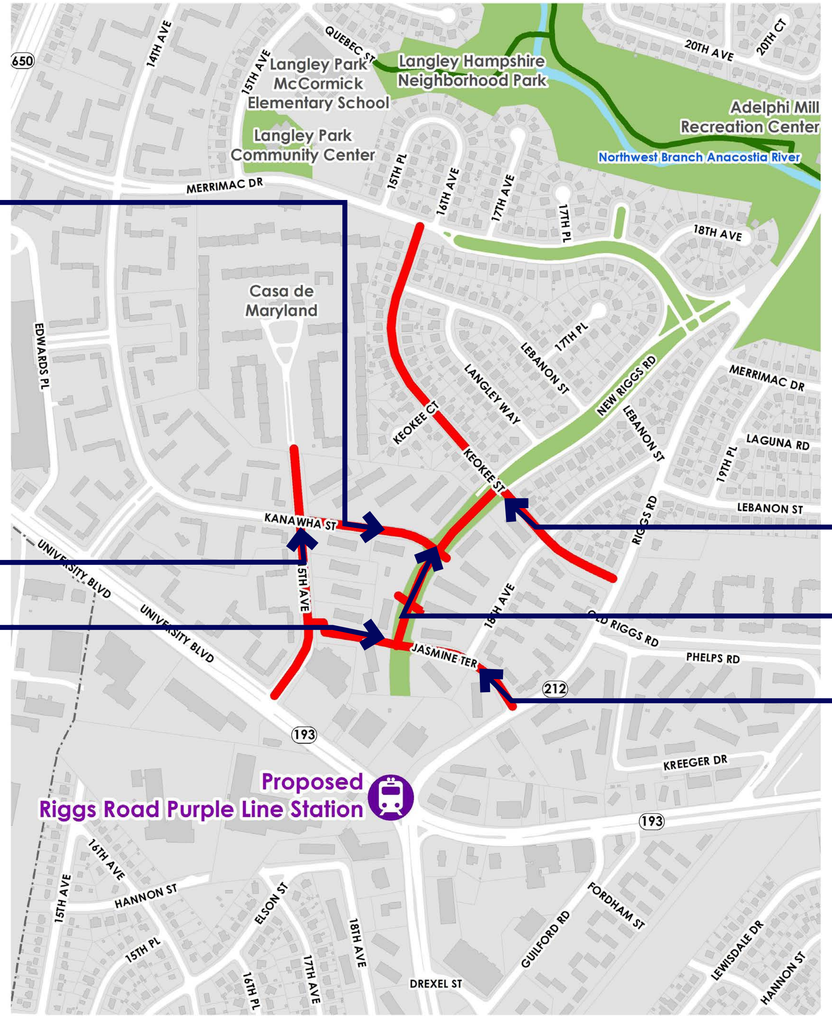
STUDY SEGMENTS

KANAWHA STREET

15TH AVENUE

JASMINE TERRACE (EXTENSION) PARKING LOT



KEOKEE STREET

NEW RIGGS ROAD RIGHT OF WAY

JASMINE TERRACE

Study Segments

Riggs Road - Langley Park Area Bicycle Boulevards

0 200 400 800 Feet

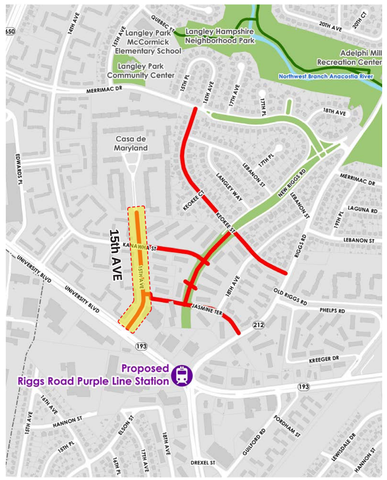
Legend

- County Boundary
- Water Bodies
- Buildings
- Parks/Open Space
- Existing Trails
- Study Segments

15TH AVENUE

UNIVERSITY BOULEVARD (MD 193) TO VILLAS AT LANGLEY APARTMENTS

CONCEPTUAL DESIGN ALTERNATIVES

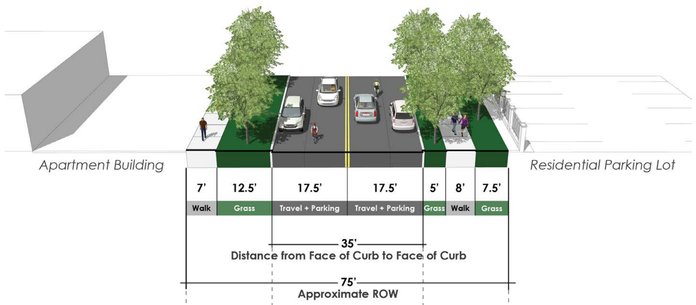


KEY MAP

EXISTING PHOTOS

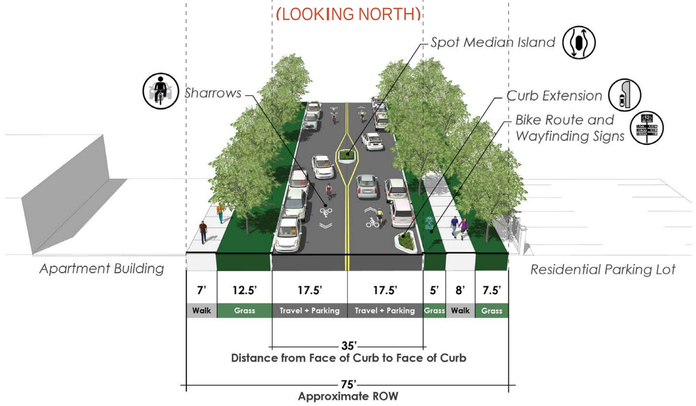
EXISTING

(LOOKING NORTH)



OPTION 1: BICYCLE BOULEVARD

(LOOKING NORTH)

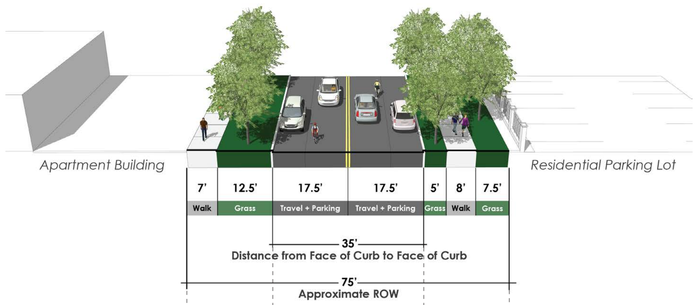


OPTION 1: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	MEDIUM
COST	LOW
PARKING IMPACTS	LOW
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

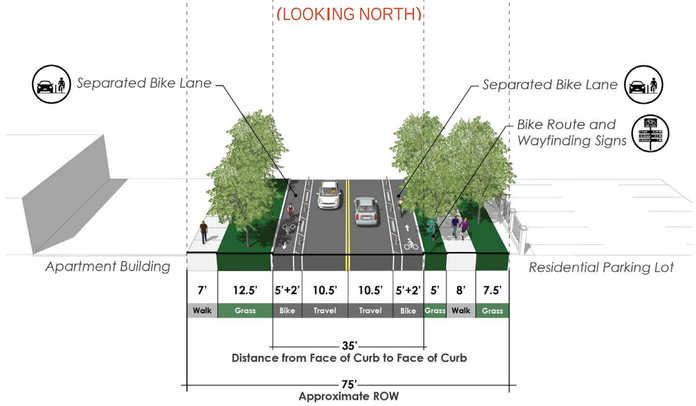
EXISTING

(LOOKING NORTH)



OPTION 2: SEPARATED BIKE LANES

(LOOKING NORTH)

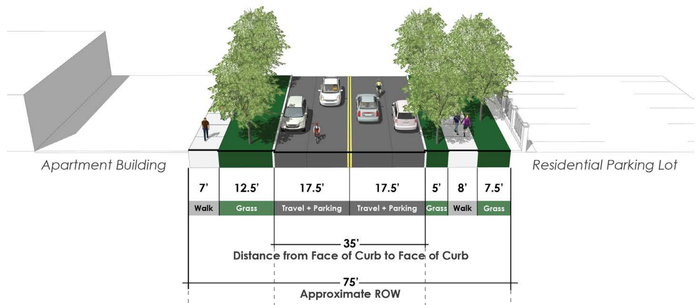


OPTION 2: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	LOW
COST	LOW
PARKING IMPACTS	HIGH
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

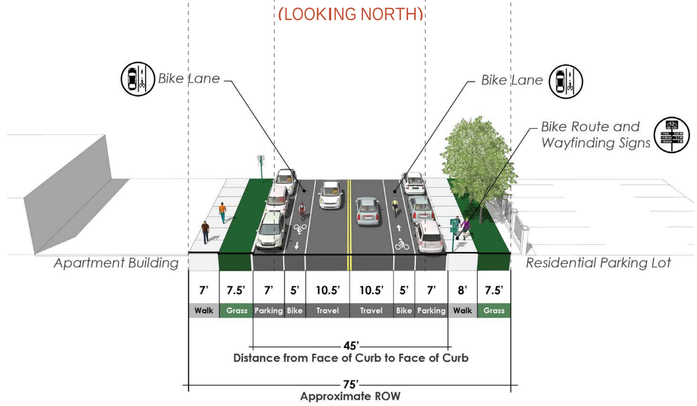
EXISTING

(LOOKING NORTH)



OPTION 3: CONVENTIONAL BIKE LANES + PARKING

(LOOKING NORTH)



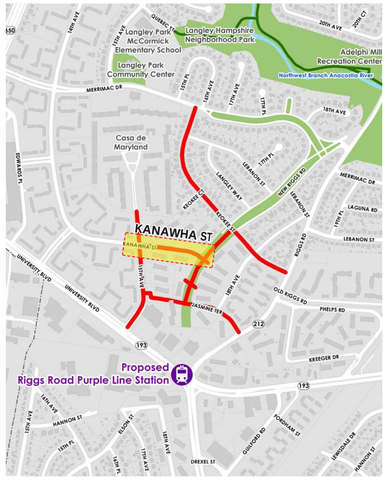
OPTION 3: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	MEDIUM
COST	HIGH
PARKING IMPACTS	LOW
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	HIGH

KANAWHA STREET

15TH AVENUE TO NEW RIGGS ROAD RIGHT OF WAY

CONCEPTUAL DESIGN ALTERNATIVES

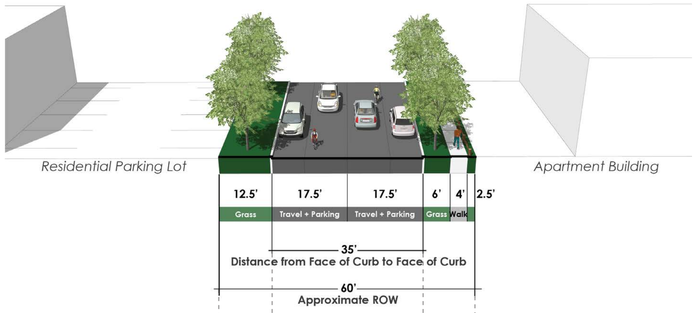


KEY MAP

EXISTING PHOTOS

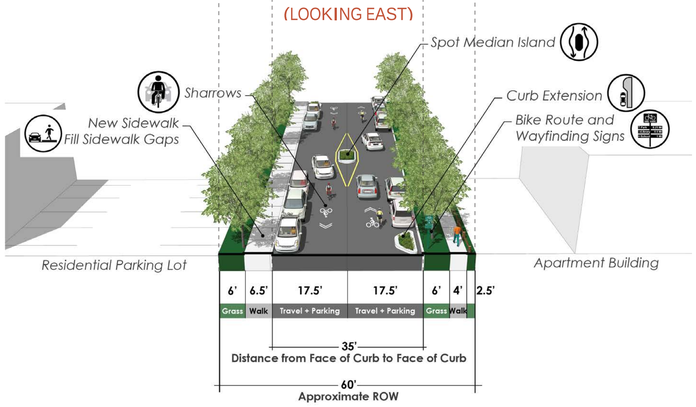
EXISTING

(LOOKING EAST)



OPTION 1: BICYCLE BOULEVARD

(LOOKING EAST)

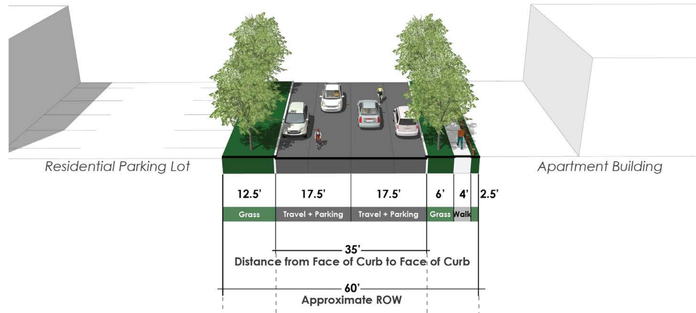


OPTION 1: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	MEDIUM
COST	LOW
PARKING IMPACTS	LOW
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

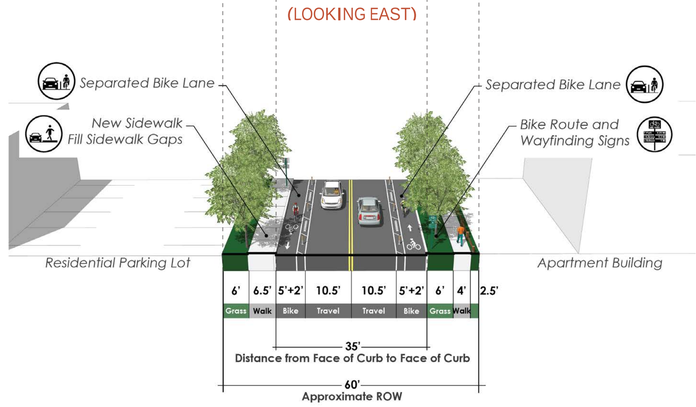
EXISTING

(LOOKING EAST)



OPTION 2: SEPARATED BIKE LANES

(LOOKING EAST)

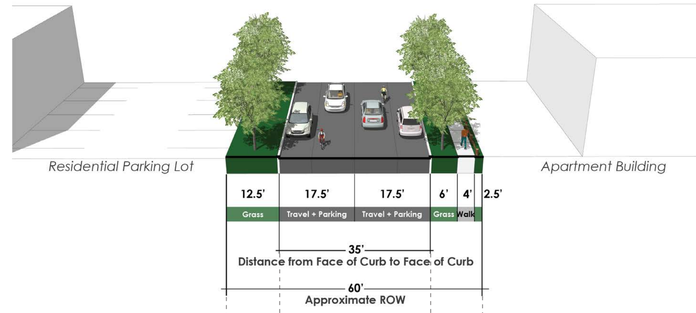


OPTION 2: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	LOW
COST	LOW
PARKING IMPACTS	HIGH
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

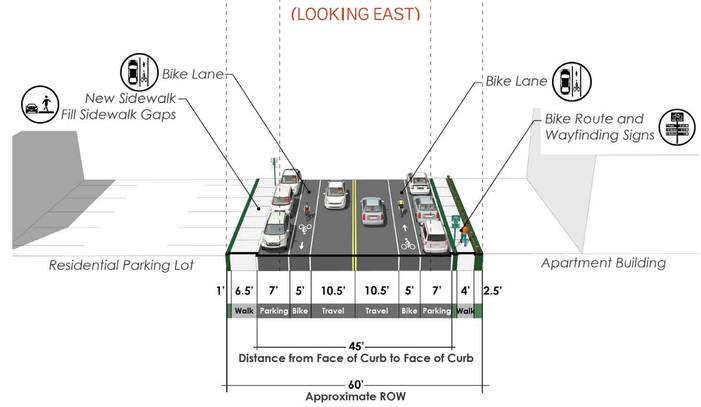
EXISTING

(LOOKING EAST)



OPTION 3: CONVENTIONAL BIKE LANES + PARKING

(LOOKING EAST)



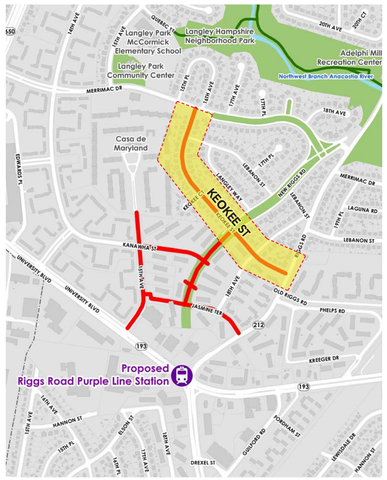
OPTION 3: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	MEDIUM
COST	HIGH
PARKING IMPACTS	LOW
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	HIGH

KEOKEE STREET

RIGGS ROAD TO MERRIMAC DRIVE

CONCEPTUAL DESIGN ALTERNATIVES

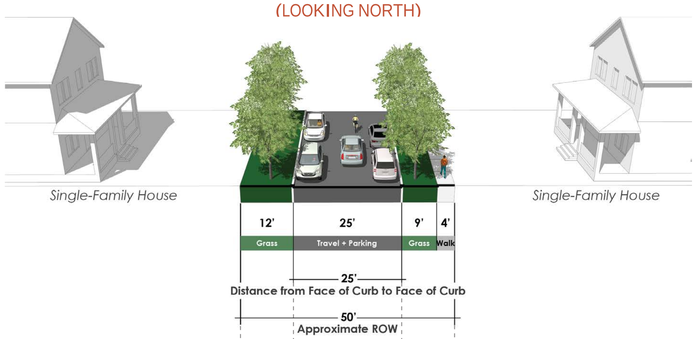


KEY MAP

EXISTING PHOTOS

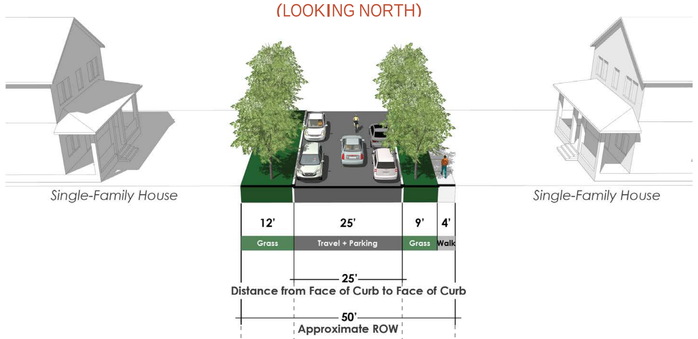
EXISTING

(LOOKING NORTH)



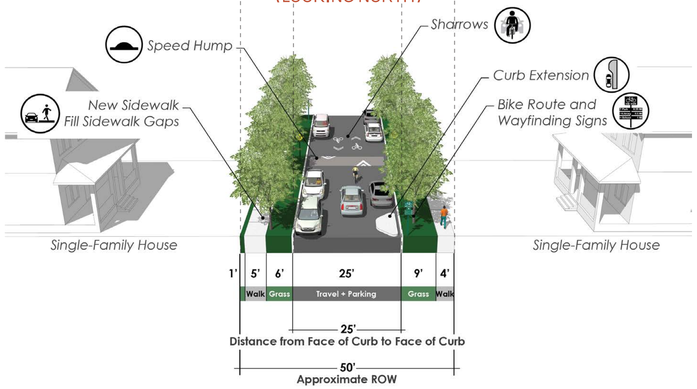
EXISTING

(LOOKING NORTH)



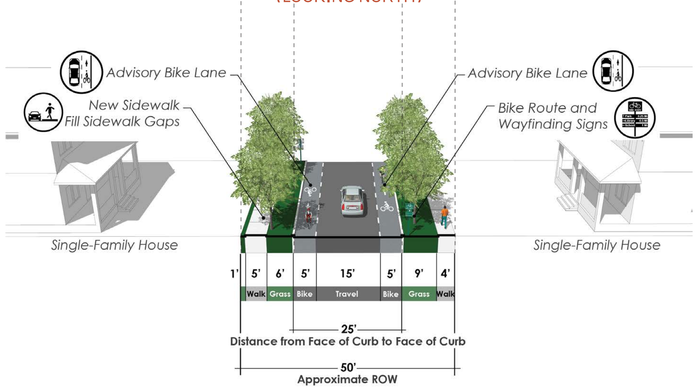
OPTION 1: BICYCLE BOULEVARD

(LOOKING NORTH)



OPTION 2: BICYCLE ADVISORY SHOULDERS

(LOOKING NORTH)



OPTION 1: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	MEDIUM
COST	LOW
PARKING IMPACTS	LOW
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

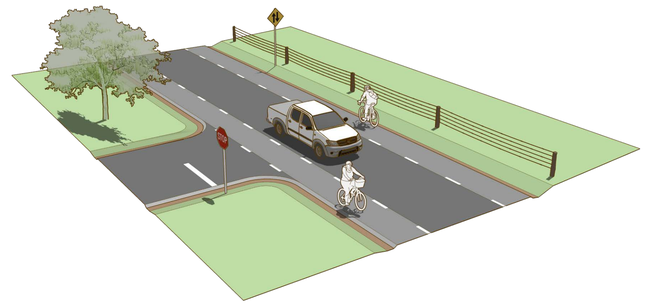
OPTION 2: QUALITATIVE ASSESSMENT

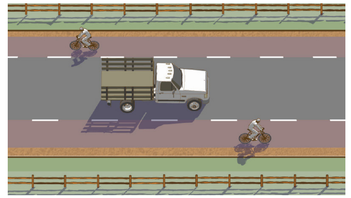
EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	LOW
COST	LOW
PARKING IMPACTS	HIGH
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

BICYCLE ADVISORY SHOULDERS

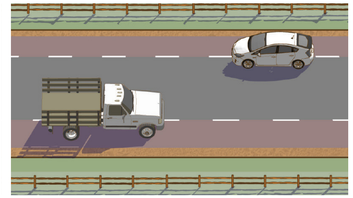
Advisory shoulders create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement marking and optional pavement color. Motorists may only enter the shoulder when no bicyclists are present and must overtake these users with caution due to potential oncoming traffic.

In order to install advisory shoulders, an approved Request to Experiment is required as detailed in Section 1A.10 of the MUTCD. FHWA is also accepting requests for experimentation with a similar treatment called "dashed bicycle lanes."





Motorists travel in the center two-way travel lane. When passing a bicyclist, no lane change is necessary.



When two motor vehicles meet, motorists may need to encroach into the advisory shoulder space.

Source: FHWA Small Town and Rural Multimodal Networks Guide

Advisory bike lane in New Hampshire.
Source: streets.mn

JASMINE TERRACE

RIGGS ROAD TO NEW RIGGS ROAD RIGHT OF WAY

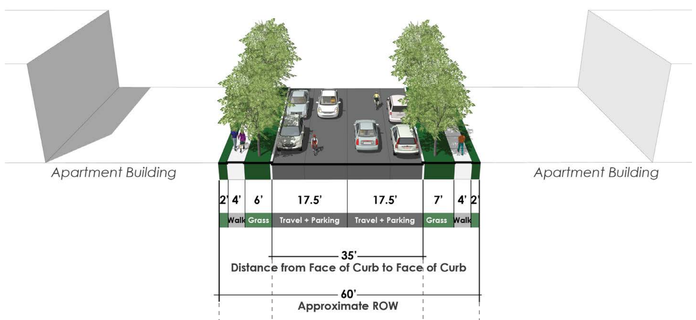
CONCEPTUAL DESIGN ALTERNATIVES

KEY MAP

EXISTING PHOTOS

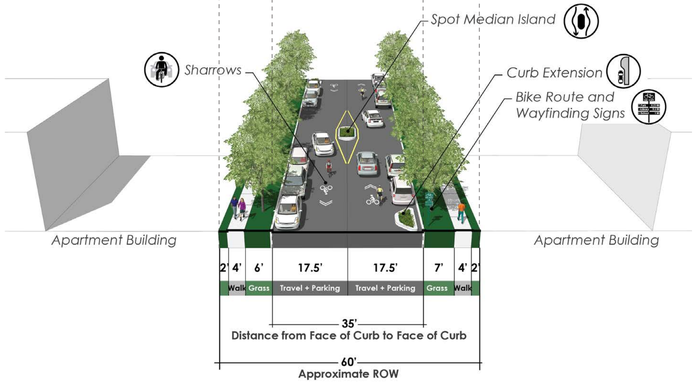
EXISTING

(LOOKING EAST)



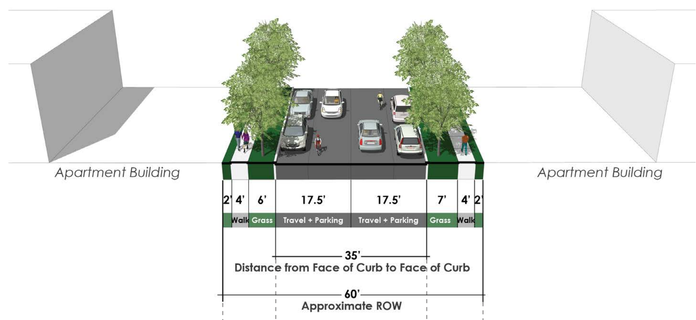
OPTION 1: BICYCLE BOULEVARD

(LOOKING EAST)



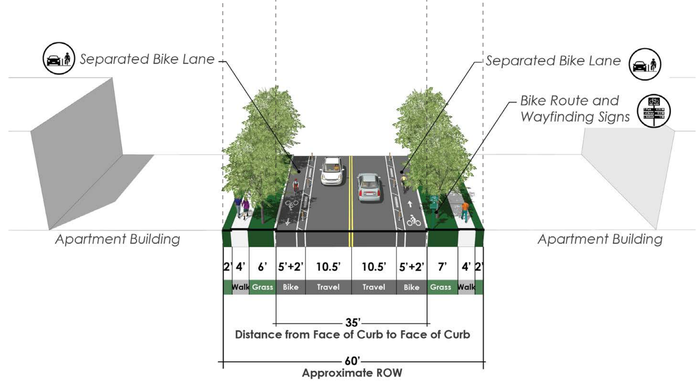
EXISTING

(LOOKING EAST)



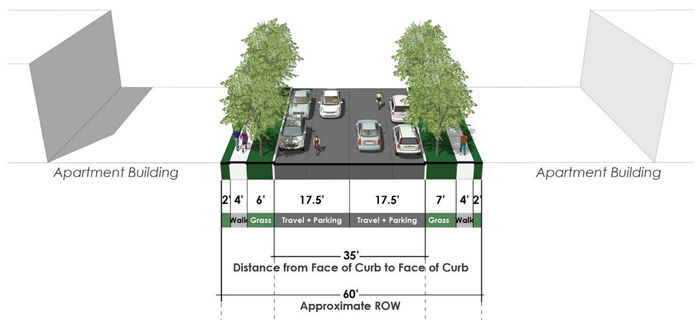
OPTION 2: SEPARATED BIKE LANES

(LOOKING EAST)



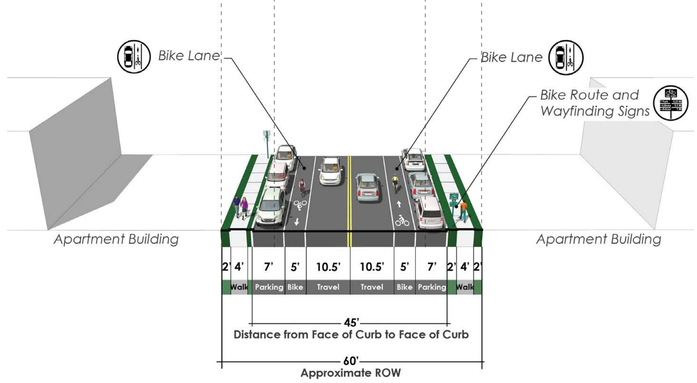
EXISTING

(LOOKING EAST)



OPTION 3: CONVENTIONAL BIKE LANES + PARKING

(LOOKING EAST)



OPTION 1: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	MEDIUM
COST	LOW
PARKING IMPACTS	LOW
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

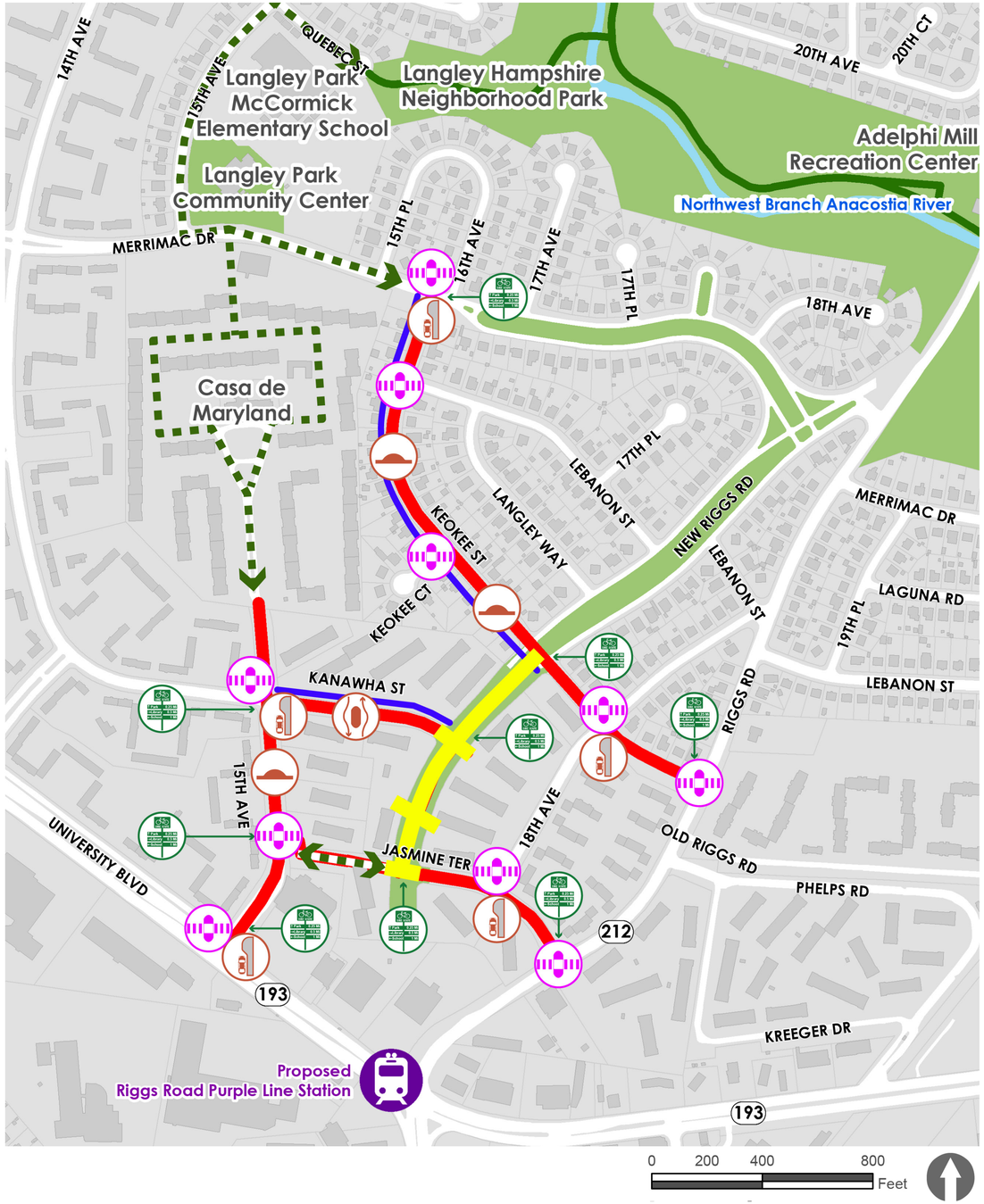
OPTION 2: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	LOW
COST	LOW
PARKING IMPACTS	HIGH
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	LOW

OPTION 3: QUALITATIVE ASSESSMENT

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	MEDIUM
COST	HIGH
PARKING IMPACTS	LOW
RIGHT OF WAY OR DRAINAGE & UTILITY IMPACT	HIGH

POTENTIAL TRAFFIC CALMING, CROSSING, AND BICYCLE BOULEVARD IDEAS



- Bicycle Facility
- Sidewalk
- Shared Use Path/Trail
- Potential Future Pedestrian & Bicycle Connection
- Crossing
- Curb Extension/Bump-outs
- Speed Hump/Bump
- Spot Median Island
- Bike Route & Way-finding Signs

TOOLBOX OF TREATMENTS

Crossing

Pedestrian Refuge Islands

Raised Crosswalk
Image Credit: City of Ann Arbor, MI

Raised Intersection
Image Credit: Alta

Curb Extension/Bump-outs

Curb Extension at Intersection
Image Credit: James Barrera

Mid-Block Curb Extension Island

Stormwater Swale as part of Curb Extension

Speed Hump/Bump

Speed Hump
Image Credit: Lucy Gibson

Speed Bump

Speed Cushion
Image Credit: NACTO

Spot Median Island

Concrete Spot Median Island

Landscape Spot Median Island
Image Credit: LKLA

Landscape Island
Image Credit: NACTO

Bike Route & Way-finding Signs

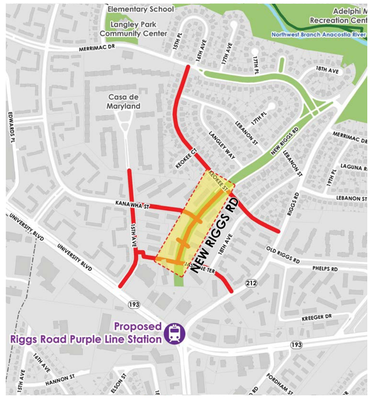
Bike Route & Way-finding Signs

Bike Route & Way-finding Signs
Image Credit: Bike Provincetown

Bike Route & Way-finding Signs

NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES



KEY MAP

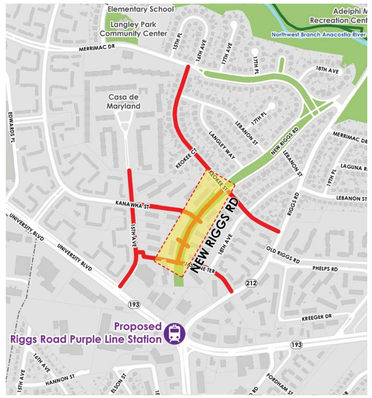
- Existing Paths
- Boundary of Project Area

Existing Conditions

- Site is part of an existing public right-of-way
- Several paths paved connecting University Gardens apartment complexes
- Storm water erosion from adjoining parking lots and streets
- Mature trees on edges, sparse landscaping
- Limited ADA accessible connections to adjoining roadways and sidewalks

NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES



KEY MAP

- Proposed Trees
- Existing Trees
- Proposed Alignment
- Proposed Connection

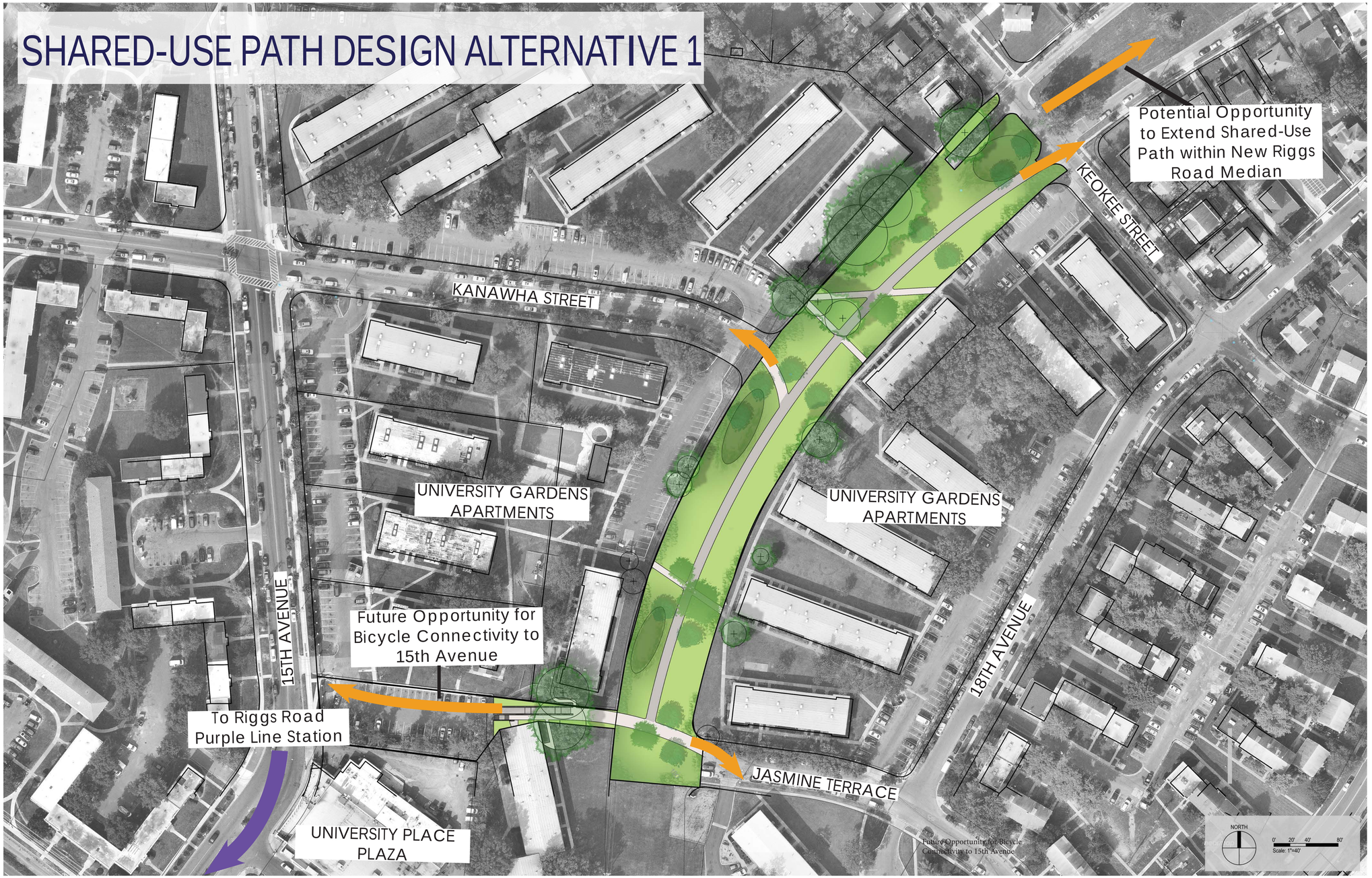
A simple, linear path connects north and south between Keokee Street and Jasmine Terrace.

Pros

- Alignment conforms to existing site conditions
- Cost effective/easily implementable
- Direct connections to existing pedestrian networks

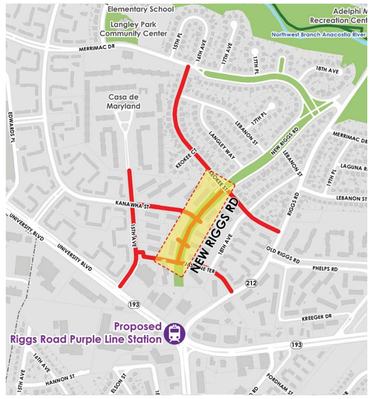
Cons

- Alignment limits spaces for additional amenities



NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES



KEY MAP

Proposed Trees

Existing Trees

Proposed Alignment

Proposed Connection

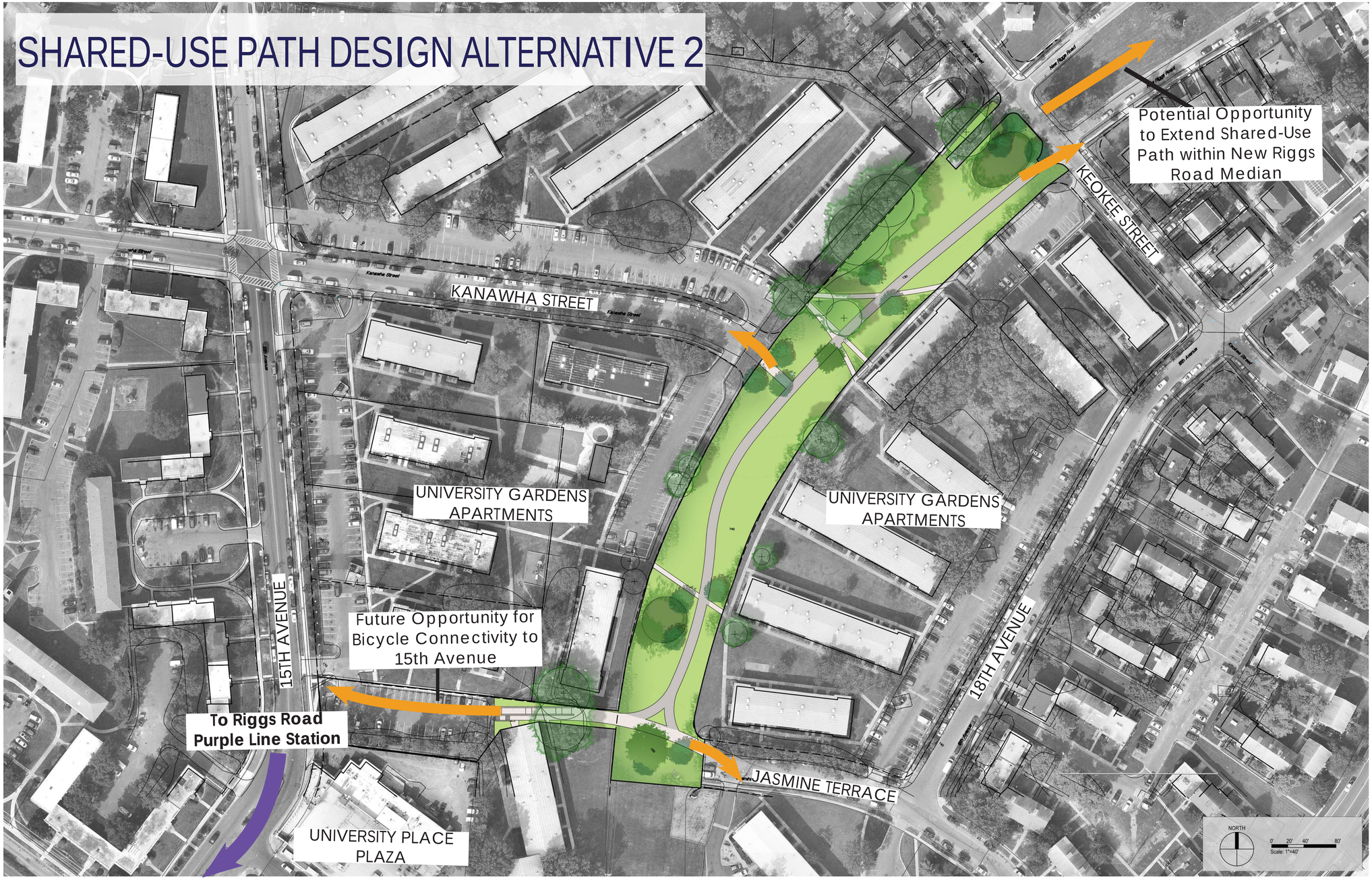
A more curvilinear path that follows the site's natural topography.

Pros

- Alignment modestly enhances existing site conditions

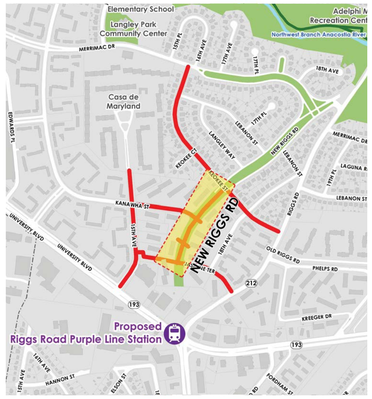
Cons

- Increases paved areas
- Increases potential storm water runoff



NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES



KEY MAP

Proposed Trees

Existing Trees

Proposed Alignment

Proposed Connection

Hardscape Plaza Space

A more dynamic and curvilinear path that follows the site's natural topography, slows bicyclist speeds, and offers more opportunities for additional recreational spaces.

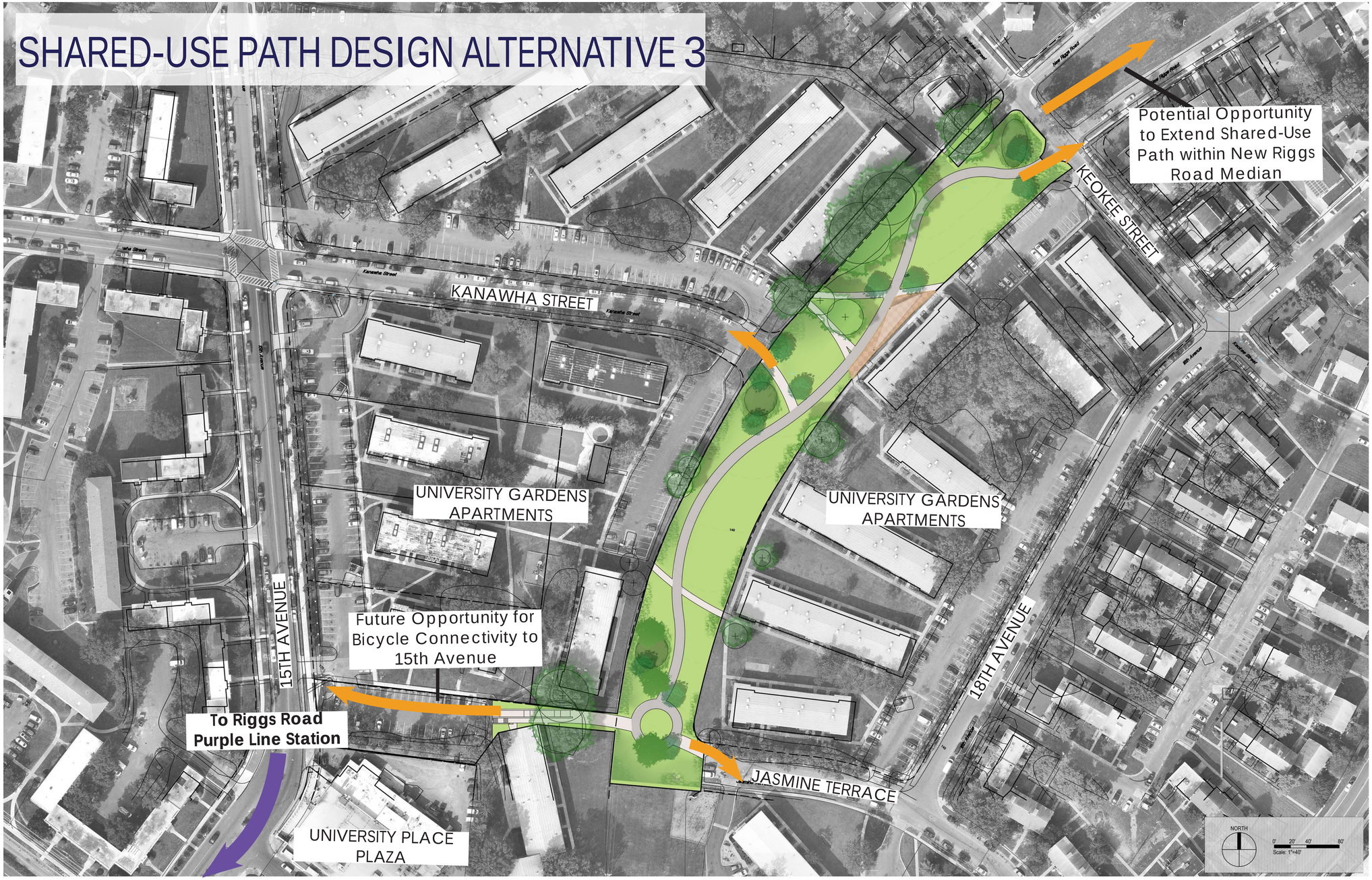
Pros

- Curvilinear alignment increases travel time to allow greater engagement with green space
- Greater opportunity for programing

Cons

- Alignment has modest impact to existing grading
- More pavement increases runoff

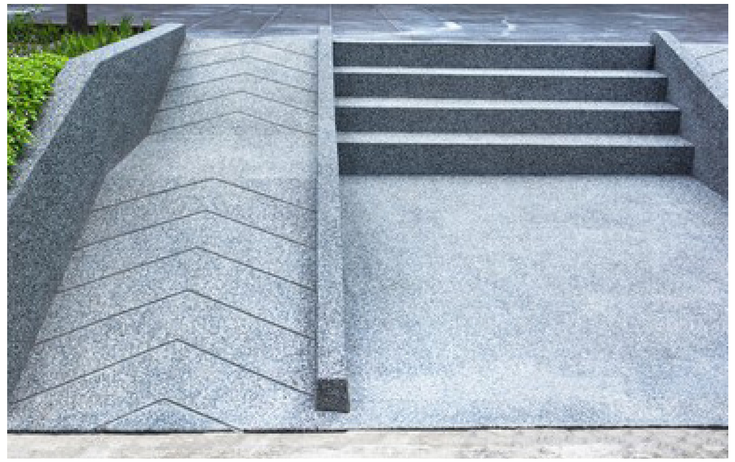
SHARED-USE PATH DESIGN ALTERNATIVE 3



NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)
CONCEPTUAL DESIGN ALTERNATIVES

PHASE ONE SITE AMENITIES

Curb Cut ADA Ramp with Bollards
Image Credit: Thewashcycle.com



ADA Ramp with Adjacent Stairs
(Note: All Ramps and Stairs to Include Railing)
Image Credit: 123RF.com

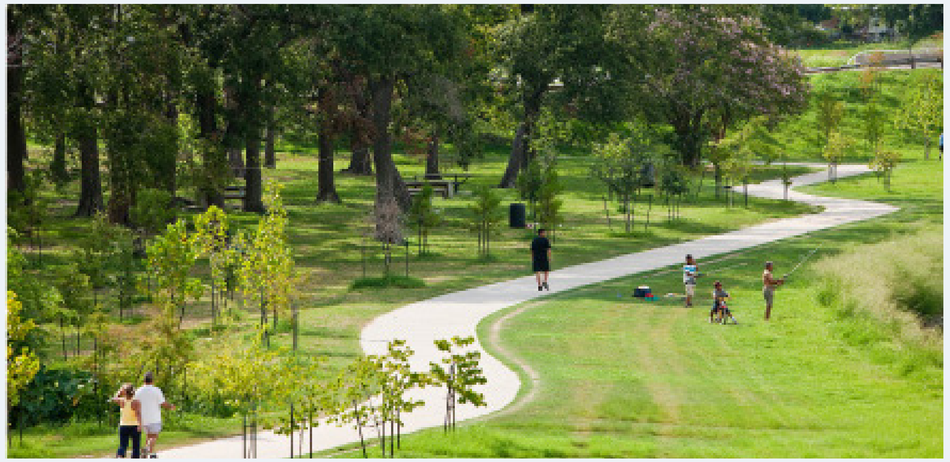
Waste Receptacle
Image Credit: Victor Stanley

Bench
Image Credit: Victor Stanley

LED Shoe-Box Light Fixture
Image Credit: FYTLED

SHARED-USE PATH EXAMPLES

Shared-Use Path in Naturalized Setting
Image Credit: Glenstone Meadows



Shared-Use Path in Naturalized Setting
Image Credit: Houston Parks Board

NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES

PHASE TWO SITE AMENITIES AND PROGRAMING

ADA Accessible Grill Station

Image Credit: The Park Catalogue

Picnic Table, Typical

Image Credit: Landscape Forms

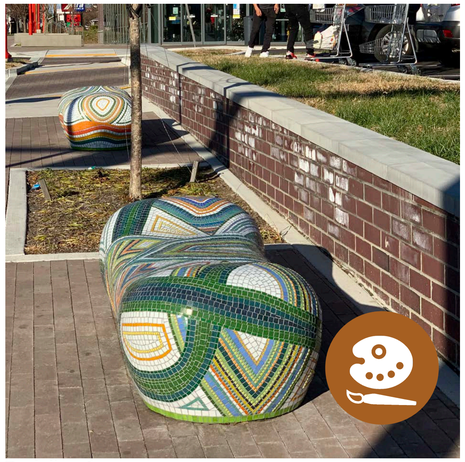
Naturalized Play Area

Image Credit: TimberForm

Naturalized Play Area

Image Credit: Webuildfun.com

***Naturalized play area means recreating experiences found in nature to engage children in exploration, discovery, and imaginative play.**



Public Art

Image Credit: RHI, Location , College Park, MD.

Low Seat Wall with Mural

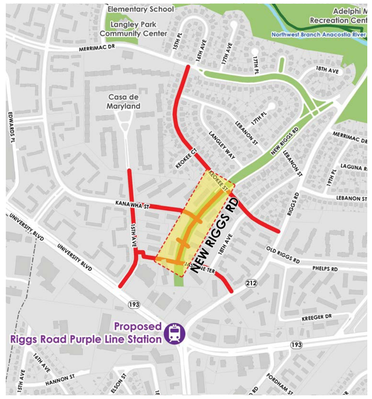
Image Credit: RHI, Location , College Park, MD.

Bio-retention Planting

Image Credit: City of Takoma

NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES

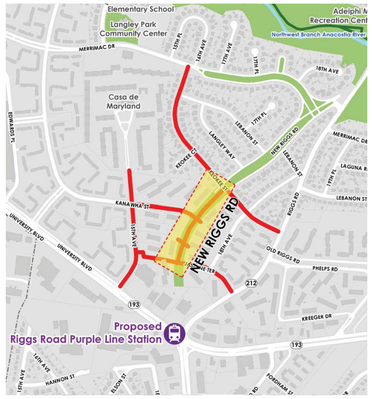


KEY MAP

- Public Art
- Grilling Station
- Picnic Station
- Play Area
- Bio-retention Area

NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES



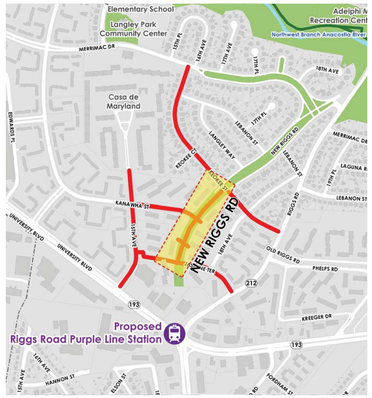
KEY MAP

- Public Art
- Grilling Station
- Picnic Station
- Play Area
- Bio-retention Area

SHARED-USE PATH DESIGN ALTERNATIVE 2

NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

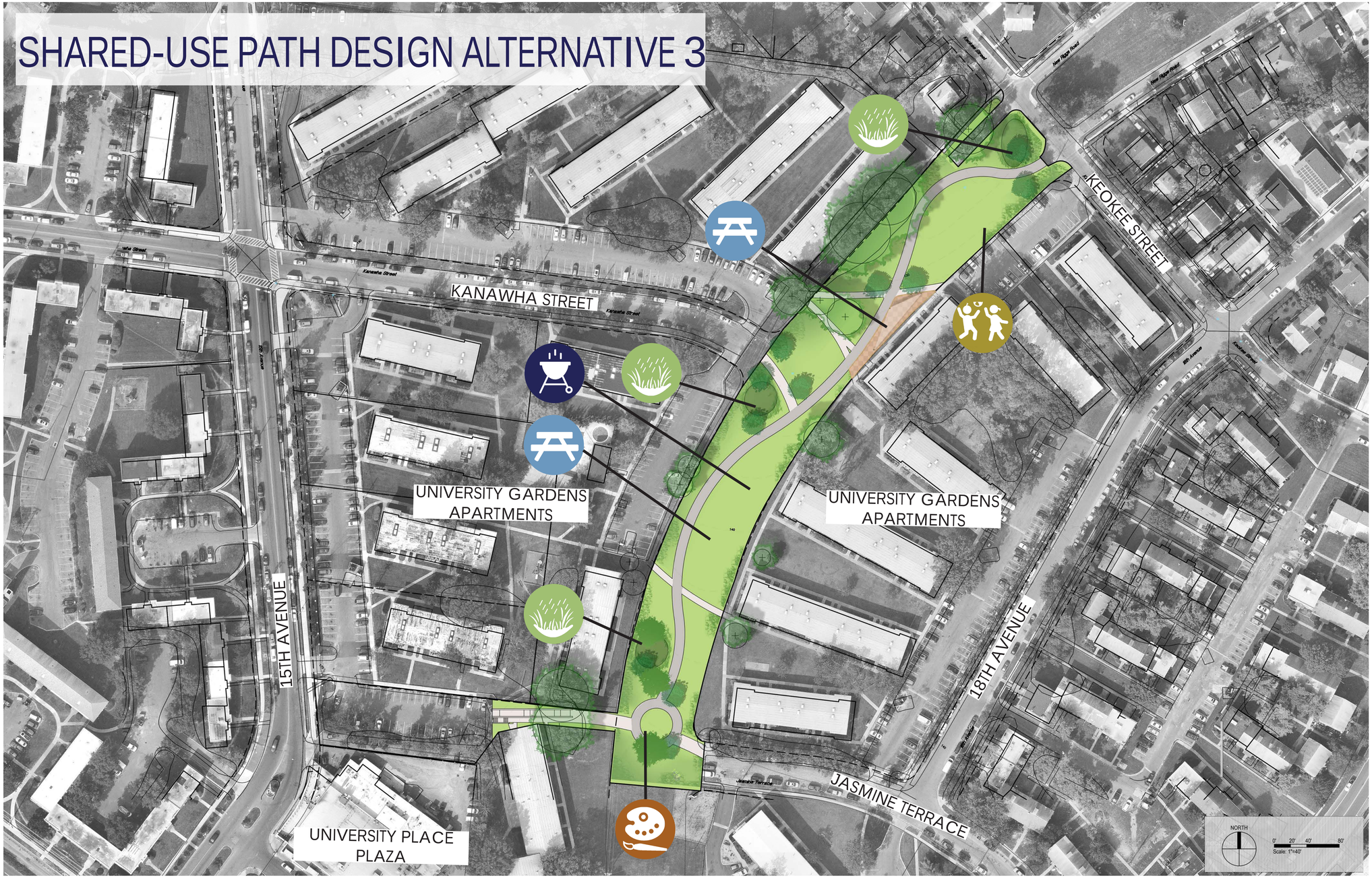
CONCEPTUAL DESIGN ALTERNATIVES



KEY MAP

- Public Art
- Grilling Station
- Picnic Station
- Play Area
- Bio-retention Area

SHARED-USE PATH DESIGN ALTERNATIVE 3



NEW RIGGS ROAD RIGHT-OF-WAY (SHARED-USE PATH)

CONCEPTUAL DESIGN ALTERNATIVES

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	LOW
CONSTRUCTION AND MAINTENANCE COST	LOW
ADA ACCESSIBLE	YES
RIGHT-OF-WAY OR DRAINAGE & UTILITY IMPACT	LOW

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	LOW
CONSTRUCTION AND MAINTENANCE COST	MEDIUM
ADA ACCESSIBLE	YES
RIGHT-OF-WAY OR DRAINAGE & UTILITY IMPACT	MEDIUM

EVALUATION MEASURE	ASSESSMENT
BICYCLE LEVEL OF TRAFFIC STRESS	LOW
CONSTRUCTION AND MAINTENANCE COST	HIGH
ADA ACCESSIBLE	YES
RIGHT-OF-WAY OR DRAINAGE & UTILITY IMPACT	HIGH