



MONTGOMERY COUNTY LIFE SCIENCES CENTER

LOOP TRAIL

15% CONCEPT DESIGN

DRAFT 06/30/15

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IMPLEMENTATION STRATEGY

EXECUTIVE SUMMARY

THE VISION

The Montgomery County Life Sciences Center (LSC) Loop Trail will serve as a major multi-use connector, organizing element and placemaking feature for the emerging Life Sciences Center district. Much more than a standard shared-use path, the LSC Loop Trail will function as an identifiable public amenity that helps make the Life Sciences Center an attractive place to live, work and visit. The trail will incorporate distinctive design elements—special paving, furniture, landscaping, art, signage and stormwater management features—as well as public amenity/park spaces adjacent to the trail route. By connecting major employers, residences, open spaces, schools, transit stations and other destinations, the LSC Loop Trail will play an important role in reducing reliance on automobiles as a transportation mode and will help foster the healthy living philosophy of the Life Sciences Center.

LSC LOOP TRAIL CONCEPT DESIGN

The concept design for the 3.5-mile LSC Loop Trail was funded by a Transportation / Land-Use Connections (TLC) grant from the Metropolitan Washington Council of Governments to the Montgomery County Planning Department. A central feature of Great Seneca Science Corridor Master Plan, the LSC Loop Trail also constitutes a major staging requirement for advancing

implementation of the Master Plan and must be fully funded prior to opening Stage 2 of Master Plan Development.

The typical LSC Loop Trail cross-section includes a 12-foot-wide shared-use path with planted buffers on both sides of the trail, with a 10-foot-wide shared-use path and single planted buffer in the most constrained trail segments. The trail will function as a recognizable placemaking element through the incorporation of distinctive paving treatments, a cohesive family of furnishings and signage, street trees and other plantings, low-impact development (LID) features and public art elements. Public amenity spaces—including areas for seating and other activities—are incorporated along the trail. In addition, special design treatments are recommended for major nodes, gateways and urban activity areas. The concept design envisions that a future separated bike lane will complement the trail, per the County's Bicycle Master Plan. The LSC Loop Trail will serve as a County model for multi-modal design, as well as an important connection in the County's non-motorized transportation system.



EXISTING CONDITIONS

EXISTING CONDITIONS PLAN



DISCOVERLY DRIVE
(North of Diamondback Drive)



DISCOVERLY DRIVE
(South of Diamondback Drive)

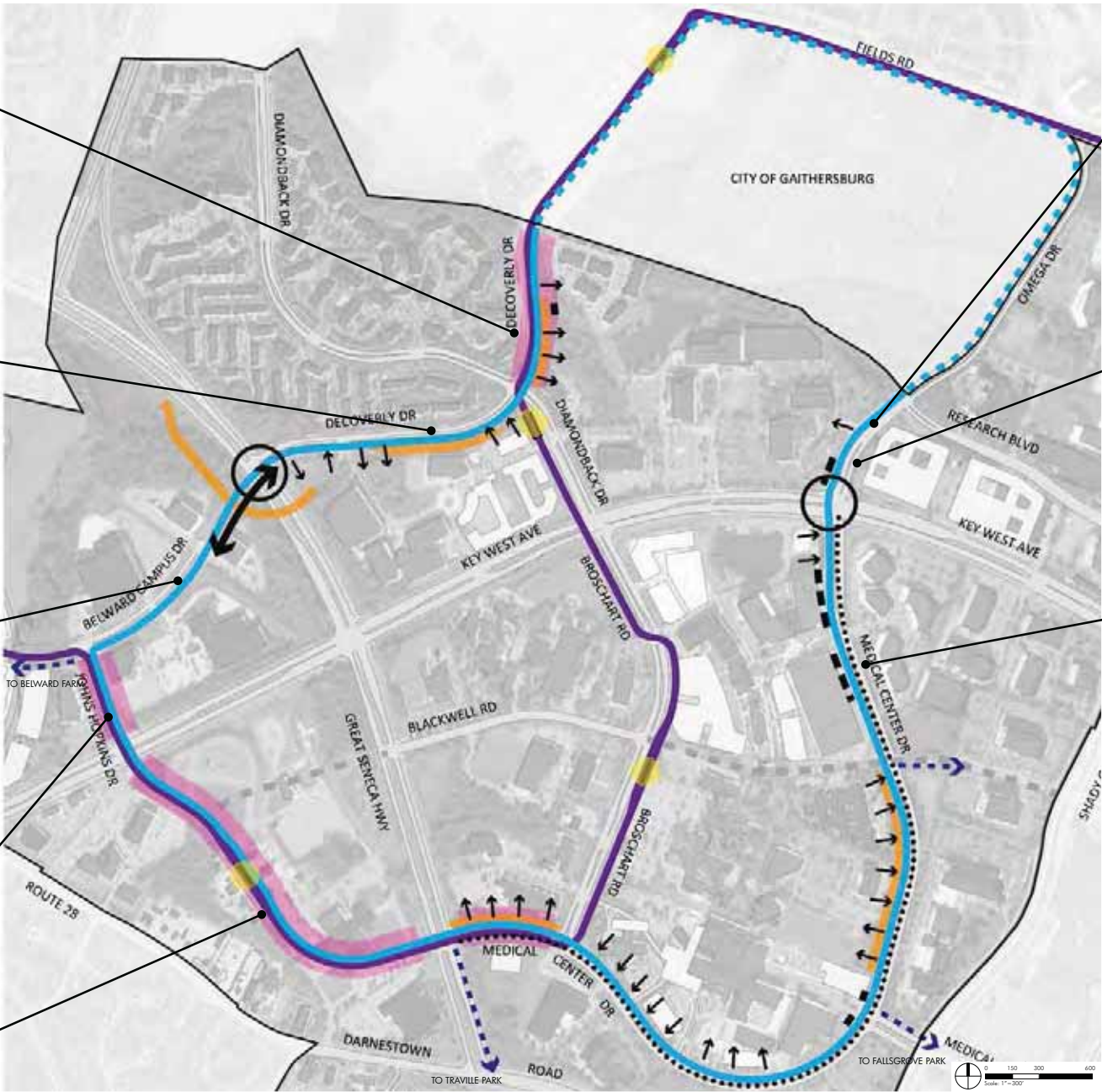


BELWARD CAMPUS DRIVE



JOHNS HOPKINS DRIVE

ROUTE 28
TO TRAVILLE PARK



OMEGA DRIVE
(Northern Segment)

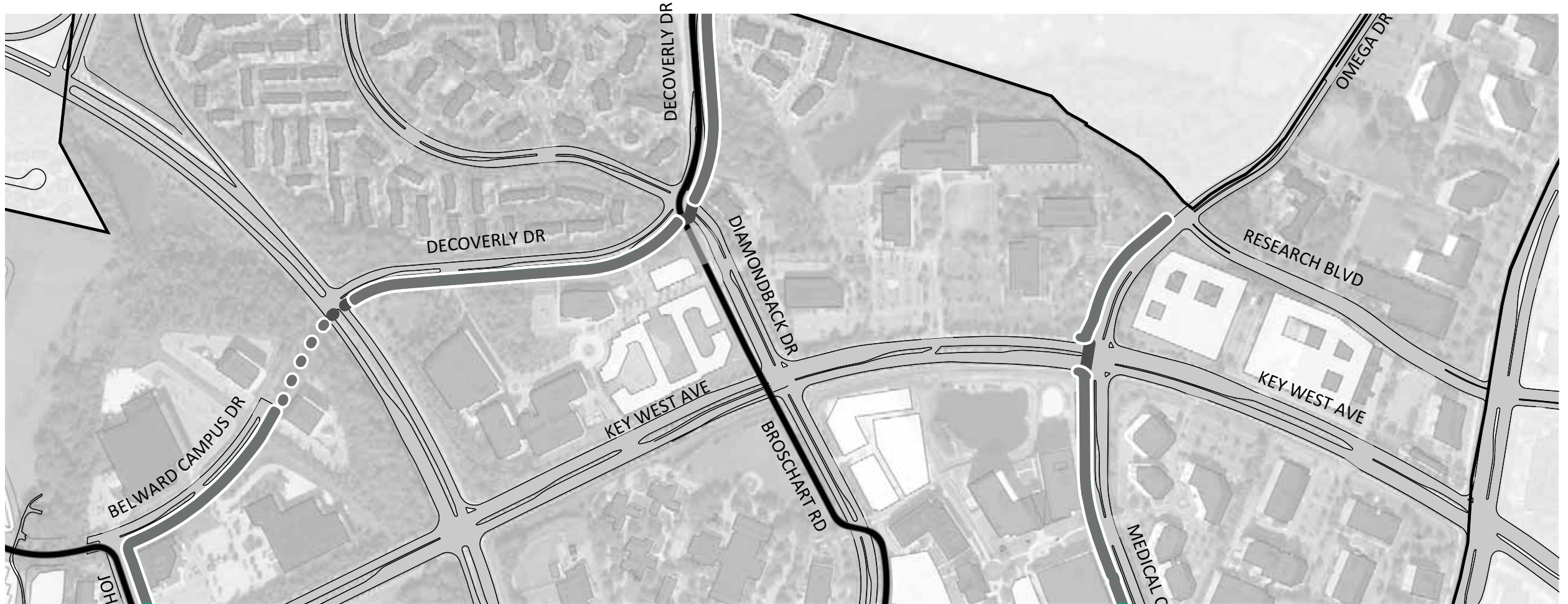


OMEGA DRIVE
(Southern Segment)



MEDICAL CENTER DRIVE

- Potential loop trail
- Future CCT
- Future CCT station
- CCT/roadway reconstruction
- Possible loop extension
- Existing Conditions Analysis
 - Transit easement
 - Slope at inner edge
 - Mature trees
 - Structure
 - Missing connection
 - Major road crossing








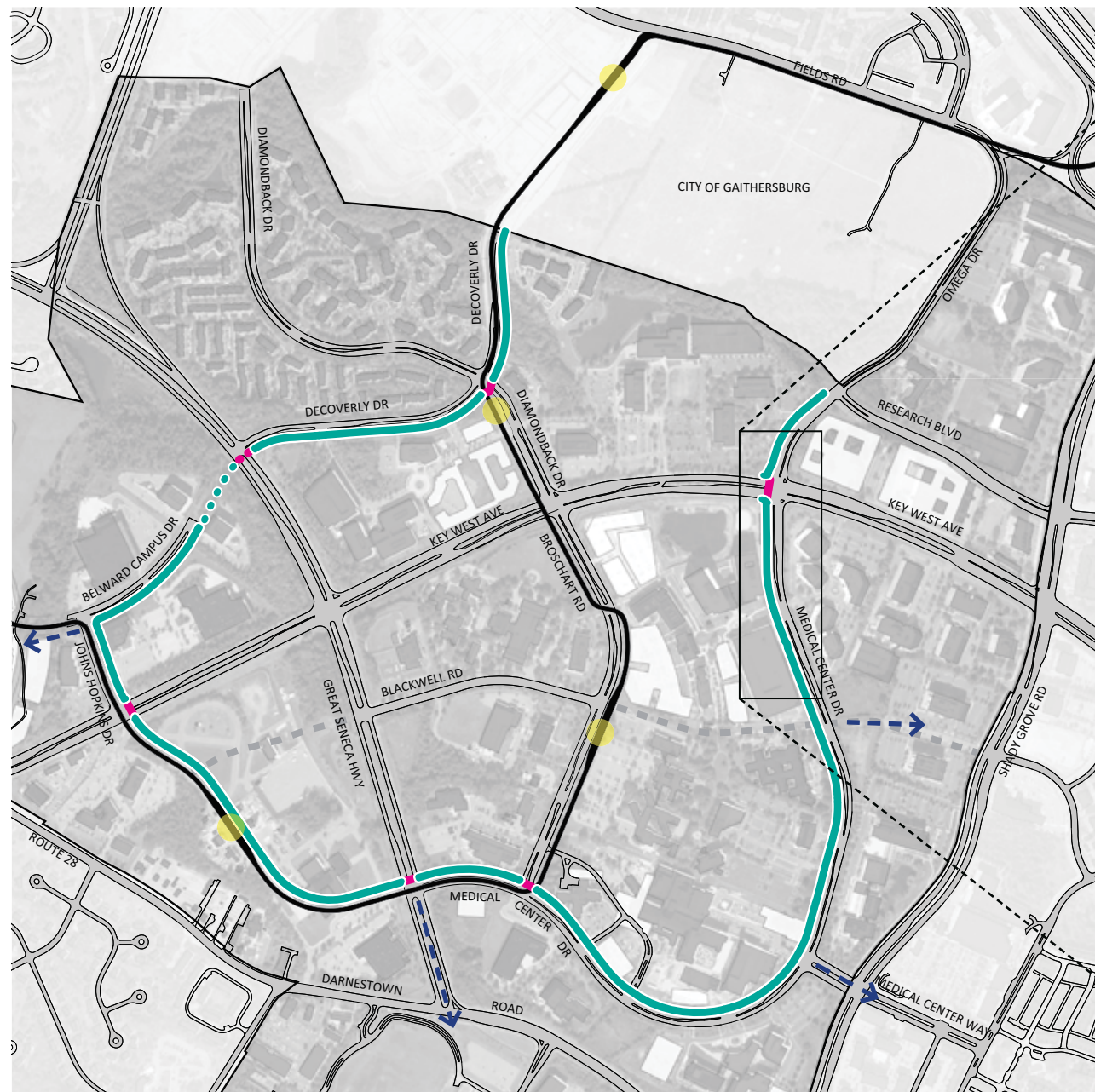
OVERALL PLAN

OVERALL PLAN

- Trail is positioned on the inside of the LSC Loop
- Typical trail cross section includes a paved shared use path with planted buffers on each side
- Enhanced street crossings are recommended for all intersections
- Potential trail spurs should connect to routes and destinations beyond the LSC Loop Trail

LEGEND

-  Loop Trail
-  Crossings
-  Potential Trail Spurs
-  Future CCT
-  Future CCT Station



Typical Plan Enlargement



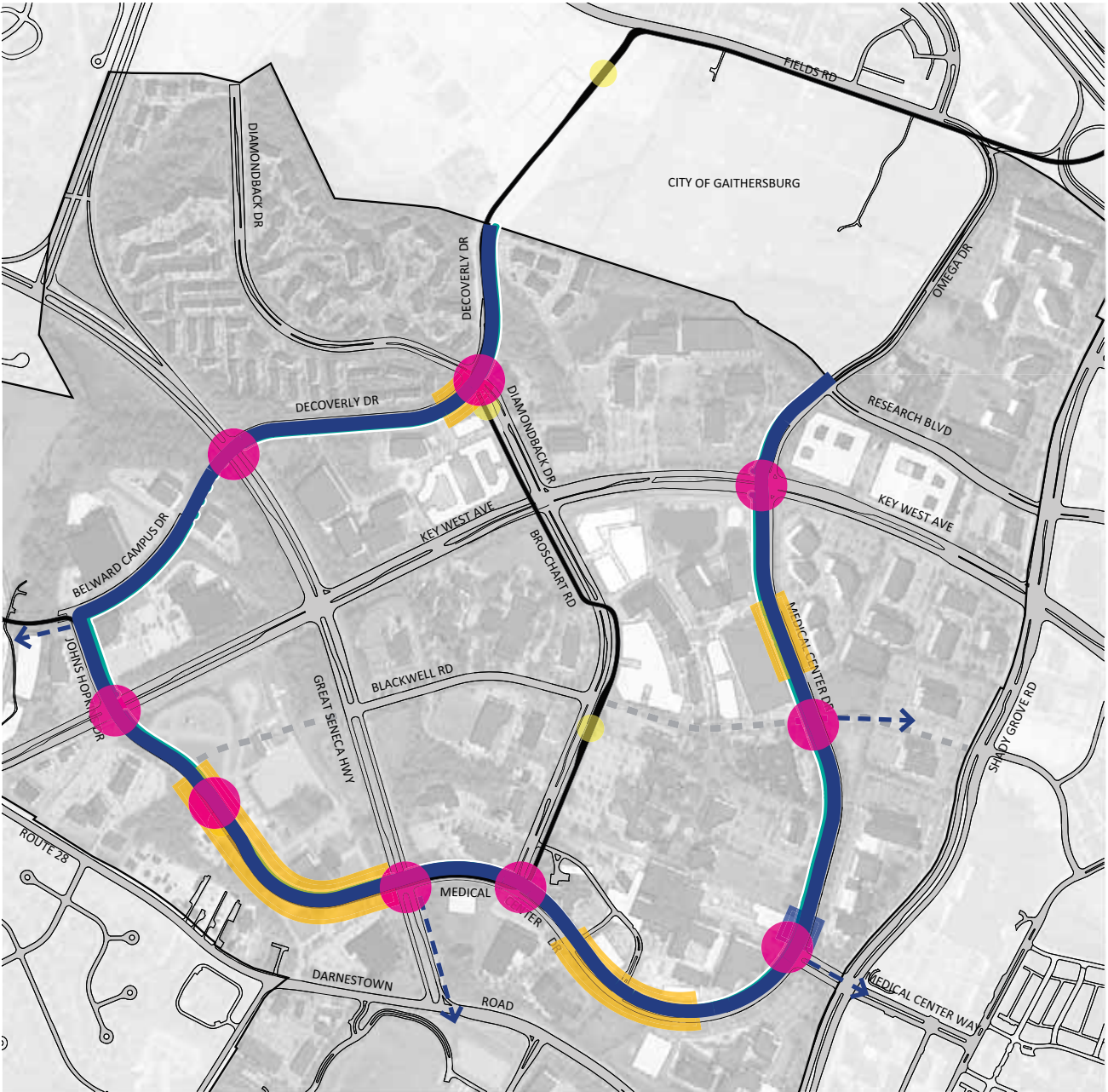
AMENITIES & ENHANCEMENTS

AMENITIES & ENHANCEMENTS PLAN

- Enhancements along the Loop Trail include a distinctive paving treatment; a continuous line of street trees (preserved or planted in all possible locations); seating areas along the trail; signage/wayfinding elements; and public art in select locations
- Urban/activity areas should incorporate special paving and furnishings, larger gathering areas, enhanced plantings, and public art elements
- Gateways can use art pieces and informational signage to emphasize entry into new areas and direct users to their destinations

LEGEND

- Distinctive trail treatment
- Urban/activity areas
- Gateways
- ➡ Recommended trail spurs
- Future CCT

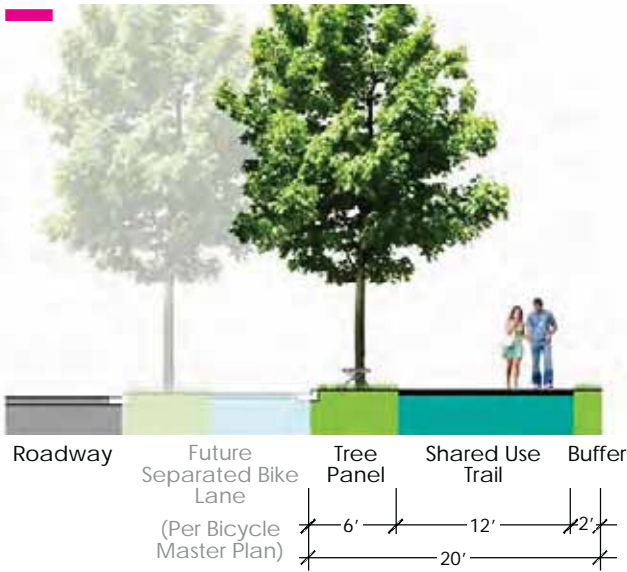




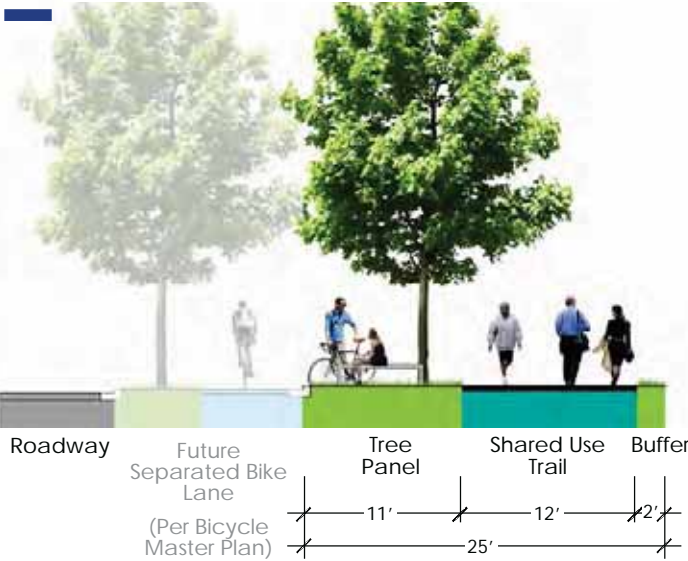
TRAIL CROSS SECTION

CROSS SECTION TYPES

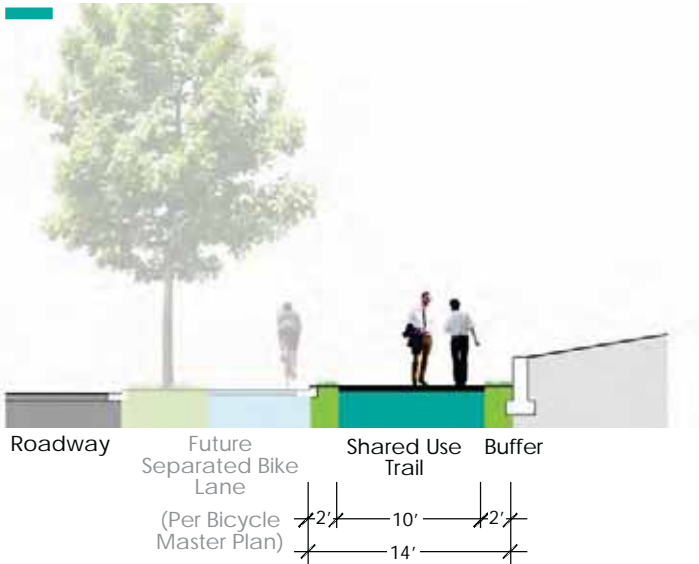
1 TYPICAL CROSS SECTION



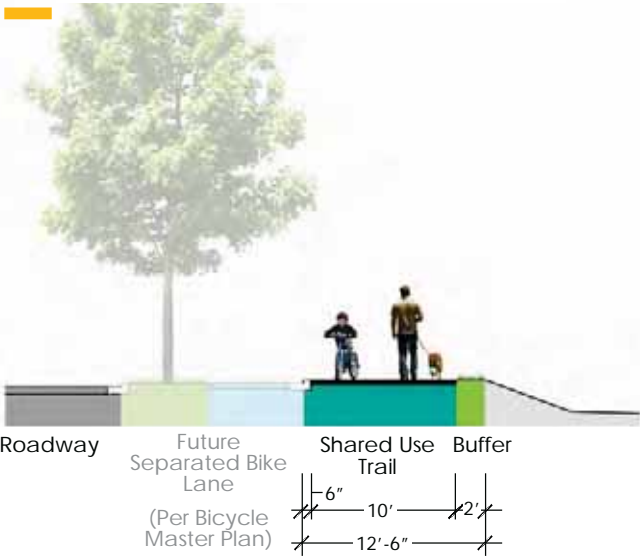
2 WIDE TREE PANEL AND BUFFER



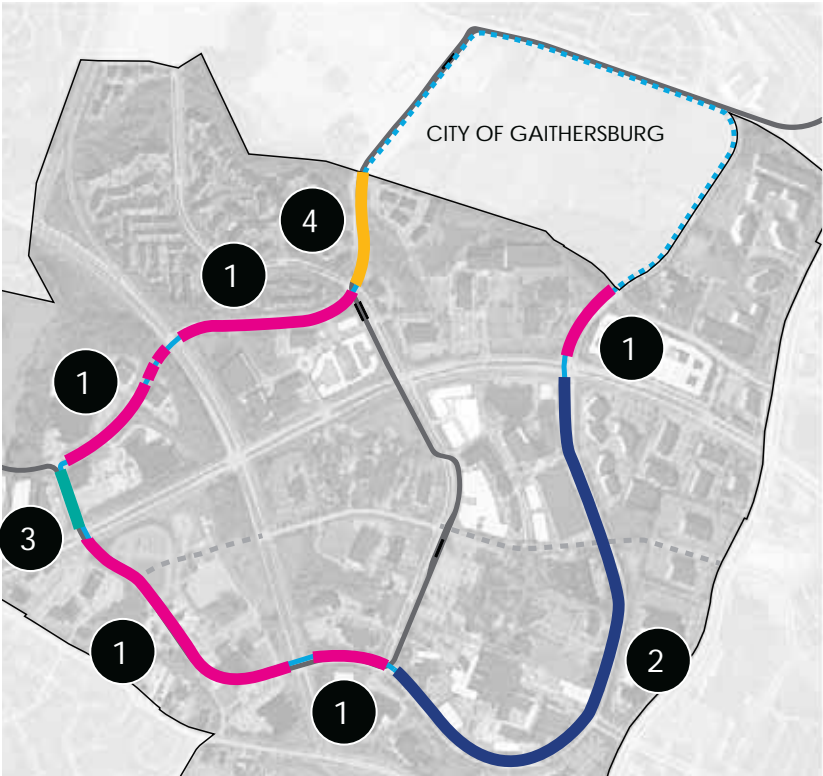
3 DUAL TWO-FOOT BUFFERS



4 SINGLE TWO-FOOT BUFFER



- Typical cross section design should be used in all areas where feasible.
- A wider tree panel is required on Medical Center Drive to preserve existing trees and create safe clear zones for path users.
- Spatial constraints along the planned Corridor Cities Transitway (CCT) allow for a narrow planted buffer or grade separation only along the outer edge of the Loop Trail.
- Additional tree panels may be included in the design of a future separated bike lane (per Montgomery County Bicycle Master Plan).





CHARACTER AREAS

URBAN/ACTIVITY AREAS

- Urban/Activity Areas include higher-use zones near transit stops or where building entrances are located close to the trail edge.



Plazas and outdoor seating along trail (outside of right-of-way)



Furnishings and public art in widened tree panel



Precedent Images



Key Plan

OPEN SPACE/NATURAL AREAS

- Open Space/Natural Areas include undeveloped vegetated zones, parks, and school yards.



Seating areas



Play or fitness equipment



Precedent Images



Key Plan

GATEWAYS

- Gateways refer to major intersections, transit nodes, and entrances into private campuses or office parks.



Public art, vibrant plantings, and informational signage at major intersections



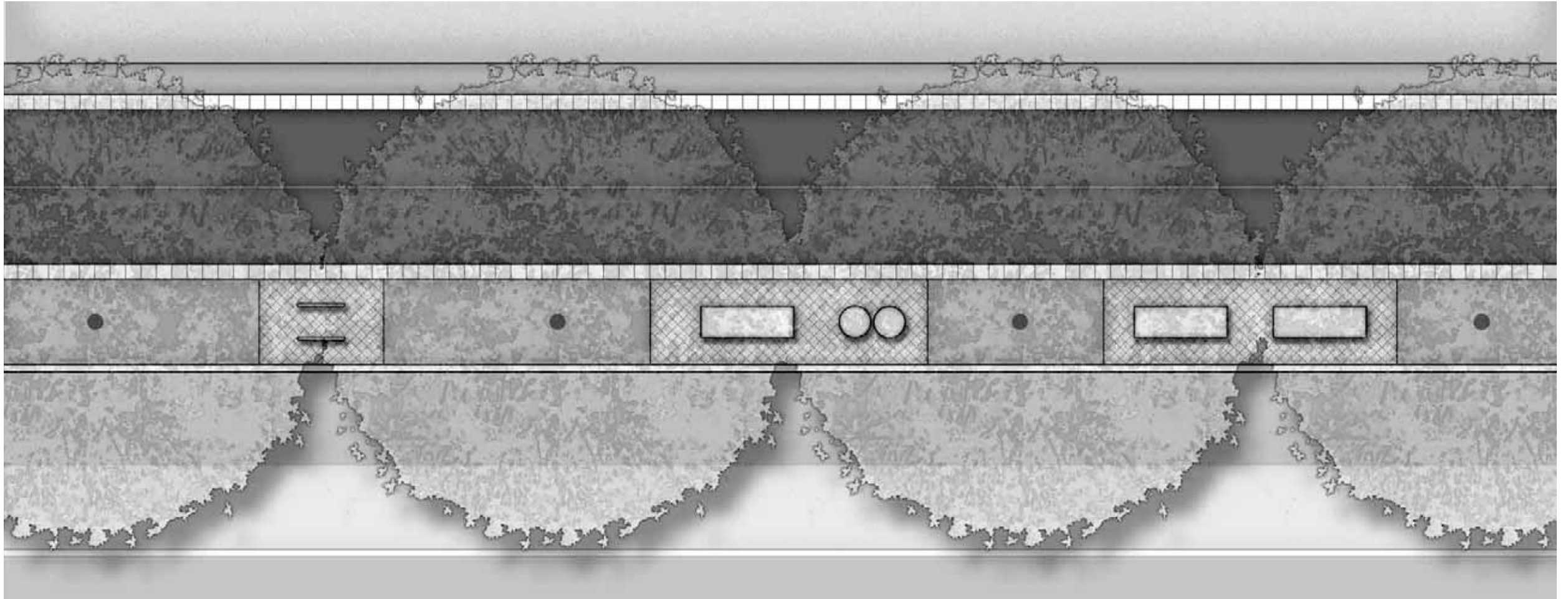
Precedent Images



Key Plan

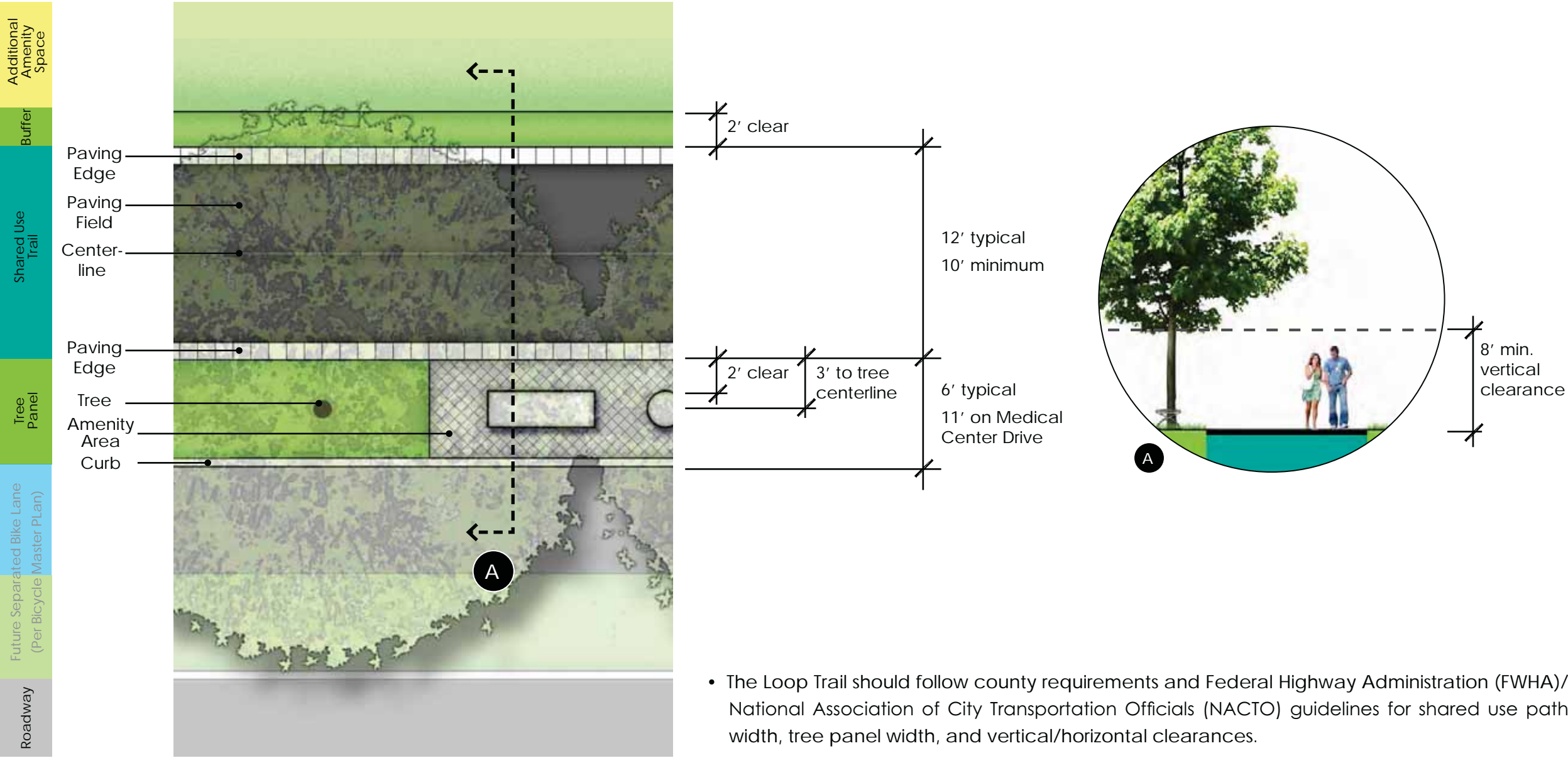


Plantings and informational signage at transit nodes and entrances



TYPICAL PLAN DETAILS

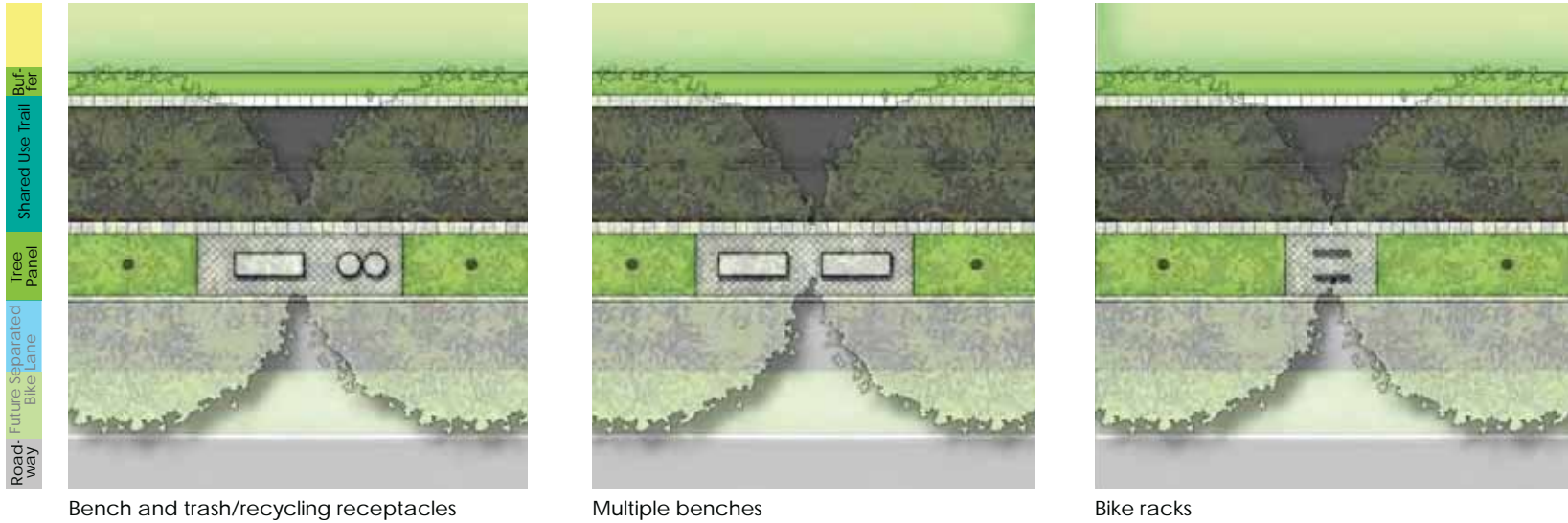
REQUIRED OFFSETS AND DIMENSIONS



- The Loop Trail should follow county requirements and Federal Highway Administration (FHWA)/ National Association of City Transportation Officials (NACTO) guidelines for shared use path width, tree panel width, and vertical/horizontal clearances.

AMENITY AREAS IN THE TREE PANEL

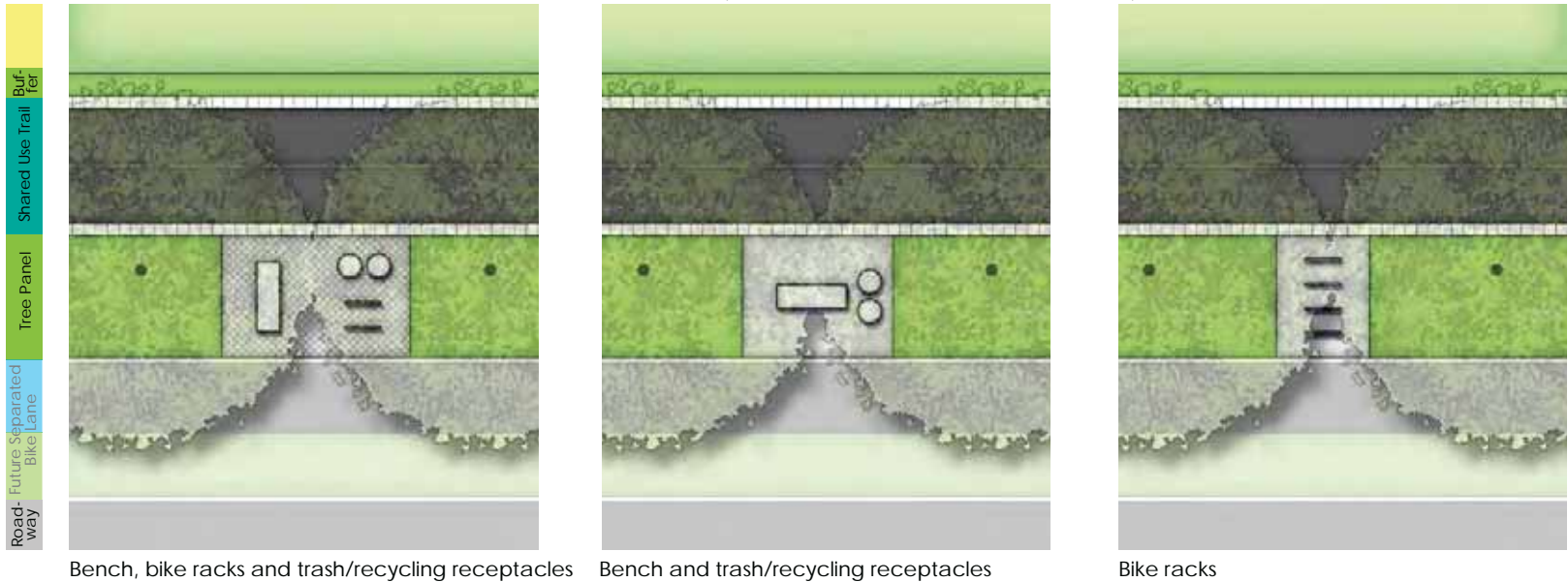
TYPICAL AMENITY AREAS



- Amenity areas should include seating, trash/recycling receptacles, bike racks, and pedestrian lighting.
- Furnishings should be situated to provide access from the Loop Trail or the future separated bike lane.
- The wider tree panel on Medical Center Drive can accommodate larger amenity areas, but these must be designed to limit disturbance of existing mature trees.

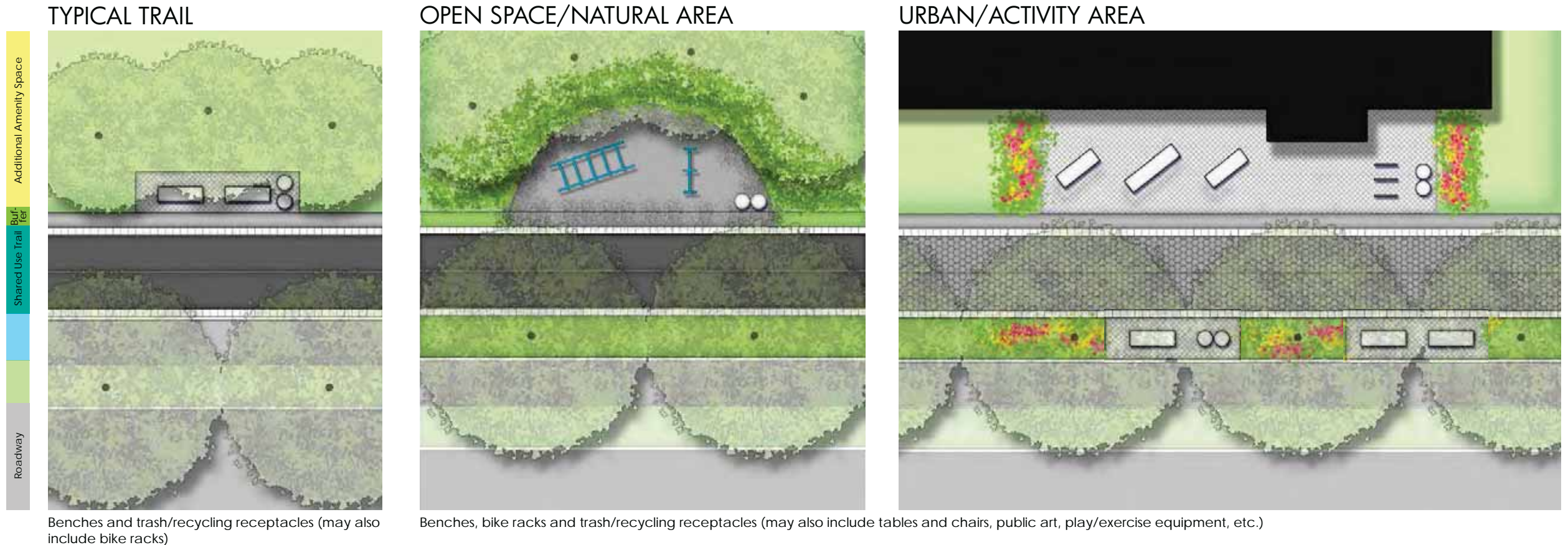


AMENITY AREAS IN WIDE TREE PANEL (MEDICAL CENTER DRIVE)



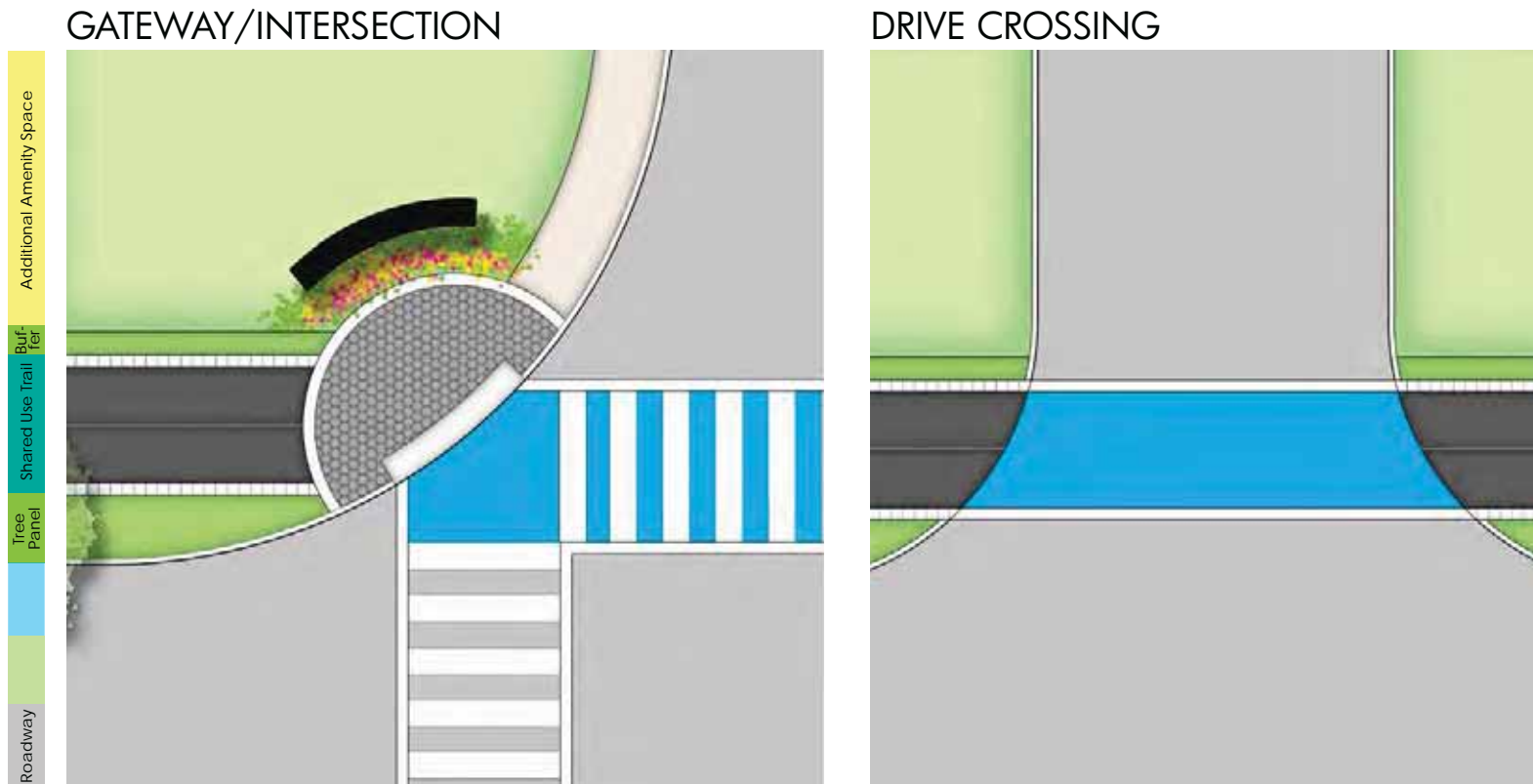
Precedent Images

ADDITIONAL AMENITY AREAS



- Additional amenity areas inside the Loop Trail (within or outside of the right-of-way) can provide amenity space in locations where a tree panel is not situated immediately adjacent to the Loop Trail.
- These additional amenity areas can also provide larger gathering spaces or plazas in Urban/Activity areas and play or exercise opportunities in Open Space/Natural areas.

GATEWAYS, INTERSECTIONS, & DRIVE CROSSINGS







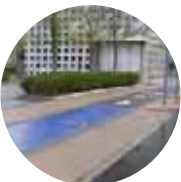
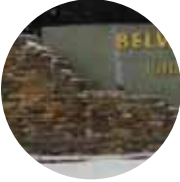














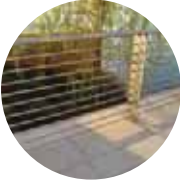







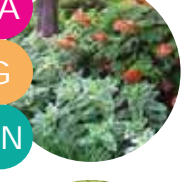


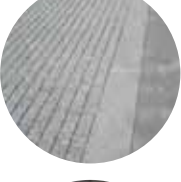






- Gateways may incorporate public art, vibrant plantings, and informational signage, and distinct paving treatments
- At street intersections and drive crossings, distinct high-visibility crosswalk treatments should be considered to indicate continuation of trail route and alert drivers and trail users of potential conflict points



DESIGN LANGUAGE

DESIGN ELEMENTS

Paving	Plantings	Furnishings	Signage & Wayfinding	Low-Impact Development	Art	Crossings	Walls & Rails
							
							
							
							
							
							

- The following section provides an overall design language for both common design elements and areas with special treatments. The recommended design elements constitute a suggested style language to guide subsequent phases of design, rather than specific design specifications.
- Design elements most appropriate for Urban/Activity Areas (UA), Open Space/Natural Area (ON), and Gateways (G) are labeled as such, per the legend; however, if desired, these design treatments may be applied to other segments of the trail, as feasible.

LEGEND

UA

Urban/Activity Areas

ON

Open Space/Natural Area

G

Gateways

PAVING



Paver edging with asphalt path



Concrete edging with concrete path



Unit pavers



Permeable pavers

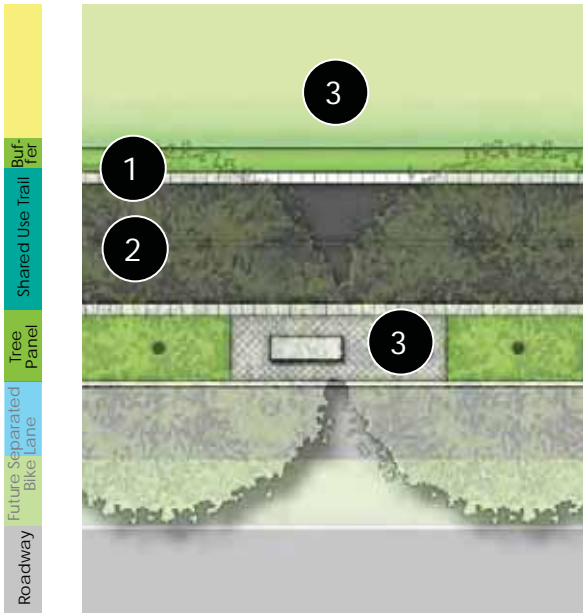


Flexible Porous Paving



Crushed stone

- 1 Paving band at trail edges should be uniform in material, color, and dimensions along the entire length of the Loop Trail. Unit pavers or scored concrete can be used.
 - 2 Paving field may be comprised of tightly-jointed unit pavers and asphalt or concrete. Pavers should be used in urban/activity areas to designate higher-activity zones. A dividing line at center of loop trail can be marked with contrasting pavers in paver areas or painted striping in asphalt or concrete areas.
 - 3 Permeable pavers or flexible porous paving should be used in amenity areas along the trail. Crushed stone can be considered for amenity areas in Open Space/Natural Areas.
- Special pavement markings such as striping or texturing should be used at merge zones and intersection approaches to alert users of potential conflict points.



Paving Diagram

- LEGEND
- UA Urban/Activity Areas
 - ON Open Space/Natural Area
 - G Gateways

PLANTING



Continuous line of street trees



Mown turf



Tall grasses and colorful perennials

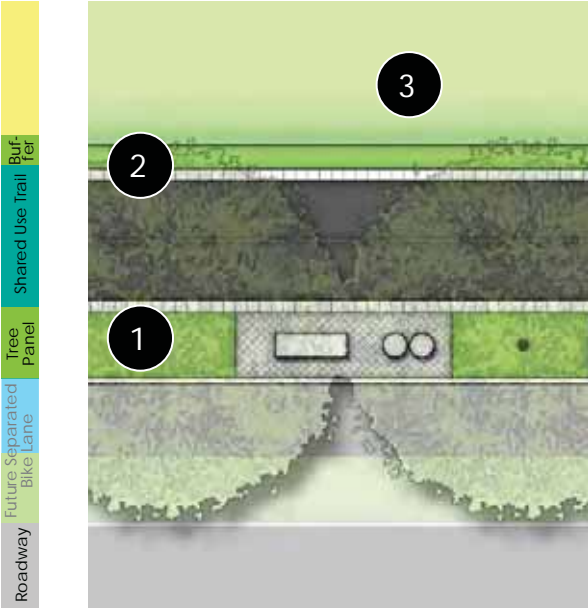


Layered shrubs, perennials, and trees



Clustered shade trees at seating/gathering areas

- 1 Tree panels should be planted with a continuous line of shade trees and turf grass. Shrubs and perennial plantings can be considered to enhance amenity zones, particularly within Urban/Activity areas.
- 2 The 2' buffer should be planted with mown turf only so as to not impede travel along the trail and use as a pull-off shoulder.
- 3 Plantings can vary within additional amenity spaces along the Loop Trail (within or outside of the right-of-way). Shrubs, perennial plantings, and clustered shade trees can be considered to frame seating and activity areas and emphasize gateways. Where parking lots or secondary roadways are adjacent to the trail, wider planted buffers should be used.



- LEGEND
- UA Urban/Activity Areas
 - ON Open Space/Natural Area

FURNISHINGS AND LIGHTING



Backless benches can be accessed from both sides



Distinctive custom benches



Circular bike racks



Pedestrian lights



- Furnishings along the Loop Trail should include seating, trash and recycling receptacles, pedestrian lighting, and bike racks.
- A palette of simple metal furnishings should be selected and used consistently along the trail to reinforce the loop identity.
- Custom furnishings may be used in Urban/Activity areas, Open Space/Natural areas, and in additional amenity spaces outside of the right-of-way.
- Furnishings can incorporate branding elements associated with the Loop Trail or with destinations along the trail.



Distinctive lighting elements

LEGEND

- UA Urban/Activity Areas
- G Gateways

SIGNAGE, WAYFINDING, & BRANDING



Wayfinding signage to clearly identify trail route and brand identity



Branding or wayfinding on trail surface



Painted or embedded mile markers



- Signage serves both a functional role and creates an identifiable visual image or brand for the trail.
- Highly visible and distinctive signage should be used to alert passers-by to the presence of the trail.
- Wayfinding elements can be incorporated as signage or on-ground markings.
- Opportunities for institutional or corporate branding may be integrated.



Distinctive signage system

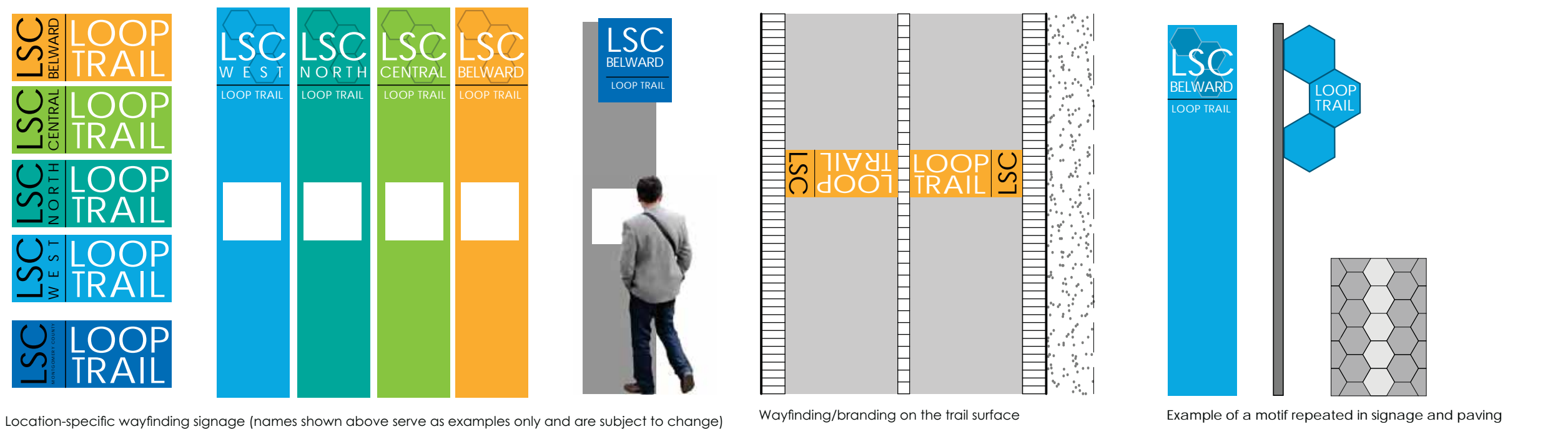


Signage to identify separate facilities



Mounted banners

SIGNAGE, WAYFINDING, & BRANDING, CONT.



Example of a family of wayfinding elements

- An identifiable family of wayfinding elements should incorporate a repeating motif selected to represent the Life Sciences Center.
- Signage can be used to identify different areas within the Life Sciences Center and help user orient themselves along the Loop.
- Loop Trail wayfinding elements may be coordinated with vehicular and bicycle signage.

LOW-IMPACT DEVELOPMENT OPPORTUNITIES



Planted bioretention areas



• Low impact development (LID) should serve as both a stormwater management tool and a placemaking element.

- 1 Preserve existing trees as possible and plant a continuous line of shade trees along trail.
- 2 Permeable pavers flexible porous paving should be used in amenity areas along the trail.
- 3 Bioretention may be incorporated in planting areas along the trail, including tree boxes, planting strips, and larger planted areas.



Bioretention in tree boxes



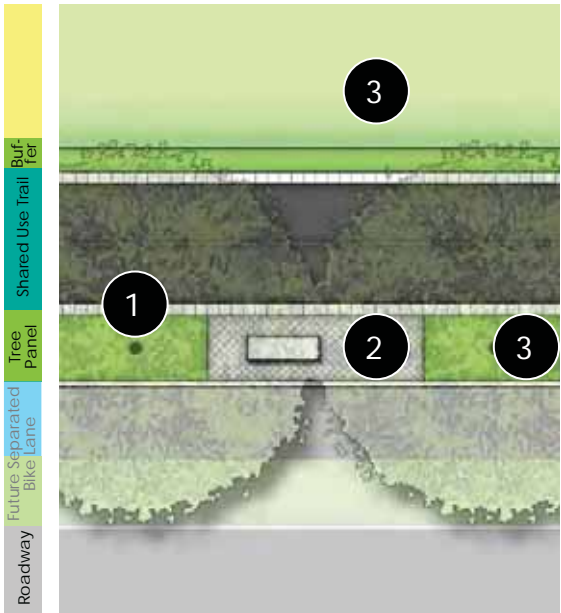
Shade trees



Permeable pavers and flexible porous paving



Tree panel on Medical Center Drive should be widened to allow more space between tree and adjacent paving.



PUBLIC ART



Patterns or words embedded in paving



Sculptural pieces as focal points



Art integrated into walls and other vertical elements






Interactive light or water elements



- Public art should be integrated into the loop trail to support placemaking and create a more vibrant, engaging environment.
- Art may be included anywhere along the trail but particularly at urban/activity areas and gateways
- Art elements can be incorporated into the trail in a variety of forms, including sculptural pieces as focal points, patterns or words embedded in paving, sculptural walls and other vertical elements, or interactive water features.

LEGEND

-  Urban/Activity Areas
-  Open Space/Natural Area
-  Gateways

CROSSINGS



Distinctive painted crossings at driveways and entry roads



- Bright and high-visibility crossing treatments at entry drive should be used to reduce possibility of conflicts with vehicles.
- Distinctive roadway crossings should be considered to clearly identify Loop Trail route.
- Driveway crossings should be highlighted by distinctive paving treatments.



Identifiable crosswalks at road intersections



WALLS



Metal guard rail

- Where needed, retaining walls on the inner edge of the Loop Trail should reference existing site walls, if present.
- If required, guard railing should be simple and unobtrusive.
- Seat walls may provide additional seating where feasible.



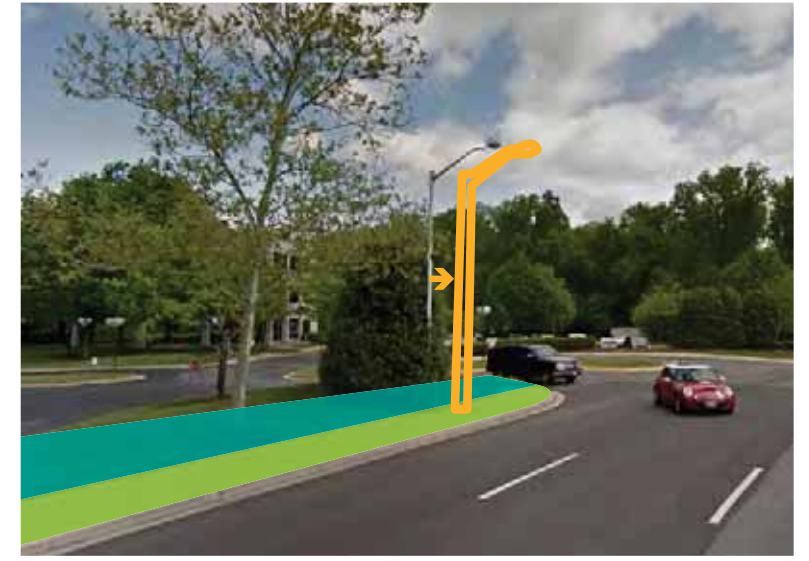
Existing walls in the Life Sciences Center



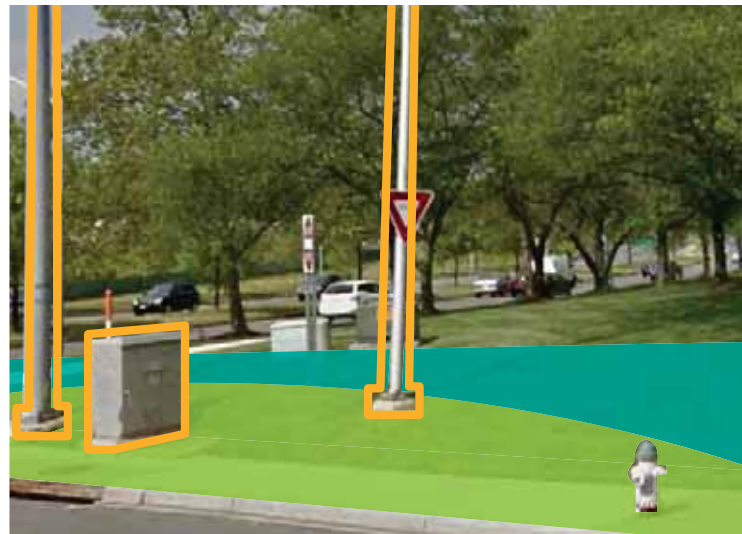
Potential retaining walls along the trail

UTILITY CONFLICTS

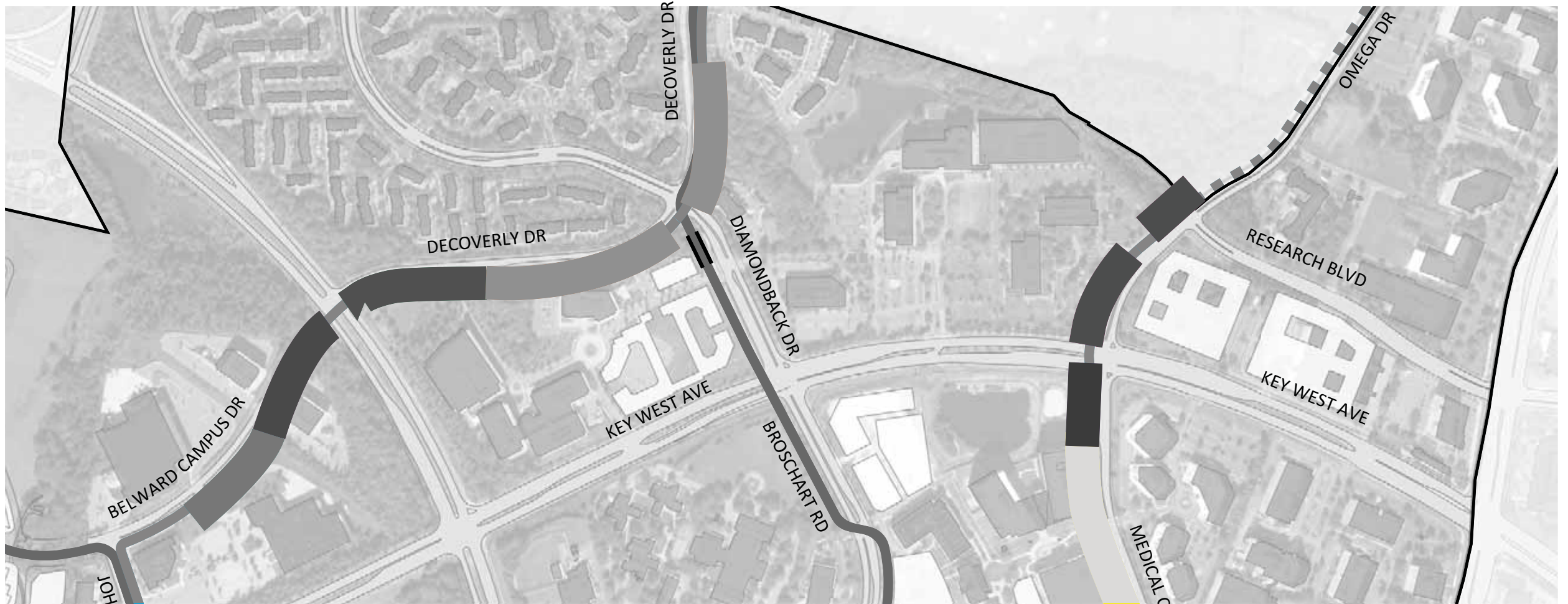
TYPICAL UTILITY CONFLICTS



OMEGA DRIVE/KEY WEST AVENUE



- Where feasible, relocate utilities out of trail path or construct trail around utility covers.
- Where utilities cannot be moved, trail may be narrowed or rerouted.
- Underground utility locations and their potential impact upon the Loop Trail requires further study.



ADDITIONAL CONSIDERATIONS

EASEMENTS REQUIRED



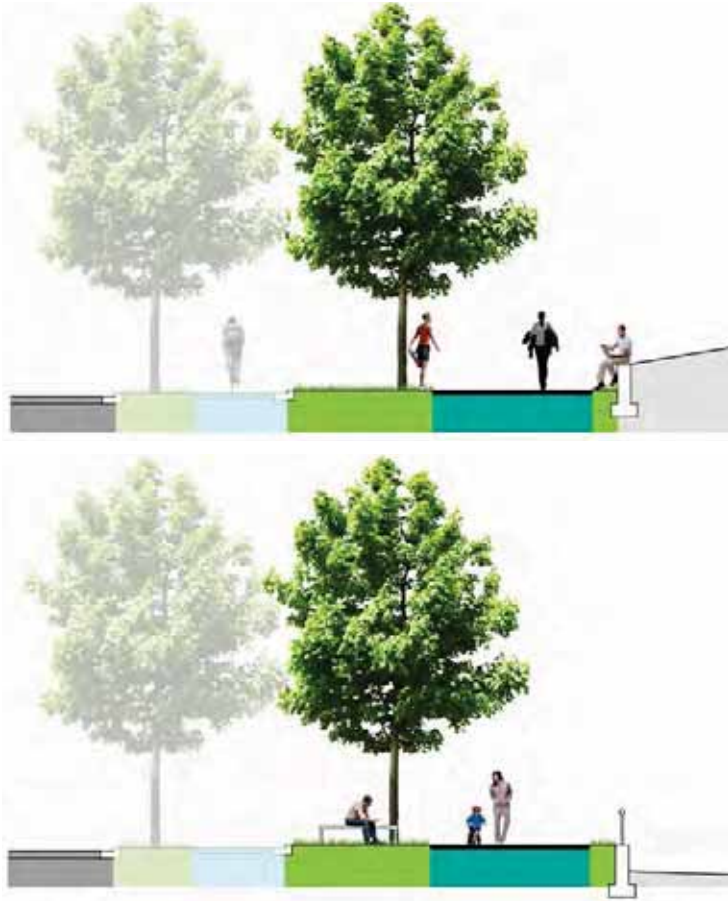
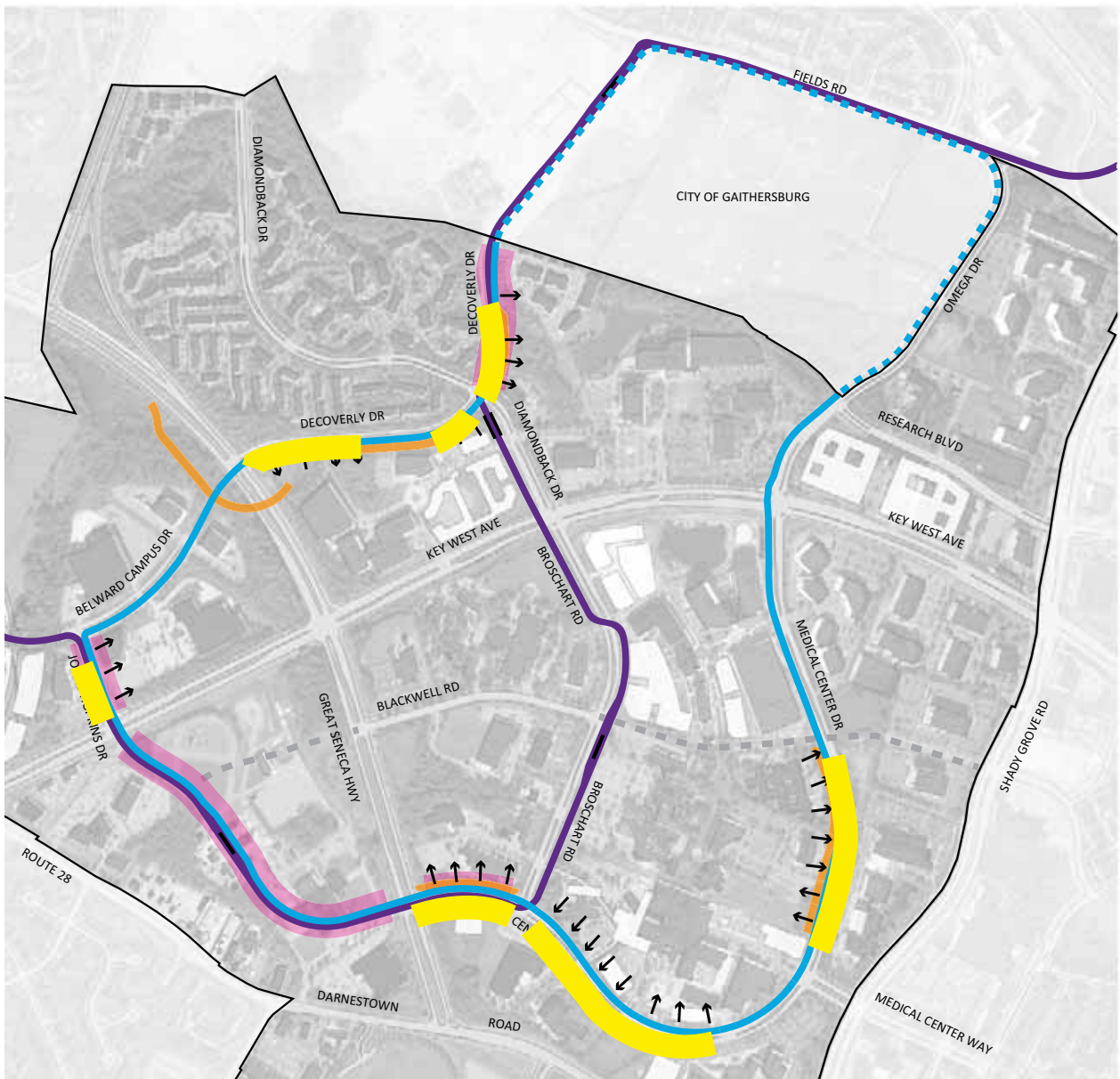
KEY	OWNER	WIDTH	AREA
	JPMCC 2005-CIBC13 Omega Drive LLC	0 - 9.5 LF	2,880 SF
	JBG/Rockville NCI Campus LLC	14.5 - 16.75 LF	4,095 SF
	Johns Hopkins University	12.25 - 15.75 LF	15,826 SF
	Adventist Healthcare, Inc.	7.5 - 17 LF	20,219 SF
	GP Rock One LLC	7.5 - 8.5 LF	1,773 SF
	Maryland Economic Development Corp.	10 - 14.75 LF	6,060 SF
	BMR-9900 Campus LLC	12.5 LF *	678 SF *
	Jaeger, John F TR	2.5 - 6.25 LF	4,804 SF

 Unused transit easements

* Extension of the trail between Belward Campus Drive and Great Seneca Highway may require a larger easement area.

Note: Easement requirements associated with CCT construction are not included. Greater easements may be required where grade changes are necessary (e.g., slopes, retaining walls, etc.).

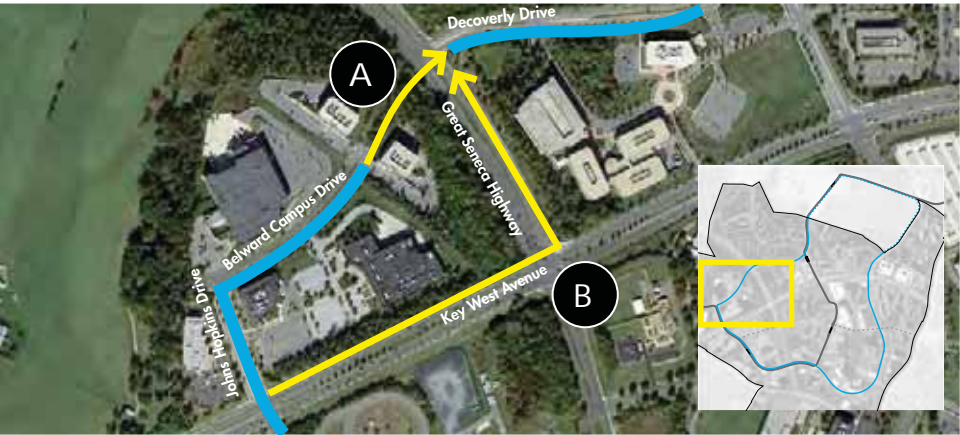
POTENTIAL RETAINING WALL LOCATIONS



Potential retaining walls along the trail

- LEGEND
- Potential loop trail
 - Future CCT
 - Slope at inner edge
 - Potential retaining wall location

BELWARD CAMPUS DRIVE CONNECTION

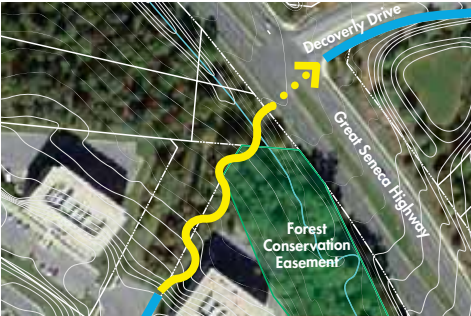


- Missing roadway connection per GSSC Master Plan between Belward Campus Drive and Great Seneca Highway/Discoverly Drive leaves a gap in the Loop Trail
- If roadway is constructed per Master Plan recommendation, the Loop Trail should be incorporated according to the 15% Concept Design typical alignment and cross section
- Options A and B, below, provide alternatives to continue the trail which do not require construction of this roadway

A LOOP CONTINUATION PER MASTER PLAN



≈ 6.5% slope



< 5% slope with switchbacks

PROS:

- Achieves Master Plan loop trail alignment
- Provides direct connection between Belward Campus Drive and Discoverly Drive

CONS:

- Requires significant regrading and removal of existing vegetation
- May require encroachment into forest conservation easement
- No existing crossing at Great Seneca Highway (would need to be coordinated with SHA)*

* Crossing of Great Seneca Highway may be (1) two-stage unsignalized crossing utilizing existing median, (2) signalized with continuous crosswalk (if area-wide development necessitates a signal at this intersection), or (3) grade separated crossing. To be determined in consultation with SHA.

B ALTERNATE OR INTERIM ROUTE



Existing conditions on Key West Ave and Great Seneca Hwy



PROS:

- Does not require significant regrading and removal of existing vegetation
- Does not require new crossing at Great Seneca Highway

CONS:

- Creates “dead end” at Belward Campus Drive
- Does not achieve Master Plan loop trail alignment
- Existing sidewalks may not be sufficient to support shared use*

* If alternate route is determined to be a permanent measure, long-term trail design should conform with typical trail cross section and design language described in this document.

TO BE ADDED:

IMPLEMENTATION STRATEGY