



Beach Drive Bridge (M-PK24) over Silver Creek (CIP Project No. 509132), Mandatory Referral No. MR2019001

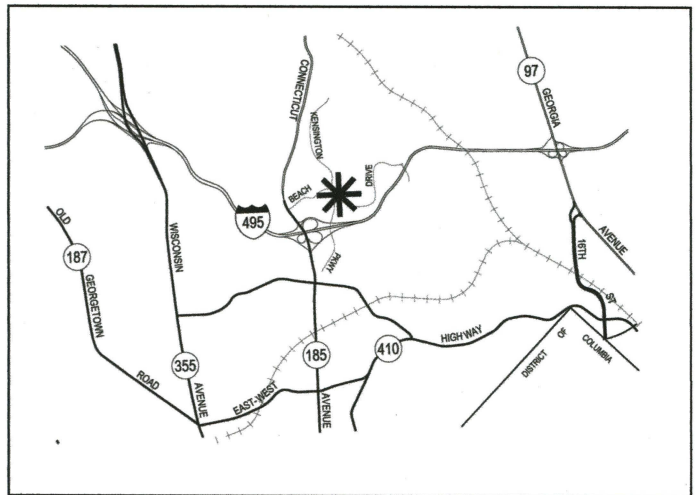
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Description

Completed: 10/04/2018

Mandatory Referral MR2019001: Bridge M-PK24 – Beach Drive Bridge Over Silver Creek

Replacement of Bridge No. M-PK24 on Beach Drive Over Silver Creek. The project will improve nearby park features including: stream stabilization work for Silver Creek; realignment of a section of Rock Creek Trail including a new bridge over Silver Creek; provision of a paved parking area including one van-accessible handicapped parking space adjacent to a nearby exercise area; removal of an unnecessary vehicular turn lane; and restoration of paved surfaces and a gravel parking area to turf grass.
Master Plan: Kensington-Wheaton



- Applicant: Montgomery County Department of Transportation
- Filing Date: July 16, 2018. 60-day review extended by consent of MCDOT

Summary

- Staff recommends approval of the Mandatory Referral (Item 10) with comments shown on pages 2 and 3.
- This project is located within parkland owned by the Maryland-National Park and Planning Commission (M-NCPPC) and on roadway right-of-way.
- The Montgomery County Department of Transportation proposes to replace an existing aging bridge on Beach Drive over Silver Creek, construct a new trail bridge for cyclists and pedestrians over Silver Creek, construct intersection improvements at the intersection of Beach Drive and Kensington Parkway, and construct a small paved parking area along Beach Drive to the east of the proposed vehicular bridge. Construction of this project is expected to take three months. It is located on Beach

Drive to the east of Kensington Parkway in Kensington, Maryland. This project is CIP Project No. 509132.

The site vicinity and project location are displayed in Figure 1. The project includes the following improvements:

- Replacement of the existing bridge structure on Beach Drive over Silver Creek;
- Construction of a separate 12-foot wide trail bridge over Silver Creek for cyclists and pedestrians;
- Realignment of the existing Rock Creek Trail to connect to the proposed trail bridge;
- Elimination of an existing southbound right-turn lane on Kensington Parkway at Beach Drive.

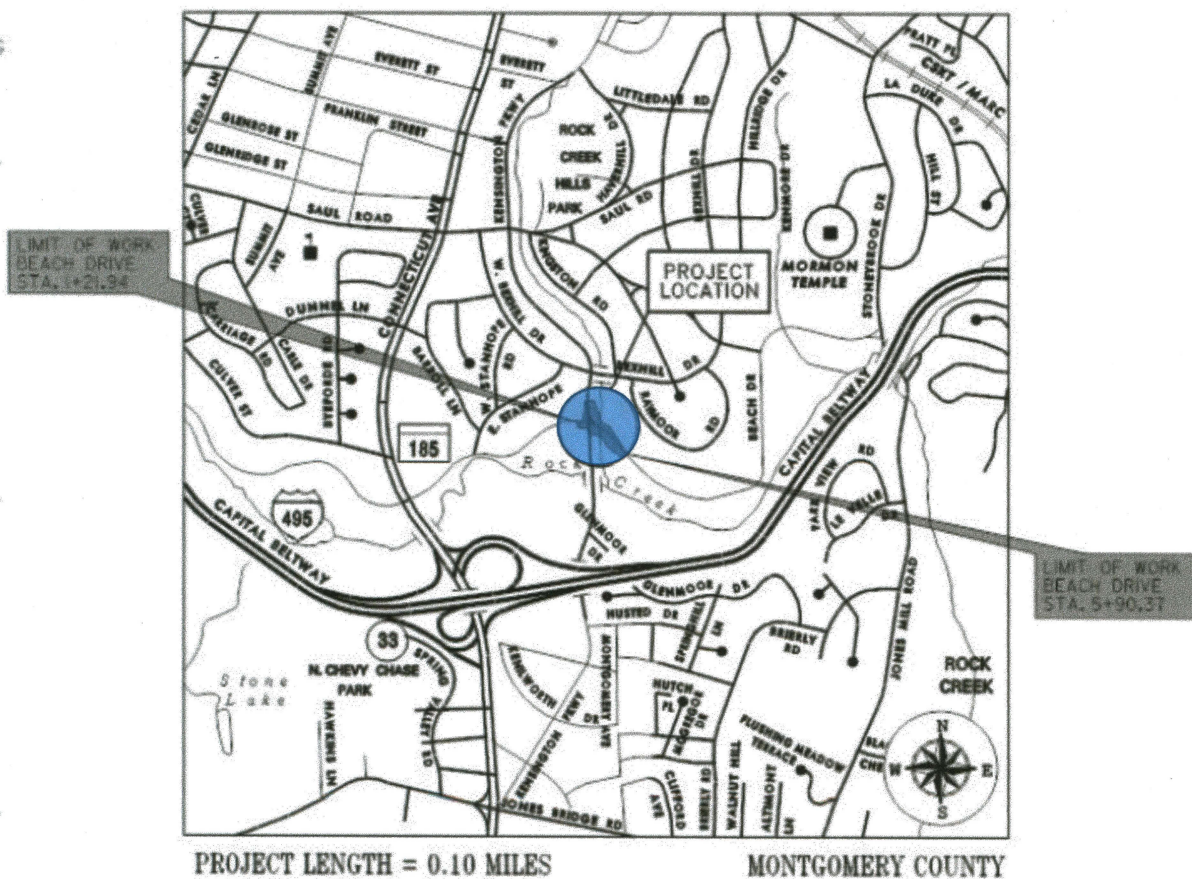


Figure 1: Project Limits and Site Vicinity

Recommendations

We recommend that the Board approve this project with the following comments transmitted to the Montgomery County Department of Transportation:

1. Submit roadway and stream restoration construction plans to the M-NCPPC Department of Parks for review as part of the park permit process to ensure that all work on parkland is performed in accordance with M-NCPPC standard details, specifications, and policies.
2. Stripe crosswalks across the north and east legs of the intersection at Kensington Parkway and Beach Drive.
3. When the existing bridge on Kensington Parkway over Rock Creek (M-NCPPC Montgomery Parks Bridge NoM0073) is improved in the future, the planned sidepath on the eastern side of Kensington Parkway between Jones Bridge Road and Bexhill Drive should be studied and completed in conjunction with that project.
4. Limits of disturbance on the Sediment Control Plan must match the limits of disturbance shown on Forest Conservation Exemption Plan No. 42018092E.

Existing Conditions – Road, Bicycle and Pedestrian Facilities

Beach Drive is a two-lane, undivided roadway that travels in a northwest-southeast direction. Beach Drive is owned by M-NCPPC and is not classified in Montgomery County's Master Plan of Highways and Transitways. The existing travel lanes are 11-feet wide with no shoulders. The posted speed limit is 25 MPH on both Beach Drive and Kensington Parkway. The roadway is an open-section design (no curbs). The existing eight-foot wide Rock Creek Trail exists along the north side of Beach Drive within the project extents.

Existing land use in the study area is primarily forested National parkland surrounded by a medium density residential neighborhood. Figure 2 illustrates the surrounding land use.

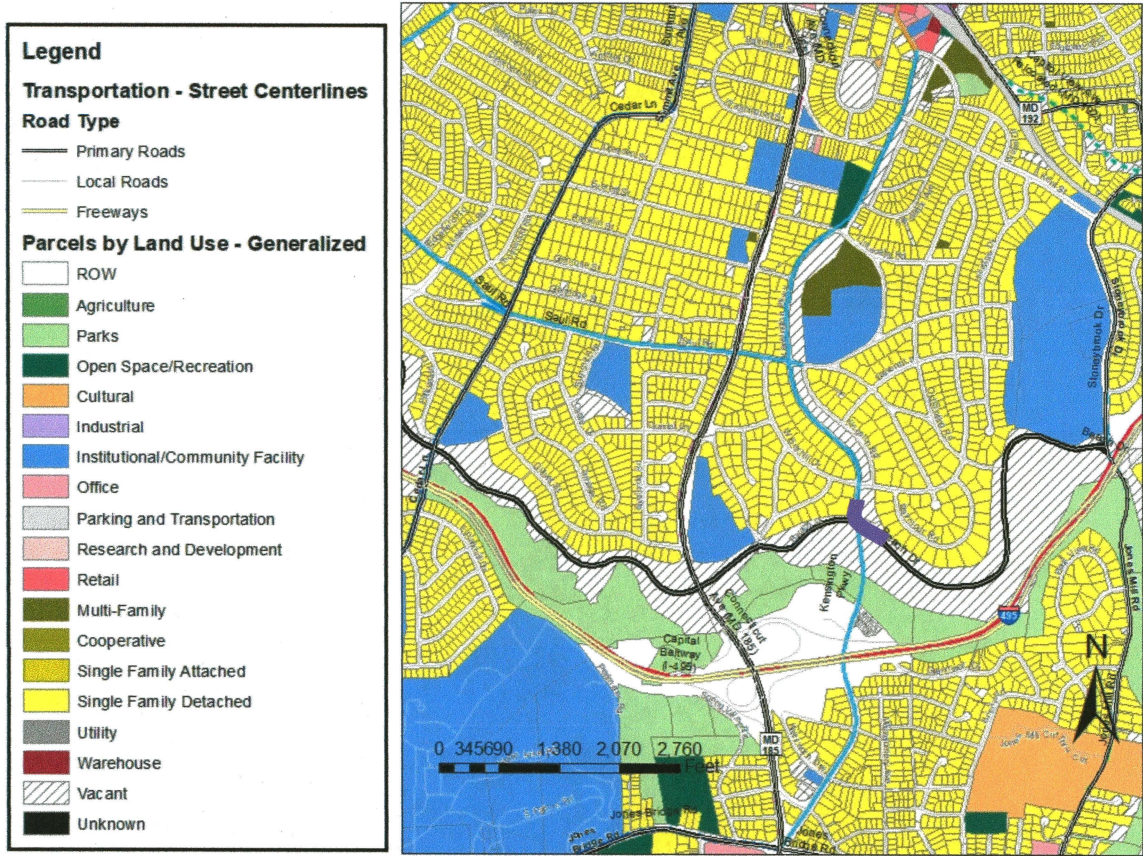


Figure 2. Generalized Land Use

Existing Conditions – Bridge over Silver Creek

The main purpose of the project is to replace Bridge No. M-PK24 in order to improve pedestrian and vehicular safety. The existing bridge was built in 1964 and is located on Beach Drive within the confines of Rock Creek Park in Kensington, Maryland. A raised asphalt path also uses Bridge No. M-PK24 to cross Silver Creek on the north side of the bridge. This asphalt path is called Rock Creek Trail, which is part of the Rock Creek Park trail system. Directly west of Bridge No. M-PK24 is the intersection of Beach Drive and Kensington Parkway. Beach Drive is a park road with an average daily traffic of 5,500 cars per day and is classified as SR-16 (Signed Shared Roadway – Class III) per the 2005 Countywide Bikeways Functional Master Plan. Trucks are prohibited from using Beach Drive.

Bridge No. M-PK24 consists of three steel plate arches, each approximately nine feet long, with masonry headwalls and parapets. Silver Creek flows beneath the structure from north to south. The bridge provides a 24'-0"± wide clear roadway that carries two lanes of traffic with a 7'-0"± trail on the north side, Rock Creek Trail, and two 1'-9"± parapets. The existing structure has an approximate out-to-out width of 37'-2". The steel plate arches are skewed approximately 57° to Beach Drive and have an overall length of approximately 45'-6".

The pavement for Beach Drive within the project extents is asphalt. The existing bridge and approach roadways are overtopped by any storm larger than the two-year design storm.

The 2015 Biennial Bridge Inspection Report indicates that the bridge is in poor condition with a Bridge Sufficiency Rating of 49.3. This is below the Bridge Sufficiency Rating of 50, making it eligible for rehabilitation or replacement using federal funding under the Highway Bridge Program. The south headwall has a 26'-0" length of failed masonry beginning in the center of the center arch and extending to the east side of the eastern arch. The failed area is full height by full depth. Due to the poor condition of the south headwall and parapet, a two-foot wide precast concrete traffic barrier has been placed along the edge of the roadway about eight inches in front of the parapet. The corrugated steel arches typically exhibit laminar rust at and below the waterline. The west side of Arch Nos. 1 and 3 have holes in the steel along the waterline at the north and south ends, respectively. The stream channel exhibits moderate erosion with vertical cut banks and scour up to two feet deep within the channel and up to five feet deep along the west pier and the center arch.

Proposed Action and Evaluation

The existing bridge is located within Rock Creek Park, owned and managed by the M-NCPPC. At the request, and on behalf of the M-NCPPC, this project to replace the bridge is being overseen by the Montgomery County Department of Transportation (MCDOT).

In coordination with M-NCPPC, Beach Drive will be closed during construction. Accelerated bridge construction techniques will be utilized to minimize the duration of construction. It is anticipated that the construction will take place during one summer between the last day of one school year and the first day of the following school year. The proposed detour route utilizes Connecticut Avenue (MD 185), Plyers Mill Road/Metropolitan Avenue/Capital View Avenue (MD 192), and Stoneybrook Drive, which are all equal or better roadways than Beach Drive. The proposed detour route is approximately 4.4 miles and would take approximately 15 minutes.

Because of the presence of Rock Creek Trail on the existing bridge and the need to maintain pedestrian traffic during construction, a temporary pedestrian bridge was proposed to be located approximately 90 feet north and upstream of the Beach Drive Bridge. This location was selected to avoid cherry trees which are of significant value to the M-NCPPC. Subsequently, and in agreement with the M-NCPPC, the decision was made to make this bridge a permanent crossing for the Rock Creek Trail and relocate the trail alignment from the crossing of the Beach Drive Bridge to crossing this pedestrian bridge. Bicycle lanes will still be provided on Beach Drive for higher speed cyclists who require a less circuitous alignment.

The replacement roadway bridge is proposed to be a prestressed concrete adjacent solid slab beam bridge. The beams will be designed to be non-composite, in conformance with Maryland State Highway Administration (SHA) standards for prestressed concrete solid slab beam bridges.

The proposed roadway bridge will provide two 11-foot traffic lanes and two five-foot bike lanes each with a one-foot offset to a 2'-4" wide parapet. At the request of M-NCPPC, concrete bridge parapets encased in stone masonry will be provided along the outside of each sidewalk to maintain the look and

feel of the existing parkway bridge. The proposed roadway bridge will be built on horizontal and vertical alignments similar to that of the existing bridge. The approach roadways will be milled and resurfaced to tie into the new concrete bridge deck. There will be approximately 200 feet of approach roadwork east of the bridge and approximately 75 feet of approach roadway work to the west. The proposed abutments will be placed on a skew to the roadway that is similar to the existing structure. Riprap will be used to protect the slopes and abutments from scour.

No displacements are required. This project is consistent with the Kensington-Wheaton Master Plan and the Kensington Sector Plan, adopted June 2011. The project is within a Priority Funding Area, as defined under the Smart Growth Areas Act of 1997. This project is identified in the current 2013-2018 STIP/TIP which states that the bridge over Silver Creek is to be replaced and roadway approaches reconstructed.

The roadway plan and signing and striping plan for the proposed project is included in this Staff Report as Attachment A.

Typical Sections

The proposed typical section along Beach Drive generally contains one 11-foot-travel lane in both directions on Beach Drive with 5'4"-wide shoulders for bike use, as shown in Figure 3. The Rock Creek Trail bridge over Silver Creek will be 12-foot wide (clear distance) as shown in Figure 4. The existing 12-foot wide travel lanes on Kensington Parkway will be maintained.

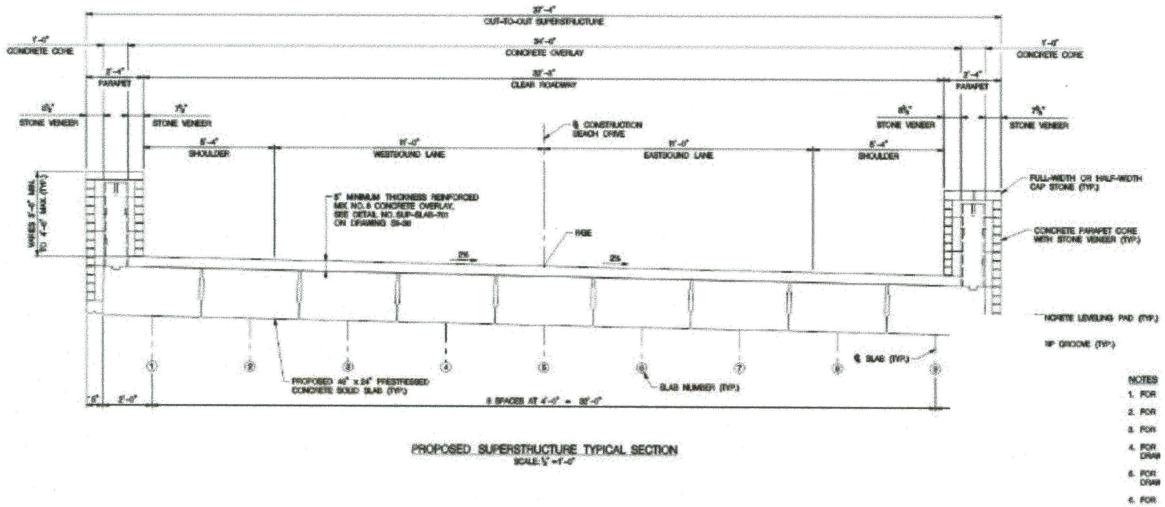


Figure 3. Beach Drive Bridge Over Silver Creek Typical Section

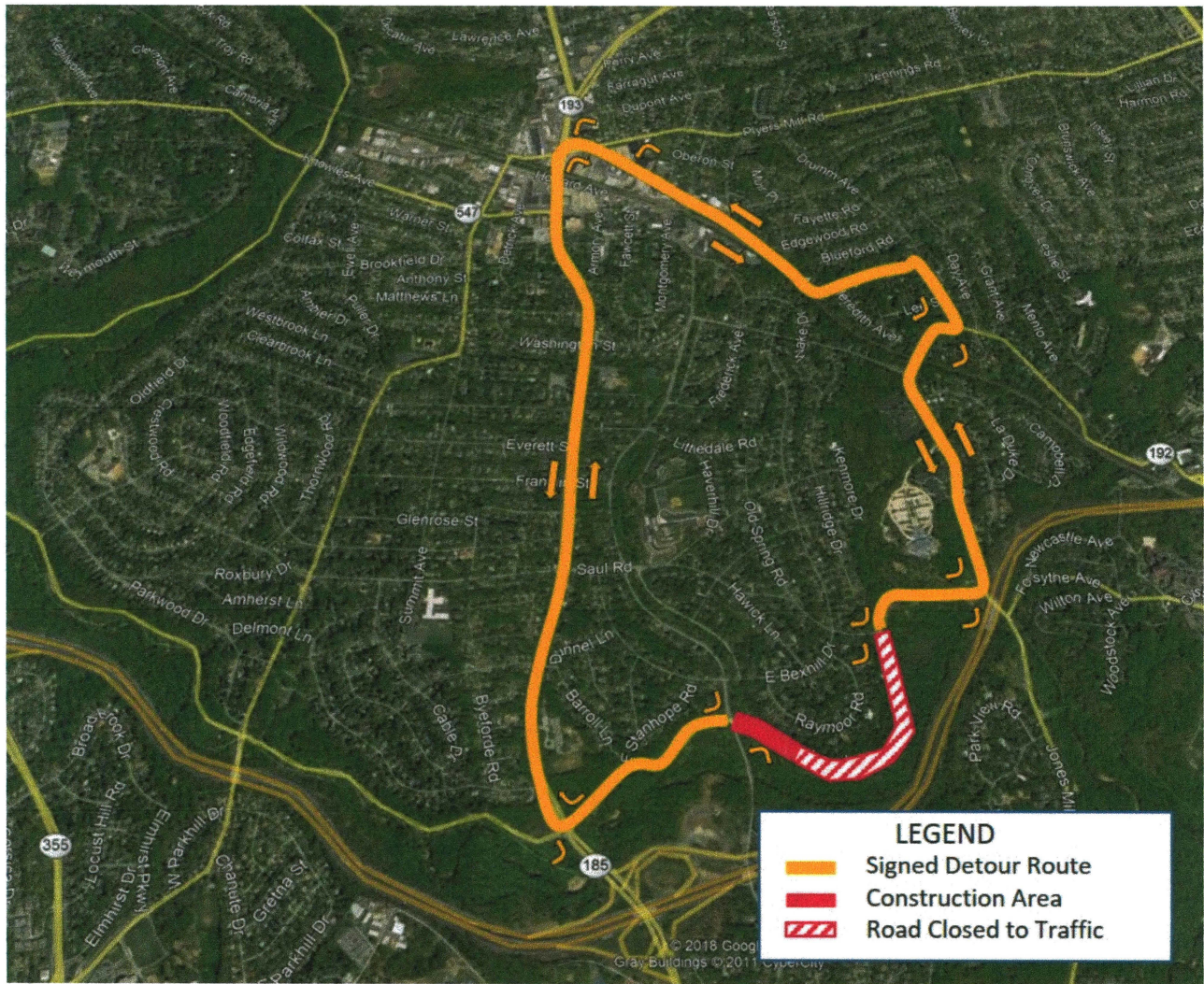


Figure 5. Proposed Signed Detour Route

Adequate Facilities – Subdivision Staging Policy – Intersection Delay

The subject project is located within the Kensington-Wheaton policy area per the 2016 Subdivision Staging Policy (SSP). All Master Plans, development projects, and Capital Improvement Projects must comply with SSP congestion/delay standard for the Kensington-Wheaton policy area which has an average intersection delay no greater than 80 seconds per vehicle. Per documents submitted by MCDOT, the intersection of Beach Drive with Kensington Parkway will operate well under this mobility threshold. Along the proposed detour route, except for the two temporary signalization recommendations identified in the previous section, modifications to existing signal timing are not recommended. Staff concurs with this assessment, as the detour analysis represents a worse-case condition. Once Beach Drive is closed for summer construction, many of the longer-distance trips now using Beach Drive are likely to divert to many other alternate routes well in advance of the signed

detour or simply choose different routes, including I-495, Veirs Mill Road, Jones Bridge Road, MD 400, and Plyers Mill Road.

Public Outreach

Letters dated June 13, 2017 were sent to the Montgomery County Fire and Rescue, Montgomery County Public Schools, and the Montgomery County Police Department requesting concurrence for the road closure and detour plan. A letter dated July 5, 2017 from the Montgomery County Fire and Rescue Service concurred with the road detour plan. A letter dated August 3, 2017 from the Montgomery County Public Schools also concurred with the road detour plan. Montgomery County Police requested a meeting to discuss the detour route. The detour route was discussed with the M-NCPPC Park Police, Montgomery County Police, and with Montgomery County Fire and Rescue in a meeting held August 24, 2017. No objections were received, but it was suspected that detour traffic may attempt to utilize local roads adjacent to the project site. MCDOT stated that they were prepared to fund additional traffic enforcement if local traffic issues arise.

A public meeting was held on May 31, 2016 to discuss this bridge replacement project, design considerations, and the proposed detour route. There were three members of the public in attendance and no comments were received.

Limits of Disturbance

The limits of disturbance (LOD) for the project include a staging area southeast of the bridge and east of Silver Creek. The replacement of the existing Bridge No. M-PK24, Silver Creek stream stabilization work, approach roadway work, and the construction of the revised Rock Creek Trail pedestrian bridge and approach trail work will remain wholly within the existing M-NCPPC and Montgomery County rights-of-way (ROW).

Natural Resources

On February 24, 2015, the Wildlife and Heritage Service of the Maryland Department of Natural Resources (DNR) stated that the Potomac Stygobromid (*Stygobromus tenuis potomacus*) has been documented in close proximity to the project site. While not currently receiving legal protection, this tiny aquatic invertebrate is on a species watchlist for Maryland due to it being a globally rare species. DNR requests that steps be taken to avoid altering the groundwater hydrology or water quality, as this is a species found in groundwater spring habitats. Based on current designs plans, no alteration of the groundwater hydrology or water quality is expected, therefore no further action is required regarding the Potomac Stygobromid.

On June 17, 2016, the Environmental Review Program of the DNR stated that Rock Creek and its tributaries near the site are classified as Use 1 streams (Water Contact Recreation, and Protection of Aquatic Life), and generally, no instream work is permitted in Use 1 streams during the period of March 1 through June 15, inclusive, during any year. In addition, no anadromous fish have been documented near the project site. However, these streams may support many resident fish species documented by

our Maryland Biological Stream Survey. MBSS data can be accessed via the MDDNR web page at <http://streamhealth.marylandgov>, allowing access to resource surveys in neighboring tributaries. According to the U.S. Fish and Wildlife Service, there are no federally proposed or listed endangered or threatened species known to exist within the project area.

Floodplains

The bridge project resides primarily within the 2013 regulated 100-year floodplain and two-year floodplain. The stream is often flooded as Rock Creek backs up into this creek. The project will alleviate some flooding of the roadway by increasing the hydraulic opening. The project will result in approximately 1.97 acres of permanent and temporary impacts to the Silver Creek floodplain from grading, clearing/grubbing, and structure replacement. Additionally, 105 square feet of permanent stream impacts and 7,419 square feet of temporary stream impacts will be associated with the placement of riprap for scour protection. Measures will be undertaken during construction of the project to minimize water quality impacts to Silver Creek. These measures will include: restricting the contractor's access to the stream, protecting the stream by using sand bag diversion dikes during the subsequent placement of the new abutments and riprap for scour protection, and restricting construction during environmentally sensitive times.

Wetlands and Waters of the U.S.

National Wetland Inventory and MDNR maps do not identify any wetlands within the project area defined within the Limits of Disturbance (LOD). Two palustrine emergent wetlands (PEM) are identified adjacent to the project area. These two wetlands are located adjacent to eastbound Beach Drive and are associated with the typical roadway drainage ditches.

One Waters of the U.S. has been identified within the project area. Per Federal Emergency Management Agency (FEMA) documentation, this water is called Tributary Number 160, whereas locally Montgomery County refers to this stream as Silver Creek. Silver Creek flows north to south and is within the Rock Creek watershed. MDE designates this stream as a USE I stream (water contact recreation, and protection of aquatic life) and has an in-stream closure period for construction activities from March 1 through June 15, inclusive, of any year.

Impervious Surfaces

As a result of the proposed improvement, there will be 0.15 acres of new impervious area, 0.33 acres of redeveloped impervious area, and 0.23 acres of existing impervious area removal.

Stream Stabilization

Based upon a preliminary stream geomorphology report prepared in November 2014, stream improvements will be made from approximately 125 feet downstream of the Beach Drive Bridge to approximately 125 feet upstream of the Beach Drive Bridge. These stream improvements are proposed to include grade control features, streambank stabilization measures, utility crossing stabilization measures, and outfall stabilization. All stream improvements proposed were developed in coordination

with M-NCPPC Montgomery Parks and designed to provide long-term conveyance of flow under both the pedestrian and roadway bridges, protection of utility infrastructure, creation of instream aquatic habitat features, and stabilization of existing eroding banks.

Environmental Guidelines

Staff approved a Natural Resource Inventory/Forest Stand Delineation (NRI/FSD No. 42018092E) on December 12, 2017. This section of Beach Drive is unforested but entirely within the floodplain and associated stream valley buffer. The site is located in the Rock Creek watershed. While the plans show disturbance within the stream valley buffer, the proposed project is in compliance with the Environmental Guidelines because implementation will restore stream form and function.

Forest Conservation

The proposed project is exempt from Article II of the Montgomery County Code, Chapter 22A (Forest Conservation Law), Section 22A-5(e) because the site is a State or County highway construction activity that is subject to Section 5-103 of the Natural Resources Article of the Maryland Code or Section 22A-9 of the Forest Conservation Law. Sec. 22A-9 applies to construction of a highway by the County as part of an approved Capital Improvements Program project. The proposed construction should minimize forest cutting or clearing and loss of specimen or champion trees to the extent possible while balancing design, construction, and environmental standards. The agency must make a reasonable effort to minimize the cutting or clearing of trees.

While the proposed project is exempt from Article II, the Applicant must provide reforestation at the rate of one acre of reforestation for each acre of forest cleared. The reforestation must meet the standards in subsections 22A-12(e), (g) and (h). Mitigation must be provided for the loss of specimen or champion trees must be based on the size and character of the tree.

A Tree Save Plan was submitted to fulfill the requirements of Sec. 22A-9 and shows no forest removal and minimal impacts to existing trees, with appropriate tree protection measures.

Park Property

In close collaboration with M-NCPPC Montgomery Parks throughout the concept design, the stream stabilization proposed has been designed to provide fish passage and habitat, stabilize the existing channel to better accommodate the impervious drainage in the watershed, improve water quality through enhanced floodplain access and grade control, and create opportunities for groundwater recharge. MCDOT will be required to obtain a Park Construction Permit from Montgomery County Department of Parks prior to commencement of any construction activities on Parkland. The Park Construction Permit process will include technical review of all roadway, infrastructure, and stream restoration plans affecting parkland.

Additionally, an existing gravel pull-off on Beach Drive along the southeast corner of the project will be moved to the other side of the roadway and formalized into a paved parking area including one van-accessible handicapped parking space. This new location will relocate the existing pull-off further from

the most active parts of the Rock Creek floodplain and provide better access for park users to the Rock Creek trail and a nearby outdoor exercise station. The existing gravel pull-off area will be deconsolidated and naturalized as part of the project.

Other Approvals

The National Capital Planning Commission, which has approval authority since the project site is located on property acquired with federal funding appropriated under the 1930 Capper Cramton Act, approved the project on April 5, 2018.

The Maryland Department of Transportation State Highway Administration Federal Aid Programming Section signed the Programmatic Categorical Exclusion on February 26, 2018.

Historical

On February 12, 2015 the Maryland Historical Trust (MHT) concurred that further archaeological investigations are not warranted for the proposed project. Additionally, the MHT has determined that there are no historic properties affected by this undertaking. M-NCPPC Historic Preservation staff concur with these findings.

Utilities

The existing bridge currently does not have overhead utilities present which could interfere with construction. Two sanitary sewer lines are located roughly parallel to the creek at approximately 16 feet and 50 feet east of the east bank. These utilities will be test-pitted during preliminary engineering to determine their exact location and coordination with the Washington Suburban Sanitary Commission is underway by the applicant.

Noise

This project qualifies as a Type III project under FHWA/SHA noise policy and guidance and does not require a noise study because the project does not add through capacity. This project is exempt from the requirement that a conformity determination be made (U.S. Environmental Protection Agency (EPA) Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans, Programs or Projects – Final Rule) and under the Clean Air Act (CAA) pursuant to 40 CFR 93.126 as a reconstruction of a bridge with no additional travel lanes being added. No analysis or discussion of Mobile Source Air Toxins (MSAT) is necessary. This project is not a project of air quality concern for particulate matter 2.5 (PM 2.5,) as defined in the final rule at 40 CFR 93.123(b)(1). Since this project is not adding through roadway traffic capacity, air quality and noise analyses are not warranted.

Master Plan Consistency

Transportation/Master Plan of Highways and Transitways

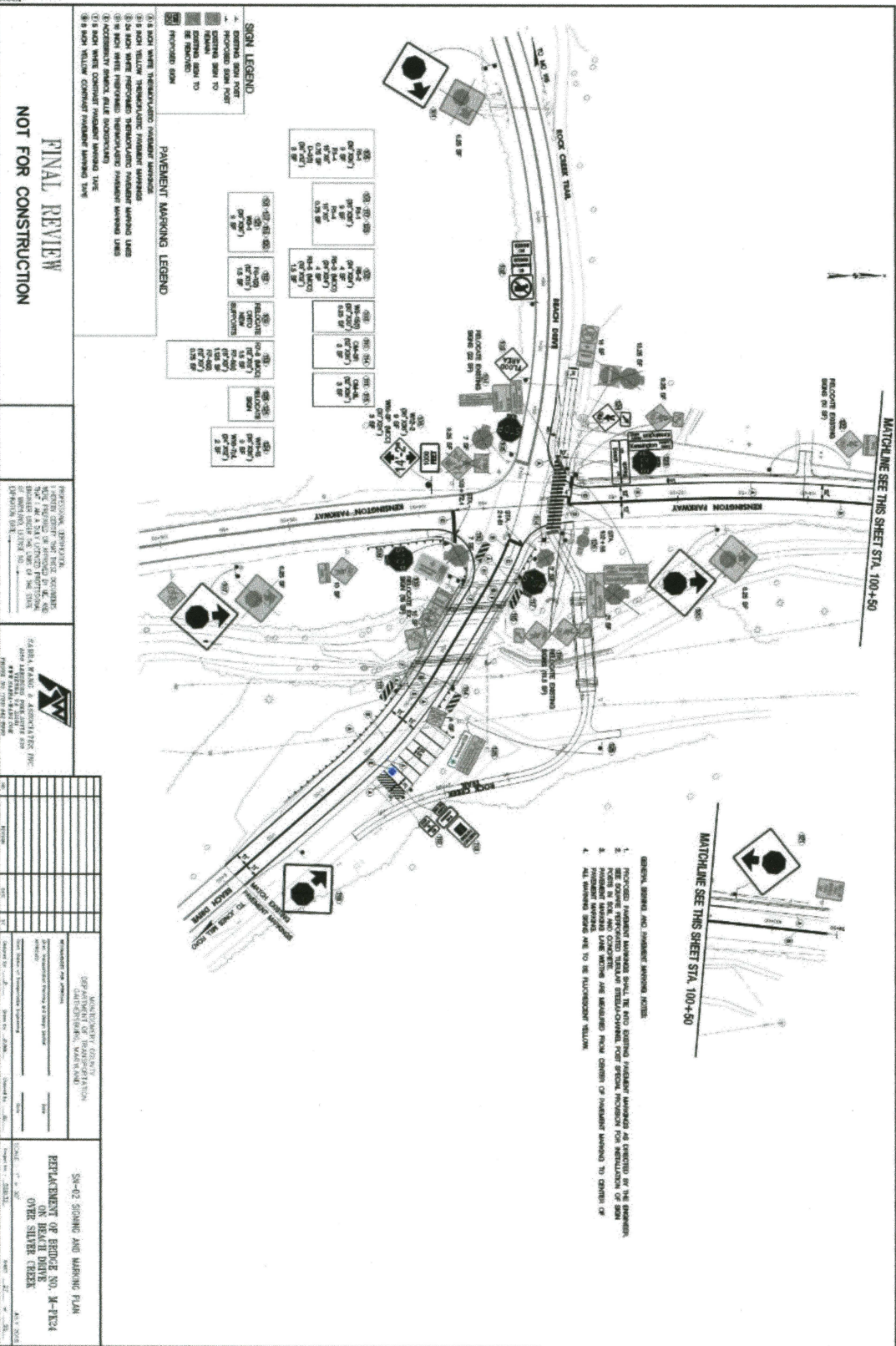
Kensington Parkway is classified as a two-lane primary residential street with a 70-foot wide master planned right-of-way in the 2018 Master Plan of Highways and Transitways (MPOHT). Beach Drive is not

a classified road within the MPOHT. The proposed design is consistent with this existing classification on Kensington Parkway. The planned improvements are also consistent with the existing and intended transportation function of Beach Drive.

Bicycle Master Plan

The Planning Board Draft of the Bicycle Master Plan recommends a 10-foot wide sidepath on the east side of Kensington Parkway from the Town of Kensington to Jones Bridge Road, which includes the vicinity of the project area. This recommendation will facilitate low stress cycling between the Town of Kensington, Beach Drive, and points further south in the Chevy Chase area. This planned sidepath does not currently exist nor is it being proposed as part of this project.

Signing and Marking Plans



- GENERAL SIGNING AND MARKING NOTES:
1. PROPOSED SIGNING AND MARKING SHALL BE FOR EXISTING AND PROPOSED ALIGNMENT OF THE ROADWAY.
 2. SEE DRAWING SPECIFICATIONS FOR SIGN AND MARKING INSTALLATION AND FOR SIGN AND MARKING MATERIALS.
 3. SIGN AND MARKING SHALL BE INSTALLED FROM CENTER OF ROADWAY UNLESS OTHERWISE NOTED.
 4. ALL SIGNING SHALL BE TO BE SUBSEQUENT YELLOW.

PAVEMENT MARKING LEGEND

(1) 8 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS

(2) 8 INCH YELLOW THERMOPLASTIC PAVEMENT MARKINGS

(3) 8 INCH WHITE PREGRADE THERMOPLASTIC PAVEMENT MARKING LINES

(4) 8 INCH YELLOW PREGRADE THERMOPLASTIC PAVEMENT MARKING LINES

(5) 8 INCH WHITE CONCRETE PAVEMENT MARKING TYPE

(6) 8 INCH YELLOW CONCRETE PAVEMENT MARKING TYPE

SIGN LEGEND

(1) 8 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS

(2) 8 INCH YELLOW THERMOPLASTIC PAVEMENT MARKINGS

(3) 8 INCH WHITE PREGRADE THERMOPLASTIC PAVEMENT MARKING LINES

(4) 8 INCH YELLOW PREGRADE THERMOPLASTIC PAVEMENT MARKING LINES

(5) 8 INCH WHITE CONCRETE PAVEMENT MARKING TYPE

(6) 8 INCH YELLOW CONCRETE PAVEMENT MARKING TYPE

FINAL REVIEW

NOT FOR CONSTRUCTION

PROFESSIONAL ENGINEER STATE OF VERMONT FERRIS WARD & ASSOCIATES INC. 100 MARKET STREET, SUITE 200 WASHINGTON, VERMONT 05676	
PROJECT NO. 100-100-100-100 SHEET NO. 100-100-100-100	DATE: 10/10/2010 SCALE: 1" = 40'
DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS STATE OF VERMONT	
SHEET SOUNDING AND MARKING PLAN RETAINMENT OF BRIDGE NO. M-1234 ON BEAULT DRIVE OVER SILVER TERN	