**MCPB** 

Item No. 7 Date: 7-16-20

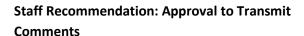
# Dufief Elementary School, Mandatory Referral, MR2020034

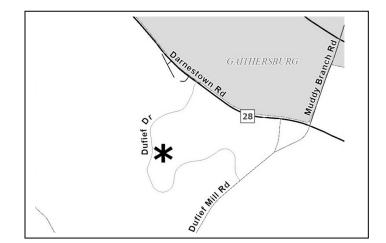
Doug Johnsen, Senior Planner, Area 3, <a href="mailto:douglas.johnsen@montgomeryplanning.org">douglas.johnsen@montgomeryplanning.org</a> 301-495-4559 Richard Weaver, Chief, Area 3, <a href="mailto:Richard.weaver@montgomeryplanning.org">Richard.weaver@montgomeryplanning.org</a> 301-495-4544

Completed: 07-02-20

# **Description**

- 15001 Dufief Drive, North Potomac
- 9.99 acres, R-200 zone
- 2002 Potomac Subregion Master Plan
- Applicant: Montgomery County Public Schools
- Submitted: April 21, 2020
- Part B Mandatory Referral: Demolition and reconstruction of Dufief Elementary School
- Review Basis: Mandatory Referral, MD Land Use Code § 20-301.





### **Summary**

- The review of this Mandatory Referral is in two parts:
  - Part A Preliminary Forest Conservation Plan MR2020034, discussed in a separate staff report and Part B Mandatory Referral Plan MR2020034
- The proposal includes demolition of the existing elementary school structure and construction of a new Dufief Elementary School building with associated parking, bus drop off, grass play fields, and hard and soft surface play areas.

#### **RECOMMENDATIONS:**

Transmit the following comments to the Montgomery County Public Schools ("MCPS"):

- 1. Widen all sidewalks to minimum width of 5 feet along the frontage of the school to meet current Montgomery County Department of Transportation standards.
- 2. Prior to demolition, grading or construction on the Subject Property, MCPS must receive approval of a Final Forest Conservation Plan.

#### **INTRODUCTION**

### **Site Description**

The Dufief Elementary School Site consists of 9.99 acres, Parcel 937, located at 15001 Dufief Drive, North Potomac, MD ("Subject Property", or "Site"), zoned R-200 within the Potomac Subregion 2002 Master Plan Area (**Figure 1**). The Subject Property is generally flat and open where the current elementary school building is located and slopes away toward the south and east property lines. The Site currently contains the existing school building and play fields. The site is ringed with individual trees screening the school from the surrounding residential development on the north, east and south. The Site is bounded on the west and north by Dufief Drive.

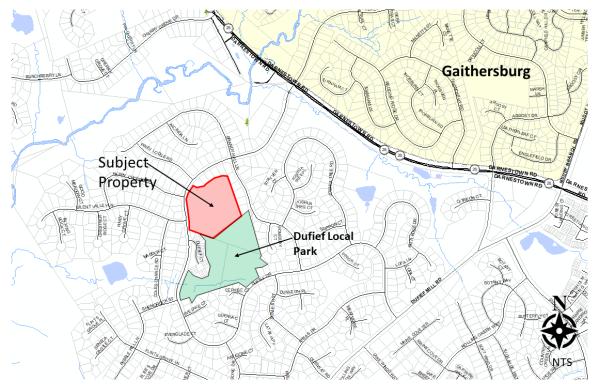


Figure 1: Project Vicinity



Figure 2: Aerial Photograph of the Site

# **Project Description**

Montgomery County Public Schools ("MCPS" or "Applicant") is proposing to tear down and rebuild the Dufief Elementary School, which currently serves 316 students from Grades K to 5 and 67 staff members. Enrollment projections for nearby Rachel Carson Elementary School will exceed capacity by 92 seats or more by the end of the six-year planning period in 2022. To accommodate these students, the Board of Education approved the demolition and reconstruction of an expanded Dufief Elementary School to address the overutilization of Rachel Carson Elementary School (**Figure 2**).

Dufief Elementary School is a 59,013 square foot structure built in 1975 as a pod configuration open concept school (**Figure 3**). Identified as having infrastructure, building quality and indoor environmental challenges, this building was in need of significant improvements. In addition to addressing the structural challenges, this new school will also address the increase in student enrollment of Rachel Carson Elementary School. Following the guidelines provided in Regulation FAA-R4 *Long-range Educational Facilities Planning*, the proposed replacement facility will be designed for a capacity of approximately 740 students including the core spaces.

When completed in September 2022, it is projected that Dufief Elementary School will have an enrollment of 316 students. With an anticipated capacity of 753 students, there will be 437 open seats. The new facility will be constructed as a 1 level building towards Dufief Drive which will house the gymnasium, multi-purpose rooms and administrative services. The rear of the building will be 2 levels and house the classroom spaces. Additional area has been programmed for 4 future portable classroom structures.

The proposed work includes traffic circulation improvements, a new entrance to accommodate a separate bus loop, improved parent drop-off queuing, and improved pedestrian circulation. Site development will also include development of standard MCPS site amenities for elementary schools.

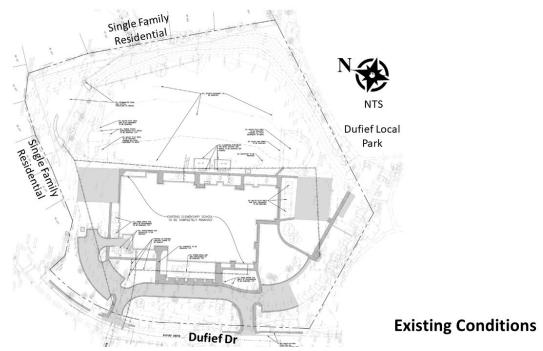


Figure 3: Current School Layout

### **Building Design**

The proposed building, designed to meet MCPS educational specifications, is a partial two-story, steel-framed structure with masonry exterior facades. The proposed plan separates the academic areas from the public areas of the building. The public areas, located in the one-story wing at the front, flanking the school entrance, includes the administrative suite, multipurpose room, gymnasium, music room, dual purpose room and support spaces. The academic wing just beyond the main entrance consists of a two-story classroom wing with library media center on the second level. The main office is located directly off a secured vestibule for supervision and control. The gymnasium is located adjacent to the playgrounds and playfields. The pre-kindergarten and kindergarten classrooms are located on the ground floor for direct access to the outside. Standard classrooms are located on the first and second floors arranged around a large central courtyard (Figure 4).

The new facility will provide approximately 32 classrooms and 21 support and core facility areas within the 98,000 square foot complex. Adaptable classrooms will achieve flexibility for varied-size groups of students, presentation formats, and access to alternative media and resources.

The proposed project replaces the existing aging facility with a modernized state of the art facility. Interior walls are primarily masonry block. All aspects of the plan are designed to meet the most current educational specifications, life-safety, health, and fire code requirements as well as compliance with the Americans with Disabilities Act. The building materials are in accordance with the Montgomery County Public Schools facility design guidelines and designed with a focus on the sustainability and maintainability of the school.

The building is situated toward the western edge of the property with the identifiable main entrance of the building facing Dufief Drive. The administrative suite is located at the front of the building to allow supervision of the main entrance, lobby, and student drop-off loop. Secondary entrances are located by the bus loop and student drop-off. The academic areas are organized around a large courtyard space to maximize natural light into the classrooms and promote an efficient interior circulation system. The kindergarten and first grade classrooms are located on the ground floor level for security and safety reasons. The remainder of the classrooms for grades two through five are located on the second floor. Stairways are located at each end of the building with a centrally located stair in the lobby, along with an elevator to provide vertical circulation within the building. The core support spaces of the building, consisting of the multi-purpose room, gymnasium, and media center, meet the standards of the elementary school program and are designed to support community use by grouping the spaces together on the main floor of the building with controlled access. Secondary entrances with a canopy provide a sheltered entry from the bus loop, and student drop-off.

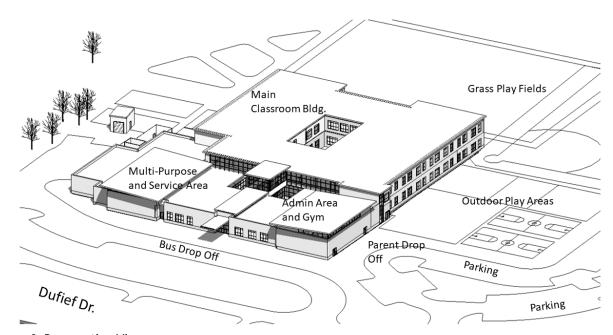


Figure 4: Perspective View



Figure 5: Front Elevation Drawing (west elevation)

# Site Design

The proposed site plan situates the new building toward the western edge of the Subject Property with room for a front access drive. The main parking lot is located south of the proposed building on the southwestern edge of the Subject Property. The student drop-off loop and additional parking are located adjacent to the main parking south of the school. The bus loop is located on the western edge of the Site, separate from the student drop-off. The ball fields and play areas are located on the eastern half of the Site (**Figure 6**).

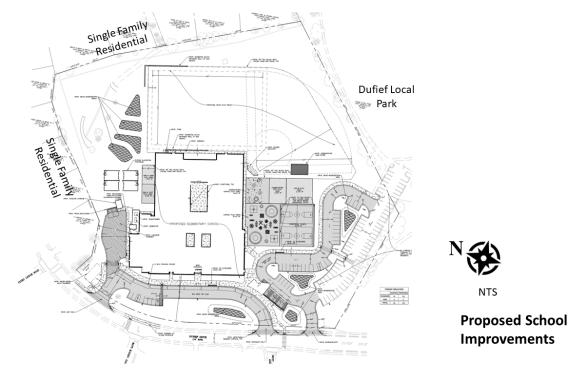


Figure 6: Proposed School Layout

All vehicular entry and exit will use Dufief Drive. On-site vehicular traffic circulation is designed to provide safe access to the school for pedestrians while providing approximately 109 parking spaces. The student drop-off and bus loop are designed to provide maximum queuing spaces on-site to minimize the traffic backup onto Dufief Drive. Other infrastructure requirements include providing a storm-water management ("SWM") system in compliance with the Montgomery County SWM regulations, necessary utilities to support the needs of the new facility, and exterior lighting for safety and security purposes.

#### **Sections and Elevations**

The proposed building exterior features a contrasting brick veneer pattern that articulates and reduces the apparent massing and identifies the functional spaces of the interior. Well-placed window openings establish the façade rhythm and bringing natural lighting into the internal circulation areas.

### **Energy Efficiency**

The project will be designed and constructed with an emphasis on environmental sustainability. The architecture and engineering systems will align with Montgomery County Public Schools facility management sustainability principles to ensure long term operational effectiveness. The project will be

certified with Green Globes at a Two Globe level and must meet the 2018 International Green Construction Code ("IgCC").

Key features related to sustainability include the following:

- High performance insulation and glazing will be utilized to address heat gain and loss through the building envelope. In addition, a cool roof will be designed to reduce the solar heat gain.
- The building envelope will include low-e double pane windows providing natural light and views from all teaching spaces.
- Sustainable lighting control design in a typical classroom includes low voltage switches, occupancy sensors and high efficiency LED lighting fixtures.
- High efficiency HVAC equipment will be utilized to provide for occupant and thermal comfort within the building at reduced energy consumption.
- Carbon dioxide sensors will be utilized for high occupant density spaces to reduce the quantity of
  outside air use when the spaces are not fully occupied. This will limit the amount of energy used to
  heat and cool large spaces, like the gymnasium, while they are unused.
- Using construction materials that are recycled and regionally manufactured.
- Maximizing natural light in classrooms.
- Minimizing background noise level from heating, ventilation, and air conditioning systems in classrooms and control reverberation time with sufficient sound absorptive materials.

One of the primary design factors required to achieve a sustainable facility is the conservation of energy. The importance and consideration placed on energy conservation will be reflected in the configuration and orientation of the building, the selection of materials, and the mechanical/electrical systems utilized. In addition, a direct digital automatic temperature control system will be provided to monitor and control all new heating, ventilation, and air conditioning equipment from a central building management system. The new facility will be designed to meet or exceed ASHREA 90.1-2010 energy requirements and International Building Code ("IBC") Basic Energy Conservation codes as well as Montgomery County energy conservation codes. The design will incorporate the ANSI/ASHREA Energy Efficient Design for new buildings.

### Landscape and Lighting

The submitted Landscape Plan proposes Maryland native tree and shrub plantings along the front of the school, bus drop off and parking areas. Shade trees are proposed for the surface parking areas to augment the existing mature trees. The lighting plan proposes a mixture of lighting types including fixtures on 20-foot high poles and various wall mounted lighting. The lighting plan reduces excessive illumination my ensuring that the light levels are 0.5 foot-candles or less at the property line.

The exterior lighting of the school will be designed to shield adjacent residences from intrusive light glare while maintaining light levels for safety and security. The light fixtures will be 100% down-lighting, dark sky compliant, to minimize light pollution into the night sky. The exterior light fixtures at canopies, building, security and parking lots will be light emitting-diode type fixtures that are long lasting and energy efficient.

### **Operating Hours**

The school's hours of operation vary and comply with the standard MCPS school schedule. Current school hours are from 9:00 AM to 3:25 PM with faculty office hours from 7:15 AM to 4:00 PM.

#### **Parking**

Staff and visitor parking along with a student drop-off loop will be accessed from Dufief Drive along the southwest side of the Site and will provide convenient, Americans with Disabilities Act-compliant access to the main entrance of the building. The proposed site design provides on-site staging areas for 10 buses, 109 parking spaces, and on-site student drop-off queuing. There are no standard parking rates for elementary schools and final determination of parking adequacy is at the discretion of MCPS. The proposed parking, while adequate for faculty and staff, may cause limited visitor parking.

### **ANALYSIS**

### **Neighborhood Compatibility**

The Site is currently occupied by the existing Dufief Elementary School and will be replaced with the same use at a slightly larger scale. The character of the proposed building will create an attractive and inviting school building for the community. The Dufief Elementary School community strongly believe that this school site is part of the community and prefer that the school should remain in the same location.

#### **Master Plan Conformance**

The Dufief Elementary School Site is not specifically mentioned in the North Potomac Section of the 2002 Potomac Subregion Master Plan, however the Plan does state "Public schools are an essential component of community life and an integral part of community structure." Maintaining Dufief Elementary School in its existing location and modernizing it into a new inviting and attractive school building not only maintains the community structure, it also increases the quality of the community life. The proposed project is in substantial conformance with the 2002 Potomac Subregion Master Plan.

### TRANSPORTATION ANALYSIS

### Access, Circulation, Queueing, and Parking

Currently, Dufief Elementary School has a single point entry off Dufief Dr. opposite Silent Valley Lane for both passenger vehicles and buses. Buses travel to the left to the one-way loop directly in front of the school's entrance to discharge students and exit onto Dufief Dr. opposite Happy Choice Lane. Parents in passenger vehicles travel to the right to discharge students at a separate carpool line in the parking lot on the south side of the school's campus. There is currently no carpool loop in the parking lot forcing vehicles to use empty parking spaces to turn around (**Figure 7**). If no parking spaces are available for turn around, vehicles then make a three-point turn to turn around. During the school year, the school used crossing guards and student safety patrols to assist with pedestrian and bicycle crossings of Dufief Dr. as well as student drop-off and pick-up operations. During observed operations on October 29, 2019 between 8:00 AM to 9:00 AM, the maximum number of cars queued in the student carpool line was 6 vehicles and the maximum number of school buses queued was 3. During the afternoon from 3:00 PM to 4:00 PM there were more vehicles queued in both the carpool line and the bus drop-off as a result of vehicles arriving to school prior to the dismissal time. The maximum number of queued vehicles in the carpool line was a total of 17 cars and the number in the bus loop was 6 buses.

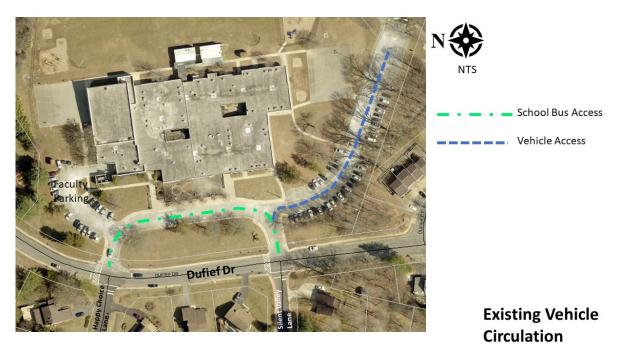


Figure 7: Current Vehicle Circulation

The school will improve its current bus and passenger vehicle access from Dufief Drive for staff, parents, and visitors and add one full-movement entrance further north on Dufief Drive to enable access to a new separate bus loop (**Figure 8**). The separation of bus and staff/parent access will reduce conflicts, create separate queueing areas for each group of vehicles, and significantly increase on-site queueing space.

Staff/Parent vehicular circulation will be accessed off of Dufief Drive and directed into a proposed one-way loop through an existing parking lot into a new parking lot and parent queuing area on the south side of the school. The Applicant is proposing signage and pavement markings to indicate traffic circulation patterns and to assist with any confusion that might arise with any driver's unfamiliarity with the Site.

The new bus loop is located separately on the west side of the building adjacent to the main entrance to the school. The separation of bus and passenger vehicle traffic is a basic safety measure practiced among schools nationwide and is a proven design strategy that prevents accidents. Bus traffic, both arriving and leaving, is a controlled process with high volume and mixing parental drivers into this process will adversely effect the safety and efficiency of bus operations, not to mention the safety of the students. The proposed bus loop will allow for the queueing of up to eleven buses.

Pedestrian circulation within the Site is adequate and efficient. Leadwalks and sidewalks provide pedestrian connections from the existing sidewalks along Dufief Drive to the building entrances, between parking/queueing areas and the building entrances, and between the building and on-site amenities. All pedestrian sidewalks will be ADA compliant.

The current parking on the Site will be increased from approximately 64 spaces to 109 spaces including 6 new handicapped parking stalls. There are no standard parking rates for elementary schools and final determination of parking adequacy is at the discretion of MCPS. The proposed parking, therefore, while adequate for faculty and staff, may cause limited visitor parking.

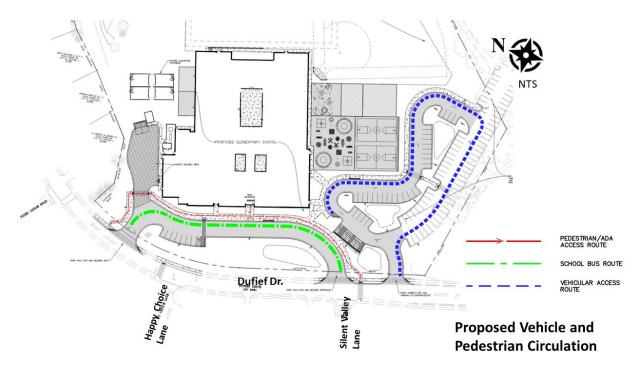


Figure 8: Proposed Vehicle and Pedestrian Circulation

### Pedestrian, Bicycle, and Transit Facilities

The current school Site has sidewalk connections into and within the Site from the existing 4-foot wide sidewalk along Dufief Drive. The Applicant has proposed widening 3 areas of the existing sidewalk along Dufief Drive in front of the school to 5-foot wide to meet current Montgomery County Code (**Figure 9**). This leaves lengths of the existing sidewalk between these areas at the original 4-foot width. Staff recommends that the entire length of the existing sidewalk from the crosswalk at Dufief Drive and Piney Lodge Road just north of the school down to the southernmost terminus of the school property be improved to current county standards of 5-foot wide sidewalks.

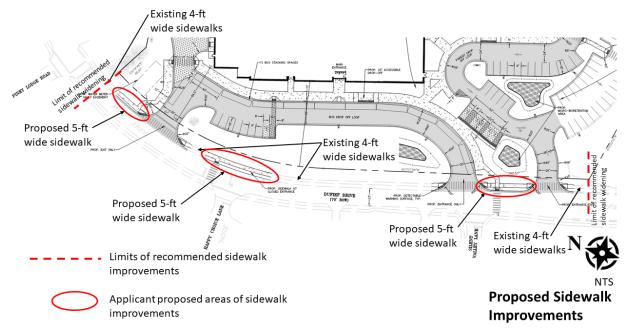


Figure 9: Proposed and Recommended Sidewalk Improvements

Montgomery County Ride-On Bus service (Routes 56 and 67) is provided in the area. Route 56 runs along Darnestown Road connecting Lakeforest Mall to downtown Rockville and Route 67 runs along Dufief Mill Road connecting the Shady Grove Metro to the Travilah Transit Center. Both routes provide service from approximately 5:00 AM to 9:00 PM seven days a week.

# Master-Planned Roadways and Bikeways

According to the Potomac Subregion Master Plan, Dufief Drive is designated as a two-lane Primary Residential street with a 70-foot-wide right-of-way. The current right-of-way is 70-feet, so the Applicant is not proposing any additional dedication of right-of-way.

There are currently no marked bike paths along Dufief Drive. The 2018 Montgomery County Bicycle Master Plan recommends sidepath or bike lanes for a Primary Residential street. However, the Master Plan has no specific recommendation for Dufief Drive. The Applicant is not proposing any reconstruction or bike lane striping for Dufief Drive. The School is proposing to provide short-term bike racks in the front of the building.

#### Local Area Transportation Review

The Mandatory Referral application included a traffic study due to the large increase in students expected with the expansion. The study followed the 2016-2020 Subdivision Staging Policy (SSP) and related Local Area Transportation Review Guidelines. The traffic study analyzed the existing and proposed school driveways at the following intersections:

- 1. Dufief Drive/Alderwood Drive at Darnestown Road (MD 28)
- 2. Dufief Drive at Happy Choice Lane/School driveway
- 3. Dufief Drive at Silent Valley Lane/School driveway
- 4. Dufief Drive at Dufief Mill Road

- 5. Dufief Mill Road at Quelway Road
- 6. Dufief Mill Road at Flints Grove Lane

All intersections were less than both the Potomac Policy Area Critical Lane Volume (CLV) standard of 1,450 and under the SSP threshold of 1,350 CLV for the existing, background, and future conditions. Future Background CLV estimates were calculated by multiplying the existing volumes by a 1.5% annual increase multiplier (**Table 1**). Therefore, additional delay analysis was not required and the LATR test was passed. Additionally, based on the mode split factors for the Potomac Policy Area, the school would not generate 50 or more transit, pedestrian, or bicycle trips to require further analysis of any of these modes.

|                                       | Critical Lane Volume (CLV) |         | Future Background CLV |         |
|---------------------------------------|----------------------------|---------|-----------------------|---------|
| Intersection                          | AM Peak                    | PM Peak | AM Peak               | PM Peak |
|                                       | Hour                       | Hour    | Hour                  | Hour    |
| Dufief Drive/Alderwood Drive at       | 1,094                      | 1,206   | 1,213                 | 1,323   |
| Darnestown Road                       |                            |         |                       |         |
| Dufief Drive at Happy Choice          | 145                        | 115     | 145                   | 115     |
| Lane/School driveway                  |                            |         |                       |         |
| Dufief Drive at Silent Valley         | 233                        | 164     | 233                   | 164     |
| Lane/School driveway                  |                            |         |                       |         |
| Dufief Drive at Dufief Mill Road      | 652                        | 721     | 726                   | 796     |
| Dufief Mill Road at Quelway Road      | 567                        | 584     | 637                   | 656     |
| Dufief Mill Road at Flints Grove Lane | 514                        | 584     | 580                   | 652     |

**Table 1: Existing and Future Critical Lane Volumes** 

### **ENVIRONMENT**

### Natural Resources Inventory/Forest Stand Delineation

A Natural Resources Inventory and Forest Stand Delineation ("NRI/FSD"), plan no. 420201070 was approved by Staff on February 19, 2020. The Site is within the Muddy Branch watershed, a Use I-P designation. The Site contains no streams or drainageways on property or within 100 feet of the property. There is no forest on or within 100 feet of the property. There are several specimen trees along the boundary of the property. See the Forest Conservation staff report (Part A) for a complete analysis.

### **Forest Conservation**

The Application meets the requirements of Chapter 22A of the Montgomery County Forest Conservation Law. See the Forest Conservation staff report (Part A) for a complete analysis.

### **COMMUNITY OUTREACH AND NOTIFICATION**

Representatives from WMCRP Architects and Montgomery County Public Schools held multiple public meetings at Dufief Elementary School to discuss the impact of the project with the surrounding community. There were also presentations to the public and the PTSA on October 15, 2019 and again on November 5, 2019. As of the date of this report, Staff has not received any community correspondence concerning this Application.

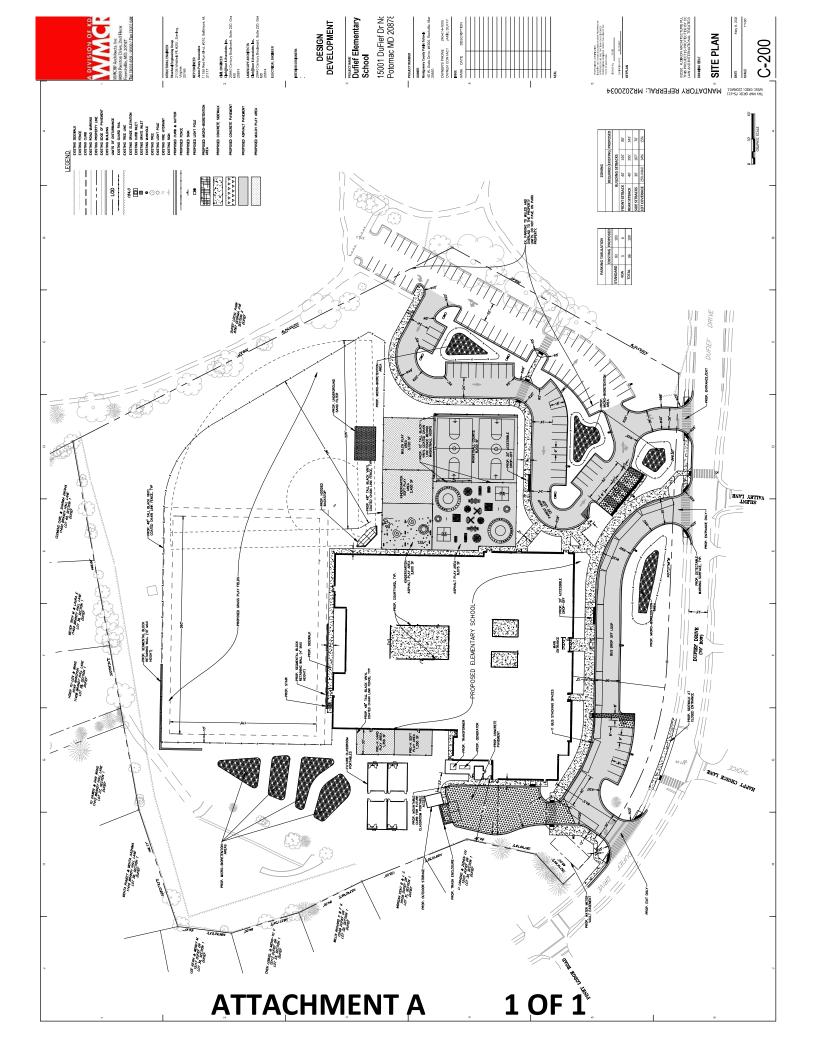
### **CONCLUSION**

Based on information provided by the Applicant and the analysis contained in this report, Staff concludes that the proposed Mandatory Referral for the Dufief Elementary School will be compatible within its Site context and meets the applicable standards and guidelines for the environment.

Staff recommends approval of the Mandatory Referral with comments listed at the front of this report to be transmitted to the Montgomery County Public Schools.

### Attachments:

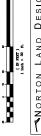
- A. Mandatory Referral Site Plan
- B. Landscape Plans
- C. Architectural Plans
- D. Interior Floor Plans











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**ATTACHMENT B** 

