

# Forest Glen Park Design Case Study – Universal Design in a Park and Recreational Setting

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**Abstract.** Universal Design has become more prevalent in the general use of architectural design but has rarely been applied to recreation and the specific design of a park. This paper features a community park in Woodridge, Illinois that not only meets the requirements of the Americans with Disabilities Act and 2010 ADA Accessibility Guidelines but exceeds them through incorporating Universal Design Principles. The author explains how throughout the process, from planning to implementation, Universal Design Principles were applied to various aspects and elements of this park.

**Keywords.** Universal Design, recreation, park planning

## 1. Introduction

For the past 24 years, the United States has had a national law dedicated to protecting and increasing opportunities for people with disabilities. The Americans with Disabilities Act (ADA) is considered a civil rights law for people with disabilities with the intent to protect them from discrimination by requiring equal rights to programs, services and goods offered to any other individual. With the development of Universal Design Principles in 1997 a movement has been growing to apply these principles to the design process and embrace the spirit of the movement by going beyond the code.

The use of Universal Design is a concept not readily used in recreational settings except potentially in exhibits with interactives. However, a grant focused on the incorporation of Universal Design into a recreational setting helped advance this concept.

The Kellogg Foundation located in Battle Creek, Michigan developed a grant program called “Access to Recreation”. The intent of the grant was to provide financial support for a project to include Universal Design features that would not have been possible without this funding. In addition, the grant required the development of an endowment to fund future recreational project to include Universal Design features and products.

This case study will look at the development of a small 2.1-acre park that received this grant. The study examines design elements, how these elements exceed the Americans with Disabilities Act Accessibility Guideline (ADAAG) standards, and which Universal Design products and principles or enhancement of standards were chosen and why.

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### *1.1. Americans with Disabilities Act (ADA) and Guidelines (ADAAG) Explained*

To understand the accomplishments of the Forest Glen Park design we should review the mandatory requirement under the Americans with Disabilities Act (ADA). The ADA consists of five Titles. Title I deals with employment issues, Title II state and local governments, Title III public accommodations, Title IV Telecommunications and Title V instructs enforcing agencies.

The main Titles that affect recreational opportunities for people with disabilities are Title II and Title III. Title II concerns public entities and Title III concerns public accommodations. Each are explained briefly below.

Title II requires public entities (state and local governments) to review their facilities to determine what physical barriers could prevent a person with a disability from participating in their programs and services. The findings of this review are called a “Transition Plan”. The Transition Plan records each barrier, the accessibility code violation, the potential solution and the estimated date for barrier removal. Along with physical accessibility barriers, non-physical access barriers such as policies and procedures need to be evaluated as well.

Title III requires public accommodations to provide opportunities for a person with a disability to have equal access to “goods, services, facilities, privileges, advantages, or accommodations” they offer. This Title includes for-profit and non-profit facilities and organizations. “Places of Recreation” is specifically used as an example in the ADA by the federal government.

In addition, the new 2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG) require the development of new policies for service animals and Other Power Driven Mobility Device (OPDMD). The service animal definition has been narrowed to protect only dogs and miniature horses specifically trained to assist a person with a disability. The OPDMD policy allows access to other motorized vehicles (such as a Segway) that provide mobility to a person with a physical disability. Policies and procedures must be developed and areas of allowance and limitations should be determined.

The Americans with Disabilities Act Accessibility Guidelines (ADAAG) are the building and facility standards for providing accessibility. The guidelines when updated in 2010 included recreational standards that were not previously covered in the original ADA standards. The areas now covered include amusement rides, boating facilities, exercise equipment, golf facilities, miniature golf, play areas and swimming pools. These standards help to expand opportunities for people with disabilities to participate and enjoy various recreational activities.

While these new accessibility standards increase opportunities to participate in recreational activities, they do not meet the needs of all people with disabilities. The accessibility standards are minimum standards, and are often interpreted as such with only minimum accessibility offered.

## **2. Park and Playground Universal Design Features**

Forest Glen Park, through the collaboration of architects, city planners, citizens and people with disabilities, has been able to not only meet accessibility standards but also exceed them through incorporating Universal Design features throughout the park and playground elements. Through this case study, we will examine six park elements as they relate not only to accessibility code, but how they embody Universal Design Principles.

### *2.1. Walkways*

The walkways installed throughout the park have a running slope less than 5%. Figure 1 shows the gently sloping walkway to the playground area. Under the ADAAG standards slopes can be above 5% and up to 8.3% but they are then considered ramps.



**Figure 1:** Walkways throughout the park incorporate UD with gentle slopes.

A ramp would require handrails on both sides and cannot exceed a certain length without providing some type of resting area. The Access Board, the federal board that develops all the standards for the ADA and ADAAG, determined through research that many individuals (approximately 10%) with mobility issues actually could not use a ramp that meets accessibility codes. To make the park walkways useful to more people, the running slopes were kept below 5%. By incorporating Universal Design Principle One, focusing on the same means of use for all users and Principle Six, minimizing sustained physical effort, the walkways provide easy access to a greater number of people.

## *2.2. Playground*

One requirement of the 2010 Recreational Standards is the use of a transfer platform to access elevated play areas. The transfer platform is intended for a child to transfer off their wheelchair and onto this platform. This transfer platform is connected to a stair system that allows a child to bump up the stairs to the higher or elevated play components. The intent of the design would allow a child to go down a slide, use a play panel, slide down a pole, etc. However, feedback from parents and professionals indicates that first, children do not like to get out of their wheelchair as that is their mobility for getting around and second, the effort it takes to get out of their wheelchair, up the stairs, down the slide and back to their wheelchair is very great. Most children end up being very tired by the effort and not willing to do it more than once or twice.

The 2010 Recreational Standards does allow a ramp to be used to access the elevated level requiring access to 50% of the elevated play components. A design that follows this standard does not require access to all the elevated play components and therefore is not very inclusive. A child using a wheelchair could access the elevated play components with all other children. However, if there were a stairway at the end of the elevated area, the child using the wheelchair would need to turn around, go back on the ramp and catch up to the other kids if possible. Neither the platform nor single ramp access design to the elevated play components creates a completely inclusive opportunity for the child or adult with disabilities.

It was determined to go beyond this standard to better fit the needs of the children using a wheelchair or mobility device at the elevated part of the playground. The grant allowed for the installation of a ramp system that extends from one end of the elevated play components of the playground to the other, allowing access to 90% of the play components, as you can see in Figure 2. This design became more inclusive for all children and parents on the playground. The ramp system is the route that all kids and adults use to access the upper level play components. Other than going down a slide or a climbing wall, a group can stay together.



**Figure 2:** Playground ramp system connects 90% of play elements.

This equitable use design incorporates the requirements of Principle One of Universal Design. It also incorporates Principle Six by allowing a person using a wheelchair to stay within their mobility device rather than transferring out.

One of the requirements of the Access to Recreation grant was to hold public meetings for input on the park design. A comment received by several parents was that their child enjoyed having some play elements more challenging. It was determined to add a higher-level play component that did require a transfer platform for accessing these elevated areas. Adding this design feature offers the challenge some children are looking for.

To increase interaction with individuals at this highest level, an open meshed platform was chosen along with a periscope connecting the upper level and the ramped area underneath. The open mesh platform base allows an individual below to actually see and call up to the people above. This provides an interactive component for each group. In addition, the playground company, Landscape Structures, had a periscope product they had originally developed for looking out from the playground. Through several meetings and work from their design group, they developed a custom made periscope that connects the upper level playground platform to the lower ramp access platform underneath. This periscope allows children on the lower level that might not be able to access the upper level platform to engage in play with others. Because of the short distance between the platforms, they could look through the periscope and talk with the people above or below.

### *2.3. Playground Surface*

In the 2010 playground standards, the Access Board allowed the use of engineered wood fiber as an accessible material for a playground surface. This wood product provides a surface that is considered firm and is intended to be accessible to children and adults using a wheelchair. The material is fairly inexpensive and is the material of choice at a majority of playgrounds in the United States. However it has been determined that with the normal use of children on a playground, a wood fiber surface does not stay in place and quickly becomes inaccessible to children with disabilities using mobility devices. In order to be considered an accessible surface, it has to be raked and maintained on a regular basis.

While engineered wood fiber is considered accessible, it was determined for this park that a low maintenance and very accessible product should be installed. With the extra money from the grant, the Universal Design choice was to install a rubberized surface. This surface meets not only safety impact standards for falls but provides a surface that does not require constant care to maintain its usability.



**Figure 3.** Poured in Place Playground Surface.

According to *A Longitudinal Study of Playground Surfaces to Evaluate Accessibility: Final Report*, released October 23, 2013 by the National Center on Accessibility, Indiana University-Bloomington, the surface material chosen for Forest Glen playground, a poured in place (PIP) product requires the least amount of maintenance to continue to be usable for people of all abilities.

With the installation of this surface, a few modifications were made to provide unique recreational options to children using the playground. The rubberized poured in place surface was installed level with nearly half the walkway surrounding the playground. This design offers a smooth transition and easy access to the playground surface providing adequate space to approach these areas as intended by Universal Design Principle Seven.

Also installed on the playground surface are moguls similar to a ski hill. These moguls are placed at different heights and widths, as seen in Figure 3. The intent of this design feature is to provide options for challenging children and adults using a wheelchair or mobility device. To assist a person in determining the height and challenge of each mogul, a color-coded system indicates the changing levels. Green is the base of the playground with blue the next level. Using a stop light as a guide, yellow identifies the middle level height and red the highest point. This design provides anyone using the playground a visual guide for deciding how much to try to challenge him or herself. Providing perceptible information by the color code incorporates Universal Design Principle Four.

#### *2.4. Swings*

Located directly across from the playground is a swing set that is separated by a walkway. Designing the swings in this location provides safety in equitable use. Like the playground, the swing area has a rubber poured in place surface up to and even with the walkway surface. This design allows for several feet of level surface to enter the swing area, meeting Principle One's equitable use requirements. This location, separate from the playground, allows for safety from children accidentally running in front of someone swinging. As seen in Figure 4, the swing set has four swings that have not one, but two accessible seat swings designed for a person with a more severe physical disability in need of additional back and neck support, going beyond the recreation standards.



**Figure 4.** UD swing set includes two types of accessible swings.

### *2.5. Raised Water Feature and Garden Bed*

The park also offers a raised garden bed with a water feature. The water flows out of a bubbling fountain at one end of the raised garden bed. The water cascades down into a trough at the side of the raised bed and flows to the other end. The heights at the beginning of the fountain are higher and easier for a taller person or a person with back issues to touch the water. The water trough gently slopes until it is at a height that a child, short adult or a person in a wheelchair could easily touch. These height variations allow natural interaction with the water at the easiest height for an individual.

A tactile design element is featured in the trough itself. Parents of children with autism suggested this enhancement of the design to allow for increased ability to explore and be more tactile. While the cement was wet, different natural items were pressed into the concrete to form an outline or impression. Leaves, sticks, pinecones, and nuts created outlines that people can touch while putting their hand in or near the water.

Included with the water feature are three detailed animal statues at the end of the raised garden, as pictured in Figure 5. The statues of a frog, fish and turtle, made of metal, are designed to be touchable and durable. The intent is to provide a tactile experience for everyone especially a person who is blind or has low vision.



**Figure 5.** Raised water feature incorporates several UD aspects.

These statues are also designed as an interactive element that sprays water into a bowl that collects the fountain flow. Interactive panels are used and only require a touch or light pressure to activate. To better serve people with different types of abilities and reaches, the activation plates are located at various heights. One plate is on the top of the water ledge to allow for easy access by a person using a wheelchair or a person just sitting on the ledge. The second activation plate is located on the side of the raised garden structure so it is still reachable by a person using a wheelchair but also easy for a small child or shorter adult to touch. The third panel is located in the ground so a child or adult just steps on it or could even roll over it with their wheelchair. These various ways to activate the statues provides opportunity for everyone to participate. This flexible use for interacting with the different statues was intended to meet the recommendations of Universal Design Principles Two, Three and Six.

The raised garden bed was designed from the beginning for use within a program for the park district. The Woodridge Park District is part of the South East Association for Special Parks and Recreation that serves people with disabilities in their community. The objective is to offer the teen and young adult program the opportunity to plant and care for the garden. The garden is also part of a horticultural class offered to residents with or without disabilities. The raised garden bed design allows for ease of reach to care for the plants at various heights. So if a person has a bad back, uses a wheelchair, or is shorter in height, they can still participate in the different programs and activities, providing equitable use of Principle One. The ledge along the side of the garden provides a person with limited stamina an area to sit and participate without exerting a great deal of energy. This space and height design provides a more equitable use, and easy spacing for approaching the fountain and raised garden bed, putting into practice the size and approach elements of Universal Design Principle Seven.

## *2.6. Picnic Tables and Shelter*

Located at the end of the playground and near the water feature is a small shelter with permanent or fixed mounted picnic tables. To provide options for a person using a wheelchair, two of the three picnic tables are accessible. The recreation standards would only require only one accessible table. An important element of the park design is the location of the accessible tables. As observed in Figure 7, one accessible table is located under the shelter to allow a person to be out of the sun. The other accessible table is in the sun, incorporating Principle One's dispersion of accessible seating. The close proximity of the picnic tables to the other park features and raised garden allows visitors to enjoy the outdoors and be near the playground, garden and fountain to watch their children and friends. Not only do residents with and without disabilities visit the park, many people from surrounding communities travel to Forest Glen Park to use the playground, interact with the raised garden bed, and enjoy the picnic shelter area.



**Figure 7.** Picnic shelter provides multiple seating options.

## 2.7. Overall Grounds Design

As mentioned earlier, the park is fairly small at only 2.1 acres. The park is served by an existing parking lot, public sidewalks around the edge and walkways throughout the park. The park is used by local residents as well as by people driving to the park. The parking and the walkways as noted earlier are very level and provide minimum slopes to allow for easy access as intended by Universal Design Principle Six.

The east side of the park is open along a moderately busy street. One parent of an autistic child, who will unexpectedly run, voiced concern about this design. The site designer incorporated a slight berm along this park end that included fencing and plantings on top. This solution allows for the open design of the park, but also provides a visual barrier, offering an intuitive barrier addressed in Principle Three. The slope of the berm naturally helps slow down a running child, which allows a parent or caretaker to catch up to them.

## 3. Conclusion

The park, playground, garden and water feature have been very well received not only by the public, but by park and recreation professionals as well. The National Park and Recreation Association recognized Forest Glen Park in its Weekly News Brief. Word about this park has caused many design professionals, park planners, architects, and park managers to visit the site to see how they can incorporate Universal Design Principles into their new park and facility developments. But the most powerful aspect of this universally designed park was observed the day of its grand opening and can be seen every day since. Families living with disabilities, who never before had the opportunity to play together at one park, use the same playground; interact with each other and others visiting the park. Forest Glen provides the features and universal access they were missing in other parks and facilities. Through the vision of the Kellogg Foundation and their commitment to universal access to recreation, Forest Glen Park is a favorite destination of many local families living with disabilities and has become a model for other parks and facilities.

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