Montrose Shade Project
2022-2023

Requested by:

The Montrose PTO, Shade Committee, and South Bexley Community

Montrose Shade Project
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Introductory & Request Letter

Dear Bexley School District and Board of Education,

The Montrose PTO would like to propose the Montrose Playground Shade Project. This project would culminate in fabric canopies covering both the east and west sides of the Montrose playground, providing sun relief for students and community members who frequent the area. Currently, the area is subject to unrelenting sun exposure. Students and patrons are left with little sun protection for their skin. In addition, they are exposed to elevated temperatures for the playground equipment, increasing risk of sun damage and burns. An evaluation of playground temperatures in the summer of 2022 revealed temperatures of up to 140 degrees Fahrenheit. Consequently, much of the equipment is left unused on hot and sunny days. Children have even been seen congregating in the very limited shade provided by the slides and other equipment during the Bexley BACPack program to find relief. The Montrose PTO would like to render this missed opportunity and increase accessibility for students and all community members.

Shade has been a primary request from Montrose parents, teachers, students, and community members. During the original playground campaign, a community survey was conducted to gauge school and community requests for playground design. The second most requested commodity was shade, surpassed only by requests for the new playground equipment. However, due to the cost and size of the original project, shade was delayed. A follow-up community survey was recently completed, and shade has now been voted the priority need for Montrose play areas. In addition, the Montrose Playground Shade Project has been presented and approved by Montrose Elementary parents and staff with an overwhelming 98% of 250 votes in support of the change.

The Montrose Playground Shade Project also aligns with national initiatives. The U.S. Preventative Service Task Force (2018) recommends minimizing exposure to ultraviolet radiation (UVR) for persons aged 6 months 24 years with fair skin types to reduce skin cancer risks. Increasing shade in outdoor recreational settings is among the first goal of *The Surgeon General's Call to Action to Prevent Skin Cancer* (U.S. Department of Health and Human Services, 2014). Furthermore, policymakers and schools are encouraged to support shade planning and structures in key locations (U.S. Department of Health and Human Services, 2014). The Center for Disease Control's (CDC) (2002) guidelines for school programs recommends identifying opportunities to extend and create new shaded areas and to modify codes when needed to increase availability of shade. The CDC's (2008) *Shade Planning for America's Schools* outlines steps for school communities to reduce skin cancer risk among students by increasing shade on properties. Although the incidence of pediatric malignant melanoma is low,

the overall lifetime risk continues to grow with a current rate of 1 in 45 individuals with many behaviors that begin in childhood contributing to the risk (Paller & Mancini, 2022).

To fill this need, the east and west playground units will each have a four-pillar unit connected by a fabric canopy, or hypar shade, from Midstates Recration. Midstates is the same company who installed the current playground equipment. The pillars retain a 20-year warranty, and the fabric, a 10-year warranty. The hypar shades will be navy blue, providing 97% UVR protection. This will also allow the PTO to apply for the American Academy of Dermatology (AAD) Shade Structure Grant, which requires at least 94% UVR and prefers a 96.7% UVR. Our goal is to complete the shade installment during spring break of 2023 to allow for minimal disruption to the elementary school and precede the spring and summer months in which the structures would be most beneficial.

The current projected cost is $103,00. PTO funding will be supplemented by additional grants, including the Bexley Community Foundation, Bexley Education Foundation, and the AAD. If the initial projections differ from grant decisions, we expect the Montrose PTO will fund the difference through current resources or additional fundraising. Once completed, Bexley City Schools will take over maintenance costs, which is in-line with other community funded capital projects.

We ask that you partner with us in providing this much requested and needed change to the Montrose Elementary playground, providing students, staff, and community members with a safer place to play.

Sincerely,

The Montrose PTO and Shade Committee

Center for Disease Control. (2002). *Guidelines for School Programs to Prevent Skin Cancer*. https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5104a1.htm

Center for Disease Control (2008). *Shade Planning for America's Schools*. https://www.cdc.gov/cancer/skin/pdf/shade_planning.pdf

Paller, A.S. & Mancini, A.J. (2022). *Hurwitz Clinical Pediatric Dermatology* (6th ed.). Elsevier.

U.S. Department of Health and Human Services. (2014). *The Surgeon General's Call to Action to Prevent Skin Cancer.* https://www.hhs.gov/sites/default/files/call-to-action-prevent-skin-cancer.pdf

U.S. Preventative Services Task Force. (2018). Behavioral counseling to prevent skin cancer: US Preventative Services Task Force recommendation statemen. *JAMA, 319*(11): 1134-1142. https://doi.org/10.1001/jama.2018.1623

Montrose Shade Project
Playground Sun Study Summer 2022

Goal:

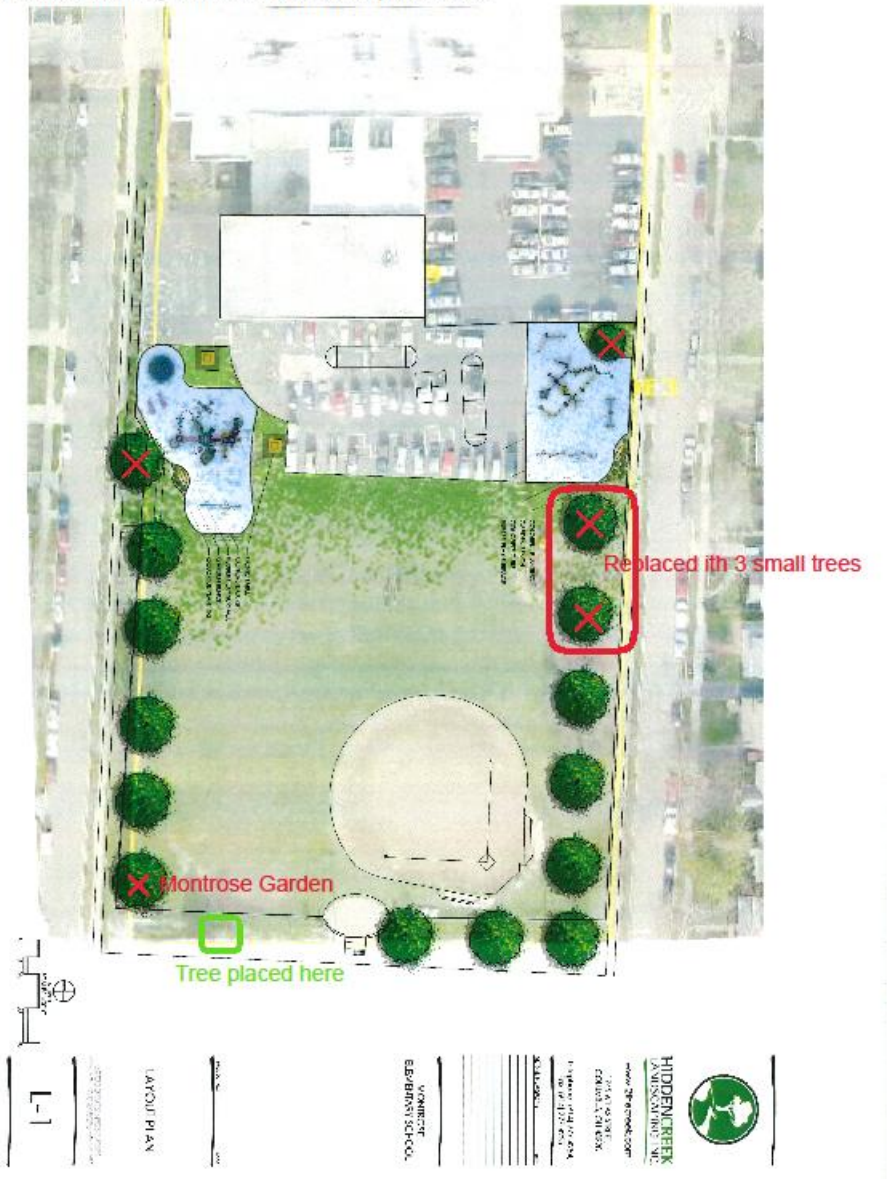
- **To identify potential heat risks to those using the Montrose playground equipment**
  - **Accomplish through assessing and documenting the temperature of the Montrose playground equipment at different times of day**

Time of Day/Outside Temp (F)	**6/22/22, 0630, 71**	**6/22/22, 0713, 72**	**6/26/22, 0924, 75**	**6/29/22 0954, 85**	**7/1/22, 1340, 92**	**7/1/22 1808, 90, after rain**
Montrose Playground Apparatus	Apparatus Temp (F)	App. Temp (F)	App. Temp (F)	App. Temp (F)	App. Temp (F)	App. Temp (F)
East Playground		(first sun)				
Tire swing		71.2	119.6	131.8	140.8	104.1
ADA support swing		71.3	105.6	108.0	115.2	109.6
Blue climbing steps		77.8	92.4	105.3	106.0	102.8
Brown metal handles		73.3	86.3	98.8	101.3	97.9
Synthetic playground cover		70.1	107.6	122.2	124.0	95.8
West Playground	(first sun)					
Bench	67.6		95.4	102.2	109.8	100.0
Swing	67.2		104	109.9	122.1	96.6
Monkey bars	63.7		97.5	102.1	103.9	99.4
Green slides	66.1		93.4	96.0	125.0	121.6
Brown spiral slide	67.8		113.1	121.2	123.6	120.3
Climbing wall	67.9		126.3	139.8	142.2	112.3
Brown metal handles	68.8		91.7	100.9	102.1	94.1
Green climbing bridge	68.4		100.2	109.2	112.3	96.7
Asphalt	79.4		95.1	109.3	116.4	104.0

**Sun hits west playground about 30 minutes after sunrise and the east playground about 60 minutes after sunrise.

Montrose Shade Project
Current Playground and Shade Layout

This document was created for the original playground build. It has been marked below to show updates of current tree placement.



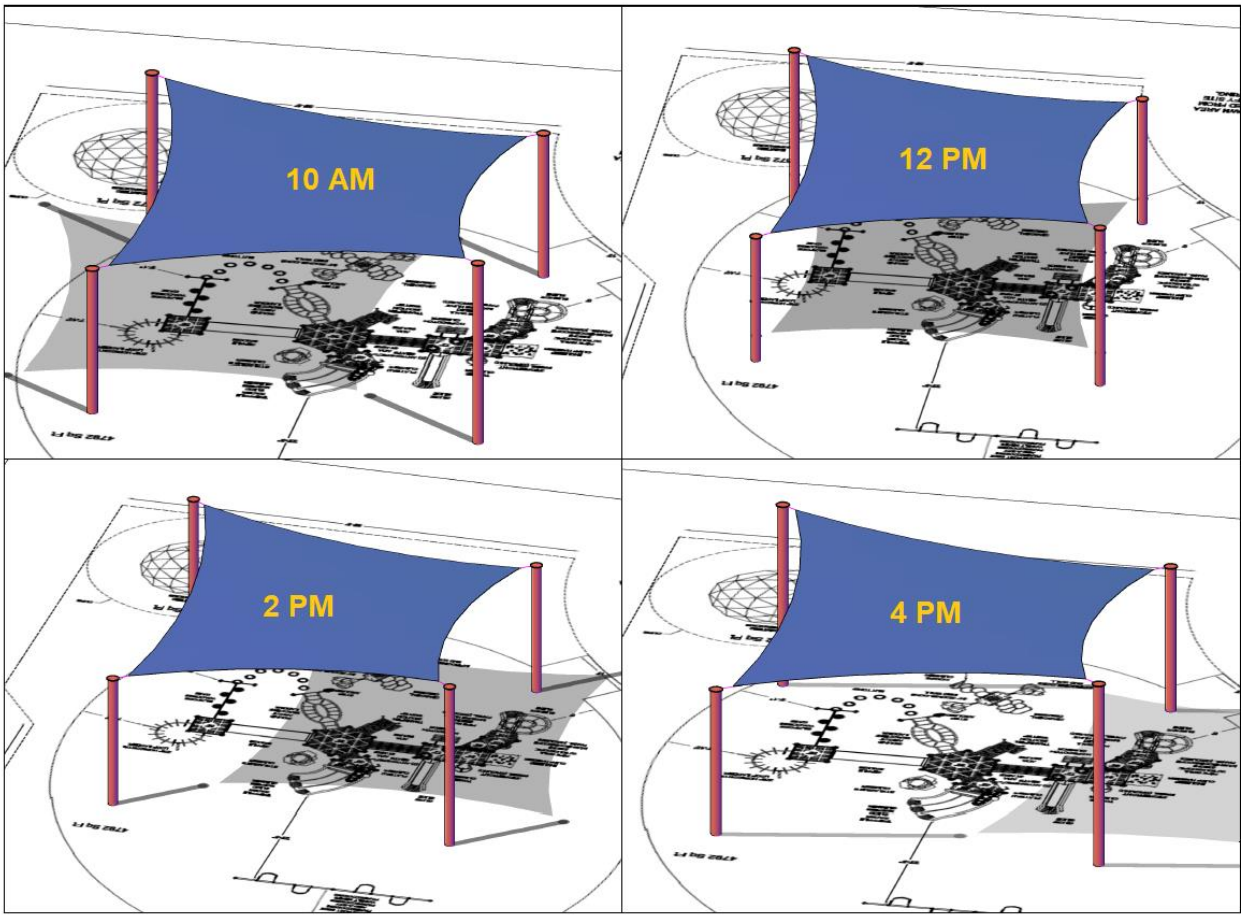
Montrose Shade Project
Projected Shade Design

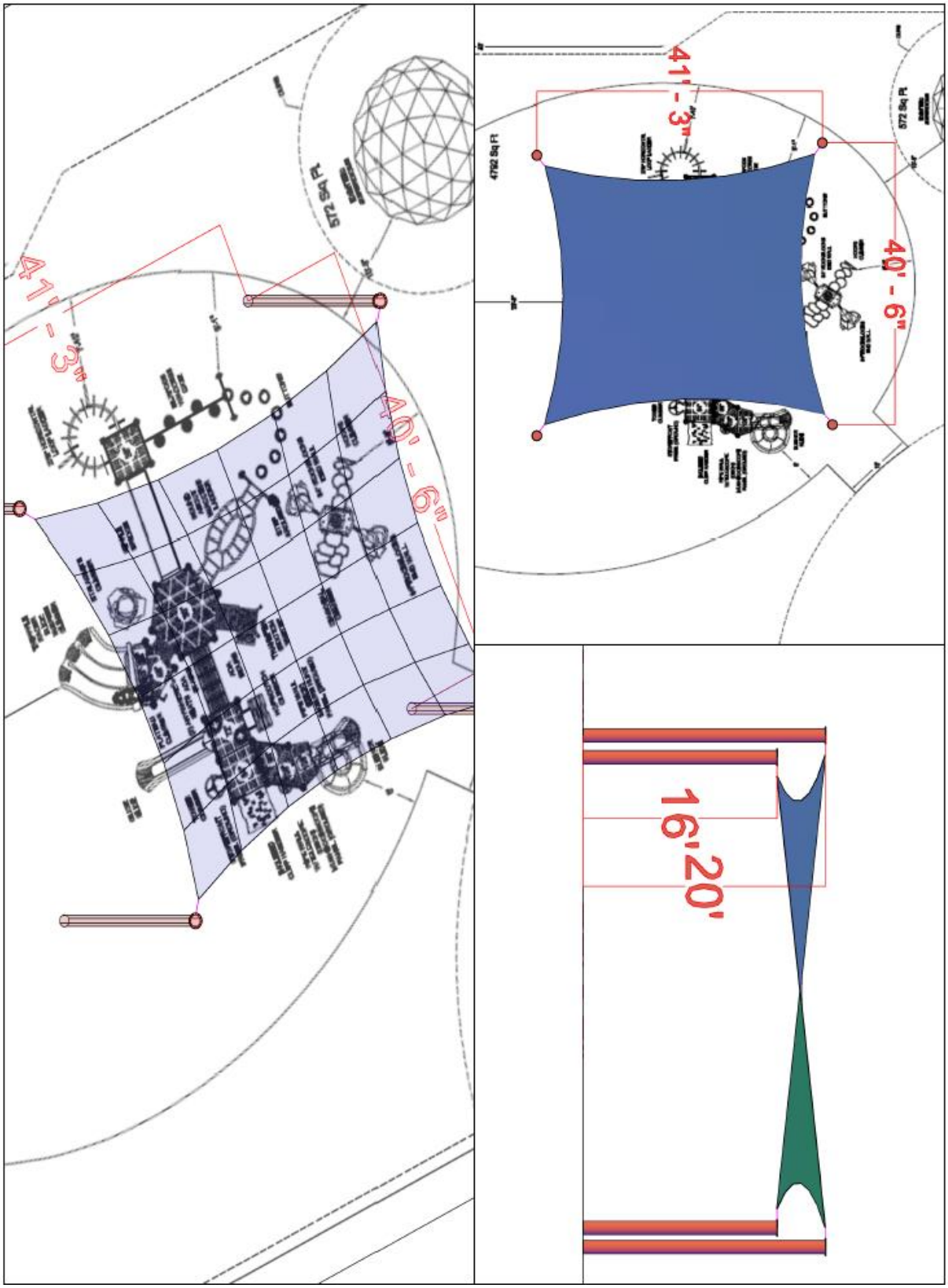
***Note: Following projections show a green canopy. However, the Montrose shades will be navy blue.**

West (Montrose) Playground

Rendering:

Midstates Recreation Projections:

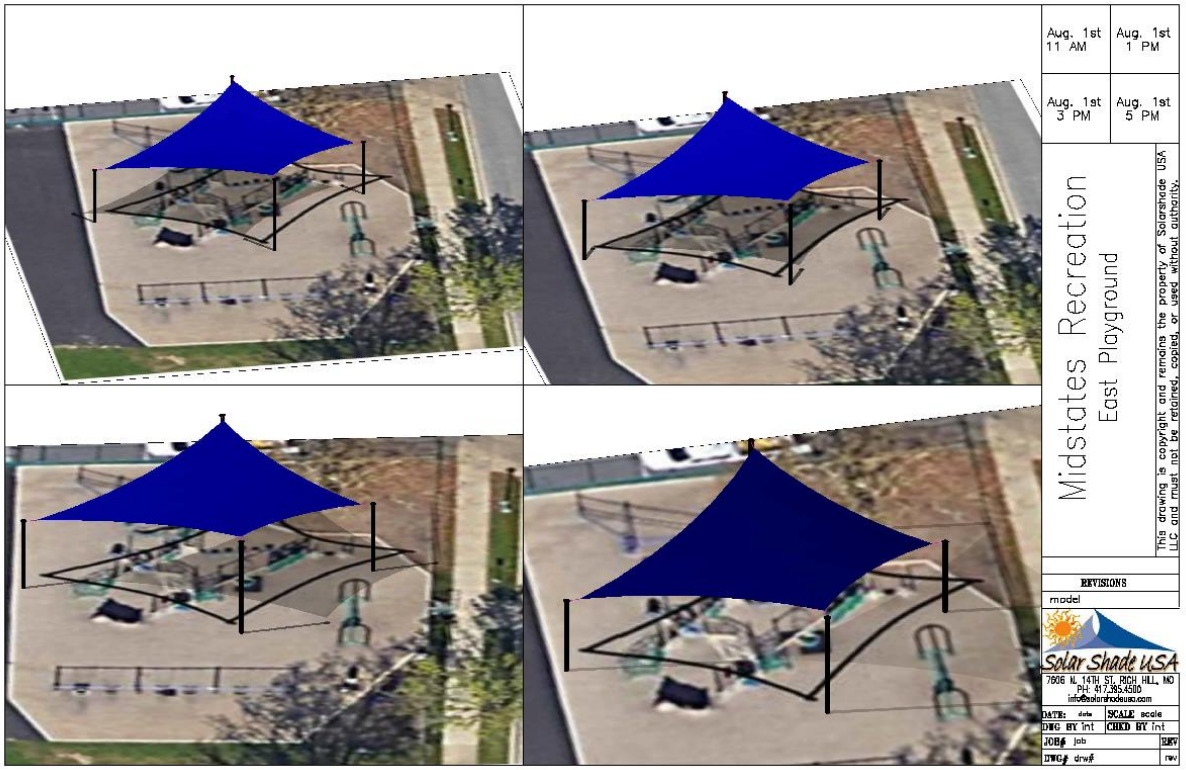


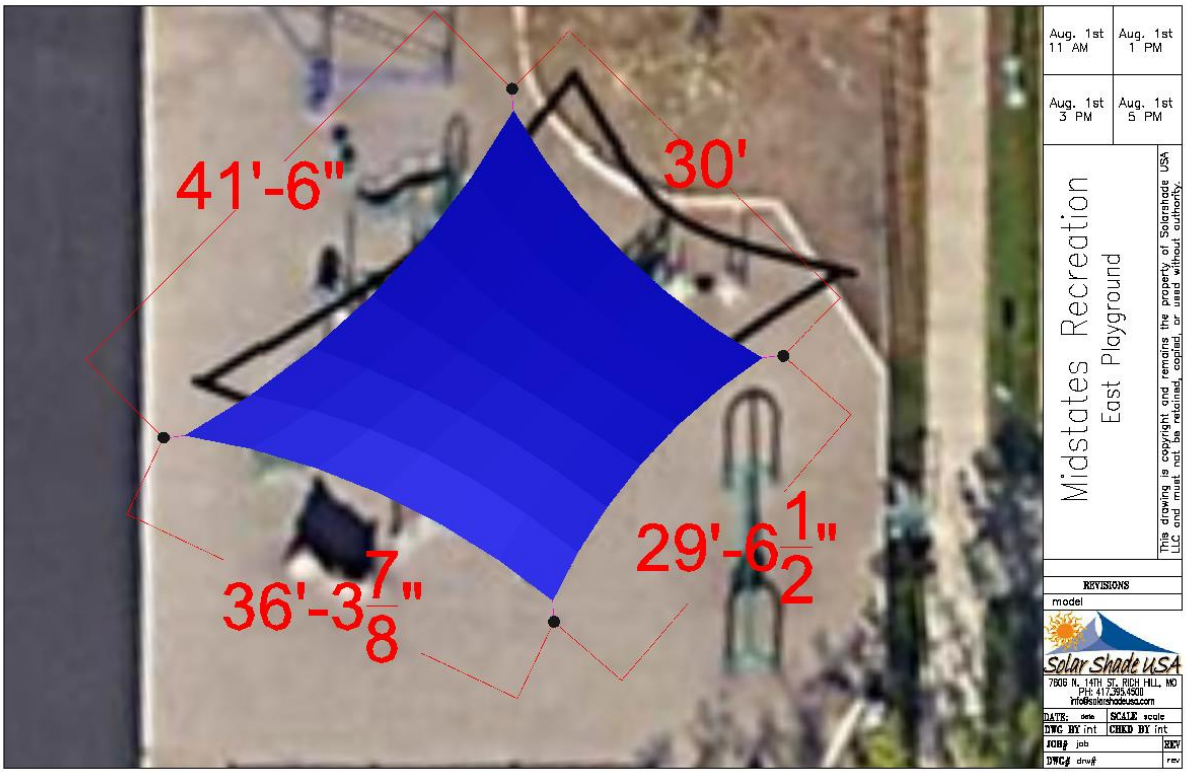

41' - 3"
40' - 6"
572 Sq Ft
4792 Sq Ft
16'20'

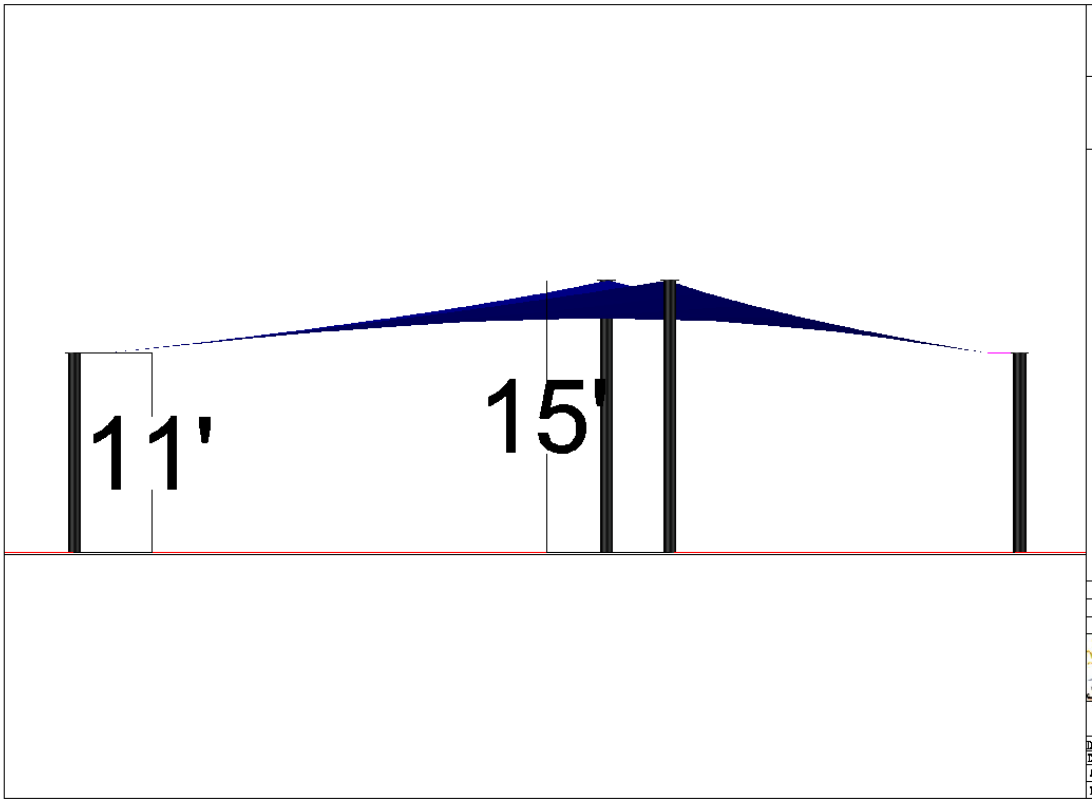
East (Remington) Playground

Rendering:

Midstates Recreation Projections:







Aug. 1st 11 AM	Aug. 1st 1 PM
Aug. 1st 3 PM	Aug. 1st 5 PM

Midstates Recreation
East Playground

REVISIONS
model

Solar Shade USA
7809 N. 14TH ST. RICH HILL, MO
PH: 417.395.4500
info@solarshadeusa.com

DATE: date	SCALE scale
DWG BY int	CHKD BY int
JOB# job	REV
DWG# drw#	rev

Montrose Shade Project
Midstates Recreation Quote

1279 Hazelton-Etna Road SW
Pataskala, OH 43062 614-855-3790
www.midstatesrecreation.com

QUOTATION

Sold To		Ship To	
	Bexley City Schools District Office Accounts Payable 348 South Cassingham Road Bexley, OH, 43209 United States		Montrose Elementary School 2555 E Main St Columbus, OH, 43209 United States

Date	Quote #	Terms	Rep	Project	Ship Contact
2022-07-28	QTN-09849 **Valid Until** 11-11-2022	Net 10	Kathryn Jasiewicz	2020 07 Montrose Playground Shades Oh Bexley City Schools	

Item Code	Description	Qty	Rate	Amount
Solar Shade USA	4 Column Hypar Shade (41'6x30'x36'4"x29'6" with 11'/15' Entry Heights) (Over smaller structure)	1.0 Unit	$ 24,080.00	$ 24,080.00
Freight	Shipping Charges are estimated and are subject to actual shipping charges incurred at time of shipment.	1.0 Unit	$ 2,000.00	$ 2,000.00
Installation Charges	Installation of 4 Column Hypar Shade Includes repairs to surfacing as needed.	1.0 Unit	$ 16,000.00	$ 16,000.00

Notes	**4 Column Hypar Shade Total: $42,080**	1.0 Unit	$ 0.00	$ 0.00
Solar Shade USA	4 column (40'6"x41'3" with 16'/20' Entry Heights) single panel Hypar Approximately 1600 sq ft (Over Large Structure)	1.0 Unit	$ 33,950.00	$ 33,950.00
Freight	Shipping Charges are estimated and are subject to actual shipping charges incurred at time of shipment.	1.0 Unit	$ 2,000.00	$ 2,000.00
Installation Charges	Installation of 4 column 40'6"x41'3" (16'/20' Entry Heights) single panel Hypar Approximately 1600 sq ft (Over Large Structure)	1.0 Unit	$ 23,000.00	$ 23,000.00
Notes	**4 Column Hypar Shade Total: $58,950**	1.0 Unit	$ 0.00	$ 0.00

Subtotal $ 101,030.00

OH - Franklin 7.5% $ 0.00

MIDSTATES RECREATION

1279 Hazelton-Etna Road SW
Pataskala, OH 43062 614-855-3790
www.midstatesrecreation.com

QUOTATION

Total $ 101,030.00

If shades are all being installed at the same time, deduct $1,500 from total.

Signature (Approval) _____

Printed Name _____

Title _____

Date _____

Montrose Shade Project
Financial Plan

Montrose Shade Project Cost: $101,030

Financial Source	Projected Support Goal	Committed Support
Montrose PTO		
	$38,030*	
Bexley Community Foundation		
	$25,000	
Bexley Education Foundation		
	$30,000	
American Academy of Dermatology Shade Grant		
	$8000	
Total	$101,030	

* If the initial projections differ from grant decisions, we expect the Montrose PTO will fund the difference through current resources or additional fundraising.

Montrose Shade Project
Midstates Recreation Structure Assurance & Warrantv

SECTION 13 31 00
SHADE STRUCTURES

PART 1 GENERAL 1.01 SECTION INCLUDES

A. Commercial prefabricated shade structures.

1.02 RELATED SECTIONS

A. Section 03 30 05 - Cast-In-Place Concrete: footings.

1.03 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.

B. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International; 1999.

C. ASTM E 8 - Test Methods for Tension Testing of Metallic Materials; 2004.

D. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute; 1997, 26th Edition.

1.04 SUBMITTALS

A. Submittal documents shall include supporting data confirming compliance of all components with this specification.

B. Product Data: Manufacturer's descriptive literature for specified systems, including all components.

C. Shop Drawings: Indicate layout heights, component connection details, and details of interface with adjacent construction.

D. Complete engineering analysis shall be certified and sealed by a Professional Engineer registered in the State where the shade structure is being constructed.

E. Selection Samples: Two sets of color chips representing manufacturer's full range of available colors.

F. Certificates:
   1. Contractor's certification that manufacturer of products of this section meet specified qualifications.
   2. Manufacturer's certification that installer of this section is approved.

G. Manufacturer's printed installation instructions for specified systems, including each component.

H. Provide manufacturer's data verifying compliance of the knitted 100% HDPE membrane system with this specification.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum ten (10) years of documented experience producing systems of the types specified in this section.

B. Installer Qualifications: Minimum five (5) years documented experience installing systems of the types specified in this section and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store system components in accordance with manufacturer's instructions until installation.

1.07 WARRANTY

A. Warrant that the equipment sold will conform in kind and quality to the specifications listed and will be free of defects in workmanship or materials. Shade manufacturer shall further warrant the following:

1. LIMITED 20 YEAR WARRANTY on all upright posts, and support structure frames against failure due to rust-through corrosion.
2. LIMITED 10 YEAR WARRANTY on all fabrics and stitching threads against degradation, cracking or material breakdown resulting from ultra-violet exposure.

PART 2 PRODUCTS 2.01 MANUFACTURERS

A. Specified Manufacturer: Solar Shade USA, LLC: Tel: (417) 395-4500; Fax: (417) 395-4515.

B. Unless otherwise specified for an individual product or material, supply all products specified in this section from the same manufacturer.

2.02 GENERAL

A. All materials shall be structurally sound and appropriate for safe use.

B. Fabrics used shall include UV-stabilizers and fire retardants as required to meet performance and building code requirements.

2.03 DESIGN

A. Styles: Rectangle, Square, Hexagon and custom sails.

B. Size and Height: As indicated on the Drawings.

C. Engineering Data: Structures are engineered to meet or exceed the requirements of the International Building Code (IBC), and the following standard specifications:
   1. Wind Speed - 3 Second Gust (Frame with Canopy): 90 miles per hour.
   2. Live Load 5psf.
   3. Snow Load: None.

2.04 WELDMENTS

A. All tubing members shall be factory-welded to American Welding Society (AWS) specifications and to the highest standards of quality workmanship.

B. After fabrication all welded areas shall be primed with zinc rich powder coat and oven cured in accordance with the powder coat manufacturer's specifications. C. Drilling or welding in the field shall not be permitted.

2.05 POSTS, STRUCTURAL FRAME TUBING, AND HARDWARE

A. Material testing shall be in accordance with ASTM E 8.

B. Minimum yield shall be 40,000 psi with a minimum tensile strength of 45,000 psi on all posts. C. All pipe and tubing up to 5" O.D. shall be manufactured with an in-line Flo-coat galvanizing process as used by Allied Tube, or approved equivalent. Pipe sizes above 5" O.D. shall receive a minimum 2 mil fully cured zinc powder coat after sand blast and wash, before the final powder coat finish is applied.

D. All tubing shall be pre-cut to appropriate lengths, and all outside surfaces shall be painted, with a corrosion-resistant zinc-rich coating.

E. All edges of tube, pipe, cleats, and plate, including all punched or drilled holes shall have a radius sufficient to allow powder coat to cover all exposed surfaces with a minimum of 2 mils fully cured powder coat. Full assembly must be accomplished without drilling after the components are powder coated.

F. Finish: All steel components, other than stainless steel and hot dipped galvanized hardware, shall receive specified zinc power coat primer and specified color finish powder coat. G. All fastening hardware shall be 316 stainless steel or hot-dipped galvanized.

H. Structure shall include an integrated dynamic tensioning system to tension and easily remove fabric for storage during when required.

1. Tensioning mechanism shall be 316 stainless steel and designed to not seize under load.
2. All connections shall be designed for assembly with standard hand tools.

2.06 POLYESTER POWDER-COATING PROCESS

A. All steel component surfaces shall be sand blasted, and the surface preparation shall be in accordance with the powder coat manufacturer's recommendations for the material being coated. There shall be no more than four hours’ time lapse between the surface preparation and the application of powder coat.

B. Minimum dry film thickness for the zinc primer shall be 2 mils and for the finish color shall be 2 mils.

C. The individual steel components shall be powder coated with the specified color and heat cured in a batch oven in accordance with the paint manufacturer's specifications.

D. The powder coat finish shall be uniform and continuous with no voids or puddles and shall not be broken by scratches or nicks.

E. Polyester powders shall meet or exceed ASTM standards for Adhesion, Hardness, Impact, Flexibility, Over Bake Resistance, and Salt Spray Resistance.

F. Color shall be selected by Owner from manufacturer's standard colors.

2.07 FOOTINGS

A. Footings shall be designed and constructed to local building codes and good construction practices and shall meet the requirements of Section 03 30 05.

B. Columns shall be provided as base plate secured with embedded anchor bolts allowing columns to be accurately plumbed. Direct embedment may be specified by installer.

C. Concrete and reinforcing steel shall be designed, detailed, fabricated, and place in accordance with ACI 301, ACI 318, and CRSI Manual of Standard Practice.

2.08 SHADE FABRIC

A. Knitted from 100% virgin HDPE monofilament with slit film fill with Ultra Violet (U.V.) stabilizers and flame retardant as required by the applicable building codes. Fabric with both weft and warp slit film construction is not permitted.

B. Physical Characteristics: The following indicates minimum physical properties of 100% HDPE specified membranes.
   1. Weight: 10 ounces/sq. yd.
   2. Breaking Strength (ASTM D5034):
      a. Warp 168 lbs.
      b. Weft 340 lbs.
   3. Bursting Strength (ASTM D3787): 418 lbs.
   4. UV stability: 10 years.
   5. Shade Effect: Angle of Incidence 75% to 98%.
   6. Ultraviolet Block: Angle of Incidence 90% to 98%.

C. Colors: Selected from manufacturer's full range of available colors.

D. Fabric catenary shall include a low-stretch, braided premium Dyneema HDPE yachting rope or engineered webbing. Steel cables in an edge pocket will not be permitted. E. Fabric must be designed to be tensioned off the structural steel frame.

F. All sewing thread shall be 100% PTFE.

G. Each structure will be provided with a storage bag for the fabric when it is removed by the Owner.

PART 3 EXECUTION 3.01 EXAMINATION

A. Verify that project conditions are as indicated on shop drawings.

B. Installer's Examination:
   1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
   2. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
   3. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.02 PREPARATION

A. Ensure that adjacent surfaces, structures, and finishes are protected from damage by construction activities of this section.

3.03 INSTALLATION

A. Install systems specified in accordance with shop drawings and manufacturer's installation instructions.

B. Placing of concrete for post bases as specified in Section 03 30 05.

3.04 CLEANING

A. Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions.

3.05 PROTECTION OF INSTALLED PRODUCTS

A. Ensure that finishes and structure of installed systems are not damaged by subsequent construction activities.

B. If minor damage to finishes occurs, repair damage in accordance with manufacturer's recommendations; provide replacement components if repaired finishes are unacceptable to Engineer.

END OF SECTION

Colors	UVR %
Lime (NEW)	95
Grape (NEW)	91
Aussie Green (NEW)	96
Red	95
Porcelain	94
Cappuccino	94
Café Noir	97
Sandstone	96
Rust	94
Bronze	96
White	94
Golden Yellow	96
Sage	96
Midnight Green	94
Aquamarine	93
Navy Blue	97
Silver	93
Slate Gray	95
Black	96