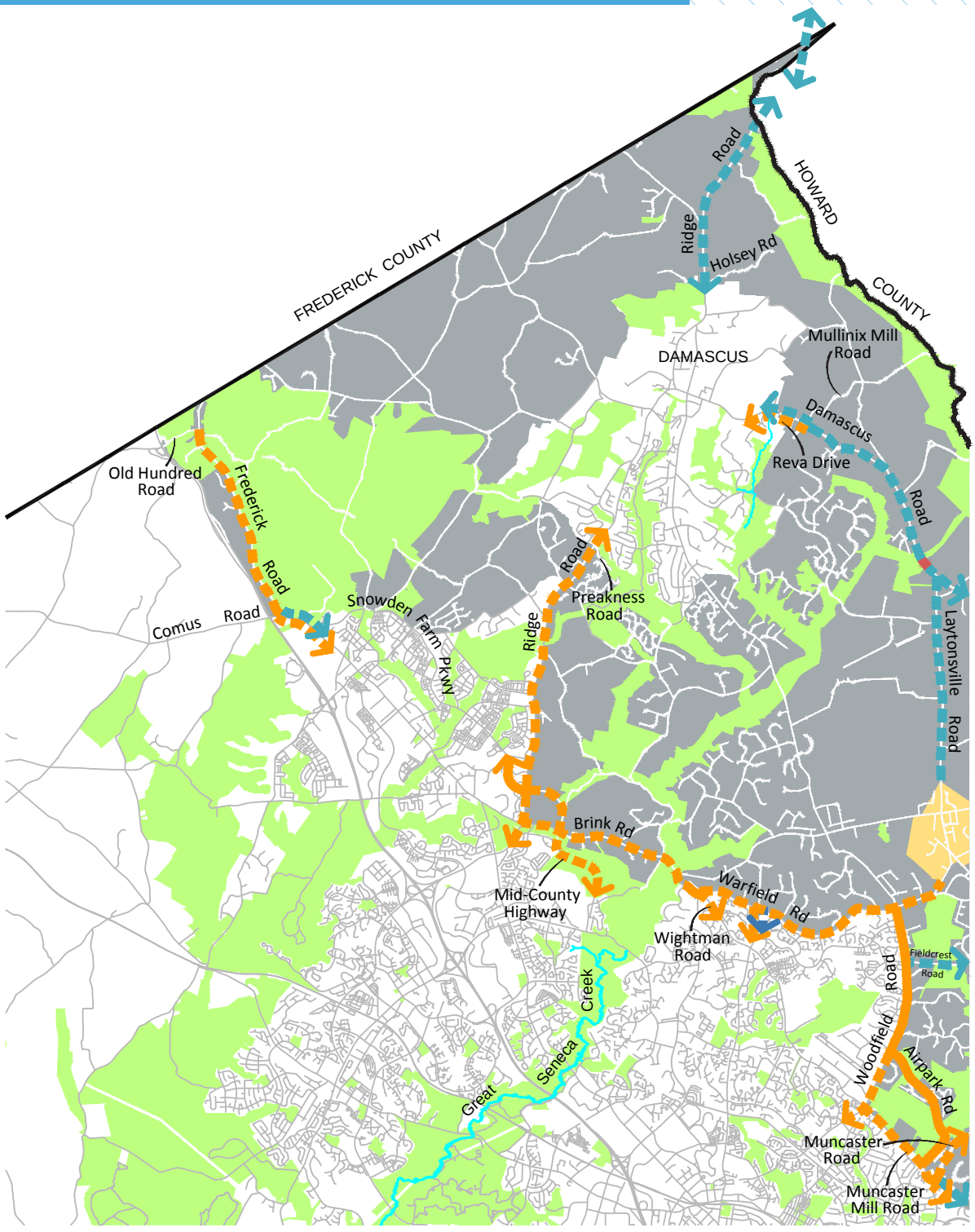
Note: White lines represent non-master planned bikeways

0 12,000'

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Ashton Rd | New Hampshire Ave | Howard County | Bikeable Shoulders | Bikeable Shoulders |
| Bordly Dr | Georgia Ave | Brighton Dam Rd | Separated Bikeway | Sidepath (South Side) |
| Bowie Mill Rd | Muncaster Mill Rd | North Branch Rock Creek | Separated Bikeway | Sidepath (South Side) |
| Brighton Dam Rd | New Hampshire Ave | Howard Co | Bikeable Shoulders | Bikeable Shoulders |
| Brooke Rd | Meadowsweet Dr | Station Dr | Separated Bikeway | Sidepath (East Side) |
| Brookeville Bypass | Georgia Ave | Brookeville Rd | Bikeable Shoulders | Bikeable Shoulders |
| Columbia Pike | Howard County | Old Columbia Pike | Separated Bikeway | Sidepath (West Side) |
| Damascus Rd | Laytonsville Rd | Georgia Ave | Bikeable Shoulders | Bikeable Shoulders |
| Dr. Bird Rd | Olney-Sandy Spring Rd | Norwood Rd | Separated Bikeway | Sidepath (East Side) |
| Ednor Rd | New Hampshire Ave | Norwood Rd | Separated Bikeway | Sidepath (East Side) |
| Fieldcrest Rd | Belle Chase Dr | Olney-Laytonsville Rd | Bikeable Shoulders | Bikeable Shoulders |
| Georgia Ave | Howard County | Brookeville Bypass | Bikeable Shoulders | Bikeable Shoulders |
| ICC Trail | Needwood Rd | Rock Creek | Trail | Off-Street Trail |
| Muncaster Mill Rd | Muncaster Rd | North Branch Rock Creek | Separated Bikeway and Bikeable Shoulders | Sidepath (West Side) and Bikeable Shoulders |
| Muncaster Rd | Rock Creek Park Rd | Muncaster Mill Rd | Separated Bikeway | Sidepath (North Side) |
| Needwood Rd | Beach Dr | Muncaster Mill Rd | Separated Bikeway | Sidepath (South Side) |
| New Hampshire Ave | Georgia Ave | Brighton Dam Rd | Bikeable Shoulders | Bikeable Shoulders |
| New Hampshire Ave | Olney-Sandy Spring Rd | Ednor Rd | Separated Bikeway | Sidepath (West Side) |
| | Ednor Rd | Norbeck Rd | Separated Bikeway | Sidepath (West Side) |

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Norwood Rd | Olney-Sandy Spring Rd | Dr. Bird Rd | Separated Bikeway | Sidepath (West Side) |
| | Dr. Bird Rd | Ednor Rd | Separated Bikeway | Sidepath (East Side) |
| Old Columbia Pike | Columbia Pike | Dustin Rd | Separated Bikeway | Sidepath (West Side) |
| | Dustin Rd | Utility Corridor | Separated Bikeway | Sidepath (East Side) |
| Olney-Laytonsville Rd | Laytonsville | Olney Mill Rd | Separated Bikeway and Bikeable Shoulders | Sidepath (North Side) and Bikeable Shoulders |
| Olney-Sandy Spring Rd | Dr. Bird Rd | New Hampshire Ave | Separated Bikeway | Sidepath (North Side) |
| Sandy Spring Rd | Columbia Pike | Prince George's County | Separated Bikeway and Bikeable Shoulders | Sidepath (South Side) and Bikeable Shoulder |
| Spencerville Rd | New Hampshire Ave | School Access Rd | Separated Bikeway and Bikeable Shoulder | Sidepath (South Side) and Bikeable Shoulder |
| Sundown Rd | Laytonsville | Damascus Rd | Bikeable Shoulders | Bikeable Shoulders |
| Wickham Rd | Olney-Laytonsville Rd | Stream | Separated Bikeway | Sidepath (West Side) |
| Zion Rd | Riggs Rd | Brookeville Rd | Bikeable Shoulders | Bikeable Shoulders |

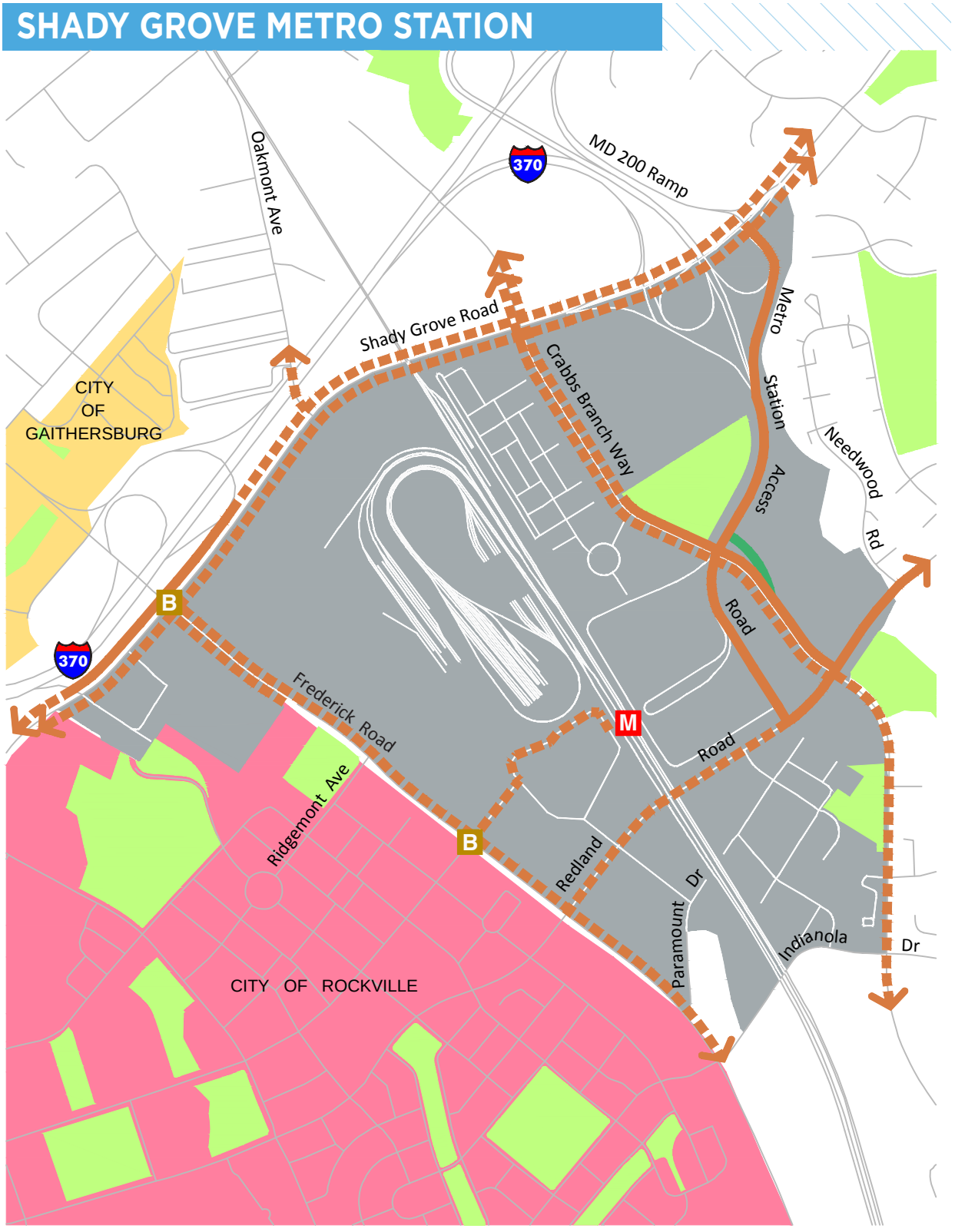
# RURAL EAST (WEST)




Note: White lines represent non-master planned bikeways

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Airpark Rd | Woodfield Rd | Muncaster Mill Rd | Separated Bikeway | Sidepath (East Side) |
| Brink Rd | Ridge Rd | Wightman Rd | Separated Bikeway | Sidepath (South Side) |
| Damascus Rd | Stanley Hills Way | Mullinix Mill Rd | Separated Bikeway and Bikeable Shoulders | Sidepath (South Side) and Bikeable Shoulders |
| Damascus Rd | Mullinix Mill Rd | Laytonsville Rd | Bikeable Shoulders | Bikeable Shoulders |
| Fieldcrest Rd | Woodfield Rd | Belle Chase Dr | Bikeable Shoulders | Bikeable Shoulders |
| Frederick Rd | Old Hundred Rd | Comus Rd | Separated Bikeway | Sidepath (West Side) |
| | Comus Rd | Snowden Farm Pkwy | Separated Bikeway and Bikeable Shoulders | Sidepath (West Side) and Bikeable Shoulders |
| Laytonsville Rd | Damascus Rd | Laytonsville | Bikeable Shoulders | Bikeable Shoulders |
| Midcounty Hwy | Ridge Rd | Brink Rd | Separated Bikeway | Sidepath (South Side) |
| | Brink Rd | Great Seneca Creek | Separated Bikeway | Sidepath (side TBD) |
| Muncaster Mill Rd | Woodfield Rd | Muncaster Rd | Separated Bikeway | Sidepath (West Side) |
| Ridge Rd | Howard County | Howard County | Bikeable Shoulders | Bikeable Shoulders |
| Ridge Rd | Howard County | Holsey Rd | Bikeable Shoulders | Bikeable Shoulders |
| Ridge Rd | Preakness Dr | Brink Rd | Separated Bikeway | Sidepath (West Side) |
| Warfield Rd | Wightman Rd | Woodfield Rd | Separated Bikeway | Sidepath (South Side) |
| | Woodfield Rd | Laytonsville | Separated Bikeway | Sidepath (North Side) |
| Woodfield Rd | Warfield Rd | MidCounty Hwy | Separated Bikeway | Sidepath (West Side) |

# SHADY GROVE METRO STATION




Policy Area
Parkland
City of Gaithersburg
City of Rockville
M Metro Rail Station
B Bus Rapid Transit Station (Proposed)

Existing Proposed
Trails
Separated Bikeways

Note: White lines represent non-master planned bikeways

| BIKEWAY | FROM | TO | FACILITY TYPE | BIKEWAY TYPE |
|---|---|---|---|---|
| Crabbs Branch Way | Shady Grove Rd | Redland Rd | Separated Bikeway | Sidepath (Both Sides) |
| | Redland Rd | Indianola Dr | Separated Bikeway | Sidepath (West Side) |
| Frederick Rd | Shady Grove Rd | City of Rockville | Separated Bikeway | Sidepath (Both Sides) |
| | City of Rockville | Ridgemont Ave | Separated Bikeway | Sidepath (East Side) |
| | Ridgemont Ave | Paramount Dr | Separated Bikeway | Separated Bike Lanes (Two-Way, East Side) |
| Redland Rd | Needwood Rd | Frederick Rd | Separated Bikeway | Sidepath (North Side) |
| Shady Grove Access Rd | Shady Grove Rd | Redland Rd | Separated Bikeway | Sidepath (East Side) |
| Shady Grove Metro Parking Lot | Shady Grove Metro Station | Frederick Rd | Separated Bikeway | Separated Bike Lanes (Side TBD) |
| Shady Grove Rd | City of Rockville | MD 200 Ramp | Separated Bikeway | Sidepath (Both Sides) |

THE BICYCLE MASTER PLAN

BICYCLE MASTER PLAN

# PRELIMINARY BIKEWAY RECOMMENDATIONS

**MONTGOMERYPLANNING.ORG/BIKEPLAN | @MCBIKEPLAN**

**CONTACT DAVID ANSPACHER AT DAVID.ANSPACHER@MONTGOMERYPLANNING.ORG FOR QUESTIONS/COMMENTS**