



NORTH SHORE RECREATION AREA

EASTER LAKE PARK

UNIVERSAL PARK DESIGN SERIES

- TOOLS

1. PROGRAMMING

2. PARKING & ENTRY

3. INTERIOR SPACES

4. PLAYGROUNDS, TRAILS, & GREEN SPACES

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Disclaimer: This toolkit is a joint effort between Polk County Conservation, Shive-Hattery, and Uncurbed (“Parties”). This toolkit provides main summary and technical criteria of universal design considerations related to park design; however, the Parties do not warrant or guarantee the accuracy, completeness, adequacy, or currency of any information referenced or linked within this document. In no event, shall the Parties be liable for any direct, indirect, or incidental damages, injuries, losses, costs, or expenses, howsoever caused, arising out of, or resulting from access to, possession of, or use of this toolkit. The detailed guidance provided here does not represent the only possible solution. Clients or designers may develop additional solutions to meet a diversity of users. New materials and technologies that emerge may present further possibilities for accommodating the diversity of users. Each project should engage the services of a qualified and professional access consultant to ensure that project anomalies or other factors do not adversely affect the design intent.

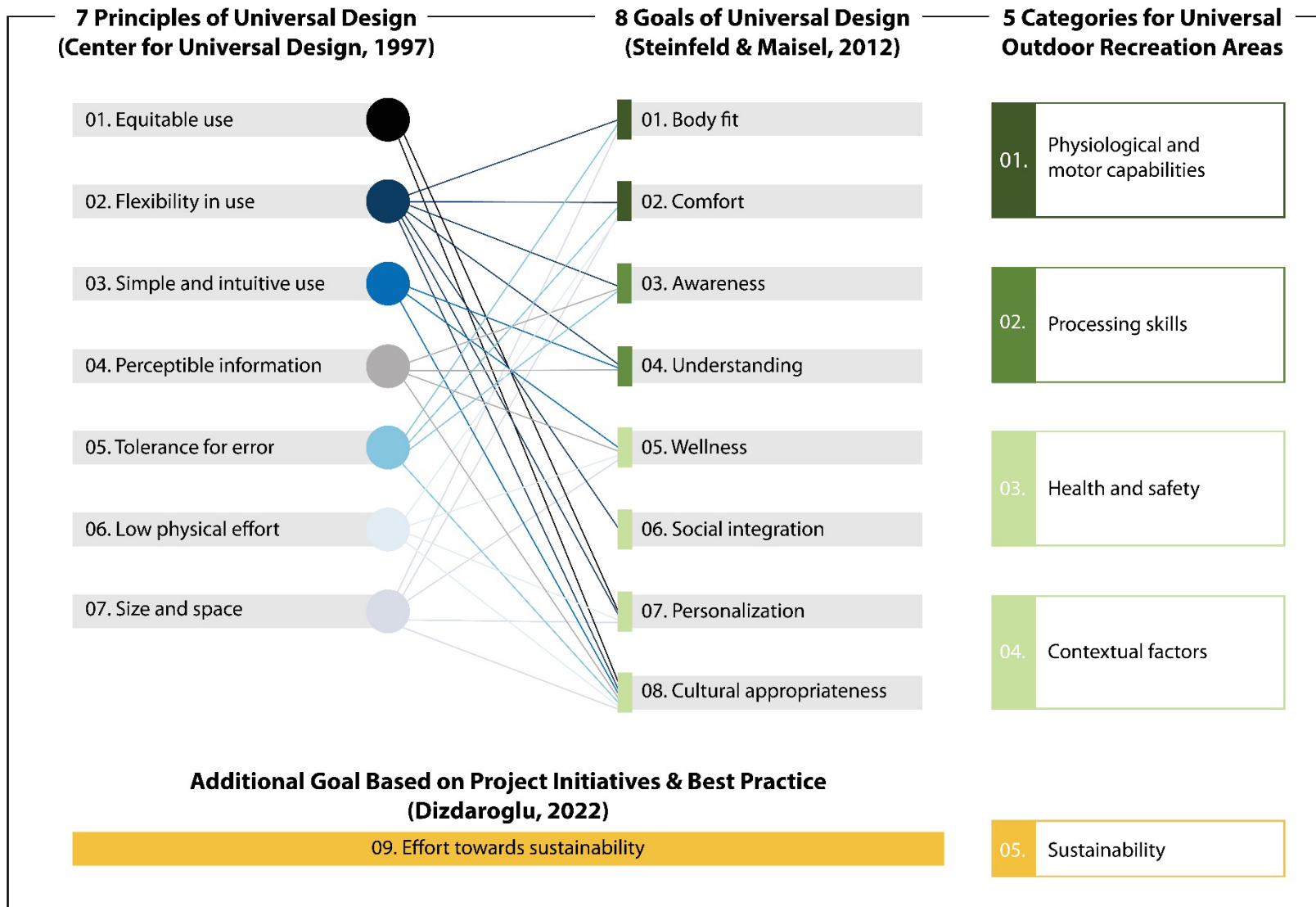
COVER PAGE

UNIVERSAL PARK DESIGN TOOL - PROGRAMMING

This tool is a compilation of academic, user, and practical research intended for use during the park design process to help list key universal design (UD) considerations needed to support design decision-making for the design of **programming**. It is recommended that this tool be prioritized first as this may influence UD considerations in the remaining tools. This tool is not a one-size-fits-all. It is one component of the universally designed process used during the design of Athene's Easter Lake North Shore Renovation Project. Each project should incorporate the practice of co-design, engaging active participation from diverse end-users and subject matter experts in universal design and/or other related fields and methodologies (i.e., human-centered design, design thinking, inclusive design, co-design, accessible design, occupational science, etc.) to ensure that project anomalies or other factors do not adversely affect the design intent. UD considerations are provided throughout the tool and while they provide a summary of main considerations and technical criteria, they should not be regarded as an exhaustive list. The detailed guidance provided here does not represent the only possible solution. Members of a co-design team may come up with other ways to meet a diversity of users. New materials and technologies that emerge may open up further possibilities for accommodating the diversity of the population.

Each tool is organized into **5** Categories for Universal Park Design, expanding on the original 7 Principles of Universal Design² and 8 Goals of Universal Design^{1,2} to include an effort toward sustainability³ ([see Figure 1](#)). These categories were selected based on project initiatives and themes collected from academic, user, and practical research. Variation exists in the categories of **program** design due to differences in operations, organizational goals between different clients and designers, and user perspectives. The priorities you have set in place for your particular project, the UD categories, user input, and the key questions that you must ask yourself as clients and designers, are the foundation of this tool. Before using the tool, please first go to the [Home Page](#) to learn more about the UD goals, categories, and how to communicate project priorities.

Figure 1. Crosswalk (between the 7 Principles of Universal Design¹, 8 Goals of Universal Design¹⁰, and 5 Categories for Universal Park Design based on project initiatives and themes collected from academic, user, and practical research for Athene’s Easter Lake North Shore Renovation Project.



The [Tool Page](#) lists key questions relevant to the 5 specific UD categories for consideration. Below each question, a detailed design feature list is provided and serves as a menu item for clients to choose from and share with the design team at the onset of any park project based on the foundations of UD mentioned above. Designers can refer to the selected menu items throughout the design process and use the tool to validate their design choices. The design considerations and features are based on a review of research literature, best practices, and expert opinions. Clients and/or designers can add new design features based on their literature review, experiences, or user input. There may be instances of trade-offs between the UD categories, and there may be instances where you use some, but not all of the features, depending on the evaluation of value vs. cost by the client (see important notes).

Notes:

Each tool is not meant to be an exhaustive list of minimal standards already covered in available design guidelines. Rather, it provides a structured way for clients and designers to consciously focus on key evidence-based design considerations to optimize design decision-making resulting in the best value for the investment.

Gathering user input is one important step in decision-making. This is referred to as co-design. As a design tool, this is not meant to be a one-size-fits-all prescription for design. In many cases, no prescriptive numbers (e.g., space size or length of headwall) are provided because the optimized numbers depend on a thorough understanding of the needs of those affected by the project and the constraints of the project (e.g., operations and costs). Clients and designers should use the key design considerations and design features included in the tool as a basis to determine what are “adequate” or “sufficient” numbers or sizes. Likewise, the client and future users should be consulted regarding subjective aspects (e.g., attractive design). Environmental simulation (e.g., mock-ups, and renderings) may be used in gathering input on these issues.

Disclaimer: The tool is based on currently available research evidence and expert opinions therefore may not exhaustively cover all design aspects impacting outcomes. The results produced by using the tool may vary depending on conditions/users.

HOME PAGE

UNIVERSAL PARK DESIGN TOOL - PROGRAMMING

To begin, please complete the following information:

Client Name:

Project Name:

Client Contact Person:

Lead Designer:

Tool Completion Date:

On the next page is a list of each universal design goal and category, in addition to the category of sustainability. Some goals and categories may be more important for a particular park project. If you are the client, please confirm or change priority ratings based on their relevance to **programming** design by selecting a rating (High, Medium, or Low) from the dropdown list in each cell of Column C. It is recommended to limit the 'High' priority rating to 4 UD goals and categories.

8 Universal Design Goals ¹	5 Universal Park Design Categories ^{1, 2, 10}	Priorities (Insert High, Medium, Low)
1. Body Fit	1.1. Physiological & Motor Capabilities	
2. Comfort	1.2. Physiological & Motor Capabilities	
3. Awareness	2.1. Processing Skills	
4. Understanding	2.2. Processing Skills	
5. Health & Wellness	3. Health & Safety	
6. Social Integration	4.1. Contextual Factors	
7. Personalization	4.1. Contextual Factors	
8. Cultural Appropriation	4.1. Contextual Factors	
	5. Sustainability	

TOOL PAGE

UNIVERSAL PARK DESIGN TOOL - PROGRAMMING

The below tool is more than a tick box. It is a menu list and communication tool for potential UD considerations relevant to **programming** design for clients and designers. Marked boxes should be reviewed by both clients and designers to determine whether a UD consideration is applicable, relevant, and achievable for your park project.

Complete the following steps at the onset of a project:

If you are the client:

1. Place an **X** in the Client column to indicate which design features should be considered for the project. Items selected should be consistent with project goals, user and expert input, and prioritized based on budget. The Notes column can be used to elaborate on each UD consideration as needed. Please include the date when inserting a note. It is recommended that clients engage in user and professional input when determining a UD consideration.
2. If a UD consideration is not relevant to the project, clients should leave the UD consideration in the Client column unmarked.
3. Share the completed tool with the Lead Designer by the agreed-upon completion date.

If you are a designer:

1. Discuss each marked UD consideration with the client and add to the Notes column to further elaborate on specifications (please include the date).

In general:

1. If you are the client or a designer and wish to add additional design features to the tool, you can add them in the cell beginning with "other:" under each UD category. Please enter only UD considerations supported by academic (newly published or existing unpublished research conducted by design firms, and others), user, and practical research.

Complete the following steps throughout the project as needed:

If you are a designer:

1. Place an **X** in the Designer column to indicate whether a UD consideration is included in the current design.
2. If during the design process, a UD consideration is no longer achievable due to unknown or unforeseeable circumstances, designers can flag a UD consideration by placing an **R** in the Designer column to indicate that the UD consideration requires further review with the client.
3. If a UD consideration can only be partially met, place a **P** in the Designer column, and explain in the Note column (please include the date). This explanation may include an alternative option.

UNIVERSAL PARK DESIGN TOOL – PROGRAMMING

Client	Designer	
		<p style="text-align: center;">LEGEND</p> <p>X in the Client column indicates that a UD consideration has been requested</p> <p>X in the Designer column indicates that a UD consideration has been met</p> <p>R in the Designer column indicates that a UD consideration requires review</p> <p>P in the Designer column indicates that a UD consideration was partially met</p> <p>Reminder: UD considerations left unmarked indicate that they are not relevant to the project</p>

BEACHES AND WATER ACTIVITIES		Notes
Client	Designer	
INTERPRETATIVE INFORMATION		
2.2. How should or will physical inclusion be achieved when interpreting information about the experience?		
		Involve(d) persons with physical (i.e., mobility, visual, sensory) needs in the planning of the project.
		A minimum of 16 pt. font is used on all forms of interpretive communication.
		Text is easy to read. Fonts that are highly decorative, bold, condensed, underlined or in italics are avoided. ⁷
		Text is in upper and lower case rather than all BLOCK CAPITALS.
		Sans-serif fonts (i.e., Helvetica, Tahoma, Futura, etc.) are used on all forms of interpretive communication. The type of Sans-serif font used is consistent across all forms of interpretive communication.
		Text is aligned to the left.
		Text is set horizontally rather than at an angle or following a curved line to avoid people having to rotate their head to read it.
		Alt-text, descriptions, and/or captions are provided for all images.
		Plain text or an image is used for all hyperlinks.
		Produce media in an accessible form as required by law under Section 508. This includes captions on all audio and video.
		Transcripts for all audio and video clips are available when needed.
		High contrast colors in matte finish and low gloss were used on all forms of interpretive information.
		All controls used to operate or activate interpretive information can be used with a closed fist.
		Educational information or program furnishings meet or exceed the Smithsonian Guidelines for Accessible Exhibition Design. ⁴
		Educational and interpretive information can be accessed by wheelchair users, cane users, and/or persons who are blind. ⁹
		Comfort features such as distance to locations on interpretive information, adequate seating and lighting levels for various physical needs are provided.

		Specimens and artifacts are mounted so that they are touchable wherever possible. When this is not possible, touchable models of artifacts and specimens are mounted next to the artifacts and specimens contained in protective cases. ⁹	
		Simplified tactile illustrations and graphs are available when necessary.	
		Physical sound buttons with distinguishable tactile shapes are used in lieu of touch-screen displays and mouse pointing devices. Buttons/switches to activate sound are consistently placed.	
		Tactile sound transducers to translate very low bass sound frequencies into physical movement of chair seats and platforms, thus making sound-based experiences accessible to those who cannot hear are considered. ⁹	
		Vibrating touch pads that reproduce the lower frequencies of sound as tactile vibrations that can be sensed through visitors' hands are considered. These pads are effective at transmitting frequencies lower than 800 Hz and corresponds to the lower frequencies of a human speaking voice. It is encouraged to explore the use of vibrating touch pads for components and programs that involve significant sounds at lower frequencies, and adopt them where they enhance accessibility. ⁹	
		The size of letters on signs are related to the type of sign and viewing distance. The list below provides recommended letter height for a range of viewing distances in inches (""). ⁸ <ul style="list-style-type: none"> ▪ 1" letter height at 30" (2.5 feet) viewing distance ▪ 2" letter height at 60" (5 feet) viewing distance ▪ 3" letter height at 90" (7.5 feet) viewing distance ▪ 4" letter height at 120" (10 feet) viewing distance ▪ 5" letter height at 150" (12.5 feet) viewing distance ▪ 6" letter height at 180" (15 feet) viewing distance 	
		Good contrast between a signboard and any mounting or background surface is used. ⁷	
		Good contrast between the text/symbols and background sign color is used. ⁷	
		A minimum of 70% Light Reflectance Value (LRV) contrast between sign text and background color is achieved. ¹³	
		For those with color-vision impairments, interpretive information is provided in another way as well. For example, trails could be marked by types of dotted lines/shapes along with colors.	

		Signs have a matte or satin finish to avoid shiny reflective surfaces and prevent glare. ⁸	
		Signs are evenly illuminated, with a lighting level of 200 lux. signage	
		Position signs where people reading them will not cause an obstruction. ⁸	
		When appropriate, embossed signs are used with the following considerations: letters are raised above the surface of the sign by 1 to 1.5 mm and have a stroke width of 1.5 to 2 mm; ⁷ letters are between 16 to 50 mm in height. Engraved and indented letters and symbols are avoided.	
		When Braille is provided on signage, it is positioned below the related text.	
		2D or 3D tactile maps are available at decision points.	
		Braille and/or tactile symbols are used to describe a situation or view.	
		In situ Braille labels are provided for all cranks, knobs, switches, and loose parts. ⁹	
		Braille translations for components without audio descriptions are provided and will communicate each component title, topic, sentence, and focus headline. ⁹	
		Braille and/or tactile symbols are used to describe a situation or view.	
		Interpretive information including tactile and Braille is available at a maximum height of 48".	
		When appropriate, a qualified reader or alternative forms of interpretive information such as information in large print, Braille, or electronically for use with a screen-reading program; or an audio recording of printed information is available for use. ¹¹	
		When appropriate, a qualified note-taker, sign-language interpreter, oral interpreter, cued-speech interpreter or tactile interpreter; real-time captioning; written materials; or a printed script of a stock speech (such as given on a museum or exhibit tour) are available for use. ¹¹	
		When appropriate, a qualified speech-to-speech transliterator, paper and pencils, or training staff to allow more time to communicate with someone who uses a communication board or device are provided. ¹¹	

		When appropriate, the incorporation of technologies are provided including but not limited to: assistive listening systems and devices; open captioning, closed captioning, real-time captioning and closed caption decoders and devices; telephone handset amplifiers, hearing-aid compatible telephones, text telephones (TTYs), videophones, captioned telephones, and other voice text, and video-based telecommunication products; videotext displays; screen reader software, magnification software, and optical readers; video description and secondary auditory programming (SAP) devices that pick-up video-described audio feeds for television programs; accessibility features in electronic documents and other electronic and information technology that is accessible (either independently or through assistive technology such as screen readers). ¹¹	
		A video tour is provided on the website for those who may not be able to physically travel to the destination.	
		Ramps and stepped routes are clearly visible or well signed. ⁶	
		Other:	
2.1. How should or will an increase in awareness be achieved when interpreting information about the experience?			
		A bolder weight type or larger-sized font is used to emphasize a word or words in lieu of using bold for all text.	
		Good contrast between a signboard and any mounting or background surface is used to help draw attention to the sign itself. ⁷	
		Good contrast between the text/symbols and background sign color is used to help draw attention to the sign itself. ⁷	
		Tactile symbols are used to describe a situation or view.	
		Signs are positioned at important points along a route (i.e., decision points), wherever routes intersect or diverge.	
		Signs are positioned where people reading them will not cause others to become distracted.	
		A node for local information exchange with a bulletin board and a newsstand are available and maintained.	
		Directional signs that help people to retrace their steps and identify alternative locations within a space, without having to return to the main entrance are provided. ⁷	
		Educational information or exhibits incorporate multi-sensory elements into each experience. If multi-sensory options are not feasible, complimentary experiences that engage in a different sense are available. ⁹	

		Audio descriptions (delivered through a handset, speaker or headphone) provide verbal descriptions of visual elements when necessary. Buttons/switches to activate audio descriptions are consistently placed. ⁹	
		Images are used to support and replicate information communicated through text and audio. Images provide an indication of what to do as well as specific content. ⁹	
		A video tour is provided on the website to increase awareness of special affordances.	
		Other:	
2.2. How should or will an increase in understanding be achieved when interpreting information about the experience?			
		Wording is as simple as possible. Reading level is no higher than 8th grade.	
		The use of unfamiliar abbreviations is avoided.	
		Content on all forms of interpretive communication is organized in a simple and intuitive manner, such as listed alphabetically or grouped logically.	
		Wording, font, and images are consistent throughout the experience when possible.	
		Arabic numbers (1, 2, 3) are used, not Roman numerals (I, II, III).	
		Alt-text, descriptions, and/or captions are provided for all images.	
		Plain text or an image is used for all hyperlinks.	
		Produce media in an accessible form as required by law under Section 508. This includes captions on all audio and video. ⁹	
		Transcripts for all audio and video clips are available when needed.	
		Universally recognized symbols are used in place of or in combination with text where possible.	
		Arrows are used to indicate directions and are pointing in a logical direction.	
		Color coding is used where possible and colors are easy to differentiate. For example, integrate color schemes into wayfinding plan.	
		Symbols accompany text as part of the wayfinding plan. For example, animal characters are used for kid-friendly Interior.	
		2D or 3D tactile maps are available at decision points.	
		Signs are positioned at important points along a route (i.e., decision points), wherever routes intersect or diverge.	
		Signs are positioned where people reading them will not cause others to become distracted.	

		Directional signs that help people to retrace their steps and identify alternative locations within a space, without having to return to the main entrance are provided. ⁷	
		Educational information or exhibits incorporate multi-sensory elements into each experience. If multi-sensory options are not feasible, complimentary experiences that engage in a different sense are available. ⁹	
		Audio descriptions (delivered through a handset, speaker or headphone) provide verbal descriptions of visual elements when necessary. Buttons/switches to activate audio descriptions are consistently placed. ⁹	
		Graphic panels and slant surfaces include text in English and removable boards with text from other languages to the right of the English text. Removable boards can be changed for specific situations. ⁹	
		Spanish text is available for all interpretive information. For example, removable boards with Spanish text, QR codes with links to Spanish text versions, or separate stationary panels with Spanish text are available.	
		A front-end language switcher is available on the website.	
		Images are used to support and replicate information communicated through text and audio. Images provide an indication of what to do as well as specific content. ⁹	
		A video tour is provided on the website to increase understanding of special affordances.	
		Other:	
3. What sanitary methods should or will be effectively communicated throughout the experience?			
		The website contains clear information that is provided using a variety of alternative communication formats regarding the number of and locations of restrooms and other sanitization areas.	
		Effective wayfinding strategies are incorporated at the destination regarding restrooms and other sanitization areas. For example, signage includes accessible font types, sizes; embossed letters; Braille; arrows that point in a logical direction; universal symbols for restrooms, etc.	
		Other:	
3. What safety measures should or will be effectively communicated throughout the experience?			
		The website contains clear information that is provided using a variety of alternative communication formats regarding rules of the destination, hours of operation, contact information for interconnected service providers, etc.	

		Effective wayfinding strategies are incorporated at the destination to prevent visitors from getting lost. For example, signage includes accessible font types, sizes; embossed letters; Braille; arrows that point in a logical direction; or an organizational communication system (i.e., color-coding, symbols).	
		Signage at the site contains clear information using a variety of alternative communication formats regarding rules of the destination, hours of operation, contact information for interconnected service providers, etc.	
		Other:	
4.2. What opportunities for personalization should or will be effectively communicated throughout the experience?			
		The website contains information about public transportation options to and from the destination, and universal design programming considerations.	
		A video tour is provided on the website to share opportunities for personalization at the destination. For example, the video shows persons who may need mobility devices where to find them on site.	
		Other:	
4.1. How should or will social inclusion be achieved when interpreting information about the experience?			
		Interpretive information promotes opportunities for two-way communication. For example, social stories are included on the website or on communication boards.	
		Interpretive information provides opportunities for two-way communication. For example, communication board panels are available in locations where communication may occur the most. Communication board panels may include pictures, sign language, letters, etc.	
		Graphic panels and slant surfaces include text in English and removable boards with text from other languages to the right of the English text. Removable boards can be changed for specific situations. ⁹	
		A front-end language switcher is available on the website.	
		Spanish text is available for all interpretive information. For example, removable boards with Spanish text, QR codes with links to Spanish text versions, or separate stationary panels with Spanish text are available.	
		Educational content or exhibits includes welcoming and inclusive language to the broadest possible audience. ¹⁰	

		Educational content or exhibits does not segregate certain types of learners from other types. Every effort should be made to ensure that any technology, aid, or service does not socially isolate a person with a disability or who speaks a different language from their learning group. ⁹	
		When applicable, images used for communication purposes should include persons with disabilities, or from different cultural backgrounds and accurately reflect the culture.	
		A video tour is provided on the website to showcase different communicative aids on site that may benefit those who have communicative impairments.	
		A video tour is provided on the website to prepare those with social-communicative impairments on what to expect when on-site.	
		Other:	
4.3. How should or will cultural considerations be considered in the delivery of interpretative information regarding the experience?			
		The website contains information about public transportation options to and from the destination, special events or exhibits, and universal design programming considerations.	
		Nonbinary pronouns are used in all interpretive information.	
		Graphic panels and slant surfaces include text in English and removable boards with text from other languages to the right of the English text. Removable boards can be changed for specific situations. ⁹	
		A front-end language switcher is available on the website.	
		Educational content or exhibits includes welcoming and inclusive language to the broadest possible audience. ¹⁰	
		When applicable, images used for communication purposes should include persons with disabilities, or from different cultural backgrounds and accurately reflect the culture.	
		A video tour is provided on the website to showcase the different affordances that may enhance the experience from a cultural perspective.	
		Other:	
PARKING & ENTRY			
1.2. How should or will parking & entry promote physical inclusion?			
		Around-the-clock bus transportation with a bus-stop near destination is available.	

		Free public parking is offered. If free public parking is not an option, prepay ticket machines or parking meters are conveniently located, accessible and useable (i.e., available in different heights to accommodate wheelchair users or shorter people). ⁶	
		Tram services from the parking lot to an activity access point is provided.	
		Concrete and asphalt surfaces are even and maintained.	
		Adequate lighting, especially if the park is open in the evenings, is provided and maintained to enhance visibility in high traffic areas.	
		Tram services from the parking lot to an activity access point is provided.	
		Snow and ice removal is provided as needed.	
		Other:	
2.1. What features that promote awareness should or will be provided within the parking lot and entrance?			
		Adequate lighting, especially if the park is open in the evenings, is provided and maintained to increase awareness of surroundings.	
		Other:	
2.2. What features within the parking lot and entrance should or will be easy to understand?			
		If free public parking is not an option, prepay ticket machines or parking meters are understandable when used.	
		Adequate lighting is provided to emphasize priority areas or information within the parking lot and entrance.	
		Other:	
3. How should or will the parking lot and entrance include the promotion of sanitization efforts?			
		Stationary sanitization stations are provided at each entry area.	
		Other:	
3. What safety programming in the parking lot and at the entrance should or will be considered?			
		Around-the-clock bus transportation with a bus-stop near destination is available.	
		Safety provisions (i.e., security cameras, hotline numbers, and safety alert systems) are available.	
		Tram services from the parking lot to an activity access point is provided.	
		Snow and ice removal is provided as needed.	
		Sand and salt are used when necessary to reduce risk of injury.	
		Other:	
4.2. What opportunities for personalization should or will be available within the parking lot and entrance?			

		Around-the-clock bus transportation with a bus-stop near destination is available.	
		In addition to handicapped designated parking spaces, designated parking spaces for parents with children, and veterans are provided close to the entrance.	
		A minimum of one designated car charging stall is offered.	
		Other:	
4.1. How should or will the parking lot and entrance promote social inclusion?			
		Around-the-clock bus transportation with a bus-stop near destination is available.	
		Other:	
4.3. What cultural considerations should or will be included throughout the parking and entrance spaces?			
		Around-the-clock bus transportation with a bus-stop near destination is available.	
		Financial assistance program that reduces or covers the cost of transportation to and from the destination is available.	
		A minimum of one designated car charging stall is offered.	
		Other:	
5. What efforts towards sustainability should or will be made within the parking lot and entrance?			
		A maintenance plan includes the inspection of lots on yearly basis to determine if markings of spaces, fire lanes, and other markings are visible.	
		A maintenance plan includes checking parking lot lights at least twice per year.	
		A maintenance plan includes roadway markings and wall- or post-mounted signs for designated parking spaces. ⁶	
		A minimum of one designated car charging stall is offered.	
		Other:	
PROGRAM ACTIVITIES			
1.2. How should or will the program activities promote physical inclusion?			
		Waivers for visitors renting equipment are required.	
		An access consultant (i.e., OT or otherwise regulated professional) was consulted to identify strategies that promote physical inclusion during activities.	
		Rentals that assist with accessibility needs are available. For example, transport wheelchairs, special mobility equipment such as floating beach wheelchairs, adaptive kayaks, etc.	
		Wench system is used to help pull boats out of the water and back into the rack to exit/transfer out. ⁵	
		Even walking surfaces are maintained and clear of debris.	

		Ground level flushes with walking surface.	
		Furnishings for program activities are accessible. For example, different styles of seating and tables; grills that can be lowered/raised with one hand; raised fire building surfaces to prevent leaning too far over when standing or in a seated position.	
		Some tables are fixed to the surface to ensure they remain accessible.	
		Program activities account for service animals.	
		Over-water fishing, shore fishing, in water fishing, etc., is offered. ⁵	
		Splash pad is considered for those who are unable to submerge in water.	
		Wheelchair accessible fitness equipment or a transfer system is provided.	
		Fitness equipment includes graded exercises with interpretive information provided for each piece of equipment.	
		Other:	
2.1. How should or will enhanced awareness be considered in the execution of program activities?			
		An access consultant (i.e., OT or otherwise regulated professional) was consulted to identify strategies that enhance awareness during participation in program activities.	
		Other:	
2.2. How should or will enhanced understanding be considered in the execution of program activities?			
		Waivers for visitors renting equipment are required.	
		An OT was consulted to identify a strategies to enhance understanding during participation in program activities.	
		Other:	
3. How should or will sanitization be considered in all program operations?			
		Recycling receptacles are placed throughout the destination and routinely disposed of properly.	
		Trash receptacles are placed throughout the destination and routinely disposed of properly.	
		Trash liners placed by dog parks, dog water stations, pavilions, and player areas are removed and replaced daily regardless of how much or how little the containers are filled. ¹	
		A maintenance plan includes the sanitization of all returned equipment immediately after use.	
		An outdoor shower station is considered when there is access to a beach.	
		Sanitization stations are provided with automatic dispensers.	
		Other:	

3. How should or will safety be considered in all program operations?		
		Waivers for visitors renting equipment are required.
		Vandalized areas that create a public safety hazard are immediately secured upon identification. This may include securing the areas for safety reasons, removing the object or placing a barrier around the area to prevent possible public access. ¹
		A maintenance plan includes prioritizing repairs for program activities based on urgency.
		A maintenance plan includes a schedule for checking proper movement and possible wear of all dynamic elements and lubricate as needed. For example, an inspection of all nuts, bolts, pins, clamps, s-hooks, and parts is completed routinely to ensure that they are securely attached in the proper locations. ¹
		Missing or broken equipment or furnishings are immediately restored to a safe condition. If permanent repairs are not immediately possible, immediate measures to restrict access to the equipment site and to adequately warn visitors of the hazardous situation are taken. This may include securing the area for safety reasons, removing the object or placing a barrier around the area to prevent possible public access. ¹
		A maintenance plan includes pruning trees and shrubs two times per year. For example, in the early Spring & Summer (depending on the species).
		A maintenance plan includes pruning low-hanging limbs to eliminate potential hazards (8 ft. clearance minimum) on a yearly basis. ¹
		A maintenance plan includes the immediate removal of fallen limbs and debris.
		Snow and ice removal is provided as needed.
		Sand and salt are used when necessary to reduce risk of injury.
		Maintenance plan includes the closure of pathways when deemed dangerous for pedestrian use.
		A maintenance plan includes inspecting all sidewalks and paths for cleanliness and safety and reporting any areas of concern. ¹
		All equipment and furnishings are in good condition; no splinters or broken hardware.
		Gated area is provided for pets, service animals.
		Natural shade or rentable shade options are available.
		Sand sifters are used to clean and haul away debris on a beach.

		Major debris presenting risk is removed from any public water source.	
		Other:	
4.2. How should or will the program activities contain opportunities for personalization?			
		An OT was consulted to identify a broad scope of activities based on human factors.	
		Activities and services are provided at a free or reduced rate.	
		The freemium model, which allows visitors to either pay a rental fee, receive a full refund for returned rentals, complete a post-survey, refer a friend or group, or post to a social network, is offered.	
		Community activities, such as exchanges with food, physical activity classes, community supported learning, exhibits, etc., are facilitated.	
		Incorporated outdoor and indoor activities. For example, maintain an outdoor reading room.	
		A variety of table styles, some with clear sitting space on the side, some with extended tabletops on the end, some circular in shape, and some with natural shade or coverage are available during program activities. ⁵	
		Over-water fishing, shore fishing, in water fishing, etc., is offered. ⁵	
		Special programming is offered through reservations or a set schedule.	
		Other:	
4.1. How should or will the program activities promote social inclusion?			
		Activities and services are provided at a free or reduced rate.	
		Community activities, such as exchanges with food, physical activity classes, community supported learning, exhibits, etc., are facilitated.	
		An access consultant (i.e., OT or otherwise regulated professional) was consulted to identify strategies that promote social integration during activities.	
		A variety of table styles, some with clear sitting space on the side, some with extended tabletops on the end, some circular in shape, and some with natural shade or coverage are available during social gatherings. ⁵	
		Splash pad is considered at beach level to avoid segregation for those who may not be able to or want to fully submerge in water.	
		Other:	
4.3. What cultural considerations should or will be made throughout program activities?			
		Activities and services are provided at a free or reduced rate.	

		Community activities, such as exchanges with food, physical activity classes, community supported learning, exhibits, etc., are facilitated.	
		Consultation with an access consultant on the development and execution of culturally appropriate program activities and services.	
		Other:	
5. What efforts should or will be made towards sustainability in program operations?			
		Recycling receptacles are placed throughout the destination and routinely disposed of properly.	
		The freemium model, which allows visitors to either pay a rental fee, receive a full refund for returned rentals, complete a post-survey, refer a friend or group, or post to a social network, is offered.	
		A maintenance plan includes prioritizing repairs for program activities based on urgency.	
		A maintenance plan includes a schedule for checking proper movement and possible wear of all dynamic elements and lubricate as needed. For example, an inspection of all nuts, bolts, pins, clamps, s-hooks, and parts is completed routinely to ensure that they are securely attached in the proper locations. ¹	
		Missing or broken equipment or furnishings are immediately restored to a safe condition. If permanent repairs are not immediately possible, immediate measures to restrict access to the equipment site and to adequately warn visitors of the hazardous situation are taken. This may include securing the area for safety reasons, removing the object or placing a barrier around the area to prevent possible public access. ¹	
		A maintenance plan includes pruning trees and shrubs two times per year. For example, in the early Spring & Summer (depending on the species).	
		A maintenance plan includes pruning low-hanging limbs to eliminate potential hazards (8 ft. clearance minimum) on a yearly basis. ¹	
		A maintenance plan includes the immediate removal of fallen limbs and debris.	
		Snow and ice removal is provided as needed.	
		A maintenance plan includes mowing all common turf areas once every four weeks at the proper levels for each type of turf. ¹	
		A maintenance plan includes trimming and edging, and providing weed control outside normal turf areas to prevent encroachment. ¹	

		Install mulch and recycled compost from on-site plant material where possible. ¹	
		Pest control is managed using eco-friendly, highly effective products.	
		Waterfowl control techniques are used to manage excrement, such as signage banning, feeding waterfowl, eco-friendly repellents, etc.	
		A maintenance plan includes inspecting all sidewalks and paths for cleanliness and reporting any areas of concern. ¹	
		Erosion is avoided due to routine installation of trail materials and inspection.	
		A maintenance plan includes the inspection of all returned equipment immediately after use and proper storage of equipment until the next use.	
		Sand sifters are used to clean and haul away debris on a beach.	
		Fishing activities are managed to maintain federal and state laws and regulations.	
		Staff receive trainings on DEI and Basic Life Support CPR, require staff to be mandatory reporters, and to be compliant and up-to-date on immunizations.	
		Other:	

References

1. Brookhaven City Council. (2018). *Parks and Recreation Department Maintenance Standards* [Presentation]. Available from: <http://brookhavencityga.iqm2.com/Citizens/FileOpen.aspx?ID=1763&Inline=True&Type=1>
2. Center for Universal Design. 1997. *The Principles of Universal Design, Version 2.0*. Raleigh: North Carolina State University.
3. Dizdaroglu, D. (2021). Developing Design Criteria for Sustainable Urban Parks. *Journal of Contemporary Urban Affairs*, 1, 69–81. <https://doi.org/10.25034/ijcua.2022.v6n1-7>
4. Michigan Department of Natural Resources. (2021). Guidance on Designing Specific Types of Recreation and Support Facilities that Exceeds ADA for Universal Accessibility. In *Michigan Natural Resources Trust Fund 2021 Application Guidelines*. (pp. 46-50).
5. National Disability Authority's Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. External Environment*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
6. National Disability Authority's Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. Internal Environment and Services*. Centre for

Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>

7. National Disability Authority's Centre for Excellence in Universal Design. (2020b). *Signage design*. Centre for Excellence in Universal Design. <https://universaldesign.ie/Products-Services/Custom-Communications-Toolkit-for-the-Public-Service-A-Universal-Design-Approach/Written-Communication/Signage-Design/>
8. Nise Network. (2010). *Universal Design Guidelines for NISE Network Exhibits*. Available on Website: https://www.nisenet.org/sites/default/files/catalog/uploads/2971/ud_guide_exhibits_10_23_print.pdf
9. Shrum, J. L., & Glisan, E. W. (2000). *Teacher's handbook: contextualized language instruction*. 2nd ed., rev. expanded ed. Boston, Mass., Heinle & Heinle.
10. Special Needs Resource and Training Blog (2018). *Helpful Braille Resources You Should Know About* [Blog]. Available on Website: <https://specialneedsresourceblog.com/helpful-braille-resources-you-should-know-about/>
11. Steinfeld, E., & Maisel, J. (2012). *Universal Design*. John Wiley & Sons.
12. Wolfe, J. (2019). *Importance of Light Reflectance Value Contrast for Signage* [Blog]. Available on ASI Website: <https://asisignage.com/2019/12/10/importance-of-light-reflectance-value-contrast-for-signage/>

Sources:

[City of Miami Parks and Recreation Department Safety and Maintenance Checklist](#)

[UCLA Luskin School of Public Affairs: Placemaking for an Aging Population – Guidelines for Senior-Friendly Parks](#)

[ADA.gov: Effective Communication](#)



NORTH SHORE RECREATION AREA

EASTER LAKE PARK

UNIVERSAL PARK DESIGN SERIES

- TOOLS

1. PROGRAMMING

2. PARKING & ENTRY

3. INTERIOR SPACES

4. PLAYGROUNDS, TRAILS, & GREEN SPACES

5. BEACHES & WATER ACTIVITIES

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Disclaimer: This toolkit is a joint effort between Polk County Conservation, Shive-Hattery, and Uncurbed (“Parties”). This toolkit provides main summary and technical criteria of universal design considerations related to park design; however, the Parties do not warrant or guarantee the accuracy, completeness, adequacy, or currency of any information referenced or linked within this document. In no event, shall the Parties be liable for any direct, indirect, or incidental damages, injuries, losses, costs, or expenses, howsoever caused, arising out of, or resulting from access to, possession of, or use of this toolkit. The detailed guidance provided here does not represent the only possible solution. Clients or designers may develop additional solutions to meet a diversity of users. New materials and technologies that emerge may present further possibilities for accommodating the diversity of users. Each project should engage the services of a qualified and professional access consultant to ensure that project anomalies or other factors do not adversely affect the design intent.

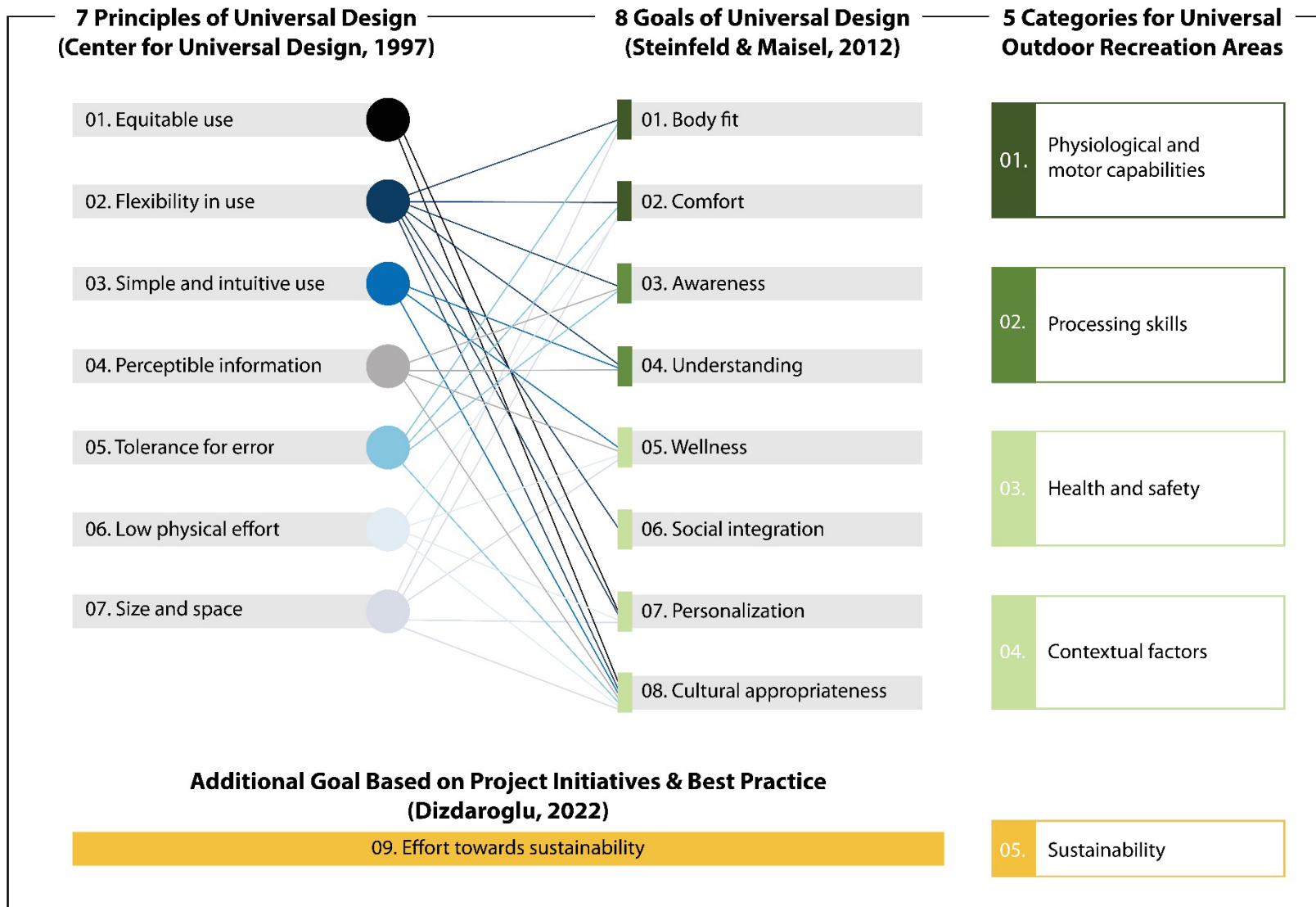
COVER PAGE

UNIVERSAL PARK DESIGN TOOL – PARKING & ENTRY

This tool is a compilation of academic, user, and practical research intended for use during the park design process to help list key universal design (UD) considerations needed to support design decision-making for the design of **parking and entry**. It is recommended that this tool be prioritized last, if necessary. This tool is not a one-size-fits-all. It is one component of the universally designed process used during the design of Athene's Easter Lake North Shore Renovation Project. Each project should incorporate the practice of co-design, engaging active participation from diverse end-users and subject matter experts in universal design and/or other related fields and methodologies (i.e., human-centered design, design thinking, inclusive design, co-design, accessible design, occupational science, etc.) to ensure that project anomalies or other factors do not adversely affect the design intent. UD considerations are provided throughout the tool and while they provide a summary of main considerations and technical criteria, they should not be regarded as an exhaustive list. The detailed guidance provided here does not represent the only possible solution. Members of a co-design team may come up with other ways to meet a diversity of users. New materials and technologies that emerge may open up further possibilities for accommodating the diversity of the population.

Each tool is organized into **5** Categories for Universal Park Design, expanding on the original 7 Principles of Universal Design¹ and 8 Goals of Universal Design¹⁰ to include an effort toward sustainability² ([see Figure 1](#)). These categories were selected based on project initiatives and themes collected from academic, user, and practical research. Variation exists in the categories of **parking and entry** design due to differences in operations, organizational goals between different clients and designers, and user perspectives. The priorities you have set in place for your particular project, the UD categories, user input, and the key questions that you must ask yourself as clients and designers, are the foundation of this tool. Before using the tool, please first go to the [Home Page](#) to learn more about the UD goals, categories, and how to communicate project priorities.

Figure 1. Crosswalk (between the 7 Principles of Universal Design¹, 8 Goals of Universal Design¹⁰, and 5 Categories for Universal Park Design based on project initiatives and themes collected from academic, user, and practical research for Athene’s Easter Lake North Shore Renovation Project.



The [Tool Page](#) lists key questions relevant to the 5 specific UD categories for consideration. Below each question, a detailed design feature list is provided and serves as a menu item for clients to choose from and share with the design team at the onset of any park project based on the foundations of UD mentioned above. Designers can refer to the selected menu items throughout the design process and use the tool to validate their design choices. The design considerations and features are based on a review of research literature, best practices, and expert opinions. Clients and/or designers can add new design features based on their literature review, experiences, or user input. There may be instances of trade-offs between the UD categories, and there may be instances where you use some, but not all of the features, depending on the evaluation of value vs. cost by the client (see important notes).

Notes:

Each tool is not meant to be an exhaustive list of minimal standards already covered in available design guidelines. Rather, it provides a structured way for clients and designers to consciously focus on key evidence-based design considerations to optimize design decision-making resulting in the best value for the investment.

Gathering user input is one important step in decision-making. This is referred to as co-design. As a design tool, this is not meant to be a one-size-fits-all prescription for design. In many cases, no prescriptive numbers (e.g., space size or length of headwall) are provided because the optimized numbers depend on a thorough understanding of the needs of those affected by the project and the constraints of the project (e.g., operations and costs). Clients and designers should use the key design considerations and design features included in the tool as a basis to determine what are “adequate” or “sufficient” numbers or sizes. Likewise, the client and future users should be consulted regarding subjective aspects (e.g., attractive design). Environmental simulation (e.g., mock-ups, and renderings) may be used in gathering input on these issues.

Disclaimer: The tool is based on currently available research evidence and expert opinions therefore may not exhaustively cover all design aspects impacting outcomes. The results produced by using the tool may vary depending on conditions/users.

HOME PAGE

UNIVERSAL PARK DESIGN TOOL - PARKING & ENTRY

To begin, please complete the following information:

Client Name:

Project Name:

Client Contact Person:

Lead Designer:

Tool Completion Date:

On the next page is a list of each universal design goal and category, in addition to the category of sustainability. Some goals and categories may be more important for a particular park project. If you are the client, please confirm or change priority ratings based on their relevance to **parking and entry** design by selecting a rating (High, Medium, or Low) from the dropdown list in each cell of Column C. It is recommended to limit the 'High' priority rating to 4 UD goals and categories.

8 Universal Design Goals ¹	5 Universal Park Design Categories ^{1, 2, 10}	Priorities (Insert High, Medium, Low)
1. Body Fit	1.1. Physiological & Motor Capabilities	
2. Comfort	1.2. Physiological & Motor Capabilities	
3. Awareness	2.1. Processing Skills	
4. Understanding	2.2. Processing Skills	
5. Health & Wellness	3. Health & Safety	
6. Social Integration	4.1. Contextual Factors	
7. Personalization	4.1. Contextual Factors	
8. Cultural Appropriation	4.1. Contextual Factors	
	5. Sustainability	

TOOL PAGE

UNIVERSAL PARK DESIGN TOOL - PARKING & ENTRY

The below tool is more than a tick box. It is a menu list and communication tool for potential UD considerations relevant to **parking and entry** design for clients and designers. Marked boxes should be reviewed by both clients and designers to determine whether a UD consideration is applicable, relevant, and achievable for your park project.

Complete the following steps at the onset of a project:

If you are the client:

1. Place an **X** in the Client column to indicate which design features should be considered for the project. Items selected should be consistent with project goals, user and expert input, and prioritized based on budget. The Notes column can be used to elaborate on each UD consideration as needed. Please include the date when inserting a note. It is recommended that clients engage in user and professional input when determining a UD consideration.
2. If a UD consideration is not relevant to the project, clients should leave the UD consideration in the Client column unmarked.
3. Share the completed tool with the Lead Designer by the agreed-upon completion date.

If you are a designer:

1. Discuss each marked UD consideration with the client and add to the Notes column to further elaborate on specifications (please include the date).

In general:

1. If you are the client or a designer and wish to add additional design features to the tool, you can add them in the cell beginning with "other:" under each UD category. Please enter only UD considerations supported by academic (newly published or existing unpublished research conducted by design firms, and others), user, and practical research.

Complete the following steps throughout the project as needed:

If you are a designer:

1. Place an **X** in the Designer column to indicate whether a UD consideration is included in the current design.
2. If during the design process, a UD consideration is no longer achievable due to unknown or unforeseeable circumstances, designers can flag a UD consideration by placing an **R** in the Designer column to indicate that the UD consideration requires further review with the client.
3. If a UD consideration can only be partially met, place a **P** in the Designer column, and explain in the Note column (please include the date). This explanation may include an alternative option.

UNIVERSAL PARK DESIGN TOOL – PARKING AND ENTRY

Client	Designer	
		<p style="text-align: center;">LEGEND</p> <p>X in the Client column indicates that a UD consideration has been requested</p> <p>X in the Designer column indicates that a UD consideration has been met</p> <p>R in the Designer column indicates that a UD consideration requires review</p> <p>P in the Designer column indicates that a UD consideration was partially met</p> <p>Reminder: UD considerations left unmarked indicate that they are not relevant to the project</p>

PARKING & ENTRY			NOTES
Client	Designer		
PARKING LOT CONSIDERATIONS			
1.1. How should or will the parking lot provide accessible parking beyond ADA requirements?			
		Number of accessible spaces meets or exceeds minimum required by ADA (see 2010 ADA Standards for Accessible Design - 208.2).	
		Accessible parking spaces for vans or other larger vehicles available (see 2010 ADA Standards for Accessible Design - 208.2.4).	
		Accessible parking spaces for compact cars available.	
		Ensure accessible spaces are close to the building or activity.	
		Other:	
4.3. What variety of parking spaces should or will be available for cultural considerations (i.e., lower SES, family size, disability, etc.)?			
		Provide designated parent and child spaces.	
		Provide designated veteran parking spaces.	
		Provide designated electrical car stall and charging station.	
		Separate bus and R.V. parking provided with required minimum stall width to be 13' x 15'. ²	
		Other:	
3. What appropriate materials should or will be used to ensure safety in the parking lot and main access points?			
		All surfaces are firm, hard and slip-resistant (see 2010 ADA Standards for Accessible Design - 302.1).	
		Avoid uneven and loose surfaces.	
		Use firm, smooth, and even surface on access route with minimum gradient of 1 in 50. ⁴	
		Other:	
2.2. What appropriate materials should or will be used to avoid visual confusion in the parking lot and main access points?			
		Avoid signage or surfaces with strong patterns or contrasting lines that may be visually confusing. ⁴	
		Avoid potential glare from surfaces.	
		Add street trees to reduce glare in parking lot area.	
		Other:	
5. What appropriate materials should or will be used to ensure durability in the parking lot and main access points?			
		Consider cost and ease of future repair.	
		Consider durability in harsh weather conditions.	
		Other:	
2.2. How should or will signage be clear and universally understood in the parking lot and main access points?			

		Accessible parking signage uses universal symbols.	
		Overhead signs provide minimum clearance of 90".	
		Signage uses universal symbols.	
		Wall mount signs, when possible, to provide clear walking path.	
		Roadway markings and wall or post mounted signs for designated parking.	
		Other:	
1.1. How should or will the parking lot account for commuter vehicles physical needs?			
		Parking lot provides a bus stop that is close to main entrance.	
		Bus stop has a canopy with height clearance of at least 8'-6".	
		Bus stops avoid dished gullies, grilles, and manhole covers.	
		Avoid indentation for a catch basin at the loading area of a bus stop. ²	
		Design for alternative transportation including bicycle storage, changing rooms and plug-in facilities for electric vehicles. ⁵	
		Other:	
4.2. How should or will the parking lot provide pick up and drop off areas?			
		Parking lot provides a drop off area close to building entrance and accessible route.	
		Drop-off/pick-up areas provide shaded or covered seating area with waiting pad beside. ²	
		Drop off area avoids dished gullies, grilles, and manhole covers. ²	
		Drop-off and pick-up areas do not interfere with other vehicular flow. ²	
		Passenger car drop-off/pick-up areas are 4.5 14' 10" wide x 32' 10" long with appropriate curb radii for easy ingress/egress. ²	
		Avoid indentation for a catch basin at the loading area of a bus stop. ²	
		Other:	
2.1. How should or will the parking lot account for commuter vehicle navigation needs?			
		Provide clear navigation signage for commuter vehicle drivers to find setting down point (drop off).	
		Other:	
3. How should or will the parking lot address commuter needs?			
		Provide well-lit and covered queuing areas with accessible seating for commuters.	
		Drop off for main building to include a setting down point where the path/pavement is flush with the road.	

		Setting down point to include a canopy to guard from weather.	
		Other:	
3. What safety measures should or will be put in place in the parking lot?			
		Addition of security cameras.	
		Blue light emergency phones/call boxes installed with text option.	
		Speed of traffic is controlled in the parking lot using one or more features: medians with and/or without curb cuts depending on pedestrian paths; pinch points; speed humps; designated bike, car, bus lanes using trees, bollards, buffers (i.e., vegetative or reflective wands), parked cars, or curbs wherever possible.	
		Access points and drive-ins should be located to minimize conflicts between vehicles and pedestrians.	
		Other:	
3. How should or will traffic islands be used within the parking lot space?			
		Traffic islands that form part of the vehicular circulation pattern shall be cut through level with the street or have curb ramps at both sides and a level area 1220 mm [4'] long between the curb ramps in the part of the island intersected by the crossings. ²	
		Traffic islands have tactile warning strips and directional guides to assist people with visual impairments move across the island, or direct them toward light or signal standards so they are to be able to continue to cross the street safely. ²	
		Other:	
ACCESS ROUTE CONSIDERATIONS			
1.1. How should or will access routes provide adequate clear width for all body types and mobility?			
		Provide access routes that are recommended clear width of 8', when possible, 6' in lower traffic areas.	
		Provide passing places where access route clear width is less than 6'. ⁴	
		Ensure width is never less than 48" at the most constricted points of access route.	
		Provide wider pavement in front of buildings and bus stop locations.	
		Other:	
1.2. How should or will access routes provide areas of rest?			
		Provide seating at regular intervals, away from line of travel; Recommended max distances without rest: - Ambulatory without walking aids: 326' - Use of mobility aids: 164'. ⁴	

		The distance between pedestrian crossings is reduced (e.g., medians with curb cuts, pedestrian safety islands with signal push box).	
		Seating areas or green spaces are available along the access route but outside of the direct travel path (e.g., pinch points or outlets) and at grade with the access route.	
		Other:	
3. How should or will access routes be clear and well lit?			
		Parking lot provides sufficient light at night.	
		Surfaces are designed to drain water effectively keep paths clear in all weather.	
		Other:	
3. How should or will access routes use proper gradients and leveling?			
		Ensure access route is flush and level.	
		Avoid gaps and vertical deviations between paving slabs greater than 0.25". ⁴	
		Keep any break in surface or gap such as drainage gully no greater than 0.375" and perpendicular to line of travel. ⁴	
		Provide inclined routes with a gradient between 1 in 33 and 1 in 25 with level landings at regular intervals - access route gradient must exceed 1 in 25 as a ramp. ⁴	
		Ensure maximum gradient of ramp is 1 in 20, maximum rise 18" and maximum length 36". ⁴	
		Ensure the cross-fall gradient is not greater than 1 in 50. ⁴	
		Exterior walkways shall have adequate 2% positive drainage. ⁴	
		Other:	
1.1. How should or will access route ramps & stairs account for different body fit and mobility levels?			
		Ramp width to match expected level of use but no less than 48". ⁴	
		Ramp top and bottom landings to be 5' in length and intermediate landings to be 3' 7" in length (by width of ramp). ⁴	
		Locate ramp handrails continuously along ramp and intermediate landings.	
		Recommended two handrails for ramps & stairs: one located between 34"-38", one location at a max of 28" for children.	
		Prevent accidents at changes in level to side of access route with curb upstands, barriers or guard rails. ⁴	
		Provide curb upstand or guarding to the side of ramp where adjacent ground is at lower level. ⁴	
		Design does not include curved ramps.	

		Step rise and tread to be consistent and follow IBC guidance	
		Stair width of 4'-11" minimum for 2-way traffic.	
		Stairs shall have anti-slip strips on all nosings. Nosings should be rounded or chamfered and should not project more than 1.5" with a contrast value of at least at least 70%. ²	
		When grade changes must be addressed, integrate the ramp with the stairs.	
		Avoid single steps in an access route. ⁴	
		Clear landings at top and bottom on the step to be in line with ADA guidance. ⁴	
		Provide continuous handrails at both sides of steps and intermediate landings. ⁴	
		12" horizontal extension of the handrail required at both the top and bottom of the stairs or ramp. ²	
		Treads should be sloped forward a maximum of 1% to 2% prevent accumulation of water. ²	
		Provide center handrail where steps are more than 87" wide. ⁴	
		Protect any area below steps with had headroom less than 83". ⁴	
		No glare or shadows on ramps.	
		Other:	
2.1. How should or will access route ramps & stairs be well-lit with visual and tactile cues?			
		Illuminate stairs and landing at 150 lux.	
		Illuminate ramp and landing at 150 lux.	
		Create tactile hazard warning surface at top and bottom of flight (see ADA guidance for more). ⁴	
		Ensure ramps and stairs are clearly visible and well signed.	
		Visually highlight every step edge.	
		Other:	
5. How should or will access routes be winterized?			
		Where reasonable, provide a cover or sub-surface heating system to keep ramps free of snow, ice and freezing rain. ²	
		Other:	
4.2. What opportunities for personalization or personal choice should or will be available?			
		Design provides a variety of pedestrian access routes from the parking lot to the main buildings.	
		Provide low traffic parking areas.	
		Provide secure locations for parking other types of transportation (i.e., motorized bikes, bicycles, etc.).	
		Other:	
3. How should or will street furniture be clear of the access route and free of tripping hazard?			
		Street furniture located at or beyond access route.	

		Overhead clearance dimensions should be a minimum of 6' 7" (CSA standard) or 6' 6" (BCBC).	
		Design does not link parking bollards with chains or ropes.	
		Easy operation and clearance for any gates.	
		Catch basins and manhole covers should be located outside of the walkways and upstream from the intersection. ²	
		Manhole covers should be flush with adjoining surfaces, and be bicycle proof. ²	
		Area drains are preferred outside of walkways, but if required to place within, shall have maximum openings of 0.5" perpendicular to the direction of travel. ²	
		Other:	
2.1. How should or will street furniture provide visual cues?			
		All street furniture or features mounted above height of 27" includes tapping rail for cane detection.	
		Visually contrasting band around all free-standing posts and columns. ⁴	
		All street furniture or features mounted above height of 27" includes tapping rail for cane detection.	
		Other:	
3. How should or will the pedestrian crossing points be accessible?			
		All crossing points are located where they are safe and convenient for all users. ⁴	
		Provide level crossing points at all controlled crossing point, junctions at the side of the road, and other access points. ⁴	
		Ensure crossing points incorporating dropped curbs that comply with ADA (page 76-77). ⁴	
		Ensure crossing points are well drained with maximum of cross-fall gradient of 1 in 50. ⁴	
		Ensure recommended 48" width of level surface to rear of pavement at crossing point. ⁴	
		Curb ramps are provided at all pedestrian crossings, are perpendicular to the crosswalk, and align directly across the street.	
		Curb ramps are perpendicular to a sidewalk with a minimum distance of 3' from the top of the curb ramp to the edge of the building. There is to be an adjoining slope surface at the top of the curb ramp not exceeding 8.0%. ²	
		The width of the curb ramps, exclusive of flared sides, shall be a minimum of 6' 6". Same width as crosswalks is best practice. ²	
		[12"] tactile warning strips are to be located at both the top and bottom of the curb ramp. ²	

		Accessible pedestrian signals should be installed at all corners of an intersection and they would total eight in number. ²	
		Curb ramps are provided at all pedestrian crossings, are perpendicular to the crosswalk, and align directly across the street.	
		Other:	
2.1. What tactile surfaces should or will be used to increase awareness?			
		Tactile paving surfaces used sparingly. ⁴	
		Use tactile paving surfaces consistently and strictly in accordance with ADA. ⁴	
		Consulted groups representing people with visual disabilities. ⁴	
		Color contrasted tactile warning strips and directional guiding strips are to be used with discretion, especially at the approaches to intersections, transition areas to ramps, stairs, and around and before obstructions that are in the direct line of travel. ²	
		Contrast value should be at least 70%.	
		Directional guiding strips are not to impede use of the curb ramp by people using wheelchairs or scooters. ²	
		The tactile warning strip edge shall be 6" to 12" away from the back of the curb. ²	
		Color contrasting tactile warning strip covers the lower 24" of the ramp and not the entire ramp. The truncated domes are to be placed at a setback of 6" to 12" from roll down curb as space allows. ²	
		The truncated domes of the tactile warning strip must be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes. ²	
		Where directional tactile strips are used and there is a change of direction toward a crosswalk, a tactile hazard warning strip shall be placed at the vertex of the two directional strips to indicate a stop and possible change of direction. ²	
		Other:	
2.2. What wayfinding should or will be used as natural visual and sound cues?			
		Placing a sound mark or a visual mark at two or three corners of an entrance will help a person to recognize the direction they came from, and therefore which direction they want to go in. ²	
		Avoid abrupt changes in direction on access route.	
		Other:	
3. How should or will the mechanical systems focus on noise reduction?			

		Mechanical systems located outside are quiet.	
		Other:	
3. What opportunities to sanitize before entering the building should or will be available?			
		Alcohol gel dispensers in visible and accessible locations.	
		Other:	
3. What opportunities to throw out trash and keep pathways clear should or will be available?			
		Trash cans provided at regular intervals.	
		Sidewalk outlets for trash cans are provided to keep pathways clear in parking lot area and along access route.	
		Other:	
3. What hands-free mechanisms should or will be used to ensure clean hands are not re-contaminated?			
		Sensory alcohol gel dispensers, etc.	
		Other hands-free mechanisms (e.g., wrist blades) for faucets, towel dispensers, alcohol gel dispensers, soap dispensers etc.	
		Other:	
5. What appropriate environmentally sustainable measures should or will be taken?			
		Use durable products and building materials which have a record of longer life and reduced maintenance costs. ⁵	
		Design for alternative transportation such as bicycle storage and plug-in facilities for electric vehicles. ⁵	
		Install high efficiency lights.	
		Focus exterior lighting down, provide adequate pedestrian lighting and prevent light pollution. ⁶	
		Integrate "No Smoking" signage into building and site signage packages where applicable. Restrict smoking to areas more than 25 ft from entries, outdoor air intakes and operable windows.	
		Maximize lot permeability with landscaping, permeable pavement and other surfaces, directing impervious to infiltration areas). ⁶	
		Design landscaping first utilizing native plants and then considering other appropriate drought resistant species. ⁵	
		Design to encourage and permit the collection of recyclables. ⁵	
		Locate trees and shrubs to support passive heating and to complement cooling in outdoor spaces and buildings and to create seasonal heat-sinks and natural ventilation corridors. ⁷	
		Along roads, drives, and sidewalks, consider salt resistant species.	

		All walkways, paths, curbs, entrances, etc. should be high albedo material (SRI > 29). Streets, driveways and other paved surfaces should be high albedo materials or, where required, asphaltic concrete pavement. Optimize shading of paved surfaces with planted trees.	
		Where possible purchase locally produced building materials.	
		Other:	
5. What appropriate socially sustainable measures should or will be taken?			
		Design for alternative transportation including bicycle storage and plug-in facilities for electric vehicles. ⁵	
		Consider the installation of bike racks to enhance access where needed, in context of the broader campus.	
		Integrate "No Smoking" signage into building and site signage packages where applicable. Restrict smoking to areas more than 25 ft from entries, outdoor air intakes and operable windows.	
		Design to encourage and permit the collection of recyclables. ⁵	
		Design the site to reconnect fragmented landscapes and establish contiguous networks with other natural systems both within the site and adjacent systems beyond its boundaries. ⁷	
		Where possible purchase locally produced building materials.	
		Other:	
5. What appropriate economically sustainable measures should or will be taken?			
		Use durable products and building materials which have a record of longer life and reduced maintenance costs. ⁵	
		Install high efficiency lights.	
		Maximize lot permeability with landscaping, permeable pavement and other surfaces, directing impervious to infiltration areas). ⁶	
		Design landscaping first utilizing native plants and then considering other appropriate drought resistant species. ⁶	
		Design to encourage and permit the collection of recyclables. ⁶	
		Locate trees and shrubs to support passive heating and to complement cooling in outdoor spaces and buildings and to create seasonal heat-sinks and natural ventilation corridors. ⁷	
		Along roads, drives, and sidewalks, consider salt resistant species.	
		Where possible purchase locally produced building materials.	
		Other:	

References

1. Center for Universal Design. 1997. *The Principles of Universal Design, Version 2.0*. Raleigh: North Carolina State University.
2. City of Pitt Meadows, District of Maple Ridge, & Our Designs Inc. (2009). Plan and Design for Choice: Universal Design Guidelines for Outdoor Spaces. Available on Website: https://www.mapleridge.ca/DocumentCenter/View/3057/Universal_Design_Guidelines?bidid=
3. Dizdaroglu, D. (2021). Developing Design Criteria for Sustainable Urban Parks. *Journal of Contemporary Urban Affairs*, 1, 69–81. <https://doi.org/10.25034/ijcua.2022.v6n1-7>
4. National Disability Authority's Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach*. External Environment and Approach. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
5. Oregon Parks and Recreation Department. (2013-2017). *Oregon Statewide Comprehensive Outdoor Recreation Plan*. https://www.recpro.org/assets/Library/SCORPs/or_scorp_2013.pdf
6. Pacific Beach Community Planning Group. (2015). *Residential Project Design Checklist for Pacific Beach Ecodistrict Compatibility*. <https://www.pbplanning.org/wp-content/uploads/20150910-CRMS-Minutes.pdf>
7. President's Council for a Sustainable Future (2008). *Keene State College Sustainable Building Guidelines*. BuildingStandards Final. <https://storage.googleapis.com/stars-static/secure/304/6/474/2700/Finished%20Building>
8. Steinfeld, E., & Maisel, J. (2012). *Universal Design*. John Wiley & Sons.

Source:

[2010 ADA Standards for Accessible Design](#)

[CSA Standards](#)

[British Columbia Building Codes \(BCBC\)](#)



NORTH SHORE RECREATION AREA

EASTER LAKE PARK

UNIVERSAL PARK DESIGN SERIES

- TOOLS

1. PROGRAMMING
2. PARKING & ENTRY
- 3. INTERIOR SPACES**
4. PLAYGROUNDS, TRAILS, & GREEN SPACES
5. BEACHES & WATER ACTIVITIES

Commissioned By:

Led By:

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MS in Interior Design

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SHIVEHATTERY
ARCHITECTURE+ENGINEERING

uncurbed
redefining accessibility

Special Acknowledgement:

Lauren Dunlay
OTD, OTR/L

Disclaimer: This toolkit is a joint effort between Polk County Conservation, Shive-Hattery, and Uncurbed ("Parties"). This toolkit provides main summary and technical criteria of universal design considerations related to park design; however, the Parties do not warrant or guarantee the accuracy, completeness, adequacy, or currency of any information referenced or linked within this document. In no event, shall the Parties be liable for any direct, indirect, or incidental damages, injuries, losses, costs, or expenses, howsoever caused, arising out of, or resulting from access to, possession of, or use of this toolkit. The detailed guidance provided here does not represent the only possible solution. Clients or designers may develop additional solutions to meet a diversity of users. New materials and technologies that emerge may present further possibilities for accommodating the diversity of users. Each project should engage the services of a qualified and professional access consultant to ensure that project anomalies or other factors do not adversely affect the design intent.

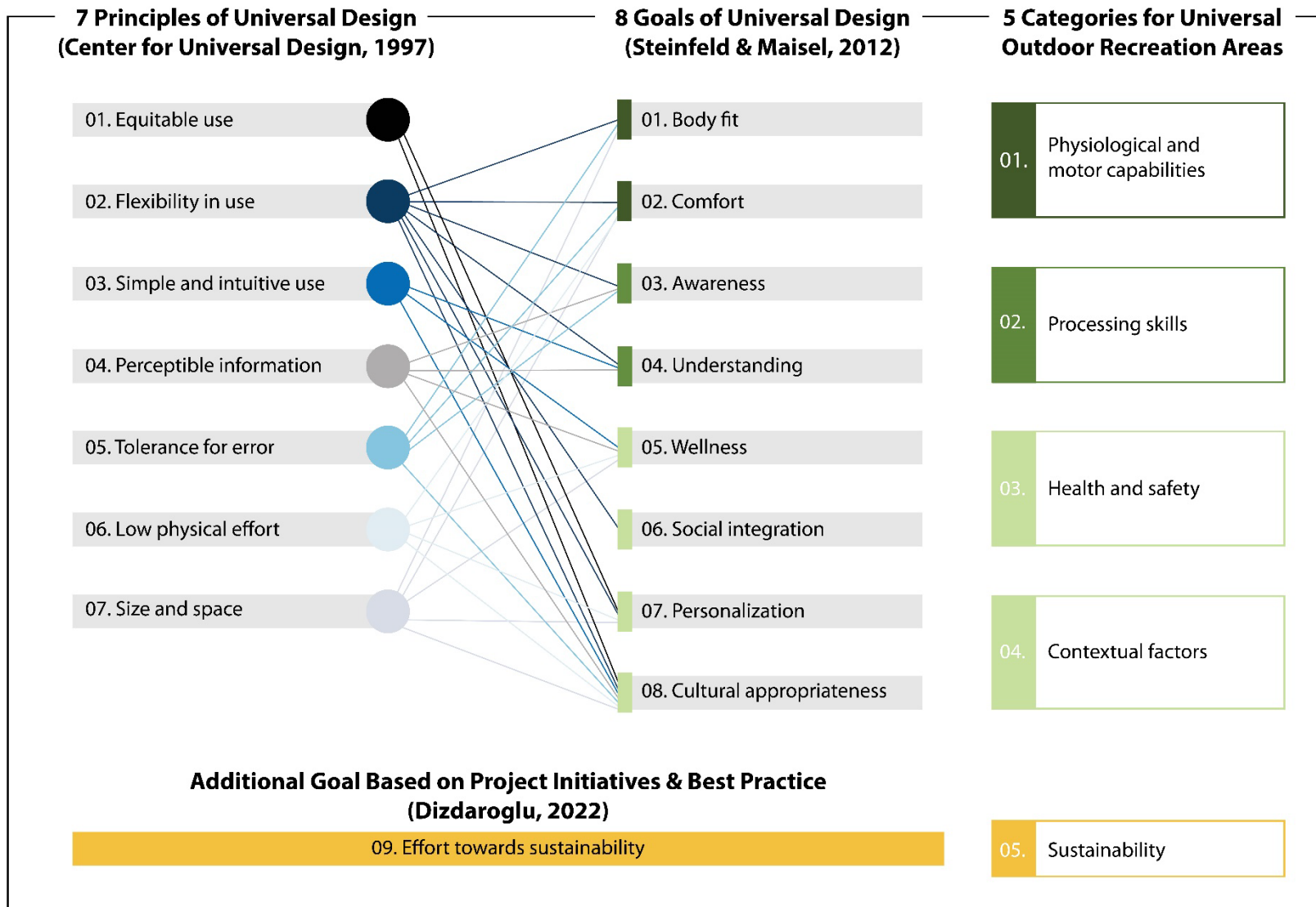
COVER PAGE

UNIVERSAL PARK DESIGN TOOL – INTERIOR SPACES

This tool is a compilation of academic, user, and practical research intended for use during the park design process to help list key universal design (UD) considerations needed to support design decision-making for the design of **interior spaces**. It is recommended that this tool be prioritized last, if necessary. This tool is not a one-size-fits-all. It is one component of the universally designed process used during the design of Athene's Easter Lake North Shore Renovation Project. Each project should incorporate the practice of co-design, engaging active participation from diverse end-users and subject matter experts in universal design and/or other related fields and methodologies (i.e., human-centered design, design thinking, inclusive design, co-design, accessible design, occupational science, etc.) to ensure that project anomalies or other factors do not adversely affect the design intent. UD considerations are provided throughout the tool and while they provide a summary of main considerations and technical criteria, they should not be regarded as an exhaustive list. The detailed guidance provided here does not represent the only possible solution. Members of a co-design team may come up with other ways to meet a diversity of users. New materials and technologies that emerge may open up further possibilities for accommodating the diversity of the population.

Each tool is organized into **5** Categories for Universal Park Design, expanding on the original 7 Principles of Universal Design¹ and 8 Goals of Universal Design¹⁰ to include an effort toward sustainability² ([see Figure 1](#)). These categories were selected based on project initiatives and themes collected from academic, user, and practical research. Variation exists in the categories of **interior spaces** design due to differences in operations, organizational goals between different clients and designers, and user perspectives. The priorities you have set in place for your particular project, the UD categories, user input, and the key questions that you must ask yourself as clients and designers, are the foundation of this tool. Before using the tool, please first go to the [Home Page](#) to learn more about the UD goals, categories, and how to communicate project priorities.

Figure 1. Crosswalk (between the 7 Principles of Universal Design¹, 8 Goals of Universal Design¹⁰, and 5 Categories for Universal Park Design based on project initiatives and themes collected from academic, user, and practical research for Athene’s Easter Lake North Shore Renovation Project.



The [Tool Page](#) lists key questions relevant to the 5 specific UD categories for consideration. Below each question, a detailed design feature list is provided and serves as a menu item for clients to choose from and share with the design team at the onset of any park project based on the foundations of UD mentioned above. Designers can refer to the selected menu items throughout the design process and use the tool to validate their design choices. The design considerations and features are based on a review of research literature, best practices, and expert opinions. Clients and/or designers can add new design features based on their literature review, experiences, or user input. There may be instances of trade-offs between the UD categories, and there may be instances where you use some, but not all of the features, depending on the evaluation of value vs. cost by the client (see important notes).

Notes:

Each tool is not meant to be an exhaustive list of minimal standards already covered in available design guidelines. Rather, it provides a structured way for clients and designers to consciously focus on key evidence-based design considerations to optimize design decision-making resulting in the best value for the investment.

Gathering user input is one important step in decision-making. This is referred to as co-design. As a design tool, this is not meant to be a one-size-fits-all prescription for design. In many cases, no prescriptive numbers (e.g., space size or length of headwall) are provided because the optimized numbers depend on a thorough understanding of the needs of those affected by the project and the constraints of the project (e.g., operations and costs). Clients and designers should use the key design considerations and design features included in the tool as a basis to determine what are “adequate” or “sufficient” numbers or sizes. Likewise, the client and future users should be consulted regarding subjective aspects (e.g., attractive design). Environmental simulation (e.g., mock-ups, and renderings) may be used in gathering input on these issues.

Disclaimer: The tool is based on currently available research evidence and expert opinions therefore may not exhaustively cover all design aspects impacting outcomes. The results produced by using the tool may vary depending on conditions/users.

HOME PAGE

UNIVERSAL PARK DESIGN TOOL – INTERIOR SPACES

To begin, please complete the following information:

Client Name:

Project Name:

Client Contact Person:

Lead Designer:

Tool Completion Date:

On the next page is a list of each universal design goal and category, in addition to the category of sustainability. Some goals and categories may be more important for a particular park project. If you are the client, please confirm or change priority ratings based on their relevance to **interior spaces** design by selecting a rating (High, Medium, or Low) from the dropdown list in each cell of Column C. It is recommended to limit the 'High' priority rating to 4 UD goals and categories.

8 Universal Design Goals ¹	5 Universal Park Design Categories ^{1, 2, 10}	Priorities (Insert High, Medium, Low)
1. Body Fit	1.1. Physiological & Motor Capabilities	
2. Comfort	1.2. Physiological & Motor Capabilities	
3. Awareness	2.1. Processing Skills	
4. Understanding	2.2. Processing Skills	
5. Health & Wellness	3. Health & Safety	
6. Social Integration	4.1. Contextual Factors	
7. Personalization	4.1. Contextual Factors	
8. Cultural Appropriation	4.1. Contextual Factors	
	5. Sustainability	

TOOL PAGE

UNIVERSAL PARK DESIGN TOOL – INTERIOR SPACES

The below tool is more than a tick box. It is a menu list and communication tool for potential UD considerations relevant to **interior spaces** design for clients and designers. Marked boxes should be reviewed by both clients and designers to determine whether a UD consideration is applicable, relevant, and achievable for your park project.

Complete the following steps at the onset of a project:

If you are the client:

1. Place an **X** in the Client column to indicate which design features should be considered for the project. Items selected should be consistent with project goals, user and expert input, and prioritized based on budget. The Notes column can be used to elaborate on each UD consideration as needed. Please include the date when inserting a note. It is recommended that clients engage in user and professional input when determining a UD consideration.
2. If a UD consideration is not relevant to the project, clients should leave the UD consideration in the Client column unmarked.
3. Share the completed tool with the Lead Designer by the agreed-upon completion date.

If you are a designer:

1. Discuss each marked UD consideration with the client and add to the Notes column to further elaborate on specifications (please include the date).

In general:

1. If you are the client or a designer and wish to add additional design features to the tool, you can add them in the cell beginning with “other:” under each UD category. Please enter only UD considerations supported by academic (newly published or existing unpublished research conducted by design firms, and others), user, and practical research.

Complete the following steps throughout the project as needed:

If you are a designer:

1. Place an **X** in the Designer column to indicate whether a UD consideration is included in the current design.
2. If during the design process, a UD consideration is no longer achievable due to unknown or unforeseeable circumstances, designers can flag a UD consideration by placing an **R** in the Designer column to indicate that the UD consideration requires further review with the client.
3. If a UD consideration can only be partially met, place a **P** in the Designer column, and explain in the Note column (please include the date). This explanation may include an alternative option.

UNIVERSAL PARK DESIGN TOOL – INTERIOR SPACES

Client	Designer	
		<p style="text-align: center;">LEGEND</p> <p>X in the Client column indicates that a UD consideration has been requested</p> <p>X in the Designer column indicates that a UD consideration has been met</p> <p>R in the Designer column indicates that a UD consideration requires review</p> <p>P in the Designer column indicates that a UD consideration was partially met</p> <p>Reminder: UD considerations left unmarked indicate that they are not relevant to the project</p>

GENERAL FACILITIES		NOTES
3. How should or does the facilities include features that enhance sanitization efforts?		
	Provide sufficient trash disposal throughout the facility. Best practice suggests touchless or without lid trash cans with openings that do not exceed 27" above the finished floor and are either recessed (ADA standard for restroom facilities) or wall mounted.	
	Establish separate facility for breast-feeding. ⁹	
	Provide sanitary waste disposal units in all toilets. ⁹	
	In accessible stalls, position sanitary waste bins between toilet and near-side wall. ⁹	
	Other:	
3. How should or does the design of interior space enhance sanitization efforts?		
	Make sure mechanical ventilation and air-conditioning systems are accessible and able to be well maintained. ⁸	
	Integrate air filtration systems. ⁸	
	Provide adequate ventilation to all rooms and spaces. ⁸	
	Other:	
3. What appropriate security measures should or will be put in place to ensure safety in the interior space?		
	Safeguard user privacy by including single-user restrooms or ensuring that there are minimal gaps between each partition and between partitions and the floor in all sanitary facilities. ⁹	
	Ensure public announcement systems are clearly audible in all relevant areas of a building. ⁸	
	Incorporate a hearing enhancement system in public announcement systems. ⁷	
	Ensure alarm systems are effective at alerting all building occupants. Standard alerts include visual and audible strobes. ⁸	
	Limit the sound level of audible alarms to 120dB. ⁸	
	Ensure alarm sounders achieve an even distribution of the signal. ⁸	
	Locate visual alarms so that they can be seen by either eye in all areas of the building. ⁸	
	Employ a frequency between two and four hertz for visual alarms, with units synchronized. ⁸	
	Consider the use of pager devices to provide tactile alerts. ⁸	
	Other:	
3. What appropriate safety measures should or will be put in place to ensure safety in the interior space?		

General - Physical Considerations		
		Ensure slip resistance is maintained when the floor is wet and dry and when spillages occur throughout the internal environment. ⁸
		Ensure changes in floor finish occur away from the direct line of travel or in a doorway throughout the internal environment. ⁸
		Use tactile warning surfaces with 1/8" ridges as they are detectable indoors due to surrounding smooth floor finishes ⁷ . For example, place a rubber transition strip of an obvious color between carpet and a smooth surface flooring with a minimum of 70% color contrast.
		Use tactile warning surfaces only for internal stairs after all risks have been considered in the form of a risk assessment. ⁸
		Highlight the change in level using floor finishes that visually contrast where tactile warning surfaces are not suitable. ⁸
		Install floor finishes that are firm, even, securely fixed, and non-directional. ⁸
		Avoid the use of deep pile carpets and coir matting. ⁸
		Avoid the use of loose-laid mats. ⁸
		Make sure floor finishes are durable and easy to maintain. ⁸
		Ensure clear, unobstructed floor area for approach. ⁸
		Make sure access to seating is unobstructed. ⁸
		Install storage facilities that are solid and stable, with no sharp edges. ⁷
		Use fixed guarding at entry and exit points and alongside adjacent access routes. ⁸
		Ensure windows do not present an obstruction or hazard when open. ⁷
		Use tactile hazard warning surface at top and bottom of flight, only if deemed appropriate following risk assessment. ⁸
		Provide clear landings at top and bottom of steps, with the length equivalent to the step width. ⁸
		Consider fitting grabrails between urinals. ⁹
		Provide shower curtain for privacy. ⁹
		Incorporate temperature control so the shower is not to exceed 104 degrees (F). ⁸
		Ensure water supply pressure is adjusted appropriately. ⁸

		Ensure outward-opening doors do not obstruct emergency escape routes. ⁸	
		Include visible and audible indication within the room that alarm has been raised. ⁸	
		Include visible and audible alarm outside the room. ⁸	
		Ensure effective differentiation between lines, symbols and other textured surfaces. ⁸	
		Provide adequate ventilation to all rooms and spaces. ⁸	
		Provide telephone facilities in public service buildings, transport facilities, visitor attractions, and retail developments. ⁷	
		Ensure all telephone equipment is accessible, useable, and understandable to everyone, whether the service is provided free or for payment. ⁷	
		Ensure payphone handset cords are at least 40" long. ⁷	
		Ensure external ATMs are protected by a canopy. ⁷	
		Other:	
General - Visual Considerations			
		Optimize visual contrast between floor and wall finishes and other features, such as obstructions. ⁸	
		Consider the placement of natural and artificial light sources to provide an even level of illumination (IECC Standard). ⁸	-
		Consider the placement of natural and artificial light sources to provide an even level of illumination (IECC Standard). ⁸	
		Consider the use of natural floor coverings to avoid the potential for aggravating allergic reactions. ⁸	
		Ensure the placement of windows and artificial lighting minimizes glare and reflection (IECC Standard). ⁸ Consider minimizing glare by providing shading near computer screens and monitors and lensing on light fixtures.	
		Optimize visual contrast between surfaces and features. ⁸	
		Ensure visual contrast between smaller surfaces and objects is greater than for larger surfaces. ⁸	
		Consider all sources of natural and artificial light (IECC Standard). ⁸	

		Avoid the creation of strong shadows on floors and walls. ⁸	
		Consider the use of sun-shading devices and blinds to reduce glare from direct sunlight. ⁸	
		Make sure all rooms and surfaces are evenly illuminated. ⁸	
		Avoid the use of strobe lighting. ⁸	
		Use down lights that incorporate diffusers. ⁸	
		Avoid the use of uplights positioned at floor level. ⁸	
		Provide a gradual transition between internal and external lighting levels around an entrance (IECC Standard). ⁸	
		Position signs where people reading them will not cause an obstruction. ¹¹	
		Ensure window provision balances environmental performance with safety, security, privacy, and visual comfort. ⁷ This could mean considering glazing in doors or visual access to entry points from inside and out.	
		Make sure temperature controls are easy to identify.	
		Consider a smaller or adjustable loop wire or alternative type of system, particularly where confidentiality is paramount. ⁸	
		Protect permanently installed loop wires in a non-metallic enclosure. ⁸	
		Avoid placement adjacent to any metallic components or electromagnetic equipment. ⁸	
		Ensure room loop cables for portable systems are fixed in position to avoid creating a trip hazard. ⁸	
		Other:	
4.2. What opportunities should there be or are there for personalization, personal choice, or preferences?			
		All doors to the building can be accessed by any visitor. Consider whether access mechanisms (door handles, locks) are accessible and ergonomically correct.	
		Consider flexibility within lighting design to enable people to control individual lighting levels. ⁸	
		Use two- or three-way switching for lights where flexibility is required. ⁴	
		Locate quiet rooms away from external noise sources for de-escalation.	
		Select finishes and methods of installation to achieve a balance of hard and soft surfaces. ⁸	

	Consider the most appropriate types of portable system, such as desktop, clipboard, guide loop, or vehicle-based Induction loops that are designed, installed, and commissioned to comply with IEC 60118-4. ⁸	
	Provide audible information to supplement visual and tactile signs and maps. ⁸	
	Consider the use of individual receivers to provide wayfinding and visitor information. ⁸	
	Incorporate audible, visual, and tactile alarms or alerting devices. ⁸	
	Install seating areas that accommodate clear areas alongside seats for people with prams and pushchairs; people using wheelchairs and electric scooters; and for assistance dogs. ⁷	
	Provide seats of different styles to suit different people. ⁷	
	Consider the provision of a textphone at reception desks and service counters. ⁷	
	Ensure un-fixed telephones have a long cord to enable them to be repositioned within the booth. ⁷	
	Provide a desk or fixed shelf adjacent to the telephone to suit left- and right-hand use. ⁷	
	Ensure choice of language is available for on-screen instructions. ⁸	
	Install alternative paper or towel facilities to supplement hot-air dryers. ⁸	
	Consider the use of adjustable or varying-height units for countertops or changing stations.	
	Consider future changes and developments in the design and construction of buildings ⁷ . For example, if you are the client, consider whether there will be plans to add on to an existing structure in the future and share those plans with the design firm. If you are the designer, consider whether there are design considerations that need to be made on the current project to ensure access for future additions.	
	Other:	
4.1. How should or does the design of the interior space offer opportunities for social integration?		
	Ensure that the main entry point to the building is accessible by a wide variety of visitors.	
	Install lighting that optimizes lip reading at any reception desks. This includes receptions that are located interiorly and exteriorly (i.e., concessions). ⁸	

		Provide passing places of 6'-6" X 5'-0" in corridors less than 5'-0".	
		Locate passenger lift adjacent to an accessible flight of stairs. ⁷	
5. What appropriate materials should or will be used to ensure durability?			
		Consider cost and ease of future repair. For example, tile carpet could be used for easy replacement and repair and/or porcelain tiles, epoxy floors, and concrete floors could be used for durability purposes.	
		Other:	
5. What appropriate environmentally sustainable measures should or will be taken?			
		Use durable products and building materials which have a record of longer reduced maintenance costs. ¹²	
		Install high efficiency lights (IECC Standard).	
		Use solar paneling.	
		Integrate "No Smoking" signage into building.	
		Design to encourage and permit the collection of recyclables. ¹²	
		Where possible purchase locally produced building materials.	
		Ensure procedures are in place for cleaning and maintaining the interior space, utilities, and equipment. ⁸	
		Incorporate suitable waste disposal. Consider whether they include recycling, are placed in logical areas based on traffic patterns and maximum occupancy. ⁹	
		Ensure bathing units are fitted with plugs.	
		Other:	
5. What appropriate socially sustainable measures should or will be taken?			
		Integrate "No Smoking" signage into building.	
		Other:	
5. What appropriate economically sustainable measures should or will be taken?			
		Use durable products and building materials which have a record of longer reduced maintenance costs. ¹²	
		Install high efficiency lights.	
		Design to encourage and permit the collection of recyclables. ¹²	

		Where possible purchase locally produced building materials.	
		Other:	
EXTERIOR & INTERIOR ACCESS ROUTE & ENTRY POINT CONSIDERATIONS			
1.1. How should or will a wide range of body sizes and abilities be able to access all parts of the interior space?			
		Ensure that all access routes and entry points to the interior space are accessible. ⁵	
		Best: Establish clear landing space outside all entrances at least 8' X 8". Good: Establish clear landing space outside of the main entrance at least 5' X 5'. ⁵	
		Ensure recommended 8'-0" width for primary corridors and 6'-6" for secondary corridors in interior spaces. ⁵	
		Ensure short constrictions in width are not to be less than 4'-0". ⁶	
		Avoid single steps on an access route. ⁶	
		Other:	
1.2. How should or will a wide range of body sizes and abilities be able to use the doors with ease?			
		Entrance doors to have clear opening of 3' minimum. ⁵	
		Ensure automatic activation system is set to open door when person is no closer than 4'-7". ⁵	
		Position controls for manually-activated automatic doors within reach and clear of door swing. ⁵	
		Orientate card-swipe devices vertically at front door access point. ⁵	
		Incorporate raised buttons and embossed symbols, numbers or letters in keypads at front door access point. ⁵	
		Install inward opening doors to open against a side wall. ⁸	
		Install low friction hinges to minimize door opening and closing forces. ⁵	
		Consider rising-butt hinges for doors not fitted with self-closing devices. ⁵	
		Use swing-clear hinges to maximize clear opening width where space is limited. ⁵	
		Use lever handles on doors for door hardware. ⁵	
		Install thumb turn locks. ⁵	

	Install door push operating systems on doors with closers. ⁵	
	Position locks above the handle when possible. ⁵	
	Ensure push and pull clearance is met per ADA requirements. ⁵	
	Install push/pull plates where doors do not have handles per ADA requirements. ⁵	
	Provide kick plates to full width doors per ADA requirements. ⁵	
	Other:	

2.1. How should or will entrances and doors be well defined visually?

	Entrance is clearly visible and prominent. ⁵	
	Incorporate vision panels into all entrance and entrance lobby doors. ¹⁴	
	Make sure that the entrance door and interior doors visually contrast with adjacent walls or screens. ^{8, 5}	
	Include highly contrasting strip on all edges of frameless glass doors. ⁸	
	Incorporate visually contrasting markings at two levels on all glazed doors and screens. ⁴	
	Highlight door effectively.	
	Ensure controls for door are clearly visible.	
	Use lighting to highlight the location of a building entrance. ⁸	
	Ensure that handles on doors contrast visually. ⁷	
	Illuminate external signage to a minimum of 200 lux. ⁷	
	Illuminate approach area to a minimum of 200 lux. ⁷	
	Ensure glazed screens are clear and unobstructed. ⁷	
	Other:	

2-1. How should or will walls & access routes be well defined visually?

	Highlight glazed walls effectively. ³	
	Incorporate vision panels wherever practical. ³	
	Install visually-contrasting handrails. ³	
	Provide visual and tactile floor numbers at each landing from lifts. ¹⁰	
	Provide a visually dividing strip at ramp landings to clearly define landings. ¹⁰	

		Make sure the footway at each end contrasts visually and install a change in floor finish. ⁸	
		Ensure access routes through open-plan areas are well defined visually.	
		Use tactile warning surfaces with 1/8" ridges as they are detectable indoors due to surrounding smooth floor finishes. ⁸	
		Incorporate permanent markings in glazed walls and screens at 34"-40" and 55"-63" for visual awareness. ³	
		Use lighting that enhances color rendering of surfaces.	
		Other:	
2.1. How should or will the access to entrances and doors be clear to understand?			
		Intercoms at door access to be supplemented with text display for hearing impairment (video intercom with text display is best practice). ³	
		Consider the use of video intercom to aid identification. ^{8, 3}	
		Incorporate raised buttons and embossed symbols, numbers or letters in keypads at front door access point. ⁵	
		Ensure all access devices are easy to identify. ⁵	
		Ensure controls for door have clear signage. ⁵	
		Design a passenger lift door arrangement that is consistent and logical. ¹⁴	
		Install doorbells and call buttons that provide clear indication of operation.	
		Other:	
3. What appropriate safety measures should or will be put in place to ensure safety in the entrance space?			
		Maintain access routes carefully and keep them clear of potential obstructions. ¹⁰	
		Avoid potential cross-flow of pedestrians adjacent to automatic doors. ⁷	
		Ensure outward-opening doors are recessed or guarded. ⁸	
		Ensure threshold to entrances are level or no greater than 3/8" with chamfered, pencil-rounded, or ramped profile. ⁵	
		Establish clear space at door in accordance with ADA.	
		Provide ADA operable push button at all doors with closer.	

		Provide door protection to the lower 10” of a glass door.	
		Consult ADA for minimums between door swings and operable push button requirements.	
		Protect outward opening doors with door recess or guardrail. ⁵	
		Consider the use of modified strike plate for internal self-closing doors. ⁵	
		Use door closing devices where necessary per ADA. ⁵	
		Ensure all self-closing devices have controlled action. ⁵	
		Make sure door opening forces are within the limits set for each stage of opening cycle. ⁵	
		Consider delayed-action door closers for room doors. ⁵	
		Choose handles on external doors that are not cold to the touch. ⁵	
		Consider improving accessibility with use of electromagnetic hold open devices and swing-free door closing devices. ⁵	
		Ensure activation and safety systems protect people who are slow moving or who have fallen in the doorway. ⁵	
		Consider the need for additional safety devices for power-assisted doors. ⁵	
		Make sure there are guards against all potential finger and body traps near doors’ entrances. ⁵	
		Provide break-out or fail-safe systems on all automatic doors situated on exit routes. ⁵	
		Other:	

HORIZONTAL CIRCULATION CONSIDERATIONS

3. What appropriate safety measures should or will be put in place to ensure safety in the horizontal circulation?

Circulation Areas

		Ensure walk-off mats are firm and flush with the adjacent floor surface. ⁸ Best practice: install walk off carpet flush with other flooring finishes.	
		Use lighting to ease transition from exterior to interior entrances. ⁸	
		Avoid glare with lighting solutions. ⁸	
		Ensure vestibules are clear of obstructions such as displays or stored items. ⁵	
		Fix queuing barriers firmly to the floor entrances. ⁵	
		Barriers to incorporate rigid handrail and visually contrast with surrounding surfaces. ⁵	

	Sockets for temporary barriers are flush with floor surfaces and incorporate cap or cover. ⁸	
	Limit use of fixed barriers. ⁸	
	Incorporate handrails to both sides of walkways and provide seating at regular intervals. ⁸	
	Provide seating at no more than 65'-8" intervals in long corridors. ⁵	
	Install floor surfaces that are hard and firm with appropriate underfoot comfort for staff. ⁸	
	Ensure junctions between different floor finishes are fixed with threshold plates. ⁸	
	Use fixed guarding at entry and exit points and alongside adjacent access routes of vertical circulation. ¹⁰	
	Other:	

COMMUNICATION/SIGNAGE

2-1. How should or will the text on all signage be clearly visible?

	Ensure adherence to ADA-Ready™ Signage Guidelines	
	Make sure the text on your sign is easy to read. Avoid fonts that are highly decorative, very bold, condensed or in italics, as these can be difficult to understand and may make the sign more difficult to read. Examples of easy-to-read sans serif fonts for signage include Arial, Helvetica, Tahoma and Futura. ¹¹	
	Use a minimum of 12-point font size for comfortable reading generally. A person's speed of reading increases as the size of text is increased. ¹¹	
	A mixture of upper- and lower-case letters should be used. Avoid using BLOCK CAPITALS. ¹¹	
	Avoid using italics, underlining. ⁸	
	To emphasize a word or words, consider using a bolder weight type or larger-sized font. Avoid using bold for all text in signage. ⁸	
	Increase letter and word spacing to ensure they are easily identified. ¹¹	
	Align wording to the left. ¹¹	
	Text should be set horizontally. Text at an angle or following a curved line can be more difficult to read. People should not have to rotate their head to read it. ¹¹	

		<p>The size of letters on signs should be related to the type of sign and viewing distance.¹¹</p> <p>15'-0" viewing distance = 6" letter height 8'-0" viewing distance = 4" letter height 7'-6" viewing distance = 3" letter height 5'-0" viewing distance = 2" letter height 2'-6" viewing distance = 1" letter height</p>	
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		Other:	
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2-1. How should or will the design of the signage enhance visibility for a wide range of needs?

		There should be good contrast between the signboard and any mounting or background surface. This helps draw attention to the sign itself. ¹¹	
		There should be good contrast between the text/symbols and background sign color. This helps draw attention to the content of the sign. ¹¹	
		Strive for a minimum of 70% Light Reflectance Value (LRV) contrast between sign text and background color. ¹⁵	
		Signs should have a matt or satin finish. Avoid shiny and reflective surfaces to prevent glare. ¹¹	
		Signs should be evenly illuminated, with a lighting level of 200 lux. ¹¹	
		Incorporate wayfinding into the built or natural environment (i.e., paint symbols or letters on access route or on a side of a vertical surface using matte finish).	
		Other:	

2-1. How should or will the positioning of the signage enhance visibility for a wide range of needs?

		Signs should be positioned at important points along a route, wherever routes intersect or diverge. ¹¹	
		Position signs where people reading them will not cause an obstruction. ¹¹	
		Ensure the direction of travel is clearly signed along access routes to entry and exit points.	
		Ensure lifts are clearly signed from building entrance and other key areas.	
		Provide a clearly-signed or readily apparent alternative means of access.	
		Provide signage to clearly indicate the location of the telephone facilities. ⁷	

		Ensure signage is clearly displayed to indicate the presence of a hearing enhancement system. ¹¹	
		Ensure signage is clearly visible from the front and side. ⁷	
		Other:	
2.2. How should or will the text on all signage be understandable?			
		Ensure adherence to ADA-Ready™ Signage Guidelines.	
		Wording on signs should be as simple as possible. Reading level should be no higher than 8th grade reading level. ¹¹	
		Avoid the use of unfamiliar abbreviations. ¹¹	
		Information on signs should be listed alphabetically or grouped logically. For example, by floor level. ¹¹	
		Use Arabic numbers (1, 2, 3), not Roman numerals (i, ii, iii). ¹¹	
		Wording, font and images should be consistent throughout the building. ¹¹	
		Other:	
2.2. How should or will symbols & arrows on signage be understandable?			
		Use symbols in place of text where the symbol is universally recognized. For example, public information symbols. ¹¹	
		Use symbols to accompany text where possible. This is particularly relevant for dual-language signs, as they help people to recognize quickly the information being provided. ¹¹	
		Use arrows to indicate directions and make sure they point in a logical direction. ¹¹	
		Other:	
2.2. How should or will the design of the signage make it easier to understand?			
		Where color coding is used, use colors that are easy to differentiate. Integrate color schemes into wayfinding plan that match the destination. ^{11, 15}	
		For those with color-vision impairments, make sure to provide information in another way as well. For example, different trails could be marked by types of dotted lines/shapes along with colors. ⁸	

		Consider adding a QR code to signs used for wayfinding or to establish points of interest (This may be a great way to showcase the special affordances of the park for visitors without the need for customer services). QR codes could also be used to provide the interpretive information in different languages.	
		Other additional information that could be added to a sign (although you want to be mindful of visual noise) are navigation features or translation apps that visitors could use (i.e., Google Maps, Camera Translate).	
		Consider using a 2D or 3D tactile map to showcase the entire layout of the park at the park entrance. At points of interest, consider adding a 2D or 3D tactile map of that point of interest. Braille could be added to describe that point of interest. Consider using braille or tactile symbols to not only communicate interpretive information but also to describe the landscape.	
		Other:	
2.2. How should or will the positioning of the signage make it easier to understand?			
		Position signage at decision points. ⁸	
		Make sure that directional signs help people to retrace their steps and identify alternative locations within a building, without having to return to the main entrance. ¹¹	
		Other:	
3. How should or will the signage of the space enhance sanitization efforts?			
		Ensure sanitary facilities are clearly identified. ⁹	
		Use symbol and tactile signs. ⁸	
		Other:	
ALTERNATIVE FORMS OF COMMUNICATION			
1.1. How should or will alternative forms of communication be usable based on a wide range of physical needs?			
		Ensure embossed letters are between 5/8" and 1" in height. ¹¹	
		Embossed letters should be raised above the surface of the sign by 3/64" - 1/16" and have a stroke width of 1/16" – 5/64". ¹¹	
		Consider locating Braille signs on an inclined surface to aid reading and below the related text. ¹¹	

		Position visual signs for ease of reading. ¹¹	
		Provide a hearing enhancement system (example: loop). ⁷	
		Provide an emergency communication system that is suitable for all users with audio and visual considerations. ¹¹	
		Integrate the use of video intercom to aid identification and ability to use sign language. ¹¹	
		Position tactile and Braille signs within reach as defined by ADA. ¹¹	
		Engraved and indented letters and symbols should be avoided, as they are difficult to read by touch. ¹¹	
		Other:	
2.2. How should or will alternative forms of communication be available to enhance the understanding of interpretive information?			
		Incorporate visual, tactile and audible information in signage. ⁸	
		Consider the use of video intercom to aid identification to enter secured areas. ⁸	
		Use changes in the color, texture and acoustic characteristics of floor finishes to delineate areas and contribute to a system of wayfinding. ⁸	
		Consider the use of color coding for large or complex buildings as an aid to wayfinding. ⁸	
		Consider the use of changes in texture to differentiate between internal features or areas. ⁸	
		Provide supplementary text and a pictogram wherever communication is important. Consult companies such as assistive technology services. ⁸	
		Use embossed symbols and text to allow for tactile reading. ⁸	
		Provide hearing enhancement systems where audible communication is an inherent aspect of the space. ⁸	
		Install permanent systems in larger spaces. ⁸	
		Consider portable systems for some smaller areas and where flexibility is required. ⁸	
		Ensure regular testing of systems by a selection of people with hearing difficulties. ⁸	
		Incorporate a fault-detection system in all hearing enhancement systems. ⁸	
		Obtain specialist advice for all systems - vendors, community members who use devices/systems. ⁸	

		Consider for use where multi-channel communication is required and where headsets can be borrowed from a central location. ⁸	
		Consider radio systems where they may benefit people with a hearing difficulty who do not wear a hearing aid. ⁸	
		Consider using a hierarchical system to avoid over-complex signs. ⁸	
		Use arrows in signage to indicate direction. ¹¹	
		Ensure symbols have a recommended border height of 6". ⁸	
		Use Grade 1 Braille for single words. ⁸	
		Use Grade 2 contracted Braille for signs with several words. ⁸	
		Provide a Braille locator or notch to the side of the sign board. ⁸	
		Provide tactile maps or models to aid orientation and wayfinding for people with visual difficulties. ⁸	
		Ensure maps and models provide clear, uncluttered information. ⁸	
		Provide explanatory and reference information in tactile form. ⁸	
		Consider the provision of audible instructions or supplementary information. ⁸	
		Use colors that are easy to differentiate where color coding is used. ¹¹	
		Ensure safety information and warning signs follow the universally established color code. ⁸	
		Ensure directional signs enable people to retrace their steps and identify alternative locations within a building, without having to return to the main entrance. ¹¹	
		Provide audible information to supplement visual and tactile signs and maps. ⁸	
		Other:	

VERTICAL CIRCULATION CONSIDERATIONS

1.1. How should or will the interior space avoid changes in level to accommodate for a wide range of physical needs?

		Avoid changes in story within an interior space when possible. ¹⁰	
		Avoid changes in level within a story. ¹⁰	
		Other:	

1.1. When changes in level within an interior space cannot be avoided, how should or will the vertical circulation options account for a wide range of physical needs?

Stairs

	Check that the total rise on a flight of stairs between landings are no more than 12 steps. ¹⁰	
	Other:	

Ramps

	Ensure maximum gradient of a ramp is 1 in 20, maximum rise 30", and maximum length 30'-0". ¹⁰	
	Make sure the gradient of a ramp slope is constant and consistent throughout and between consecutive ramp slopes. ¹⁰	
	Install ramp with clear width to suit expected level of use, but not less than 5'. ¹⁰	-
	Ramp landings to be a minimum of 5' x 5'. ¹⁰	-
	Other:	

Travelators

	Restrict inclined travelators to maximum gradient of 1 in 20. ¹⁰	
	Ensure guarding contrasts visually. ¹⁰	
	Ensure emergency stop controls are clear, visible, and accessible to all users. ¹⁰	
	Employ recommended speed of 0.5m per second for travelators. ¹⁰	
	Ensure recommended walkway width of 60" wide and vertical clearance of 90.5". ¹⁰	
	Moving handrails to extend 27.5" minimum beyond the start and end of walkway. ¹⁰	
	Install footway at each end of travelator that contrasts visually and a change in floor finish. ¹⁰	
	Include static level run-off at least 619'-8" long at each end of inclined travelator. ¹⁰	
	Other:	

Passenger Lifts

	Provide passenger lifts in preference to platform lifts, wherever possible. ¹⁰	
	Locate passenger lift adjacent to an accessible flight of stairs. ¹⁰	

		Install control buttons on lifts that are easy to use. ¹⁰	
		Install passenger lifts with the size and capacity to suit building type and occupancy. ¹⁰	
		Ensure that all passenger lifts are accessible, where more than one lift is provided. ¹⁴	
		Ensure that passenger lifts keep to recommended minimum internal dimensions of 6' x 6'. ¹⁰	
		Ensure that passenger lifts incorporate clear door opening width of 3'-2". ¹⁰	
		Ensure passenger lift doors remain open for a minimum of eight seconds. ¹⁰	
		Position landing and passenger lift car controls within reach of all users. ¹⁰	
		Provide half-height mirror to rear wall of passenger lift. ¹⁰	
		Consider the provision of a tip-up seat within passenger lift. ¹⁰	
		Provide vertical platform lifts in existing buildings only, in situations when passenger lifts cannot be installed. ¹⁰	
		Consider the vertical platform lift size, capacity, speed and frequency of use fully. ¹⁰	
		Install a recommended vertical platform size of 44" x 55". ¹⁰	
		Locate manually-activated door controls of vertical platform lifts in a suitable location. ¹⁰	
		Provide inclined platform stairlifts in existing buildings only, in situations when passenger lifts and vertical platform lifts cannot be installed. ¹⁰	
		Install a recommended platform size of 36" wide s 60" long for inclined platform stairlifts. ¹⁰	
		Other:	
Escalator			
		Provide maximum step height of 9" or 8" if escalator used for emergency escape when stationary. ¹⁰	
		Employ escalator speed not exceeding 0.75m per second. ¹⁰	
		Other:	
3. What appropriate safety measures should or will be put in place to ensure safety in the vertical circulation?			
Stairs and Ramps			
		Design and maintain stairs to provide safe access at all times even if rarely used. ¹⁰	

		Consider improving controls, signaling, safety, and communication devices, and surface finishes in existing passenger lifts. ¹⁰	
		Make sure each step edge is visually highlighted. ¹⁰	
		Provide handrails on both sides of the steps and continuous around intermediate landings that comply with OSHA regulations. ¹⁰	
		Handrails provided at two heights: 24"- 30" and 36"-38" with a top railing at 42" minimum. ¹⁰	
		Provide an additional central handrail where the stairs are more than 80" wide. ¹⁰	
		Light step, ramp and landing surfaces to 150 lux. ¹⁰	
		Provide handrails on both sides of the ramp and continuous around intermediate landing. ¹⁴	
		Provide a curb upstand or guarding to the side of ramp. ¹⁴	
		Ensure windows at first floor level and above do not open more than 4". ⁷	
		Avoid glass passenger lifts. ¹⁰	
		Include clear landing space of 6'-0" x 6'-0" at entry and exit points from lifts. ¹⁰	
		Design lift interior to minimize glare and reflection. ¹⁰	
		Use even level of illumination of 100 lux within passenger lift. ¹⁰	
		Install handrails on all walls without doors of all lifts. ¹⁰	
		Other:	
Lifts / Escalators			
		Locate evacuation lifts in fire-resisting enclosure with independent electrical supply and additional controls. ¹⁰	
		Incorporate a gate, barrier and door clear opening width of 36", and ensure all open outwards, when vertical platform lifts have been installed. ¹⁰	
		Provide permanent solid barrier to non-access sides of vertical platform lifts. ¹⁰	
		Include a clear landing space of 8'-0" x 8'-0" when vertical platform lifts have been installed. ¹⁰	
		Avoid inclined platform stairlifts where the device encroaches into the recommended clear width of the stair or compromises the safety of other building users. ¹⁰	
		Ensure inclined platform stairlift has a 43"-high solid side nearest to wall or support rails. ¹⁰	

	Use moveable barriers and guards with integral safety mechanisms. ¹⁰	
	Never use stairlift where the device encroaches into the recommended clear width of the stair or compromises the safety of other building users. ¹⁰	
	Make sure the footway at each end contrasts visually and install a change in floor finish. ¹⁰	
	Ensure moving handrails extend 12" minimum beyond the start and end of escalator. ¹⁰	
	Ensure escalator steps are a minimum width of 22" and a maximum width of 43". ¹⁰	
	Incorporate 2"-wide contrasting band to full width of each step edge. ¹⁰	
	Employ vertical clearance of 90". ¹⁰	
	Ensure clear approach at least 32'-10" long. ¹⁰	
	Include level moving section of escalator of minimum 79" at top and 63" at bottom. ¹⁰	
	Ensure emergency stop controls are visible and accessible to all users on escalators. ¹⁰	
	Moving handrails to extend 28" minimum beyond the start and end of walkway of travelator. ¹⁰	
	Other:	

FURNISHING CONSIDERATIONS

1.1. How should or will the electrical hardware within the interior space exceed ADA requirements?

	Ensure all outlets, switches, sockets & controls are easy to reach and operate. ⁷	
	Ensure all outlet, switches, and sockets contrast the wall color for easy visual identification - at least 70% Light Reflectance Value (LRV) contrast. ⁷	
	Avoid switches that have to be turned or gripped. ⁸	
	Implement large rocker switches. ⁸	
	Ensure all switches require a force no greater than 22 Newtons to operate. ⁸	
	Position switches and sockets no higher than 36" above floor level where a knee space is provided. ⁷	
	Avoid placement of any outlet, switch, or control within 20" of the corners of any room. ⁸	
	Position switches and sockets towards the front of the work surface or on a return wall where there is no knee space. ⁷	

		Consider the use of automatic passive infrared operation to control lights. ⁸	
		Other:	
1.1. How should or will windows and window controls be accessible to a wide range of physical needs?			
		Consider electrically-powered, remote-control devices for opening and closing windows that are out of reach. ⁷	
		Install window controls that are accessible, useable, understandable, and positioned between 32" and 40" above floor level. ⁷	
		Ensure windows that open are accessible and controllable by staff and building users.	
		Other:	
1.2. How should or will the interior space provide a variety of accessible seating to account for a wide range of physical needs?			
		Seating to account for bariatric needs, wheelchair clearance, strollers, service animals, etc. (variety in seating, clearance provided around seating) . ⁷	
		Provide seating in all reception and waiting areas. ⁷	
		Locate seating close to toilet facilities and a reception or information point. ⁷	
		In public transport facilities, provide seating in all waiting locations. ⁷	
		Establish 4'-0" clear aisle widths and passing clearances between seats. ⁷	
		Consider perching seats where space is limited. ⁷	
		Include knee recess for people in seated position. ⁷	
		Other:	
CONSIDERATIONS FOR GOODS & SERVICES			
1.1. How should or will the interior elements used for goods & services be accessible to a wide range of physical needs?			
Counters, Shelves & Cabinets			
		Include counters at different heights, always including an ADA accessible service counter. ⁷	
		Provide 5' x 5' clear space for approach to desk. ⁷	
		Ensure counter has visually-contrasting, upward-sloping leading edge. ⁷	
		Make sure aisle width between shelves and cabinets is 55". ⁷	

		Avoid angled shelves above 36". ⁷	
		Arrange items on shelves vertically to maximize accessibility. ⁷	
		Provide a clear and prominent reception desk with accessible counter heights and clearances built in seamlessly per ADA.	
		Shelving storage unit with seated approach: 25"-40" tall, 9" deep, with 48"(with knee clearance)-55"(without knee clearance) between each unit. ⁷	
		Shelving storage unit with side approach: 26"-42" tall, 9" deep, with 48"(with knee clearance)-55"(without knee clearance) between each unit. ⁷	
		Shelving storage unit with standing approach: 30"-60" tall, any deep, with 48" clearance between each unit. ⁷	
		Other:	
Phones			
		Position manual call points within reach of all building users and ensure they are operable with a simple hand or arm movement. ⁷	
		Position payphones to suit people of different heights - including one at accessible height with operable parts mounted between 30" and 40". ⁷	
		Provide a clear area for approach to payphones with a 5'-7" turnaround clear floor space. ⁷	
		Adjust phone noise levels between 12 decibels and 18 decibels above the ambient noise level. ⁷	
		Install payphones with push-button keypads with a tactile marking to the number five. ⁷	
		Ensure coin and card slots are funnel type. ⁷	
		Consider the provision of a fold-down or perch type seat beside payphone. ⁷	
		Incorporate an adjacent shelf for portable textphones, recommended 10" wide x 14" deep with clear space of 10" above. ⁷	
		All pay phones to include adjustable audio. ⁷	
		Include fixed or folded bench seating for people to use for calls. ⁷	
		Provide a desk or fixed shelf adjacent to the telephone to suit left- and right-hand use. ⁷	
		Other:	
Machines			

	Ensure controls are easily operated with a single hand. ⁷	
	Make sure buttons are at least 3/4" diameter and slightly raised above the mounting surface. ⁷	
	Ensure a maximum 19.5 N force to operate any control. ⁷	
	Ensure height of controls are mounted between 30" and 42" above floor level. ⁷	
	Make sure apertures for retrieving goods enable the use of a whole hand. ⁷	
	Make sure apertures for retrieving goods are mounted 15" above the floor level. ⁷	
	Provide a clear area for approach, 5' x 5', and a level surface. ⁷	
	Provide a clear knee space to facilitate frontal approach for wheelchair users. ⁷	
	Ensure keypads are tilted upwards and comprise large keys with clear numbers. ⁷	
	Employ screen change and scrolling controlled by user. ⁷	
	Ensure the card-insertion point is wide. ⁷	
	Make sure cards, cash, receipts and statements all project at least 1" to facilitate grasping. ⁷	
	Ensure the force required to operate cash-deposit drawers and to retrieve card does not exceed 22.5 Newtons. ⁷	
	Other:	

1.1. How should or will accommodations for workers be accounted for based on a wide range of physical needs at the concessions?

	Consider an open-plan arrangement to facilitate easier circulation between kitchen and dining areas. ⁷	
	Incorporate work surfaces and appliances at different levels - standing height vs seated/accessible. ⁷	
	Ensure standing-height surfaces are 34" high and surfaces for seated approach are 27" high. ⁷	
	Provide clear knee space to lower work surfaces and appliances for people in a seated position. ⁷	
	Provide a clear area of 5'-7" diameter between units in L- or U-shaped arrangement. ⁷	
	Provide a clear width of 4' between parallel work surfaces with access at both ends. ⁷	
	Install an efficient kitchen layout that comprises a continuous work surface. ⁷	

	Consider the use of pull-out boards to supplement work surfaces.	
	Consider the use of pull-out units, swing-out shelves, carousels and trolleys to facilitate easy access. ⁷	
	Install handles that are easy to use and contrast visually with the drawer or door front. ⁷	
	Make sure cupboard doors are hinged to 180 degrees. ⁷	
	Other:	
2.1. How should or will all goods & services be well defined visually?		
	Ensure all devices contrast visually and are easy to identify.	
	Ensure the passenger lift signaling system is both visual and audible. ¹⁴	
	Make sure switches, background, and mounting surface contrast visually. ⁷	
	Incorporate handles that visually contrast with cabinet drawers.	
	Provide seats that visually contrast with surrounding surfaces. ⁷	
	Ensure that restroom fixtures visually contrast with the mounting surface.	
	Ensure payphones with inductive couplers to be clearly signed. ⁷	
	Illuminate payphones to at least 200 lux. ⁷	
	Make sure textphone facilities are clearly indicated. ⁷	
	Locate machines where they are readily apparent. ⁷	
	Make sure ticket machines and ATMs are clearly signed. ⁷	
	Ensure screen text is minimum 18 point and contrasts visually with the screen background. ⁷	
	Make sure illumination at keypads and screens are between 200 and 300 lux. ⁷	
	Ensure work surfaces to visually contrast with adjacent walls and floors. ⁷	
	Other:	
2.2. What should or will be accommodations included that will enhance the understanding of goods & services?		
	Ensure a person's face is well lit wherever communication is important. ⁷	
	Use LED lighting - some fluorescent lights can interfere with hearing enhancement equipment. ⁸	

		Locate electrical mains cables where they will not cause interference with hearing enhancement systems. ⁷	
		Locate light switches logically along a route. ⁸	
		Consider the acoustic requirement of rooms at the earliest planning stage. ⁸	
		Use a buffer zone, such as a lobby or foyer, to separate quiet and noisy rooms. ⁸	
		Select ventilation system with minimal noise impact. ⁸	
		Limit excessive noise levels generated by multiple hot-air dryers in restroom facilities. ⁸	
		Consider the likelihood of noise overspill into adjacent areas. ⁸	
		Orientate ATMs to minimize the likelihood of glare on the screen. ⁷	
		Include instructions that are simple and easy to understand. ⁷	
		Include printed material with a large, bold typeface. ⁸	
		Avoid positioning windows or lights at the end of corridors and behind a person at a reception desk. ⁷	
		Other:	

SANITARY FACILITIES CONSIDERATIONS

1.2 How should or will the restroom facilities & fixtures be accessible to a wide range of physical needs?

Restrooms

		Accommodate particular patterns of use and gender ratio in the design and position of facilities. ⁹	
		Make sure toilets are easily accessed and centrally located. ⁹	
		Locate sanitary facilities on accessible routes. ⁹	
		Provide toilets at regular intervals throughout the building. ⁹	
		Ensure temporary sanitary facilities are as accessible as permanent facilities. ⁹	
		Ensure the unisex toilet is suitable for all building users, if only one is provided. ⁹	
		Establish a large room suitable for small group access. ⁹	
		Ensure the room is accessible to wheelchair users; parents with strollers / buggies; people with visual difficulties; and people using walking or mobility aids. ⁹	

	Provide unisex accessible facilities for baby/adult-changing. ⁷	
	Provide supplementary baby/adult-changing facilities in male and female toilets. ⁹	
	Establish separate facility for breast-feeding. ⁹	
	Provide well-drained, level, and slip-resistant floor surface. ⁹	
	Ensure changing facilities are clearly identified. ⁹	
	Locate changing areas on accessible routes. ⁹	
	Consider areas for clothing changes - include a height adjustable fold down or fixed ADA benching with grab bars and accessible clothing hooks. ⁹	
	Provide private areas for showering and changing in addition to communal facilities. ⁹	
	Locate accessible shower and changing areas within single-sex facilities in addition to unisex facilities. ⁹	
	Ensure bathroom incorporates 5'-7" clear floor turning space. ⁹	
	Coat/clothing hooks to be located at 48" for a forward approach or 54" for a side approach. ⁹	
	Ensure all accessories visually contrast with the mounting surface. ⁹	
	Ensure clear door opening of 3'-0". ⁹	
	Provide accessible toilet stall in multi stalled restrooms.	
	Provide toilet stalls designed for people with mobility difficulties. ⁹	
	Include enlarged toilet stalls for people who need extra space. ⁹	
	Fit doors with lift-off hinges. ⁹	
	Install sink at 34" maximum above floor level. ⁹	
	Incorporate lever or automatic faucets. ⁹	
	Ensure consistent faucet control style throughout facility. ⁹	
	Select black toilet seat for visual contrast.	
	Ensure one in six urinals are at accessible height and provide space for front approach by wheelchair users. ⁹	
	Ensure restroom accessories meet ADA requirements and all operable parts are mounted with reach - automatic dispensers are best practice. ⁹	
	Include accessible housing for wide, tear-off toilet paper roll. ⁹	

	Provide ceiling track hoist (or mobile hoist) . ⁹	
	Install GFCI outlets that are easy to operate.	
	Use lever faucet controls.	
	Insulate all exposed pipes.	
	Avoid full-height mirrors and mirrors that may appear to cause confusion. ⁹	
	Ensure restrooms and change facilities can be identified by touch-legible pictograms.	
	Position dispensers so as not to drip on floor. ⁹	
	Ensure dispensers are easily operated by a pull/push lever. ⁹	
	Avoid shiny surfaces.	
	Provide sanitary vending machines equitably in all restrooms.	
	Ensure sanitary disposal units are available in every restroom, easy to operate, and large enough for incontinence pads. ⁹	
	Ensure bins for general waste are suitably positioned and easy to identify. ⁹	
	Provide assistance alarms in all accessible toilets, bathrooms, shower rooms, and changing rooms designed for independent use. ⁹	
	Position pull-cord so that the end is no more than 4" from the floor. ⁹	
	Ensure use of correct cord length with two red bangles, with one at the end of the cord, and the other between 32" to 40" above the floor level. ⁹	
	Locate reset button in appropriate location. ⁹	
	Provide two clothes hooks in each location and 42" to 67" above the floor level. ⁹	
	Provide outward-opening doors to accessible facilities. ⁹	
	Fit inward-opening doors with emergency-release catches. ⁹	
	Use lever-style door handles. ⁹	
	Ensure locks are easy to operate. ⁹	
	Ensure lock indicators are correctly fitted. ⁹	
	Provide visible and audible indicator in all sanitary facilities. ⁹	
	Use suitable surface to provide a good grip when wet. ⁹	
	Ensure all grabrails are firmly fixed to wall. ⁹	
	Provide seating outside the restroom facilities.	

		In accessible water closets, shower rooms and bathrooms, position hand-drying facilities within reach of the wheelchair. ⁹	
		Ensure room heaters are positioned away from transfer and maneuvering space. ⁹	
		Ensure surface temperature of heaters does not to exceed 104 degrees F. ⁹	
		Provide adequate lighting levels - 200 lux. ⁹	
		Install back-up lighting source to supplement automatic lights. ⁹	
		Incorporate motion sensor lighting.	
		Avoid the use of ultraviolet light in accessible toilets. ⁹	
		Other:	
Shower Rooms			
		Install zero-access shower tray. ⁹	
		Use adjustable-height, detachable shower head. ⁹	
		Incorporate accessible fold-down shower bench in shower area. ⁹	
		Consider additional fold-down or fixed seat for drying. ⁹	
		Position grabrails and drop-down rails correctly. ⁹	
		Use suitable accessories including towel rail, clothes hooks, and mirror. ⁹	
		Consider the provision of a warm air body dryer. ⁹	
		Install suitable bath with transfer seat that meets ADA requirements.	
		Ensure all operable shower parts are within accessible reach as defined by ADA.	
		Ensure changing facilities are clearly identified. ⁹	
		Locate changing areas on accessible routes. ⁹	
		Install inward opening doors designed for easy reversal. ⁹	
		Consider reinforced wall construction for installation of grabrails. ⁹	
		Make provision for future installation of level access shower. ⁹	
		Use detachable shower heads in all showers. ⁹	
		Other:	
Lockers			

		Position lockers in an accessible location. ⁹	
		Install a range of locker sizes and heights - at least one accessible locker per type. ⁹	
		Ensure locker doors are easy to use. ⁹	
		Ensure locks and key fobs are easy to operate. ⁹	
		Use a clearly identifiable numbering system. ⁹	
		Other:	

References

1. Center for Universal Design. 1997. *The Principles of Universal Design, Version 2.0*. Raleigh: North Carolina State University.
2. Dizdaroglu, D. (2021). Developing Design Criteria for Sustainable Urban Parks. *Journal of Contemporary Urban Affairs, 1*, 69–81. <https://doi.org/10.25034/ijcua.2022.v6n1-7>
3. Gallaudet University. (2010). DeafSpace Design Guidelines. <https://app.dcoz.dc.gov/Exhibits/2010/ZC/15-24/Exhibit95.pdf>
4. Alavi Tabrizi, S.M.A. (2016). Monitoring Model for Universal Design [Master’s Thesis]. Yildiz Technical University. Available from: file:///Users/owner/Downloads/yokAcikBilim_10109610.pdf
5. National Disability Authority’s Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. Entrances and Horizontal Circulation*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
6. National Disability Authority’s Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. External Environment*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
7. National Disability Authority’s Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. Internal Environment and Services*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
8. National Disability Authority’s Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. Facilities in Buildings*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>

9. National Disability Authority's Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. Sanitary Facilities*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
10. National Disability Authority's Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. Vertical Circulation*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
11. National Disability Authority's Centre for Excellence in Universal Design. (2020b). *Signage design*. Centre for Excellence in Universal Design. <https://universaldesign.ie/Products-Services/Custom-Communications-Toolkit-for-the-Public-Service-A-Universal-Design-Approach/Written-Communication/Signage-Design/>
12. Oregon Parks and Recreation Department. (2013-2017). *Oregon Statewide Comprehensive Outdoor Recreation Plan*. https://www.recpro.org/assets/Library/SCORPs/or_scorp_2013.pdf
13. Steinfeld, E., & Maisel, J. (2012). *Universal Design*. John Wiley & Sons.
14. VSAP. (2017). *Museum Design Data Collection*. Available from: <https://ia902905.us.archive.org/7/items/MUSEUMDESIGNDATACOLLECTION?MUSEUM%20DESIGN%20DATA%20COLLECTION.pdf>
15. Wolfe, J. (2019). *Importance of Light Reflectance Value Contrast for Signage* [Blog]. Available on ASI Website: <https://asisignage.com/2019/12/10/importance-of-light-reflectance-value-contrast-for-signage/>

Sources:

[2010 ADA Standards for Accessible Design](#)

[2021 International Energy Conservation Code \(IECC\) Standards](#)

[Occupational Safety & Health Administration \(OSHA\) Laws & Regulations](#)



NORTH SHORE RECREATION AREA

EASTER LAKE PARK

UNIVERSAL PARK DESIGN SERIES

- TOOLS

1. PROGRAMMING
2. PARKING & ENTRY
3. INTERIOR SPACES
- 4. PLAYGROUNDS, TRAILS, & GREEN SPACES**
5. BEACHES & WATER ACTIVITIES

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Disclaimer: This toolkit is a joint effort between Polk County Conservation, Shive-Hattery, and Uncurbed (“Parties”). This toolkit provides main summary and technical criteria of universal design considerations related to park design; however, the Parties do not warrant or guarantee the accuracy, completeness, adequacy, or currency of any information referenced or linked within this document. In no event, shall the Parties be liable for any direct, indirect, or incidental damages, injuries, losses, costs, or expenses, howsoever caused, arising out of, or resulting from access to, possession of, or use of this toolkit. The detailed guidance provided here does not represent the only possible solution. Clients or designers may develop additional solutions to meet a diversity of users. New materials and technologies that emerge may present further possibilities for accommodating the diversity of users. Each project should engage the services of a qualified and professional access consultant to ensure that project anomalies or other factors do not adversely affect the design intent.

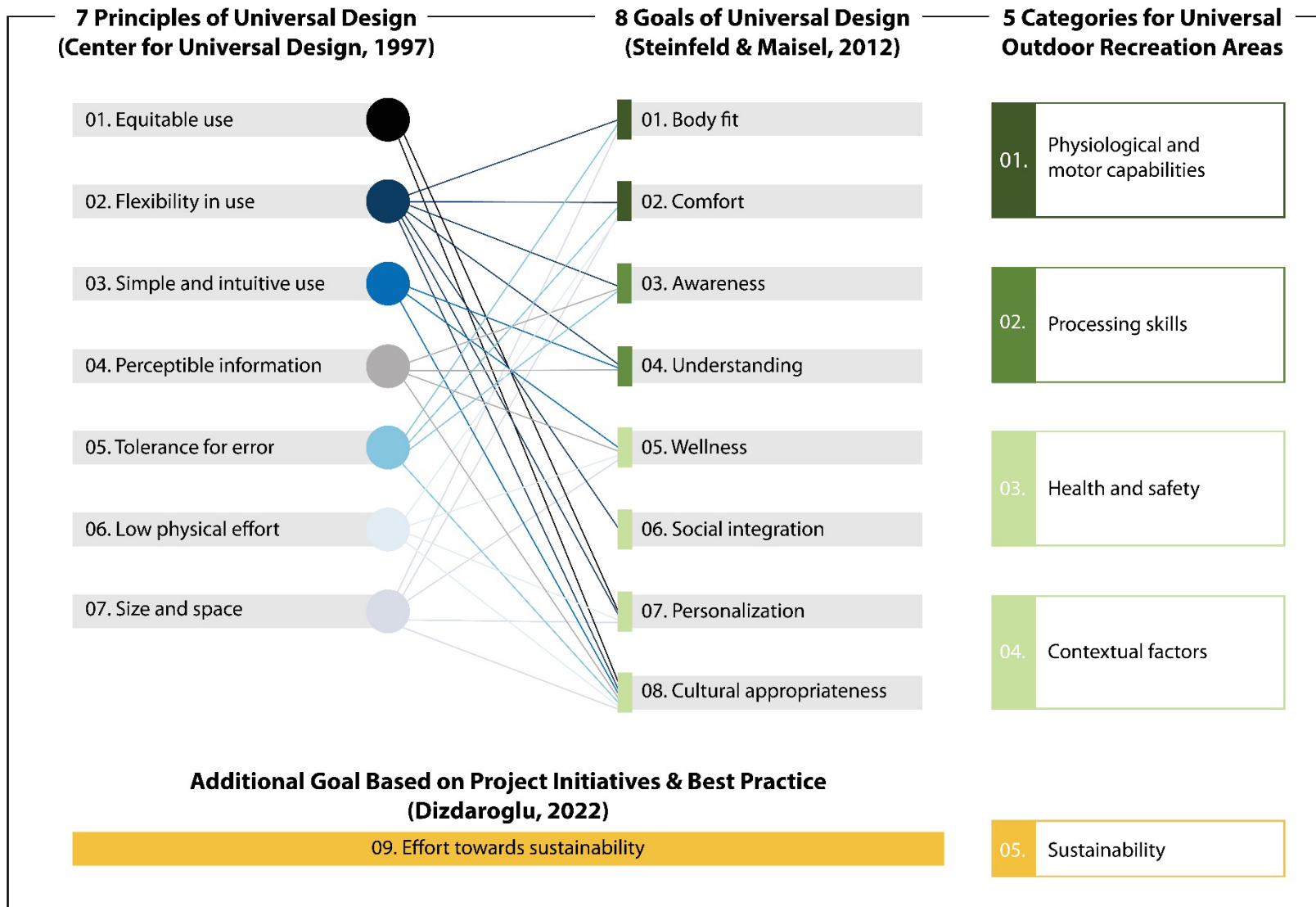
COVER PAGE

UNIVERSAL PARK DESIGN TOOL – PLAYGROUNDS, TRAILS, & GREEN SPACES

This tool is a compilation of academic, user, and practical research intended for use during the park design process to help list key universal design (UD) considerations needed to support design decision-making for the design of **playgrounds, trails, & green spaces**. It is recommended that this tool be prioritized last, if necessary. This tool is not a one-size-fits-all. It is one component of the universally designed process used during the design of Athene's Easter Lake North Shore Renovation Project. Each project should incorporate the practice of co-design, engaging active participation from diverse end-users and subject matter experts in universal design and/or other related fields and methodologies (i.e., human-centered design, design thinking, inclusive design, co-design, accessible design, occupational science, etc.) to ensure that project anomalies or other factors do not adversely affect the design intent. UD considerations are provided throughout the tool and while they provide a summary of main considerations and technical criteria, they should not be regarded as an exhaustive list. The detailed guidance provided here does not represent the only possible solution. Members of a co-design team may come up with other ways to meet a diversity of users. New materials and technologies that emerge may open up further possibilities for accommodating the diversity of the population.

Each tool is organized into **5** Categories for Universal Park Design, expanding on the original 7 Principles of Universal Design¹ and 8 Goals of Universal Design¹⁰ to include an effort toward sustainability² ([see Figure 1](#)). These categories were selected based on project initiatives and themes collected from academic, user, and practical research. Variation exists in the categories of **playgrounds, trails, & green spaces** design due to differences in operations, organizational goals between different clients and designers, and user perspectives. The priorities you have set in place for your particular project, the UD categories, user input, and the key questions that you must ask yourself as clients and designers, are the foundation of this tool. Before using the tool, please first go to the [Home Page](#) to learn more about the UD goals, categories, and how to communicate project priorities.

Figure 1. Crosswalk (between the 7 Principles of Universal Design¹, 8 Goals of Universal Design¹⁰, and 5 Categories for Universal Park Design based on project initiatives and themes collected from academic, user, and practical research for Athene’s Easter Lake North Shore Renovation Project.



The [Tool Page](#) lists key questions relevant to the 5 specific UD categories for consideration. Below each question, a detailed design feature list is provided and serves as a menu item for clients to choose from and share with the design team at the onset of any park project based on the foundations of UD mentioned above. Designers can refer to the selected menu items throughout the design process and use the tool to validate their design choices. The design considerations and features are based on a review of research literature, best practices, and expert opinions. Clients and/or designers can add new design features based on their literature review, experiences, or user input. There may be instances of trade-offs between the UD categories, and there may be instances where you use some, but not all of the features, depending on the evaluation of value vs. cost by the client (see important notes).

Notes:

Each tool is not meant to be an exhaustive list of minimal standards already covered in available design guidelines. Rather, it provides a structured way for clients and designers to consciously focus on key evidence-based design considerations to optimize design decision-making resulting in the best value for the investment.

Gathering user input is one important step in decision-making. This is referred to as co-design. As a design tool, this is not meant to be a one-size-fits-all prescription for design. In many cases, no prescriptive numbers (e.g., space size or length of headwall) are provided because the optimized numbers depend on a thorough understanding of the needs of those affected by the project and the constraints of the project (e.g., operations and costs). Clients and designers should use the key design considerations and design features included in the tool as a basis to determine what are “adequate” or “sufficient” numbers or sizes. Likewise, the client and future users should be consulted regarding subjective aspects (e.g., attractive design). Environmental simulation (e.g., mock-ups, and renderings) may be used in gathering input on these issues.

Disclaimer: The tool is based on currently available research evidence and expert opinions therefore may not exhaustively cover all design aspects impacting outcomes. The results produced by using the tool may vary depending on conditions/users.

HOME PAGE

UNIVERSAL PARK DESIGN TOOL - PLAYGROUNDS, TRAILS, & GREEN SPACES

To begin, please complete the following information:

Client Name:

Project Name:

Client Contact Person:

Lead Designer:

Tool Completion Date:

On the next page is a list of each universal design goal and category, in addition to the category of sustainability. Some goals and categories may be more important for a particular park project. If you are the client, please confirm or change priority ratings based on their relevance to **playgrounds, trails, & green spaces** design by selecting a rating (High, Medium, or Low) from the dropdown list in each cell of Column C. It is recommended to limit the 'High' priority rating to 4 UD goals and categories.

8 Universal Design Goals ¹	5 Universal Park Design Categories ^{1, 2, 10}	Priorities (Insert High, Medium, Low)
1. Body Fit	1.1. Physiological & Motor Capabilities	
2. Comfort	1.2. Physiological & Motor Capabilities	
3. Awareness	2.1. Processing Skills	
4. Understanding	2.2. Processing Skills	
5. Health & Wellness	3. Health & Safety	
6. Social Integration	4.1. Contextual Factors	
7. Personalization	4.1. Contextual Factors	
8. Cultural Appropriation	4.1. Contextual Factors	
	5. Sustainability	

TOOL PAGE

UNIVERSAL PARK DESIGN TOOL - PLAYGROUNDS, TRAILS, & GREEN SPACES

The below tool is more than a tick box. It is a menu list and communication tool for potential UD considerations relevant to **playgrounds, trails, & green spaces** design for clients and designers. Marked boxes should be reviewed by both clients and designers to determine whether a UD consideration is applicable, relevant, and achievable for your park project.

Complete the following steps at the onset of a project:

If you are the client:

1. Place an **X** in the Client column to indicate which design features should be considered for the project. Items selected should be consistent with project goals, user and expert input, and prioritized based on budget. The Notes column can be used to elaborate on each UD consideration as needed. Please include the date when inserting a note. It is recommended that clients engage in user and professional input when determining a UD consideration.
2. If a UD consideration is not relevant to the project, clients should leave the UD consideration in the Client column unmarked.
3. Share the completed tool with the Lead Designer by the agreed-upon completion date.

If you are a designer:

1. Discuss each marked UD consideration with the client and add to the Notes column to further elaborate on specifications (please include the date).

In general:

1. If you are the client or a designer and wish to add additional design features to the tool, you can add them in the cell beginning with "other:" under each UD category. Please enter only UD considerations supported by academic (newly published or existing unpublished research conducted by design firms, and others), user, and practical research.

Complete the following steps throughout the project as needed:

If you are a designer:

1. Place an **X** in the Designer column to indicate whether a UD consideration is included in the current design.
2. If during the design process, a UD consideration is no longer achievable due to unknown or unforeseeable circumstances, designers can flag a UD consideration by placing an **R** in the Designer column to indicate that the UD consideration requires further review with the client.
3. If a UD consideration can only be partially met, place a **P** in the Designer column, and explain in the Note column (please include the date). This explanation may include an alternative option.

UNIVERSAL PARK DESIGN TOOL – PLAYGROUNDS, TRAILS, AND GREEN SPACES

Client	Designer	
		<p style="text-align: center;">LEGEND</p> <p>X in the Client column indicates that a UD consideration has been requested</p> <p>X in the Designer column indicates that a UD consideration has been met</p> <p>R in the Designer column indicates that a UD consideration requires review</p> <p>P in the Designer column indicates that a UD consideration was partially met</p> <p>Reminder: UD considerations left unmarked indicate that they are not relevant to the project</p>

PLAYGROUNDS, TRAILS, AND GREEN SPACE			NOTES
Client	Designer		
TRAILS			
4.1. How should or will trails promote social integration?			
		Trail access to park from neighboring communities.	
		Trails or connecting paths are concrete, asphalt, or composite decking.	
		Educational slanted panels that are accessible and include a variety of alternative communication formats are provided at various checkpoints along a trail.	
		Trails are wide enough to promote side-by-side communication. It is recommended that all main circulation areas have a minimum of 8' in width. All secondary trails should be a minimum of 6' to allow for two wheelchairs to propel side-by-side.	
		Trails or connecting paths are concrete, asphalt, or composite decking to allow persons using mobility devices to navigate the trails rather than be isolated from others.	
		Other:	
1.1. How should or will trails accommodate a variety of body sizes and activities?			
		Main walkways, trails, and connecting paths are 6 to 8 feet wide.	
		Main walkways, trails, and connecting paths have slopes that are 1:20 or 5% grade. Railings are recommended in all areas where it exceeds a 5% grade.	
		Railings at various heights are provided in busy traffic areas or in areas with uneven terrain.	
		Designate between multiuse trails (i.e., biking, walking) or walking only trails.	
		Other:	
2.1. What clear visual cues should or will be integrated into the design to promote awareness?			
		Transition plates, contrasting colors or textured surfaces are located on main walkways when a change in terrain or direction occurs.	
		Glow in the dark paint or photoluminescent signage is used on the main walkways or on signage to communicate direction of and distance to amenities.	
		Braille is provided on signage and/or railings to describe scenery or educational information.	
		Other:	
1.2. What types of areas for rest and shade should or will be provided along trail routes?			
		Provides multiple covered bench seating with arms and back support.	
		Seated areas with charging stations provided.	
		Naturally shaded areas provided along trail route.	

		Provide seating at regular intervals, away from line of travel; Recommended max distances without rest: - Ambulatory without walking aids: 326' - Use of mobility aids: 164'. ⁴	
		Provide a variety of seating options such as covered seating, seating with and without arms and back rests, and seating with charging outlets for powered mobility devices, respirators, and/or phones.	
		Benches are to be stable and, in public space situations, are required to be anchored to a concrete pad. ²	
		The CSA requires a bench seat to be at a height of 1' 6" to 1' 8". ²	
		The front face of benches should be set back from the path of travel at least 2' so the required set back or depth for a seating area is 4'. ²	
		The length of the bench space is dependent on the designer's intent, but the space should always include an additional 2' 6" to 2' 11" wide by 4' deep space to allow a person in a wheelchair to park near other seated people. Extra space also allows an assistive dog to sit by their wheelchair companion. ²	
		Trail provides views, interesting terrain, shade, proximity to streams, lakes, wildlife, and plant life. ¹⁰	
		Other trails are in the area that offer similar terrain. ¹⁰	
		Trail creates a loop or a connection to another trail. ¹⁰	
		Limited number of trail uses that may cause conflict (e.g., a high level of dog walking or bike usage). ¹⁰	
		Other:	
3. How should or will trails promote safety?			
		Lighting provided to the main paths of parks that remain open after dark. ⁴	
		Emergency poles located along trail route. ²	
		Having fluorescent signage is very useful for walking at night and is recommended to be applied to signage that follows roadways in campsites to comfort stations. ²	
		Where practical, exterior lighting should be provided along all accessible walkways providing access to/from park facilities. ²	
		Pedestrian scale lighting or wall-mounted lights that protrude should provide a minimum of 6' 6" overhead clearance. ²	
		Where practical, exterior lighting should be provided along all accessible walkways providing access to/from park facilities. ²	
		Stabilizing materials are used on trails or sections of trails where there is loose granular or soft soil surfaces. Examples include crushed rock, wood chips, fine granular stone, or recycled materials.	
		Edge protection is provided along trails or sections of trails with drop-offs of 6 inches or higher or sharp changes in direction and should be at least 3 inches high. If the drop-off is less than 6 inches, but greater than 1 inch, the edge must be beveled.	

		Provide charging stations along trail route for wheelchair users every 5 miles, but must include at least one.	
		Other:	
5. How should or will trails follow proper technical guidelines to sustain trail longevity?			
		Trails should traverse side slopes instead of travelling down the fall line. ¹⁰	
		Reducing running (linear) grades of trails decreases erosion as well as creating greater access for a broader range of users. ¹⁰	
		Firm and stable trail tread surfaces (as opposed to loose granular or soft soil surfaces) offer more sustainability as well as greater range of access for users. ¹⁰	
		Out-sloped tread — This practice encourages sheet flow of runoff at low velocities, away from the trail, rather than down the trail. ¹⁰	
		Frequent linear grade reversals — This BMP minimizes erosion by slowing the velocity of water (and the materials it carries) along the trail, thereby increasing sustainability of the trail's tread surface. ¹⁰	
		Trail structures incorporated into the trail to protect natural resources (for example, boardwalks over wetlands) can also provide universal access to users. ¹⁰	
		Low maintenance needs — One example is the use of rolling grade dips and grade reversals (rather than water bars and check dams) to control water and limit erosion of the trail tread. ¹⁰	
		Consult Outdoor Guidelines, ABA Accessibility Guidelines, PROW Guidelines, and ADA for minimum technical standards.	
		Other:	
2.2. How should or will signage offer a variety of formats and in universal terms?			
		Trail information is provided in multiple formats.	
		A trailhead map containing text, grade profiles with surface information, a top view map with symbols showing the location of major obstacles, and other critical information provided. ¹⁰	
		A trail map summarizing TAI with symbols and measurement numbers formatted as a slim strip that can be attached to trail posts and located at trailheads or trail intersections provided. ^{10,9}	
		An informational flier that can be provided at the trailhead or visitor center summarizing TAI with symbols and measurement numbers, trail grade profile, description of the trail, and location of trailhead provided. ⁹	
		A short audible narrative with descriptions of trail conditions and details about the trail environment. This format may benefit individuals who have vision impairments or who have limitations reading in English. ¹⁰	
		A trail map featuring trail descriptions, TAI, and a grade profile that folds up to fit into a pocket provided. ¹⁰	

		A trail manual containing TAI, interpretive information, scenic photographs, directions to the trailhead, and other information about trails within a given recreational area provided. ¹⁰	
		An interactive accessible computer displays at a visitor center providing trail selection tools, TAI, and visual and audio descriptions of images at selected destinations provided. Guidelines for making kiosks accessible to people with mobility and vision impairments through the U.S. Access Board implemented. ¹⁰	
		To assist people with visual impairments, it is recommended to use tactile signs with raised lettering for urban/rural trail systems and roaded natural settings where reasonable. ²	
		Characters should be raised 0.8 mm [0.03"] and be between 16 mm [0.63"] and 50 mm [2"] in height. Characters shall have a width-to-height ratio between 3:5 and 1:1, and a stroke width-to-height ratio between 1:5 and 1:10. If larger print height is required, consult with the signage department in City Hall to obtain information relating to print size, legibility, and viewing distances. ²	
		If a display case is put on the site, it should be at a comfortable height and/or at an angle that a child can peer in. A mounting height of 600 to 750 mm [2' to 2' 5"] is ideal. Care must be taken to include a 30-to-45-degree inclination toward a viewer. ²	
		Interpretative signage mounted at 600 to 750 mm [2' to 2' 5"] allows most park visitors to read information provided. Pictures and graphics are legible to everyone. ²	
		Other:	
2.2. How should or will signage offer clear, critical information?			
		Signage includes the following (See ABA Guidelines): <ul style="list-style-type: none"> • Length of the trail or trail segment; • Surface type; • Typical and minimum tread width; • Typical and maximum running slope; and • Typical and maximum cross slope. 	
		If a trail is accessible, it should have the Universal Design trail difficulty rating system applied. ²	
		A map of trail systems should also provide information on whether there is an accessible bus stop near the trailhead, accessible washrooms, and an accessible phone. ²	
		Interpretive displays, signs, and related materials should be installed at site entrances, along trails, and in visitors' centers. ²	
		All signage should be facing the path of travel and mounted to a height between 4'-0" and 5'-10" above grade. ²	
		The primary trailhead signage area should be adjacent to the path of travel but offset such that an area of 5'-11" depth x 8'-8" width is available in front of the sign board and on a level and firm surface with positive grading at 2% for drainage of water to perimeter edge. ²	

		The interpretive trail signage should be aligned adjacent to the path of travel and offset from the main trail. If there are space constraints, the space requirements in front of the interpretive signage can be at the minimum of 5'-0" x 5'-0". ²	
		Primary trail head signs should be located in well-lit areas, and glare free surfaces should be used. ²	
		Signs along trails must clearly inform users of site conditions related to accessibility. ²	
		Provide accurate and complete information on trail conditions and characteristics of the site. The four basic requirements are grade, cross-slope, width, and surface. ²	
		Incorporate the trail difficulty rating system developed by Beneficial Designs Inc. in California, the U.S. Forest Service, and the National Parks Service. ²	
		Other:	
5. What opportunities should or will there be for trash and waste removal along trails?			
		Trash receptacles are located along an accessible route.	
		Doggie waste removal bags mounted at accessible height at regular interval along access route.	
		Other:	
1.2. How should or will trash receptacles be easily operable?			
		An accessible trash receptacle should be operable (openable) with one hand and have a hinged door which swings inwards, 2' 5" to 2' 11" above the ground. ²	
		The force to open a hinged lid, whether it swings in, or swings up, must not exceed 22N. ²	
		Trash receptacles must not have sharp edges. ²	
		A minimum clear ground and floor space of 3' x 4' must be provided adjacent to a trash receptacle. The space is required for either a parallel or forward approach to the trash receptacle. ²	
		Other:	
3. How should or will trail light sources follow technical guidelines to promote safety?			
		Light sources always should be properly baffled with louvers or lenses. ²	
		Lighting poles should be located outside the path of travel. ²	
		Bollards are spaced at least 3' 3" apart, ideally 1.6 m 5' 2" apart, so that circulation between the bollards is possible by everyone. ²	
		Bollards direct the light downward toward the pathway and the shrubbery. ²	
		Locate accessible parking spots close to trailhead areas where trail signage is posted. ²	
		Other:	
PLAYGROUND			
1.1. How should or will the playground accommodate for a variety of body types and activities?			

		The main pathway is accessible so that all individuals have equitable means of access to and travel throughout the play environment. ⁸	
		Access is provided to all the activities offered in the play area. If there are three swinging activities, at least one is accessible to the child with a disability. ²	
		Number of ground level activities exceed ADA requirements.	
		Gates provide a clear opening width of at least 36" and are self-closing. ⁴	
		Ground level activities include a raised alternative (i.e., raised garden beds, raised sandboxes, splashpad, cool mist).	
		Play activities allow a child to maintain their independence by playing with the use of their assistive device. ⁸	
		Play activities with adaptive elements, such as back support, in which children can participate without fine motor coordination and/or gross motor control are provided. ⁸	
		Variation in activities promote different types of stimulating movement (i.e., linear, rotational, vestibular).	
		Play activities for a variety of developmental stages are provided. ⁸	
		A variety of activities that allow children with disabilities to explore challenge and risk along a developmental continuum are provided. ⁸	
		Hard surface areas are clearly defined so children with disabilities can approach and transfer onto equipment. ²	
		Where possible, the specifying of play equipment includes features that can be used by all children and children with attendant adults, for example a double-width slide. ²	
		Adaptive play elements such as double-wide ramps and adaptive swing seats that support a child's independence are provided. ⁸	
		Ramps are 3' 11" wide and sloped no more than 8%, and include handrails at varying heights from 1' 9" to 3' 1" in vertical distance between the ramp surface and the top surface of the handrail. ²	
		Landings are a minimum of 4' 11" x 4' 11". ²	
		Unnecessary complexity with access, regress and entry points to and within the play environment have been eliminated. ⁸	
		Activities that offer immediate feedback (yet minimal physical exertion) from participation are provided. ⁸	
		The play environment includes entry archways, enclosures on open decks, and slide transfers to increase the tolerance for error. ⁸	
		Children can participate in play activities using either fine motor coordination or gross motor control. ⁸	
		Adequate space has been provided for movement throughout the play environment for individuals with assistive devices and/or personal assistance. ⁸	

		Play activities are placed at the proper accessible height and position for children to comfortably approach, reach, engage in play and sustain activity with peers. ⁸	
		Different play activities are offered throughout the play area to alternate areas for sustained physical effort with opportunities for sitting and resting. ⁸	
		Gates provide a clear opening width of at least 36" and are self-closing. ⁴	
		Other:	
2.1. What clear multi-sensory cues should or will be integrated into the playground to promote awareness?			
		Play area, particularly the activity areas and pathways, organized with consistent multi-sensory cues, such as contrasting colors and textures, to support orientation and navigation. ⁸	
		Multi-sensory experiences are incorporated into the playground or surrounding play area, such as auditory (music or noise-dampening areas like a de-escalation room), olfactory (smell of flowers), tactile (nearby water play or textured plants), taste (nearby concessions), and vision (calming colors such as green and blue versus red or orange).	
		Acceptable and appropriate behaviors and skills for play areas clearly displayed and/or implied.	
		Other:	
2.2. How should or will the play environment include design features or activities for children to intuitively engage in play?			
		Playground equipment that promotes natural 'looping' patterns to children to do the same activity over and over again is available.	
		Where appropriate, there are opportunities for children to engage in a play component through a variety of interpretive communication methods.	
		Play activities include visual, tactile, and audible information using contrasting colors, textures and sound. ⁸	
		Playground components are strategically placed to promote 'grade up/grade down' challenges.	
		When appropriate, playground surfacing is used to communicate information about play components.	
		Other:	
3. What sanitization measures should or will be available near the play environment?			
		A sanitization station with an automatic sanitizer dispenser and disposable wipes are provided by the play environment.	
		Desirable play activities are spaced out to promote social distancing when recommended.	
		A family restroom or single, non-binary restroom is within close proximity to the play environment and is visible from observation and supervision seated areas.	
		Other:	
3. How should or will the playground activities promote safety?			

		All children's play areas conform to the latest edition of Children's Playspaces and Equipment (CAN/CSA-Z614-03). ⁸	
		Level and cushioned surfacing is used on accessible routes and in safety zone areas (i.e., rubberized surfacing).	
		Comfortable spaces that can be used as observation and supervision points accompanying the play activity areas are provided. ⁸	
		Seated areas with charging stations.	
		Naturally shaded areas provided within the playground.	
		Rest areas are provided within the play area outside of the traffic pattern. ⁸	
		Provided convenient spaces, like cozy spots, that can be used for sensory relief throughout the play area and are in line of sight. ⁸	
		Hard surface areas are clearly defined so children with disabilities can approach and transfer onto equipment. ²	
		At any measured point, the play area and protective surfacing extends to a minimum of 6' 6" from the nearest piece of equipment. ²	
		Bulk fiber surfacing materials are installed around and beneath all accessible activities and components of the play structure. In some cases, synthetic surfacing materials is applied due to the accessibility requirement of the play structure and the level of maintenance required for upkeep of the play area. In addition, the fall tables are consulted for the depth of materials to be used under various equipment components. ²	
		Use durable products and building materials which have a record of longer life and reduced maintenance costs. ⁵	
		Other:	
4.2. How should or will the playground provide opportunities for personal choice?			
		At least one art activity is available. An example of an art activity is an art sculpture that serves as a border for a playground but also provides tactile and sensory input.	
		At least one music activity is available. An example of a music activity is an outdoor xylophone.	
		Gradations of activities for different ages and ability levels.	
		Number of ground level activities exceed ADA requirements.	
		Provided tactile activities like sand and water elements and/or accessible planting tables. ⁸	
		Large muscle, physical activities paired with areas for resting and sensory relief to reduce children's overstimulation anxiety and behavior are provided. ⁸	
		The play environment is usable by individuals with diverse abilities regardless of age, ability, gender, ethnicity, culture, and socio-economic status. ⁸	
		Other:	
4.1. Should or will there be playground equipment that is desirable for all individuals?			

		The 'funnest' activities are easily accessible and dispersed throughout the environment for an individual with a mobility impairment. ⁸	
		The play activities are fun for children at different developmental stages so more children can participate and progress developmentally to more challenging play opportunities. ⁸	
		There are a variety of different types of equally fun play activities (large muscle activities, social activities, dramatic play opportunities, etc.) available throughout the play area so children have a continuum of choices. ⁸	
		Comfortable jump-in points paired with the activity areas are provided. ⁸	
		A variety of multisensory experiences through the play equipment, the environmental design and natural elements such as landscaping have been provided. ⁸	
		Other:	
4.1. How should or will the playground promote social integration?			
		Gradations of activities for different ages and ability levels.	
		Number of ground level activities exceed ADA requirements.	
		Multiple covered bench seating with arms and back support are provided for caregivers.	
		Accessible ground surfacing around seated areas for wheelchairs.	
		Ground level activities include a raised alternative (i.e., raised garden beds, raised sandboxes, splashpad, cool mist).	
		Fun activities that encourage children to play side-by-side and cooperate, rather than compete, in order to participate in play are provided. ⁸	
		Auditory opportunities, like musical instruments, for nonverbal children to interact with others is provided. ⁸	
		Play activities that offer feedback such as auditory sound, play activities for exploring cause and effect, and play activities that offer social gathering places are provided.	
		The play environment is usable by individuals with diverse abilities regardless of age, ability, gender, ethnicity, culture, and socio-economic status. ⁸	
		People of all abilities can be included in physical and social play. ⁸	
		There are a variety of social play opportunities, at ground level and under play decks, throughout the play environment. ⁸	
		Play activities are placed at the proper accessible height and position for children to comfortably approach, reach, engage in play and sustain activity with peers. ⁸	
		Other:	
4.2. What opportunities to play year-round should or will be available?			
		Indoor play space is available.	
		To support diverse comfort characteristics, a range of environmental conditions with a nice mix of sun, shade, protection from the wind, and access to facilities has been incorporated into the play environment. ⁸	

		Other:	
4.3. What cultural factors should or will be considered within the play environment?			
		The play environment is usable by individuals with diverse abilities regardless of age, ability, gender, ethnicity, culture, and socio-economic status. ⁸	
		Other:	
5. How should or will the playspace require little to no maintenance?			
		Use durable products and building materials which have a record of longer life and reduced maintenance costs. ⁵	
		Building materials require little maintenance (painting, retreatment, waterproofing, etc.), or maintenance has minimal environmental impact where possible. ⁵	
		Water efficient equipment is installed.	
		Other:	
3. What materials used on the playground equipment should or will be safe for the environment and persons using the equipment?			
		Materials that off gas pollutants such as solvent based finishes, adhesives, carpeting, particle board, and many other building products that release formaldehyde and volatile organic compounds into the air have been avoided. ⁵	
		Other:	
5. What materials used as part of play activities should or will be produced locally?			
		Playground materials and plants are purchased locally when appropriate.	
		Other:	
GREEN SPACE			
1.1. How should or will the green spaces include design features that accommodate for a variety of body types, abilities, and supports?			
		Ground level activities include a raised alternative (e.g., raised garden beds).	
		There are a variety of seating options available within the gathering areas of the green spaces.	
		Service dog considerations (i.e., dog park in gated area, availability of doggy bags for waste removal, and water fountains) are available.	
		Covers and grates shall be flush with adjoining surfaces and have no openings larger than 0.5". ²	
		Other:	
3. What sanitary measures should or will be accessible to all in green spaces?			
		Provide accessible trash receptacles disbursed evenly throughout the green space.	
		Other:	
3. What design considerations based on a range of environmental conditions should or will be made to promote safety?			
		Natural shaded areas are included in green spaces.	

		Some built-in shade is provided on some seated areas within the green space and is accessible for persons with disabilities.	
		Water features to prevent overheating are provided in areas of full sunlight (e.g., cool mister, splashpad, accessible water fountains).	
		Other:	
4.1. How should or will the green space promote social integration?			
		Outdoor spaces or classrooms for social interaction and physical play are provided.	
		Other:	
5. What opportunities to use recyclable materials for environmental protections within the green spaces should or will there be?			
		Gray water collection is feasible and is used for landscape irrigation,	
		Other:	
5. How should or will the green spaces require little to no maintenance?			
		Water efficient and low maintenance landscaping is used.	
		Other:	
5. What should or will the areas be where the natural landscape is preserved?			
		There has been limited development on soils in some areas of the green spaces.	
		A soil management plan is created that incorporates the conservation or restoration of appropriate plant biomass on the site. ⁵	
		Opportunities to restore damaged ecosystems exist.	
		Other:	
5. How should or will the plants be used as part of the landscaping within the green spaces native plants?			
		Landscaping is designed first utilizing native plants and other appropriate drought resistant species. ⁵	
		Other:	
SHELTER			
1.1. How should or will shelters accommodate for a variety of body types and abilities?			
		Tables (some fixed), grills, and/or fire rings are along accessible route with clear signage.	
		There is at least 4' of hard surfacing and clear space around all elements (i.e., table, grills and/or fire rings, etc.).	
		Slip-resistant surfaces shall be used (i.e., brushed concrete, unit pavers, asphalt, compacted granite screenings, and fines). Gradients shall not exceed 2%. ²	
		Tables that accommodate wheelchairs are provided (e.g., extended table-tops).	
		The cooking surface for grills can be lowered/raised with one hand.	
		Clearances around tables meets or exceeds ADA minimums.	
		Paved access route to each shelter provided.	
		Other:	

3. What sanitary measures should or will be accessible to all in sheltered spaces?			
		Provide accessible trash receptacles.	
		Other:	
3. How should or will the shelters within the park promote safety?			
		Provide charging stations throughout park in shaded areas for power operated medical equipment.	
		Other:	
1.2. What design considerations based on a range of environmental conditions should or will there be?			
		Shelter with and without shade is provided throughout the park and along accessible routes.	
		Other:	
4.1. How should or will areas of shelter promote social integration?			
		Tables that promote social conversation for persons who are deaf/hard of hearing (e.g., circular tables).	
		Large tables for larger family gatherings.	
		Tables that promote social conversation are provided (e.g., circular tables).	
		Other:	
5. What appropriate environmentally sustainable measures should or will be taken?			
		All walkways, paths, curbs, entrances, etc. should be high albedo material (SRI > 29). Streets, driveways and other paved surfaces should be high albedo materials or, where required, asphaltic concrete pavement. Optimize shading of paved surfaces with planted trees.	
		Focus exterior lighting down, provide adequate pedestrian lighting and prevent light pollution. ⁶	
		Use building products made from recycled materials.	
		Where possible purchase locally produced building materials.	
		Design insect-resistant detailing that will require minimal use of pesticides. ⁵	
		Design to encourage and permit the collection of recyclables. ⁵	
		Situate buildings to benefit existing vegetation to maximize views of vegetation and quiet outdoor spaces. ⁵	
		Design buildings and park features to incorporate and use renewable energy. ⁵	
		Incorporate passive solar heating, day lighting, and natural cooling.	
		Cluster buildings or build attached units to preserve open space and wildlife habitats, avoid especially sensitive areas like wetlands. ⁵	
		Make the structure adaptable to other uses, and choose materials and components that can be reused or recycled.	
		Use vegetation to minimize building heat and cooling requirements.	

		Give preference to storm water quality best management practices (BMP), curb breaks, bioswales, rain gardens, etc. over direct connections to the municipal storm water system.	
		Maximize lot permeability with landscaping, permeable pavement and other surfaces, directing impervious to infiltration areas).	
		With the exception of where required for safety purposes, avoid light trespass on to neighboring sites. Integrate lighting with the site lighting of surrounding buildings and spaces.	
		Other:	
5. What appropriate socially sustainable measures should or will be taken?			
		Where possible purchase locally produced building materials.	
		Design insect-resistant detailing that will require minimal use of pesticides. ⁵	
		Situate buildings to benefit existing vegetation to maximize views of vegetation and quiet outdoor spaces. ⁵	
		Make the structure adaptable to other uses, and choose materials and components that can be reused or recycled. ⁵	
		Make provisions for storage and processing of recyclables: recycling bins near the picnic tables. ⁵	
		With the exception of where required for safety purposes, avoid light trespass on to neighboring sites. Integrate lighting with the site lighting of surrounding buildings and spaces.	
		Other:	
5. What appropriate economically sustainable measures should or will be taken?			
		Where possible purchase locally produced building materials.	
		Design insect-resistant detailing that will require minimal use of pesticides. ⁵	
		Situate buildings to benefit existing vegetation to maximize views of vegetation and quiet outdoor spaces. ⁵	
		Design buildings and park features to incorporate and use renewable energy. ⁵	
		Incorporate passive solar heating, day lighting, and natural cooling. ⁵	
		Make the structure adaptable to other uses, and choose materials and components that can be reused or recycled.	
		Use vegetation to minimize building heat and cooling requirements.	
		Give preference to storm water quality best management practices (BMP), curb breaks, bioswales, rain gardens, etc. over direct connections to the municipal storm water system.	
		Maximize lot permeability with landscaping, permeable pavement and other surfaces, directing impervious to infiltration areas). ⁶	

		With the exception of where required for safety purposes, avoid light trespass on to neighboring sites. Integrate lighting with the site lighting of surrounding buildings and spaces.	
		Other:	

References

1. Center for Universal Design. 1997. *The Principles of Universal Design, Version 2.0*. Raleigh: North Carolina State University.
2. City of Pitt Meadows, District of Maple Ridge, & Our Designs Inc. (2009). Plan and Design for Choice: Universal Design Guidelines for Outdoor Spaces. Available on Website: https://www.mapleridge.ca/DocumentCenter/View/3057/Universal_Design_Guidelines?bidid=
3. Dizdaroglu, D. (2021). Developing Design Criteria for Sustainable Urban Parks. *Journal of Contemporary Urban Affairs*, 1, 69–81. <https://doi.org/10.25034/ijcua.2022.v6n1-7>
4. National Disability Authority's Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach*. External Environment and Approach. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
5. Oregon Parks and Recreation Department. (2013-2017). *Oregon Statewide Comprehensive Outdoor Recreation Plan*. https://www.recpro.org/assets/Library/SCORPs/or_scorp_2013.pdf
6. Pacific Beach Community Planning Group. (2015). *Residential Project Design Checklist for Pacific Beach Ecodistrict Compatibility*. <https://www.pbplanning.org/wp-content/uploads/20150910-CRMS-Minutes.pdf>
7. Steinfeld, E., & Maisel, J. (2012). *Universal Design*. John Wiley & Sons.
8. The Playground, Shade, and Surfacing Depot. (n.d.). *Playground Checklist: Creating Inclusive, Universally Designed Play Environments*. http://playgroundshadeandsurfacing.com/files/9213/6371/2469/7_Principles_of_Inclusive_Design.pdf
9. United States Department of Transportation. (2017). *Designing Sidewalks and Trails for Access*. Available Online: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/sidewalks213.cfm
10. Wolf Goldstein, Esq., D., Knutson, L., & Pennsylvania Land Trust Association (2014). *Universal*

Access Trails and Shared Use Paths: Design, Management, Ethical, and Legal Considerations.
Available Online:
https://www.recpro.org/assets/Library/Accessibility/universal_access_trails_2014.pdf

Sources:

[2010 ADA Standards for Accessible Design](#)

[ABA Accessibility Guidelines](#)

[CSA Standards](#)

[PROW Guidelines](#)



NORTH SHORE RECREATION AREA

EASTER LAKE PARK

UNIVERSAL PARK DESIGN SERIES

- TOOLS

1. PROGRAMMING
2. PARKING & ENTRY
3. INTERIOR SPACES
4. PLAYGROUNDS, TRAILS, & GREEN SPACES
- 5. BEACHES & WATER ACTIVITIES**

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SHIVEHATTERY
ARCHITECTURE+ENGINEERING

uncurbed
redefining accessibility

Special Acknowledgement:

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OTD, OTR/L

Disclaimer: This toolkit is a joint effort between Polk County Conservation, Shive-Hattery, and Uncurbed (“Parties”). This toolkit provides main summary and technical criteria of universal design considerations related to park design; however, the Parties do not warrant or guarantee the accuracy, completeness, adequacy, or currency of any information referenced or linked within this document. In no event, shall the Parties be liable for any direct, indirect, or incidental damages, injuries, losses, costs, or expenses, howsoever caused, arising out of, or resulting from access to, possession of, or use of this toolkit. The detailed guidance provided here does not represent the only possible solution. Clients or designers may develop additional solutions to meet a diversity of users. New materials and technologies that emerge may present further possibilities for accommodating the diversity of users. Each project should engage the services of a qualified and professional access consultant to ensure that project anomalies or other factors do not adversely affect the design intent.

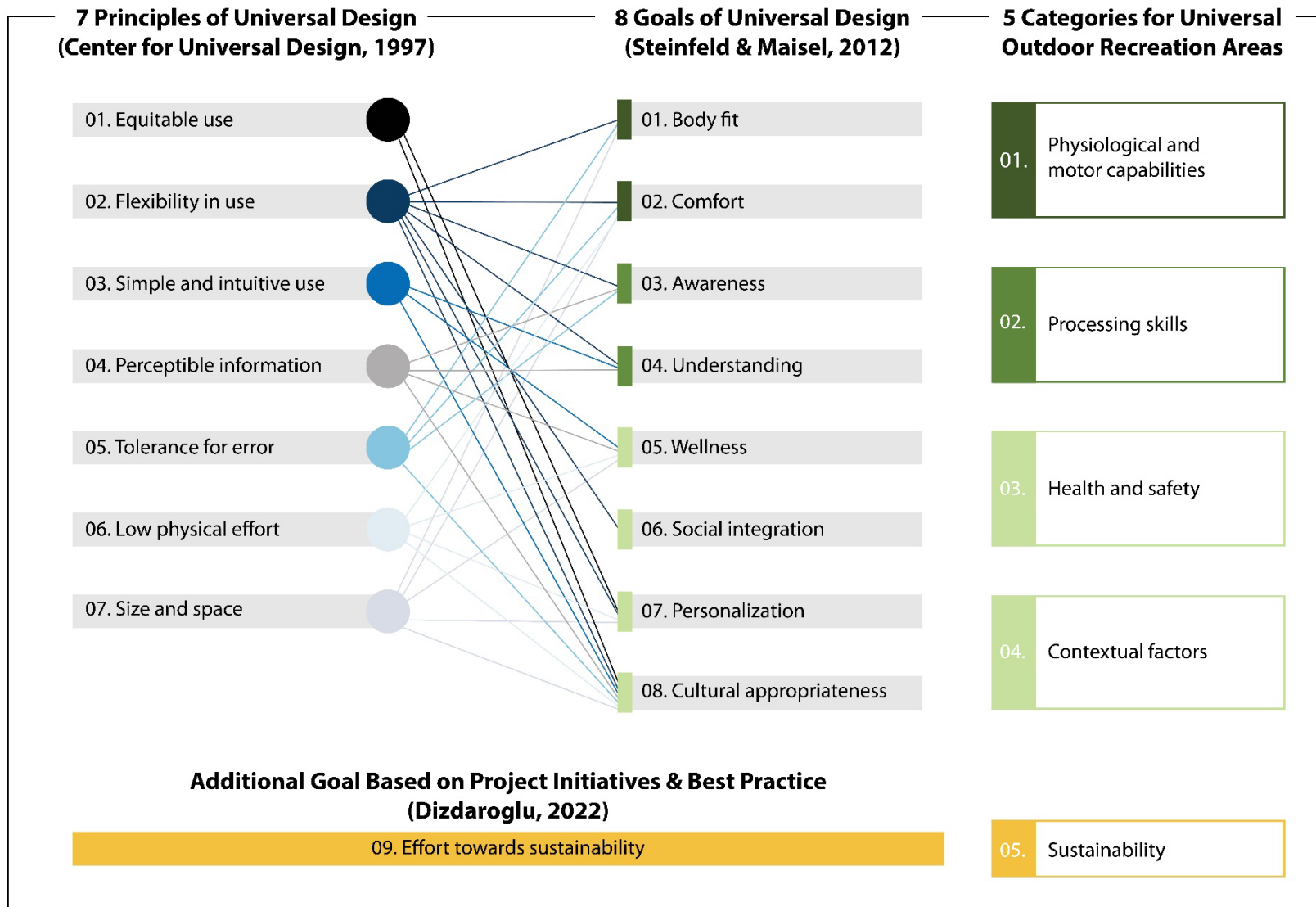
COVER PAGE

UNIVERSAL PARK DESIGN TOOL - BEACHES & WATER ACTIVITIES

This tool is a compilation of academic, user, and practical research intended for use during the park design process to help list key universal design (UD) considerations needed to support design decision-making for the design of **beaches and water activities**. It is recommended that this tool be prioritized last, if necessary. This tool is not a one-size-fits-all. It is one component of the universally designed process used during the design of Athene's Easter Lake North Shore Renovation Project. Each project should incorporate the practice of co-design, engaging active participation from diverse end-users and subject matter experts in universal design and/or other related fields and methodologies (i.e., human-centered design, design thinking, inclusive design, co-design, accessible design, occupational science, etc.) to ensure that project anomalies or other factors do not adversely affect the design intent. UD considerations are provided throughout the tool and while they provide a summary of main considerations and technical criteria, they should not be regarded as an exhaustive list. The detailed guidance provided here does not represent the only possible solution. Members of a co-design team may come up with other ways to meet a diversity of users. New materials and technologies that emerge may open up further possibilities for accommodating the diversity of the population.

Each tool is organized into **5** Categories for Universal Park Design, expanding on the original 7 Principles of Universal Design¹ and 8 Goals of Universal Design¹⁰ to include an effort toward sustainability² ([see Figure 1](#)). These categories were selected based on project initiatives and themes collected from academic, user, and practical research. Variation exists in the categories of **beach and water activity** design due to differences in operations, organizational goals between different clients and designers, and user perspectives. The priorities you have set in place for your particular project, the UD categories, user input, and the key questions that you must ask yourself as clients and designers, are the foundation of this tool. Before using the tool, please first go to the [Home Page](#) to learn more about the UD goals, categories, and how to communicate project priorities.

Figure 1. Crosswalk (between the 7 Principles of Universal Design¹, 8 Goals of Universal Design¹⁰, and 5 Categories for Universal Park Design based on project initiatives and themes collected from academic, user, and practical research for Athene’s Easter Lake North Shore Renovation Project.



The [Tool Page](#) lists key questions relevant to the 5 specific UD categories for consideration. Below each question, a detailed design feature list is provided and serves as a menu item for clients to choose from and share with the design team at the onset of any park project based on the foundations of UD mentioned above. Designers can refer to the selected menu items throughout the design process and use the tool to validate their design choices. The design considerations and features are based on a review of research literature, best practices, and expert opinions. Clients and/or designers can add new design features based on their literature review, experiences, or user input. There may be instances of trade-offs between the UD categories, and there may be instances where you use some, but not all of the features, depending on the evaluation of value vs. cost by the client (see important notes).

Notes:

Each tool is not meant to be an exhaustive list of minimal standards already covered in available design guidelines. Rather, it provides a structured way for clients and designers to consciously focus on key evidence-based design considerations to optimize design decision-making resulting in the best value for the investment.

Gathering user input is one important step in decision-making. This is referred to as co-design. As a design tool, this is not meant to be a one-size-fits-all prescription for design. In many cases, no prescriptive numbers (e.g., space size or length of headwall) are provided because the optimized numbers depend on a thorough understanding of the needs of those affected by the project and the constraints of the project (e.g., operations and costs). Clients and designers should use the key design considerations and design features included in the tool as a basis to determine what are “adequate” or “sufficient” numbers or sizes. Likewise, the client and future users should be consulted regarding subjective aspects (e.g., attractive design). Environmental simulation (e.g., mock-ups, and renderings) may be used in gathering input on these issues.

Disclaimer: The tool is based on currently available research evidence and expert opinions therefore may not exhaustively cover all design aspects impacting outcomes. The results produced by using the tool may vary depending on conditions/users.

HOME PAGE

UNIVERSAL PARK DESIGN TOOL - BEACHES & WATER ACTIVITIES

To begin, please complete the following information:

Client Name:

Project Name:

Client Contact Person:

Lead Designer:

Tool Completion Date:

On the next page is a list of each universal design goal and category, in addition to the category of sustainability. Some goals and categories may be more important for a particular park project. If you are the client, please confirm or change priority ratings based on their relevance to **beach and water activity** design by selecting a rating (High, Medium, or Low) from the dropdown list in each cell of Column C. It is recommended to limit the 'High' priority rating to 4 UD goals and categories.

8 Universal Design Goals ¹	5 Universal Park Design Categories ^{1, 2, 10}	Priorities (Insert High, Medium, Low)
1. Body Fit	1.1. Physiological & Motor Capabilities	
2. Comfort	1.2. Physiological & Motor Capabilities	
3. Awareness	2.1. Processing Skills	
4. Understanding	2.2. Processing Skills	
5. Health & Wellness	3. Health & Safety	
6. Social Integration	4.1. Contextual Factors	
7. Personalization	4.1. Contextual Factors	
8. Cultural Appropriation	4.1. Contextual Factors	
	5. Sustainability	

TOOL PAGE

UNIVERSAL PARK DESIGN TOOL - BEACHES & WATER ACTIVITIES

The below tool is more than a tick box. It is a menu list and communication tool for potential UD considerations relevant to **beach and water activity** design for clients and designers. Marked boxes should be reviewed by both clients and designers to determine whether a UD consideration is applicable, relevant, and achievable for your park project.

Complete the following steps at the onset of a project:

If you are the client:

1. Place an **X** in the Client column to indicate which design features should be considered for the project. Items selected should be consistent with project goals, user and expert input, and prioritized based on budget. The Notes column can be used to elaborate on each UD consideration as needed. Please include the date when inserting a note. It is recommended that clients engage in user and professional input when determining a UD consideration.
2. If a UD consideration is not relevant to the project, clients should leave the UD consideration in the Client column unmarked.
3. Share the completed tool with the Lead Designer by the agreed-upon completion date.

If you are a designer:

1. Discuss each marked UD consideration with the client and add to the Notes column to further elaborate on specifications (please include the date).

In general:

1. If you are the client or a designer and wish to add additional design features to the tool, you can add them in the cell beginning with "other:" under each UD category. Please enter only UD considerations supported by academic (newly published or existing unpublished research conducted by design firms, and others), user, and practical research.

Complete the following steps throughout the project as needed:

If you are a designer:

1. Place an **X** in the Designer column to indicate whether a UD consideration is included in the current design.
2. If during the design process, a UD consideration is no longer achievable due to unknown or unforeseeable circumstances, designers can flag a UD consideration by placing an **R** in the Designer column to indicate that the UD consideration requires further review with the client.
3. If a UD consideration can only be partially met, place a **P** in the Designer column, and explain in the Note column (please include the date). This explanation may include an alternative option.

UNIVERSAL PARK DESIGN TOOL - BEACHES & WATER ACTIVITIES

Client	Designer	
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LEGEND

X in the Client column indicates that a UD consideration has been requested

X in the Designer column indicates that a UD consideration has been met

R in the Designer column indicates that a UD consideration requires review

P in the Designer column indicates that a UD consideration was partially met

Reminder: UD considerations left unmarked indicate that they are not relevant to the project

BEACHES		NOTES
1.1. How should or does the beach accommodate for a variety of body types and abilities?		
		Beach mats provided for traversing over a sandy surface.
		Access to beach environments provided by a hard-surfaced walkway that is a minimum of 6' in width. ⁹
		Parking areas located as close as possible to the beach areas with accessible stalls and drop-offs. ⁹
		Boardwalks or other hard surfacing provide access along the waterfront or access to a beach or other elements. ⁴
		A wheelchair parking area available near the water's edge.
		A transfer system available near the water's edge for wheelchair users.
		Zero entry access from the beach to the water provided with handrails. At bottom (water end) of the ramp, the top handrail ends at water level, extending 12" parallel to the water surface. The handrail does not end abruptly but returns to a wall surface, post, or ground, or is rounded. ⁹
		An accessible beach playground component or structure provided (i.e., raised sandbox, sandbox digger with access from accessible route).
		Variety of seating types available (i.e., shade covering, seating with and without arms and back support, seating with electrical outlets for powered mobility equipment, respirators, and phones).
		Accessible ground surfacing included around seated areas for wheelchairs.
		Ground level beach activities include a raised alternative (i.e., raised sandboxes, splashpad, cool mist).
		Beach play activities placed at the proper accessible height and positioned for children to comfortably approach, reach, and engage in beach play (i.e., sand digger along accessible route, raised sandboxes, transfer systems into the water). ¹¹
		Other:
2.1. How should or does the beach area integrate clear multi-sensory cues to promote awareness?		

		The beach area, particularly the shoreline, pathways, and transition areas organized with consistent multi-sensory cues, such as contrasting colors and textures, to support orientation and navigation. ¹¹	
		Acceptable and appropriate behaviors and skills for beach areas clearly displayed and/or implied.	
		Flags or markers to provide visual warnings or highlight access points.	
		Audio systems provided to allow for audible warning signals or announcements when needed.	
		Other:	
2.2. How should or does the beach include design features, activities, or equipment that are simple and intuitive?			
		Storage and rental facilities for accessible beach equipment strategically and conveniently placed near the beach.	
		Other:	
3. What sanitization measures should be or are available near the beach?			
		A sanitization station with an automatic sanitizer dispenser provided by the beach. The number of sanitization stations depend on the size of the beach and beach occupancy.	
		Desirable beach activities spaced out to promote social distancing when recommended.	
		A family restroom or single, non-binary restroom within close proximity and eyesight to the beach.	
		Accessible washrooms and changing facilities provided close to water with changing facilities at least 6' 10" x 6' 10" in size.	
		Routine management plan for the beach (i.e., cleaning sand, replacing sand, etc.).	
		Other:	
3. How should or does the design of the beach promote safety?			
		Comfortable spaces provided as observation and supervision points accompanying the beach area. ¹¹	
		Natural and rentable shade available on the beach and along an accessible route.	
		Playground components or structures provided for children who do not want to get into the water or who need a break from the water.	
		Multiple signs regarding beach safety rules with large print and a QR code provided to view in a different language. Universal safety symbols included.	

		Other:	
3. What specialized service areas should be or are provided on the beach that promote safety?			
		Lifeguards stands provided at regular intervals with clear sight lines.	
		Rental facility located close by to supply specialized equipment (i.e., beach wheelchairs, beach mats).	
		Other:	
4.1. How should or does the design of the beach promote social integration?			
		Multiple covered bench seating with arms and back support provided for caregivers.	
		Accessible ground surfacing around seated areas for wheelchairs.	
		Fun activities provided that encourage children to play side-by-side (i.e., raised sandboxes, splashpad, cool mist) and cooperate, rather than compete, in order to participate. ¹¹	
		Usable beach environment for individuals with diverse abilities regardless of age, ability, gender, ethnicity, culture, and socio-economic status. ¹¹	
		People of all abilities can be included in physical and social beach play. ¹¹	
		Variety of social play opportunities throughout the beach.	
		Beach play activities placed at the proper accessible height and positioned for children to comfortably approach, reach, engage in beach play and sustain activity with peers (i.e., sand digger along accessible route, raised sandboxes, transfer systems into the water). ¹¹	
		Other:	
4.2. How should or does the beach provide opportunities for personal choice?			
		Beach playground components or structures provided for children who do not want to get into the water or who need a break from the water.	
		Other:	
4.3. What cultural factors should be or are considered within the beach?			
		Usable beach or beach components for individuals with diverse abilities regardless of age, ability, gender, ethnicity, culture, and socio-economic status ¹² . For example, adaptive beach equipment is available for use.	

		Multiple signs regarding beach safety rules with large print and a QR code provided to view in a different language. Universal safety symbols included.	
		Other:	
5.1. How should or does the beach require little to no maintenance?			
		Maintaining walkways and zero entry access free from sand and erosion built into design and specified materials.	
		Water efficient equipment is installed.	
		Other:	
FISHING			
1.1. How should or does the fishing spaces include design features that accommodate for a variety of body types, abilities, and supports?			
		Accessible fishing facilities interspersed within the existing pattern of fishing spots so that desirable fishing locations are available to all anglers. ⁹	
		Accessible route provided from accessible parking and accessible washrooms to fishing dock.	
		A minimum of 5' per angler or 12' for 2 anglers provided. ^{7, 9}	
		Tactile warning strips and directional tactile strips judiciously placed between the surface of the fishing station and the surface of the adjacent accessible route to assist a person with visual impairments to access the station. ⁹	
		Seating does not intrude upon the required clearances for the fishing station or accessible routes. ⁹	
		Tackle box stand next to one bench end (not both) leaving one end clear for sitting side by side with someone in a wheelchair. ³	
		Other:	
3. What safety measures should be or are put in place?			
		Firm and stable fishing station (not on a floating dock), slip-resistant surface, and a maximum slope for positive drainage of 2% in any direction. ⁹	
		8' to 12' of clear space provided behind anglers to allow for the angling throw and to allow for pedestrian circulation behind the anglers. ⁹	
		Safety rails provided at the water's edge where fishing as a recreational activity is occurring. ⁹	

		Flat, table top boulders and logs provided as an alternate to safety rails and drop-off curbs. Please note: Safety rails and barriers for drop-offs are not practical nor sustainable in natural settings and would destroy the rustic nature of the fishing experience. ⁹	
		Natural buffers located at curves and guardrails located on docks.	
		Curbs at drop-offs on docks provided to notify people of the edge of the dock and to act as wheel stops and 4" high at the platform edge. These curbs are not like the curbs used to protect users from the edges of ramps and usually allow for spacing under to pull a rope through for mooring a canoe or kayak. ⁹	
		Other:	
4.1. How should or does the fishing areas promote social integration?			
		Sitting benches provided (all with backs and arm rests) for anglers. ³	
		Fishing stations in natural settings located to take advantage of natural shade and shelter. ⁹	
		Shade and shelter are often hard to provide at fishing stations. Constructing a shade structure interferes with angling. If there is natural shade and shelter, this is an added attraction. Vegetation or structures for shade should not reduce the vertical clearance to less than 12' above the fishing station (required for casting) or less than 6' 7" above an accessible route to the fishing station. ^{7, 9}	
		Seating located on or adjacent to the fishing station.	
		Other:	
4.2. What opportunities should there be or are there for personalization or personal choice?			
		Space provided for tackle box shelves and fishing rod holders (hands-free fishing). ⁹	
		Over-water fishing, shore fishing, in water fishing, etc. provided. ³	
		Seating arrangements provide flexibility. Space clearances for casting will have to be determined by the users of the space. ⁹	
		Other:	
BOATING; KAYAKING, PADDLE BOARDING, AND ROWING			
1.1. How should or does access routes and docks accommodate for different body types and abilities?			
		Accessible route provided from accessible parking and accessible washrooms to boating dock.	

		Slope of gangways not exceeding 1:12. In some cases, a series of gangways with switchbacks is required. ⁹	
		Dock platforms and dock boardwalks with slip resistant surfaces and kick rails or edge curbs created by a raised barrier or rail with its lower edge not more than 3" from the dock surface. The height of the curb is 4". ⁹	
		A graspable raised rail is an advantage for individuals moving from the dock surface into a kayak or canoe. The rail also services to attach the painters to secure the kayak or canoe. ⁹	
		For kayaking and canoeing activities, there are unique and site-specific solutions available to modify dock facilities to accommodate everyone. Designs include skid piers where the position of the boarding deck is manually changed with the water level or floating docks (the most common) attached to a fixed pier or abutment on the shore. The floating dock is particularly bothersome with balance and visual impairments. ⁹	
		The first purpose of a boat launch is to launch boats and a minimum slope of 12 to 15% is required for this function. Although this exceeds the maximum slope for an accessible route, it is acceptable. Boaters with disabilities will find that coping briefly with a steeper slope less of a bother than attempting to launch and retrieve a boat from a ramp with a lesser grade. ⁹	
		Overhead bars for transfer assistance in and out of boats provided.	
		Wench system available to help pull boat out of water back into the rack to exit/transfer out. ³	
		Wider route created so someone can hand wheel boat on dolly to launch pulling boat next to them if they are in a wheelchair. ³	
		Other:	
2.1. What visual and tactile cues should there be or are there on the access ramps?			
		Tactile warning strips required at the edges of boating docks. ⁹	
		Buffers or guardrails located at curves or on docks.	
		Other:	
4.2. What opportunities should there be or are there for personalization or personal choice?			
		Design storage facilities to hold aquatic equipment such as kayaks and rowing boats.	

		A variety of water activities available and range in complexity, including the use of adaptive equipment if needed.	
		A “rack” is used to stabilize boat at a transferable height, with a mechanism/roller system to move, while seated in the boat, into the water. ³	
		Other:	
3. What safety measures should be or are put in place?			
		Railings included with varying heights or no rails at all with only an edge treatment to prevent roll off from dock or pier. ³	
		Other:	
SWIMMING			
1.1. How should or can routes to the water be accessed?			
		Routes included over the beach, into the water, and above the water (observation platform).	
		Accessible areas available at the water’s edge large enough to park multiple chairs while the owners are in the water. ³	
		Transfer system included at the water’s edge so people can get down to the ground level and onto a flotation device or directly into the water. ³	
		Zero-entry into the water provided.	
		Other:	
2.2. How should or can signage be clear, and universally understood?			
		Signage provided with universal symbol for lifeguard presence.	
		Signage provided with clear symbols on water safety and hazards.	
		Other:	
3. What opportunities should there be or are there to sanitize before and after swimming?			
		Outdoor shower station included.	
		Other:	
3. What safety measures should be or are put in place?			
		Natural shade included.	
		Signage provided with clear symbols on water safety and swimming rules.	
		Other:	
5. What appropriate environmentally sustainable measures should be or have been taken?			
		Water features maintained, including shorelines and riparian areas to conserve water and other resources. ⁵	

		Water efficient, low maintenance landscaping provided. ⁵	
		Landscaping first utilizing native plants and then considering other appropriate drought resistant species provided. ⁵	
		Design to encourage and permit the collection of recyclables. ⁵	
		Minimize or eliminate conventional turf.	
		Rainwater harvesting system (roof collection or other) installed.	
		Trees and shrubs located to support passive heating and to complement cooling in outdoor spaces and buildings and to create seasonal heat-sinks and natural ventilation corridors. ⁹	
		Along roads, drives, and sidewalks, salt resistant species considered.	
		Durable products and building materials used which have a record of longer life and reduced maintenance costs. ⁵	
		Installation of bike racks to enhance access where needed, in context of the broader park.	
		Maximize lot permeability with landscaping, permeable pavement and other surfaces, directing impervious to infiltration areas. ⁶	
		High efficiency lights installed.	
		"No Smoking" signage into building and site signage packages where applicable. Restrict smoking to areas more than 25 ft from entries, outdoor air intakes and operable windows.	
		Exterior lighting focused down, adequate pedestrian lighting provided and light pollution prevented. ⁶	
		Where possible, purchase locally produced building materials.	
		Other:	

5. What appropriate socially sustainable measures should be or have been taken?

		Design to encourage and permit the collection of recyclables. ⁵	
		Rainwater harvesting system (roof collection or other) installed.	
		Site designed to reconnect fragmented landscapes and establish contiguous networks with other natural systems both within the site and adjacent systems beyond its boundaries.	

		Trees and shrubs located to support passive heating and to complement cooling in outdoor spaces and buildings and to create seasonal heat-sinks and natural ventilation corridors. ⁸	
		Installation of bike racks to enhance access where needed, in context of the broader park.	
		Where possible, purchase locally produced building materials.	
		Other:	
5. What appropriate economically sustainable measures should be or have been taken?			
		Water efficient, low maintenance landscaping provided. ⁵	
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		High efficiency lights installed.	
		Where possible, purchase locally produced building materials.	
		Other:	

References

1. Center for Universal Design. 1997. *The Principles of Universal Design, Version 2.0*. Raleigh: North Carolina State University.
2. Dizdaroglu, D. (2021). Developing Design Criteria for Sustainable Urban Parks. *Journal of Contemporary Urban Affairs*, 1, 69–81. <https://doi.org/10.25034/ijcua.2022.v6n1-7>

3. Michigan Department of Natural Resources (2022). *Appendix C: Guidance on Designing Specific Types of Recreation and Support Facilities that Exceeds ADA for Universal Accessibility*. Michigan Natural Resources Trust Fund 2022 Application Guidelines. https://www.michigan.gov/dnr/-/media/Project/Websites/dnr/Documents/Grants/MNRTF/IC1905_MNRTF_Application_Guide_2018_611967_7.pdf?rev=58210d0a69f344e2a42988be6cc67975&hash=98856C8FC567AB00942DB0728D783A5E
4. National Disability Authority's Centre for Excellence in Universal Design. (2020). *Building for Everyone: A Universal Design Approach. Building Types*. Centre for Excellence in Universal Design. <https://universaldesign.ie/built-environment/building-for-everyone/>
5. Oregon Parks and Recreation Department. (2013-2017). *Oregon Statewide Comprehensive Outdoor Recreation Plan*. https://www.recpro.org/assets/Library/SCORPs/or_scorp_2013.pdf
6. Pacific Beach Community Planning Group. (2015). *Residential Project Design Checklist for Pacific Beach Ecodistrict Compatibility*. <https://www.pbplanning.org/wp-content/uploads/20150910-CRMS-Minutes.pdf>
7. PLAE, Inc., (1993). *A Design Guide: Universal Access to Outdoor Recreation*. Berkeley, California, PLAE, Inc.
8. President's Council for a Sustainable Future (2008). *Keene State College Sustainable Building Guidelines*. BuildingStandards Final. <https://storage.googleapis.com/stars-static/secure/304/6/474/2700/Finished%20Building%20Standards%20March%2008.pdf>
9. Rodman, Donna. (2009). *Universal Design Guidelines for Outdoor Spaces: Plan and Design for Choice*. https://www.researchgate.net/publication/280002247_Universal_Design_Guidelines_for_Outdoor_Spaces_Plan_and_Design_for_Choice
10. Steinfeld, E., & Maisel, J. (2012). *Universal Design*. John Wiley & Sons.
11. The Playground, Shade, and Surfacing Depot. (n.d.). *Playground Checklist: Creating Inclusive, Universally Designed Play Environments*. http://playgroundshadeandsurfacing.com/files/9213/6371/2469/7_Principles_of_Inclusive_Design.pdf