

Montgomery County Life Sciences Center

LOOP TRAIL

GSSC Implementation Advisory Committee Meeting #2

March 26, 2015



RHODESIDE & HARWELL
LANDSCAPE ARCHITECTURE & PLANNING

Trail Alternatives

GENERAL ASSUMPTIONS

- Where separated bicycle and pedestrian facilities exist, the bike facilities will be located closest to the street, and pedestrian facilities will be located closest to buildings.
- Proposed trees will be located just inside the curb and will provide a buffer between the trail and the street.

ALTERNATIVE 1: SHARED USE PATH



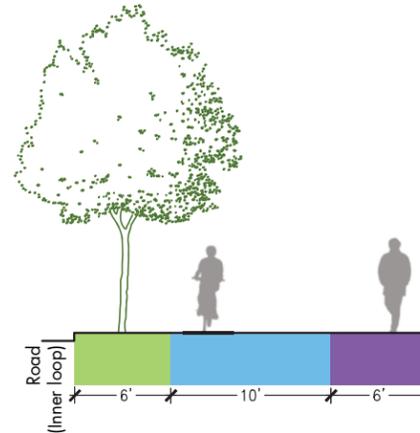
Pros:

- Accommodates both bikes and pedestrians
- Minimizes the need to utilize private property or move the curb
- Does not require substantial re-grading and construction of retaining walls

Cons:

- Does not achieve the Master Plan/Design Guidelines vision of separated bicycle and pedestrian facilities
- Potential conflicts between bicyclists and pedestrians unless accompanied by on-road bike facility
- Not conducive to higher speed bicycle travel (10-12 mph) unless accompanied by on-road bike facility

ALTERNATIVE 2: DIVIDED BIKE PATH AND SIDEWALK



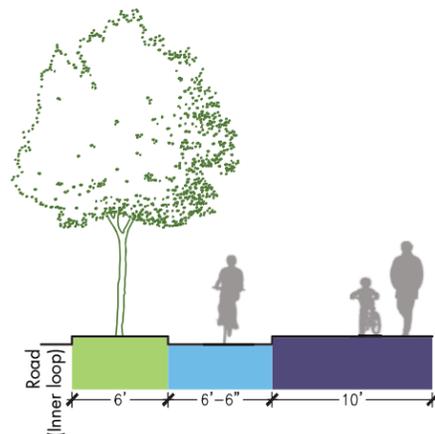
Pros:

- Achieves Master Plan/Design Guidelines vision of providing separated bicycle and pedestrian facilities
- Provides a safer and more comfortable experience for both bicyclists and pedestrians
- Reduces potential for conflicts between bicycles and pedestrians

Cons:

- Requires either utilizing some adjacent private property or moving the curb to implement in most locations
- Will require some re-grading and construction of retaining walls
- Lack of buffer between bicycle and pedestrian facilities

ALTERNATIVE 1B: SHARED USE PATH WITH ON-ROAD BICYCLE FACILITY



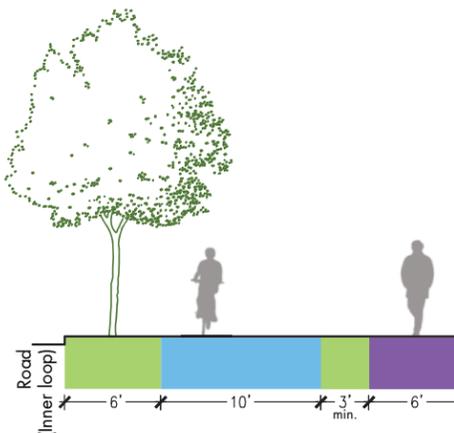
Pros:

- Minimizes the need to utilize private property
- Does not require substantial re-grading and construction of retaining walls
- Provides a safer and more comfortable experience for both bicyclists and pedestrians
- Reduces potential for conflicts between bicycles and pedestrians
- Conducive to higher speed bicycle travel (10-12 mph) speed bicycle travel in separated facility

Cons:

- Differs from the Master Plan/Design Guidelines vision of separated two-way bicycle and pedestrian facilities
- May require moving curbs and shifting lane widths to accommodate protected bike facility

ALTERNATIVE 3: DIVIDED BIKE PATH AND SIDEWALK WITH BUFFER



Pros:

- Achieves Master Plan/Design Guidelines vision of providing separated bicycle and pedestrian facilities
- Provides maximum safety and comfort for bicycles and pedestrians by separating and buffering bicycle and pedestrian facilities
- Greatest potential for placemaking features and amenities

Cons:

- Requires the most additional space through either utilizing private property or moving the curb
- Requires the most intensive re-grading and construction of retaining walls

Trail Alternatives

ALT 1: SHARED USE PATH (MINIMUM LOOP TRAIL WIDTH)



PROS:

- Accommodates both bikes and pedestrians
- Minimizes the need to utilize private property or move the curb
- Does not require substantial re-grading and construction of retaining walls

CONS:

- Does not achieve the Master Plan/Design Guidelines vision of separated bicycle and pedestrian facilities
- Potential conflicts between bicyclists and pedestrians unless accompanied by on-road bike facility
- Not conducive to higher speed bicycle travel (10-12 mph) unless accompanied by on-road bike facility



Indianapolis Cultural Trail, Indianapolis, IN



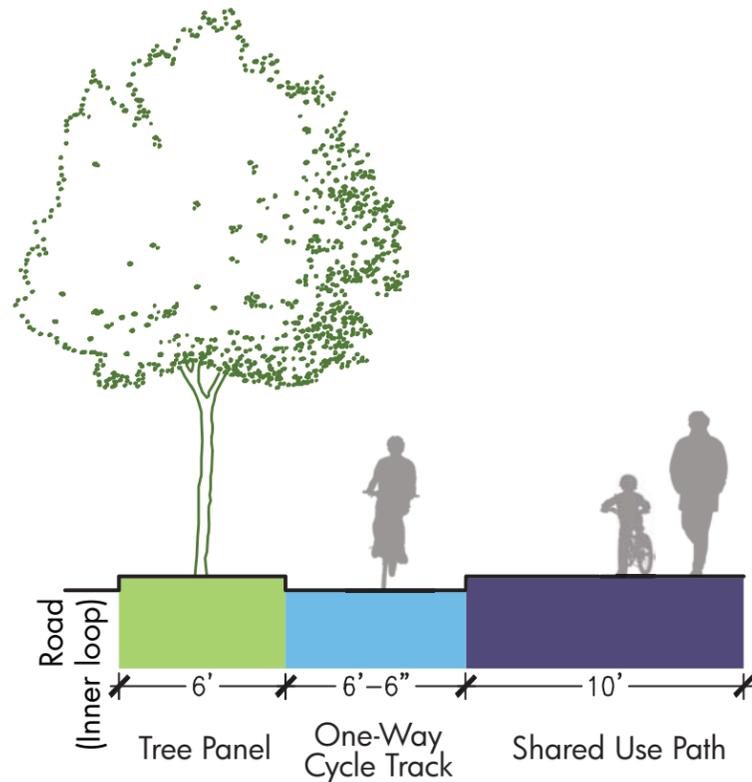
Potomac Yard Park, Alexandria, VA



Carrollton, TX

Trail Alternatives

ALT 1B: SHARED USE PATH WITH ON-ROAD BICYCLE FACILITY (ONE-WAY PAIRS)



PROS:

- Minimizes the need to utilize private property
- Does not require substantial re-grading and construction of retaining walls
- Provides a safer and more comfortable experience for both bicyclists and pedestrians
- Reduces potential for conflicts between bicycles and pedestrians
- Conducive to higher speed bicycle travel (10-12 mph) in separated facility

CONS:

- Differs from the Master Plan/Design Guidelines vision of separated two-way bicycle and pedestrian facilities
- May require moving curbs and shifting lane widths to accommodate protected bike facility

VARIATIONS:



Netherlands



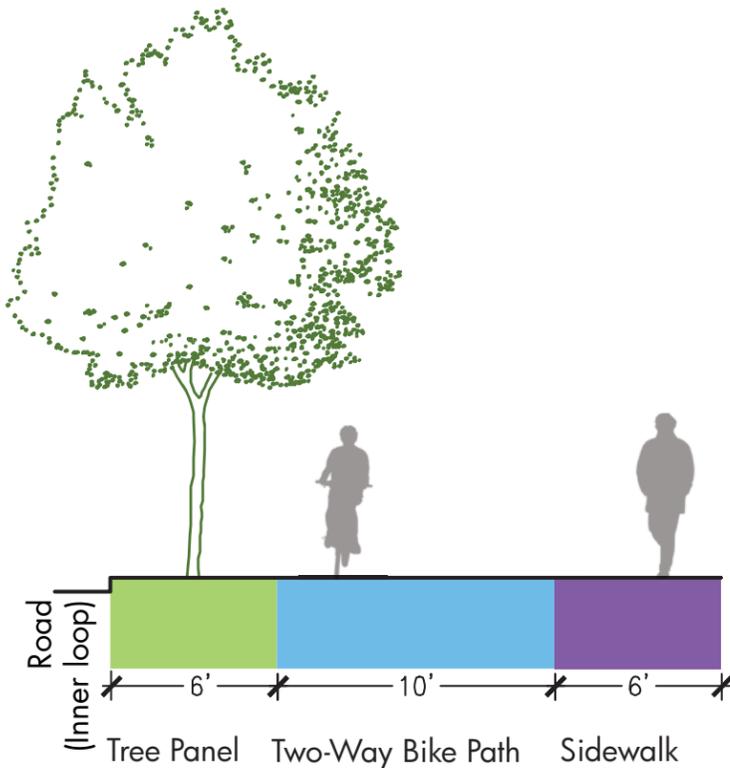
Missoula, MT



Chicago, IL

Trail Alternatives

ALT 2: DIVIDED BIKE PATH & SIDEWALK



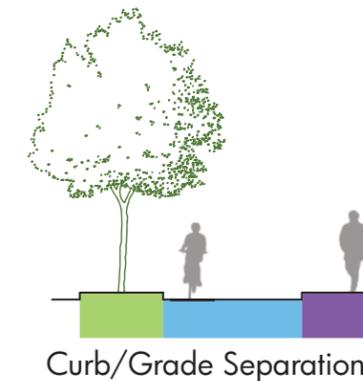
PROS:

- Achieves Master Plan/Design Guidelines vision of providing separated bicycle and pedestrian facilities
- Provides a safer and more comfortable experience for both bicyclists and pedestrians
- Reduces potential for conflicts between bicycles and pedestrians

CONS:

- Requires either utilizing some adjacent private property or moving the curb to implement in most locations
- Will require some re-grading and construction of retaining walls
- Lack of buffer between bicycle and pedestrian facilities

VARIATIONS:



Vancouver, BC



Netherlands

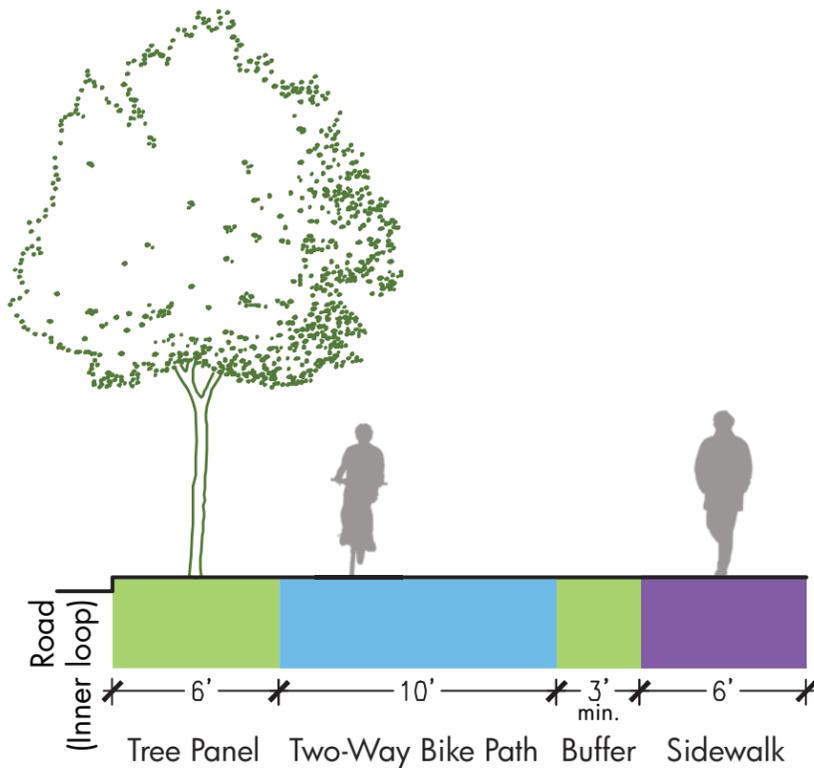


Philadelphia, PA

Trail Alternatives

ALT 3: DIVIDED BIKE PATH & SIDEWALK WITH BUFFER

(MAXIMUM LOOP TRAIL WIDTH)



PROS:

- Achieves Master Plan/Design Guidelines vision of providing separated bicycle and pedestrian facilities
- Provides maximum safety and comfort for bicycles and pedestrians by separating and buffering bicycle and pedestrian facilities
- Greatest potential for placemaking features and amenities

CONS:

- Requires the most additional space through either utilizing private property or moving the curb
- Requires the most intensive re-grading and construction of retaining walls

VARIATIONS:



Plantings in Buffer



Furnishings in Buffer



Indianapolis Cultural Trail, Indianapolis, IN



Indianapolis Cultural Trail, Indianapolis, IN



Green Trail, Silver Spring, MD

Loop Segments



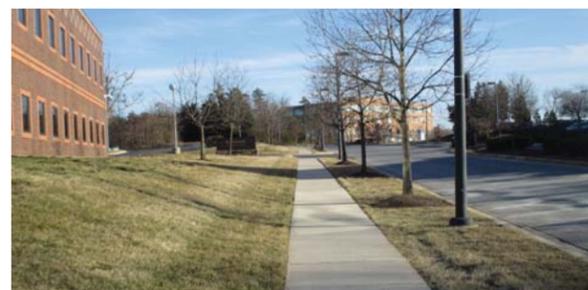
DISCOVERLY DRIVE
(North of diamondback drive)



DISCOVERLY DRIVE
(South of diamondback drive)

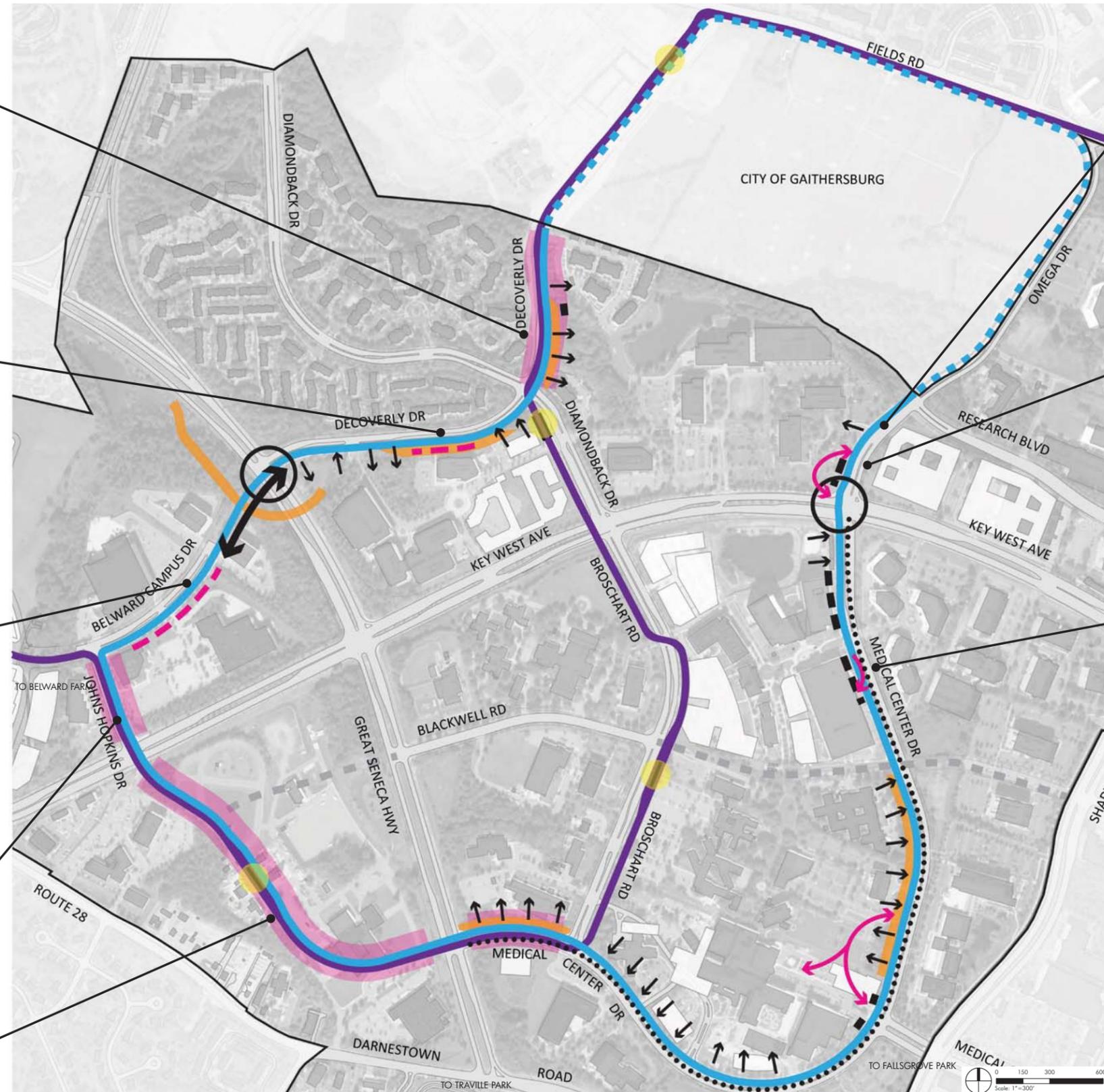


BELWARD CAMPUS DRIVE



JOHNS HOPKINS DRIVE

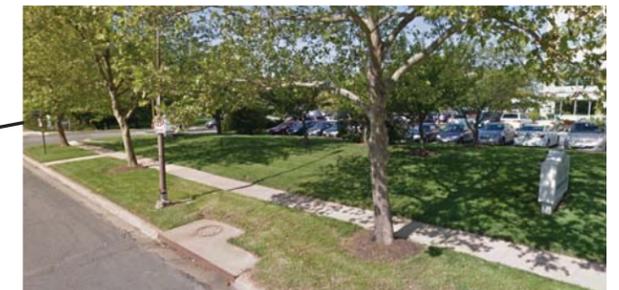
PSTA PROPERTY: NEW ROAD



OMEGA DRIVE
(Northern Segment)



OMEGA DRIVE
(Southern Segment)



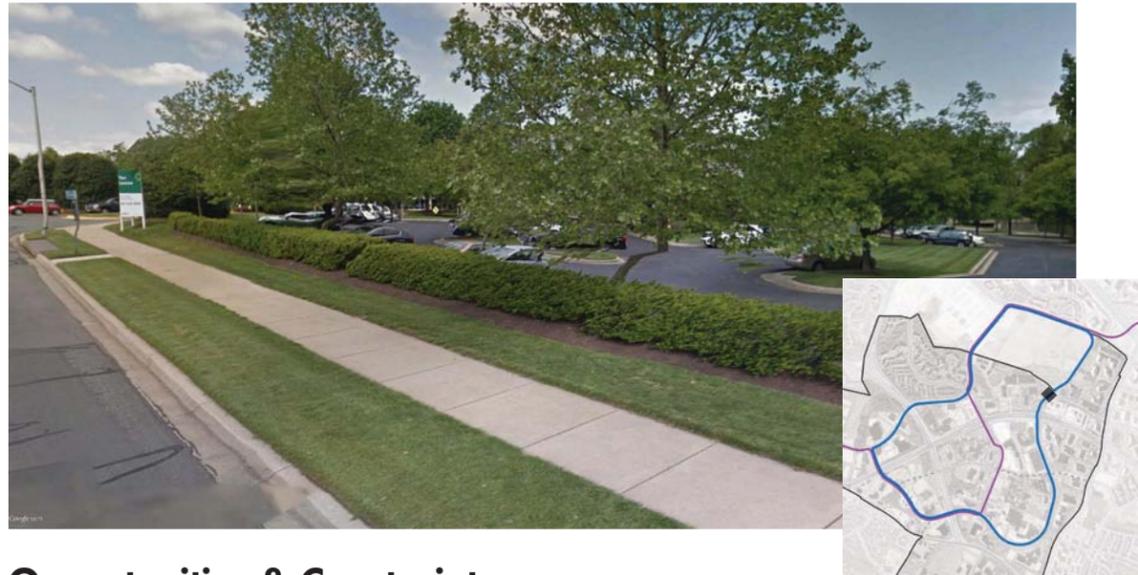
MEDICAL CENTER DRIVE

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> — Potential loop trail — Proposed CCT — Transit easement ● Proposed CCT station | <p>Challenges</p> <ul style="list-style-type: none"> ↕ Slope at inner edge ⋯⋯⋯ Mature trees - - - Structure ↔ Missing connection ○ Major road crossing | <p>Opportunities</p> <ul style="list-style-type: none"> ↪ Possible loop spur - - - Space for wider trail CCT/roadway reconstruction ⋯⋯⋯ Possible loop extension |
|--|--|---|

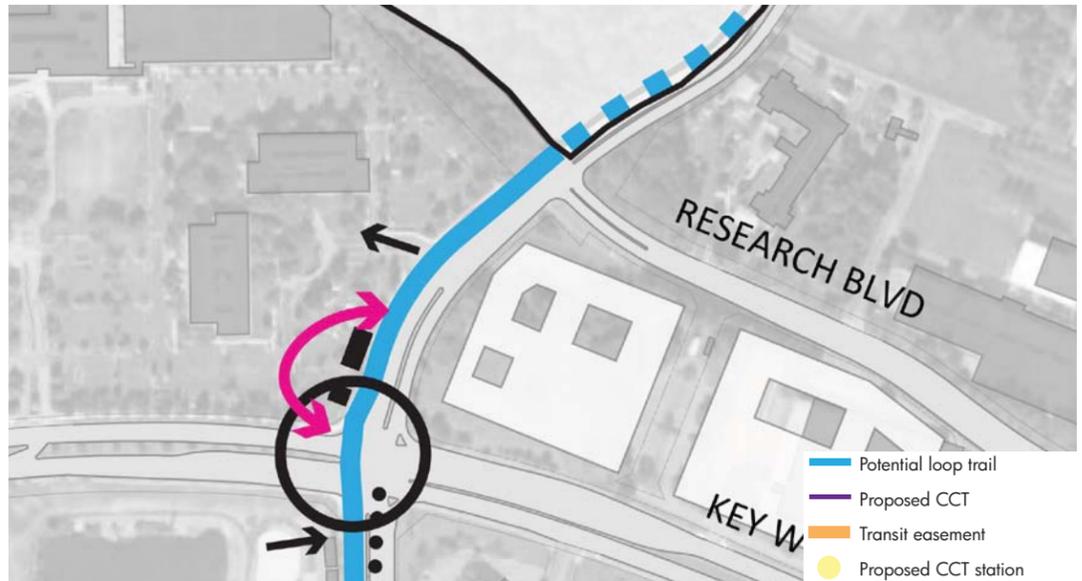
Alternatives by Loop Segment

OMEGA DRIVE (NORTHERN SEGMENT)

Existing Conditions

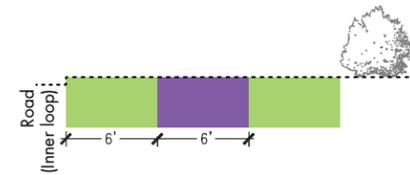


Opportunities & Constraints



- | | |
|---|---|
| Challenges | Opportunities |
| <ul style="list-style-type: none"> ↓↑ Slope at inner edge Mature trees --- Structure | <ul style="list-style-type: none"> ↔ Missing connection ○ Major road crossing ↪ Possible loop spur — Space for wider trail — CCT/roadway reconstruction --- Possible loop extension |

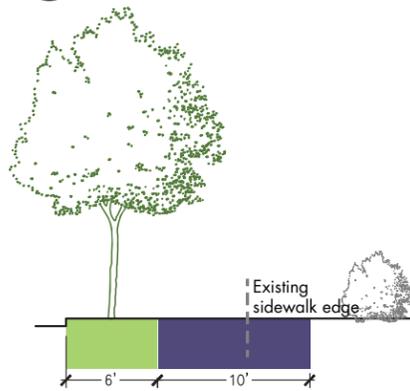
EXISTING CONDITIONS



WIDTH

12'

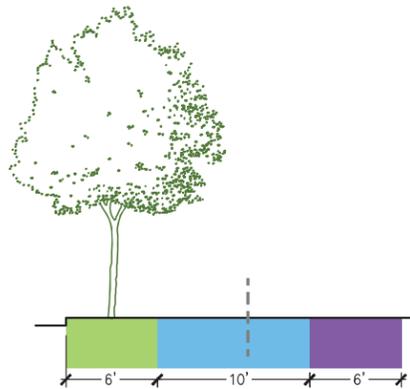
ALT 1



16'

+4'

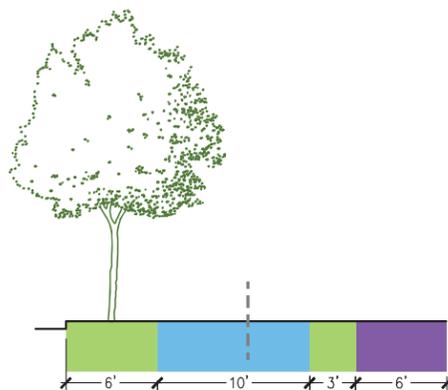
ALT 2



22'

+10'

ALT 3



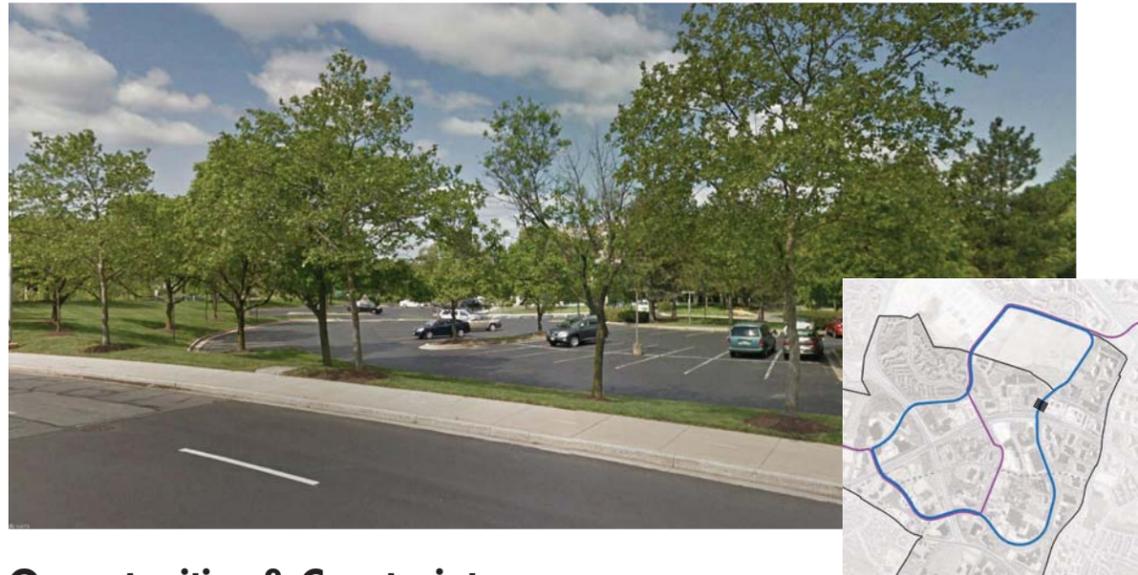
25'

+13'

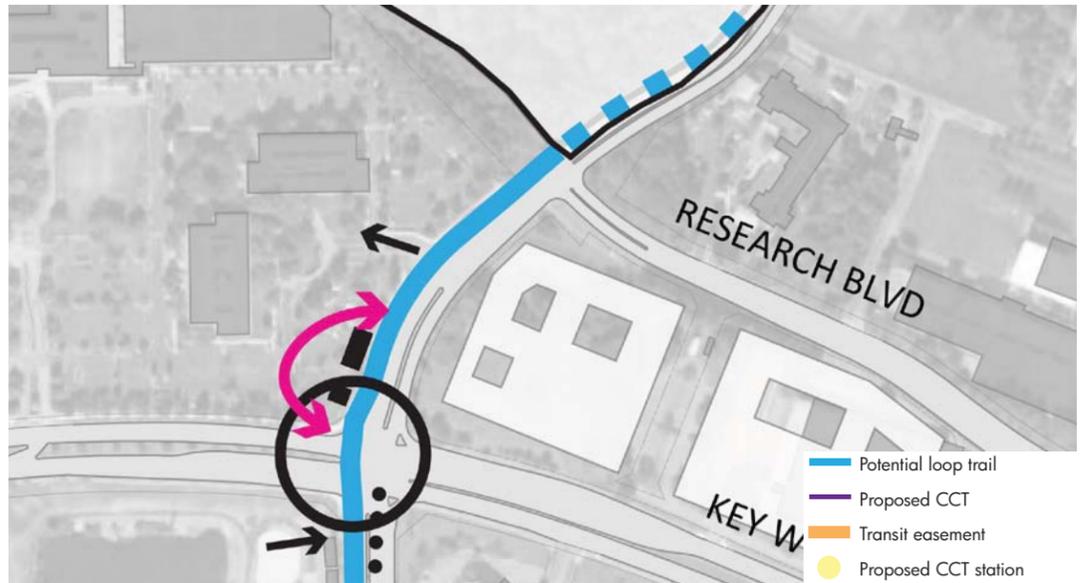
Alternatives by Loop Segment

OMEGA DRIVE (SOUTHERN SEGMENT)

Existing Conditions

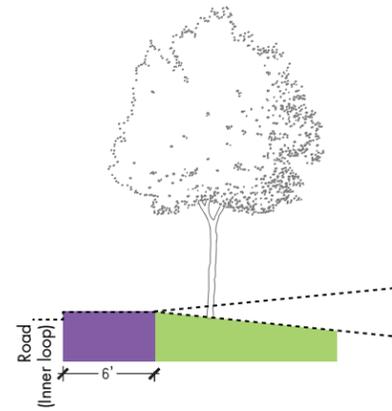


Opportunities & Constraints



- | | | | |
|------------------------|-----------------------|-------------------------|------------------------------|
| Challenges | | Opportunities | |
| ↓↑ Slope at inner edge | ↔ Missing connection | ↔ Possible loop spur | █ CCT/roadway reconstruction |
| Mature trees | ○ Major road crossing | — Space for wider trail | --- Possible loop extension |
| --- Structure | | | |

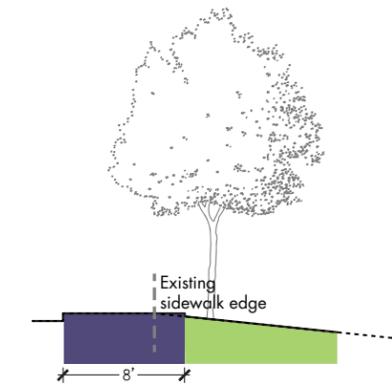
EXISTING CONDITIONS



WIDTH

12'

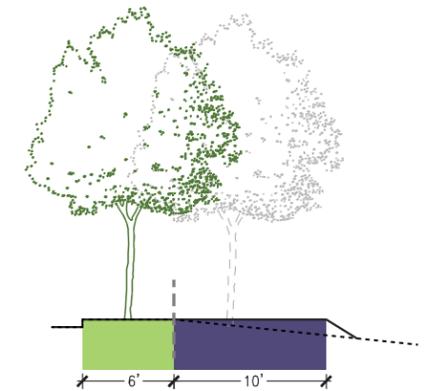
ALT 1



16'

+4'

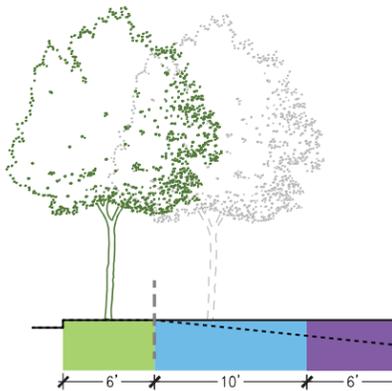
OR



16'

+10'

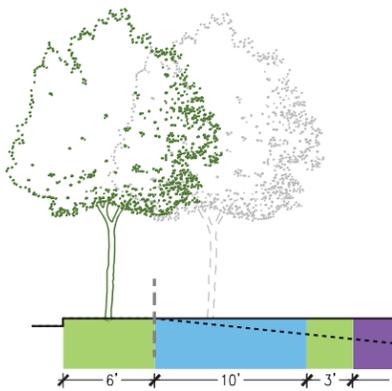
ALT 2



22'

+10'

ALT 3



25'

+13'

Alternatives by Loop Segment

OMEGA DRIVE: CONSTRAINTS

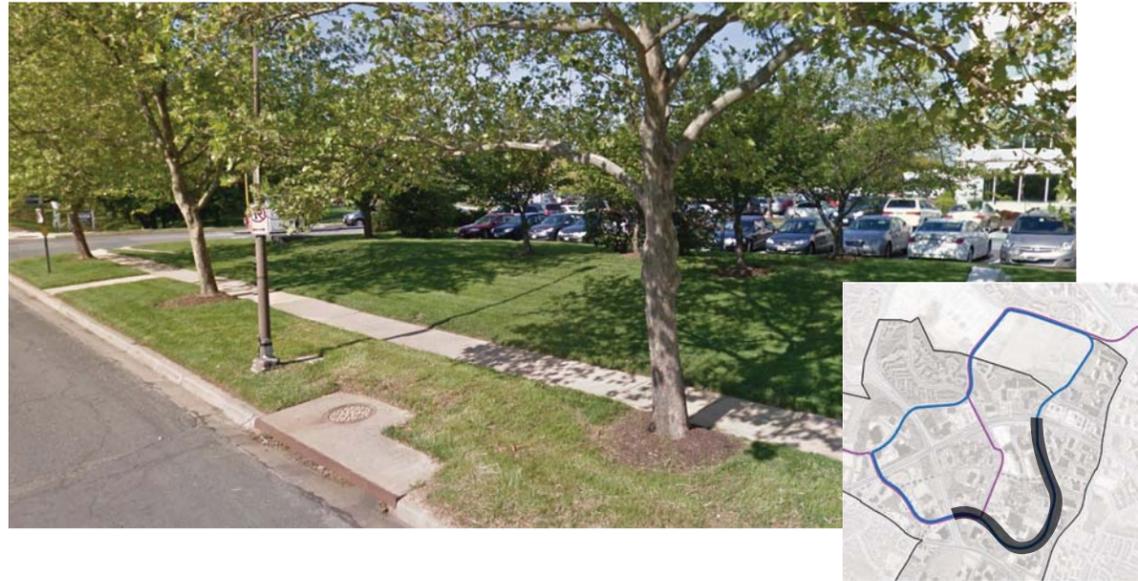
- Utilities and slip lane crossing may require reduced loop trail width if not relocated or configured



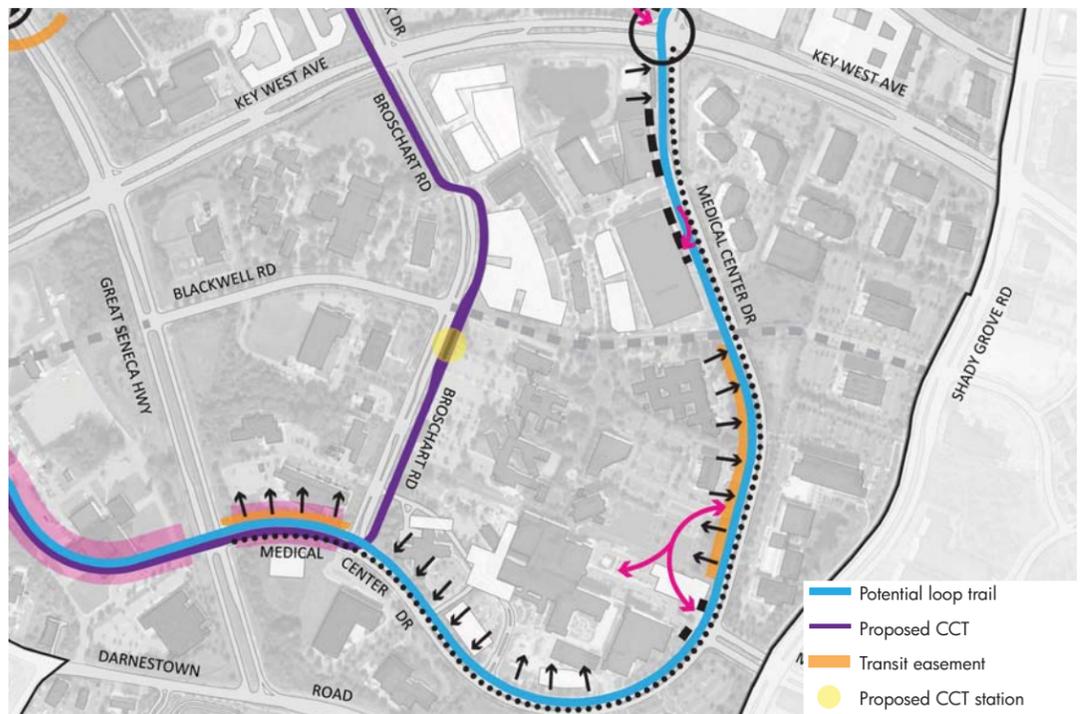
Alternatives by Loop Segment

MEDICAL CENTER DRIVE: TREES PRESERVED

Existing Conditions

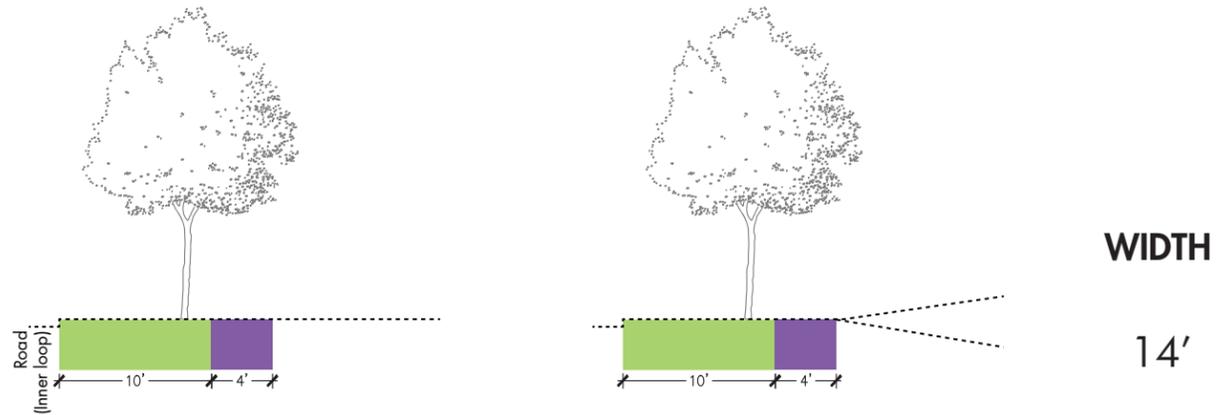


Opportunities & Constraints

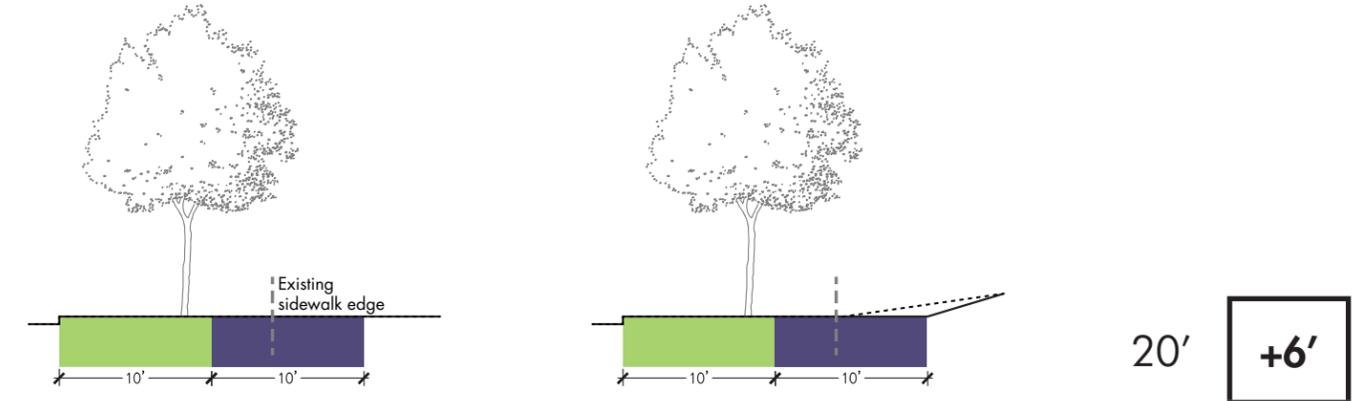


- Challenges**
- ↕ Slope at inner edge
 - ⋯ Mature trees
 - Structure
- Opportunities**
- ↔ Missing connection
 - Major road crossing
 - ↪ Possible loop spur
 - Space for wider trail
 - ⋯ Possible loop extension
 - CCT/roadway reconstruction

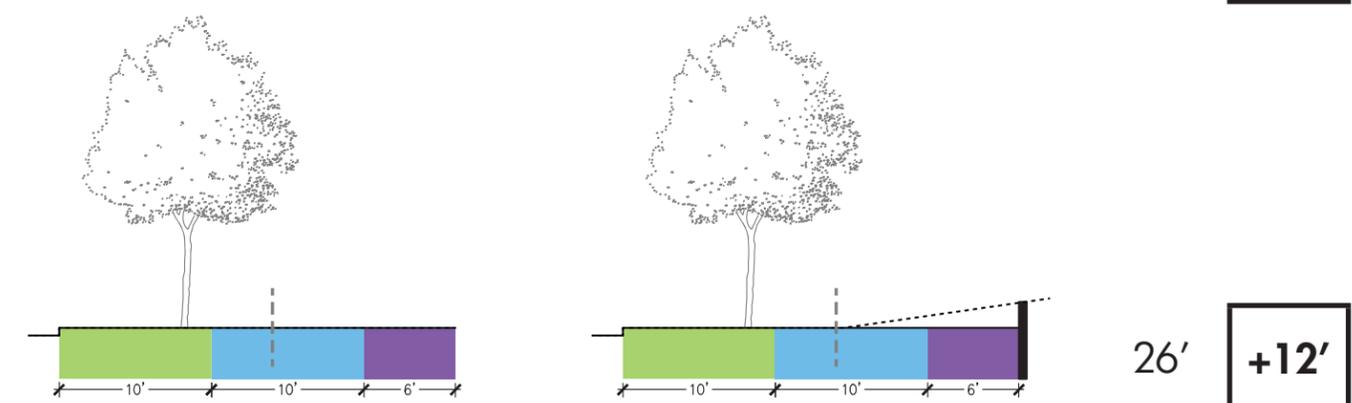
EXISTING CONDITIONS



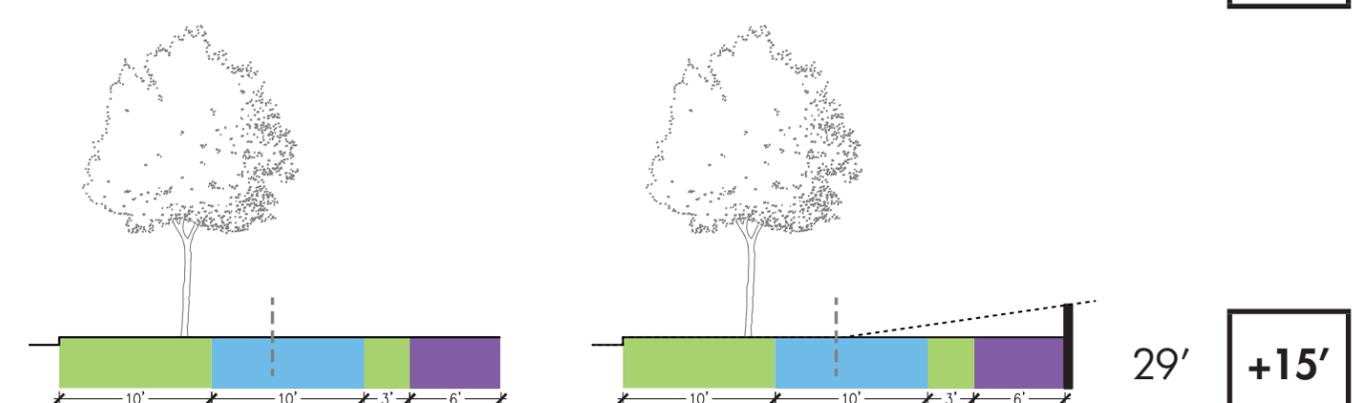
ALT 1



ALT 2



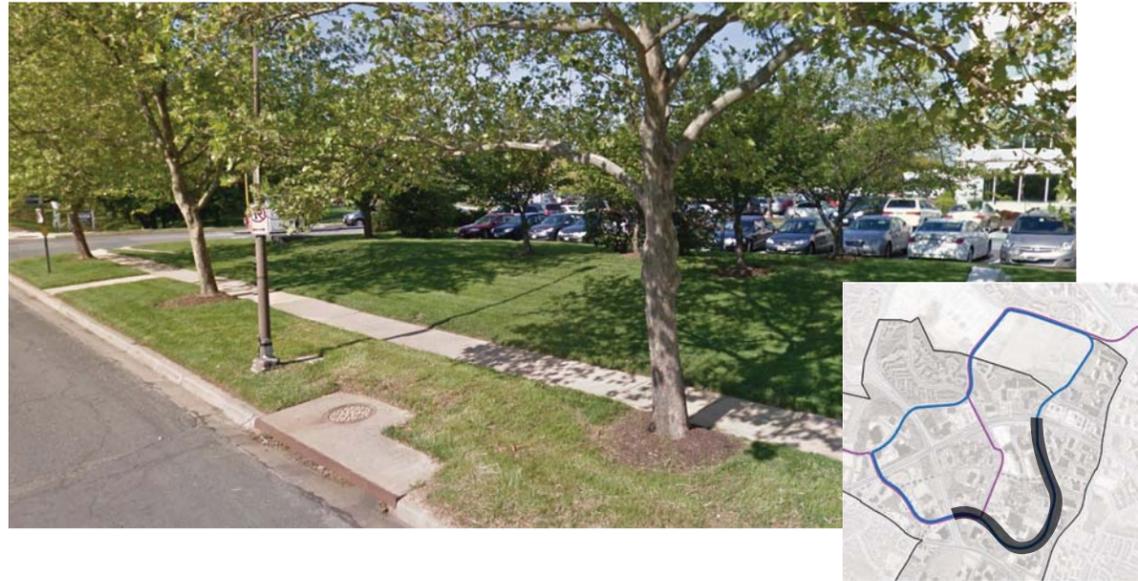
ALT 3



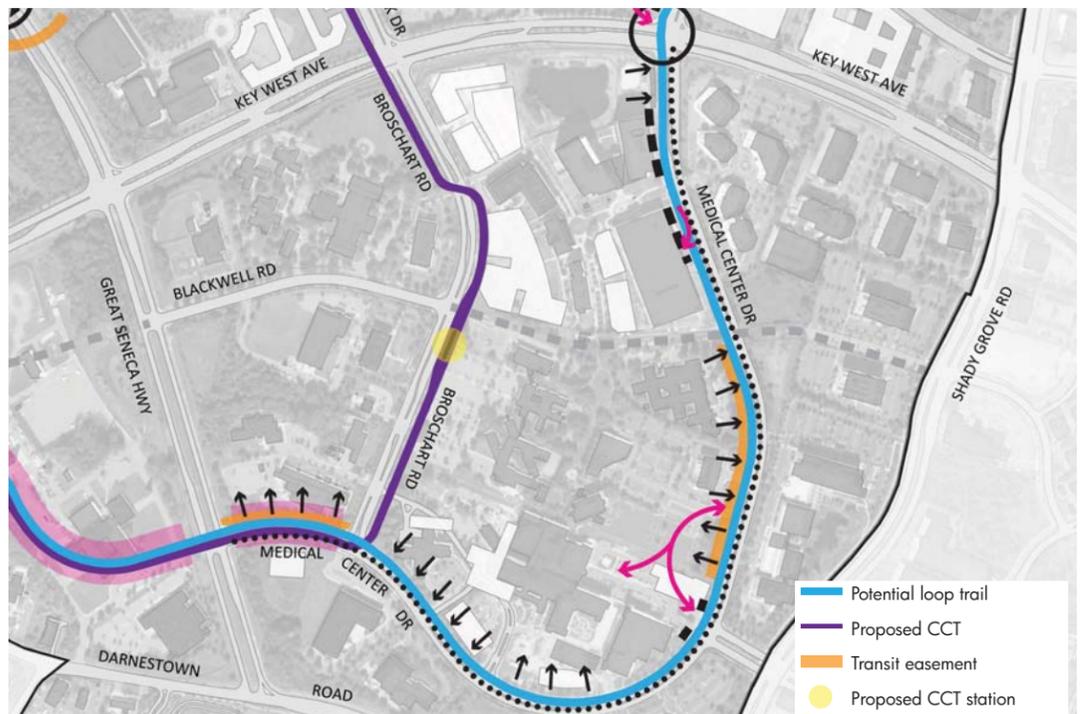
Alternatives by Loop Segment

MEDICAL CENTER DRIVE: TREES REMOVED

Existing Conditions

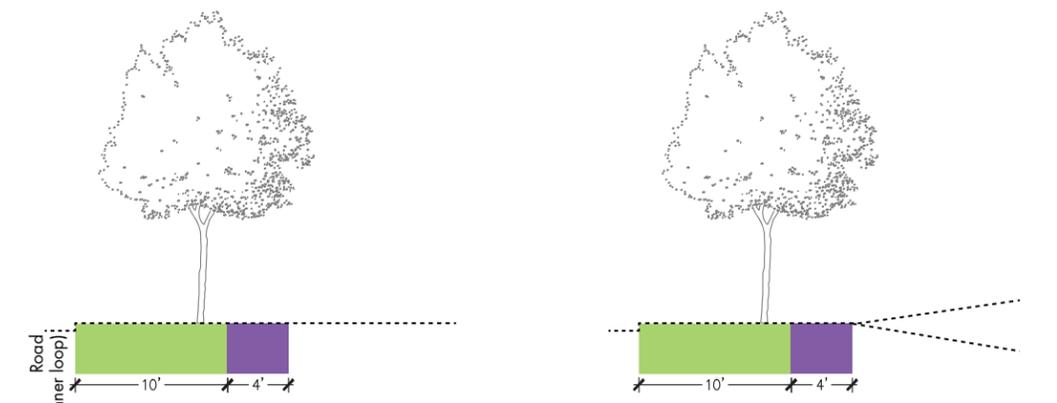


Opportunities & Constraints



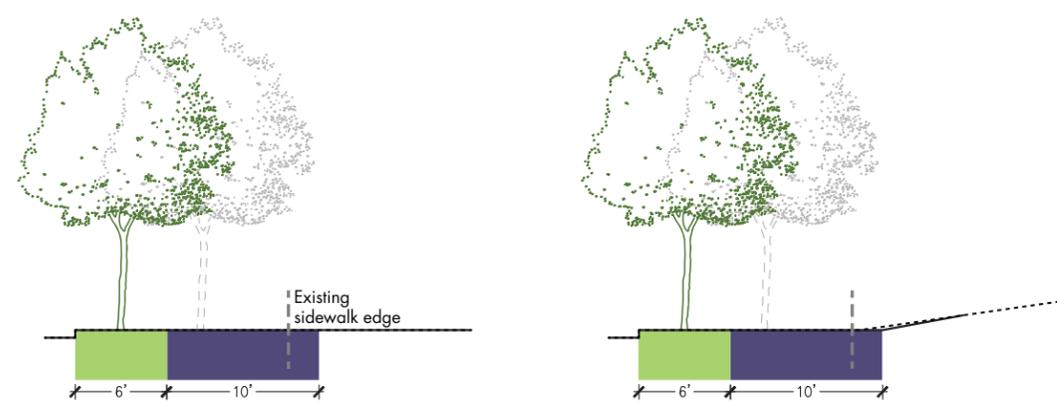
- Challenges**
- ↕ Slope at inner edge
 - ⋯ Mature trees
 - Structure
- Opportunities**
- ↔ Missing connection
 - Major road crossing
 - ↪ Possible loop spur
 - Space for wider trail
 - ⋯ Possible loop extension
 - CCT/roadway reconstruction

EXISTING CONDITIONS



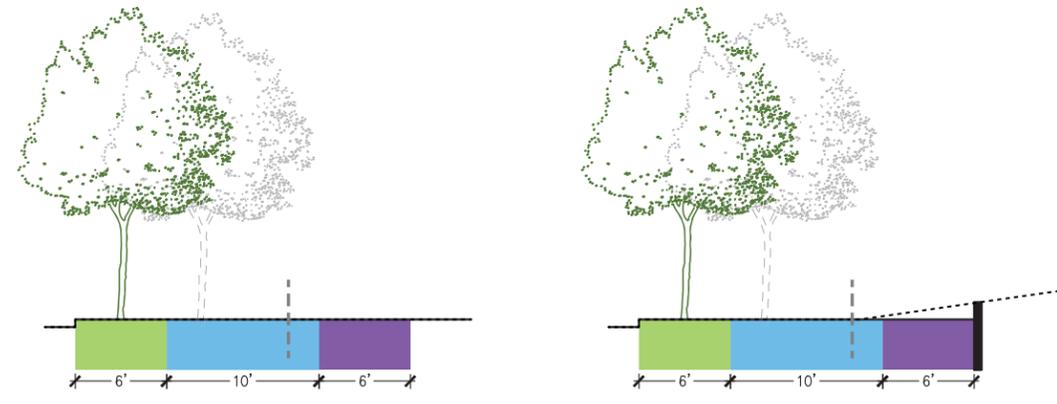
WIDTH
14'

ALT 1



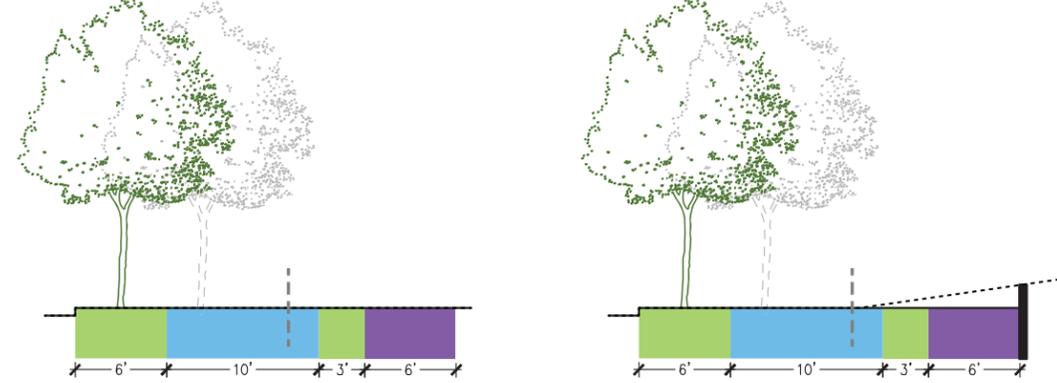
16' **+2'**

ALT 2



22' **+8'**

ALT 3



25' **+11'**

Alternatives by Loop Segment

MEDICAL CENTER DRIVE: CONSTRAINTS

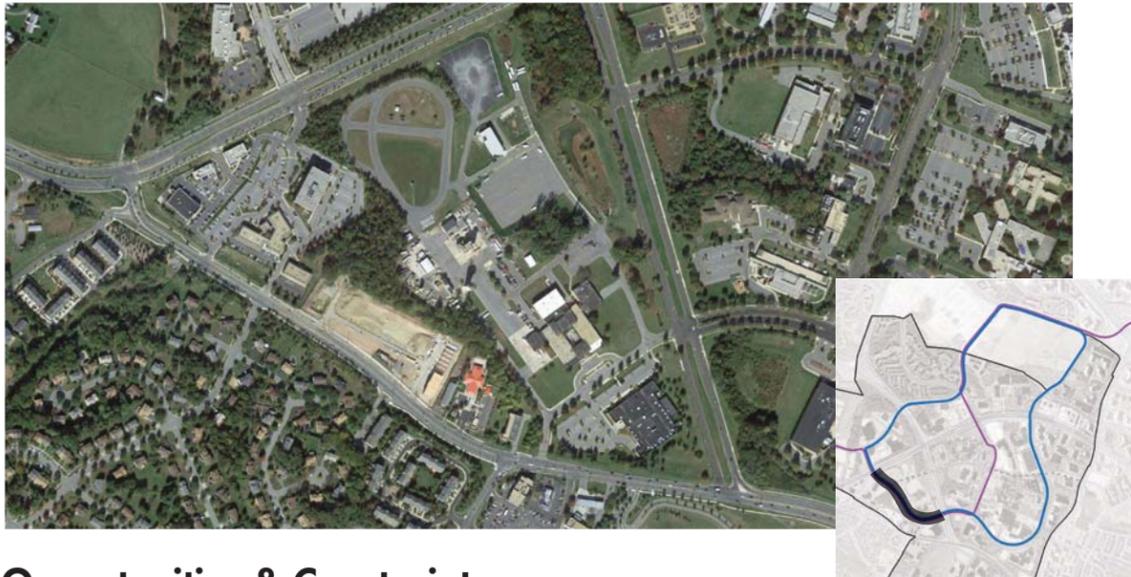
- Drainage areas and entry walls create pinch points that may require reduced loop trail width



Alternatives by Loop Segment

PSTA PROPERTY: NEW ROAD

Existing Conditions

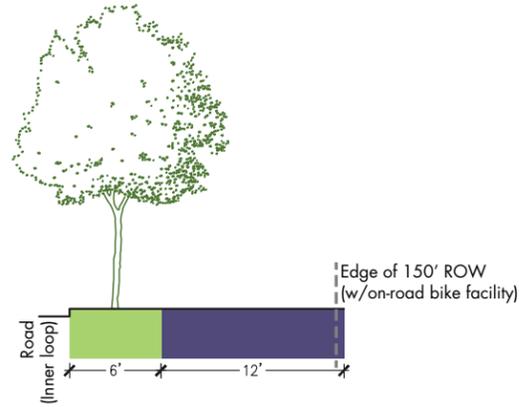


Opportunities & Constraints



- | | |
|-----------------------|------------------------------|
| Challenges | Opportunities |
| ↓ Slope at inner edge | ↔ Missing connection |
| Mature trees | ○ Major road crossing |
| --- Structure | ↔ Possible loop spur |
| | ↔ Space for wider trail |
| | ↔ Possible loop extension |
| | ↔ CCT/roadway reconstruction |
| | ↔ Possible loop extension |

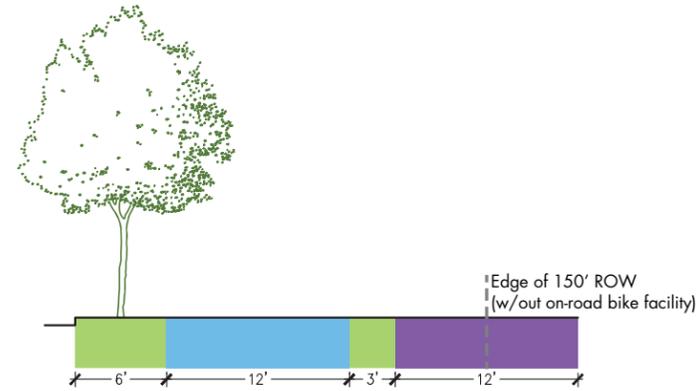
ALT 1



WIDTH

18'

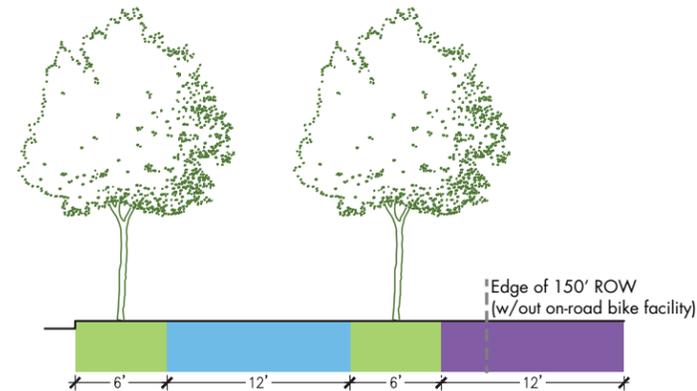
ALT 3A



33'

+8'

ALT 3B



36'

+11'

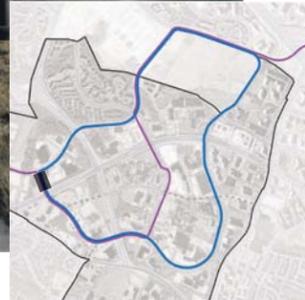
STREET CROSS SECTION (150' ROW PER MASTER PLAN)



Alternatives by Loop Segment

JOHNS HOPKINS DRIVE

Existing Conditions

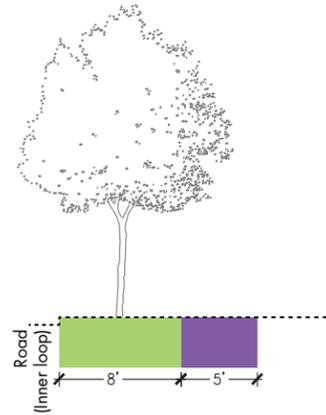


Opportunities & Constraints



- Challenges**
- ↑↓ Slope at inner edge
 - Mature trees
 - Structure
 - ↔ Missing connection
 - Major road crossing
- Opportunities**
- ↔ Possible loop spur
 - Space for wider trail
 - CCT/roadway reconstruction
 - Possible loop extension

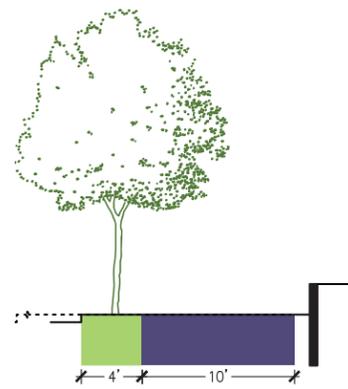
EXISTING CONDITIONS



WIDTH

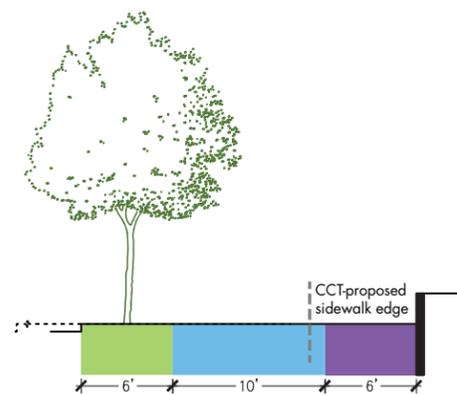
13'

ALT 1
(per CCT 15% plans)



14'

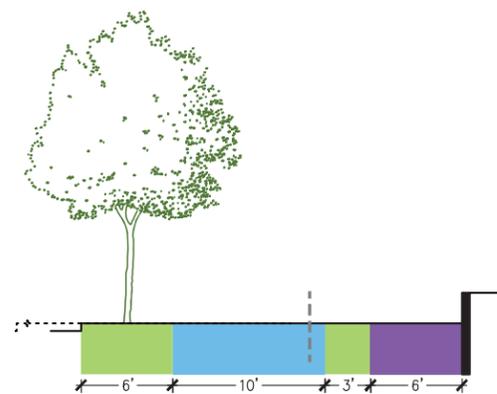
ALT 2



22'

+8'

ALT 3



25'

+11'

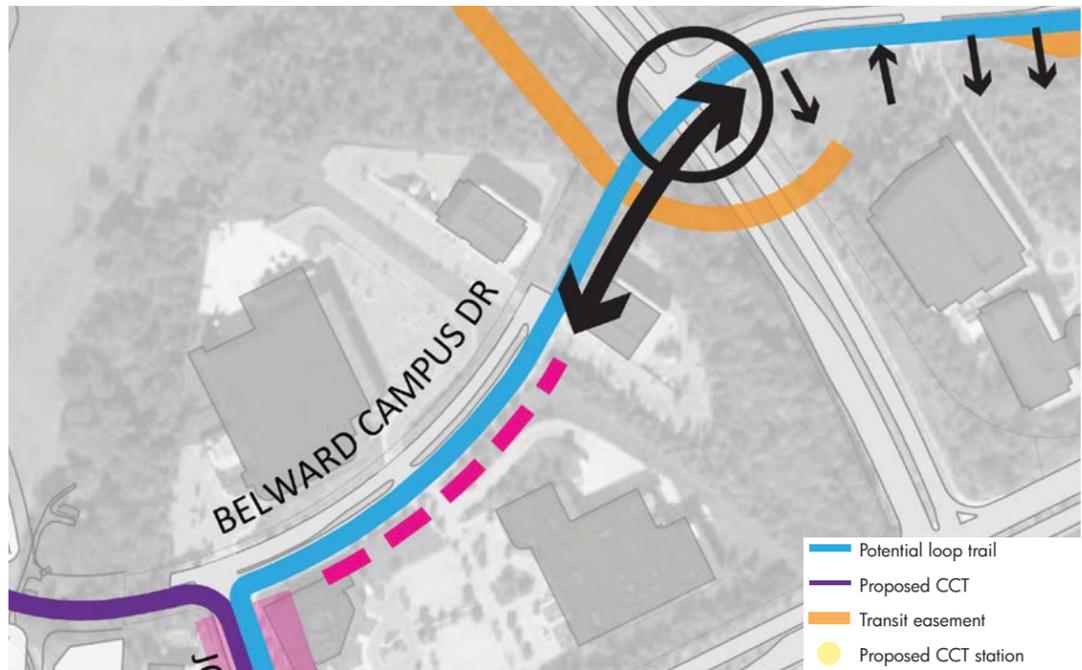
Alternatives by Loop Segment

BELWARD CAMPUS DRIVE

Existing Conditions

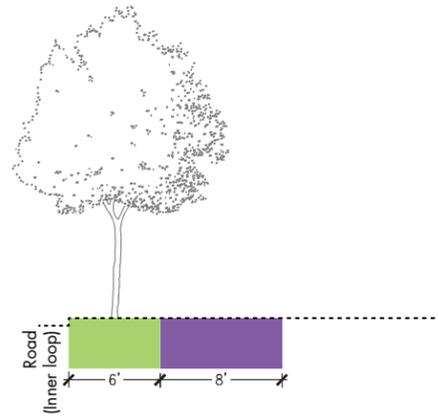


Opportunities & Constraints



- | | | | |
|------------------------|-----------------------|---------------------------|------------------------------|
| Challenges | | Opportunities | |
| ↓↑ Slope at inner edge | ↔ Missing connection | ↔ Possible loop spur | █ CCT/roadway reconstruction |
| Mature trees | ○ Major road crossing | --- Space for wider trail | --- Possible loop extension |
| --- Structure | | | |

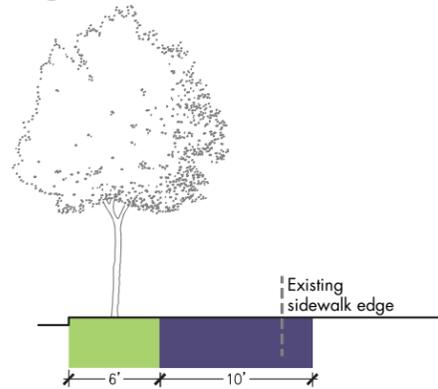
EXISTING CONDITIONS



WIDTH

14'

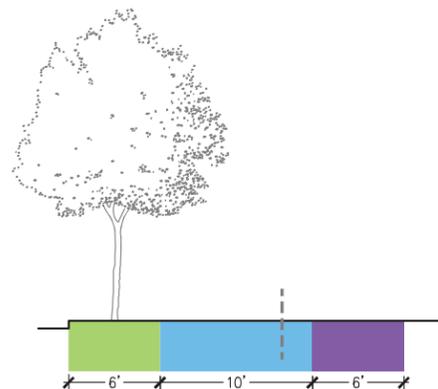
ALT 1



16'

+2'

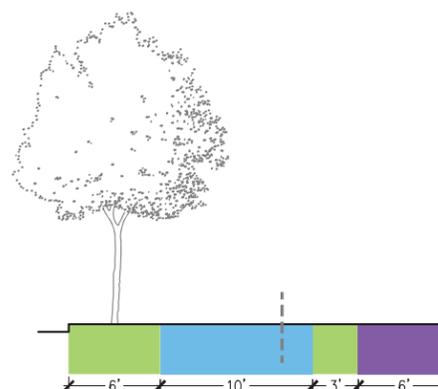
ALT 2



22'

+8'

ALT 3



25'

+11'

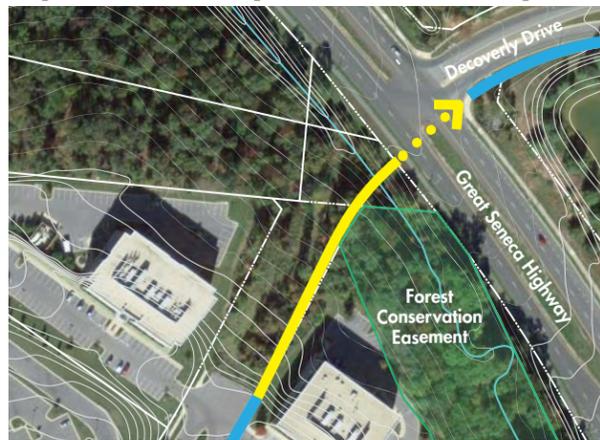
Alternatives by Loop Segment

BELWARD CAMPUS DRIVE TO DISCOVERLY DRIVE

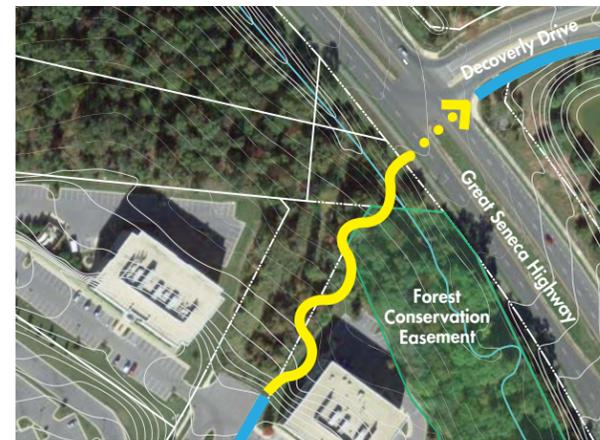


- Missing roadway connection (per GSSC Master Plan) between Belward Campus Drive and Great Seneca Highway/Discoverly Drive leaves a gap in the loop trail
- Continuation of loop trail is constrained by existing topography and vegetation
- No existing crossing at Great Seneca Highway

Option 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)

Option B: Alternate or Interim Route



Existing Conditions: Key West Avenue (L) and Great Seneca Highway (R)

PROS:

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

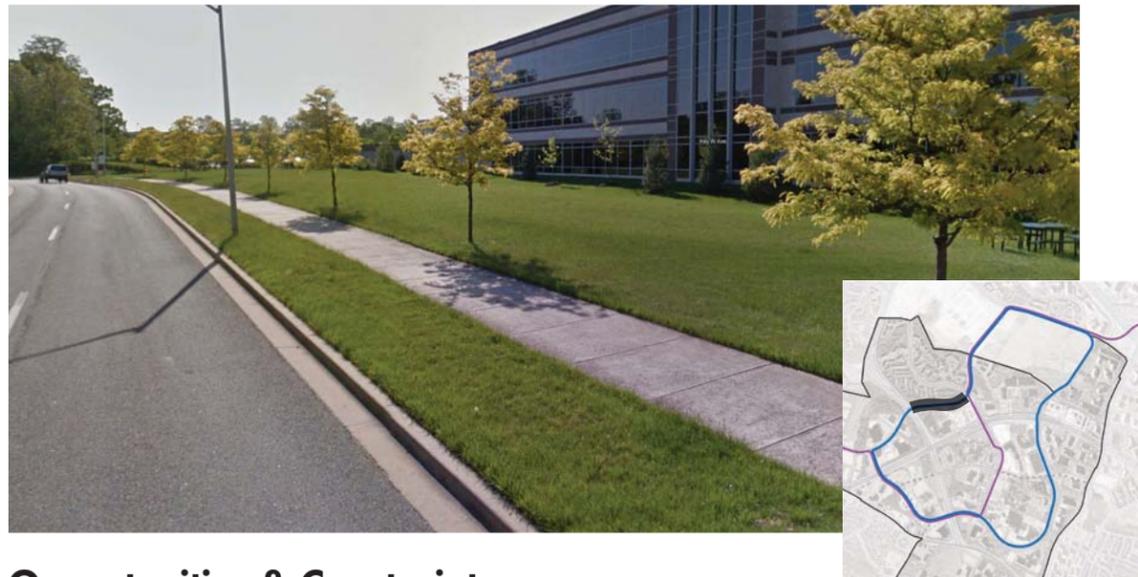
CONS:

- 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

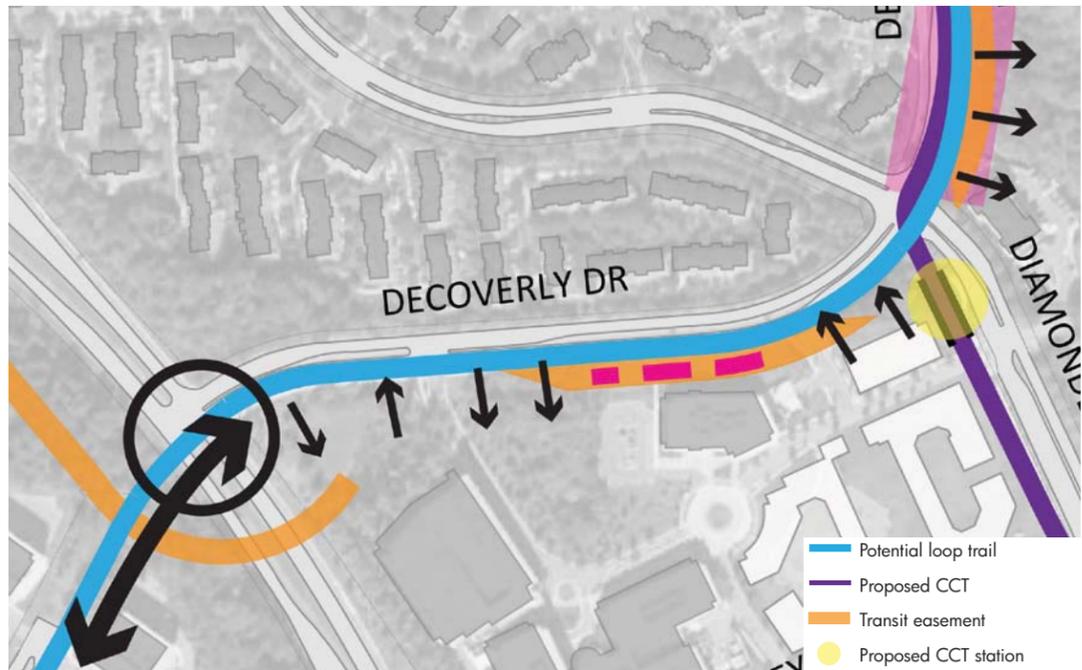
Alternatives by Loop Segment

DISCOVERLY DRIVE (SOUTH OF DIAMONDBACK DRIVE)

Existing Conditions



Opportunities & Constraints

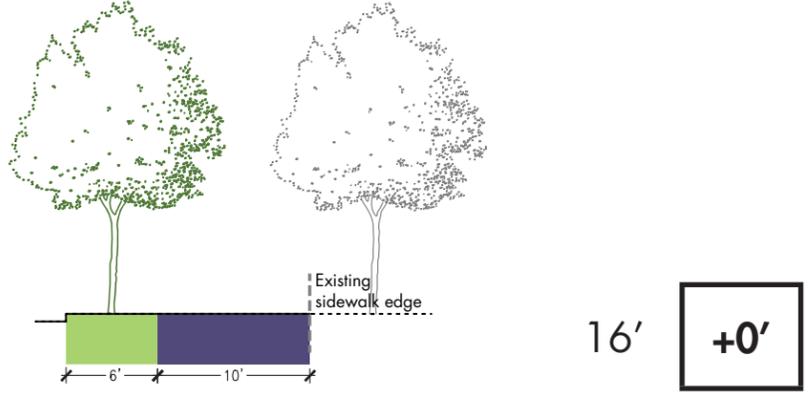


- | | |
|------------------------|--------------------------------|
| Challenges | Opportunities |
| ↓↑ Slope at inner edge | ↔ Missing connection |
| Mature trees | ○ Major road crossing |
| --- Structure | ↔ Possible loop spur |
| | --- Space for wider trail |
| | --- CCT/roadway reconstruction |
| | --- Possible loop extension |

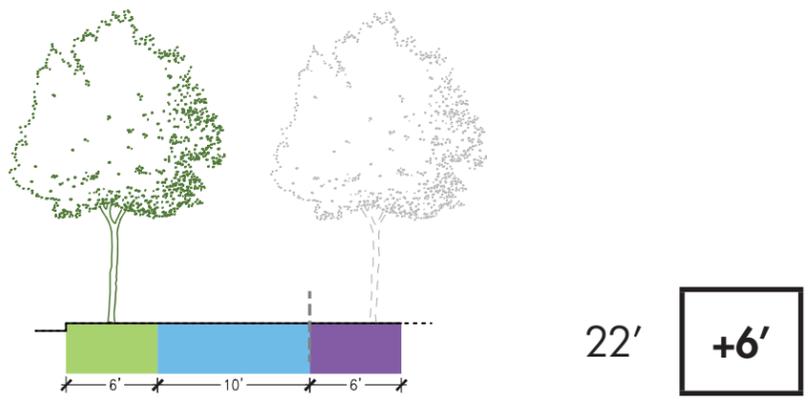
EXISTING CONDITIONS



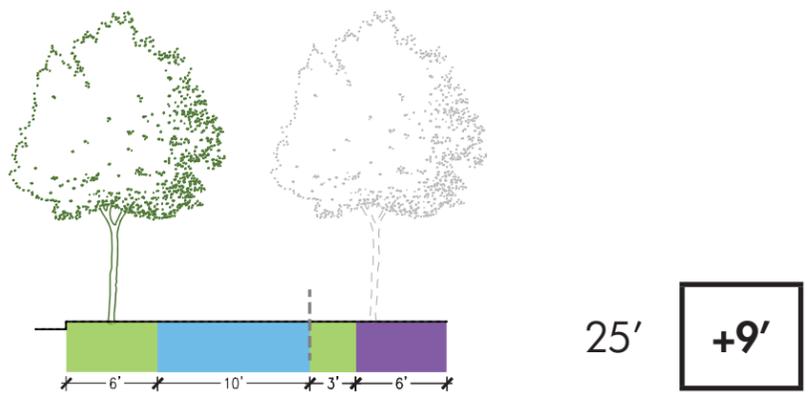
ALT 1



ALT 2



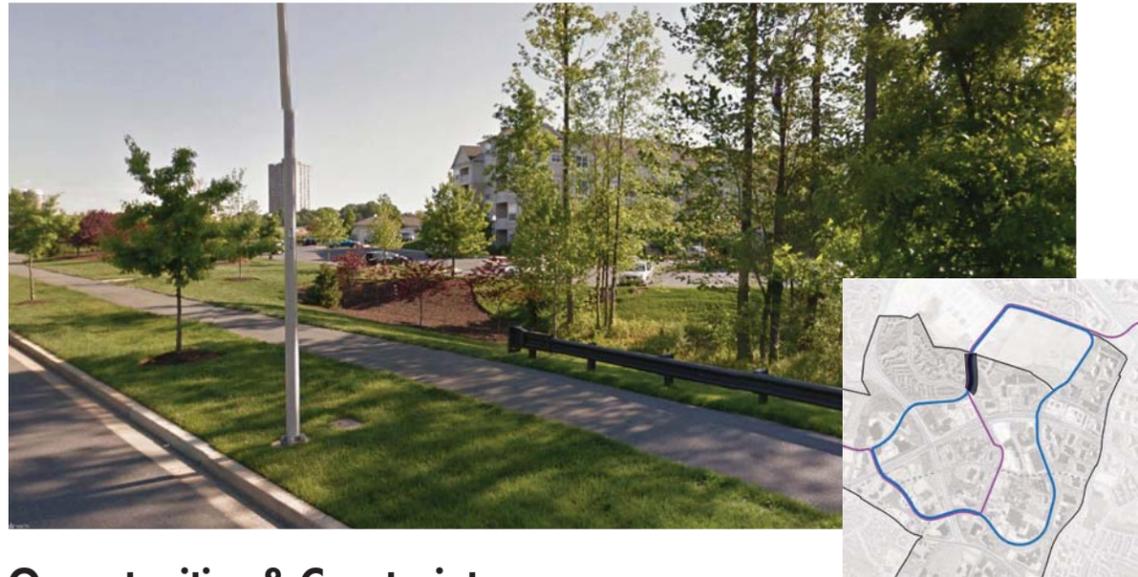
ALT 3



Alternatives by Loop Segment

DISCOVERLY DRIVE (NORTH OF DIAMONDBACK DRIVE)

Existing Conditions

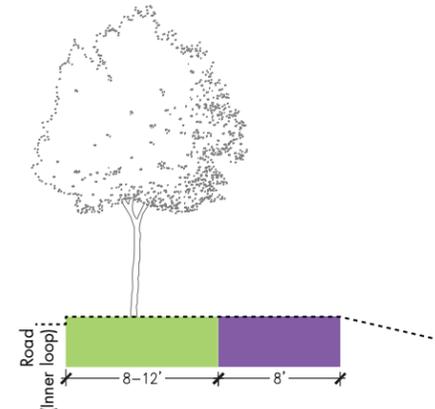


Opportunities & Constraints



- | | |
|--|--|
| Challenges | Opportunities |
| <ul style="list-style-type: none"> ↕ Slope at inner edge Mature trees --- Structure | <ul style="list-style-type: none"> ↔ Missing connection ○ Major road crossing ↔ Possible loop spur --- Space for wider trail --- Possible loop extension --- CCT/roadway reconstruction --- Possible loop extension |

EXISTING CONDITIONS



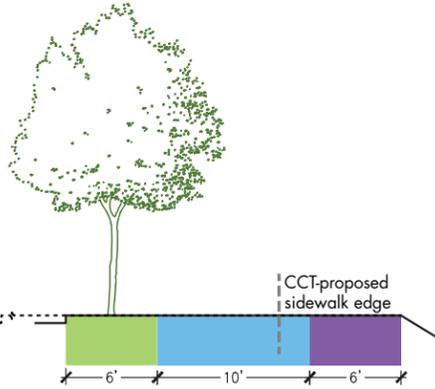
WIDTH
16-20'

ALT 1
(per CCT 15% plans)



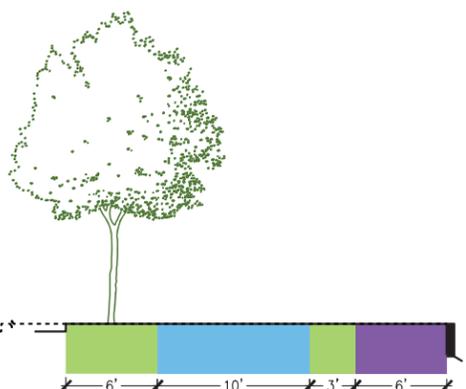
15'

ALT 2



22' +7'

ALT 3



25' +10'