

**DESIGN OPTIONS REPORT**  
**GREEN ELEMENTARY SCHOOL**  
**WAKE COUNTY PUBLIC SCHOOL SYSTEM**



**OCTOBER 29, 2013**

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## PURPOSE OF STUDY

The purpose of this study is to evaluate two options regarding the design direction for Green Elementary School. The options are as follows:

- Option # 1: Continue use of the existing 1995 two-story classroom building
- Option # 2: Demolition of the existing 1995 two-story classroom building and construction of all new elementary school facility

## EXECUTIVE SUMMARY

Because of the tight site restrictions, internal building circulation issues, unknown cost associated with the construction around the existing facility, potential health concerns with the existing facility, and our evaluation of the educational benefits, we believe that Option # 2 – all new construction - achieves the best long term solution for WCPSS. Additionally, the State DPI Cost and Feasibility forms with regards to the 1995 two-story classroom building have been completed and justify construction of new building verses renovating the existing 1995 building.

The recent WCPSS changes to incorporate a Magnet program will necessitate the need for additional DOT requirements for length of parent stacking lanes and more busses. This will increase the size of the bus staging area. The City of Raleigh has adopted a new Unified Development Ordinance as of this year, which will change the setback requirements, site walls, and site buffers from the 2008 Super Design Narrative.

Designing around the existing 1995 Two-Story Classroom Building presents several complications and concerns. These concerns coupled with the benefits of new construction present cogent reasoning for design Option # 2 – all new construction. The design considerations are as follows:

- Building circulation will be easily discernible for elementary school age students.
- This will locate Pre-K, Kindergarten, and 1<sup>st</sup> Grade students near all Core and Administration/Health spaces for ease of travel.
- This will eliminate the need for a raised corridor associated with the constrictions of existing grades and the existing finish floor elevation.
- This will eliminate the need for additional ramps or stairs associated with tying into the existing finish floor elevation.

- This will provide flexible building placement with a consistent main level finish floor elevation.
- This will provide enhanced thermal efficiencies with a continuous building envelope.
- This will discontinue the maintenance associated with the aging 1995 building.
- This will alleviate any health concerns associated with the existing facility.
- The additional cost of all new construction is minimal to the overall cost of the project and will provide operational and annual cost benefits.
- DPI justification forms indicate that building new versus renovating the 1995 building is the better option.

## DESIGN OPTIONS

### **OPTION # 1 – continue use of the 1995 building**

#### Introduction

In this option it specifies the demolition of approximately 46,059 SF of existing structure, the renovation of 20,100 SF of structure to remain, and providing 75,866 SF of addition space. Because of site constraints and due to the location and finish floor elevation of the structure to remain, a raised connecting corridor will be required to create circulation and to maintain grade level discharge on the lower level. Additionally, due to drastic grade changes, it may be necessary in this option to step or ramp the new classroom wing to accommodate slope. Based on WCPSS's service reports, description of growth activity by WCPSS, and site visits, we are to assume mold and mildew remediation may need to take place in the structure to remain. A formal mold report has not been issued.

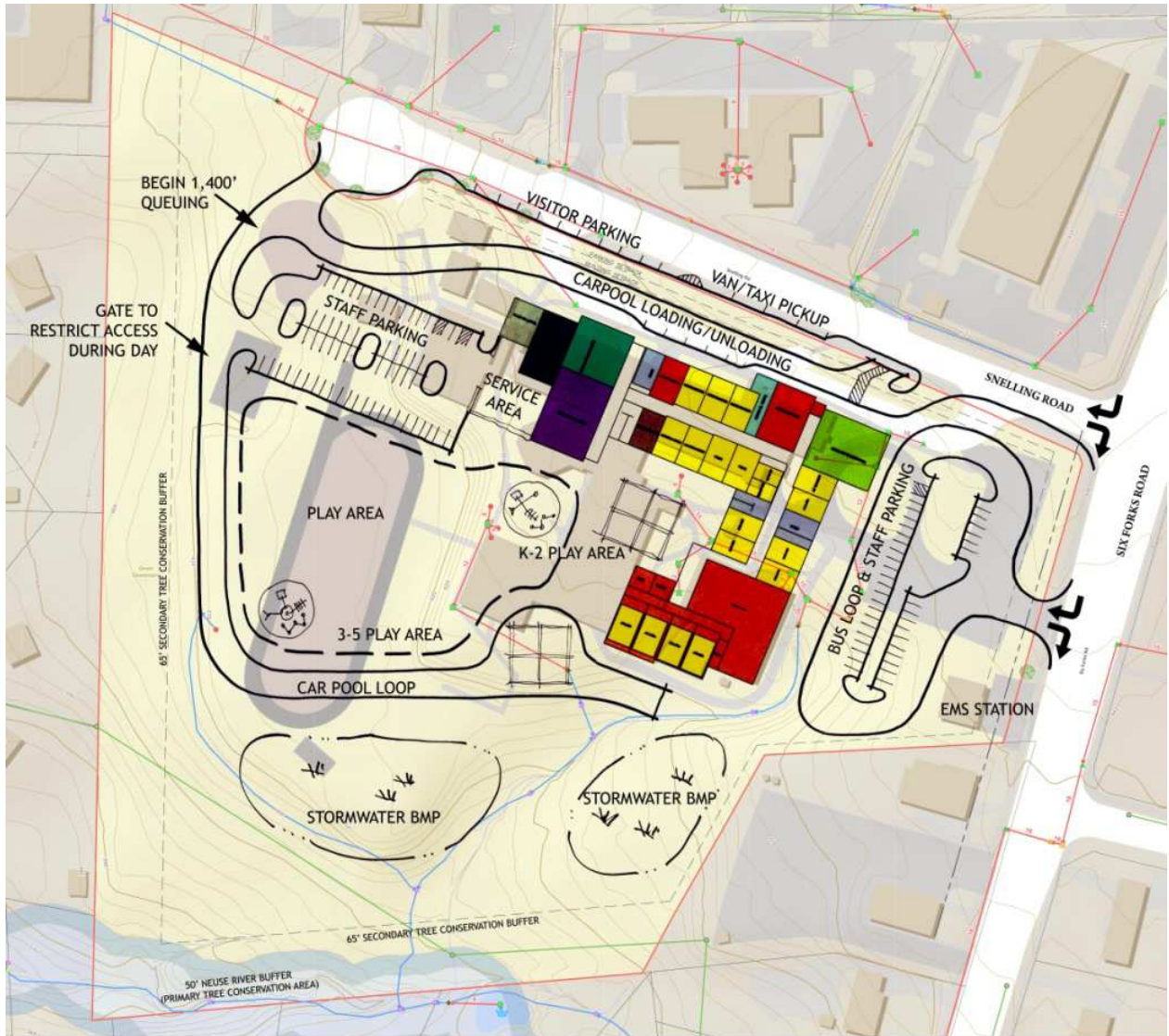
The site will include a car pool loop measuring 1,400 linear feet and will be located between the required tree conservation area on the western property line and the play area. A staff parking lot will be directly off of the car pool loop adjacent to the service court. A gate will be located at the parking lot drive. It will be closed off during the day so the remaining carpool loop pavement can be utilized for play area. The bus loop will be located off of Six Forks Road. It has been sized to serve up to 16 busses and provide additional staff parking. Access at Six Forks Road will be right-in/right-out based on plans of Six Forks Road becoming a 6-lane, divided median road. Traffic volumes on Snelling are low enough that the City of Raleigh will allow the school to utilize parallel parking along the south of Snelling for school visitor parking.

Stormwater ponds will be located south of the play area, car pool loop, and building treating run-off before it reaches the buffered stream along the southern property line.

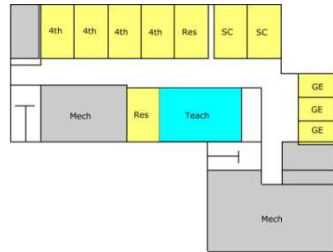
Play space for K-2 will be located between the building addition and the existing building. Play space for 3-5 will be located further out utilizing the car pool loop turnaround. An open space grass playfield will separate the school building from the vehicular traffic.



Option # 1 Site Plan:

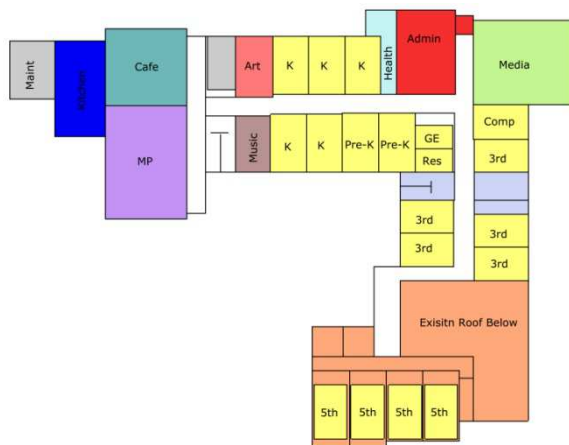


Option # 1 Floor Plans:



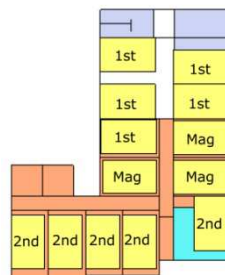
**Upper Level**

The upper level of option # 1 will consist of 4<sup>th</sup> Grade, General Education spaces, and Self-Contained Classroom. Teacher Support spaces will be added for additional supervision and teach convenience.



**Main Level**

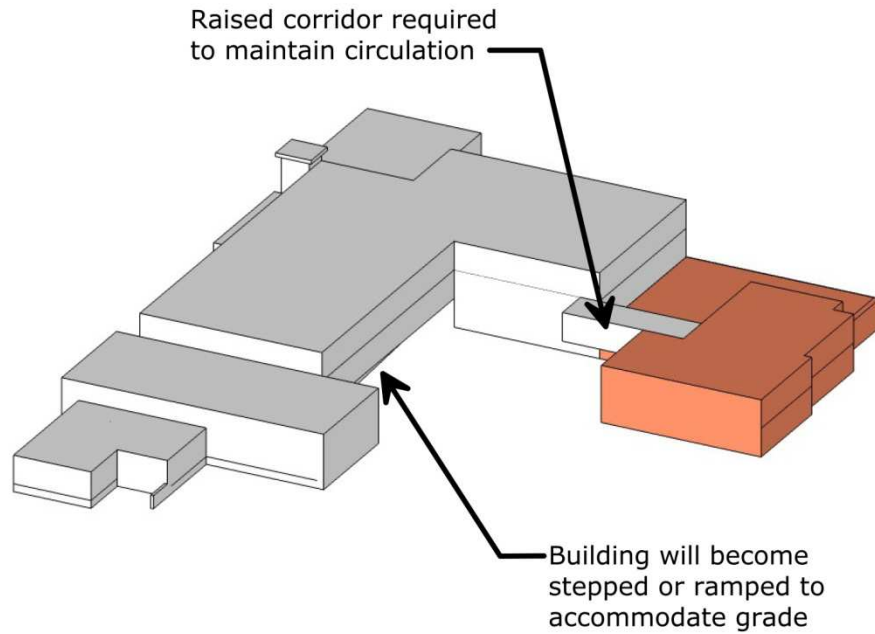
The main level of option # 1 will consist of Pre-K, Kindergarten, 3<sup>rd</sup> Grade, and 5<sup>th</sup> Grade. Core programming is also located on this level. Because of site constrictions and rooms required to have grade level access, the east-west wing is elongated and will require ramps or steps to accommodate the grade change. A raised corridor is required to provide circulation from the existing structure to the new building.



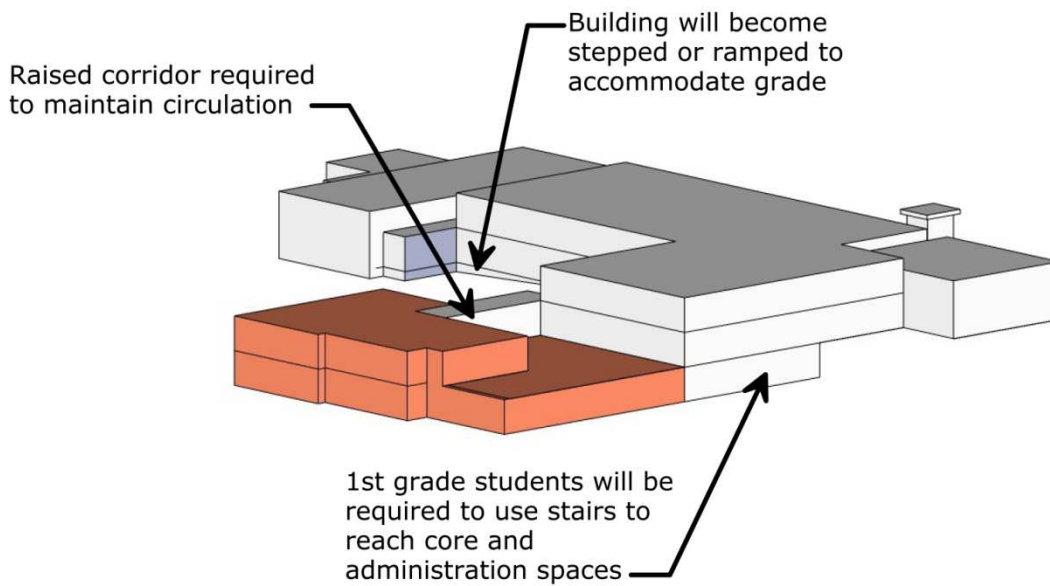
**Lower Level**

The lower level of option # 1 will house the 1<sup>st</sup> Grade, 2<sup>nd</sup> Grade, and Magnet programming. Teacher support space will also be provided. 1<sup>st</sup> Grade and the Magnet programs are located here to provide grade level access. However, a new exterior ramp system will be required.

Option # 1 Massing Studies:



View 3: Southwest



View 4: Southeast



## **OPTION # 2 – all new construction**

### Introduction

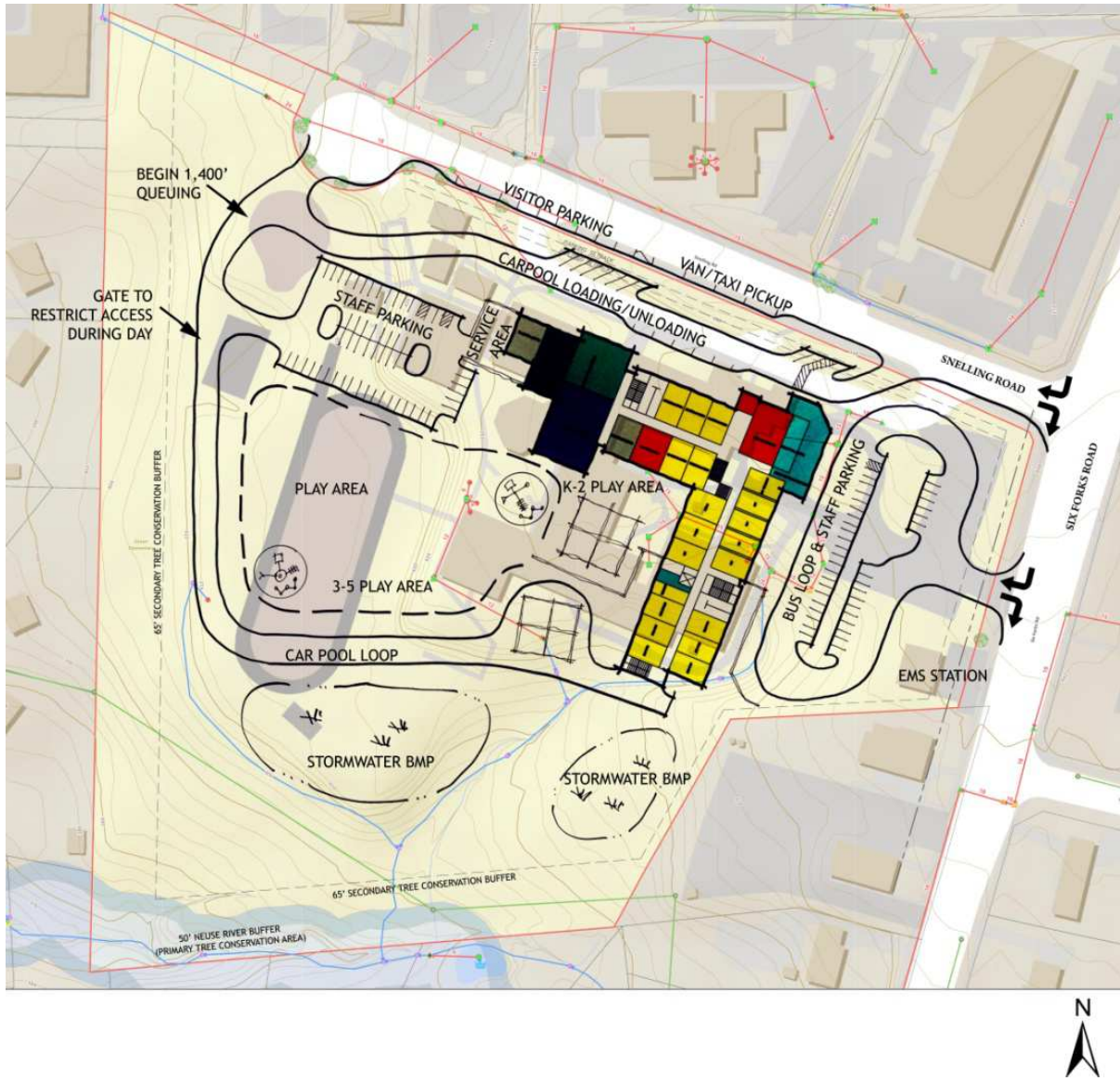
Demolish approximately 67,703 SF of existing structure. Build a new 93,499 SF Green Elementary School based on WCPSS Space Standards on the existing site. This eliminates any premiums associated with the demolition, underpinnings, and preservation measures required to maintain the existing structure throughout demolition, construction, and renovation. It also dismisses the need for any raised connecting corridor, as the new facility will be designed for efficient circulation appropriate for elementary aged students. Additionally, it minimizes the concern for any unforeseen conditions that may exist. The constraints applied by the challenging site could be heavily assuaged by optimal building placement, allowing for ideal building circulation and larger play areas.

The site requirements for option # 2 are the same as option # 1. The site will include a car pool loop measuring 1,400 linear feet and will be located between the required tree conservation area on the western property line and the play area. In this option, the entrance / car pool drop off area is larger, creating a more pedestrian friendly approach to the school's main entrance. A staff parking lot will be directly off of the car pool loop adjacent to the service court. A gate will be located at the parking lot drive. It will be closed off during the day so the remaining carpool loop pavement can be utilized for play area. The bus loop will be located off of Six Forks Road. It has been sized to serve up to 16 busses and provide additional staff parking. Access at Six Forks Road will be right-in/right-out based on plans of Six Forks Road becoming a 6-lane, divided median road. Traffic volumes on Snelling are low enough that the City of Raleigh will allow the school to utilize parallel parking along the south of Snelling for school visitor parking.

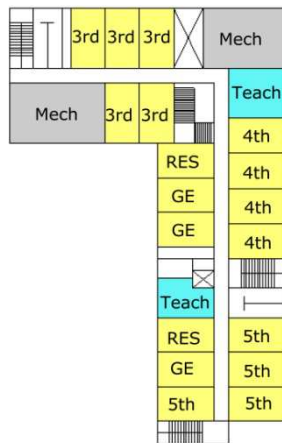
Stormwater ponds will be located south of the play area, car pool loop, and building treating run-off before it reaches the buffered stream along the southern property line.

Because of optimal building placement, play space for K-2 can be pulled away slightly from the new building. Play space for 3-5 will be located further out utilizing the car pool loop turnaround. A slightly larger an open space grass playfield is possible with this option and will separate the school building from the vehicular traffic. Some additional fill will be required at the south side of the new building.

Option # 2 Site Plan:

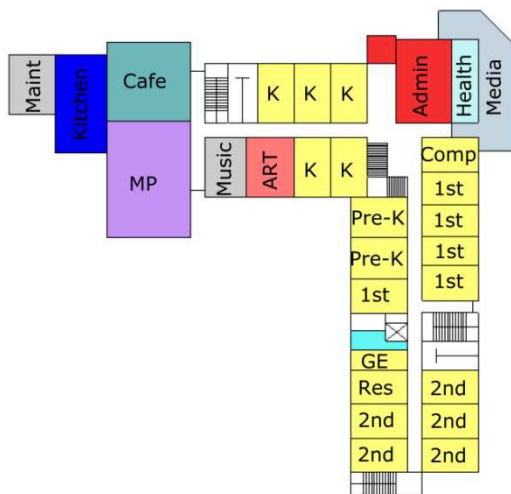


Option # 2 Floor Plans:



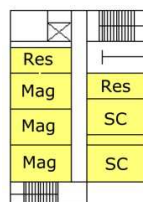
**Upper Level**

The upper level of option # 2 will house the older grade levels of the required program, Resource Rooms, and General Education spaces. Teacher Support spaces are provided for supervision and for teacher convenience.



**Main Level**

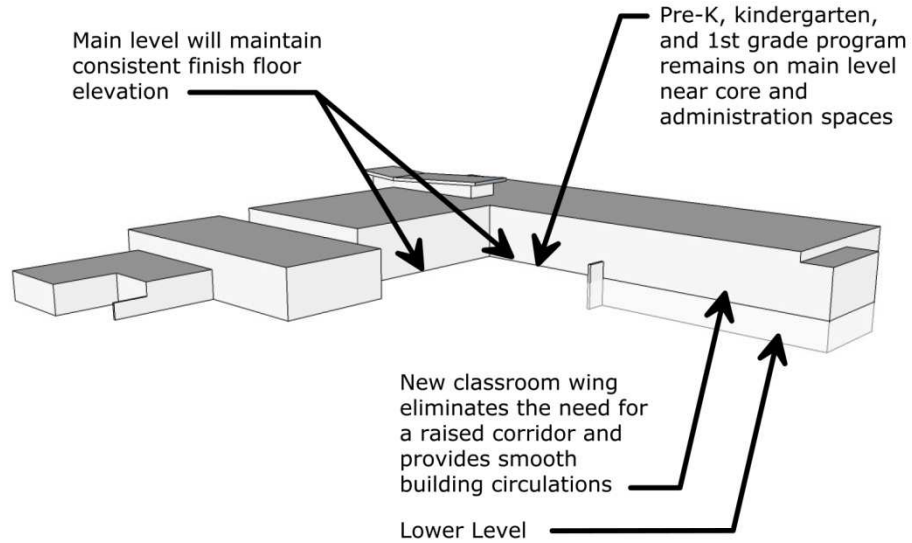
The main Level of option # 2 will facilitate all core spaces. Pre-K, Kindergarten, and 1<sup>st</sup> Grade will remain close to both the administration and core spaces to minimize their travel and to maintain grade level discharge. 2nd Grade will be on the main level as well. Music and Art will be adjacent to the Multi Purpose play and platform area.



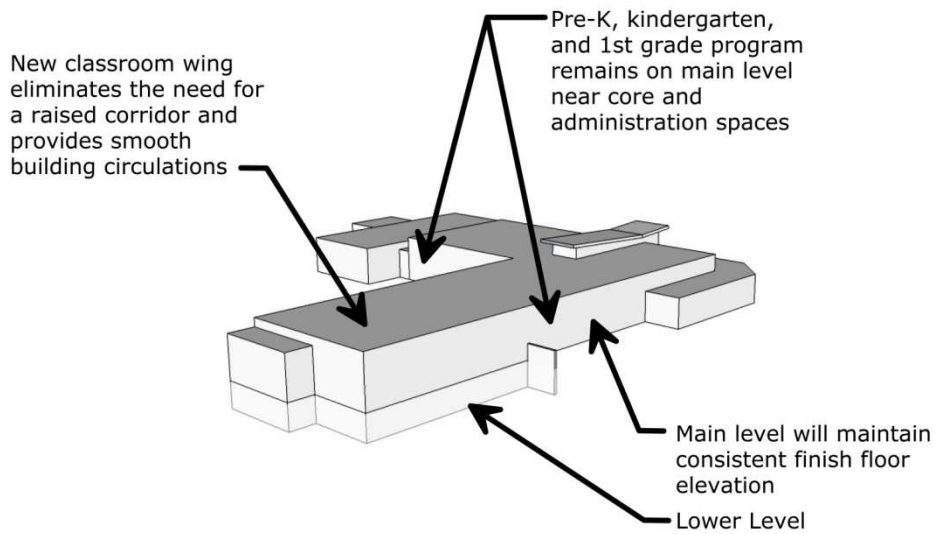
**Lower Level**

The lower level of option # 2 will include the Magnet Program, Self-Contained Classrooms, and Resource Rooms. The location of the program makes it easily accessible from all levels of the facility.

Option # 2 Massing Studies:



View 3: Southwest



View 4: Southeast

## PROS / CONS SUMMARY

### Options # 1 – continue use of the 1995 building:

#### Pros:

- Adheres to the original Building Program analysis.
- Provides slightly less cost.
- There is less site disturbance at the southern end of property.

#### Cons:

- Retaining the 1995 building limits site design options that would otherwise benefit site layout.
- Requires retention of existing site infrastructure.
- Limits possibilities for improved vehicle and pedestrian circulation and open space play area.
- Entrance of building is pushed closer to Snelling creating a less pedestrian friendly space due to vehicular circulation.
- Different building elevations will require a raised corridor to connect the new construction with the existing structure.
- Tying into the existing finish floor elevation of the 1995 building will require additional ramps or stairs.
- 1<sup>st</sup> grade will have to be on the lower level to maintain grade level access, requiring younger students to travel up stairs to reach core spaces.
- Working around the existing 1995 building will create additional cost.
- The thermal envelope of the existing 1995 building will not be the same as the new construction.
- There will be continual maintenance associated with the aging 1995 building.
- The building's identity will be restricted by the existing structure's context.
- Play Space area will be smaller.

### Option # 2 – all new construction:

#### Pros:

- Enables designers to create a cohesive solution in which the site and building blend together.
- Allows for new site utility infrastructure located and sized appropriately.



- Allows building to be located to provide improved circulation space for pedestrians and vehicles.
- Play Space area will be larger.
- A consistent finish floor elevation will be maintained for the main level.
- New construction allows for efficient internal building circulation.
- Addresses WCPSS Space Program requirements in the most compact solution.
- Discontinues all aging buildings on site.
- Provides a continuous building envelope system.
- Alleviates any potential health concerns associated with the existing structure.
- Eliminates all premiums associated with saving the existing structure
- A new building identity can be formed.
- Provides new “Face” for Six Forks Road.

**Cons:**

- Counters the original Building Program analysis.
- New building footprint will require more fill south of the new building wing.
- There will be less preserved vegetation.

## COST COMPARISON

Estimate of Probable Cost for Partial Renovation verses 100% New Construction of Green Elementary School's existing 1995, Two-Story Classroom Building.

Area of Potential Renovation: **20,100 SF**

Area of Potential New Construction: **18,354 SF** (calculated by using the existing usable program space of 12,835 + WCPSS Space Standards for non-assignable space factor of 43%)

### Option # 1 – Renovation of Existing Structure

			<u>Unit Cost</u>	=	<u>Total Cost</u>
a.) Renovation of subject area:	20,100 SF	@	\$79.00	=	\$1,587,900
b.) Premium of surrounding demolition:	1 LS	@	\$50,000	=	\$50,000
c.) Mold Remediation	20,100 SF	@	\$9.41	=	\$189,141
d.) Premium of connecting corridor	1,216 SF	@	\$146.00	=	\$177,536
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<b>Total</b> (excludes sitework)					\$2,004,577

### Option # 2 – Total Demolition with all New Construction

			<u>Unit Cost</u>	=	<u>Total Cost</u>
a.) Total demolition of subject area:	20,100 SF	@	\$4.00	=	\$80,400
b.) New construction of subject area:	18,354 SF	@	\$146.00	=	\$2,679,684
					-----
<b>Total</b> (excludes sitework)					\$2,760,084

**Delta** **\$755,507**