City of Ramsey
Agenda
Park and Recreation Commission
Thursday, July 8, 2021
6:30 pm
The Draw Park & Amphitheater, 7401 Ramsey Parkway NW
(Northside of Sunwood Drive at Rhinestone St and Ramsey Parkway)
In the event of inclement weather, meeting will move to City Hall)

1. Call to Order

2. Citizen Input

3. Approve Agenda

4. Approve Minutes

1. Approve the following meeting minutes.
1. Park and Recreation Commission meeting minutes dated April 8, 2021.
2. Park and Recreation Commission meeting minutes dated June 10, 2021.

5. Commission Business

1. Playground Replacement Policy

2. Consider Process for Refurbishing the 25-year old Lake Itasca Boardwalk

6. Commission/Staff Input

1. Commission /Staff Input

7. Adjournment

Park and Recreation Commission **4. 1.**

Meeting Date: 07/08/2021

Submitted For: Mark Riverblood, Engineering/Public Works

By: MaryJo Warner, Engineering/Public Works

Information

Title:

Approve the following meeting minutes.
1. Park and Recreation Commission meeting minutes dated April 8, 2021.
2. Park and Recreation Commission meeting minutes dated June 10, 2021.

Purpose/Background:

Purpose: To review and approve meeting minutes.
Background: Attached are the meeting minutes for review.

Notification:

Observations/Alternatives:

n/a

Funding Source:

n/a

Recommendation:

To review and approve meeting minutes dated April 8, 2021 and June 10, 2021.

Action:

Motion to approve meeting minutes dated April 8, 2021 and June 10, 2021.

Attachments

April Minutes

June Minutes

Form Review

Inbox	Reviewed By	Date
Grant Riemer	MaryJo Warner	07/02/2021 04:01 PM
Form Started By: MaryJo Warner		Started On: 07/02/2021 03:08 PM
Final Approval Date: 07/02/2021		

PARK AND RECREATION COMMISSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey Park and Recreation Commission conducted a regular meeting on April 8, 2021, at the Park Center Building, Central Park, 7925 161st Avenue NW, Ramsey, Minnesota.

Commission Members Present:	Chair Shane Bennett Vice Chair Brandon Sis Commissioner Nathan Barten Commissioner Jennifer Leistico Commissioner Justin Loss Commissioner Dean Olson Commissioner Brian Walker
Commission Members Absent:	
Also Present:	City Council Liaison Ryan Heineman City Councilmember Debra Musgrove Parks & Assistant Public Works Superintendent Mark Riverblood

1. CALL TO ORDER

Chair Bennett called the Park and Recreation Commission meeting to order at 6:32 p.m.

Chair Bennett welcomed the two new members of the Commission, Dean Olson, and Brian Walker.

2. CITIZEN INPUT

None.

3. APPROVE AGENDA

Motion by Commissioner Leistico, seconded by Commissioner Loss to approve the Park and Recreation Commission meeting agenda as presented.

Motion carried. Voting Yes: Chair Bennett; Commissioners Leistico, Barten, Loss, Olson, Sis, and Walker. Voting No: None. Absent: None.

4. APPROVE MINUTES

4.01: Approve Park and Recreation Commission Meeting Minutes

Motion by Commissioner Barten seconded by Commissioner Leistico, to approve the following Park and Recreation Commission Regular Meeting Minutes:

- Park and Recreation Commission Meeting Minutes dated March 11, 2021.

Motion carried. Voting Yes: Chair Bennett; Commissioners Barten, Leistico, Loss, Olson, Sis. Voting No: None. Absent: None. Abstain: Commissioner Walker.

5. COMMISSION BUSINESS

5.01: Consider Park and Recreation 2021 Outdoor Meeting Schedule

Parks & Assistant Public Works Superintendent Riverblood commented that the Commission typically meets outdoors in various parks for the months of May through September or October. He stated that the group can decide the various locations and reviewed the suggestions included in the staff report.

Chair Barten commented that the suggestions feel appropriate based on the work occurring in those parks at those times. He welcomed input for the June meeting and the Commission provided input on some smaller parks.

Parks & Assistant Public Works Superintendent Riverblood commented that Rabbit Park could be a good fit for the June meeting and the Commission agreed.

Chair Barten asked if the Commission would also like to select an October location and it was the consensus of the Commission that the group would plan to meet at City Hall for October as there were issues with daylight when the October meeting was held outdoors the previous year.

Motion by Commissioner Loss, seconded by Commissioner Barten to approve the 2021 outdoor meeting locations as presented adding Rabbit Park for June.

Motion carried. Voting Yes: Chair Bennett; Commissioners Barten, Leistico, Loss, Olson, Sis, and Walker. Voting No: None. Absent: None.

5.02: Options and Alternatives for Maintaining Turfgrass in Public Spaces

Parks & Assistant Public Works Superintendent Riverblood stated that at the September meeting in Pearson Park the group discussed the costs of maintaining turfgrass and alternatives and the Commission agreed to look at alternatives when possible and look to convert areas that are hard to maintain from turfgrass to alternative landscapes. He stated that an experiment will be completed at Elmcrest Park, dividing a field in half, and applying plant growth regulators to one half of the field and assess the mowing needs each week for both halves of the field along with the turf qualities. He stated that this would allow the City to gather information on the mowing needs, turf quality and costs.

Commissioner Walker asked if the cost for the five applications includes the labor costs for the contractor.

Parks & Assistant Public Works Superintendent Riverblood confirmed that cost includes the work of the contractor. He commented that he does not have staff with the appropriate licensing or knowledge to apply that product. He commented that these are the known costs, and the unknown costs would be if there is a savings in mowing time.

Commissioner Sis asked if the contractor has a frequently asked questions brochure available related to application.

Parks & Assistant Public Works Superintendent Riverblood confirmed that information is available along with the EPA determination on the safety of the product.

Councilmember Musgrove asked who would be responsible for tracking this information.

Parks & Assistant Public Works Superintendent Riverblood replied that he, the Parks Supervisor, and the Lead Person will monitor and track that data.

Commissioner Loss asked if both halves would be treated if the experiment is successful.

Parks & Assistant Public Works Superintendent Riverblood replied that they will review the data, any cost savings, and then determine the appropriate application for the product, whether it is park specific or more appropriate for different soil types.

Commissioner Walker commented that regulators are also helpful in areas that are hard to mow such as areas around trees and buildings, which could provide additional cost and time savings.

Parks & Assistant Public Works Superintendent Riverblood agreed that a lot of time is spent weed whipping around certain elements because of cultural practices. He stated that they are continuing to work on policies that help to guide the use of time and resources. He commented that they use seasonal workers for mowing and that can cause difficulties for establishing and following those processes. He stated that this work will help to create the policies that provide that guidance for seasonal workers.

Commissioner Barten commented that he read all 30 pages of the Rivers' Bend Park management plan today and was impressed and excited. He advocated for more of that as much as possible system wide and to include areas mentioned by Commissioner Walker, around trees and buildings. He commented that PGR's are a huge step forward environmentally, but he still thinks that the ultimate goal would be to have zero environmental impact and would like the group to keep that in mind. He agreed that PGR's can be a big step forward but still wanted the City and Commission to continue to look for alternate management practices. He believed that community members should switch to, or add, clover to their yard as it can crowd out noxious weeds and uses less water. He commented that PGR use is a net positive but wants to continue to move towards the ultimate goal.

Parks & Assistant Public Works Superintendent Riverblood stated that personally he agrees with those statements. He stated that those were great statements and noted that public education would be a key component. He stated that currently they are spending money and contributing to pollution to maintain areas that serve little purpose, referencing an area that could be better served by wildflower planting. He recognized that residents have varying opinions on turf maintenance.

Commissioner Barten commended staff for the scientific approach to this process at Elmcrest Park.

Councilmember Musgrove commented that there are regulations within homeowners associations and therefore the City should recognize the difference between private, public, and association properties. She agreed that education would be a key component to whatever is done.

Parks & Assistant Public Works Superintendent Riverblood commented that almost all the townhome developments use municipal water. He stated that if a townhome association wanted to reduce an area with irrigation, they could look towards the park plan as to how they could do that. He stated that for new developments, perhaps some regulations could be relaxed in exchange for more natural areas that require less irrigation and maintenance.

Councilmember Heineman commented that it would be great to use this as a learning experience and share the details with the public as an educational experience.

Chair Bennett agreed that the City cannot control everything, but they can control the City properties. He stated that this experiment will help to identify the cost benefit and noted that there are also other environmental benefits. He stated that there are practices that could be implemented by the City that could provide a cost savings and reduce the impacts on the environment. He stated that he loves the concept of including an educational component for the public.

Commissioner Loss commented that it would be great to have signs available to educate the public as well.

Commissioner Barten commented that even on small areas, prairie grass can help to introduce new species to the area.

6. COMMISSION/STAFF INPUT

Parks & Assistant Public Works Superintendent Riverblood stated that the recreation programs planned were included in the Commission packet. He stated that the Art Fair is planned for July and encouraged the Commission to spread the word to artists that may be interested. He stated that the Recreation Specialist left for a new position and the City hopes to have a new employee on board in June.

Commissioner Loss commented that he noticed fencing going up at Alpine for the dog park. He asked for details on where the entrance gate would be located.

Parks & Assistant Public Works Superintendent Riverblood noted that past cases included the layout and provided additional details on the expansion and gate locations.

Councilmember Musgrove asked if The Draw Concert Series is listed on the City website and whether it would be shown on the monument sign.

Parks & Assistant Public Works Superintendent Riverblood commented that he would assume that information is, or will be, available on the website.

Chair Bennett commented that he did notice a post on the City Facebook page.

Commissioner Leistico asked for details on how the gap would be filled from the Recreation Specialist leaving.

Parks & Assistant Public Works Superintendent Riverblood provided details on how the gap will attempt to be filled until the new employee comes on board, using a temporary intern.

7. ADJOURNMENT

Motion by Commissioner Barten, seconded by Commissioner Leistico, to adjourn the meeting.

Motion carried. Voting Yes: Chair Bennett; Commissioners Barten, Leistico, Loss, Olson, Sis, and Walker. Voting No: None. Absent: None.

The Park and Recreation Commission meeting adjourned at 7:13 p.m.

Respectfully submitted,

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Mark Riverblood
Parks & Assistant Public Works Superintendent

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

PARK AND RECREATION COMMISSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey Park and Recreation Commission conducted a regular meeting on June 10, 2021, at Rabbit Park, 17440 Rabbit Street NW, Ramsey, Minnesota.

Commission Members Present: Chair Shane Bennett
Vice Chair Brandon Sis
Commissioner Nathan Barten
Commissioner Jennifer Leistico
Commissioner Justin Loss
Commissioner Dean Olson
Commissioner Brian Walker

Commission Members Absent: None

Also Present: City Council Liaison Ryan Heineman
Parks & Assistant Public Works Superintendent Mark Riverblood
Parks and Recreation Intern Brandon Wagenfeld

1. CALL TO ORDER

Chair Bennett called the Park and Recreation Commission meeting to order at 6:30 p.m.

2. CITIZEN INPUT

None.

3. APPROVE AGENDA

Motion by Commissioner Sis, seconded by Commissioner Leistico, to approve the Park and Recreation Commission meeting agenda as presented.

Motion carried. Voting Yes: Chair Bennett; Commissioners Sis, Leistico, Barten, Loss, Olson, and Walker. Voting No: None. Absent: None.

4. APPROVE MINUTES

4.01: Approve Park and Recreation Commission Meeting Minutes

No action needed.

5. COMMISSION BUSINESS

5.01: Recommend Park Dedication for Williams Woods (Project No. 20-138)

Parks & Assistant Public Works Superintendent Riverblood stated that this is a small plat of nine lots, but over a large area of land. He stated that a variance is requested for the long cul-de-sac length because there is not opportunity to connect to another road because of the wetlands. He provided details on the subject property, noting that this area had been included in a general search area for a community park, but a low-density development of this area would not be a good fit for a community park. He stated that staff recommends that Park Dedication and Trail fees be satisfied in cash for this subdivision.

Chair Bennett agreed with the staff recommendation that it would not seem to make sense to place a neighborhood park in this location and the property is outside of the core loop for trails.

Parks & Assistant Public Works Superintendent Riverblood reviewed the recommended motion language in that the cash amount be satisfied at the time of final plat, as the process sometimes lags, and the park dedication and trail fees may differ at the time final plat eventually moves forward.

Motion by Commissioner Sis, seconded by Commissioner Barten, to recommend to City Council, that Park Dedication and Trail Fees by satisfied in an amount calculated at the time of Final Platting for Williams Woods.

Further discussion: Commissioner Walker stated that he is also a member of the Planning Commission. He noted that there were lengthy discussions related to the cul-de-sac length and advised that the road width may increase in order to satisfy the concerns of Public Safety. He asked for clarification on the park dedication requirement. Parks & Assistant Public Works Superintendent Riverblood explained that State statutes provide for certain development fees when additional demand is placed on the community systems. He used the example of a 200-lot apartment building and the impact that would have on City amenities, such as parks and facilities. He explained that the existing residents should not be burdened with that additional demand and therefore park dedication is charged to support the additional demand that would be placed on the system. He stated that the maintenance of parks and trails is understood to be a part of the operating costs of the City. He noted that similarly the City has other development fees such as stormwater, street lighting, etc. Commissioner Walker referenced the number of parks in Ramsey noting that there is one park for every 1,000 residents. He likened it to extorsion or blackmail, even though there is State statute, as he was unsure why more parks are needed rather than maintaining the existing infrastructure. Commissioner Sis stated that is part of the discussion for the next agenda item. Chair Bennett stated that the policy of the City for the past ten years has been to avoid pocket parks, as developers have previously followed the trend to install a pocket park in their developments. He stated that the Commission has shifted away from that model to a model with more regional parks that serve a broader purpose for the community. He stated that for larger developments with 200 homes, it would still make sense to include a park within the development. Commissioner Walker commented that he understands that intent but in the case of this development these will be estate type homes that most likely will not be occupied by families and therefore park dedication seems unfair. Parks & Assistant Public Works Superintendent Riverblood stated that there needs to be equity in the application of City fees rather than placing

different commitments to the community on different homes. He stated that the people that purchase these homes will most likely have children that play sports and use the regional parks. He stated that the park system provides something for everyone to enjoy, whether it be sports, playground use, or use for different celebrations. Chair Bennett commented that this is a consistent practice across communities and noted that Ramsey surveys other communities to ensure the development fees are similar.

Motion carried. Voting Yes: Chair Bennett; Commissioners Sis, Barten, Leistico, Loss, and Olson. Voting No: Commissioner Walker. Absent: None.

5.02: Playground Replacement Policy

Parks & Assistant Public Works Superintendent Riverblood stated that this has been on the radar of the Commission for some time, to develop a schedule for playground replacement and in a manner that allows for proper planning and budgeting. He stated that $100,000 would most likely be the minimum amount to estimate for playground equipment. He noted that the focus should first be placed on developing the replacement plan and then can consider discussion of a funding source, noting that a good suggestion for funding could be the lawful gambling fund.

Parks and Recreation Intern Wagenfeld stated that while some communities have more informal policies, larger cities like Minneapolis have a more formal policy. He stated that he is considering seven different factors, four related to the playground itself while the other three factors relate more to context. He recognized the shift towards regional parks with more amenities rather than neighborhood parks as well as the factors of density and accessibility.

Parks & Assistant Public Works Superintendent Riverblood commented that the Ramsey policy would not be based on the policy of Minneapolis but instead the City is developing a scoring system that can be used to evaluate and schedule the replacements in an efficient and programmatic way.

Chair Bennett referenced the most recent update at Ford Brook and the discussions with the community members. He stated that he would like to see use studies and community engagement as a part of the process. He noted that sometimes the neighborhood parks are being used far more than originally believed.

Parks & Assistant Public Works Superintendent Riverblood confirmed that would become a part of the larger process. He noted that the scoring system would be developed along with the other elements such as use and community input. He referenced a policy used by Andover where input was solicited from the community and neighborhoods that did not provide input, did not rise to the top of the list for playground replacement.

Commissioner Barten agreed that the additional study would make sense, as sometimes you do not notice activity at the park when you drive by, but it can be heavily used at different times of the day. He stated that sometimes there is turnover in home ownership where the residents with children that have aged out of the park use have been replaced by families with younger children, similar to the Ford Brook area. He stated that he also supports more natural play areas.

Parks & Assistant Public Works Superintendent Riverblood stated that a GIS line of 1,500 feet could be drawn for a park. He stated that while the school district will not tell you whether a home has children, it will reply to the number and ages of children within that GIS area. He stated that data tends to provide valuable information on whether a playground replacement would be appropriate or whether there is not an age group demand in that area to support the investment.

Councilmember Heineman commented that he likes the idea of larger regional parks as it provides a broader benefit for the community and economy. He agreed that it would be important to review the usage of the parks as part of the consideration. He noted that some parks are desolate. He asked if there is an ability to sell a park that is not being used and use those funds to improve trails and other park infrastructure.

Parks & Assistant Public Works Superintendent Riverblood commented that had been considered in the past but there was a large amount of opposition from that neighborhood. He stated that if land is dedicated through park dedication, the land cannot be sold in that manner, it would revert to the original owner.

Councilmember Heineman commented that a feasibility study on the use of the park could support transitioning an active park into a more natural recreation area.

Commissioner Barten agreed that transition to a natural area could be viewed as more preferential for neighborhoods that have aged and no longer have a use for playground equipment.

Councilmember Heineman agreed and stated that if playground features are still desired, perhaps more natural features are incorporated that reduce maintenance needs.

Commissioner Walker stated that even if park dedicated land reverts back to the original owner, that land would be sold for development and would add to the tax roll.

Councilmember Heineman commented that he did not see that as a benefit to giving up park land.

Chair Bennett noted that there are creative solutions to be had but the policy will be needed in order to provide the initial evaluation.

Consensus of the Commission was to direct staff to continue to develop a potential framework and policy.

6. COMMISSION/STAFF INPUT

Parks & Assistant Public Works Superintendent Riverblood stated that the Summer Concert Series is starting the following week. He noted that Art in the Park will restart again, and the Art Fair will be July 11th at Elmcrest Park. He stated that the new Recreation Specialist was recently hired and will be working on recreational programming opportunities.

Commissioner Loss referenced the expansion of the dog park at Alpine, noting that he is unsure if people are aware that new section is open for use. He commented that he believed a second entrance was also being adding that he has not noticed.

Parks & Assistant Public Works Superintendent Riverblood stated that he has received comments, so some people have been using the new portion. He stated that perhaps signage could be added. He stated that the two halves were meant to be separated in order to provide two areas for people to self-select for use. He stated that there are three new escape gates near the parking area, but a double gate was not installed on the east side.

Commissioner Loss stated that perhaps a welcome sign could be put on the gate between the areas to explain it is open for use. He referenced the swings at Elmcrest and noted that there are only baby swings available and asked if there would be an option to add regular swings.

Parks & Assistant Public Works Superintendent Riverblood stated that in 2014 the Commission looked at a number of different designs and selected that design. He stated that regular swings could be placed in the tot swings, but due to regulations they cannot be mixed. He doubted that there would be space to add a second swing area because of the spacing needed for that type of use.

Commissioner Loss stated that he has noticed that there are not dedicated areas for basketball outside of the school playgrounds. He stated that he noticed that the only basketball hoops available in City parks are within the parking area and dilapidated.

Parks & Assistant Public Works Superintendent Riverblood stated that the parking area is only used during peak tournament times, otherwise the hoops are available for use. He stated that the courts available at PACT Charter School are open for public use. He advised of other basketball court locations in the city.

Commissioner Sis asked if the aeration of Sunfish Lake is still included on the CIP.

Parks & Assistant Public Works Superintendent Riverblood confirmed that is included on the CIP for this year and noted that he is attempting to schedule the work.

Commissioner Walker referenced he previously sent to staff related to the cost the City pays for application of chemical spraying.

Parks & Assistant Public Works Superintendent Riverblood stated that he can provide that information to Commissioner Walker. He estimated the cost to be between $15,000 to $20,000 for broad leaf spraying and fertilization.

7. ADJOURNMENT

Motion by Commissioner Barten, seconded by Commissioner Sis, to adjourn the meeting.

Motion carried. Voting Yes: Chair Bennett; Commissioners Barten, Sis, Leistico, Loss, Olson, and Walker. Voting No: None. Absent: None.

The Park and Recreation Commission meeting adjourned at 7:28 p.m.

Respectfully submitted,

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Mark Riverblood
Parks & Assistant Public Works Superintendent

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

Park and Recreation Commission **5. 1.**

Meeting Date: 07/08/2021

By: Mark Riverblood, Engineering/Public Works

Information

Title:

Playground Replacement Policy

Purpose/Background:

The purpose of this case, is to progress the Playground Replacement Policy for City Council's future consideration—that will guide the programmatic replacement of the city's approximate 17 existing playgrounds, which can then be forecast within the Capital Improvement Program. The goal is for the Playground Replacement Policy to inform the 2022-2032 CIP with specific years, estimated costs, and a replacement plan for Ramsey's existing playgrounds and the associated park's rejuvenation.

2021 Parks & Recreation Intern Brandon Wagenfeld will present highlights of the draft policy, including those elements that the Commission recommended for inclusion at the June meeting.

Notification:

None required at this time.

Observations/Alternatives:

It is likely the Commission will refine drafts of the Playground Replacement Policy in a subsequent month(s) before a final version is presented to City Council for consideration. The attached document may be considered a 90% Draft plan.

Funding Source:

None required for this policy consideration.

Recommendation:

Staff recommends reviewing the draft document and providing any and all comment or ideas for potential inclusion into future iterations of the replacement policy.

Action:

Based upon discussion and consensus, provide input on the draft policy document to meet the intent of adopting a Playground Replacement Policy in 2021.

Attachments

DRAFT Policy

Draft playground map

Playground Safety Handbook

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	07/02/2021 01:10 PM

Form Started By: Mark Riverblood Started On: 06/30/2021 02:52 PM
Final Approval Date: 07/02/2021

Central Park, Circa 1984

Central Park, Circa 2012

Playground Replacement Policy

City of Ramsey, Minnesota

Adopted: x/x/2021

SECTION 1. INTRODUCTION.

Playgrounds provide children with a safe and exciting connection to the outdoors during a time when electronic devices increasingly occupy their attention. They are associated with immense physical benefits—upper- and lower-body strength, muscular and cardiovascular endurance, balance, agility, and hand-eye coordination; in the long-run, reduced risk for cardiovascular ailments (e.g. heart disease and stroke), obesity, type-2 diabetes, and certain cancers—as well as boosts to self-confidence and improvements in social skills. Many of children's fondest memories are formed at parks. Playgrounds help build relationships between parents, grandparents, and children, and between children and their peers. Additionally, they provide a community gathering place for young parents and their children who may otherwise experience isolation. It is not an exaggeration to state that playgrounds may serve as the backbone of communities, and as such are a valuable resource that must be maintained. Playground sets unfortunately do not last forever, but this policy serves as a guide to replacing the city of Ramsey's playgrounds so that they remain a safe and enjoyable place for the community to gather.

SECTION 2. GENERAL POLICY STATEMENT.

The city of Ramsey has seventeen playgrounds that will need to be replace in the future. Due to fiscal and administrative constraints, as well as the varying ages and conditions of the city's playgrounds, the replacements are to be carried out over the span of more than a decade. As of the writing of this policy, six of the city's playgrounds have reached the end of their twenty-year useful lifespan and over the next decade, nine more will have reached that point. Consequently, the next capital improvement program (CIP), covering years 2022 through 2031, as well as subsequent CIPs will need to account for the city's playground replacement needs. This policy will guide the city in determining which playgrounds to replace and program into a given year of the CIP.

SECTION 3. PLAYGROUND EVALUATION MATRIX.

The evaluation matrix considers six factors (and an additional screening factor) when prioritizing playgrounds for replacement and the playgrounds are scored based on their adherence to those categories. A playground could receive a maximum score of 90 points, and the higher a score a playground receives, the greater the ranking for replacement. Four of the seven factors, accounting for 60% of the points, assess the playground itself, while the remaining two factors, accounting for 40% of the points, consider the context of the playground. The remaining factor, while not accounting for any points, is considered before any of the other six factors, because it serves to screen out playgrounds that are not recommended for replacement. The following is a description of the above screening factor:

1. **Home Density in the Surrounding Neighborhood.** Home density is a proxy for the usage of a particular playground. Because community parks are likely to be used significantly by those outside of the surrounding neighborhood, home density does not factor into the scoring for community parks. Instead, playgrounds in community parks are automatically recommended for replacement. Playgrounds in neighborhood parks must meet a threshold of 35 homes to be recommended for replacement. Otherwise, alternative actions (described below) are considered. In the table below, playgrounds meeting this threshold are scored "Y" and those not meeting the threshold are scored "N." Home density in this case is determined based on how many homes (or townhome units) are within 1500 feet of walking distance of a park boundary along streets and trails.

The following are the four factors that consider the playground itself. Combined they account for 60% of the points:

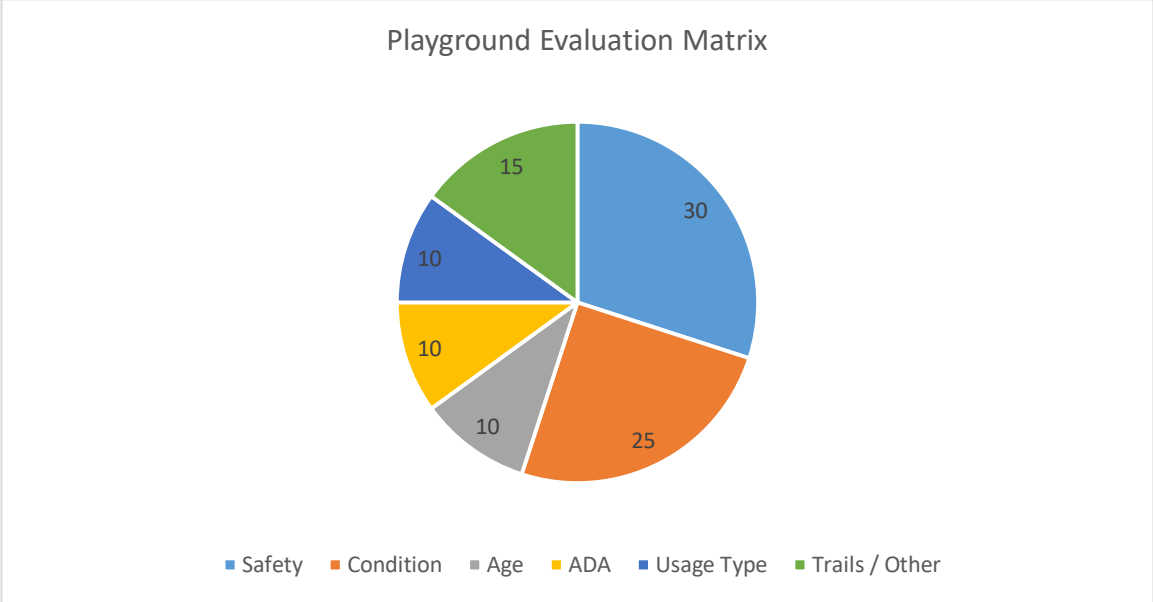
2. **Features Posing Safety Concerns.** A thorough inspection is to be performed on all elements of the playground structures, including but not limited to swings, slides, transfer decks, railings, and surfaces. If one feature is determined to pose a potential safety concern, the playground automatically receives fifteen points in this category, or one half of the total. If more than one feature is found to pose a concern, the playground receives the full thirty points.
3. **Visual Condition of the Playground Set.** The inspection will also determine the visual quality of the playground. The presence of faded or chipped paint, or rusted metal, are indicators of poor condition. Playgrounds in great condition receive zero points; playgrounds in fair condition receive five points; playgrounds in poor condition receive the full ten points.
4. **Age of the Playground Set.** If the playground is less than ten years old, it receives zero points. If it is between ten and twenty years old, it receives two points. If it is between twenty and thirty years old, it receives eight points. If it is greater than thirty years old, it receives the full ten points. The disparity between scores of playgrounds older than twenty years and those younger than twenty years is due to the assumed useful lifespan of a playground being twenty years.
5. **Compliance with ADA Standards.** ADA standards are defined below. Compliance is worth zero points whereas noncompliance is worth ten points.

The matrix additionally considers two factors that encompass the context of the playground. Combined they account for 40% of the points:

6. **Community Park vs. Neighborhood Park.** This distinction refers to the usage of the park containing the playground in question. Neighborhood parks are smaller parks with fewer amenities that primarily serve the immediate neighborhood. They are mostly used by people who live within walking distance of the park. Community parks are larger parks that serve considerably larger constituencies and that feature a greater variety of amenities, particularly athletic fields. They are the sites of athletic tournaments and major gatherings. Playgrounds in community parks are also likely to receive much greater usage and wear more quickly, needing replacement sooner than their neighborhood counterparts. Consequently, this category provides a priority for playgrounds in community parks over those in neighborhood parks, with the former receiving twenty-five points compared to fifteen points.

7. **Accessibility via Trails *and* Other Considerations.** Many of Ramsey's older playgrounds are inaccessible via an ADA compliant path which makes them more difficult to access for persons with mobility limitations. Any potential playground replacement would include a paved surface to allow for easier access, thus playgrounds without such a surface are prioritized in this category.

   This category also maintains room for other considerations as well. Due to the lack of gradience in the scoring metrics, several playgrounds will receive the same score. This category may be used to break ties.



SECTION 4. PUBLIC INPUT.

The evaluation matrix is not the sole determinant of the order in which playgrounds are replaced. Input by the community with respect to neighborhood parks is crucial to ensure that all residents are served by the city. One park scoring higher than another does not necessarily mean that it will be replaced first, particularly if public input indicates demand for another park to be replaced sooner.

SECTION 5. ALTERNATIVE ACTIONS.

If the public does not support the removal of a particular playground, but full replacement is not feasible, other actions can be taken to preserve a space for children to engage in outdoor recreation without constructing an entirely new playground. Alternative play spaces may be entertained with public input. For example, "natural playgrounds," made from trees and recycled materials may be cheaper to install and maintain than traditional playground equipment. Another option is converting parkland, including the former playground area, into a naturalized landscape, providing a valued outdoor amenity.

Figures 1-2: Nature-based play features at Pearson Park: *(left to right)* figure-eight of logs; sand and artificial turf surfacing, scattered "tree cookies"

SECTION 6. PLAYGROUND SURFACING.

The city of Ramsey primarily uses two different types of surfaces for its playgrounds—engineered wood fiber (known colloquially as wood chips) and pea gravel (reused seal coating rock). Both surfaces are considered safe as long as kept at a depth of at least twelve inches, though pea gravel may have concerns due to its shape, making it desirable for children to put in their mouth or take home with them. Additionally, the surfaces —as well as rubber mulch—are desirable due to low upfront installation costs (with pea gravel being the cheapest), but require regular maintenance (raking and levelling to maintain a proper depth for cushioning falls but still remaining accessible) and need to be replaced roughly every five years. Funding for surface replacement could be from the Lawful Gambling Fund, instead of the General Fund as has been the case.

***Figures 3-4*: (*left to right*) engineered wood fiber (EWP); pea gravel**

SECTION 7. FUNDING SOURCES.

The potential funding sources for playground replacements are many; including the Park Trust Fund, General Fund, the Capital Maintenance Fund, or even bonding—however, the most logical funding source may be the Lawful Gambling Fund, which is proceeds the city receives from a tax on charitable gambling (pull tabs) in Ramsey. Pursuant to MN State Statute Chapter 349, the Lawful Gambling Fund monies may only be used for expenditures that primarily benefit youth in the community. The present fund balance is approximately $325,000.

SECTION 8. DEFINITIONS

- "Americans With Disabilities Act" or "ADA" refers to the civil rights legislation passed in 1990 that prohibits discrimination against individuals based on disability. Its provisions were updated in 2008 to include a larger number of people under the umbrella of 'disabled.' Pursuant to that law, the Department of Justice (DOJ) developed *Standards for Accessible Design* in 2010. Any playgrounds constructed or modified after March 15, 2012 are subject to the new standards. Examples of these standards include:
  a) Running slopes may have grades no steeper than 5% with cross slopes no steeper than 2%; slopes with grades larger than 5% must have handrails and landings
  b) An accessible route 60 inches wide with 80 inches of overhead clearance must be available
  c) Transfer platforms must be between 11 and 18 inches high with width and depth at least 24 inches and 14 inches, respectively; transfer steps may be no higher than 8 inches and should include handholds; a 30-inch by 48-inch space must be available adjacent to the transfer platform
  d) Elevated ramps connecting play structures must be no steeper than 8.25%, no longer than 12 feet, and at least 36 inches wide; they must contain handrails with spots for gripping between 20 and 28 inches off the ground; a 60-inch by 60-inch landing area must be provided if the elevated ramp changes directions
  e) Manipulative and interactive sensory and communicative components must have reach ranges of 18 to 44 inches for 5- to 12-year old children, and 20 to 36 inches for 2- to 5-year old children
  f) At least 50 percent of elevated play components should be accessible; for play structures with more than 20 elevated play components, at least 25 percent should be accessible

- "Community Park" refers to a park with numerous amenities, such as athletic fields, meant to serve those from around the city as well as from neighboring communities. They are also considerably larger than neighborhood parks.
- "Neighborhood Park" refers to a park with fewer amenities, typically anchored by a small playground. They draw people mainly from the immediate neighborhood and have smaller parking capacities. They are considerably smaller than community parks.

***Figures 5-19*: Playground Equipment examples: (*left to right, top to bottom*) transfer surface; spring rider; chain-link ladder; talk tube; spinner; track-ride; sandbox excavator toy; metal ladders; stepping pods; corkscrew climber; clatter bridge; belt bridge; globe spinner; climbing wall with rope; enclosed climbing wall**

SECTION 9. SCORING OF PARKS WITH PLAYGROUND EQUIPMENT

Playground	*Age Score*	*Condition*	*Meets Density*	*Park Type*	*ADA*	*Trails / Considerations*	*Safety Concerns*	*Total*
Rabbit	10	10	Y	15	10	5	30	*80*
Alpine	8	10	Y	25	10	0	0	*53*
Solstice	8	5	Y	15	0	0	15	*43*
Riverdale	8	5	Y	15	10	2	0	*40*
Central	8	5	Y	25	0	0	0	*38*
Peltzer	8	5	Y	15	0	5	0	*33*
Rivers Bend	2	5	Y	25	0	0	0	*32*
Fox	8	5	Y	15	0	2	0	*30*
Emerald Pond	8	5	Y	15	0	1	0	*29*
Woodland Green	8	5	Y	15	0	0	0	*28*
Titterud	2	5	Y	15	0	5	0	*27*
Flintwood Terrace	2	5	Y	15	0	0	0	*22*
Ford Brook	0	5	Y	15	0	0	0	*20*
North Commons	0	0	Y	15	0	0	0	*15*
Pearson	0	0	Y	15	0	0	0	*15*
Autumn Heights	-	-	N	-	-	-	-	-
Shawn Acres	-	-	N	-	-	-	-	-

SECTION 10. TIMELINE OF PLAYGROUND REPLACEMENT

Playground	*Year*
Rabbit Park	*2022*
Alpine Park	*2023*
Solstice Park	*2024*
Riverdale Park	*2025*
Central Park	*2026*
Peltzer Park	*2027*
Rivers Bend Park	*2028*
Fox Park	*2029*
Emerald Pond Park	*2030*
Woodland Green Park	*2031*
Titterud Park	*2032*
Flintwood Terrace Park	*2033*
Elmcrest Park	*2034*
Ford Brook Park	*2035*
North Commons Park	*2036*
Pearson Park	*2037*

SECTION 11. PLAYGROUND DESCRIPTIONS

Alpine Park

Alpine Park is a community park located in central Ramsey along the south side of Alpine Drive, roughly 1 mile east of Ramsey Boulevard and 1/3 mile west of Sunfish Lake Boulevard. Park amenities include four baseball diamonds and batting cages as well as a skate park. Its playground was built in 2000. The playground consists of two components, a wooden swing set and a wooden composite play structure. The swing set has two sections, one section with a single plastic chair swing and the other section with two normal swings.

The playground structure consists of one plastic slide was parallel ramps. A metal, vertically curved set of six parallel monkey bars is connected to the rest of the set via a low transfer surface. Opposite the monkey bars is a wooden ladder with two steps that connect to the rest of the structure.

There are five means of egress—the aforementioned transfer surface and ladder, a wooden staircase, a chain link ladder (with four parallel chains) with metal footings, a chain link ladder on the interior of the structure which three rubber tires serving as steps, and a wooden climbing wall (sloped roughly 60 degrees with the ground) with six wooden steps and a rope for balance. The bottom of the climbing wall is worn, likely due to use as an additional step. The protective covering on the rope is worn and the metal inside of the rope is exposed in places. The rope has also been stretched considerably.

The entire surface of the structure is wooden with the exception of a bridge, which has a rubber mat for a surface. The bridge is sloped slightly (less than 15 degrees) from one end to the other, however there are four peaks on the rubber surface with thin wooden planks on top. The rubber surface is somewhat worn and there are cross slopes in some places that are unrelated to the design.

The chains for both ladders are in fairly good condition. The wood throughout the structure ranges from okay to poor condition. The wood on the supports for the tallest portion of the structure (i.e. the area with the wooden climbing wall) is in the poorest condition with several of the planks making up horizontal and diagonal supports being splintered. The playground also has talk tubes (metal megaphone toys through which children may communicate with one another through opposite ends) which are both in excellent condition.

Figure 2: Alpine Park Playground

Figures 3-5: *(from left to right)* Splintered wood on horizontal and diagonal supports; Splintered wood on support for swing set; Worn rope on climbing wall

Autumn Heights Park

Autumn Heights Park is a neighborhood park located in northwestern Ramsey at the intersection of Rabbit Street and Nutria Street, just east of Armstrong Boulevard and south of 173rd Avenue. Its playground was assembled by staff in 1985. Wooden planks (roughly three quarters of a foot tall) bound the play area and the play area is not accessible via a trail. There are no accessible means of egress for the play set itself.

The playground consists of a single wooden play structure with a tire swing and a metal pull-up bar. The tire itself is in good condition, but the chain it is attached to is fairly rusted and worn. The top surface of the play structure consists of five parallel wooden planks, all of which are fairly loose (with the exception of the second-to-rightmost plank). There are two means of egress, neither of which are ADA-compliant. One is a ladder with two metal bars serving as steps. The other is a curved surface with narrow gaps for footholds, comprised of eight wooden planks, all of which are fully attached. The flat surface between this surface and the top surface (which is roughly three inches above this surface) is comprised of six wooden planks (none of which are fully attached) perpendicular to those on the top surface and parallel to those on the curved surface. There is a single straight metal slide, which is in fair condition.

Figure 6: Autumn Heights Park Playground

Central Park

Central Park is a community park located at the intersection of Armstrong Boulevard and 161st Avenue. Park amenities include four football fields, seven baseball diamonds, two lacrosse fields, four tennis courts, and four horseshoe pits. Its current playground was constructed in 1998 as a community-built project.

The structure is largely wooden, but there are multiple plastic and metal components as well, such as two plastic slides—one enclosed and one open with three parallel tracks—and a plastic tunnel. The wood is in fair condition, but is exhibiting some wear and tear. There are two track-rides, one straight with a single track and one curved with five parallel tracks. The grip for the first track-ride is metal, with chipped paint, and the grips for the latter are plastic and are in good condition, albeit with slightly faded paint.

Linking the two track-rides is a series of four wooden transfer platforms. The topmost platform is accessible via a metal chain-link ladder as well as two parallel metal bars for climbing. Linking the track-rides and transfer platform between them with the rest of the playground structure is a series of seventeen arched plastic platforms. Additional means of egress include a rope climbing wall, metal ladder, a wooden climbing wall with a rope, a step with handrails for accessing a transfer platform, and a wooden ramp.

Additional playground features include two playground excavator toys, two spinners, and a balance beam. Overall, the playground is in fair condition, but the wooden components are worth monitoring.

***Figure 7*: Central Park Playground wide shot; *Figures 8-9*: (*left to right*) seventeen arched platforms; several means of egress, including a metal ladder, a wooden climbing wall with a rope, and a step with handrails**

Elmcrest Park

Elmcrest Park is a community park located in east-central Ramsey, west of State Highway 47 / Saint Francis Boulevard and south of 167th Avenue along Quicksilver Street. Park amenities include twelve soccer fields. Its playground was erected in 2015, the year after the adjacent park buildings were completed.

The playground features a main playground structure, a swing set with two bucket swings, a play barn, two spinners (one globe spinner), two chicken sculptures and one bee sculpture for climbing. The main play structure contains an obstacle course with a rope ladder, four angled platforms secured into the ground by a chain, a curved metal bar with four ropes crossing one another for balancing, a set of inclined monkey bars comprised of three rings forming six handholds, and five stepping pods. Additionally, the playground has three zigzagging slides and five means of egress– one transfer surface, two platforms forming a quasi-staircase, a ladder consisting of three platforms, an enclosed chain-link ladder with five metal semicircular footholds, and a climbing wall with slots cut out for footholds. All components of the playground are in excellent condition.

***Figures 8-11*: (*clockwise from the top left*) main play structure; chicken sculpture, bee and fruit sculpture; swing set with bucket swings; play barn**

Emerald Pond Park

Emerald Park is a neighborhood park in southeastern Ramsey, located east of CSAH 57 / Sunfish Lake Boulevard, north of CSAH 116 / Bunker Lake Boulevard, and south of Alpine Drive. Park amenities include a single baseball diamond and a soccer field, as well as a basketball hoop in the parking lot. Its playground was built in 1997.

Emerald Pond Park has a large composite play structure

Figure 9: Emerald Pond Park Playground (looking northeast)

Figure 10: Emerald Pond Park Playground (looking west)

Flintwood Terrace Park

Flintwood Terrace Park is a neighborhood park in southeastern Ramsey, located west of MN 47 / Saint Francis Boulevard, north of CSAH 116 / Bunker Lake Boulevard, and south of CSAH 5 / Nowthen Boulevard. Its playground was completed in 2004.

Figure 11: Flintwood Terrace Park Playground

Ford Brook Park
Ford Brook Park is a neighborhood park in northeastern Ramsey located north of CSAH 27 / 179th Lane, east of MN 47 / Saint Francis Boulevard, and one mile west of the entrance to Rum River Central Regional Park along CSAH 7 / 7th Street. Its playground was replaced in 2020 with a 'gently used' play structure from a county park.

The playground consists of two distinct play structures for different age brackets, a balance beam, as well as a swing set with two separate bays—one with two belt swings, the other with a bucket swing and a chair swing. The first playset contains two curved plastic tunnels—one with two sections fastened together and the other with six sections; three slides—each straight with two parallel tracks, but one with a hump and a dip on respective track; and three means of egress—a stair case with metal bars for handholds, a chain-link ladder, and a corkscrew climber.

The other playset has three main means of egress—a staircase and two metal ladders—and two slides—one straight, the other enclosed and rotating 360 degrees. It also features an obstacle course consisting of three platforms connected to metal poles, a track-ride, a pull-up bar, and a log roll.

***Figures 12-13*: Ford Brook Park Playground, facing southeast and southwest, respectively**

Fox Park

Fox Park is a neighborhood park in northeastern Ramsey. It is located along Potassium Street, east of MN 47 / Saint Francis Boulevard, north of 167th Avenue and south of Green Valley Road. Its playground was built in 1994.

The playground is composed of two components, a swing set and the main playground structure. The swing set is divided into two sections, one with two baby swings and one with two normal swings. The main playground has two means of egress—one transfer surface and one chain link ladder with metal steps—and three slides—one straight slide with two parallel tracks, one straight slide with a hump, and one curved slide that turns 180 degrees. Different components of the structure are connected by one plastic tunnel and one upwardly curving bridge. Lastly there is a set of monkey bars with seven bars that curl upwards, as well as a track-ride. All playground components are in good condition.

Figure 13: Fox Park Playground

North Commons Park
North Commons Park is a neighborhood park in southern Ramsey, located north of CSAH 116 / Bunker Lake Boulevard and between CSAH 83 / Armstrong Boulevard and CSAH 56 / Ramsey Boulevard. Its playground was built in 2012. Overall, the playground is in excellent condition.

The playground consists of four components—the main playset with an attached climbing wall and monkey bars, a metal swing set, and two spinners (one globe spinner). The swing set has two bays, one for bucket swings and one for belt swing, with each bay containing two swings each. The main play set has three slides—one short and straight near the bottom, two long and winding near the top of the structure. One of the longer slides zig zags while the other turns 360 degrees. There are six points of egress—one transfer surface; one chain-link ladder; one ladder with circular footholds rotated 90 degrees from one another; three stepping platforms; a ladder with two flat platforms directly on top of one another; and the monkey bars.

The monkey bars consist of five triangular bars. The climbing wall is plastic with nine holds on the front side and seven holds on the back side and a hole near the bottom of the wall (on the right side when viewed from the front) that can serve as a hand hold or foot hold. The top portion of the structure is accessible via two separate ladders made from walls with two slots cut out for foot holds. The bottommost of these ladders may have accessibility concerns—although one can use the guardrails as handholds, there is not a lot of room to maneuver through the opening.

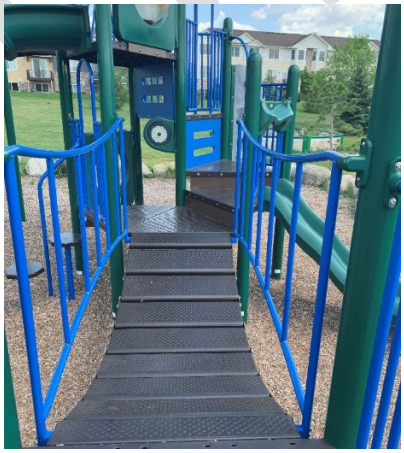


***Figure 14*: North Commons Park Playground wipe shot; *Figures 15-16*: (*left to right*) bridge connecting to upper portion of the playground structure, ladder with accessibility concerns in the background; ladder with five orthogonal rings**

Pearson Park

Pearson Park is a small neighborhood park in southwestern Ramsey, located along Rabbit Street, north of U.S. 10 and Bunker Lake Boulevard, and south of Alpine Drive. Its playground was built in 2018.

The Pearson Park playground is a nature-based play area. Most of its components are made from minimally-processed naturally occurring materials. The structural supports holding up the main play area are made from logs, and the guardrails are logs cut into thin sheets. Another play feature, located on a hill to the north of the main playground structure, consists of short logs arranged in a figure-eight shape. Adjacent to the figure-eight feature is a ring of seven rocks with flat surfaces for standing on. Being Ramsey's first nature-based playground, it is unique within the city in a number of ways. It utilizes both sand and artificial turf for surfacing, and also has several trees planted throughout the play area. Moreover, it has cut pieces of logs scattered throughout the play surface. All of the logs are from tamarack trees growing northwest of Duluth, Minnesota.

The playground includes a long metal slide (enclosed near the top, but open near the bottom) that bends slightly near the middle. The main point of egress is a wooden bridge accessible via a concrete sidewalk. The other three means of egress are a thin wooden climbing wall (background of *Figure 15*) and two rope climbing structures. The larger one lines the southeast corner of the playground structure, while the smaller rope structure is located in the center. An octagonal opening in the wooden deck of the playground structure allows for egress via the smaller rope structure. The smaller rope structure is enclosed and also has large curved footholds for ease of use. All playground components are in good condition.

Figures 15-16: *(left)* Pearson Park Playground *(not pictured: bridge)*; *(right)* Bridge

Peltzer Park

Peltzer Park is a neighborhood park located in southern Ramsey, east of CSAH 56 / Ramsey Boulevard and north of CSAH 116 / Bunker Lake Boulevard. Its playground was built in 1995 and is accessible by trail. The playground consists of three main components—the main play structure, a swing set, and a spring rider.

The spring rider is in fair condition, though its paint is faded and some of the metal is in the initial stages of rust formation. The swing set consists of two bays with two swings each; one bay contains belt swings and the other contains bucket swings. The swings are all in good condition.

The play set contains four slides—two straight slides on the east side of the structure (one of which has a hump and the other of which has two tracks) and two slides on the west side (one enclosed and one curved 360 degrees). There are six points of egress—one transfer surface and staircase on the southern end of the playground; one transfer surface at the end of a track-ride; five stepping platforms; one chain-link ladder with a curved metal handrail; one curved ladder with four semi-rectangular footholds; one straight ladder with five footholds. There are also two plastic tunnels—one with a single 90-degree turn and one with two 90-degree turns.

Overall, the playground is in fair condition. The paint on the plastic components has faded and the wood on the decks and supports is slightly worn but the playground is structurally in working condition.

Figure 17: Peltzer Park Playground (facing North)

Figure 17: Peltzer Park Playground (facing Southeast)

Rabbit Park

Rabbit Park is a neighborhood park located in northwestern Ramsey along Rabbit Street, roughly 2/3 of a mile east of CSAH 83 / Armstrong Boulevard and 1/5 mile north of 173rd Avenue. Its playground was placed in 1997, however the equipment had been previously used elsewhere and is more than 30 years old. The playground consists of four components: a wooden-pole swing set with two swings, two play structures, and a metal slide atop an artificial mound. On one play structure, there are two slides (one curved and one straight), one transfer surface and one stationary metal ladder for egress, a roof over the top of the play structure, and an interactive sensory component. The other play structure has two slides (one enclosed), three means of egress (one transfer surface, one chain-link ladder, and one-metal ladder), and a track-ride. The transfer surface steps are very narrow and steep, and are not ADA compliant. The chains for both swings are also worn and rusted. The playground is not accessible via trails.

Figure 18: Rabbit Park Playground

Riverdale Park
Riverdale Park is a neighborhood park located in southern Ramsey along Riverdale Drive (just south of U.S. 10) between CSAH 56 / Ramsey Boulevard and CSAH 57 / Sunfish Lake Boulevard. Its playground was built in 1991.

The playground consists of three main components—two distinct play structures and one swing set—as well as four other components—a concrete camel sculpture, an excavator toy, and two spring-riders (one in the shape of a horse, the other in the shape of a bulldozer. The four components are in fair condition (however the concrete sculpture does have small cracks). The swing set has two bays with two swings each (two bucket swings and two belt swings in separate bays). The two talk tubes linking the two main play structures are deteriorating.

The smaller play structure consists of two points of egress—a transfer surface and a staircase, both with handrails—and two slides—one with two parallel tracks and one with a hump. One of the transfer surfaces is connected to a trail via a series of mats laid on top of the pebbles that comprise the playground surface. The top of the structure contains a house-like feature with two walls (each with a window), a bench, and a table. There is also a steering wheel and an interactive sensory component where children can customize animals by rotating nine blocks in a 3 x 3 grid, attached to three parallel bars. A similar sensory component is located at the bottom of the structure.

The larger play structure has two slides—one straight with a single hump and one curved 360 degrees. Additionally, there is a set of monkey bars with eleven straight bars and a track-ride. Both are in good condition, though there is a small area on the grip for the track-ride with chipped paint. The transfer surfaces are in good condition but there are some accessibility concerns. The play set is not accessible via a flat surface and the transfer platforms are spaced vertically from one another by 18 to 24 inches. The six transfer surfaces are triangular and arranged together in a hexagonal shape with the last three being level with one another, forming a trapezoid. This top platform is alternatively accessible via a ladder formed by three slots cut into a wall, which is supplemented by two handholds. Even with the handholds, there are still accessibility concerns.

Figure 19: Riverdale Park Playground

Figures 20-21: Transfer Surfaces on the Larger Playground at Riverdale Park (*note that the picture on the left is a vertical panorama and is compressed vertically and angularly distorted*)

Rivers Bend Park

Rivers Bend Park is a community park located in southeastern Ramsey, east of MN 47 / Saint Francis Boulevard and straddling CSAH 116 / Bunker Lake Boulevard, though the playground is to the north. Park amenities include four tennis courts, one baseball diamond, and a basketball hoop in the parking lot. Its playground was built in 2001.

Figure 20: Rivers Bend Park Playground

Shawn Acres Park
Shawn Acres Park is a neighborhood park located in a low-density area in northern Ramsey along Chameleon Street, 1/5 mile north of 173rd Avenue. Its playground was built before 1990. The playground consists of three components: a rusted metal-pole swing set with three swings, a standalone metal slide, and a parallel set of metal bars akin to monkey bars without bars. The paint for all three components is rusted. Two of the three swings are inaccessible to younger children and those with mobility limitations without the help of an adult. The slide is also inaccessible to those with mobility impairments. The playground is not ADA compliant.

Figure 21: Shawn Acres Park Playground

Solstice Park
Solstice Park is a neighborhood park located in southeastern Ramsey at the end of Erkium Street, 1/5 mile east of CSAH 5 / Nowthen Boulevard and ¼ west of MN 47 / Saint Francis Boulevard via Sunwood Drive. The park has a baseball field, though it is not maintained as such. Its playground was built in 1995. Originally painted red, the colors have faded to pink.

The playground is composed of four components—a composite play structure with monkey bars and track-ride attached to the end, a swing set, a climbing structure in the shape of a dinosaur, and a sandbox excavator toy.

There are two curved slides, the shorter one turning 90 degrees and the longer one turning 360 degrees. There is a third straight slide. All of the slides are in good condition, however there are scratch marks in several places.

There are three main points of egress for the main composite playground structure—one transfer surface / staircase, one metal ladder curving upwards then horizontally, and one chain link ladder. Transfer platforms serving the monkey bars can also serve as a means of egress. There is a tunnel linking different parts of the structure that is in fair condition.

The sandbox excavator is functional, but in poor condition with paint chipped and metal rusted in several places. The swing set has three sections, divided by supports with two legs each, with two swings per section. One of the bays has two baby swings. All of the swings are in good condition. The monkey bars, comprised of nine triangular metal rings, are in good condition, as is the track-ride, though there is chipped paint in one place. There are two miscellaneous interactive sensory components, a tic-tic-toe board and a steering wheel, both of which are in good condition. Finally, there is a pull-up bar and talk tubes, both of which are in fair condition.

The dinosaur-shaped climbing structure has a spine of parallel metal bars with 17 rectangular scales on the underside for climbing linking the two bars. On the top there are 12 pentagonal scales on alternating sides of the spine for climbing. The structure is held up by four legs. All components of this structure are in good condition.

Figure 22: Solstice Park Playground

Titterud Park

Titterud Park is a neighborhood park in central Ramsey along CSAH 56 / Ramsey Boulevard, just south of the fork with CSAH 5 / Nowthen Boulevard. There is a single baseball field and two tennis courts at the park. Its playground was built in 2005.

There are three areas for playing—one with the main play set, one with a swing set and two pieces of equipment for bouncing, and an empty sand box. The bouncing equipment is in good condition. One consists of a spiral pole with a singular platform from bouncing and the other is in the shape of a ring, allowing for two children to take turns jumping and launching the other upward.
The swing set is made of wooden posts and a metal crossbar, and has two belt swings.
The main structure is largely wooden, but with metal guardrails and a single plastic slide with three parallel tracks and a plastic tunnel. The main means of egress is a transfer platform and staircase. Another entrance is via a gray plastic rock climbing wall attached to a series of twelve green arched climbing platforms arranged in circular patterns. Adjacent to this is a rope climbing ladder with four parallel ropes at the top for handholds. On the opposite end of the playground structure is another means of egress—a ladder consisting of seven rungs and another ladder connected at a 135-degree angle with four rungs. The fifth means of egress is narrow ladder with a rope for balancing. One of the boards on the transfer surface was recently replaced, so the structure is overall in good condition.

***Figure 23*: Titterud Park Main Play Area**

***Figure 24*: Titterud Park Secondary Play Area**

***Figures* 25: backside of the Titterud Park Playground, featuring the plastic rock climbing wall and a rope climbing ladder**

Woodland Green Park

Woodland Green Park is a neighborhood park in eastern Ramsey located east of MN 47 / Saint Francis Boulevard and north of Alpine Drive. Amenities include a single soccer field. Its playground was built in 1998.

The playground features four components—the main structure with an attached jungle gym, a swing set, and two spring riders (both of which are in good condition). The swing set, consisting of two bays with two belt swings and two bucket swings in the respective bays, is in fair condition, though the crossbar is beginning to rust.

The main play structure has two curved slides, one with parallel tracks and curving roughly 45 degrees and another slide (longer than the first) zigzagging, but curving roughly 45 degrees as well.

There are six means of egress, the main one being a transfer surface and staircase. There are three metal rope-like ladders—one enclosed with a metal ring on top, one with two parallel metal bars on the sides, and one with a single climbing track. A fifth means of egress is a green plastic climbing structure adjacent to the longer slide.

A sixth possible method of egress is the jungle gym attached to the main structure. It also consists of a rope climbing wall, a set of monkey bars made up of five rings each attached to the end of a chain, a pull-up bar, and a set of monkey bars with three tilted, rotating, circular handholds. The second set of monkey bars is slanted. The jungle gym and main playground structure are both in good condition.

***Figures 28-29*: (*top to bottom*) Woodland Green Park Playground (looking east and west, respectively)**

***Figure 29*: Woodland Green Park Playground (looking west)**

~ Appendices here ~

Playground Finder Map

RABBIT PARK
17450 Rabbit St

RUM RIVER CENTRAL PARK
17955 Roanoke St

FOX PARK
17150 Potassium St

BROOKSIDE ELEMENTARY
7003 Nowthen Blvd

CENTRAL PARK
7925 161st Ave

TITTERUD PARK
16100 Jaspar St

ALPINE PARK
6600 Alpine Dr

WOODLAND GREEN PARK
5201 155th Lane

RAMSEY ELEMENTARY
15000 Nowthen Blvd

PEARSON PARK
15070 Rabbit St

PELTZER PARK
7001 149th Lane

SOLSTICE PARK
14700 Erkium St

FLINTWOOD TERRACE PARK
14250 Fluorine St

NORTH COMMONS
7695 147TH Lane NW

EMERALD POND PARK
6000 142nd Ave

RIVERS BEND PARK
14200 Waco St

RIVERDALE PARK
6860 Riverdale Dr

Legend

Play Equipment

Trails

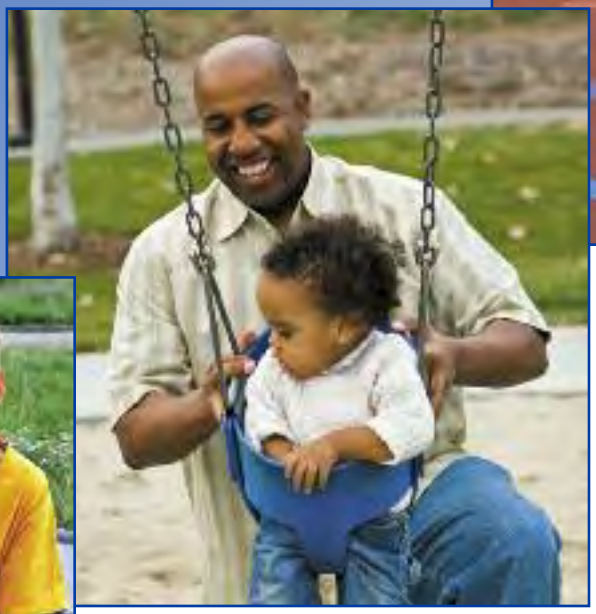
Map Created by
City of Ramsey
06/25/21

Ideas? Questions?

Mark Riverblood
Parks Supervisor

CITY OF RAMSEY
763-433-9853

Public Playground Safety Handbook



U.S. Consumer Product Safety Commission

Saving Lives and Keeping Families Safe

TABLE OF CONTENTS

APPENDICES

1. INTRODUCTION

In recent years, it is estimated that there were more than 156,000 injuries annually on public playgrounds across the country that required emergency room treatment. By following the recommended guidelines in this handbook, you and your community can create a safer playground environment for all children and contribute to the reduction of playground-related deaths and injuries.

1.1 Scope

This handbook presents safety information for public playground equipment in the form of guidelines. Publication of this handbook is expected to promote greater safety awareness among those who purchase, install, and maintain public playground equipment. Because many factors may affect playground safety, the U.S. Consumer Product Safety Commission (CPSC) staff believes that guidelines, rather than a mandatory rule, are appropriate. These guidelines are not being issued as the sole method to minimize injuries associated with playground equipment. However, CPSC staff believes that the recommendations in this handbook will contribute to greater playground safety.

Some states and local jurisdictions may require compliance with this handbook and/or ASTM voluntary standards. Additionally, risk managers, insurance companies, or others may require compliance at a particular site; check with state/local jurisdictions and insurance companies for specific requirements.

1.2 Intended Audience

This handbook is intended for use by childcare personnel, school officials, parks and recreation personnel, equipment purchasers and installers, playground designers, and any other members of the general public (e.g., parents and school groups) concerned with public playground safety and interested in evaluating their respective playgrounds. Due to the wide range of possible users, some information provided may be more appropriate for certain users than others.

1.3 What is a Public Playground?

"Public" playground equipment refers to equipment for use by children ages 6 months through 12 years in the playground areas of:

- Commercial (non-residential) child care facilities
- Institutions
- Multiple family dwellings, such as apartment and condominium buildings
- Parks, such as city, state, and community maintained parks
- Restaurants
- Resorts and recreational developments
- Schools
- Other areas of public use

These guidelines are not intended for amusement park equipment, sports or fitness equipment normally intended for users over the age of 12 years, soft contained play equipment, constant air inflatable play devices for home use, art and museum sculptures (not otherwise designed, intended and installed as playground equipment), equipment found in water play facilities, or home playground equipment. Equipment components intended solely for the disabled and modified to accommodate such users also are not covered by these guidelines. Indoor child care facilities should refer to ASTM F2373 — *Standard Consumer Safety Performance Specification for Public Use Play Equipment for Children 6 Months Through 23 Months,* for more guidance on areas unique to their facilities.

1.4 Public Playground Safety Voluntary Standards and CPSC Handbook History

- 1981 – First CPSC *Handbook for Public Playground Safety* was published, a two-volume set.
- 1991 – *Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment,* ASTM F1292, was first published.
- 1991 – Two-volume set was replaced by a single-volume handbook, which contained recommendations based on a COMSIS Corporation report to the CPSC *(Development of Human Factors Criteria for Playground Equipment Safety)*.
- 1993 – First version of voluntary standard for public playground equipment, ASTM F1487 — *Standard Consumer Safety Performance Specification for Playground Equipment for Public Use,* was published (revisions occur every 3 to 4 years).

- 1994 – Minor revisions to the *Handbook*.
- 1997 – Handbook was updated based on (1) staff review of ASTM F1487, (2) playground safety roundtable meeting held October 1996, and (3) public comment received to a May 1997 CPSC staff request.
- 2005 – First version of voluntary standard for playground equipment intended for children under two years old, ASTM F2373 — *Standard Consumer Safety Performance Specification for Public Use Play Equipment for Children 6 Months Through 23 Months,* was published.
- 2008 – Handbook was updated based on comments received from members of the ASTM F15 Playground Committees in response to a CPSC staff request for suggested revisions. Significant revisions are listed below.

1.4.1 ASTM playground standards

Below is a list of ASTM standards that relate to playgrounds:

- **F1487** *Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.*
- **F2373** *Standard Consumer Safety Performance Specification for Public Use Play Equipment for Children 6 Months through 23 Months.*
- **F1292** *Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.*
- **F2075** *Standard Specification for Engineered Wood Fiber for Use as a Playground Safety Surface Under and Around Playground Equipment.*
- **F2223** *Standard Guide for ASTM Standards on Playground Surfacing.*
- **F2479** *Standard Guide for Specification, Purchase, Installation and Maintenance of Poured-In-Place Playground Surfacing.*
- **F1951** *Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.*
- **F1816** *Standard Safety Specification for Drawstrings on Children's Upper Outerwear.*
- **F2049** *Standard Guide for Fences/Barriers for Public, Commercial, and Multi-Family Residential Use Outdoor Play Areas.*
- **F1148** *Standard Consumer Safety Performance Specification for Home Playground Equipment.*
- **F1918** *Standard Safety Performance Specification for Soft Contained Play Equipment.*

1.5 Significant Revisions for 2008

1.5.1 Equipment guidelines

- Age ranges expanded to include children as young as 6 months based on ASTM F2373
- Guidelines for track rides and log rolls added
- Exit zone requirements for slides harmonized with ASTM F1487

1.5.2 Surfacing guidelines

- Critical height table revised
- Suggestions for surfacing over asphalt added

1.5.3 General guidelines

- Suggestions on sun exposure added

1.5.4 Other revisions

- Editorial changes to make the *Handbook* easier to understand and use

1.6 Background

The safety of each individual piece of playground equipment as well as the layout of the entire play area should be considered when designing or evaluating a playground for safety. Since falls are a very common playground hazard pattern, the installation and maintenance of protective surfacing under and around all equipment is crucial to protect children from severe head injuries.

Because all playgrounds present some challenge and because children can be expected to use equipment in unintended and unanticipated ways, adult supervision is highly recommended. The handbook provides some guidance on supervisory practices that adults should follow. Appropriate equipment design, layout, and maintenance, as discussed in this handbook, are also essential for increasing public playground safety.

A playground should allow children to develop gradually and test their skills by providing a series of graduated challenges. The challenges presented should be appropriate for age-related abilities and should be ones that children can per-

ceive and choose to undertake. Toddlers, preschool- and school-age children differ dramatically, not only in physical size and ability, but also in their intellectual and social skills. Therefore, age-appropriate playground designs should accommodate these differences with regard to the type, scale, and the layout of equipment. Recommendations throughout this handbook address the different needs of toddlers, preschool-age, and school-age children; "toddlers" refers to children ages 6 months through 2 years of age, "preschool-age" refers to children 2 through 5 years, and "school-age" refers to children 5 through 12 years. The overlap between these groups is anticipated in terms of playground equipment use and provides for a margin of safety.

Playground designers, installers and operators should be aware that the Americans with Disabilities Act of 1990 (ADA) is a comprehensive civil rights law which prohibits discrimination on the basis of disability. Titles II and III of the ADA require, among other things, that newly constructed and altered State and local government facilities, places of public accommodation, and commercial facilities be readily accessible to and usable by individuals with disabilities. Recreation facilities, including play areas, are among the types of facilities covered by titles II and III of the ADA.

The Architectural and Transportation Barriers Compliance Boards – also referred to as the "Access Board" – has developed accessibility guidelines for newly constructed and altered play areas that were published October 2000. The play area guidelines are a supplement to the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Once these guidelines are adopted as enforceable standards by the Department of Justice, all newly constructed and altered play areas covered by the ADA will be required to comply. These guidelines also apply to play areas covered by the Architectural Barriers Act (ABA).

Copies of the play area accessibility guidelines and further technical assistance can be obtained from the U.S. Access Board, 1331 F Street, NW, Suite 1000, Washington, DC 20004-1111; 800-872-2253, 800-993-2822 (TTY), www.access-board.gov.

1.7 Playground Injuries

The U. S. Consumer Product Safety Commission has long recognized the potential hazards that exist with the use of public playground equipment. The most recent CPSC staff study of public playground equipment-related injuries treated in U.S. hospital emergency rooms indicated that the majority (79%) resulted from falls from equipment.[1] These were primarily falls to the ground surface below the equipment rather than falls from one part of the equipment to another part. Other hazard patterns involved colliding with stationary equipment and contact with hazards such as protrusions, crush or shear points, sharp edges, hot surfaces, and playground debris. Fatal injuries reported to the Commission involved falls, entanglement of clothing or other items, entanglement in ropes, head entrapment in openings, and impact from equipment tip over or structural failure.

The recommendations in this handbook have been developed to address the hazards that resulted in playground-related injuries and deaths. The recommendations include those that address:

- The potential for falls from and impact with equipment
- The need for impact attenuating protective surfacing under and around equipment
- Openings with the potential for head entrapment
- The scale of equipment and other design features related to user age and layout of equipment on a playground
- Installation and maintenance procedures
- General hazards presented by protrusions, sharp edges, and crush or shear points

1.8 Definitions

Barrier — An enclosing device around an elevated platform that is intended to prevent both inadvertent and deliberate attempts to pass through the device.

Composite Structure — Two or more play components attached or directly adjacent to each other creating one integral unit that provides more than one play activity (e.g., combination climber, slide, and horizontal ladder).

Critical Height — The fall height below which a life-threatening head injury would not be expected to occur.

Designated Play Surface — Any elevated surface for standing, walking, crawling, sitting or climbing, or a flat surface greater than 2 inches wide by 2 inches long having an angle less than 30° from horizontal.

[1] Tinsworth, D.K. and McDonald, J.E.; Special Study: Injuries and Deaths Associated with Children's Playground Equipment. U.S. Consumer Product Safety Commission: Washington DC, April 2001.

Embankment Slide — A slide that follows the contour of the ground and at no point is the bottom of the chute greater than 12 inches above the surrounding ground.

Entanglement — A condition in which the user's clothes or something around the user's neck becomes caught or entwined on a component of playground equipment.

Entrapment — Any condition that impedes withdrawal of a body or body part that has penetrated an opening.

Fall Height — The vertical distance between the highest designated play surface on a piece of equipment and the protective surfacing beneath it.

Footing — A means for anchoring playground equipment to the ground.

Full Bucket Seat Swing — A swing generally appropriate for children under 4 years of age that provides support on all sides and between the legs of the occupant and cannot be entered or exited without adult assistance.

Geotextile (filter) Cloth — A fabric that retains its relative structure during handling, placement, and long-term service to enhance water movement, retard soil movement, and to add reinforcement and separation between the soil and the surfacing and/or sub-base.

Guardrail — An enclosing device around an elevated platform that is intended to prevent inadvertent falls from the elevated surface.

Infill — Material(s) used in a protective barrier or between decks to prevent a user from passing through the barrier (e.g., vertical bars, lattice, solid panel, etc.).

Loose-Fill Surfacing Material — A material used for protective surfacing in the use zone that consists of loose particles such as sand, gravel, engineered wood fibers, or shredded rubber.

Preschool-Age Children — Children 2 years of age through 5 years of age.

Projection — Hardware that extends outward from a surface of the playground equipment and must be tested to determine whether it is a protrusion or entanglement hazard, or both.

Protective Barrier — See Barrier.

Protective Surfacing — Shock absorbing (i.e., impact attenuating) surfacing material in the use zone that conforms to the recommendations in §2.4 of this handbook.

Protrusion — A projection which, when tested, is found to be a hazard having the potential to cause bodily injury to a user who impacts it, or whose clothing becomes entangled on it.

Roller Slide — A slide that has a chute consisting of a series of individual rollers over which the user travels.

School-Age Children — Children 5 years of age through 12 years of age.

Slide Chute — The inclined sliding surface of a slide.

Stationary Play Equipment — Any play structure that has a fixed base and does not move.

Supervisor — Any person tasked with watching children on a playground. Supervisors may be paid professionals (e.g., childcare, elementary school or park and recreation personnel), paid seasonal workers (e.g., college or high school students), volunteers (e.g., PTA members), or unpaid caregivers (e.g., parents) of the children playing in the playground.

Toddlers — Children 6 months through 2 years of age.

Tube Slide — A slide in which the chute consists of a totally enclosed tube or tunnel.

Unitary Surfacing Material — A manufactured material used for protective surfacing in the use zone that may be rubber tiles, mats, or a combination of energy absorbing materials held in place by a binder that may be poured in place at the playground site and cures to form a unitary shock absorbing surface.

Upper Body Equipment — Equipment designed to support a child by the hands only (e.g., horizontal ladder, overhead swinging rings).

Use Zone — The surface under and around a piece of equipment onto which a child falling from or exiting from the equipment would be expected to land. These areas are also designated for unrestricted circulation around the equipment.

2. GENERAL PLAYGROUND CONSIDERATIONS

2.1 Selecting a Site

The following factors are important when selecting a site for a new playground:

Site Factor	Questions to Ask	If yes, then…Mediation
Travel patterns of children to and from the playground	Are there hazards in the way?	Clear hazards.
Nearby accessible hazards such as roads with traffic, lakes, ponds, streams, drop-offs/cliffs, etc.	Could a child inadvertently run into a nearby hazard? Could younger children easily wander off toward the hazard?	Provide a method to contain children within the playground. For example, a dense hedge or a fence. The method should allow for observation by supervisors. If fences are used, they should conform to local building codes and/or ASTM F-2049.
Sun exposure	Is sun exposure sufficient to heat exposed bare metal slides, platforms, steps, & surfacing enough to burn children?	Bare metal slides, platforms, and steps should be shaded or located out of direct sun. Provide warnings that equipment and surfacing exposed to intense sun can burn.
	Will children be exposed to the sun during the most intense part of the day?	Consider shading the playground or providing shaded areas nearby.
Slope and drainage	Will loose fill materials wash away during periods of heavy rain?	Consider proper drainage re-grading to prevent wash outs.

2.1.1 Shading considerations

According to the American Academy of Dermatology, research indicates that one in five Americans will develop some form of skin cancer during their lifetime, and five or more sunburns double the risk of developing skin cancer. Utilizing existing shade (e.g., trees), designing play structures as a means for providing shading (e.g., elevated platforms with shaded space below), or creating more shade (e.g., man-made structures) are potential ways to design a playground to help protect children's skin from the sun. When trees are used for shade, additional maintenance issues arise, such as the need for cleaning up debris and trimming limbs.

2.2 Playground Layout

There are several key factors to keep in mind when laying out a playground:

- Accessibility
- Age separation
- Conflicting activities
- Sight lines
- Signage and/or labeling
- Supervision

2.2.1 Accessibility

Special consideration should be given to providing accessible surfaces in a play area that meets the ASTM *Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment,* ASTM F1951. Equipment selection and location along with the type of protective surfacing are key components to ensuring the opportunity for children with disabilities to play on the playground.

2.2.2 Age separation

For playgrounds intended to serve children of all ages, the layout of pathways and the landscaping of the playground should show the distinct areas for the different age groups. The areas should be separated at least by a buffer zone, which could be an area with shrubs or benches. This separation and buffer zone will reduce the chance of injury from older, more active children running through areas filled with younger children with generally slower movement and reaction times.

2.2.3 Conflicting activities

The play area should be organized into different sections to prevent injuries caused by conflicting activities and children running between activities. Active, physical activities should be separate from more passive or quiet activities. Areas for playground equipment, open fields, and sand boxes should be located in different sections of the playground. In addition, popular, heavy-use pieces of equipment or activities should be dispersed to avoid crowding in any one area.

Different types of equipment have different use zones that must be maintained. The following are general recommendations for locating equipment within the playground site. Specific use zones for equipment are given in §5.3.

- Moving equipment, such as swings and merry-go-rounds, should be located toward a corner, side, or edge of the play area while ensuring that the appropriate use zones around the equipment are maintained.
- Slide exits should be located in an uncongested area of the playground.
- Use zones for moving equipment, such as swings and merry-go-rounds, and slide exits should not overlap the use zone of other equipment, regardless of height.
  - One exemption is for moving equipment where the diameter of the platform is less than 20 inches and the designated play surface of the adjacent equipment is less than 30 inches.

Composite play structures have become increasingly popular on public playgrounds. Adjacent components on composite structures should be complementary.

2.2.4 Sight lines

Playgrounds that are designed, installed, and maintained in accordance with safety guidelines and standards can still present hazards to children. Playgrounds should be laid out to allow parents or caregivers to keep track of children as they move throughout the playground environment. Visual barriers should be minimized as much as possible. For example, in a park situation, playground equipment should be as visible as possible from park benches. In playgrounds with areas for different ages, the older children's area should be visible from the younger children's area to ensure that caregivers of multiple children can see older children while they are engaged in interactive play with younger ones.

2.2.5 Signage and/or labeling

Although the intended user group should be obvious from the design and scale of equipment, signs and/or labels posted in the playground area or on the equipment should give some guidance to supervisors as to the age appropriateness of the equipment.

2.2.6 Supervision

The quality of the supervision depends on the quality of the supervisor's knowledge of safe play behavior. Playground designers should be aware of the type of supervision most likely for their given playground. Depending on the location and nature of the playground, the supervisors may be paid professionals (e.g., childcare, elementary school or park and recreation personnel), paid seasonal workers (e.g., college or high school students), volunteers (e.g., PTA members), or unpaid caregivers (e.g., parents) of the children playing in the playground.

Parents and playground supervisors should be aware that not all playground equipment is appropriate for all children who may use the playground. Supervisors should look for posted signs indicating the appropriate age of the users and direct children to equipment appropriate for their age. Supervisors may also use the information in Table 1 to determine the suitability of the equipment for the children they are supervising. Toddlers and preschool-age children require more

attentive supervision than older children; however, one should not rely on supervision alone to prevent injuries.

Supervisors should understand the basics of playground safety such as:

- Checking for broken equipment and making sure children don't play on it.
- Checking for and removing unsafe modifications, especially ropes tied to equipment, before letting children play.
- Checking for properly maintained protective surfacing.
- Making sure children are wearing foot wear.
- Watching and stopping dangerous horseplay, such as children throwing protective surfacing materials, jumping from heights, etc.
- Watching for and stopping children from wandering away from the play area.

2.3 Selecting Equipment

When selecting playground equipment, it is important to know the age range of the children who will be using the playground. Children at different ages and stages of development have different needs and abilities. Playgrounds should be designed to stimulate children and encourage them to develop new skills, but should be in scale with their sizes, abilities, and developmental levels. Consideration should also be given to providing play equipment that is accessible to children with disabilities and encourages integration within the playground.

Table 1 shows the appropriate age range for various pieces of playground equipment. This is not an all-comprehensive list and, therefore, should not limit inclusion of current or newly designed equipment that is not specifically mentioned. For equipment listed in more than one group, there may be some modifications or restrictions based on age, so consult the specific recommendations in §5.3.

TABLE 1. AGE APPROPRIATE EQUIPMENT

Toddler —Under 2

- Climbing equipment under 32" high
- Ramps
- Single file step ladders
- Slides*
- Spiral slides less than 360°
- Spring rockers
- Stairways
- Swings with full bucket seats

* See §5.3.6

Preschool — Ages 2-5

- Certain climbers**
- Horizontal ladders less than or equal to 60" high for ages 4 and 5
- Merry-go-rounds
- Ramps
- Rung ladders
- Single file step ladders
- Slides*
- Spiral slides up to 360°
- Spring rockers
- Stairways
- Swings – belt, full bucket seats (2-4 years) & rotating tire

** See §5.3.2

Grade School — Ages 5-12

- Arch climbers
- Chain or cable walks
- Free standing climbing events with flexible parts
- Fulcrum seesaws
- Ladders – Horizontal, Rung, & Step
- Overhead rings***
- Merry-go-rounds
- Ramps
- Ring treks
- Slides*
- Spiral slides more than one 360° turn
- Stairways
- Swings – belt & rotating tire
- Track rides
- Vertical sliding poles

*** See §5.3.2.5

2.3.1 Equipment not recommended

Some playground equipment is not recommended for use on public playgrounds, including:

- Trampolines
- Swinging gates
- Giant strides
- Climbing ropes that are not secured at both ends.
- Heavy metal swings (e.g., animal figures) – These are not recommended because their heavy rigid metal framework presents a risk of impact injury.
- Multiple occupancy swings – With the exception of tire swings, swings that are intended for more than one user are not recommended because their greater mass, as compared to single occupancy swings, presents a risk of impact injury.
- Rope swings – Free-swinging ropes that may fray or otherwise form a loop are not recommended because they present a potential strangulation hazard.
- Swinging dual exercise rings and trapeze bars – These are rings and trapeze bars on long chains that are generally considered to be items of athletic equipment and are not recommended for public playgrounds. *NOTE: The recommendation against the use of exercise rings does not apply to overhead hanging rings such as those used in a ring trek or ring ladder (see Figure 7).*

2.4 Surfacing

The surfacing under and around playground equipment is one of the most important factors in reducing the likelihood of life-threatening head injuries. A fall onto a shock absorbing surface is less likely to cause a serious head injury than a fall onto a hard surface. However, some injuries from falls, including broken limbs, may occur no matter what playground surfacing material is used.

The most widely used test method for evaluating the shock absorbing properties of a playground surfacing material is to drop an instrumented metal headform onto a sample of the material and record the acceleration/time pulse during the impact. Field and laboratory test methods are described in ASTM F1292 *Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.*

Testing using the methods described in ASTM F1292 will provide a "critical height" rating of the surface. This height can be considered as an approximation of the fall height below which a life-threatening head injury would not be expected to occur. Manufacturers and installers of playground protective surfacing should provide the critical height rating of their materials. This rating should be greater than or equal to the fall height of the highest piece of equipment on the playground. The fall height of a piece of equipment is the distance between the highest designated play surface on a piece of equipment and the protective surface beneath it. Details for determining the highest designated play surface and fall height on some types of equipment are included in §5 Parts of the Playground.

2.4.1 Equipment not covered by protective surfacing recommendations

The recommendations for protective surfacing do not apply to equipment that requires a child to be standing or sitting *at ground level.* Examples of such equipment are:

- Sand boxes
- Activity walls at ground level
- Play houses
- Any other equipment that children use when their feet remain in contact with the ground surface

2.4.2 Selecting a surfacing material

There are two options available for surfacing public playgrounds: unitary and loose-fill materials. A playground should never be installed without protective surfacing of some type. Concrete, asphalt, or other hard surfaces should never be directly under playground equipment. Grass and dirt are not considered protective surfacing because wear and environmental factors can reduce their shock absorbing effectiveness. Carpeting and mats are also not appropriate unless they are tested to and comply with ASTM F1292. Loose-fill should be avoided for playgrounds intended for toddlers.

Appropriate Surfacing

- Any material tested to ASTM F1292, including unitary surfaces, engineered wood fiber, etc.
- Pea gravel
- Sand
- Shredded/recycled rubber mulch
- Wood mulch (not CCA-treated)
- Wood chips

Inappropriate Surfacing

- Asphalt
- Carpet not tested to ASTM F1292
- Concrete
- Dirt
- Grass
- CCA treated wood mulch

2.4.2.1 Unitary surfacing materials

Unitary materials are generally rubber mats and tiles or a combination of energy-absorbing materials held in place by a binder that may be poured in place at the playground site and then cured to form a unitary shock absorbing surface. Unitary materials are available from a number of different manufacturers, many of whom have a range of materials with differing shock absorbing properties. New surfacing materials, such as bonded wood fiber and combinations of loose-fill and unitary, are being developed that may also be tested to ASTM F1292 and fall into the unitary materials category. When deciding on the best surfacing materials keep in mind that some dark colored surfacing materials exposed to the intense sun have caused blistering on bare feet. Check with the manufacturer if light colored materials are available or provide shading to reduce direct sun exposure.

Persons wishing to install a unitary material as a playground surface should request ASTM F1292 test data from the manufacturer identifying the critical height rating of the desired surface. In addition, site requirements should be obtained from the manufacturer because some unitary materials require installation over a hard surface while others do not. Manufacturer's instructions should be followed closely, as some unitary systems require professional installation. Testing should be conducted in accordance with the ASTM F1292 standard.

2.4.2.2 Loose-fill surfacing materials

Engineered wood fiber (EWF) is a wood product that may look similar in appearance to landscaping mulch, but EWF products are designed specifically for use as a playground safety surface under and around playground equipment. EWF products should meet the specifications in ASTM F2075: *Standard Specification for Engineered Wood Fiber* and be tested to and comply with ASTM F1292.

There are also rubber mulch products that are designed specifically for use as playground surfacing. Make sure they have been tested to and comply with ASTM F1292.

When installing these products, tips 1-7 listed below should be followed. Each manufacturer of engineered wood fiber and rubber mulch should provide maintenance requirements for and test data on:

- Critical height based on ASTM F1292 impact attenuation testing.
- Minimum fill-depth data.
- Toxicity.
- ADA/ABA accessibility guidelines for firmness and stability based on ASTM F1951.

Other loose-fill materials are generally landscaping-type materials that can be layered to a certain depth and resist compacting. Some examples include wood mulch, wood chips, sand, pea gravel, and shredded/recycled rubber mulch.

Important tips when considering loose-fill materials:

1. Loose-fill materials will compress at least 25% over time due to use and weathering. This must be considered when planning the playground. For example, if the playground will require 9 inches of wood chips, then the initial fill level should be 12 inches. See Table 2 below.
2. Loose-fill surfacing requires frequent maintenance to ensure surfacing levels never drop below the minimum depth. Areas under swings and at slide exits are more susceptible to displacement; special attention must be paid to maintenance in these areas. Additionally, wear mats can be installed in these areas to reduce displacement.
3. The perimeter of the playground should provide a method of containing the loose-fill materials.
4. Consider marking equipment supports with a minimum fill level to aid in maintaining the original depth of material.
5. Good drainage is essential to maintaining loose-fill surfacing. Standing water with surfacing material reduces effectiveness and leads to material compaction and decomposition.
6. Critical height may be reduced during winter in areas where the ground freezes.
7. Never use less than 9 inches of loose-fill material. Shallower depths are too easily displaced and compacted.
8. Some loose-fill materials may not meet ADA/ABA accessibility guidelines. For more information, contact the Access Board (see §1.6) or refer to ASTM F1951.
9. Wood mulch containing chromated copper arsenate (CCA)-treated wood products should not be used; mulch where the CCA-content is unknown should be avoided (see §2.5.5.1).

Table 2 shows the minimum required depths of loose-fill material needed based on material type and fall height. The depths shown assume the materials have been compressed due to use and weathering and are properly maintained to the given level.

2.4.2.3 Installing loose-fill over hard surface

CPSC staff strongly recommends against installing playgrounds over hard surfaces, such as asphalt, concrete, or hard packed earth, unless the installation adds the following layers of protection. Immediately over the hard surface there should be a 3- to 6-inch base layer of loose-fill (e.g., gravel for drainage). The next layer should be a Geotextile cloth. On top of that should be a loose-fill layer meeting the specifications addressed in §2.4.2.2 and Table 2. Embedded in the loose-fill layer should be impact attenuating mats under high traffic areas, such as under swings, at slide exits, and other places where displacement is likely. Figure 1 provides a visual representation of this information. Older playgrounds that still exist on hard surfacing should be modified to provide appropriate surfacing.

Table 2. Minimum compressed loose-fill surfacing depths

Inches	Of	(Loose-Fill Material)	Protects to	Fall Height (feet)
9		Shredded/recycled rubber		10
9		Sand		4
9		Pea Gravel		5
9		Wood mulch (non-CCA)		7
9		Wood chips		10

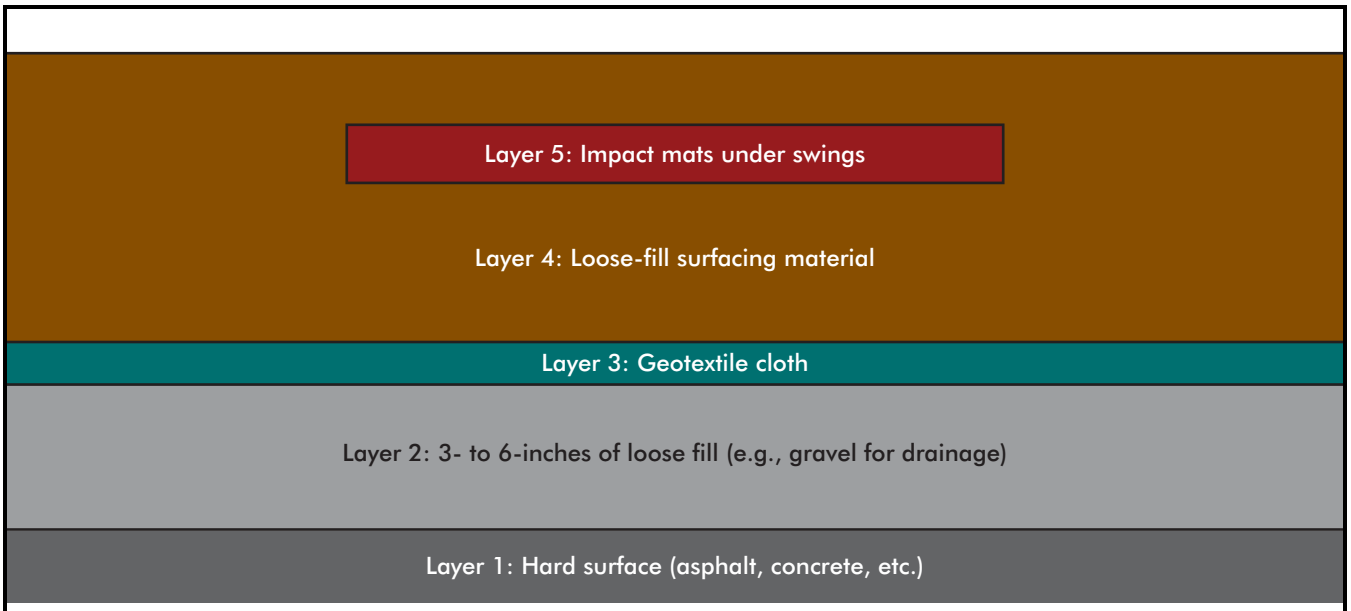


Figure 1. Installation layers for loose-fill over a hard surface

2.5 Equipment Materials

2.5.1 Durability and finish

- Use equipment that is manufactured and constructed only of materials that have a demonstrated record of durability in a playground or similar setting.
- Finishes, treatments, and preservatives should be selected carefully so that they do not present a health hazard to users.

2.5.2 Hardware

When installed and maintained in accordance with the manufacturer's instructions:

- All fasteners, connectors, and covering devices should not loosen or be removable without the use of tools.
- All fasteners, connectors, and covering devices that are exposed to the user should be smooth and should not be likely to cause laceration, penetration, or present a clothing entanglement hazard (see also §3.2 and Appendix B).
- Lock washers, self-locking nuts, or other locking means should be provided for all nuts and bolts to protect them from detachment.
- Hardware in moving joints should also be secured against unintentional or unauthorized loosening.
- All fasteners should be corrosion resistant and be selected to minimize corrosion of the materials they connect. This is particularly important when using wood treated with ACQ/CBA/CA-B[2] as the chemicals in the wood preservative corrode certain metals faster than others.
- Bearings or bushings used in moving joints should be easy to lubricate or be self-lubricating.
- All hooks, such as S-hooks and C-hooks, should be closed (see also §5.3.8.1). A hook is considered closed if there is no gap or space greater than 0.04 inches, about the thickness of a dime.

2.5.3 Metals

- Avoid using bare metal for platforms, slides, or steps. When exposed to direct sunlight they may reach temperatures high enough to cause serious contact burn injuries in a matter of seconds. Use other materials that may reduce the surface temperature, such as but not limited to wood, plastic, or coated metal (see also Slides in §5.3.6).
- If bare or painted metal surfaces are used on platforms, steps, and slide beds, they should be oriented so that the surface is not exposed to direct sun year round.

[2] Ammoniacal copper quat (ACQ), copper boron azole (CBA), copper azole type B (CA-B), etc.

2.5.4 Paints and finishes

- Metals not inherently corrosion resistant should be painted, galvanized, or otherwise treated to prevent rust.
- The manufacturer should ensure that the users cannot ingest, inhale, or absorb potentially hazardous amounts of preservative chemicals or other treatments applied to the equipment as a result of contact with playground equipment.
- All paints and other similar finishes must meet the current CPSC regulation for lead in paint (0.06% [600ppm] maximum lead by dry weight).[3]
- Painted surfaces should be maintained to prevent corrosion and deterioration.
- Paint and other finishes should be maintained to prevent rusting of exposed metals and to minimize children playing with peeling paint and paint flakes.
- Older playgrounds with lead based paints should be identified and a strategy to control lead paint exposure should be developed. Playground managers should consult the October 1996 report, CPSC Staff Recommendations for Identifying and Controlling Lead Paint on Public Playground Equipment.[4]

2.5.5 Wood

- Wood should be either naturally rot- and insect-resistant (e.g., cedar or redwood) or should be treated to avoid such deterioration.
- Creosote-treated wood and coatings that contain pesticides should not be used.

2.5.5.1 Pressure-treated wood

A significant amount of older playground wood was pressure-treated with chemicals to prevent damage from insects and fungi. Chromated copper arsenate (CCA) was a chemical used for decades in structures (including playgrounds). Since December 31, 2003, CCA-treated wood is no longer processed for use in playground applications. Other rot- and insect-resistant pressure treatments are available that do not contain arsenic; however, when using any of the new treated wood products, be sure to use hardware that is compatible with the wood treatment chemicals. These chemicals are known to corrode certain materials faster than others.

Existing playgrounds with CCA-treated wood

Various groups have made suggestions concerning the application of surface coatings to CCA-treated wood (e.g., stains and sealants) to reduce a child's potential exposure to arsenic from the wood surface. Data from CPSC staff and EPA studies suggest that regular (at least once a year) use of an oil- or water-based, penetrating sealant or stain can reduce arsenic migration from CCA-treated wood. Installers, builders, and consumers who perform woodworking operations, such as sanding, sawing, or sawdust disposal, on pressure-treated wood should read the consumer information sheet available at the point of sale. This sheet contains important health precautions and disposal information.

When selecting wood products and finishes for public playgrounds, CPSC staff recommends:

- Avoid "film-forming" or non-penetrating stains (latex semi-transparent, latex opaque and oil-based opaque stains) on outdoor surfaces because peeling and flaking may occur later, which will ultimately have an impact on durability as well as exposure to the preservatives in the wood.
- Creosote, pentachlorophenol, and tributyl tin oxide are too toxic or irritating and should not be used as preservatives for playground equipment wood.
- Pesticide-containing finishes should not be used.
- CCA-treated wood should not be used as playground mulch.

2.6 Assembly and Installation

- Strictly follow *all* instructions from the manufacturer when assembling and installing equipment.
- After assembly and before its first use, equipment should be thoroughly inspected by a person qualified to inspect playgrounds for safety.
- The manufacturer's assembly and installation instructions, and all other materials collected concerning the equipment, should be kept in a permanent file.
- Secure anchoring is a key factor to stable installation, and the anchoring process should be completed in *strict* accordance with the manufacturer's specifications.

[3] Title 16, Code of Federal Regulations, Part 1303; Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint; Superintendent of Documents, U.S. Government Printing Office: Washington, DC.

[4] CPSC Staff Recommendations for Identifying and Controlling Lead Paint on Public Playground Equipment; U.S. Consumer Product Safety Commission: Washington, DC, October 1996.

3. PLAYGROUND HAZARDS

This section provides a broad overview of general hazards that should be avoided on playgrounds. It is intended to raise awareness of the risks posed by each of these hazards. Many of these hazards have technical specifications and tests for compliance with ASTM F1487 and F2373. Some of these tests are also detailed in Appendix B.

3.1 Crush and Shearing Points

Anything that could crush or shear limbs should not be accessible to children on a playground. Crush and shear points can be caused by parts moving relative to each other or to a fixed part during a normal use cycle, such as a seesaw.

To determine if there is a possible crush or shear point, consider:

- The likelihood a child could get a body part inside the point, and
- The closing force around the point.

Potential crush/shear hazards specific to certain pieces of equipment are identified in §5.3 Major Types of Playground Equipment.

3.2 Entanglement and Impalement

Projections on playground equipment should not be able to entangle children's clothing nor should they be large enough to impale. To avoid this risk:

- The diameter of a projection should not increase in the direction away from the surrounding surface toward the exposed end (see Figure 2).
- Bolts should not expose more than two threads beyond the end of the nut (see Figure 3).
- All hooks, such as S-hooks and C-hooks, should be closed (see also §5.3.8.1). A hook is considered closed if there is no gap or space greater than 0.04 inches, about the thickness of a dime.
  - Any connecting device containing an in-fill that completely fills the interior space preventing entry of clothing items into the interior of the device is exempt from this requirement.
- Swings and slides have additional recommendations for projections detailed in §5.3.
- See Appendix B for testing recommendations.

3.2.1 Strings and ropes

Drawstrings on the hoods of jackets, sweatshirts, and other upper body clothing can become entangled in playground equipment, and can cause death by strangulation. To avoid this risk:

- Children should not wear jewelry, jackets or sweatshirts with drawstring hoods, mittens connected by strings through the arms, or other upper body clothing with drawstrings.
- Remove any ropes, dog leashes, or similar objects that have been attached to playground equipment. Children can become entangled in them and strangle to death.

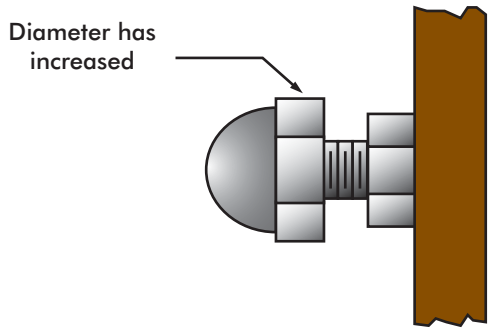


Figure 2. Example of a hazardous protrusion that increases in diameter from plane of initial surface and forms an entanglement hazard and may also be an impalement hazard.

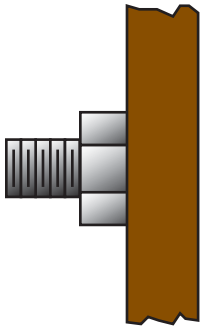
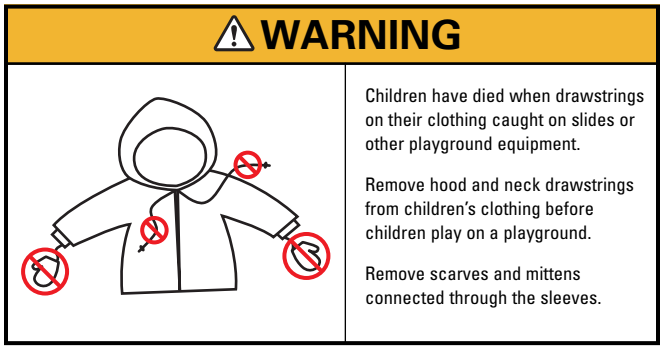


Figure 3. Example of a hazardous protrusion that extends more than 2 threads beyond the nut and forms an impalement/laceration hazard and may also be an entanglement hazard.

- Avoid equipment with ropes that are not secured at both ends.
- The following label can be placed near/on slides or other equipment where potential entanglements may occur.



3.3 Entrapment

3.3.1 Head entrapment

Head entrapment is a serious concern on playgrounds, since it could lead to strangulation and death. A child's head may become entrapped if the child enters an opening either feet first or head first. Head entrapment by head-first entry generally occurs when children place their heads through an opening in one orientation, turn their heads to a different orientation, then are unable to get themselves out. Head entrapment by feet first entry involves children who generally sit or lie down and slide their feet into an opening that is large enough to permit their bodies to go through but is not large enough to permit their heads to go through. A part or a group of parts should not form openings that could trap a child's head. Also, children should not wear their bicycle helmets while on playground equipment. There have been recent head entrapment incidents in which children wearing their bicycle helmets became entrapped in spaces that would not normally be considered a head entrapment.

Certain openings could present an entrapment hazard if the distance between any interior opposing surfaces is greater than 3.5 inches and less than 9 inches. These spaces should be tested as recommended in Appendix B. When one dimension of an opening is within this range, all dimensions of the opening should be considered together to evaluate the possibility of entrapment. Even openings that are low enough for children's feet to touch the ground can present a risk of strangulation for an entrapped child. (See Figure 4). Younger children may not have the necessary intellectual ability or motor skills to reverse the process that caused their heads to become trapped, especially if they become scared or panicked.

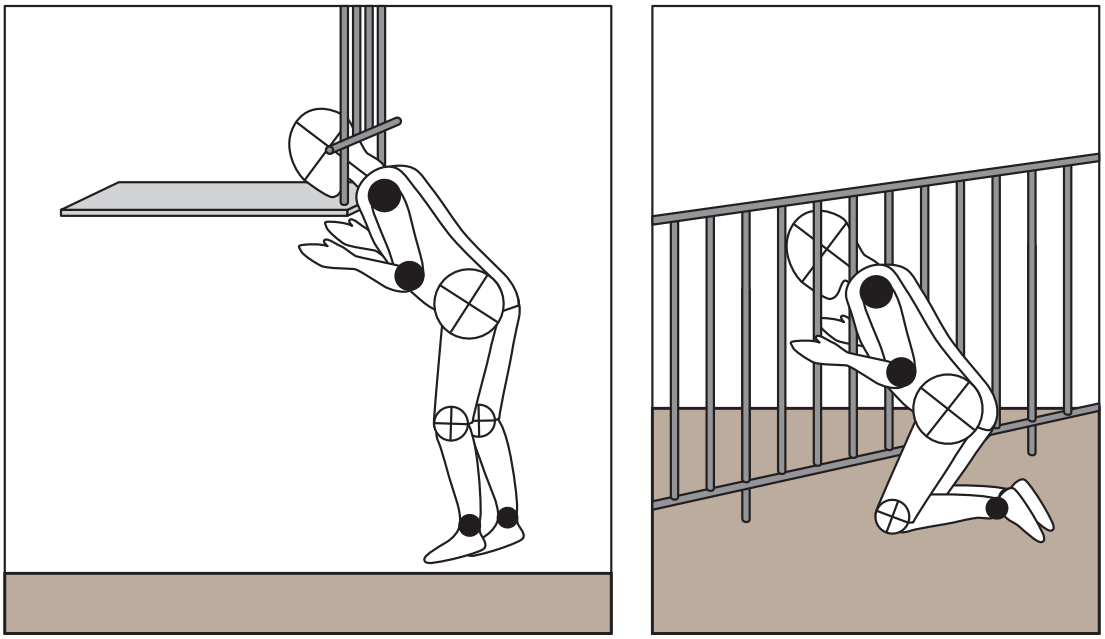


Figure 4. Examples of entrapment below a barrier and between the vertical bars of a barrier.

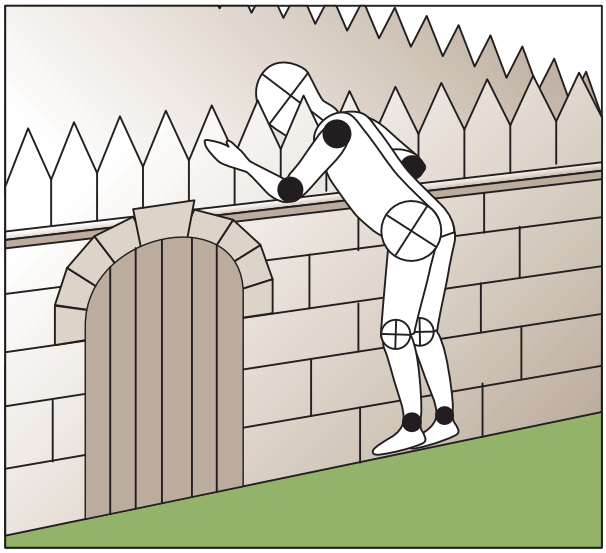


Figure 5. Example of entrapment in an angle less than 55 degrees on a fort.

3.3.2 Angles

Children can become entrapped by angles formed between two sides of playground parts.

- Angles should be greater than 55 degrees, unless one side is horizontal or below horizontal.
- See Figure 5.
- See Appendix B for testing recommendations.

3.4 Sharp Points, Corners, and Edges

Sharp points, corners, or edges on any part of the playground or playground equipment may cut or puncture a child's skin. Sharp edges can cause serious lacerations if protective measures are not taken. To avoid the risk of injury from sharp points, corners and edges:

- Exposed open ends of all tubing not resting on the ground or otherwise covered should be covered by caps or plugs that cannot be removed without the use of tools.
- Wood parts should be smooth and free from splinters.
- All corners, metal and wood, should be rounded.
- All metal edges should be rolled or have rounded capping.
- There should be no sharp edges on slides. Pay special attention to metal edges of slides along the sides and at the exit (see also §5.3.6.4).
- If steel-belted radials are used as playground equipment, they should be closely examined regularly to ensure that there are no exposed steel belts/wires.
- Conduct frequent inspections to help prevent injuries caused by splintered wood, sharp points, corners, or edges that may develop as a result of wear and tear on the equipment.

3.5 Suspended Hazards

Children using a playground may be injured if they run into suspended components (such as cables, wires, ropes, or other flexible parts) hanging from one piece of the playground equipment to another or to the ground. Cables, wires, ropes, or similar flexible parts suspended between play units or from the ground to a play unit that are within 45 degrees of horizontal are considered suspended hazards. Recommendations for avoiding these hazards are:

- Suspended components should not be located in high traffic areas.
- Suspended components should either be brightly colored or contrast with surrounding equipment for added visibility.
- Except for swings, any rope, cable, or chain longer than 7 inches should be fastened at both ends and should not be able to be looped back on itself to create a circle with a 5 inch or greater perimeter.

These recommendations do not apply if the suspended component is more than 7 feet above the protective surfacing and is a minimum of one inch at its widest cross-section dimension.

3.6 Tripping Hazards

Play areas should be free of tripping hazards (i.e., sudden change in elevations) to children who are using a playground. The two most common trip hazards are anchoring devices for playground equipment and containment walls for loose-fill surfacing materials.

- All anchoring devices for playground equipment, such as concrete footings or horizontal bars at the bottom of flexible climbers, should be installed below ground level and beneath the base of the protective surfacing material. This will also prevent children from sustaining additional injuries from impact if they fall on exposed footings.
- Contrasting the color of the surfacing with the equipment color can contribute to better visibility.

- Surfacing containment walls should be highly visible.
- Any change of elevation should be obvious.
- Contrasting the color of the containment barrier with the surfacing color can contribute to better visibility.

3.7 Used Tires

Used automobile and truck tires are often recycled as playground equipment, such as tire swings or flexible climbers, or as a safety product such as cushioning under a seesaw or shredded as protective surfacing. When recycling tires for playground use:

- Steel-belted radials should be closely examined regularly to ensure that there are no exposed steel belts/wires.
- Care should be taken so that the tire does not collect water and debris; for example, providing drainage holes on the underside of the tire would reduce water collection.
- Recycled tire rubber mulch products should be inspected before installation to ensure that all metal has been removed.

In some situations, plastic materials can be used as an alternative to simulate actual automobile tires.

4. MAINTAINING A PLAYGROUND

Inadequate maintenance of equipment has resulted in injuries on playgrounds. Because the safety of playground equipment and its suitability for use depend on good inspection and maintenance, the manufacturer's maintenance instructions and recommended inspection schedules should be strictly followed. If manufacturer's recommendations are not available, a maintenance schedule should be developed based on actual or anticipated playground use. Frequently used playgrounds will require more frequent inspections and maintenance.

4.1 Maintenance Inspections

A comprehensive maintenance program should be developed for each playground. All playground areas and equipment should be inspected for excessive wear, deterioration, and any potential hazards, such as those shown in Table 3. One possible procedure is the use of checklists. Some manufacturers supply checklists for general or detailed inspections with their maintenance instructions. These can be used to ensure that inspections are in compliance with the manufacturer's specifications. If manufacturer-provided inspection guidelines are not available, a general checklist that may be used as a guide for frequent routine inspections of public playgrounds is included at Appendix A. This is intended to address only general maintenance concerns. Detailed inspections should give special attention to moving parts and other parts that can be expected to wear. Maintenance inspections should be carried out in a systematic manner by personnel familiar with the playground, such as maintenance workers, playground supervisors, etc.

4.2 Repairs

Inspections alone do not constitute a comprehensive maintenance program. Any problems found during the inspection should be noted and fixed as soon as possible.

- All repairs and replacements of equipment parts should be completed following the manufacturer's instructions.
- User modifications, such as loose-ended ropes tied to elevated parts, should be removed immediately.
- For each piece of equipment, the frequency of thorough inspections will depend on the type and age of equipment, the amount of use, and the local climate.

Table 3. Routine inspection and maintenance issues

- ☐ Broken equipment such as loose bolts, missing end caps, cracks, etc.
- ☐ Broken glass & other trash
- ☐ Cracks in plastics
- ☐ Loose anchoring
- ☐ Hazardous or dangerous debris
- ☐ Insect damage
- ☐ Problems with surfacing
- ☐ Displaced loose-fill surfacing (see Section 4.3)
- ☐ Holes, flakes, and/or buckling of unitary surfacing
- ☐ User modifications (such as ropes tied to parts or equipment rearranged)
- ☐ Vandalism
- ☐ Worn, loose, damaged, or missing parts
- ☐ Wood splitting
- ☐ Rusted or corroded metals
- ☐ Rot

- Consult the manufacturer for maintenance schedules for each piece of equipment. Based on these schedules, a maintenance schedule for the entire playground can be created. This routine maintenance schedule should not replace regular inspections.

4.3 Maintaining Loose-Fill Surfacing

Loose-fill surfacing materials require special maintenance. High-use public playgrounds, such as child care centers and schools, should be checked frequently to ensure surfacing has not displaced significantly, particularly in areas of the playground most subject to displacement (e.g., under swings and slide exits). This can be facilitated by marking ideal surfacing depths on equipment posts. Displaced loose-fill surfacing should be raked back into proper place so that a constant depth is maintained throughout the playground. Impact attenuating mats placed in high traffic areas, such as under swings and at slide exits, can significantly reduce

displacement. They should be installed below or level with surfacing so as not to be a tripping hazard.

The following are key points to look for during regular checks of surfacing:

- Areas under swings and at slide exits. Activity in these areas tends to displace surfacing quickly. Rake loose-fill back into place.
- Pooling water on mulch surfacing. For example, wet mulch compacts faster than dry, fluffy mulch. If puddles are noticed regularly, consider addressing larger drainage issues.
- Frozen surfacing. Most loose-fill surfacing that freezes solid no longer functions as protective surfacing. Even if the first few inches may be loose, the base layer may be frozen and the impact attenuation of the surfacing may be significantly reduced. It is recommended that children not play on the equipment under these conditions.

4.4 Recordkeeping

Records of all maintenance inspections and repairs should be retained, including the manufacturer's maintenance instructions and any checklists used. When any inspection is performed, the person performing it should sign and date the form used. A record of any accident and injury reported to have occurred on the playground should also be retained. This will help identify potential hazards or dangerous design features that should be corrected.

5. PARTS OF THE PLAYGROUND

5.1 Platforms, Guardrails and Protective Barriers

5.1.1 Platforms

- Platforms should be generally flat (i.e., within ± 2° of horizontal).
- Openings in platforms should be provided to allow for drainage.
- Platforms should minimize the collection of debris.
- Platforms intended for toddlers should be no more than 32 inches from the ground.

5.1.2 Stepped platforms

On some composite structures, platforms are layered or tiered so that a child may access the higher platform without steps or ladders. Unless there is an alternate means of access/egress, the maximum difference in height between stepped platforms should be:

- Toddlers: 7 inches.
- Preschool-age: 12 inches.
- School-age: 18 inches.

An access component (such as a rung) is needed if the difference in height is more than 12 inches for preschool-age and 18 inches for school-age children.

The space between the stepped platforms should follow the recommendations to minimize entrapment hazards in enclosed openings:

- Toddlers: if the space is less than 7 inches, infill should be used to reduce the space to less than 3.0 inches.
- Preschool-age: if the space exceeds 9 inches and the height of the lower platform above the protective surfacing exceeds 30 inches, infill should be used to reduce the space to less than 3.5 inches.
- School-age: if the space exceeds 9 inches and the height of the lower platform above the protective surfacing exceeds 48 inches, infill should be used to reduce the space to less than 3.5 inches.

5.1.2.1 Fall height

- The fall height of a platform is the distance between the top of the platform and the protective surfacing beneath it.

5.1.3 Guardrails and protective barriers

Guardrails and protective barriers are used to minimize the likelihood of accidental falls from elevated platforms. Protective barriers provide greater protection than guardrails and should be designed to discourage children from climbing over or through the barrier. Guardrails and barriers should:

- Completely surround any elevated platforms (except for a maximum clearance opening of 15 inches needed to access the play equipment).
- Prevent unintentional falls from the platform.
- Prevent the possibility of entrapment.
- Facilitate supervision.

For example:

- Guardrails may have a horizontal top rail with infill consisting of vertical bars having openings that are greater than 9 inches. These openings do not present an entrapment hazard but do not prevent a child from climbing through the openings.
- A barrier should minimize the likelihood of passage of a child during deliberate attempts to defeat the barrier. Any openings between uprights or between the platform surface and lower edge of a protective barrier should prevent passage of the small torso template (see test in B.2.5).

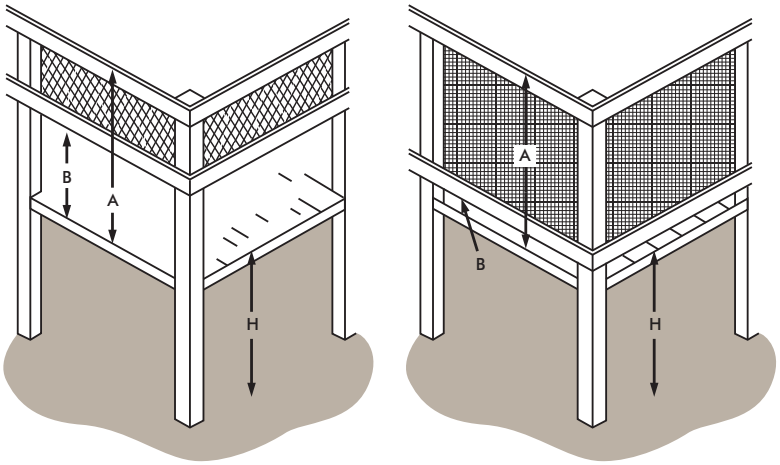
Guardrails or protective barriers should be provided on elevated platforms, walkways, landings, and transitional surfaces. In general, the younger the child, the less coordination and balance they have, therefore the more vulnerable they are to unintentional falls. Toddlers are the most vulnerable, and equipment intended for this age should use barriers on all elevated walking surfaces above 18 inches. Physical skills develop further in preschool-age children and then more with school-age children; therefore, minimum elevation recommendations for guardrails and barriers increase with each age group.

Guardrails and barriers should be high enough to prevent the tallest children from falling over the top. For guardrails, the lower edge should be low enough so that the smallest children cannot walk under it. Barriers should be low enough to prevent the smallest child from getting under the barrier in any way. This is generally done by designing the barrier so that the small torso probe (see test methods in Appendix B) cannot pass under or through the barrier. Vertical infill for protective barriers may be preferable for younger children because the vertical components can be grasped at whatever height a child chooses as a handhold.

Guardrail and barrier recommendations are shown in Table 4. However, the recommendations do not apply if the guardrail or barrier would interfere with the intended use of the equipment, such as:

- Climbing equipment
- Platforms layered so that the fall height is:
  - Toddlers: 7 inches or less.
  - Preschool-age: 20 inches or less.
  - School-age: 30 inches or less.

Table 4. Guardrails and Barriers



	Guardrail	Barrier
Protects against accidental falls from platform	Yes	Yes
Discourages climbing over	No	Yes
Protects against climbing through	No	Yes
Toddlers		
A Top edge distance from platform	Not recommended	A = 24″ or higher
B Bottom edge distance from platform	Not recommended	B < 3″
H Recommended when platform fall height is:	Not recommended	H = 18″ or higher
Preschool-age		
A Top edge distance from platform	A = 29″ or higher	A = 29″ or higher
B Bottom edge distance from platform	9″ < B ≤ 23″	B < 3.5″
H Recommended when platform fall height is:	20″ < H ≤ 30″	H > 30″
School-age		
A Top edge distance from platform	A = 38″ or higher	A = 38″ or higher
B Bottom edge distance from platform	9″ < B ≤ 28″	B < 3.5″
H Recommended when platform fall height is:	30″ < H ≤ 48″	H > 48″

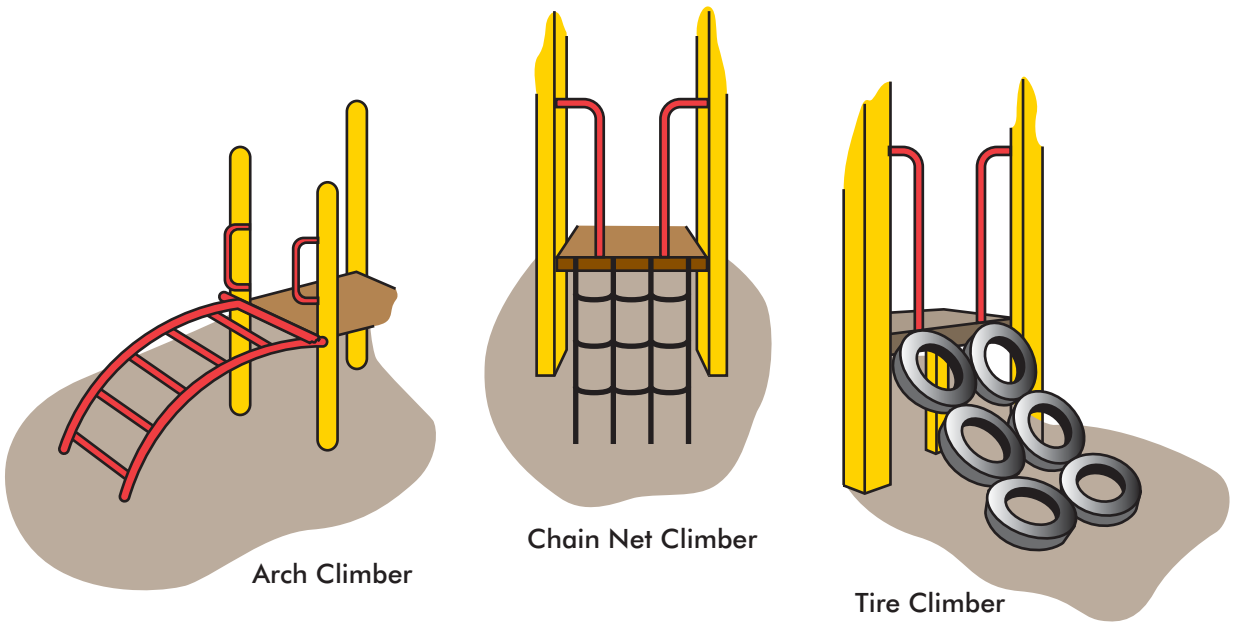


Figure 6. Examples of More Challenging Modes of Access

5.2 Access Methods to Play Equipment

Access to playground equipment can take many forms, such as conventional ramps, stairways with steps, and ladders with steps or rungs. Access may also be by means of climbing components, such as arch climbers, climbing nets, and tire climbers (see Figure 6).

As children develop, they gain better balance and coordination, so it is important to pick appropriate access methods based on the age group. Table 5 shows the most common methods of access and the youngest appropriate age group.

Access to platforms over 6 feet high (except for free-standing slides) should provide an intermediate standing surface so that the child can pause and make a decision to keep going up or find another way down. Children generally master access before egress, that is, they can go up before they can get back down a difficult component. Therefore, if there are more difficult access methods, it is important to have easier components for egress.

Table 5. Methods of access and egress

Method of Access	Challenge Level	Appropriate for
Ramps	Easiest	Toddlers +
Straight stairways	Easy	Toddlers +
Spiral stairways	Moderate	Toddlers* +
Step ladders	Moderate	15 months* +
Rung ladders	Moderate	Preschool* +
Arch climbers	Difficult	Preschool* +
Flexible climbers (nets, tires)	Difficult	Preschool* +

* only if an easy egress method is also provided

5.2.1 Ramps, stairways, rung ladders, and step ladders

Ramps, stairways, rung ladders, and step ladders each have different recommendations for slope and tread dimension, but the steps or rungs always should be evenly spaced - even the spacing between the top step or rung and the surface of the platform. Table 6 contains recommended dimensions for: access slope; tread or rung width; tread depth; rung diameter; and vertical rise for rung ladders, step ladders, and stairways. Table 6 also contains slope and width recommendations for ramps. However, these recommendations are not intended to address ramps designed for access by wheelchairs.

- Openings between steps or rungs and between the top step or rung and underside of a platform should prevent entrapment.
- When risers are closed, treads on stairways and ladders should prevent the accumulation of sand, water, or other materials on or between steps.
- Climbing equipment should allow children to descend as easily as they ascend. One way of implementing this recommendation is to provide an easier, alternate means of descent, such as another mode of egress, a platform, or another piece of equipment. For example, a stairway can be added to provide a less challenging mode of descent than a vertical rung ladder or flexible climbing device (see Table 5).
- For toddlers and preschool-age children, offering an easy way out is particularly important since their ability to descend climbing components develops later than their ability to climb up the same components.

Table 6. Recommended dimensions for access ladders, stairs, and ramps*

	AGE OF INTENDED USER		
Type of Access	**Toddler**	**Preschool-age**	**School-age**
Ramps (not intended to meet ADA/ABA specifications)			
Slope (vertical:horizontal)	< 1:8	≤ 1:8	≤ 1:8
Width (single)	≥ 19″	≥ 12″	≥ 16″
Width (double)	≥ 30″	≥ 30″	≥ 36″
Stairways			
Slope	≤ 35°	< 50°	< 50°
Tread width (single)	12-21″	≥ 12″	≥ 16″
Tread width (double)	≥ 30″	≥ 30″	≥ 36″
Tread depth (open riser	Not appropriate	≥ 7″	≥ 8″
Tread depth (closed riser)	≥ 8″	≥ 7″	≥ 8″
Vertical rise	≥ 7″	≥ 9″	≤ 12″
Step ladders			
Slope	35≤65°	50-75°	50-75°
Tread width (single)	12-21″	12-21″	≥ 16″
Tread width (double)	Not appropriate	Not appropriate	≥ 36″
Tread depth (open riser	Not appropriate	≥ 7″	≥ 3″
Tread depth (closed riser)	8″	≥ 7″	≥ 6″
Vertical rise	> 5 ≤ 7″	≤ 9″	≤ 12″
Rung ladders			
Slope	Not appropriate	75-90°	75-90°
Rung width	Not appropriate	≥ 12″	≥ 16″
Vertical rise	Not appropriate	≤ 12″	≤ 12″
Rung diameter	Not appropriate	0.95-1.55″	0.95-1.55″

* entrapment recommendations apply to all openings in access components

5.2.2 Rungs and other hand gripping components

Unlike steps of stairways and step ladders that are primarily for foot support, rungs can be used for both foot and hand support.

- Rungs with round shapes are easiest for children to grip.
- All hand grips should be secured in a manner that prevents them from turning.
- Toddlers:
  - Handrails or other means of hand support should have a diameter between 0.60 and 1.20 inches.
  - A diameter of 0.90 inches is preferred to achieve maximal grip strength and benefit the weakest children.
- Preschool- and school-age:
  - Rungs, handrails, climbing bars, or other means of hand support intended for holding should have a diameter between 0.95 and 1.55 inches.
  - A diameter of 1.25 inches is preferred to achieve maximal grip strength and benefit the weakest children.

5.2.3 Handrails

Handrails on stairways and step ladders are intended to provide hand support and to steady the user. Continuous handrails extending over the full length of the access should be provided on both sides of all stairways and step ladders, regardless of the height of the access. Rung ladders do not require handrails since rungs or side supports provide hand support on these more steeply inclined accesses.

5.2.3.1 Handrail height

Handrails should be available for use at the appropriate height, beginning with the first step. The vertical distance between the top front edge of a step or ramp surface and the top surface of the handrail above it should be as follows:

- Toddlers: between 15 and 20 inches.
- Preschool-age: between 22 and 26 inches.
- School-age: between 22 and 38 inches.

5.2.4 Transition from access to platform

Handrails or handholds are recommended at all transition points (the point where the child must move from the access component to the play structure platform).

- The handhold should provide support from the access component until the child has fully achieved the desired posture on the platform.
- Any opening between a handrail and an adjacent vertical structure (e.g., vertical support post for a platform or vertical slat of a protective barrier) should not pose an entrapment hazard.
- Access methods that do not have handrails, such as rung ladders, flexible climbers, arch climbers, and tire climbers, should provide hand supports for the transition between the top of the access and the platform.

5.3 Major Types of Playground Equipment

5.3.1 Balance beams

- Balance beams should be no higher than:
- Toddlers: not recommended.
- Preschool-age: 12 inches.
- School-age: 16 inches.

5.3.1.1 Fall height

The fall height of a balance beam is the distance between the top of the walking surface and the protective surfacing beneath it.

5.3.2 Climbing and upper body equipment

Climbing equipment is generally designed to present a greater degree of physical challenge than other equipment on public playgrounds. This type of equipment requires the use of the hands to navigate up or across the equipment. “Climbers” refers to a wide variety of equipment, such as but not limited to:

- Arch climbers
- Dome climbers
- Flexible climbers (usually chain or net)
- Parallel bars
- Sliding poles
- Spiral climbers
- Upper body equipment (horizontal overhead ladders, overhead rings, track ride).

Simple Arch Climber

Geodesic Dome Climber

Overhead Horizontal Ladder

Overhead Hanging Rings

Figure 7. Examples of climbers

School-age children tend to use climbing and upper body equipment more frequently and more proficiently than preschool children. Young preschool children may have difficulty using some climbers because they have not yet developed some of the physical skills necessary for certain climbing activities (balance, coordination, and upper body strength). Older preschool children (i.e., 4- and 5-year-olds) are beginning to use flexible climbers, arch climbers, and upper body devices. However, playgrounds designed for children under 4 years of age should avoid arch climbers, flexible climbers, horizontal ladders, parallel bars, and other upper body components.

5.3.2.1 Design considerations

5.3.2.1.1 Layout of climbing components

When climbing components are part of a composite structure, their level of challenge and method of use should be compatible with the traffic flow from nearby components. Upper body devices should be placed so that the swinging movement generated by children on this equipment cannot interfere with the movement of children on adjacent structures, particularly children descending on slides. The design of adjacent play structures should not facilitate climbing to the top support bars of upper body equipment.

5.3.2.1.2 Fall Height

Climbers:

- The fall height for climbers is the distance between the highest part of the climbing component and the protective surfacing beneath it.
- If the climber is part of a composite structure, the fall height is the distance between the highest part of the climber intended for foot support and the protective surfacing beneath it.
  - Toddlers: The maximum fall height for free standing and composite climbing structures should be 32 inches.

Upper Body Equipment:

- The fall height of upper body equipment is the distance between the highest part of the equipment and the protective surface below.

5.3.2.1.3 Climbing rungs

Some of the access methods discussed in §5.2 are also considered climbing devices; therefore, the recommendations for the size of climbing rungs are similar.

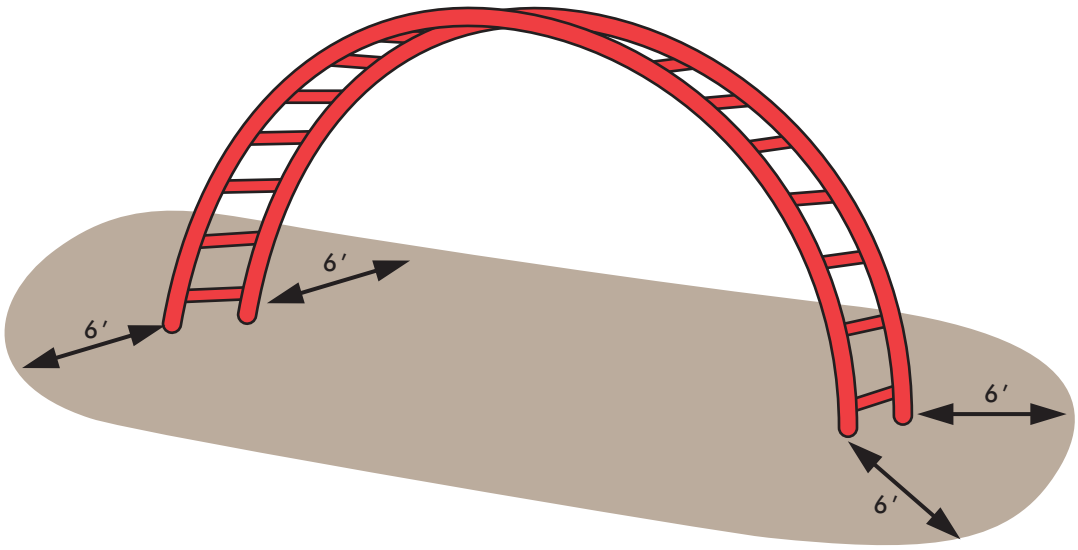


Figure 8. Use zone surrounding an arch climber

- Rungs should be generally round.
- All rungs should be secured in a manner that prevents them from turning.
- Climbing rungs should follow the same diameter recommendations as in §5.2.2.

5.3.2.1.4 Use zone

- The use zone should extend a minimum of 6 feet in all directions from the perimeter of the stand alone climber. See Figure 8.
- The use zone of a climber may overlap with neighboring equipment if the other piece of equipment allows overlapping use zones and
  - There is at least 6 feet between equipment when adjacent designated play surfaces are no more than 30 inches high; or
  - There is at least 9 feet between equipment when adjacent designated play surfaces are more than 30 inches high.

5.3.2.1.5 Other considerations

- Climbers should not have climbing bars or other rigid structural components in the interior of the climber onto which a child may fall from a height of greater than 18 inches. See Figure 9.

Figure 9: Climber with rigid structural component

5.3.2.2 Arch climbers

Arch climbers consist of rungs attached to convex side supports. They may be free standing (Figure 10) or be provided as a more challenging means of access to other equipment (Figure 11).

- Arch climbers should not be used as the sole means of access to other equipment for preschoolers.
- Free standing arch climbers are not recommended for toddlers or preschool-age children.
- The rung diameter and spacing of rungs on arch climbers should follow the recommendations for rung ladders in Table 6.

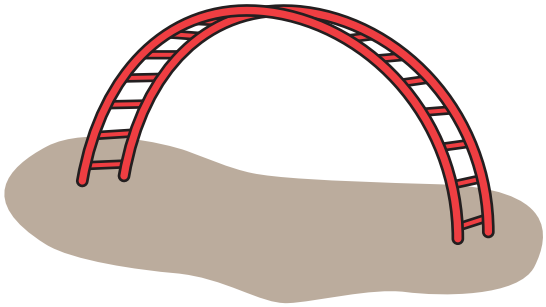


Figure 10. Freestanding arch climber

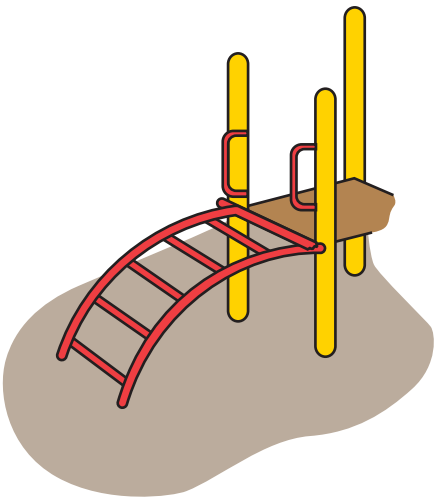


Figure 11. Arch climber access

Figure 12. Examples of two- and three-dimensional flexible climbers

5.3.2.3 Flexible climbers

Flexible climbers use a grid of ropes, chains, cables, or tires for climbing. Since the flexible parts do not provide a steady means of support, flexible climbers require more advanced balance abilities than rigid climbers.

Rope, chain, and cable generally form a net-like structure that may be either two or three dimensional. See Figure 12. Tire climbers may have the tires secured tread-to-tread to form a sloping grid, or the tires may be suspended individually by chains or other means.

- Flexible climbers that provide access to platforms should be securely anchored at both ends.
- When connected to the ground, the anchoring devices should be installed below ground level and beneath the base of the protective surfacing material.
- Connections between ropes, cables, chains, or between tires should be securely fixed.
- Flexible climbers are not recommended as the sole means of access to equipment intended for toddlers and preschool-age children.
- Free-standing flexible climbers are not recommended on playgrounds intended for toddlers and preschool children.
- Spacing between the horizontal and vertical components of a climbing grid should not form entrapment hazards.
- The perimeter of any opening in a net structure should be less than 17 inches or greater than 28 inches (see Figure 13).

Figure 13. Entrapment hazards in flexible climbers

5.3.2.4 Horizontal (overhead) ladders

Horizontal (overhead) ladders are a type of climber designed to build upper body strength. They are designed to allow children to move across the ladder from end to end using only their hands.

Four-year-olds are generally the youngest children able to use upper body devices like these; therefore, horizontal ladders should not be used on playgrounds intended for toddlers and 3-year-olds. The recommendations below are designed to accommodate children ages 4 through 12 years.

- The first handhold on either end of upper body equipment should not be placed directly above the platform or climbing rung used for mount or dismount. This minimizes the risk of children impacting rigid access structures if they fall from the first handhold during mount or dismount.
- The horizontal distance from the platform out to the first handhold should be at least 8 inches but no greater than 10 inches.
- The space between adjacent rungs of overhead ladders should be greater than 9 inches to prevent entrapment.
- Horizontal ladders intended for preschool-age children should have rungs that are parallel to one another and evenly spaced.
- The maximum height of a horizontal ladder (i.e., measured from the center of the grasping device to the top of the protective surfacing below) should be:
  - Preschool-age (4 and 5 years): no more than 60 inches.
  - School-age: no more than 84 inches.
- The center-to-center spacing of horizontal ladder rungs should be as follows:
  - Preschool-age (4 and 5 years): no more than 12 inches.
  - School-age: no more than 15 inches.
- The maximum height of the take-off/landing platform above the protective surfacing should be:
  - Preschool-age (4 and 5 years): no more than 18 inches.
  - School-age: no more than 36 inches.

5.3.2.5 Overhead rings

Overhead rings are similar to horizontal ladders in terms of the complexity of use. Therefore, overhead rings should not be used on playgrounds intended for toddlers and 3-year-olds. The recommendations below are designed to accommodate children 4 through 12 years of age.

Overhead rings differ from horizontal ladders because, during use, the gripped ring swings through an arc and reduces the distance to the gripping surface of the next ring; therefore, the spacing distance recommendations for horizontal ladders do not apply.

- The first handhold on either end of upper body equipment should not be placed directly above the platform or climbing rung used for mount or dismount. This minimizes the risk of children hitting rigid access structures if they fall from the first handhold during mount or dismount.
- The horizontal distance to the first handhold should be at least 8 inches but no greater than 10 inches.
- The maximum height of overhead rings measured from the center of the grasping device to the protective surfacing should be:
  - Preschool-age (4 and 5 years): 60 inches.
  - School-age: 84 inches.
- If overhead swinging rings are suspended by chains, the maximum length of the chains should be 7 inches.
- The maximum height of the take-off/landing platform above the protective surfacing should be:
  - Preschool-age (4 and 5 years): no more than 18 inches.
  - School-age: no more than 36 inches.

5.3.2.6 Sliding poles

Vertical sliding poles are more challenging than some other types of climbing equipment. They require upper body strength and coordination to successfully slide down the pole. Unlike other egress methods, there is no reverse or stop, so a child cannot change his or her mind. Children who start a sliding pole must have the strength to slide the whole way or they will fall.

- Sliding poles are not recommended for toddlers or preschool-age children since they generally don't have the upper body and/or hand strength to slide.
- Sliding poles should be continuous with no protruding welds or seams along the sliding surface.
- The pole should not change direction along the sliding portion.
- The horizontal distance between a sliding pole and any structure used for access to the sliding pole should be between 18 inches and 20 inches.
- The pole should extend at least 60 inches above the level of the platform or structure used for access to the sliding pole.
- The diameter of sliding poles should be no greater than 1.9 inches.
- Sliding poles and their access structures should be located so that traffic from other events will not interfere with the users during descent.
- Upper access should be on one level only.
- The upper access area through the guardrail or barrier should be 15 inches wide at most.

5.3.2.6.1 Fall height

- For sliding poles accessed from platforms, the fall height is the distance between the platform and the protective surfacing beneath it.
- For sliding poles not accessed from platforms, the fall height is the distance between a point 60 inches below the highest point of the pole and the protective surfacing beneath it.
- The top of the sliding pole's support structure should not be a designated play surface.

5.3.2.7 Track rides

Track rides are a form of upper body equipment where the child holds on to a handle or other device that slides along a track above his or her head. The child then lifts his or her feet and is carried along the length of the track. Track rides require significant upper body strength and the judgment to know when it is safe to let go. These are skills not developed until children are at least school-age; therefore, CPSC staff recommends:

- Track rides should not be used on playgrounds for toddlers and preschool-age children.
- Track rides should not have any obstacles along the path of the ride, including anything that would interfere in the take-off or landing areas.
- Two track rides next to each other should be at least 4 feet apart.

- The handle should be between 64 inches and 78 inches from the surfacing and follow the gripping recommendations in §5.2.2.
- Nothing should ever be tied or attached to any part of a track ride.
- Rolling parts should be enclosed to prevent crush hazards.

5.3.2.7.1 Fall height

- The fall height of track ride equipment is the distance between the maximum height of the equipment and the protective surface beneath it.
- Equipment support posts with no designated play surfaces are exempt from this requirement.

5.3.3 Log rolls

Log rolls help older children master balance skills and increase strength. Children must balance on top of the log as they spin it with their feet. See Figure 14.

- Log rolls are not recommended for toddlers and preschool-age children. These children generally do not possess the balance, coordination, and strength to use a log roll safely.
- Log rolls should have handholds to assist with balance.
- The handholds should follow the guidelines in §5.2.2.
- The highest point of the rolling log should be a maximum of 18 inches above the protective surface below.
- The use zone may overlap with neighboring equipment if the other piece of equipment allows overlapping use zones and
  - There is at least 6 feet between equipment when adjacent designated play surfaces are no more than 30 inches high; or
  - There is at least 9 feet between equipment when adjacent designated play surfaces are more than 30 inches high.

5.3.3.1.1 Fall height

The fall height of a log roll is the distance between the highest portion of the rolling log and the protective surfacing beneath it.

Figure 14. Log roll

5.3.4 Merry-go-rounds

Merry-go-rounds are the most common rotating equipment found on public playgrounds. Children usually sit or stand on the platform while other children or adults push the merry-go-round to make it rotate. In addition, children often get on and off the merry-go-round while it is in motion. Merry-go-rounds may present a physical hazard to preschool-age children who have little or no control over such products once they are in motion. Therefore, children in this age group should always be supervised when using merry-go-rounds.

The following recommendations apply when the merry-go-round is at least 20 inches in diameter.

- Merry-go-rounds should not be used on playgrounds intended for toddlers.
- The standing/sitting surface of the platform should have a maximum height of:
  - Preschool: 14 inches above the protective surface.
  - School-age: 18 inches above the protective surface.
- The rotating platform should be continuous and approximately circular.

- The surface of the platform should not have any openings between the axis and the periphery that permit a rod having a diameter of 5/16 inch to penetrate completely through the surface.
- The difference between the minimum and maximum radii of a non-circular platform should not exceed 2.0 inches (Figure 15).

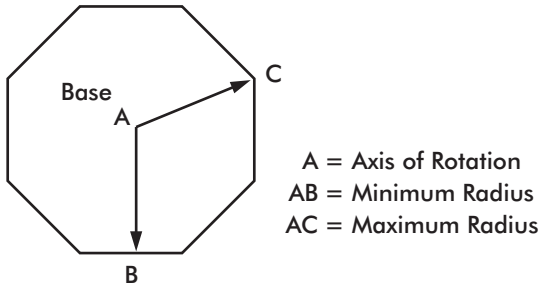


Figure 15. Minimum and maximum radii of a merry-go-round platform

- The underside of the perimeter of the platform should be no less than 9 inches above the level of the protective surfacing beneath it.
- There should not be any accessible shearing or crushing mechanisms in the undercarriage of the equipment.
- Children should be provided with a secure means of holding on. Where handgrips are provided, they should conform to the general recommendations for hand gripping components in §5.2.2.
- No components of the apparatus, including handgrips, should extend beyond the perimeter of the platform.
- The rotating platform of a merry-go-round should not have any sharp edges.
- A means should be provided to limit the peripheral speed of rotation to a maximum of 13 ft/sec.
- Merry-go-round platforms should not have any up and down (oscillatory) motion.

5.3.4.1 Use zone

- The use zone should extend a minimum of 6 feet beyond the perimeter of the platform.
- This use zone should never overlap the use zone of any other equipment.

5.3.4.2 Fall height

The fall height for a merry-go-round is the distance between the perimeter of the platform where a child could sit or stand and the protective surfacing beneath it.

5.3.5 Seesaws

5.3.5.1 Fulcrum seesaws

The typical seesaw (also known as a "teeter totter") consists of a board or pole with a seat at each end supported at the center by a fulcrum. See Figure 16. Because of the complex way children are required to cooperate and combine their actions, fulcrum seesaws are not recommended for toddlers or preschool-age children.

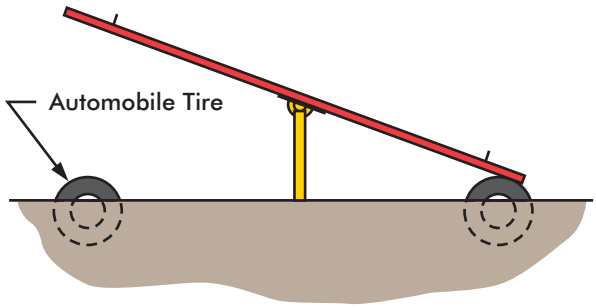


Figure 16. Typical Fulcrum Seesaw

- The fulcrum should not present a crush hazard.
- Partial car tires, or some other shock-absorbing material, should be embedded in the ground underneath the seats, or secured on the underside of the seats. This will help prevent limbs from being crushed between the seat and the ground, as well as cushion the impact.
- The maximum attainable angle between a line connecting the seats and the horizontal is 25°.
- There should not be any footrests.

5.3.5.2 Spring-centered seesaws

Preschool-age children are capable of using spring-centered seesaws because the centering device prevents abrupt contact with the ground if one child dismounts suddenly. Spring-centered seesaws also have the advantage of not requiring two children to coordinate their actions in order to play safely. Spring-centered seesaws should follow the recommendations for spring rockers including the use of footrests (§5.3.7).

5.3.5.3 Use zone for fulcrum and spring-centered seesaws

- The use zone should extend a minimum of 6 feet from each outside edge of the seesaw.
- The use zone may overlap with neighboring equipment if the other piece of equipment allows overlapping use zones and
  - There is at least 6 feet between equipment when adjacent designated play surfaces are no more than 30 inches high; or
  - There is at least 9 feet between equipment when adjacent designated play surfaces are more than 30 inches high.

5.3.5.4 Handholds

- Handholds should be provided at each seating position for gripping with both hands and should not turn when grasped.
- Handholds should not protrude beyond the sides of the seat.

5.3.5.5 Fall height

The fall height for a seesaw is the distance between the highest point any part of the seesaw can reach and the protective surfacing beneath it.

5.3.6 Slides

Children can be expected to descend slide chutes in many different positions, rather than always sitting and facing forward as they slide. These other positions should be discouraged at all times to minimize injuries.

Slides may provide a straight, wavy, or spiral descent either by means of a tube or an open slide chute. They may be either free-standing (Figure 17), part of a composite structure, or built on the grade of a natural or man-made slope (embankment slide). Regardless of the type of slide, avoid using bare metals on the platforms, chutes, and steps. When exposed to direct sunlight the bare metal may reach temperatures high enough to cause serious contact burn injuries in a matter of seconds. Provide shade for bare metal slides or use other materials that may reduce the surface temperature such as, but not limited to, plastic or coated metal.

5.3.6.1 Slide access

Access to a stand-alone slide generally is by means of a ladder with rungs, steps, or a stairway with steps. Slides may also be part of a composite play structure, so children will gain access from other parts of the structure. Embankment slides use the ground for access.

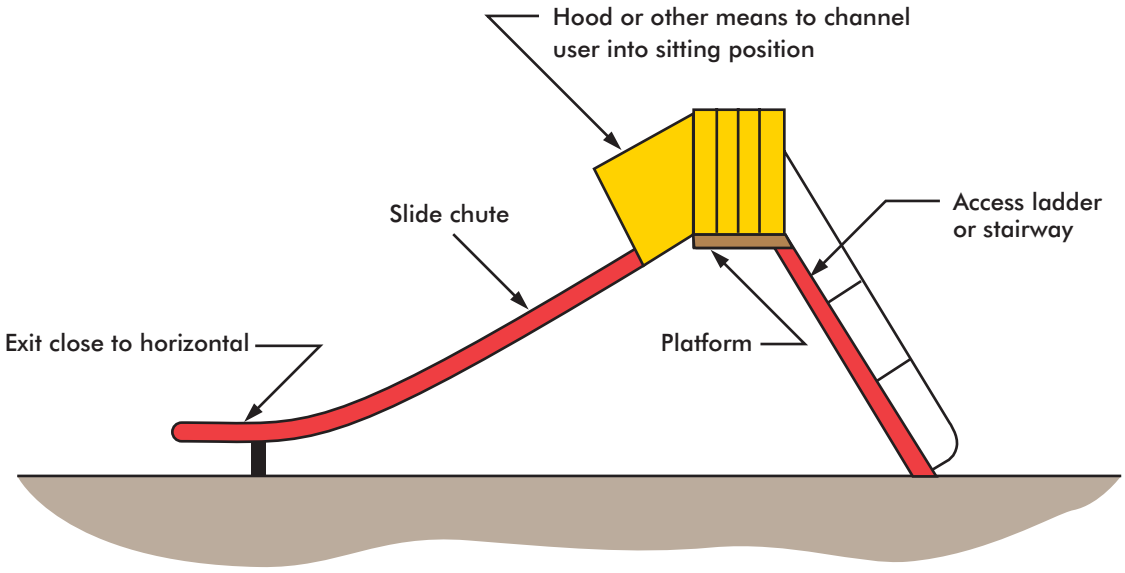


Figure 17. Typical Free-Standing Straight Slide

5.3.6.2 Slide platform

All slides should be provided with a platform with sufficient length to facilitate the transition from standing to sitting at the top of the inclined sliding surface. Embankment slides are exempt from platform requirements because they are on ground level; however, they should not have any spaces or gaps as noted below.

The platform should:

- Be at least 19 inches deep for toddlers.
- Be at least 14 inches deep for preschool-age and school-age children.
- Be horizontal.
- Be at least as wide as the slide chute.
- Be surrounded by guardrails or barriers.
- Conform to the same recommendations as general platforms given in §5.1.1.
- Not have any spaces or gaps that could trap strings, clothing, body parts, etc. between the platform and the start of the slide chute.
- Provide handholds to facilitate the transition from standing to sitting and decrease the risk of falls (except tube slides where the tube perimeter provides hand support). These should extend high enough to provide hand support for the largest child in a standing position, and low enough to provide hand support for the smallest child in a sitting position.
- Provide a means to channel a user into a sitting position at the entrance to the chute, such as a guardrail, hood, or other device that discourages climbing.

5.3.6.3 Slide chutes

5.3.6.3.1 Embankment slides

- The slide chute of an embankment slide should have a maximum height of 12 inches above the underlying ground surface. This design basically eliminates the hazard of falls from elevated heights.
- Embankment slides should follow all of the recommendations given for straight slides where applicable (e.g., side height, slope, use zone at exit, etc.).
- There should be some means provided at the slide chute entrance to minimize the use of embankment slides by children on skates, skateboards, or bicycles.

5.3.6.3.2 Roller slides

- Roller slides should meet applicable recommendations for other slides (e.g., side height, slope, use zone at exit, etc.).
- The space between adjacent rollers and between the ends of the rollers and the stationary structure should be less than 3/16 inch.
- Frequent inspections are recommended to insure that there are no missing rollers or broken bearings and that the rollers roll.

5.3.6.3.3 Spiral slides

- Spiral slides should follow the recommendations for straight slides where applicable (e.g., side height, slope, use zone at exit, etc.).
- Special attention should be given to design features which may present problems unique to spiral slides, such as lateral discharge of the user.
- Toddlers and preschool-age children have less ability to maintain balance and postural control, so only short spiral slides (one 360° turn or less) are recommended for these age groups.

5.3.6.3.4 Straight slides

- Flat open chutes should have sides at least 4 inches high extending along both sides of the chute for the entire length of the inclined sliding surface.
- The sides should be an integral part of the chute, without any gaps between the sides and the sliding surface. (This does not apply to roller slides).
- Slides may have an open chute with a circular, semicircular or curved cross section provided that:

  A. The vertical height of the sides is no less than 4 inches when measured at right angles to a horizontal line that is 8 inches long when the slide is intended for toddlers, 12 inches long when the slide is intended for preschool-age children, and 16 inches long when the slide is intended for school-age children (Figure 18); or

  B. For any age group, the vertical height of the sides is no less than 4 inches minus two times the width of the slide chute divided by the radius of the slide chute curvature (Figure 19).

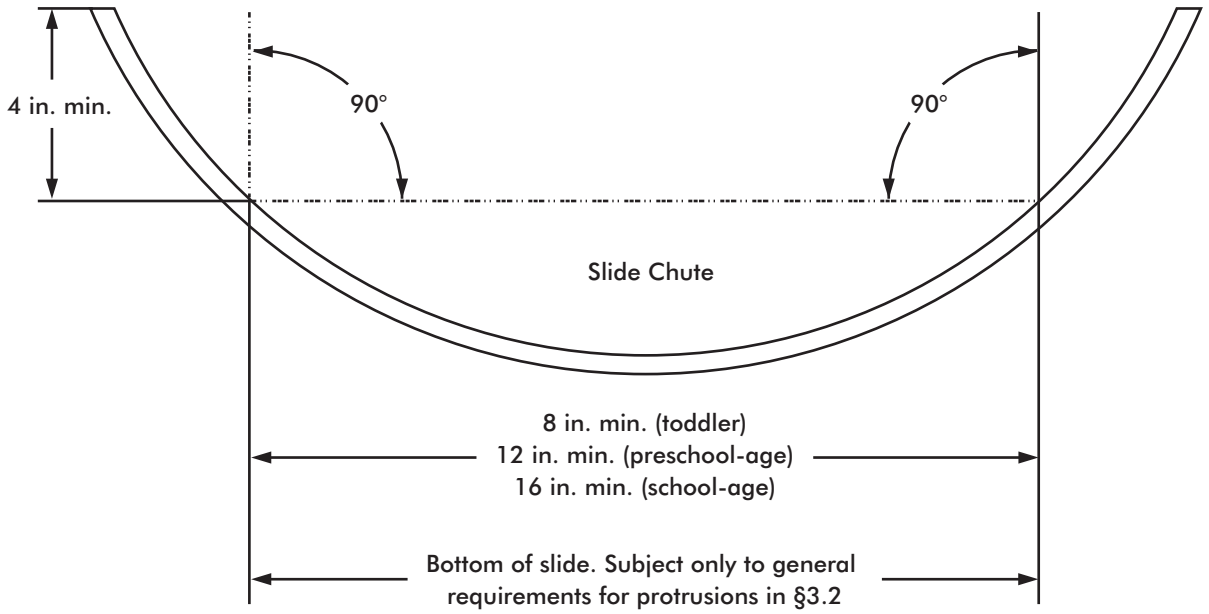
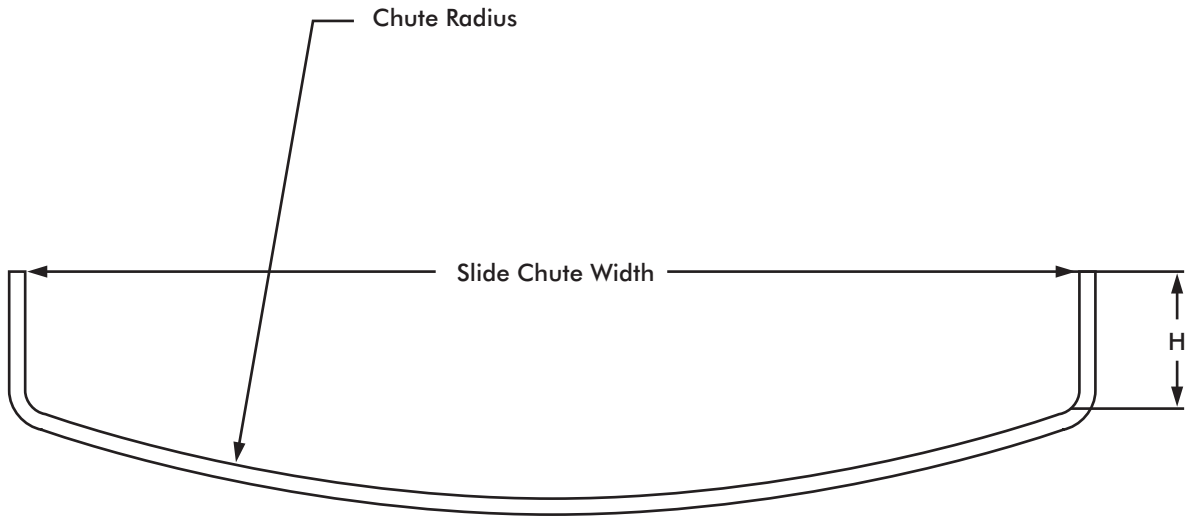


Figure 18. Minimum Side Height for Slide with Circular Cross Section



$$H = 4 - \frac{2 \times \text{Slide Chute Width}}{\text{Slide Chute Radius}}$$

Figure 19. Formula for Minimum Vertical Side Height for Slide with Curved Chute

- For toddlers:
  - The average incline of a slide chute should be no more than 24° (that is, the height to horizontal length ratio shown in Figure 20 does not exceed 0.445).
  - No section of the slide chute should have a slope greater than 30°.
  - The slide chute should be between 8 and 12 inches wide.
- For preschool- and school-age children:
  - The average incline of a slide chute should be no more than 30° (that is, the height to horizontal length ratio shown in Figure 20 does not exceed 0.577).
  - No section of the slide chute should have a slope greater than 50°.

5.3.6.3.5 Tube slides

- Tube slides should meet all the applicable recommendations for other slides (e.g., side height, slope, use zone at exit, etc.).
- Means, such as barriers or textured surfaces, should be provided to prevent sliding or climbing on the top (outside) of the tube.
- The minimum internal diameter of the tube should be no less than 23 inches.
- Tube slides should have transparent tube sections for observation and supervision; otherwise, children using tube slides may not be visible to a supervisor.

5.3.6.4 Chute exit region

All slides should have an exit region to help children maintain their balance and facilitate a smooth transition from sitting to standing when exiting. The chute exit region should:

- Be between 0 and -4° as measured from a plane parallel to the ground.
- Have edges that are rounded or curved to prevent lacerations or other injuries that could result from impact with a sharp or straight edge.
- For toddlers the chute exit region should:
  - Be between 7 and 10 inches long if any portion of the chute exceeds a 24° slope.
  - Be no more than 6 inches above the protective surfacing.
  - Have a transition from the sliding portion to the exit region with a radius of curvature of at least 18 inches.
- For preschool- and school-age the chute exit region should:
  - Be at least 11 inches long.
  - Be no more than 11 inches above the protective surfacing if the slide is no greater than 4 feet high.
  - Be at least 7 inches but not more than 15 inches above the protective surfacing if the slide is over 4 feet high.

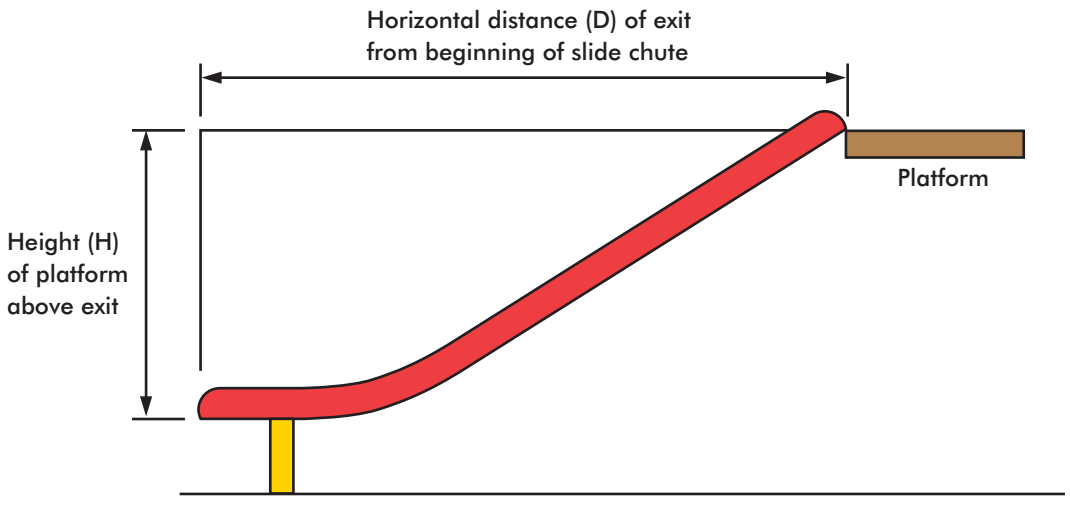


Figure 20. Slide Slope

5.3.6.5 Slide use zone

Toddlers:

- In a limited access environment
  - The use zone should be at least 3 feet around the perimeter of the slide.
  - The area at the end of the slide should not overlap with the use zone for any other equipment.
- In public areas with unlimited access
  - For a stand-alone slide, the use zone should be at least 6 feet around the perimeter.
  - For slides that are part of a composite structure, the minimum use zone between the access components and the side of the slide chute should be 3 feet.
  - The use zone at the end of the slide should be at least 6 feet from the end of the slide and not overlap with the use zone for any other equipment.

Preschool- and school-age (see Figure 21):

- The use zone in front of the access and to the sides of a slide should extend a minimum of 6 feet from the perimeter of the equipment. This recommendation does not apply to embankment slides.
- The use zone in front of the exit of a slide should never overlap the use zone of any other equipment; however, two or more slides may overlap if their sliding paths are parallel.
- For slides less than or equal to 6 feet high, the use zone in front of the exit should be at least 6 feet.
- For slides greater than 6 feet high, the use zone in front of the exit should be at least as long as the slide is high up to a maximum of 8 feet.

5.3.6.6 Fall height

The fall height for slides is the distance between the transition platform and the protective surfacing beneath it.

5.3.6.7 Entanglement hazard

Children have suffered serious injuries and died by getting parts of their clothing tangled on protrusions or gaps on slides.

To reduce the chance of clothing entanglement:

- Projections up to 3 inches in diameter should not stick up more than 1/8 inch from the slide.

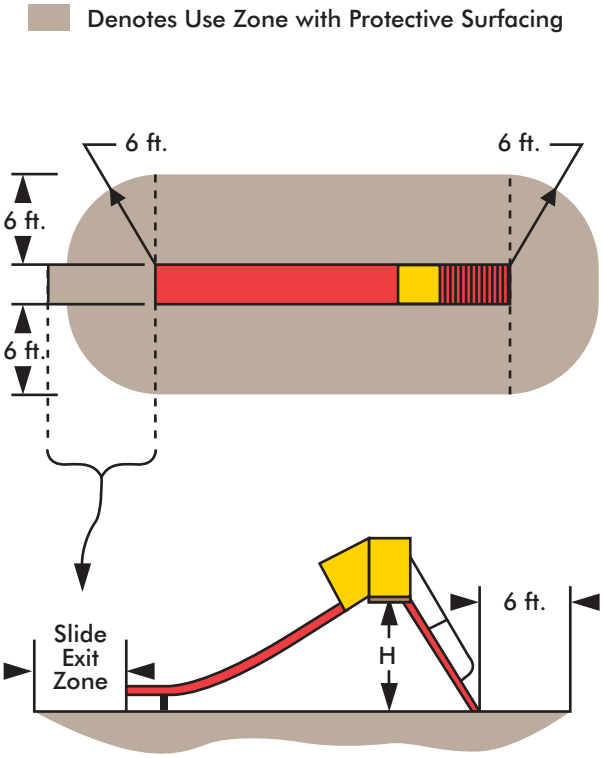


Figure 21. Use Zone for Slides

- There should be no gaps at the tops of slides where the slide chute connects with the platform that can entangle clothing or strings.
- See Appendix B for full recommendations and details of the protrusion test procedure.

NOTE: The underside of a slide chute is not subject to the protrusion recommendation in this section but is subject to the general recommendations to avoid risks of entanglement and impalement in §3.2.

5.3.7 Spring rockers

Toddlers and preschool-age children enjoy the bouncing and rocking activities presented by spring rockers, and they are the primary users of rocking equipment. See Figure 22. Older children may not find it challenging enough.

- Seat design should not allow the rocker to be used by more than the intended number of users.

Figure 22. Example of spring rocker

- For toddlers:
  - The seat should be between 12 and 16 inches high.
  - Spring rockers with opposing seats intended for more than one child should have at least 37 inches between the seat centers.
- For preschoolers:
  - The seat should be between 14 and 28 inches high.
- Each seating position should be equipped with handgrips and footrests. The diameter of handgrips should follow the recommendations for hand gripping components in §5.2.2.
- The springs of rocking equipment should minimize the possibility of children crushing their hands or their feet between coils or between the spring and a part of the rocker.
- The use zone should extend a minimum of 6 feet from the "at rest" perimeter of the equipment.
- The use zone may overlap with neighboring equipment if the other piece of equipment allows overlapping use zones and
  - There is at least 6 feet between equipment when adjacent designated play surfaces are no more than 30 inches high; or
  - There is at least 9 feet between equipment when adjacent designated play surfaces are more than 30 inches high; and
  - The spring rocker is designed to be used from a seated position.

5.3.7.1 Fall height

The fall height of spring rockers is the distance between either (1) the highest designated playing surface or (2) the seat, whichever is higher, and the protective surfacing beneath it.

5.3.8 Swings

Children of all ages generally enjoy the sensations created while swinging. Mostly they sit on the swings; however, it is common to see children jumping off swings. Younger children also tend to swing on their stomachs, and older children may stand on the seats. To prevent injuries, these behaviors should be discouraged.

Swings may be divided into two distinct types:

- Single axis: Sometimes called a to-fro swing. A single-axis swing is intended to swing back and forth in a single plane and generally consists of a seat supported by at least two suspending members, each of which is connected to a separate pivot on an overhead structure.
- Multi-axis: A multi-axis swing consists of a seat (generally a tire) suspended from a single pivot that permits it to swing in any direction.

5.3.8.1 General swing recommendations

- Hardware used to secure the suspending elements to the swing seat and to the supporting structure should not be removable without the use of tools.
- S-hooks are often part of a swing's suspension system, either attaching the suspending elements to the overhead support bar or to the swing seat. Open S-hooks can catch a child's clothing and present a strangulation hazard. S-hooks should be pinched closed. An S-hook is considered closed if there is no gap or space greater than 0.04 inches (about the thickness of a dime).
- Swings should be suspended from support structures that discourage climbing.
- A-frame support structures should not have horizontal cross-bars.

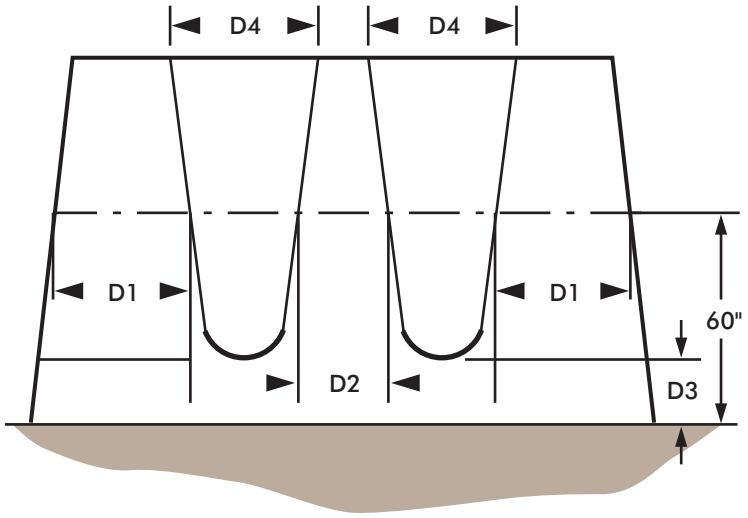


Figure 23. Minimum Clearances for Single-Axis Swings

Table 7. Clearance dimensions for swings

Reason	Dimension	Toddler Full bucket	Preschool-age Belt	School-age Belt
Minimizes collisions between a swing and the supporting structure	D1	20 inches	30 inches	30 inches
Minimizes collisions between swings	D2	20 inches	24 inches	24 inches
Allows access	D3	24 inches	12 inches	12 inches
Reduces side-to-side motion	D4	20 inches	20 inches	20 inches

- Fiber ropes are not recommended as a means of suspending swings since they may degrade over time.
- Swing structures should be located away from other equipment or activities to help prevent young children from inadvertently running into the path of moving swings. Additional protection can be provided by means of a low blockade such as a fence or hedge around the perimeter of the swing area. The blockade should not be an obstacle within the use zone of a swing structure or hamper supervision by blocking visibility.

5.3.8.2 Fall height

The fall height for swings is the vertical distance between the pivot point and the protective surfacing beneath it.

5.3.8.3 Single-axis swings

5.3.8.3.1 Belt seats used without adult assistance

- The use zone to the front and rear of single-axis swings should never overlap the use zone of another piece of equipment.
- To minimize the likelihood of children being struck by a moving swing, it is recommended that no more than two single-axis swings be hung in each bay of the supporting structure.

- Swings should not be attached to composite structures.
- Swing seats should be designed to accommodate no more than one user at any time.
- Lightweight rubber or plastic swing seats are recommended to help reduce the severity of impact injuries. Wood or metal swing seats should be avoided.
- Edges of seats should have smoothly finished or rounded edges and should conform to the protrusion recommendations in 5.3.8.5.
- If loose-fill material is used as a protective surfacing, the height recommendations should be determined after the material has been compressed.

5.3.8.3.2 Full bucket seat swings

Full bucket seat swings are similar to single-axis swings since they move in a to-fro direction. However, full bucket seat swings are intended for children under 4 years of age to use with adult assistance.

- The seats and suspension systems of these swings, including the related hardware, should follow all of the criteria for conventional single axis swings.
- Full bucket seats are recommended to provide support on all sides of a child and between the legs of the occupant (see Figure 24).

Figure 24. Example of full bucket seat swings

- The full bucket seat materials should not present a strangulation hazard, such as might be presented with a rope or chain used as part of the seat.
- Openings in swing seats should conform to the entrapment criteria in §3.3.
- Full bucket seat swings should be suspended from structures that are separate from those for other swings, or at least suspended from a separate bay of the same structure.
- Full bucket seat swings should not allow the child to enter and exit alone.
- Pivot points should be more than 47 inches but no more than 95 inches above the protective surfacing.

5.3.8.3.3 Use zone for single-axis swings – belt and full bucket

The use zone in front of and behind the swing should be greater than to the sides of such a swing since children may deliberately attempt to exit from a single-axis swing while it is in motion. See Figure 25.

- The use zone for a belt swing should extend to the front and rear of a single-axis swing a minimum distance of twice the vertical distance from the pivot point and the top of the protective surface beneath it.
- The use zone for a full bucket swing should extend to the front and rear a minimum of twice the vertical distance from the top of the occupant's sitting surface to the pivot point.
- The use zone in front of and behind swings should never overlap with any other use zone.
- The use zone to the sides of a single-axis swing should extend a minimum of 6 feet from the perimeter of the swing. This 6-foot zone may overlap that of an adjacent swing structure.

5.3.8.4 Multi-axis (tire) swings

Tire swings are usually suspended in a horizontal orientation using three suspension chains or cables connected to a single swivel mechanism that permits both rotation and swinging motion in any axis.

- A multi-axis tire swing should not be suspended from a structure having other swings in the same bay.
- Attaching multi-axis swings to composite structures is not recommended.

- To minimize the hazard of impact, heavy truck tires should be avoided. Further, if steel-belted radials are used, they should be closely examined to ensure that there are no exposed steel belts or wires that could be a potential protrusion or laceration hazard. Plastic materials can be used as an alternative to simulate actual automobile tires. Drainage holes should be provided in the underside of the tire.
- Pay special attention to maintenance of the hanger mechanism because the likelihood of failure is higher for tire swings due to the added stress of rotational movement and multiple occupants.
- The hanger mechanisms for multi-axis tire swings should not have any accessible crush points.
- The minimum clearance between the seating surface of a tire swing and the uprights of the supporting structure should be 30 inches when the tire is in a position closest to the support structure (Figure 26).
- The minimum clearance between the bottom of the seat and the protective surface should not be less than 12 inches.

5.3.8.4.1 Multi-axis swing use zones

- The use zone should extend in any direction from a point directly beneath the pivot point for a minimum distance of 6 feet plus the length of the suspending members (see Figure 27). This use zone should never overlap the use zone of any other equipment.

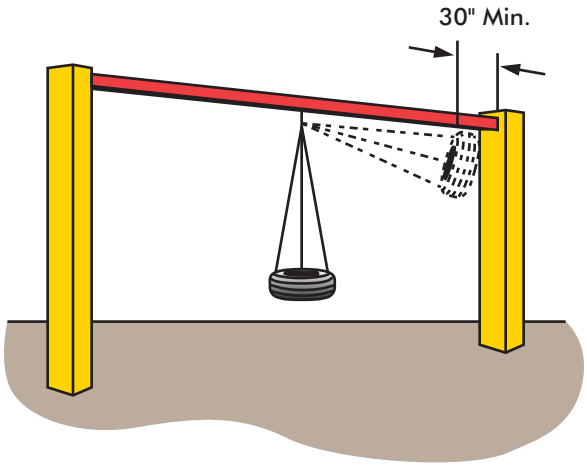
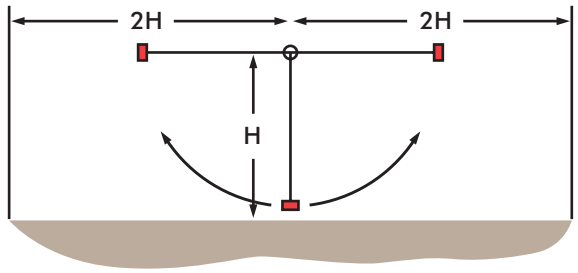


Figure 26. Multi-Axis Swing Clearance



Denotes Use Zone with Protective Surfacing

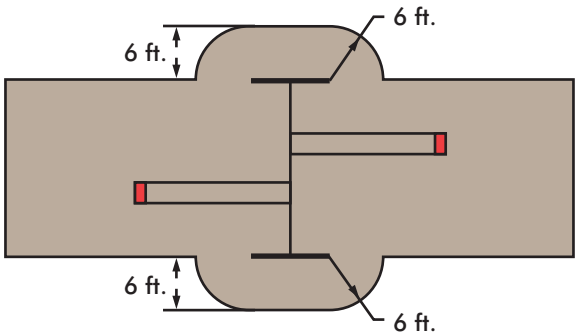
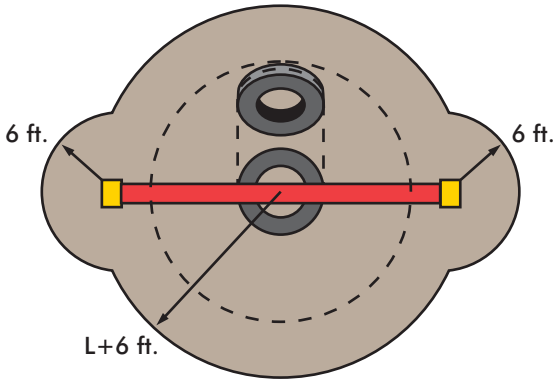


Figure 25. Use Zone for Single-Axis Belt Swings



Denotes Use Zone with Protective Surfacing

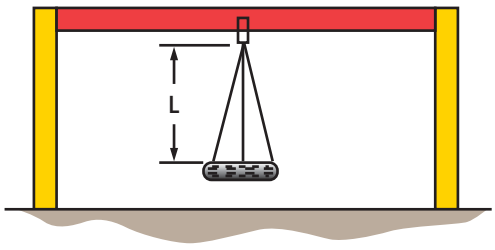


Figure 27. Use Zone for Multi-Axis Swings

- The use zone should extend a minimum of 6 feet from the perimeter of the supporting structure. This 6-foot zone may overlap that of an adjacent swing structure or other playground equipment structure.

5.3.8.5 Protrusions on suspended members of swing assemblies

Protrusions on swings are extremely hazardous because of the potential for impact incidents. Nothing, including bolts or other parts, on the front, back, or underside of a swing should stick out more than 1/8 of an inch. See test procedures in Appendix B.

5.3.9 Fall height and use zones not specified elsewhere

Most playground equipment belongs in one of the categories listed above. If it does not, the following general recommendations should be applied:

- The fall height of a piece of playground equipment is the distance between the highest designated playing surface and the protective surface beneath it.
- The use zone should extend a minimum of 6 feet in all directions from the perimeter of the equipment.
- The use zones of two stationary pieces of playground equipment that are positioned adjacent to one another may overlap if the adjacent designated play surfaces of each structure are no more than 30 inches above the protective surface and the equipment is at least 6 feet apart.
- If adjacent designated play surfaces on either structure exceed a height of 30 inches, the minimum distance between the structures should be 9 feet.
- Use zones should be free of obstacles.

APPENDIX A: SUGGESTED GENERAL MAINTENANCE CHECKLIST

Surfacing (§2.4)

- ☐ Adequate protective surfacing under and around the equipment.
  - ☐ Install/replace surfacing
- ☐ Surfacing materials have not deteriorated.
  - ☐ Replace surfacing
  - ☐ Other maintenance: _____
- ☐ Loose-fill surfacing materials have no foreign objects or debris.
  - ☐ Remove trash and debris
- ☐ Loose-fill surfacing materials are not compacted.
  - ☐ Rake and fluff surfacing
- ☐ Loose-fill surfacing materials have not been displaced under heavy use areas such as under swings or at slide exits.
  - ☐ Rake and fluff surfacing

Drainage (§2.4)

- ☐ The entire play area has satisfactory drainage, especially in heavy use areas such as under swings and at slide exits.
  - ☐ Improve drainage
  - ☐ Other maintenance: _____

General Hazards

- ☐ There are no sharp points, corners or edges on the equipment (§3.4).
- ☐ There are no missing or damaged protective caps or plugs (§3.4).
- ☐ There are no hazardous protrusions (§3.2 and Appendix B).
- ☐ There are no potential clothing entanglement hazards, such as open S-hooks or protruding bolts (§2.5.2, §3.2, §5.3.8.1 and Appendix B).
- ☐ There are no crush and shearing points on exposed moving parts (§3.1).
- ☐ There are no trip hazards, such as exposed footings or anchoring devices and rocks, roots, or any other obstacles in a use zone (§3.6).

Security of Hardware (§2.5)

- ☐ There are no loose fastening devices or worn connections.
  - ☐ Replace fasteners
  - ☐ Other maintenance: _____
- ☐ Moving parts, such as swing hangers, merry-go-round bearings, and track rides, are not worn.
  - ☐ Replace part
  - ☐ Other maintenance: _____

Durability of Equipment (§2.5)

- ☐ There are no rust, rot, cracks, or splinters on any equipment (check carefully where it comes in contact with the ground).
- ☐ There are no broken or missing components on the equipment (e.g., handrails, guardrails, protective barriers, steps, or rungs).
- ☐ There are no damaged fences, benches, or signs on the playground.
- ☐ All equipment is securely anchored.

Leaded Paint (§2.5.4)

- ☐ Paint (especially lead paint) is not peeling, cracking, chipping, or chalking.
- ☐ There are no areas of visible leaded paint chips or accumulation of lead dust.
  - ☐ Mitigate lead paint hazards

General Upkeep of Playgrounds (§4)

- ☐ There are no user modifications to the equipment, such as strings and ropes tied to equipment, swings looped over top rails, etc.
  - ☐ Remove string or rope
  - ☐ Correct other modification
- ☐ The entire playground is free from debris or litter such as tree branches, soda cans, bottles, glass, etc.
  - ☐ Clean playground
- ☐ There are no missing trash receptacles.
  - ☐ Replace trash receptacle
- ☐ Trash receptacles are not full.
  - ☐ Empty trash

NOTES:

DATE OF INSPECTION:

INSPECTION BY:

APPENDIX B: PLAYGROUND TESTING

B.1 Templates, Gauges, and Testing Tools

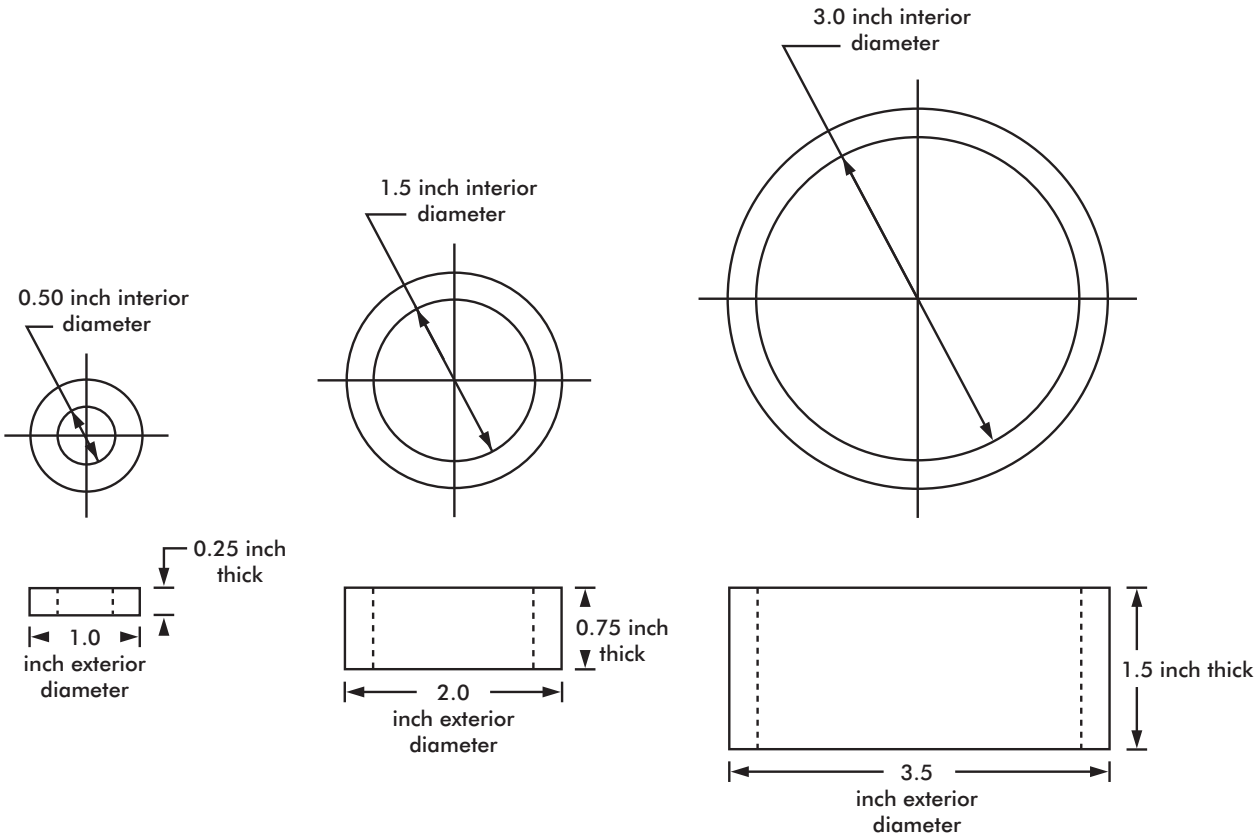
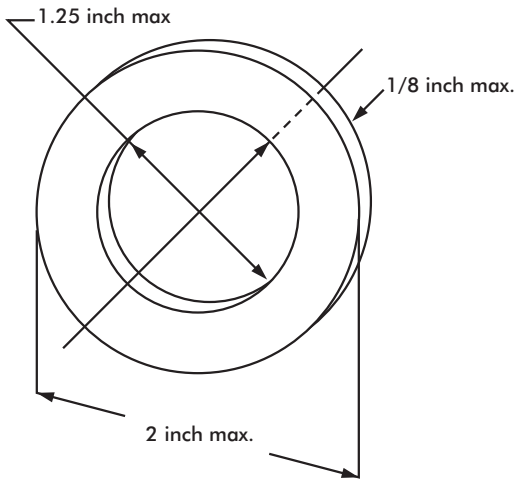


Figure B1. Projection test gauges



Note: gauge made of any rigid material

Figure B2. Projection test gauge for suspended swing assemblies and slides

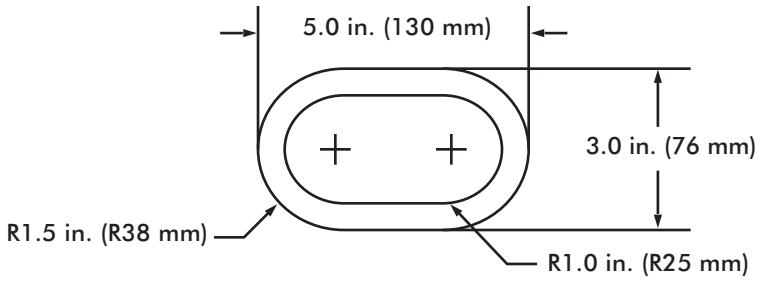


Figure B3. Toddler small torso template

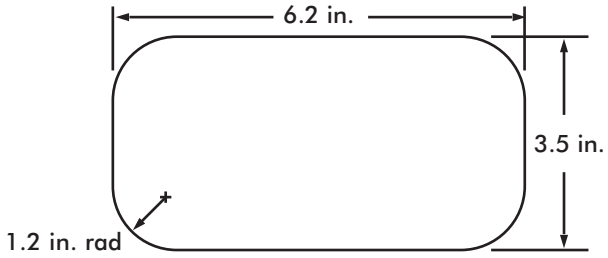


Figure B4. Preschool- and school-age small torso template

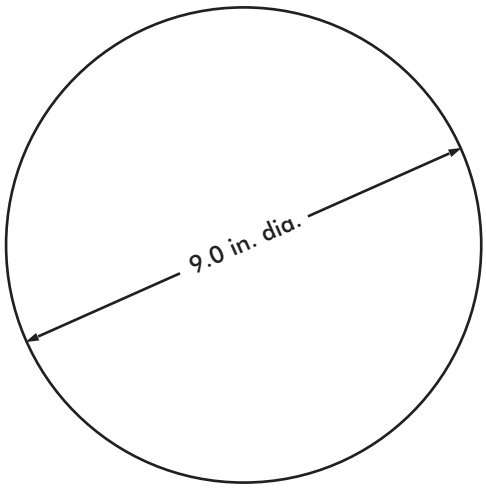


Figure B5. Large head template

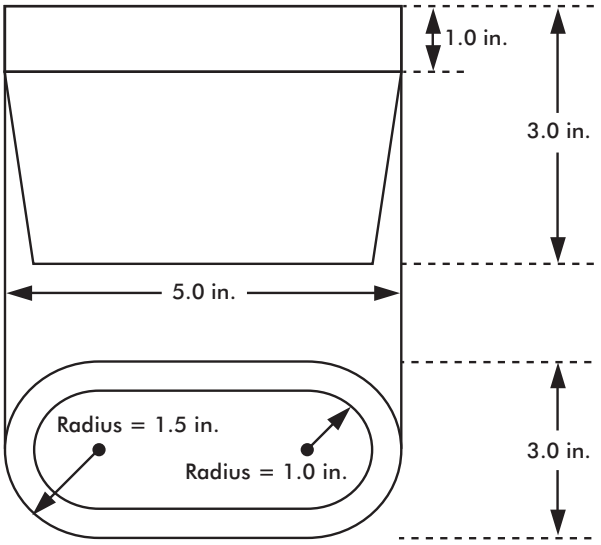


Figure B6. Toddler small torso probe

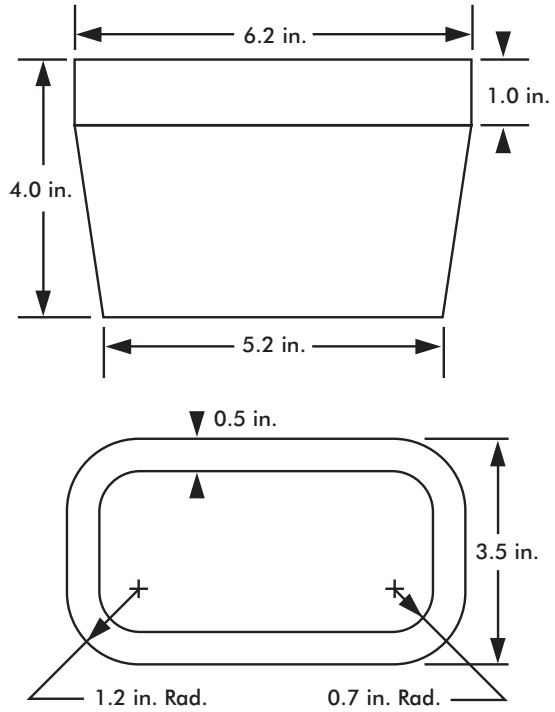


Figure B7. Preschool- and school-age small torso probe

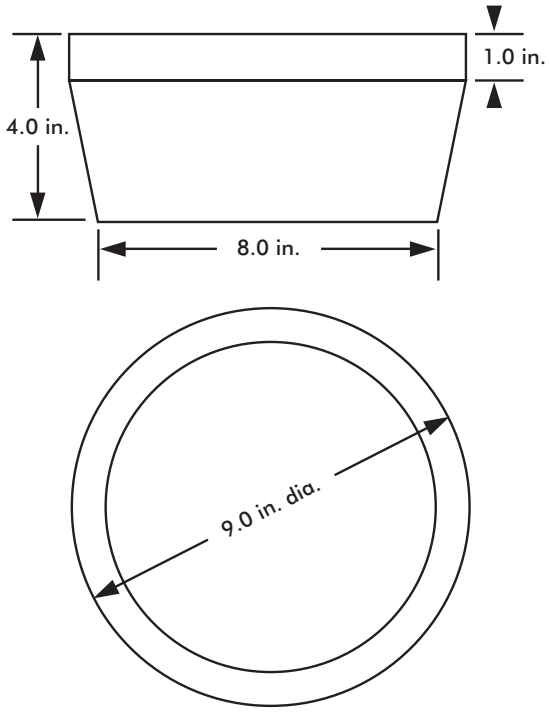


Figure B8. Large head probe

APPENDIX B: PLAYGROUND TESTING

B.2 Test Methods

B.2.1 Determining whether a projection is a protrusion

B.2.1.1 Test procedure

Step 1: Successively place each projection test gauge (see Figure B1) over any projection

Step 2: Visually determine if the projection penetrates through the hole and beyond the face of the gauge (see Figure B9 below).

Pass: A projection that does not extend beyond the face of the gauge passes.

Fail: A projection that extends beyond the face of any one of the gauges is considered a hazardous protrusion and should be eliminated.

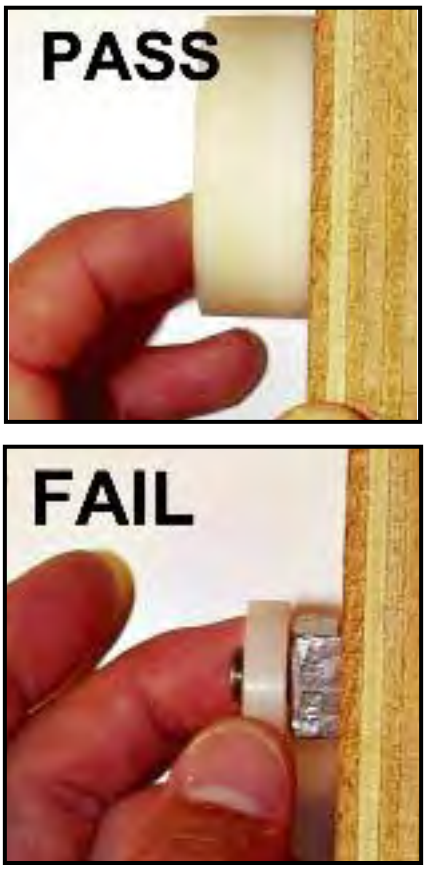


Figure B9. Determining whether a projection is a protrusion

B.2.2 Projections on suspended members of swing assemblies

Given the potential for impact incidents, projections on swings can be extremely hazardous. A special test gauge (see Figure B2) and procedure are recommended. When tested, no bolts or components in the potential impact region on suspended members should extend through the hole beyond the face of the gauge.

B.2.2.1 Test procedure

Step 1: Hold the gauge (Figure B2) vertically with the axis through the hole parallel to the swing's path of travel.

Step 2: Place the gauge over any projections that are exposed during the swing's path of travel.

Step 3: Visually determine if the projection penetrates through the hole and beyond the face of the gauge.

Pass: A projection that does not extend beyond the face of the gauge passes.

Fail: A projection that extends beyond the face of the gauge is considered a hazardous protrusion and should be eliminated.

B.2.3 Projections on slides

To minimize the likelihood of clothing entanglement on slides, projections that (1) fit within any one of the three gauges shown in Figure B1 and (2) have a major axis that projects away from the slide bed should not have projections greater than 1/8 inch perpendicular to the plane of the surrounding surface (Figure B10).

B.2.3.1 Test procedure

Step 1: Identify all projections within the shaded area shown in Figure B11.

Step 2: Determine which, if any, fit inside the projection test gauges (Figure B1).

Step 3: Place the swing and slide projection gauge (Figure B2) next to the projection to check the height of the projection.

Step 4: Visually determine if the projection extends beyond the face of the slide projection gauge.

Pass: A projection that does not extend beyond the face of the gauge passes.

Fail: A projection that extends beyond the face of the gauge is considered a hazardous protrusion and should be eliminated.

NOTE: This test procedure is not applicable to the underside of a slide chute. For a slide chute with a circular cross section, the portion of the underside not subject to this projection recommendation is shown in Figure 18. The general recommendations for projections in §B.2.1 are applicable to the underside of the slide.

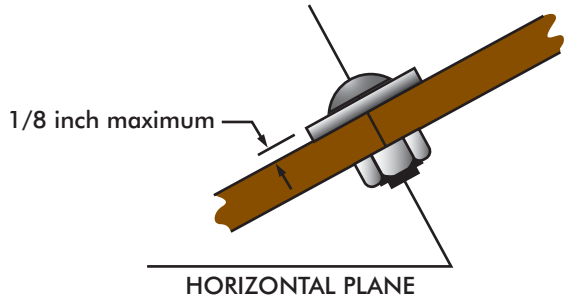


Figure B10. Upward facing projection

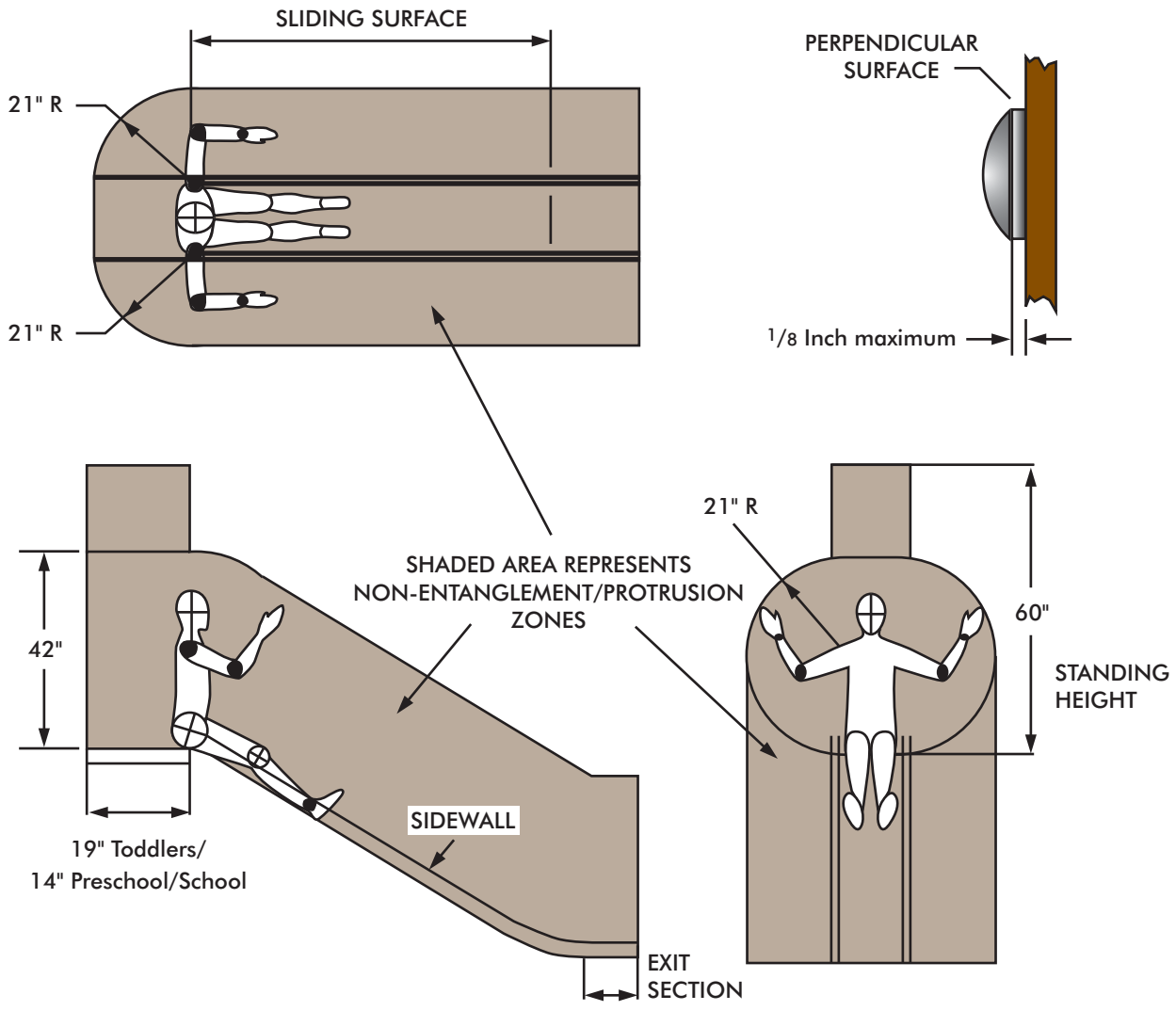


Figure B11. Recommended areas to test for slide entanglement protrusions

B.2.4 Angles

The angle of any vertex formed by adjacent components should be greater than 55º, unless the lower leg is horizontal or projects downwards (see Figure B12). An exception to this recommendation can be made if a rigid shield is attached to the vertex between adjacent components and the shield is of sufficient size to prevent a 9 inch diameter circular template from simultaneously touching components on either side of the vertex (see Figure B13).

B.2.4.1 Test procedure

Step 1: Identify angles formed by two adjacent components.

Step 2: Determine if the angle is less than 55º.

No: Pass. Stop.

Yes: Continue.

Step 3: Determine if the lower leg is horizontal or points downward.

Yes: Pass. Stop.

No: Continue.

Step 4: Place the large head template (Figure B5) into the angle (Figure B13).

Pass: The large head template is stopped before its perimeter can touch both sides of the angle simultaneously.

Fail: The large head template touches both sides of the angle simultaneously.

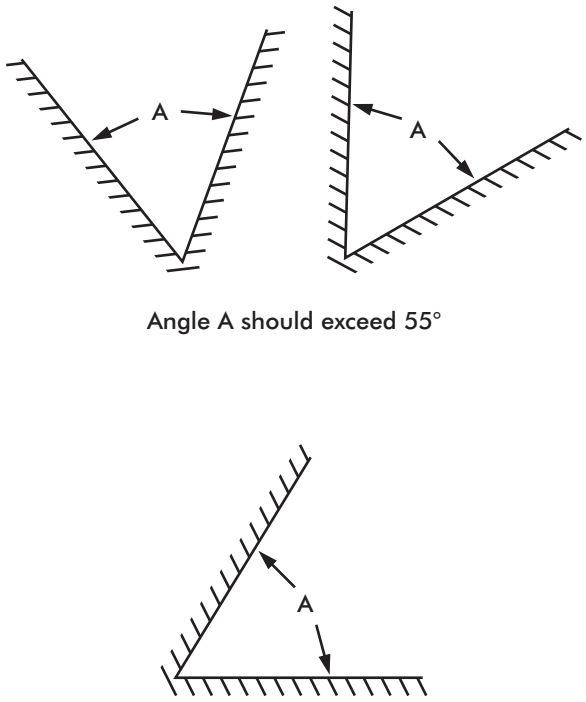


Figure B12. Recommendations for angles

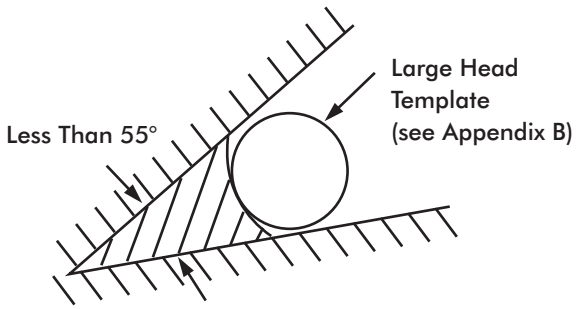
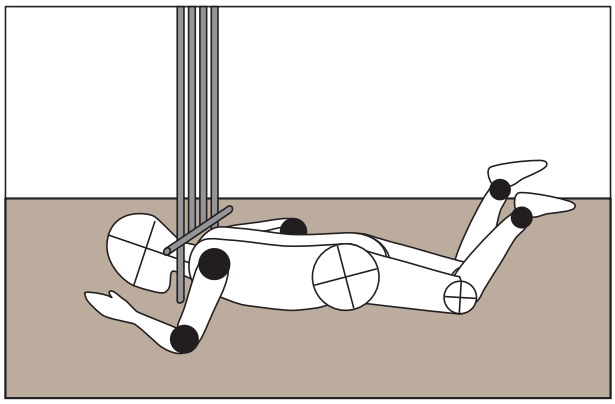
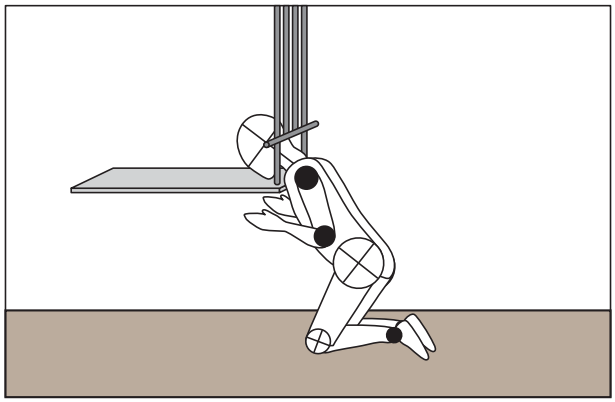


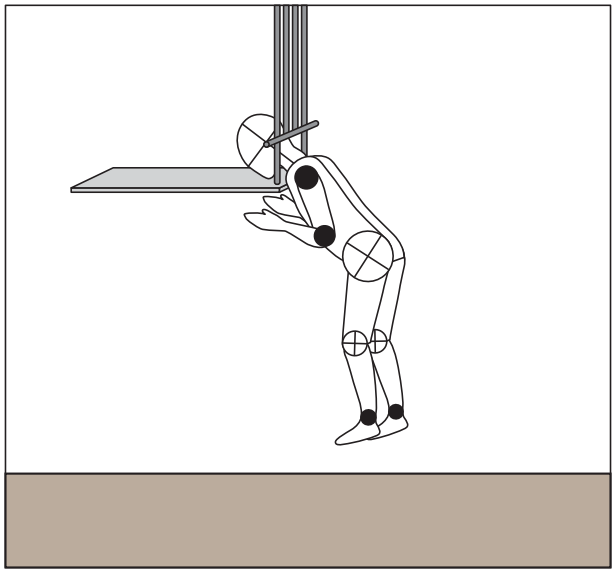
Figure B13. Test for angles less than 55° (example passes).



Ground-bounded: Not subject to entrapment recommendations.



Low entrapment



High entrapment

Figure B14. Examples of completely bounded openings

B.2.5 Entrapment

B.2.5.1 General

Any completely-bounded opening (Figure B14) that is not bounded by the ground may be a potential head entrapment hazard. Even those openings which are low enough to permit a child's feet to touch the ground present a risk of strangulation to an entrapped child, because younger children may not have the necessary intellectual ability and motor skills to withdraw their heads, especially if scared or panicked. An opening may present an entrapment hazard if the distance between any interior opposing surfaces is greater than 3.5 inches and less than 9 inches. If one dimension of an opening is within this potentially hazardous range, all dimensions of the opening should be considered together to fully evaluate the possibility of entrapment. The most appropriate method to determine whether an opening is hazardous is to test it using the following fixtures, methods, and performance criteria.

These recommendations apply to all playground equipment, i.e., toddler, preschool-age, and school-age children. Fixed equipment as well as moving equipment (in its stationary position) should be tested for entrapment hazards. There are two special cases for which separate procedures are given: (1) completely-bounded openings where depth of penetration is a critical issue (see Figure B15) and (2) openings formed by flexible climbing components.

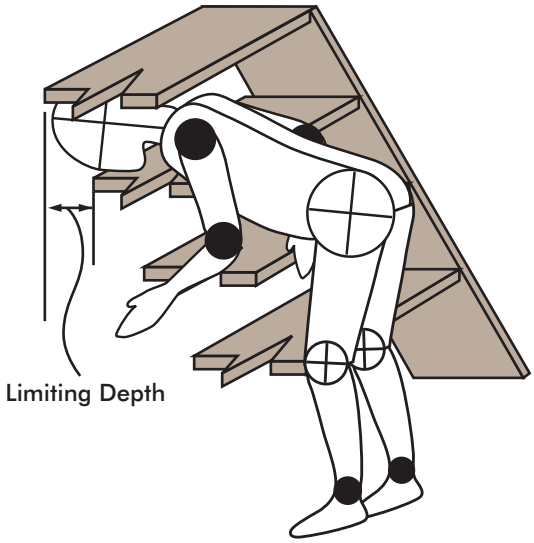


Figure B15. Completely bounded opening with limited depth

B.2.6 Test fixtures

Two templates are required to determine if completely bounded openings in rigid structures present an entrapment hazard. These templates can easily be fabricated from cardboard, plywood, or sheet metal.

B.2.6.1 Small torso template

The dimensions (see Figure B3 and Figure B4) of this template are based on the size of the torso of the smallest user at risk (5th percentile 6-month-old child for Figure B3 and 2-year-old child for Figure B4). If an opening is too small to admit the template, it is also too small to permit feet first entry by a child. Because children's heads are larger than their torsos, an opening that does not admit the small torso template will also prevent head first entry into an opening by a child.

B.2.6.2 Large head template

The dimensions (see Figure B5) of this template are based on the largest dimension on the head of the largest child at risk (95th percentile 5-year-old child). If an opening is large enough to permit free passage of the template, it is large enough to permit free passage of the head of the largest child at risk in any orientation. Openings large enough to permit free passage of the large head template will not entrap the chest of the largest child at risk.

B.2.6.3 Completely bounded openings with unlimited depth

B.2.6.3.1 Test procedure

Step 1: Select the appropriate small torso template based on the intended users of the playground (Figure B3 for toddler playgrounds, Figure B4 for preschool- and school-age playgrounds).

Step 2: Identify all completely bounded openings.

Step 3: Attempt to place the small torso template in the opening with the plane of the template parallel to the plane of the opening. While keeping it parallel to the plane of the opening, the template should be rotated to its most adverse orientation (i.e., major axis of template oriented parallel to the major axis of the opening.)

Step 4: Determine if the small torso template can freely pass through the opening.

No: **Pass.** Stop

Yes: Continue

Step 5: Place the large head template in the opening, again with the plane of the template parallel to the plane of the opening, and try to insert it through the opening.

Pass: The large head template can be freely inserted through the opening

Fail: The opening admits the small torso template but does not admit the large head template.

B.2.6.4 Completely bounded openings with limited depth of penetration

The configuration of some openings may be such that the depth of penetration is a critical issue for determining the entrapment potential. For example, consider a vertical wall or some other barrier behind a step ladder. The entrapment potential depends not only on the dimensions of the opening between adjacent steps but also on the horizontal space between the lower boundary of the opening and the barrier. A child may enter the opening between adjacent steps feet first and may proceed to pass through the space between the rear of the lower step and the barrier and become entrapped when the child's head is unable to pass through either of these two openings. In effect, there are openings in two different planes, and each has the potential for head entrapment and should be tested.

Figure B16 illustrates these two planes for a step ladder as well as for a generic opening. Plane A is the plane of the completely bounded opening in question, and Plane B is the plane of the opening encompassing the horizontal space between the lower boundary of the opening in Plane A and the barrier that should also be tested for entrapment hazards.

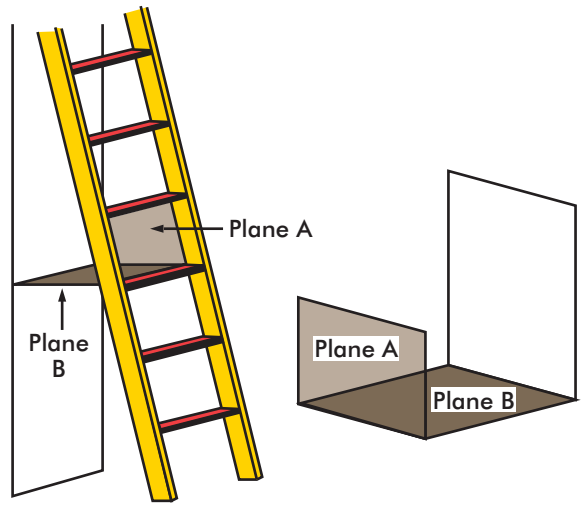


Figure B16. Example of a completely bounded opening with limited depth of penetration

B.2.6.4.1 Test procedure

Step 1: Select the appropriate small torso template based on the intended users of the playground (Figure B3 for toddler playgrounds, Figure B4 for preschool-age and school-age playgrounds).

Step 2: Identify all completely bounded openings with limited depth of penetration.

Step 3: Place the small torso template in the opening in Plane A with its plane parallel to Plane A; rotate the template to its most adverse orientation with respect to the opening while keeping it parallel to Plane A.

Step 4: Determine if the opening in Plane A admits the small torso template in any orientation when rotated about its own axis.

No: Pass. The opening is small enough to prevent either head first or feet first entry by the smallest user at risk and is not an entrapment hazard.

Yes: Continue.

Step 5: Place the small torso template in the opening in Plane B with its plane parallel to Plane B; rotate the template to its most adverse orientation with respect to the opening while keeping it parallel to Plane B.

Step 6: Determine if the opening in Plane B admits the small torso template.

No: Pass. The depth of penetration into the opening in Plane A is insufficient to result in entrapment of the smallest user at risk.

Yes: Continue.

Step 7: Place the large head template (Figure B5) in the opening in Plane A with its plane parallel to Plane A. Determine if the opening in Plane A admits the large head template.

No: Fail. A child, whose torso can enter the opening in Plane A as well as the opening in Plane B, may become entrapped by the head in the opening in Plane A.

Yes: Continue.

Step 8: With the plane of the large head template parallel to the opening in Plane B, determine if the opening in Plane B admits the large head template.

No: Fail. The largest user at risk cannot exit the opening in Plane B.

Yes: Pass. The openings in Plane A and Plane B do not pose an entrapment risk.

B.2.6.5 Flexible openings

Climbing components such as flexible nets are also a special case for the entrapment tests because the size and shape of openings on this equipment can be altered when force is applied, either intentionally or simply when a child climbs on or falls through the openings. Children are then potentially at risk of entrapment in these distorted openings.

The procedure for determining conformance to the entrapment recommendations for flexible openings requires two three-dimensional test probes which are illustrated in Figure B6, Figure B7, and Figure B8 are applied to an opening in a flexible component with a force of up to 50 pounds.

B.2.6.5.1 Test procedure

Step 1: Select the appropriate small torso template based on the intended users of the playground (Figure B3 for toddler playgrounds, Figure B4 for preschool-age and school-age playgrounds).

Step 2: Identify all completely bounded openings with flexible sides.

Step 3: Place the small torso probes (Figures B6 and B7) in the opening, tapered end first, with the plane of its base parallel to the plane of the opening.

Step 4: Rotate the probe to its most adverse orientation (major axis of probe parallel to major axis of opening) while keeping the base parallel to the plane of the opening.

Step 5: Determine whether the probe can be pushed or pulled through the opening by a force no greater than 30 pounds on toddler playgrounds or 50 pounds on preschool-age and school-age playgrounds.

No: Pass. Stop

Yes: Continue.

Step 6: Place the large head probe (Figure B8) in the opening with the plane of its base parallel to the plane of the opening.

Step 7: Determine if the large head probe can be pushed or pulled through the opening by a force no greater than 30 pounds on toddler playgrounds or 50 pounds on preschool-age and school-age playgrounds.

Yes: Pass. Stop.

No: Fail.

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Park and Recreation Commission **5. 2.**

Meeting Date: 07/08/2021

By: Mark Riverblood, Engineering/Public Works

Information

Title:

Consider Process for Refurbishing the 25-year old Lake Itasca Boardwalk

Purpose/Background:

The purpose of this case is to establish a process for refurbishing the *Lake Itasca Boardwalk. The 6' foot wide boardwalk is nearly one quarter mile in length and is a very popular trail route and destination—and is within a high quality wetland environment associated with Trott Brook, and also the Circle of Ramsey Greenway.

The boardwalk has held up very well over the years with semi-regular board replacement and occasional re-leveling. However, in recent years the frequency for the need for individual board replacement has increased, and there are a number of sections where it is no longer feasible to try to re-level the warped sections. (It may be noted here, that it is appropriate for boardwalks to appear 'rustic' and aside from when first constructed, they are not intended to be perfectly pristine, like a deck on a residential home.)

Attached are photos of the existing conditions of the boardwalk, in a sequence from the North to the South, with the last image looking North at the South end at the boardwalk's connection to the bituminous trail. (About midway through the photos the 8' foot bridge section can be spotted, which is in great condition, it being replaced about four years ago.)

*This portion of trail is also a part of the National Mississippi River Trail.

Notification:

Observations/Alternatives:

As referenced, the boardwalk may be considered at the end of its useful life, having been in the elements for a quarter century, and carrying many, many, thousands of walkers, joggers, dogs and bicyclists. Additionally, user feedback confirms that the 6' foot width is not adequate for the numbers of users—especially when bicyclists meet people with dogs on the boardwalk, often traveling in opposite directions. For this reason, staff is proposing that with the refurbishment, the width would be extended to 8' feet wide, which is the standard for boardwalks constructed in the city within the last decade.

In terms of the process forward, staff recommends developing a Request for Proposal (RFP) with detailed specifications, which when received back from contractors/bidders, would yield a specific not-to-exceed replacement/refurbishment cost. This would then come back to the Park & Recreation Commission for a recommendation to City Council's Public Works Committee, who may be expected to make an effective recommendation to the full Council to refurbish the boardwalk as soon as the Winter of 2021/2022.

Funding Source:

There is no funding requested at this time, nor required to proceed with an RFP.

The staff recommended funding source at the time City Council may authorize the project, would be the Capital Maintenance Fund, (formally known as 'Park Maintenance Fund #810') which has a present balance of approximately $1.3M.

Recommendation:

Staff recommends proceeding with development and issuance of an RFP for the proposed refurbishment of the 25-year old Lake Itasca Boardwalk.

Action:

Based upon discussion, direct staff to proceed with development and issuance of an RFP for the proposed refurbishment of the Lake Itasca Boardwalk.

Attachments

Location exhibit

Existing Conditions

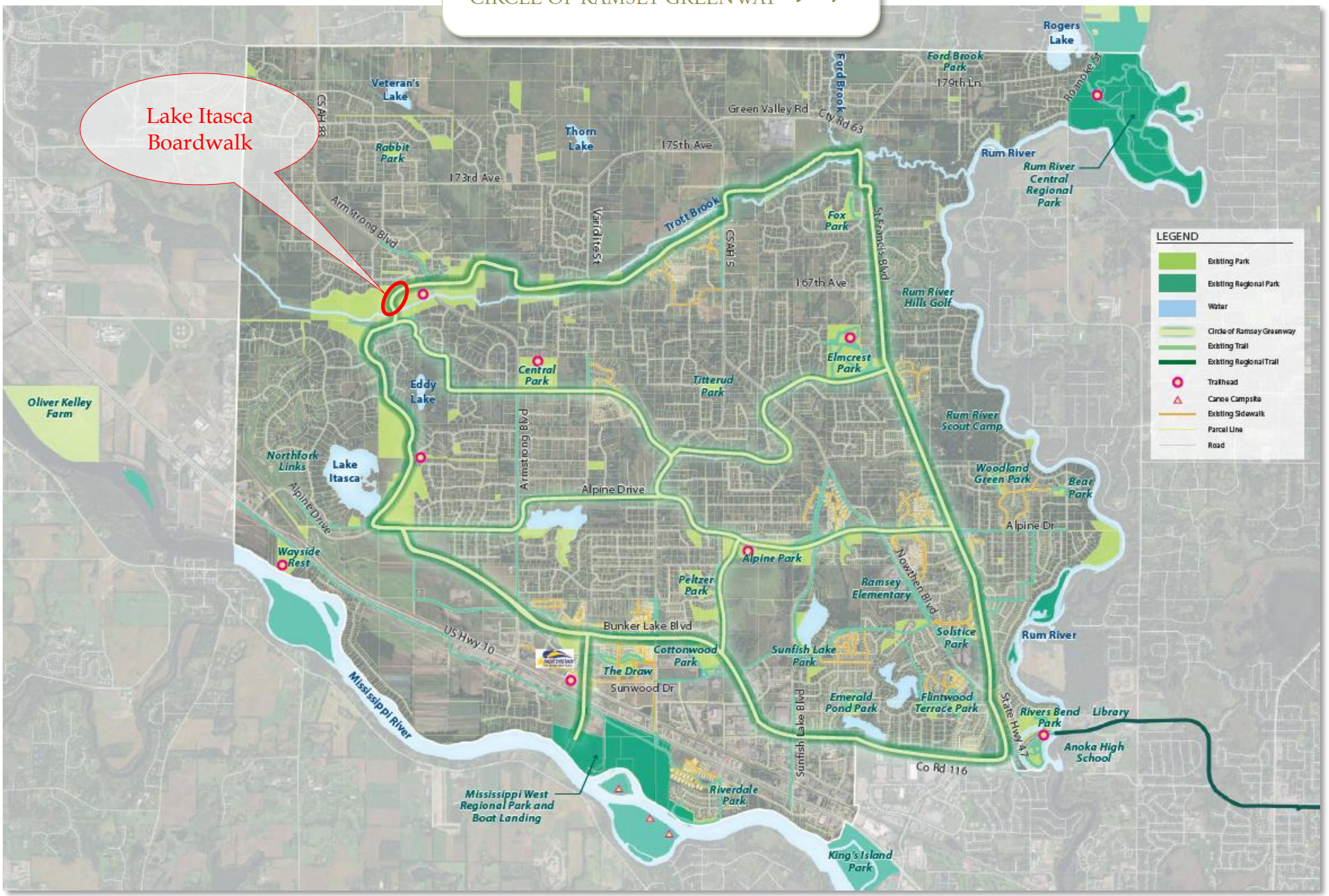
Circle of Ramsey Greenway

Form Review

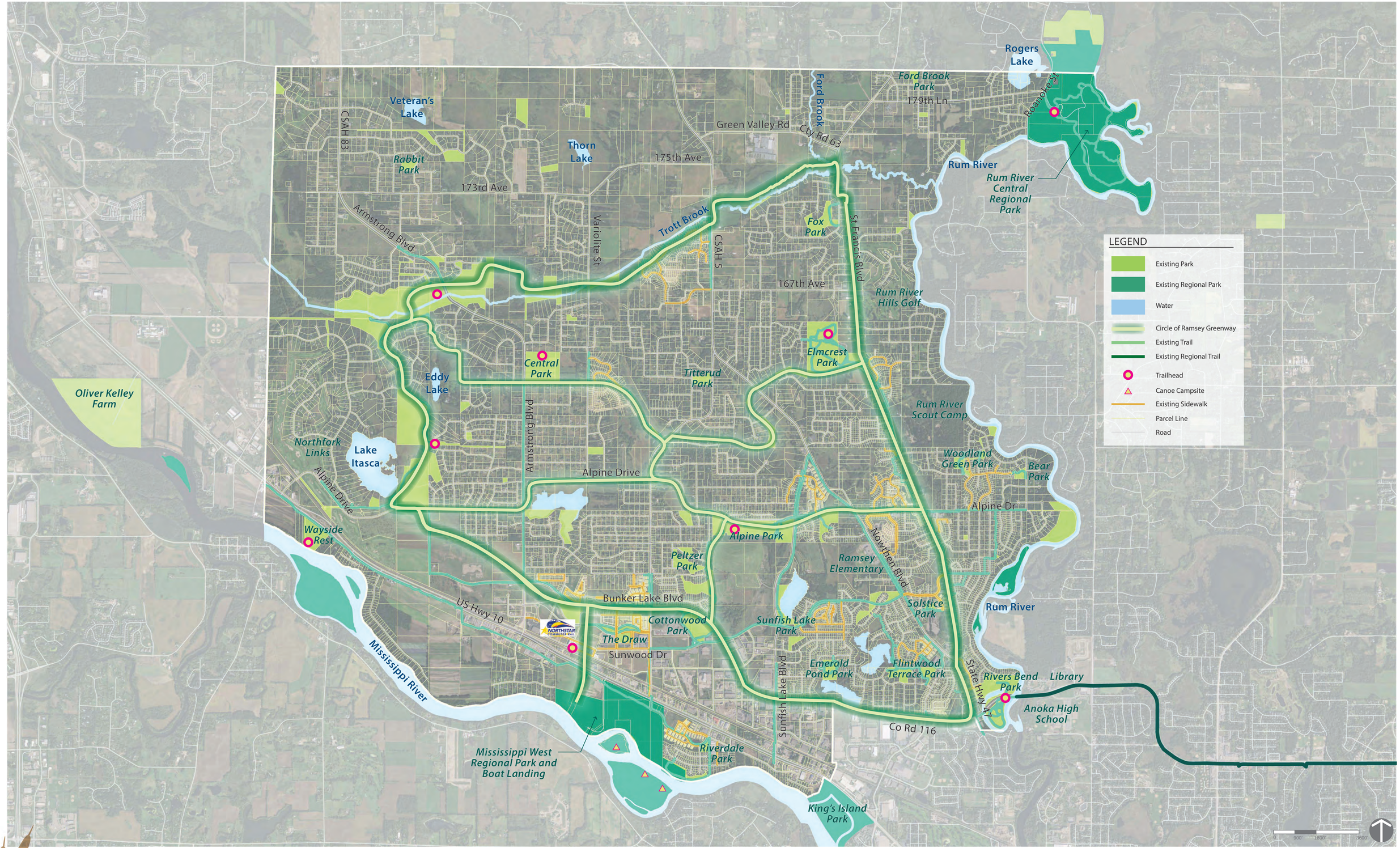
Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	07/01/2021 02:33 PM
Form Started By: Mark Riverblood		Started On: 07/01/2021 10:51 AM
Final Approval Date: 07/01/2021		

City of RAMSEY

CIRCLE OF RAMSEY GREENWAY



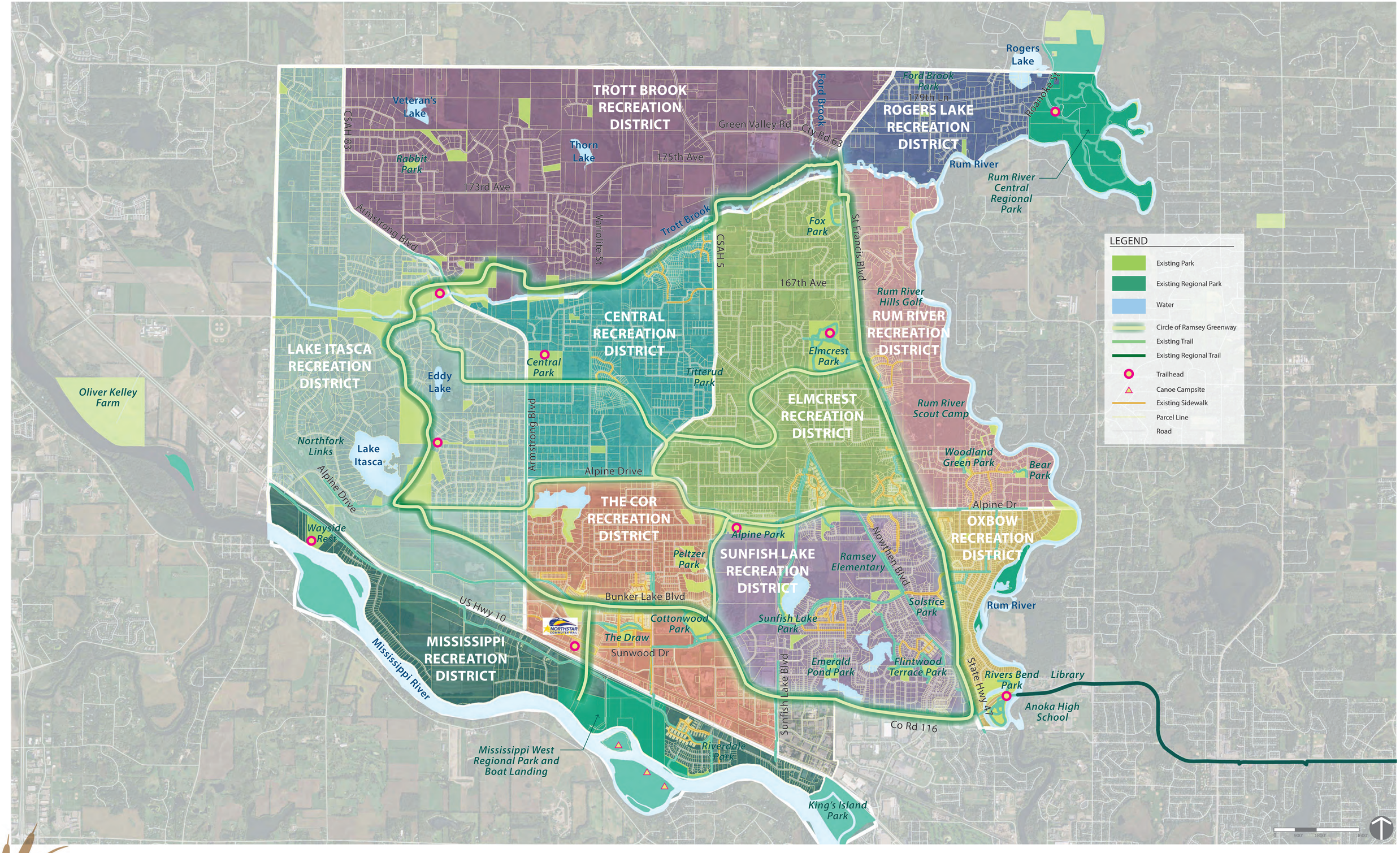

MRT



Circle Of Ramsey Greenway & Priority Trail Connections

CITY OF RAMSEY **PARK SYSTEM PLAN**

Bruce Jacobson, Landscape Architect



Recreation Districts

CITY OF RAMSEY **PARK SYSTEM PLAN**

Bruce Jacobson, Landscape Architect

Park and Recreation Commission **6. 1.**

Meeting Date: 07/08/2021

Submitted For: Mark Riverblood, Engineering/Public Works

By: MaryJo Warner, Engineering/Public Works

Information

Title:

Commission /Staff Input

Purpose/Background:

~ Resident thank you letter, Alpine off-leash park

~ Note typical Development Fees

~ Recreation Program Report

- Concert Series
- **Art Fair July 11th!**
- Movie in the park
- Starwatch Party
- 2021 Photo Contest
- Archery Tournament
- Vitality Arts Older Adults Art Camp:
    - Clay Tile
    - Nature Watercolor
    - Plain Air Watercolor
    - Nature Collage
    - Nature Journaling
- Car Show (pending)
- Beginning Ballroom Dance (tentative)
- Zumba (tentative)
- Candlelight Yoga (tentative)
- Yoga Flow (tentative)
- Ramsey Residents Day on the Farm (tentative)
- Holiday/winter skate (pending)

Notification:

Observations/Alternatives:

Funding Source:

n/a

Recommendation:

Action:

Attachments

Resident Letter

Development fee summary

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	07/02/2021 11:01 AM

Form Started By: MaryJo Warner Started On: 06/24/2021 04:08 PM

Final Approval Date: 07/02/2021

Alpine off-leash park

To Mark Rivesblood

Phish Alert

Hi Mark,

I just wanted to touch base with you to say that the extension on the off-leash park is a big hit.
Because of the heat I haven't been there much when the crowds are, but I have heard from a number of folks they are really happy about the extension.

Thank you and please share with the committee.

Sue

At the June regular Commission meeting, it was requested that staff provide a summary report on fees typically associated with land development costs. The following are extracts from 2021 Rates and Charges that are approved by City Council annually. The entire document may be found on the city's website.

Platting or Subdividing		
Address Charge		175.00
Administrative (interior lot lines) escrow		225.00
Administrative (interior lot lines) app.		200.00
Major Subdivision escrow		1,500.00
Major Subdivision application		300.00
Minor subdivision escrow		900.00
Minor subdivision application		200.00
Registered land survey escrow		300.00
Registered land survey application		200.00
Planning and Zoning		
Comp Plan Amendment Application		200.00
Comp Plan Escrow		700.00
Conditional use escrow minimum		800.00
Conditional use permit application		200.00
Conditional use escrow min-environ sens		2,000.00
Conditional use permit app.-environ sens		200.00
Conditional use permit annual inspection		75.00
Dock permit		25.00
Environmental Permit		200.00
Environmental Escrow		400.00
Grading Permit		200.00
Industrial Revenue Bond - application		200.00
Industrial Revenue Bond - escrow		1,000.00
Interim Use Permit Escrow - Minimum		600.00
Interim Use Permit Application		200.00
Interim Use Annual Inspection Fee		75.00
Park Dedication - Cash Contribution: Residential Unit	Including Townhomes & Apartment Units	3,500.00/dwelling unit
Park Dedication - Cash Contribution: Residential Unit	Exceed 12+ units per acre	7.5% Discount/$2,775.00
Park Dedication - Cash Contribution: Residential Unit	Exceed 20+ units per acre	15% Discount/$2,550.00
Park Dedication - Cash Contribution: Commercial/Assisted Living Facilities		5,100.00/acre
Park Dedication - Cash Contribution: Industrial		4,375.00/acre
Park Dedication - Land Contribution: Residential	0 - 3.0 dwelling units per acre	10% of land
	3.1 - 5.0 dwelling units per acre	15% of land
	5.1 + dwelling units per acre	Add .5% for each over 5
Park Dedication - Land Contribution: Commercial/Industrial/Assisted Living Facilities		5% gross land area
Park Dedication - Land Contribution: Planned Unit Developments	(public open space/rec. uses-not including wetlands)	10% gross land area
		2,800.00/dwelling unit

~ Continued ~

Trail Development Fee - Cash Contribution: Residential Unit		1,000.00/dwelling unit
Trail Development Fee - Commercial/Industrial/Assisted Living Facilities		1,300.00/acre
Approval/Recording of Deeds:		
Abstract Property		County Fee+10.00/staff Time
Torrens Property		County Fee+10.00/staff Time
Rezoning application		200.00
Rezoning escrow		400.00
Sign permit application - permanent		25.00
Sign permit - permanent		75.00

SERVICE OR LICENSE	SPECIAL NOTES	2021 Adopted
Sign permit - temporary		25.00
Site plan review application		200.00
Site plan review escrow		800.00
Special Council, HRA or Commission meeting fee		350.00
Temporary Structure escrow		500.00
TIF/Conduit Debt Application Fee		4,000.00/+legal fee deposit
Vacation of easement application		200.00
Vacation of easement escrow		300.00
Variance application		200.00
Variance escrow		400.00
Zoning Permit		25.00
Platting or Subdividing		
Address Charge		175.00
Administrative (interior lot lines) escrow		225.00
Administrative (interior lot lines) app.		200.00
Major Subdivision escrow		1,500.00
Major Subdivision application		300.00
Minor subdivision escrow		900.00
Minor subdivision application		200.00
Registered land survey escrow		300.00
Registered land survey application		200.00

Note: the above summary does not include all Escrows, Sureties, Municipal Financing/Bonding, Building Permits, Sewer and Water Access Charges, or Developer's infrastructure costs