PLAYGROUND SAFETY INSPECTION

PUMA PARK PLAYGROUND
TRURO, MA

INSPECTED NOVEMBER 28, 2017

INSPECTED BY LEE ARCHIN, CPSI, & MICHAEL COHEN

INSPECTION NOTE 1

The following report identifies every element of the playground. For each element, the report describes safety issues, if any, that should be addressed. Where relevant, references for these issues are provided, as follows:

ASTM = ASTM International F 1487-17, "Standard Consumer Safety Performance Specification for Playground Equipment for Public Use." See http://www.astm.org/Standards/F1487.htm

CPSC = Consumer Products Safety Commission Publication 325, "Public Playground Safety Handbook." See http://www.cpsc.gov/PageFiles/122149/325.pdf

INSPECTION NOTE 2

Where appropriate, each safety issue has been given a priority rating 1, 2 or 3.

Priority 1: Identifies a safety concern that may result in permanent disability, loss of life or body part. Such a condition should be corrected immediately.

Priority 2: Identifies a safety concern result in temporary disability or a minor (non-disabling) injury. Such a condition should be corrected as soon as possible.

Priority 3: Identifies a safety concern whose potential to cause an injury is very minimal. Such a condition should be corrected if it worsens.

INSPECTION NOTE 3

Completing the recommendations will require some construction materials. Some will be available locally. Contact Play By Design for any other materials questions.

General Structure

The structure is built using pressure-treated wood for the vertical posts and framing. The decking, most guardrails and barriers are Trex.

6 x 6 Posts

Substantial rot and decay was found in a few of the 6x6 posts. This rot was always at or below finished grade (i.e., the top of the safety surfacing). Note that we did not excavate to expose the posts below what was visible. We did not observe any posts that appeared structurally unsound where failure was at all imminent

Above grade, most of the posts have dried and show longitudinal splits/checks.

The tops of the 6 x 6 posts were all capped with plastic tops or otherwise covered (e.g., by platforms) and so there was no decay of the end-grain.

Recommendations for posts

Expose and check all the posts below grade. If structurally sound, the decayed posts can be repaired.

Depending on the position of the posts, some decayed posts can be replaced entirely. We recommend using structural plastic posts for this.

Posts that are sound and have minimal or no decay should at least be thoroughly treated with a wood preservative and sealed.

For the worse posts that cannot easily be replaced, we recommend using a wood restoration product[1] to stabilize and repair the decay. Note, the same products can often be used also to fill longitudinal cracks.

Before installing any poured-in-place rubber safety surfacing, it is important to ensure all the posts at and below grade are stable. Once the rubber is in place you will not have access to the bottom of the posts. Therefore, in addition to the repairs outlined above, we recommend wrapping the base of all the posts with structural plastic lumber (1x6 or 2x6) to ensure the rubber has a stable boundary.

Posts thus repaired will still require maintenance to preserve their appearance and stability. It is important to keep the posts well sanded and re-sealed once a year.

Framing

The wood framing is in fair to good condition, especially where below platforms. Above grade, the exposed framing shows signs of weathering. We did not observe any rot in the framing above grade. However, we did observe rot at and below grade in a couple of locations. We also observed some nail heads had worked out.

Recommendations for Framing

Repair or replace all rotten wood. See posts for ideas. Check for and set any nails that have worked loose. It is important to keep the wood well sanded and re-sealed at least once a year.

Decking

All the decking is Trex. It has worn well.

Recommendations for Decking

Using an appropriate solution and process, possibly including power washing, clean the Trex to remove dirt.[2]

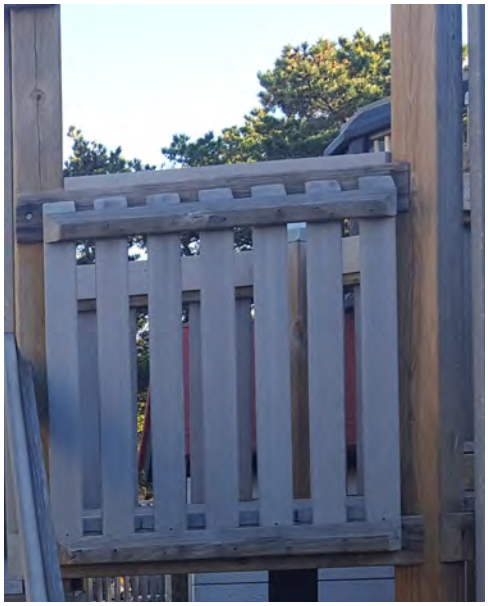
[1] There are several products on the market. We have seen good results with careful application of Abatron's WoodEpox system, http://www.abatron.com/buildingandrestorationproducts/woodrestorationmaintenance.html

Check for and repair any screws that are not countersunk.

Guardrails and Barriers

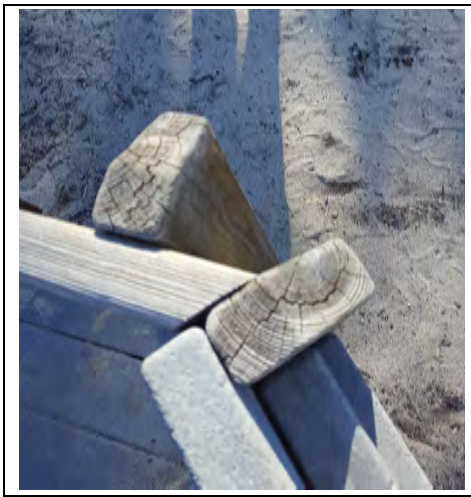
The guardrails (i.e., handrails) are mostly Trex and are in good condition. The few wood rails have an additional layer of Trex to prevent splinters.

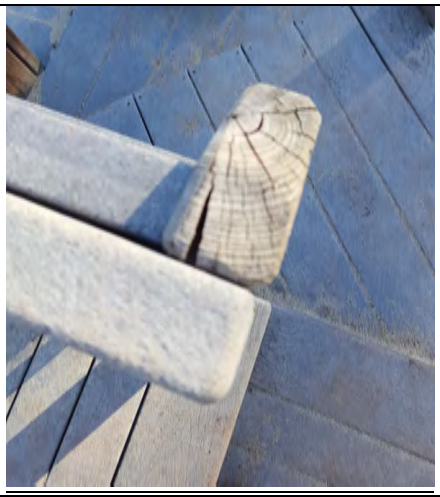
The barriers are Trex 2x4s in the 5-12 area and ¾" pipes in the 2-5 area. These are all in good condition.



[2] See http://www.trex.com/trex-owners/care-and-cleaning/

Other dimensional lumber elements[3]





The other wood (i.e., not posts, framing) is structurally sound and in fair condition.

Exposed end grain, especially when vertical, shows more weathering damage, although there are very few instances of significant splitting, cracking, or cupping.

Recommendations for Guardrails, Barriers, and other dimensional lumber elements

Repair any broken pieces as necessary. Clean, and seal these elements the same as with the framing and poles. (See above.)

To reduce such maintenance, and also to eliminate slivers, as well as improving lines of sight and adding new, permanent color, we recommend you consider removing and replacing all the guardrails, balusters and 2x posts with plastic lumber. This would best be undertaken as part of a larger renovation.

[3] Milled wood, 2x4, 2x6, 4x4, etc.

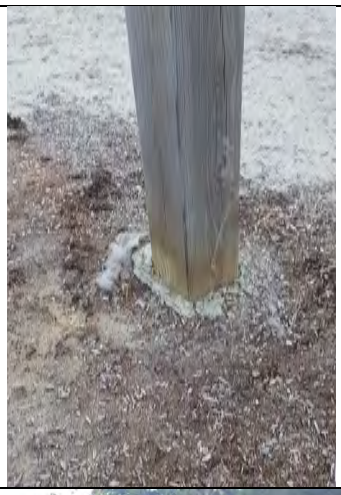
Safety Surfacing

The safety surfacing is engineered wood fiber, EWF.

The wood fiber is several inches low throughout the playground. In many areas, the underlying geotextile fabric is visible, meaning the EWF is almost entirely gone. More problematic yet, there is a lot of exposed concrete that should be entirely below the EWF.

The condition of the safety surfacing represents a Priority 1 hazard. (ASTM 13.2)

The EWF should be 12” deep. Red stripes painted on the poles to indicate the correct depth remain visible, if faded, on some poles.



<u>Recommendation</u>

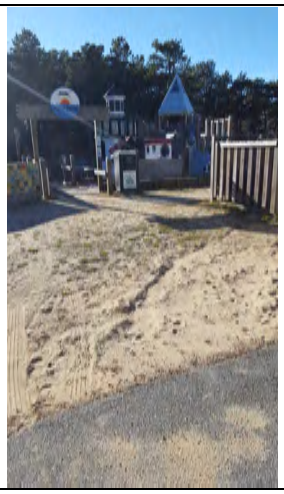
Repaint the painted depth markings to facilitate future maintenance. If necessary, measure up 12” from the bottom of the EWF to locate new stripes. Add engineered wood fiber until the compacted depth is 12” throughout.

(End General Structure.)

Individual play elements are addressed below.

Note: If an element is not addressed it means that it is in compliance and has no issues beyond the condition of the wood as outlined above.

Element: Parking Lot to Playground Entrance



Issues

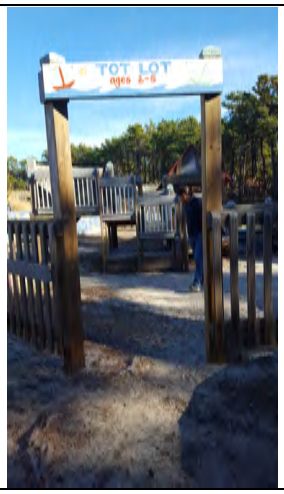
1. The hard, accessible surface from the parking lot does not continue to the playground entrance. The non-asphalt portion is sandy and is not an accessible surface.

Recommendations

1. Install an accessible path to the playground entrance.

Note: See attached ADA worksheets at the end of this report for an accounting that Puma Park playground satisfies the minimum ADA requirements, with the exception of the condition of the ewf and access to the playground entrance. The accessibility and inclusivity of the Puma Park can, however, be significantly improved with some design modifications.

Element: Tot Lot Entrance



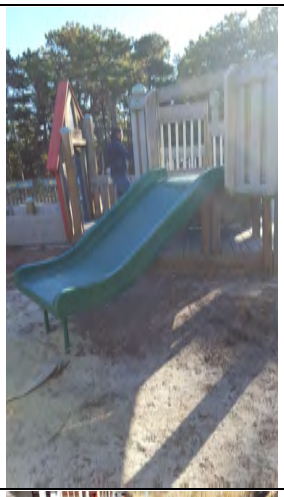
Issues

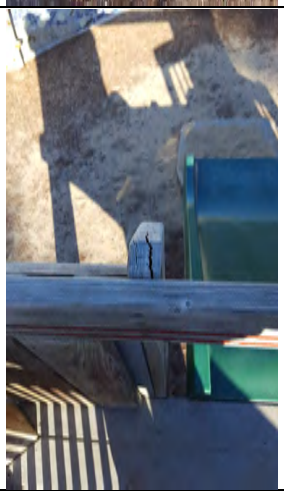
1. The sign does not communicate a supervision recommendation.
2. There are two screws protruding through the back of the sign. Priority 1

Recommendations

1. Add “Adult Supervision Required” to or near the sign. See ASTM Section 14 for complete signage requirements.
2. Remove the screws.

Element: Tot Slide



Issues

1. The slide exit is too high because the EWF is too low. (Priority 1)
2. The vertical 2x6 post adjacent to the slide entrance has split.

Recommendations

1. See recommendations on safety surfacing above.
2. Replace the 2x6. Consider using plastic lumber.

Element: Stepping Blocks

Issues

1. The green block is too close to the phone box. There should be 6’ minimum clearance and there is only 68”.
2. Some screws are not well set. (Priority 2)

Recommendations

1. Move the phone box around the corner of the fence, being sure to maintain at least 6’ clear from the blocks. (This will involve some new PVC pipe and fittings.)
2. Check all screws and make sure the heads are countersunk.

Element: Tot Rubber Bridge

Issues

1. The base of one vertical 6x6 post and a horizontal 2x4 have been uncovered and exhibit significant rot and decay. (Priority 2)
2. The wooden beams holding the rubber to the platforms have worn, dried and cracked. (Priority 3)

Recommendations

1. Replace or repair the damaged wood.
2. Replace the wood with structural plastic. Consider installing new rubber at same time.

Element: Tot Swings

Issues

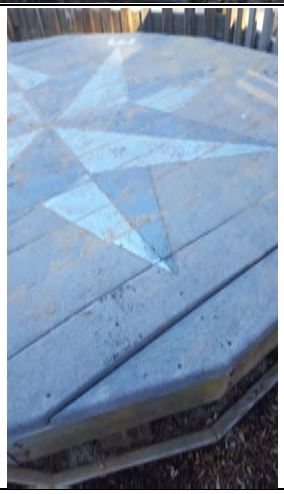
1. Concrete is exposed around the base of the posts. (Priority 1)

Recommendations

1. See Safety Surfacing above. Close the area around the swings until this problem has been rectified.

End of issues in Tot Lot.
Issues in area for ages 5 – 12 follow below.

Element: Stage and Seating



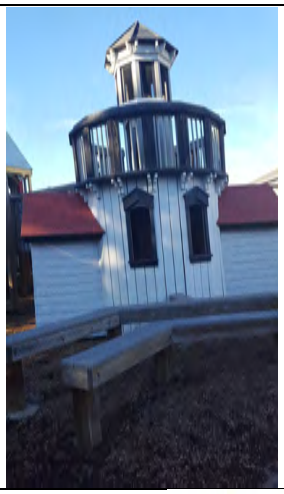
Issues

1. Some decking of the compass stage needs to be refastened.

Recommendations

1. Refasten the raised decking.

Element: Lighthouse



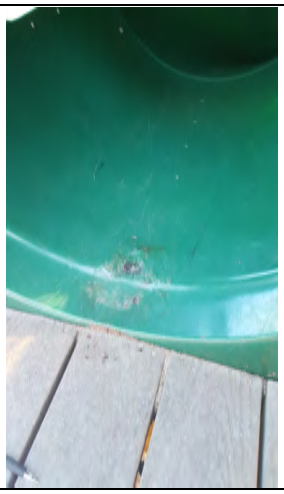
Issues

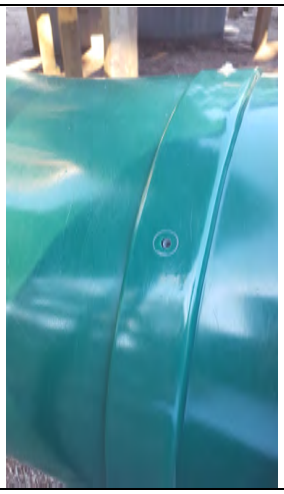
1. The steps on one side of the lighthouse have collapsed. (Priority 1)
2. One segment of the 2x4 Trex cap over the pipe balusters is missing. (Priority 2)

Recommendations

1. Raise the steps to their original, level position and refasten securely to walls. Consider installing 2x4 legs to grade for positive support.
2. Replace the missing 2x4 cap.

Element: Circular Slide





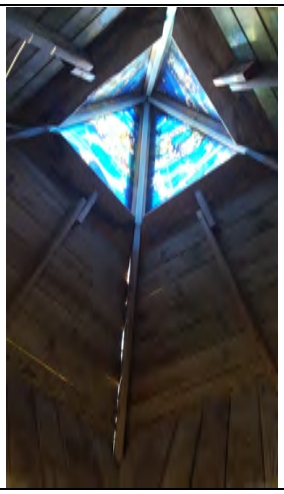
Issues

1. The entrance segment seems to have been burned.
2. There is a missing connector at the exit segment.

Recommendations

1. Consider refinishing this entrance area by lightly sanding and then very carefully applying light heat.
2. Replace the missing connector. (PBD can supply this if needed.)

Element: Tower with roof with glass panels



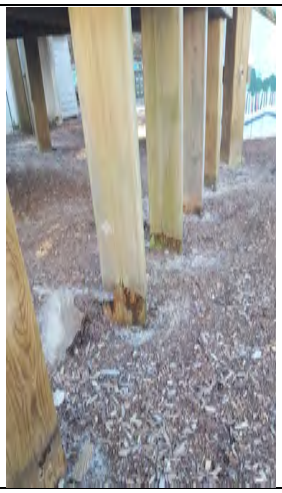
Issues

1. The space between the 6x6 post and the 2x4 corner baluster is a head trap. (Priority 1)

Recommendations

1. Attach a vertical 2x4 baluster (ripped if necessary, minimum width 1.5”) in this space from handrail to platform framing.

Element: Cable Cargo Net



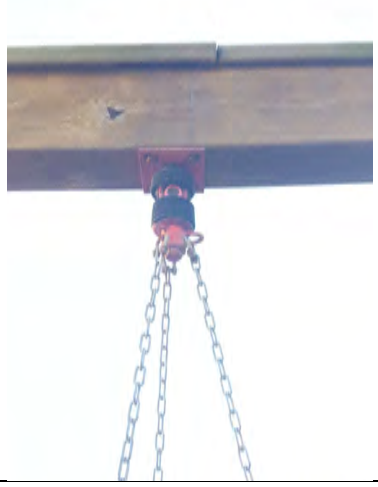
Issues

1. The 6x6 posts and especially the 2x6 posts show extreme rot and decay.

Recommendations

1. Repair the 6x6 posts as recommended above. Cut the vertical 2x6 posts flush with the lower edge of the framing of the platform. “Dog ear” the resulting ends with a 2”x2” miter and round all newly cut edges. Dig out and remove the horizontal 2x6 grade beam that runs from 6x6 to 6x6.

Element: Swings



Issues

1. The diagonal braces above the beams have protruding excess bolts. These are both protrusion and entanglement hazards. (Priority 1)
2. The safety surfacing is gone and there is exposed concrete. (Priority 1)

Recommendations

1. Cut off excess bolts and cap the nuts with a 2x4, similar to the cap over the nuts of the steel swing beam brackets.
2. See Safety Surfacing above. Close the area around the swings until this problem has been rectified.

SUMMARY OF FINDINGS

Puma Park playground is a first-class playground. Built in 2008, and now nine years old, it continues to serve the Truro community very well.

Puma Park was built with the best materials available at the time, and in compliance with the prevailing safety standards. The playground was designed with the best knowledge available at the time regarding age appropriate play.

The fair condition of Puma Park is also due to the care and attention the it has received from Recreation and Beach Department staff and other friends of the playground. However, as described in detail above, the predominantly wooden structure has deteriorated somewhat with weather and usage. If not addressed now, this deterioration will only continue and worsen.

Most of the play elements are in reasonable condition. The equipment-related issues identified in the report can be easily addressed.

The most important safety issue at Puma Park today is the condition of the safety surfacing. The engineered wood fiber (ewf) has completely disappeared in many places, exposing not only the geotextile fabric but many concrete foundations. Knowing that most injuries on public playgrounds occur when children fall onto the surface, PBD recommends that you consider closing Puma Park playground completely and securely until you have fixed the safety surfacing problems as outlined in our report.

A second major issue we found is the decay of some of the wood at and below grade. This appears to be caused by rot, a failure of the pressure-treatment. Fortunately, the decay does not appear to be in every post. Nor did we find evidence of structural failure due to this decay. However, this decay must be repaired and further decay prevented. We advise a combination of methods, including replacing some vertical elements with structural plastic lumber, use of specialty wood restoration products, and encasing stabilized wood with plastic lumber.

Please note that stabilizing the wood at ground level is not only essential for structural reasons. If you plan to install any poured in place rubber surfacing, you will lose the option to do further repair below grade without destroying the rubber. Moreover, the interface between the rubber and the playground elements must be stable.

The third issue we found, while not at all a safety concern, is the relatively low level of accessibility and inclusion. Please note that the two areas of the playground, 2-5 and 5-12, both satisfy the legal minimum requirements of the ADA. See the attached ADA worksheets. However, more could be done by way of remodeling some of the playground to make it much more inclusive.

These four concerns (minor repairs, poor safety surfacing, substantial wood decay, and improved accessibility and inclusion) can all be satisfactorily and completely solved without having to remove much of the existing playground. It might be necessary, for example to provide ramp access to elevated platforms, to remove some of the current structure. There is also space, if needed, to expand beyond the current perimeter.

Puma Park can certainly be restored and refreshed, improving the playground while fully reserving the magic and appeal of this unique playground. We heard and discussed several good ideas during our visit about ways to keep and improve Puma Park. In addition to building more accessible and inclusive features, you could also expand the scope of the playground to provide play and exercise opportunities for adults and elders. We would be honored to return to Truro and help you develop plans for an exciting renewal of your beloved playground.

The scope of work this entails is best undertaken as another community-build like in 2008. Play By Design will most gladly assist you all the way, beginning with developing the design for any re-configurations and modifications. All the work can be done at one time, with our supervision. We believe this will be most efficient and cost-effective process.

As you move forward with your deliberations. Please contact Play By Design with any questions. We are here to help.

Yours sincerely,

Lee Archin, CPSI

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Mobile: 607 351 5160

ADA COMPLIANCE FORM

[X] School-age Playground [ ] Pre-school Playground [ ] Tot Lot

Community Truro,MA Date 12/7/17 Initials **DW**

Elevated Components

	Accessible	Ramp Access			Accessible	Ramp Access		
1			rock wall	16				
2			vert. ladder	17				
3	1		susp. bridge	18				
4	1		spiral slide	19				
5			vert. ladder	20				
6			monkey bars	21				
7			fire pole	22				
8			long wave slide	23				
9			chain bridge	24				
10			balance on chains	25				
11			rubber bridge	26				
12			rings	27				
13			sea monster tires	28				
14			cargo net	29				
15				30				

	Actual	Required*
Number of ELEVATED components	14	
ACCESSIBLE ELEV. components	2	7
RAMP accessible ELEVATED components**	0	0

* Required **Access. Elev.** components = half of **Elevated Components**.

** **If more than 19 elevated components: Minimum of Half of Accessible Elev. Components must be RAMP accessible.**

ADA COMPLIANCE FORM

Ground Level Components

	Component	#	Type		Component	#	Type
1.	phones	1	cooperative	11.	bench art	4	art
2.	soundwall	1	music	12.	shipwreck murals	1	art
3.	low ladder	1	upper body	13.			
4.	low rings	1	upper body	14.			
5.	chinup pipe	1	upper body	15.			
6.	tire swing	1	swinging	16.			
7.	handtiles	1	personal art	17.			
8.	shipwreck	1	imaginative	18.			
9.	shark mouth	1	crawling	19.			
10.	market mural	1	art/history	20.			

Total accessible ground level components	15	5
Number of types	6	3

ADA COMPLIANCE FORM

INSTRUCTIONS

1. List all **elevated** components (those entered from above or below grade).
2. Record number of **elevated** components (in yellow box).
3. Enter a "1" next to each **elev. accessible** component (or actual number if more than one of an item).
4. Enter a "1" next to each **ramp accessible elevated** component (or actual number if more than one of an item).
5. Confirm that **Actual** is equal to or greater than **Required**

ADA COMPLIANCE FORM

6. List **ground level components** that are on accessible route; enter **quantity** of each, & **type** of component.
7. Count the number **different types** of components and enter number in blue box.
8. Confirm that **Actual** is equal to or greater than **Required**

Requirements for ground level accessible components

Eleveted components	1	2-4	5-7	8-10	11-13	14-16	17-19	20-22	23-25	26 or more
Ground Level components on access. rt.	0	1	2	3	4	5	6	7	8	8+1 for ea add. 3
Min. number of types	0	1	2	3	3	3	3	4	4	5

TYPES may include: swinging, spinning, balance, sensory, manipulative, imaginative, rocking, garden, upper body, climbing, etc...

ADA COMPLIANCE FORM

☐ School-age Playground ☒ Pre-school Playground ☐ Tot Lot

Community Truro,MA Date 12/7/17 Initials **DW**

Elevated Components

	Accessible	Ramp Access			Accessible	Ramp Access	
1	1		wide slide	16			
2			rubber bridge	17			
3			dory	18			
4			fishing shack playhouse	19			
5			balance blocks	20			
6				21			
7				22			
8				23			
9				24			
10				25			
11				26			
12				27			
13				28			
14				29			
15				30			

	Actual	Required*
Number of ELEVATED components	5	
ACCESSIBLE ELEV. components	1	3
RAMP accessible ELEVATED components**	0	0

* Required **Access. Elev.** components = half of **Elevated Components**.

ADA COMPLIANCE FORM

** If more than 19 elevated components: Minimum of Half of Accessible Elev. Components must be RAMP accessible.

Ground Level Components

	Component	#	Type		Component	#	Type
1.	mosaic wall	1	art	11.			
2.	sand	1	fine motor	12.			
3.	swings	1	swinging	13.			
4.	bugs mural	1	art/science	14.			
5.	bench art	3	art	15.			
6.	handtiles	1	art	16.			
7.	phone	1	cooperative	17.			
8.				18.			
9.				19.			
10.				20.			

Total accessible ground level components	9	2
Number of types	5	2

ADA COMPLIANCE FORM

INSTRUCTIONS

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Eleveted components	1	2-4	5-7	8-10	11-13	14-16	17-19	20-22	23-25	26 or more
Ground Level components on access. rt.	0	1	2	3	4	5	6	7	8	8+1 for ea add. 3
Min. number of types	0	1	2	3	3	3	3	4	4	5

TYPES may include: swinging, spinning, balance, sensory, manipulative, imaginative, rocking, garden, upper body, climbing, etc...