A UNIVERSALLY DESIGNED CAMPUS LANDSCAPE MASTER PLAN

AT MIAMI UNIVERSITY: OXFORD, OHIO

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College of Architecture and Planning
Department of Landscape Architecture
LA 404: LA Comprehensive Project

April 2011
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(Universal Design)

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The location of this project was at Miami University in Oxford, Ohio. Miami’s campus exhibits a classic, charming architecture and a well-planned landscape. However, this campus did not fully facilitate the needs of disabled users in the built environment.

By developing a “universally designed campus landscape master plan,” this design accommodated the needs of Miami University students, faculty, staff, and visitors by creating an accessible and unified circulation plan throughout the campus. Hyper-sensory nodes were also implemented throughout the quad, enhancing each of the five senses in a unique and individual way. This allowed site users who could not see the campus to touch, smell, and hear the campus; users who could not hear the campus to see, touch, and smell the landscape; and users who could not navigate the landscape to experience the landscape with other users equally.

The main purpose of this project at Miami University was to provide equal access to users of all abilities including auditory, visual, and mobility impaired individuals throughout the campus by implementing an aesthetically pleasing landscape design.

This landscape design produced a single landscape design solution that accommodated all people with disabilities as well as the rest of the population, eliminating social and physical separation. This design benefits everyone, allowing all users to interact freely and equally. This campus landscape design embraced the idea that environments should be usable by all people, to the largest extent achievable, without the need for specialized, isolated design.
1/5 PEOPLE or
19.4% OR
48.9 million...
....of non-institutionalized American citizens have a

DISABILITY

and nearly half of these people are considered to have a severe disability.

(U.S. Census Bureau)
According to the US Census Bureau, one out of every five Americans has some type of disability. An estimated 19.4% of non-institutionalized American citizens (48.9 million people) have a disability and nearly half of these people are considered to have a severe disability. By utilizing the philosophy of universal design, designers can create environments in which all users can interact freely and equally, providing a better world that benefits everyone.

Universal design is not a formula; it is, instead, a process rather than a goal. It is a way to eliminate the widening gaps between the conditions of people and the man-made environment in which we live. As the late architect Ronald L. Mace once said, “Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.” Through universal design, a single design solution can be implemented to provide a campus environment in which all users at Miami University can coexist equally and enjoyably.

Miami University’s campus is located in Oxford, Ohio, which lies in the Miami Valley in Southwestern Ohio. The City of Oxford encompasses 6.3 square miles in the northwestern corner of Butler County and is home to approximately 22,000 residents, including the 16,000 students enrolled at the university. Miami owns a total of 2,000 acres in Oxford including natural areas and this project site will focus on the 841 acres that encompass the seven quads utilized by students, faculty, staff, and visitors. Many areas of campus are not universally accessible and do not provide equality within the outdoor spaces.

By redeveloping the pedestrian circulation plan, working with the natural and manipulated topography of the site, and reprogramming pedestrian spaces in the built environment on campus by enhancing the five senses, this proposal aimed to provide a campus that is usable by all users, to the greatest extent possible.

Thus, this comprehensive design implemented a solution to do three things: 1) Provide equal access for all Miami University campus users accessibly, in an adaptive way, and attractively; 2) Produce a single design solution that accommodates all people, and 3) Eliminate social and physical separation. This was accomplished by first researching the following four areas:

1. Accessibility as a primary landscape design theme
2. Seamlessly integrated universal design
3. Integrating Miami Oxford’s history and culture
4. Benefits of universal design
THE PROBLEM

Problems and Sub-Problems
Project Significance
Delimitations
Assumptions
Hypotheses
Definitions
7 Principles of Universal Design
THE PROBLEM STATEMENT

This research explored the opportunities for campus landscape planning at Miami University Oxford that utilized universal design as the primary theme. Additionally, this project determined how universal design principles could be seamlessly integrated into campus landscape design. Finally, this project established how modern universal design could be incorporated into the history of Miami University and how it could benefit users of all abilities. An analysis of the above findings led to the redevelopment of an universally designed campus landscape master plan that seamlessly integrated landscape design with universal design principles.

SUB-PROBLEMS

1. How is universal design being used a primary theme in landscape design as well as campus planning design?

2. How can landscape design be seamlessly integrated into universal design in a campus environment?

3. How can the history and culture of Miami Oxford’s campus be integrated into the overall accessible campus landscape design?

4. How does universal design benefit the life of everyone by making the built environment more usable by as many people as possible?
The purpose of the universally designed campus landscape master plan at Miami University was to provide equal access for all campus users throughout the project site in an accessible, adaptable, and attractive way. It is a common misconception and stigma that “accessible designs” are only for disabled users. Barrier free environments are not just for people with disabilities anymore. Despite physical and mental limitations, no one wishes to be perceived as “different” or “special.” Thus, the basic philosophy of universal design within this master plan strived to eliminate isolation and at the same time made lives safer, more effortless, and more convenient. If a design works well for people with disabilities, it works better for everyone.

It is important to incorporate universal design principles into every design as a standard practice, not just designing mirco-environments that simply meet the minimum ADA laws. As Dr. Adolf Ratzka of the Independent Living Institute states, “Micro solutions represent accessible islands in an otherwise inaccessible ocean. Outside these islands people with disabilities appear helpless and are made to feel helpless.” The redeveloped campus landscape master plan at Miami University was designed to be a macro environment, providing a single design solution that facilitated the needs of all users at the campus. Poet Robert Frost once described Miami Oxford’s campus as “the most beautiful college there is” and perhaps, one day, someone can describe it as the “most beautiful and accessible college there is.”
DELIMITATIONS

1.) This research did not include sources of funding.

2.) This research did not strive to achieve LEED (Leadership in Energy and Environmental Design) certification.

3.) This research did not include improvements of accessibility in the interiors of buildings on campus.

4.) This research did not address inclusive design or accessible improvements to curriculum inside the classroom.

5.) This research did not address accessibility for absolutely every psychological and physiological disability.

6. This proposal did not address the 1,159 acres of natural areas that surround the 841 acre project site of Main Campus.

ASSUMPTIONS

1.) The public could and would benefit from a universally designed campus environment that addresses the needs of all users.

2.) The ADA guidelines were assumed to be in affect as they were at present day.

3.) The code of conduct and Mission Statement at the Office of Disability Resources (ODR) at Miami University Oxford were assumed to continue as it has been over the last 5 years to coincide to the goals of this design.

4.) Miami University would separately address accessibility in the interiors of buildings on campus and in the curriculum in order to provide a more accessible campus in all aspects.

5.) The Georgian-Revival style of architecture that Miami University embraces throughout the campus would remain the classic, traditional architectural style throughout the design of the project.

6.) Campus Architects and Planners would cooperate with the landscape master plan to provide the ability to redesign building entrances for accessibility.
HYPOTHESES

1.) Landscape and campus planning should incorporate universal design techniques into the overall design concept in order to provide access for users of all abilities as this issue becomes more important in today’s society. Universally designed spaces should start out as a focused primary theme in design proposals and, with time, develop into instinctive, standard design tools for each design from that point forward.

2.) The landscape design in campus environments should incorporate accessible design systems by blending them with the built environment for a unified design in order to cultivate social relationships and the freedom of movement free of user isolation or segregation.

3.) The accessible campus landscape design at Miami Oxford should reflect both the current attitudes and culture of the student body as well as the historical trends of the campus over several decades through present day in order to create an environment that fosters both alumni and current student body interaction.

4.) By incorporating the principles of universal design, the built environment should benefit the lives of all users by promoting social interaction, removing isolation and segregation, providing freedom of movement, and improving the overall happiness of individuals through accessible design.
PROJECT DEFINITIONS

The 7 Principles of Universal Design refer to seven guidelines that were established by a group of architects, product designers, and engineers in order to guide designers in making and creating more usable products and environments.

The Americans with Disabilities Act (ADA) refers to guidelines that dictate the laws designers must follow to create partially or completely barrier-free designs.

Accessible Design refers to the combination of assorted elements of the built environment that allow entrance to and egress through public buildings, facilities, and the built environment.

Accessible Design typically separates and isolates facilities for people with disabilities from the rest of the general public.

ASC stands for the Armstrong Student Center, which is the future student center to be located in the focus area of my design project.

Barrier refers to an aspect of the natural or built environment that tends to limit the free movement and social interaction of individuals.

Barrier-free design refers to an environmental design or built environment that is responsive to the capabilities of all users at all stages of life by removing all said architectural barriers.

Campus setting refers to the environment in which postsecondary education takes place as well as the student body that occupies it.

Equitable use refers to a useful and marketable design that removes segregation and isolation among users, providing equal social interaction and the same, shared experiences for people with diverse abilities.

Handicap denotes an interface between a disability and an environment in which the design presents obstacles or barriers to disabled persons and users.

Impairment refers to any physiological or psychological disorder including manual, visual, auditory, mental disorders that inhibit everyday major life activities.
Inclusive Design refers to a broader spectrum of accessible design, extending into the classroom curriculum and dealing with aspects beyond the built environment of the campus.

Major life activities refer to the necessary functions of daily independent living including walking, talking, seeing, hearing, breathing, learning caring for self, and working.

Universal Design is a system of planning that provides one design solution that can accommodate all people with disabilities as well as the rest of the population, recognizing that all users will have some type of disability or impairment at various points in their lives.

7 PRINCIPLES OF UNIVERSAL DESIGN

1. Equitable Use (avoids segregation)
2. Flexibility in Use (adaptability, choice)
3. Simple & Intuitive Use (easy to understand)
4. Perceptible Information (maximizes legibility in all modes)
5. Tolerance for Error (eliminates/warns of hazards)
6. Low Physical Effort (comfortable use of design)
7. Size & Space for Approach &Use (appropriate size/space allocation)
LITERATURE REVIEW

Access: A Primary Design Theme
Seamless Universal Design
Integrating History & Culture
Benefits of Universal Design
Conclusion
Universal design is not a calculation or set of codes; it is the process of carrying out a specific design philosophy. Universal design begins to eliminate the ever-increasing gaps between the conditions of people and the man-made environment in which we live. “We must create spaces at all times that all can use, no matter their abilities, age or size.” The late architect Ron Mace said this once, and it embodies the main ideals of the universal design philosophy. He coined the term “universal design” but also realized that there is an impossibility to always satisfy the needs of absolutely everyone. As a part of his founding philosophy, he states that universal design is more of a mind-set and orientation rather than an absolute, and he developed seven universal design principles to guide his philosophy.

The seven principles that this design considered in order to adequately serve the universal design philosophy included: equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and size and space for approach and use (NC State). “Equitable use” provides designs that are useful to users of diverse abilities, eliminating segregation and isolation. For example, scissors that are designed for both right and left-handed users demonstrate equitable use in an object. “Flexibility in use” accommodates for a wide range of choices and methods of use where “simple and intuitive use” eliminates unnecessary complexity of a design. “Perceptible information” communicates necessary information to users regardless of sensory abilities. For example, an ATM machine that has tactile, visual, and audio feedback provides perceptible information. “Tolerance for error” is the principle that minimizes the hazards on site and warns of them. “Low physical effort” allows people to use the site efficiently and comfortably with little physical exertion. The last principle, “size and space for approach and use,” provides space for users regardless of body size, mobility, or equipment (NASAA 56). Applying these seven principles to the campus landscape master plan at Miami University helped to set up a framework for the project site, which also reinforced the Office of Disability Resource’s mission to provide support services, accommodations and resources to ensure equal access to education, employment, and university life.

Building on these principles of universal design, McCarthy explained how the Universal Access Program in Massachusetts enforces the importance of universal design in outdoor environments and how it is vital to the happiness and usability of all people while also placing a significant importance on the environmental state of the outdoor area. He always asks himself, “Will these changes alter the nature of this place? Even when the answer is yes, we still tend to exceed minimum requirements to get people past the entry point” (McCarthy 70). He explained that in today’s society, professionals typically design projects and sites that barely meet ADA requirements, when in actuality, universal design is much more complex than a set of codes. McCarthy is heavily involved with the creation of accessible spaces, incorporating universal design into recreational projects as a key and primary theme.
Massachusetts’s Universal Access Program was also a good example of how designers can embrace a universal design philosophy as the primary goal of a design project. This ideal was extracted for the universally designed campus landscape master plan at Miami University, although McCarthy did not mention campus design, specifically. Miami’s campus landscape master plan benefited from Massachusetts’s philosophy by embracing some of the key ideas including: protecting the natural environment and campus in which the accessible changes are taking place, as well as embracing the entire universal design philosophy by looking to the ADA guidelines as a starting framework and primary design theme, not as the final solution. When trying to protect the natural environment, McCarthy explains that there is a continuing struggle between implementing a universal design and gracefully manipulating the landscape. In order for accessible adaptations to be made, it is important to consider the site and the footprint the design will leave. Trying to minimize the cut-to-fill ratio in the site engineering became a huge factor in protecting the natural environment when designing with the natural topography of the land. As seen on the topographic map below (see figures 4.1 and 4.2), this became important in certain areas of Miami’s Campus, including Western College, which exhibited very steep terrain and the need for environmental preservation considerations.

Miami’s campus landscape master plan also benefited from McCarthy’s execution of looking to the ADA guidelines as a starting framework and primary design theme. Similar to McCarthy’s work, this mater plan proposed to use the ADA guidelines merely as a starting point to develop a framework plan for the project site. The campus landscape master plan implemented a design that went “beyond the ramp” and embraced many layers of design in one solution. This ensured that the campus landscape master plan at Miami did not contain “pieces” of accessible design, but that it instead demonstrated a thorough facilitation of as many abilities as possible.

Through these key features of McCarthy’s philosophy, the information was extracted from his experiences and was manipulated into the campus planning framework at Miami University. McCarthy explained, “One of the things I
learned was that you cannot build 100 percent accessibility into outdoor recreation in its purest form.” Like McCarthy, Vanderheiden agreed that “There are NO universal designs. There are NO universally designed products.” Vanderheiden backed up McCarthy’s statement by explaining that universal design is a process more than an end result, and that it is currently impossible to provide an environment for absolutely everyone. For example, a designer cannot create every space or environment to provide an equal and exact experience for a person of normal ability, a person with a wheelchair disability, and a person who is both hearing and visually impaired. At some point, certain users will find parts of the design difficult or inaccessible depending on the disability. The philosophy and principles of universal design do not claim to provide a perfect solution, but they do propose solutions that facilitate auditory, visual, and physical impairments to the greatest extent possible. The overall philosophy and purpose of universal design is to simplify the life of everyone through a collaborative design of spaces and products, in order to create a built environment usable by as many people as possible.

In order to facilitate as many users as possible, collaboration and communication must happen between designers, planners, clients, and disabled persons in order to achieve the best possible design solution (Vanderheiden). In order to ensure the campus landscape master plan at Miami University was as cohesive and accommodating as possible, there were a series of collaborations with Miami students, faculty, staff, and visitors; both with and without disabilities. After completing a survey to identify existing accessibility barriers on campus, discussions were held with the clients to prioritize the barriers and projects according to the needs of the users.

In agreement with Vanderheiden and McCarthy, Bickenbach discusses certain goals he thinks are important in order to develop environments and spaces that remove barriers for users who may or may not have physical and mental impairments or differences. Like Vanderheiden, Bickenbach reinforces the need to discuss development plans with people who are physically impaired in order to better build a comprehensive knowledge about universal design in its entirety. Through this collaboration of ideas, Bickenbach thinks that the end design will result in better spaces for the public with positive economic, creative, and safety benefits for the clients. These authors are constantly stressing the need for designers and developers, as well as the general public, to educate themselves on this modern-day, ever growing issue of universal design. Public knowledge, which becomes shared knowledge, is gathered from interactions among several different types of people with disabilities and professionals to ensure a better end product for a design which embraces the philosophy of universal design as the primary theme. Bichenbach explains that the codes and standards that designers must follow in order to fulfill ADA guidelines are usually considered a creative inhibitor and too costly to implement, when instead, they should be a starting point for a complex design for all users (Bickenbach 90).

Bichenbach, McCarthy, and Vanderheiden’s approach to universal design by embracing the philosophy as the core and prime belief set for a design was beneficial when exploring universal design as a primary theme for the campus landscape master plan
at Miami University. Extracting the previously mentioned principles of the universal design philosophy and using ADA guidelines as a starting framework provided an exceptional space for all users on Miami’s campus.

**SEAMLESS UNIVERSAL DESIGN**

Developing barrier free access has not always been an accepted method of design. At one time architects solely designed segregated and isolated accessible environments, those that were special, very expensive, and aesthetically displeasing (NASAA 15). However, architects, landscape architects, and planners alike are starting to and should keep designing attractive environments that are integrated, that are cost-comparable, and that accommodate people of all abilities.

According to Ratzka, there are two different categories of universal design: micro and macro design. In micro universal design, the end product is typically a specialized and isolated plan for a specific group of people. Schools for the deaf and blind, segregated housing, and specialized elementary schools, among others, are examples of how designers isolate disabled users by detaching them from the rest of society. Micro solutions tend to merely put one accessible unit or product in a certain area in order to abide by the minimum ADA design requirements. This international symbol of access tends to dictate only certain spaces in which disabled users are welcome. Simply put, Ratzka states, “Micro solutions represent accessible islands in an otherwise inaccessible ocean. Outside these islands people with disabilities appear helpless and are made to feel helpless.” In order to evade this type of end result, designers must instead embrace a macro planning philosophy.

In macro design solutions, alternatively, the end product is a collaborative and cohesive unit that accommodates the needs of all users. For example, a building which provides egress at all locations without stairs or other barriers would be considered a macro designed system of egress. Macro designs unite disabled users with the general public, rather than detaching or isolating them from society. In the theory of macro design, there is no need for the international symbol of access because all aspects of the design are equal for all users. In these types of designs, there is no segregation, isolation, separation, or seclusion and accessibility is seamlessly integrated with the natural environment (Ratzka). In order to design and engage in macro planning, however, designers must divorce the idea that accessibility is a design add-on, or a hindrance. By designing spaces and environments that can be used for all people with no distinction, designers can help create better functioning societies through the art of seamlessly weaving accessibility and landscape architecture.
The concept of micro and macro planning in universal design was first thought to be articulated by Selwyn Goldsmith in 1981. Due to the fact that this concept and that the concept of developing entire built environments that facilitate the needs of everyone have only been around for 30 years, there are very few examples of built macro-designed environments for accessibility (Ratzka). The philosophy of universal design is now beginning to spread to architects and landscape architects alike, taking form in micro-designed elements in the built environment. Because this topic is fairly new to the design field, physical implementation of this concept is just now starting to occur. Designers have been “piecing together” micro-designed elements in an effort to develop a macro-designed space, especially when they are faced with the challenge of adapting existing spaces to conform to the universal design philosophy.

It was important to approach the design of the accessible campus landscape master plan at Miami University as a macro planner. Although this project was a redevelopment working with existing conditions, it was essential to keep the macro planning philosophy in tact. Working with the existing campus conditions, both historically and architecturally distinct, was both a challenge and an opportunity to change the campus accessibility and landscape plan in a very important way. By embracing the macro planning philosophy, the campus landscape master plan functioned as a graceful piece of landscape architecture, as well as an accessible entity that unites the student body through equality, through flexibility, and through the seamless integration of universal design and landscape architecture. Several campuses have micro-developed pieces of accessibility that begin to embrace the universal design philosophy, but lack the overall macro-planned environment, including the stramp at the IIT Campus Center.

Rem Koolhaas worked with accessible design in his redevelopment of the McCormick Tribune Campus Center at the Illinois Institute of Technology (IIT) in Chicago, Illinois. He implemented a “stramp” (a stair-ramp combination originally developed by Arthur Erickson) in order to give all students access in the Campus Center. Koolhaas began thinking of the “stuck on” and “attached” ADA codes in an elegant and creative way. From many perspectives, Koolhaas’s IIT stramp visually tricks the eye into thinking it is a regular staircase. (See figure 4.3 below) Stairs transition from level to level between ramp turns and provide access for all types of users. The ramp has such a gradual downgrade that it doesn’t even need a handrail by standards (Arcspace.com).
Although this ramp is a micro design compared to the overall accessibility of the campus, the idea of combining stairs and ramps in order to create an accessible change in topography that accommodates everyone without isolation or distinction is a noble idea that the designer of the Miami campus landscape master plan expanded upon. These are design details and inspiration that the designer integrated into the redevelopment of the Campus Landscape Master Plan at Miami University, expanding upon the idea of the artistic and practical ramp.

The ramp in the landscape and the ideology behind it represent everything the designer was trying to accomplish in the universally-designed campus landscape master plan for the facilitation of mobility impairments. By designing access ramps that are built unconditionally to the environment, the designer allowed accessibility to become integrated into the design in an artistic manner, instead of being an afterthought or a problem. By implementing barrier free landscape architecture into the overall design of the campus, the plan was able to facilitate disabled students and faculty members while maintaining interaction with existing students of all abilities. The benefits of allowing all users to interact equally in the same spaces included not only fostering a better atmosphere within the student community, but also eradicating social barriers that might be caused by access issues.

Gallaudet University, another university striving to accomplish universal design at its fullest potential, is a 2.5 million gross square feet campus and multi-purpose institution for postsecondary education as well as a school for the deaf and hard-of-hearing students. This campus approaches education in a unique way, providing a public service while providing specialized education. Starting in 2001, EYP Architecture & Engineering firm designed a Campus Master Plan for Gallaudet in order to reflect the need for technological changes and the needs of students into the learning and physical environment. A 10-year phasing plan promotes a framework for the university to improve their academic program needs and to improve the accessibility of the campus as a whole. (EYP) If all institutions promoted accessibility in this way, then the societal isolation that occurs with universities like Gallaudet might not exist. It is important to embrace the idea that all disabilities should be thought of, such as vision and hearing, along with other physical disabilities when designing the accessible campus. To be seamlessly integrated into Landscape architecture design, all facets of accessibility need to be considered and addressed to the fullest extent possible. The campus landscape master plan at Miami extracted key features from Gallaudet University like improvements to signage including captioning, tactile signage, and appropriate use of signage. These improvements to signage were implemented throughout Miami’s campus as part of the redeveloped pedestrian circulation plan. Implementing signage for the deaf and hard of hearing near crosswalks, intersections, hubs, and important nodes like Gallaudet University can improve the lives of users who are deaf or who are hard of
hearing on campus. This narrows the gap and lessens the danger that students and users currently face while navigating through campus.

The Washington State School for the Blind, another university committed to providing students who have special needs the facilitation they need, is exemplary in providing accommodations for disabled students. However, like Gallaudet University, Washington State School for the Blind feeds the social isolation that is caused by specialized post-secondary schools of this kind. There are, however, aspects from this university that were utilized in the campus landscape master plan at Miami University including the use of braille in signage, audio alternatives for print, large print, the implementation of tactile materials in the built environment, and providing warnings of protruding objects that are cane-detectable (NASAA 100). By utilizing some of these key features that are demonstrated at the Washington State School for the Blind, the campus landscape master plan at Miami facilitated users who are blind or who have low vision.

Although these two universities do not provide accommodations for all abilities and technically fall into a micro-designed category, they exhibit key features that were merged together in Miami’s campus landscape master plan. The redevelopment of the campus landscape master plan at Miami University strived for the same kind of accessibility that these two universities demonstrated, but instead integrated them into the master plan in order to provide a solution that accomplished facilitation for mobility, auditory, and visual impairments in one design. These principles and features of universal design were implemented and married with the campus landscape master plan that was developed in 1999 by Kinzelman, Kline, & Gassman for Miami University (see figure 4.4 below). By weaving this existing campus landscape master plan with new, modern ideas and principles of universal design, a cohesive campus master plan provided students with an aesthetically pleasing landscape design that accommodated
for and united users of all abilities.
In order to develop a cohesive campus landscape master plan that addressed
the universal design philosophy to its fullest, this proposal redeveloped Miami’s
campus in an unconventional way in the field of landscape architecture.
Because there are few macro-designs in post-secondary built environments, this
proposal took the micro-designed elements and precedents and turned them
into a landscape “collage,” seamlessly integrating them with landscape design
principles. As a result, a master plan was developed that facilitated the abilities
of all campus users to the fullest extent possible in an artistic way.

INTEGRATING HISTORY & CULTURE

According to Miami University’s website, Poet Robert Frost once described
Miami Oxford’s campus as “the most beautiful college there is.” The campus
displays modified Georgian revival red brick buildings on an open, tree-
shaded campus. There are no high-rise residence halls blocking the views of
this wonderfully designed campus. Embracing its picturesque setting, Miami
is a residential university with an undergraduate focus. Enrolling 14,671
undergraduates and 2,213 graduate students on the Oxford campus in 2010,
Miami is a mid-size, diverse public university. It was established in 1809, named
after the Miami Indian Tribe that once presided over the Miami Valley Region
of Ohio, and is now one of the oldest public institutions in the United States
(History).

The plans for Miami University were first laid by an Act of Congress signed by
President George Washington. He stated that an academy should be located
Northwest of the Ohio River in the Miami Valley. The Legislature passed “An
Act to Establish the Miami University” on February 2, 1809. This is cited as the
founding of Miami University. The township originally granted to the university
was known as the “College Township”, and was renamed Oxford, Ohio in 1810.
Founded in 1809, Miami is the 10th oldest public university in the United States
and the second oldest in Ohio. It is considered to be one of America’s Public Ivy
universities, which recognizes top public academic universities in the United
States (Oxford). Miami has a rich history which has carried through in its campus
planning, in its Georgian Revival architecture, and in its classical public-ivy style.
Because several of the buildings are 200 years old, many historic buildings
and campus features were considered and protected while redeveloping the
campus landscape master plan. Historic preservation needs were taken into
consideration for certain accessible adaptations on campus. On the following
page are images that capture Miami’s moments in history and an attitude that
still lives strong throughout the campus (see figure 4.5).
Miami University Oxford is also committed to providing equal opportunities for all students on campus, especially providing an environment of an equitable nature to students, faculty members, and staff members of all abilities. The mission statement of the Office of Disability Resources (ODR) is as follows:

“Miami is committed to providing equal opportunities for people with disabilities and, as such, is proactive in its efforts to comply with federal laws such as Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and the ADA Amendments of 2009. As confirmation of this commitment, the Office of Disability Resources (ODR) provides support services, accommodations and resources to ensure equal access to education, employment, and University life. Furthermore, it is the mission of the Office of Equity and Equal Opportunity (OEEO) and ODR to advance and sustain an environment of internal equity, diversity & inclusiveness for all members of the University community. ODR will fulfill its commitment with compassion, understanding and fairness to all parties involved and act as a resource for all University offices.” (ODR)

Although Miami’s mission statement strives to provide equality to all students, the need to do so in the built environment has been overshadowed by inclusive design within the classroom. The campus landscape master plan at Miami has the ability to harness the historical charm of the university, highlighting its timeless architecture. One challenge designers are always faced with when trying to incorporate accessible principles, though, is how the universal design renovations can increase accessibility for all users while still retaining the historic value and original identity of a place. Miami Oxford has a distinguished culture and history present; the challenge was to incorporate the history of the campus along with the ODR’s mission statement into the redevelopment of the campus landscape master plan design in a smooth and graceful marriage of design ideas.

Another crucial factor linked the campus history to consider during the redevelopment of the campus landscape master plan design was the incorporation of Miami culture and traditions. Like most college campuses, tradition is an very important part of life at Miami. Provisions for incorporating existing traditions including, but not limited to, “avoiding the seal,” “kissing underneath the arch,” and “passing on the same side of the trees” were important when analyzing accessible pedestrian paths and social gathering spots on campus. Preserving the outdoor spaces in which these traditions occur were, of
course, important when developing the campus landscape master plan in order to retain the campus identity and its historical and cultural value. Outdoor recreational facilities and environments have started designing solutions for this particular issue and implementing them.

The McKenzie Pass-Santiam Pass, located at the Dee Wright Observatory in Oregon, had its renovation completed in 2003 and rises thousands of feet in elevation through visual corridors. Outdoor adventurers frequent this byway to enjoy nature at its finest. What is really unique about this byway, though, is that it incorporated barrier-free access trails into the renovation. Platforms along the trail offer stopping points, accessible by all users. Not only does this byway provide accessible routes to its observatory, but it also provides access to trails through lava flows, universally designed campsites, accessible parking, and scenic trails leading to lookout platforms. This case study demonstrates how a renovation to a historic site can actually make it more accessible, keep its historic integrity, and become a better experience for all users. By working with historical preservation committees in the area, the McKenzie Pass-Santiam Pass team was able to preserve the original integrity of the observatory while providing accessible renovations (Ebbets). This is also a good example of how designers can overcome the typical challenges faced when dealing with accessible design, such as manipulating an otherwise challenging topography to benefit and access all users. This site is proof that interesting outdoor pieces of the built environment can be designed, regardless of obstacles, for the benefit of everyone. Accessibility can, as this project proves, improve a project without destroying its original integrity. The campus landscape master plan at Miami University worked with the historic preservation committee’s standards, as well, in Oxford in order to successfully renovate inaccessible areas of campus which might be historic in nature.

Another project, The Ebbet’s Pass Scenic Byway, located in the Sierra Nevadas and between the recreational area of Yosemite National Park and Lake Tahoe, is an ideal example showing how a renovation or redevelopment of a historic site can attack accessibility in a fun and creative way while still maintaining its original identity. The site cuts through steep terrain and topography in an environmentally conscious way, utilizing the natural slopes of earth to provide accessible pathways for the disabled and to maintain the original historical integrity of the site. Instead of creating and designating separate, isolated pathways for the disabled, though, the developers of the project redesigned all of the paths to be accessible and to blend in with what seemed like the original environment, solving both a safety issue and creating beautiful walking areas for all users, regardless of ability. Thanks to this site, individuals with a disability will no longer be directed through sites by way of the blue wheelchair symbol painted on the ground. There is much better access and safety now to the entire campground and lookouts and it is a much more enjoyable site for every user (Ebbets). This further emphasizes the need to embrace universal design principals and to remove the physical and social isolation that is typically a
The campus landscape master plan at Miami adopted this theory, as well, looking at each pathway and outdoor space as a space for everyone. Like these two case studies, Miami’s master plan strived to remove the wheelchair symbol from paths, plazas, and walkways. By marrying the classic past of the campus with the future accessible renovations, the site was usable by more people to the greatest extent possible without destroying the historical value of the campus. After the redevelopment of the circulation plan was complete, users of all abilities were able to coexist together on campus where they otherwise could not have before. Given that Miami already supports the principles of the universal and barrier free design philosophies, the end result reflected all of these crucial components.

**BENEFITS OF UNIVERSAL DESIGN**

It is a common misconception and stigma that “accessible designs” are only for disabled users. Several different pieces of literature investigate the issue of universal design and how going beyond the minimum standards can not only benefit the lives of disabled persons, but can also benefit the lives of existing users of all abilities. Many leaders in this profession, including Dr. Sally S. Scott, director of Disability Services at the University of Mary Washington and Wolfgang F.E. Preiser, Ph.D, author of the “Universal Design Handbook, Second Edition,” agree that universal design is understated in the occupation of landscape architecture and is in desperate need of more attention (About the Icons).

Benefits of accessible design are said to be broken up into two categories: tangible and intangible benefits. Tangible benefits are typically quantitative advantages associated with cost reductions including a reduction of accidents as well as the reduction of health costs and the loss of productivity that go along with it, a decreased need for assisted living as residences become more accessible, and a general increase in the quality of the built environment. Intangible benefits are typically harder to put a figure on, often concerning the improvement in the quality of user’s lives, the improvement of social mobility, and improving the freedom of movement. These types of benefits are also said to improve the access to education, which in turn can lower unemployment and improve the overall economy. However, these types of benefits, as said before, are extremely difficult, if not impossible to quantify. (Ratzka)

The benefits of implementing Universal design principles into the overall theme of a design are numerous to not only disabled persons, but to all users of all abilities. For instance, curb cuts were originally designed for wheelchair accessibility only. Today, more users without disabilities take advantage of the curb cuts including women with strollers, people rolling luggage, bicyclists, and even people are feeling temporarily fatigued. (Vanderheiden) Physical access in outdoor sites unites all users by providing them with the same comfortable routes and experiences. In a campus environment, addressing physical and mental disabilities builds a stronger student body community and narrows the gap between users of diverse capabilities. These designs help make simpler the life of everyone by shaping the built environment to be more usable by as
many users as possible, of all ages and of all abilities.

By incorporating barrier free objects in the landscape in an aesthetic and unique way, accessibility is longer a “stuck on” piece of architecture; it becomes integral to the design as a whole that benefits all users. Pieces of the built environment that were originally designed for disabled persons are now an apparatus for nearly everyone: disabled persons, skateboarders, roller skaters, strollers, cyclists and walkers alike also all enjoy their use. All users can, and do, interact together effortlessly, further uniting and equalizing access for all (About the Icons).

Disabled persons and existing users alike can interact in outdoor spaces freely and equally. The Universal Access Program in Massachusetts has also started efforts to create the best experience for disabled users by going beyond the minimum ADA guidelines “while preserving the quality of recreational experiences for existing visitors.” McCarthy (2009) This program figured out ways to make parks accessible for people of all abilities, while keeping the integrity of the original site. In return, the seven universal design principles allow all users to benefit from barrier free access. These principles, previously discussed, were fundamental for the redevelopment of the Universally designed campus landscape master plan at Miami University, Oxford.

The Universal Access Program in Massachusetts also states that universal design does not solely include physical disabilities, but all disabilities, particularly in the academic setting. By addressing mental and physical disabilities alike, the redevelopment of the campus landscape master plan at Miami Oxford was able to incorporate benefits to all users. Benefits included positive, tangible benefits that were a result of implementing the seven principles of universal design, previously discussed. Equitable Use to users of diverse abilities, Flexibility in Use that accommodated unique and personal preferences, Simple and Intuitive design so that information was simple to understand regardless of user knowledge, Perceptible Information which relayed information clearly regardless of sensory abilities, and Low Physical Effort which provided capable and comfortable access with the least amount of energy necessary (Accessibility and Universal design).

It is clear that the benefits of universal design were plentiful, and were effective for all users of all abilities. By implementing principles of universal design and adopting its philosophy, landscape architecture can start to develop spaces in the built environment that unite users by eliminating the isolation that occurs all too often in our public spaces. The campus landscape master plan at Miami demonstrated all seven of the universal design principles in an effort to provide all of the mentioned benefits that resulted in their implementation.
CONCLUSIONS

As the research analysis has stated, universal design is a philosophy. It is a frame of mind and a process in which to develop wholistic designs. Trying to accommodate the needs of all users to benefit people as a whole is a noble idea and to do it artistically is both a challenge and an opportunity. By utilizing the seven design principles, marrying the classic past of the campus with the future accessible renovations, incorporating the spirit of Miami through student traditions, and by working with the existing campus master plan as well as with disabled clients, this campus landscape master plan was able to provide a new campus experience for students, visitors, and faculty alike. This master plan removed the physical and social isolation that is typically associated with standard accessible design by providing one artistic design solution that facilitated the needs of mobility, auditory, and visually impaired individuals at Miami University to the fullest extent possible.

LITERATURE REVIEW RECAP

1. Universal design is a PHILOSOPHY, not a concrete result.
2. Universal design is NOT accessible design (see figure 4.6).
3. Working with disabled clients is key in developing a universal designed site.
4. The efforts of universal design truly are for EVERYONE.
5. You can never design a space that physically accommodates absolutely everyone at the exact same time.
Universal Design vs. Accessible Design

Figure 4.6
PROJECT REQUIREMENTS

Client and User Group
Project Goals & Objectives
Programming
CLIENT & USER GROUP

The chosen project site, Miami University, was located in Oxford, Ohio. Oxford is located in the Miami Valley in Southwestern Ohio. The project boundaries did not include Miami’s natural areas, which are shared by the City of Oxford.

Although the campus owns a total of 2,000 acres including the natural areas, this project site consisted of the 841 acres of Main Campus, which is divided into 7 quads. This site had a perimeter that bordered several land uses including the Uptown Oxford area, residential areas which house mostly Miami University students, natural areas, and agricultural lands. To the north of the site were residential areas, with agriculture and wooded lands to south, east, and west.

The City of Oxford is comprised of 6.3 square miles in the northwestern corner of Butler County and has a population of approximately 22,000. Oxford is a college town, founded originally as a home for Miami University, and thus, more than 64% of the Oxford residents attend college or graduate school at Miami. Consequently, over 44% of the population is between the age of 20 and 24 due to the strong influence of the university. Oxford’s college town has a unique charm, the isolation lending itself to cultivating a close relationship between the Oxford and Miami communities.

The larger cities of Cincinnati and Dayton are only 35 and 45 miles away, respectively, and Miami’s campus is predominantly served by U.S. Route 27, Ohio State Route 732, and Ohio State Route 73.
PROJECT GOALS & OBJECTIVES

01 Encourage social interaction between people of all physical abilities.

Objective 1: Redevelop the pedestrian circulation plan to accommodate for barrier free changes and the interaction of vehicular circulation.

Objective 2: Remove existing barriers on campus sidewalks in order to seamlessly integrate slopes, ramps, and other barrier free methods of design in order to avoid isolation of disabled persons.

Objective 3: Improve the signage in the built environment to be tactile and perceptible in conjunction with the improved circulation plan.

02 Design a campus landscape that adds to the existing beauty of Miami's campus and architecture.

Objective 1: Add vegetation that complements the universal design to enhance the aesthetic quality of the paths, sidewalks, and plazas.

Objective 2: Complement, and in certain places mirror, the Georgian-Revival architecture that Miami University embraces to create a unified style while providing adequate indications of accessible crossings, etc..

Objective 3: Provide barrier free access to the natural areas of campus by blending the natural environment with structural accessibility elements in order to keep the picturesque areas of campus beautiful.

03 Encourage increased interaction and use of outdoor spaces on campus.

Objective 1: Provide accessible plazas which allow for gatherings, campus events, and student activities.

Objective 2: Provide access to outdoor campus spaces including, but not limited to, The Formal Gardens and lake, Western Campus lake and bridges, and the Campus Tree Walks Tour.

Objective 3: Provide lighting that creates an artistic element of interest during the day and an artistic security feature at night.
Melbourne, AUS Bridge Design Inspiration

Figure 5.1
PROGRAMMING

1. Pedestrian Circulation Redevelopment & Path Hierarchy
2. Ground plane and Vertical Materials Design
3. Hyper-Sensory Vegetation
4. Hyper-Sensory Nodes throughout Quad
5. Tactile Activators and Textures
6. Emotional Experience of Site
7. Incorporation of ADA Guidelines
8. Incorporation of the 7 Universal Design Principles
THE PROJECT SETTING

Location & Vicinity Map
Campus Inventory & Analysis
Central Quad Setting & Context
Central Quad Inventory & Analysis

Case Studies & Precedent Imagery
Robson Square Stramp
IIT Student Center Stramp
Simcoe Wavedeck
Lambton Quay Sculpture Project
University of Pennsylvania Pedestrian Way Study
LOCATION & VICINITY MAP

OXFORD, OH

6.3 square miles
22,000 residents
Rural, agricultural lands

Originally founded for MU
16,000 MU students

Served by US Route 27
OH State Route 732
OH State Route 73

MIAMI UNIVERSITY

2,000 acres with/ natural areas
Georgian-revival architecture
Long-standing traditions
841 acres | 7 quads | 16,000 students

Miami University Campus Map
Figure 6.3
CAMPUS INVENTORY: BARRIERS

Geography Department Barriers Map
Figure 6.4
This map was originally created by two Miami University geography students in a geography class as part of their project. The map was created to show the barriers on campus addressed as areas needing attention for the campus landscape master plan in the means of accessibility.

Further examination of the campus was completed by the designer and analyzed as part of the overall Miami University site inventory and analysis during the comprehensive project.
THE PROJECT SETTING

SITE VIEWS

Figure 6.6

TOPOGRAPHY

Figure 6.8
CAMPUS: SITE INVENTORY & ANALYSIS

Layers of Analysis
Figure 6.9
THE PROJECT SETTING

LAYERED INVENTORY & ANALYSIS

After doing a comprehensive site inventory and analysis of the entire Miami University campus, including natural plantings, views, topography, pedestrian circulation, and areas of obstruction/barriers, a layered inventory map was created (see above).

The analysis also indicated that Western College was in need of improvements, as well. However, after a more thorough examination of the campus quads, it was determined that Central Campus should be the first phase of the accessible design changes.

Western College is a historically significant piece of campus, and a more sensitive area to change. Central Campus was determined to have a heavier pedestrian use, and was thus chosen by the designer to be the quad of design focus.

This layered map indicated that the largest need and greatest opportunity for universal design was located in Central/Main Campus. Central Campus was indicative of elevation change, dense pedestrian traffic flow, several areas of obstruction, and many existing views that could be enhanced and enjoyed by many.
CENTRAL CAMPUS: SETTING & CONTEXT
EXISTING CONDITIONS

CENTRAL/MAIN CAMPUS

63 acres: Main Campus
48’ vertical change E-W
Mostly academic building use
Several barriers along major axis
SITE INVENTORY: EXISTING BARRIERS

McGuffey Hall
Hillside and Terrain

Bishop Woods
to King axial path

Access through Irvin Drive
between Elliot and Stoddard

The Upham Arch

The Seal in The Hub

Central Campus Barriers Map
Figure 6.13
Several barriers exist within Central Campus, many of which exist along the arterial paths of the quad. The following barriers throughout the quad were determined to be the most important:

1. **Bishop Woods Through Access**
   Uneven, asphalt ground plane in dense underbrush

2. **Upham Hall Arch Access**
   Historically significant staircases act as only access through arch

3. **Access Through Irvin Drive**
   Stair sets between Stoddard and Elliot Halls creates barrier

4. **The Hub Through Access**
   Main part of campus cannot be accessed through “spine” of campus

5. **Bishop Woods to King Library Axial Path**
   Main, arterial route is not a through route for all users

6. **McGuffey Hall Hillside Terrace and Terrain**
   Steep slope does not allow all users to enjoy space equally

After a more thorough usage analysis, Bishop Woods Access and Upham Hall Arch Access were determined to be the most beneficial areas of concern, given their proximity to one another and the dense pedestrian activity of the spaces.
CENTRAL INVENTORY: TOPOGRAPHY

TOPOGRAPHIC CHANGES + LONGITUDINAL SECTION

• 48 feet vertical rise between Campus Ave & Patterson Ave (E-W)

• 2,223 linear feet between Campus Ave & Patterson Ave (E-W)
Figure 6.14

Figure 6.15
CENTRAL INVENTORY: TOPOGRAPHY

TOPOGRAPHIC CHANGES + CROSS SECTION

• 5 feet vertical rise between Spring St. & High St. (N-S)

• 1,425 linear feet between Spring St. & High St. (N-S)
THE PROJECT SETTING
THE PROJECT SETTING
CASE STUDIES: PRECEDENT IMAGERY

1. Robson Square: Vancouver, Canada - Arthur Erickson

2. IIT Student Center Interior Stramp - Rem Koolhaas

Figure 6.19

Figure 6.20
Lambton Quay Sculpture Project:
Wellington, NZ
“Invisible City” - Anton Parsons, Sculptor
Figure 6.22

Simcoe Wavedeck: Toronto Waterfront
-West 8
Figure 6.21

University of Pennsylvania Pedestrian Way
-Laurie Olin
Figure 6.23
Design Concept 1: A Clean Slate
Design Concept 2: Impairment Quads
Design Concept 3: Sensory Quads
Design Concept 4: A Journey Through the Senses

Central Campus Master Plan
Site Plan Enlargements
Grading Plan
Upham Hall Arch Site Plan
Sensory Planting Plan
Character Images
Design Sections
Bishop Woods Site Plan
Sensory Planting Plan
Character Images
Future Armstrong Student Center Site Plan
Sensory Planting Plan
Character Images
Addition Quad Locations
Sensory Planting Plan
Character Images
Design Sections
Construction Details
Design Concept 1: A Clean Slate
Design Concept 2: Impairment Quads
Design Concept 3: Sensory Quads
Design Concept 4: A Journey Through the Senses

Central Campus Master Plan
Site Plan Enlargements
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Character Images
Design Sections

Bishop Woods Site Plan
Sensory Planting Plan
Character Images

Future Armstrong Student Center Site Plan
Sensory Planting Plan
Character Images
Design Sections
Construction Details

Additional Quad Locations
Sensory Planting Plan
Character Images
CONCEPT #1: A CLEAN SLATE

CONCEPT ELEMENTS

1. LAYERS OF DESIGN
2. ACTS AS CAMPUS BACKBONE (SLATE)
3. BACKBONE ACTS AS WAY FINDER
4. LEVELS OF CLEFT THICKNESS CHANGES
5. SLATE AS A PHILOSOPHICAL AND LITERAL WAY FINDING ELEMENT TO CONNECT QUADS OF CAMPUS AND PEDESTRIAN CORRIDORS
Concept 1 Diagram: A Clean Slate
Figure 7.2
CONCEPT #2: IMPAIRMENT QUADS

CONCEPT PROS
1. SUPER-SENSORY ZONES
2. ZONES DEFINED/IMPROVED FOR IMPAIRMENT
3. HIGHLY SPECIALIZED/ADAPTED AREAS
4. PROTOTYPE DESIGN ZONES AS A PRECEDENT FOR OTHERS

CONCEPT CONS
1. SEGREGATION BY IMPAIRMENT
2. LONG DISTANCES
3. SEVERAL IMPAIRMENTS NOT COMBINED
4. NOT ONE COHESIVE DESIGN SOLUTION
CONCEPT #3: SENSORY QUADS

CONCEPT PROS
1. SENSORY EXPERIENCES BY QUADS
2. DISTINCTION TO EACH QUAD
3. ALLOWS EACH SENSE TO BE DRAMATIC
4. PROTOTYPE DESIGN ZONES

CONCEPT CONS
1. SEGREGATION BY SENSE
2. LONG DISTANCES TO EXPERIENCE MORE THAN ONE SENSE
3. SEVERAL IMPAIRMENTS NOT COMBINED
4. NOT ONE COHESIVE DESIGN SOLUTION

5 SENSES NODES + DISTINCT QUADS

THE DESIGN
DESIGN CONCEPT #4: Refined

CONCEPT ELEMENTS

1. LAYERS OF DESIGN

2. CENTRAL CAMPUS ACTS AS BACKBONE/SPINE FOR THE QUAD AND FOR THE REST OF CAMPUS

3. SLATE ACTS AS A WAY FINDING MATERIAL TO NODES ACROSS THE QUAD

4. ALL SENSES ARE ENGAGED IN ONE QUAD

5. NO IMPAIRMENTS/PERSONS ARE SEGREGATED

6. ALL IMPAIRMENTS CAN ENJOY SPACE THROUGH DISTINCT SENSORY EXPERIENCES

7. ONE COHESIVE DESIGN SOLUTION AND JOURNEY
Cohesive Journey Through the Senses

Concept 4 Diagram: Refined Concept B
Figure 7.6
REFINED CONCEPT #4: A JOURNEY THROUGH THE SENSES

Concept 4 Diagram: Sensory Nodes
Figure 7.7
INTENSIFYING SLATE MATERIAL AS INDIVIDUALS MOVE TOWARD CENTRAL AXIS

CANOPY VEGETATION FRAMED VIEWS

AROMATIC [THYME] GROUND COVER

EDIBLE GARDENS NEAR ODGEN DINING HALL

SLATE/PENNSYLVANIA BLUESTONE LINED AXIAL PATHS AND ARTERIAL PEDESTRIAN ROUTES

RAISED BEDS WITH TACTILE PLANTING MATERIALS FOR MOBILITY IMPAIRED INDIVIDUALS

AUDIBLE PLANTS [RATTLESNAKE GRASS, ETC]

AROMATIC GROUND COVER
MASTER PLAN: EXISTING CONDITIONS

Central Campus: Existing Conditions

Figure 7.8
This aerial image (looking west) shows central campus and the three focus areas chosen by the designer within the quad. These spaces were developed in further detail, implementing the concepts and principles developed at the beginning of the design project. These three spaces: the future Armstrong Student Center, Bishop Woods, and the Upham Hall Arch were chosen based on an in-depth site analysis.

They were designed in much more detail than the rest of the quad, demonstrating what typical conditions of the master plan would be throughout Central Campus.
Retain romantic landscape at Slant Walk area

Canopy and understory vegetation framed views of east-west axial views

Canopy vegetation framed views of north-south axial views

The Hub

Intensifying vegetation increasing toward central axis of Main Campus

Formalized groupings of plants for screening near new student plazas

Secondary hub in Bishop Woods for student gathering
EXISTING VEGETATION

Figure 7.11
Canopy and understory vegetation framed views of east-west axial views: seasonal interest with yellow-orange fall foliage.
PROPOSED VEGETATION PLAN

Figure 7.14
Pedestrian Circulation Diagram

Figure 7.15

Primary/Arterial Paths
Secondary Paths
Tertiary Paths
Future Important Paths
Barrier Node/
Design Opportunity
GROUND PLANE MATERIALS

INTERSECTION OF PAVING MATERIALS

- Alumni Name-Engraved & Braille-Embossed Slate Pavers (Emotional Space) surrounded by concrete

- Strips of Slate/Bluestone lined adjacent quad circulatory paths

- Distinguished node of meeting materials for intermittent pedestrian gathering spaces
MASTER PLAN: CIRCULATION MATERIAL

Figure 7.18
“Slant Walk”
Widened to 15'-0” and paved with brick Herringbone pattern

Axial Corridor
Main axial path through Central Campus: widened to 15'-0” and paved with slate or Pennsylvania Bluestone
Acted as element to seamlessly connect pieces of sensory landscape

Slate Leader Strips
Lined slate pieces strengthened in intensity from quad perimeter as paths merged to central axis, connecting surrounding quads

ASC Student Plazas
New student plazas were paved with slate material and marked terminus of central axis

Bishop Woods
Bishop Woods: paths were reconfigured as an elevated boardwalk to provide thru-access for students to new Farmer School of Business and new Armstrong Student Center while keeping a few of the informal, existing paths
COMPREHENSIVE MASTER PLAN

Figure 7.19

Comprehensive Master Plan
Master Plan Elements: Recap

1. Materials + Way finding
2. Seasonal Interest Vegetation
3. Tactile, Experiential Textures
4. Exterior Pedestrian Gathering Spaces
5. Hyper-Sensitivity “Sensory Nodes”
6. Student Center Plaza Design
7. Slope Access Design
FOCUS AREA GRADING PLAN

The site plan boundaries that were chosen for design detail range topographically from 1:16 through the Upham Arch to 1:40 through Bishop Woods. The diagram below shows the different slopes throughout the project site, shaded a deeper blue as the intensity of the slope increases. These slopes are very gradual, in general, and allowed the designer to work with the existing topography and meeting a design goal: to preserve as much of the historical landscape as possible during construction and through design.

Site Boundaries Grading Diagram
Figure 7.21
Site Boundaries Grading Plan
Figure 7.22
Upham Hall Site Plan
Figure 7.23
**UPHAM ARCH SENSORY PLANTING PLAN**

### UPHAM HALL AREA PLANT SCHEDULE

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<td>SALIX BABYLONICA</td>
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### PERENNIALS/ORNAMENTAL GRASSES

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**Upham Arch Plant Palette**

Figure 7.26
Upham Arch Planting Plan
Figure 7.27
Focus Area 1: Upham Arch

Upham Hall Slope Diagram
Figure 7.28

Switchback Ramp
Tier 2

Planting Bed
12’-0”
1 Earth Slope:  
- x>200’-0” length
- 1.5’-0” vertical rise
- 1:40 slope, 2.5%

2 Switchback Ramp:  
- 72’-0” length
- 1.25’-0” vertical rise
- 1:57 slope, 1.75%

3 Arch Through Access:  
- 75’-0” length
- 3.5’-0” vertical rise
- 1:21 slope, 4.76%

Avena persica  
(Avena sterilis)  
(Ludo Wild Oats)

Stachys byzantina  
(Lamb’s Ear)
The only access up to the Upham Hall Arch existed in the form of a classic, historically significant staircase. In order to preserve the historical significance of the site while still providing universal access, this design developed symmetrical flanking ramps sloping at 1.75% on both sides of the staircase and adjacent to the building.

Constructed with slate, the ground plane of the flanking ramps was designed to continue the “spine of campus” with the slate material along the new circulatory path. Raised planting beds and retaining walls with touchable planting materials further enhanced and equalized the user experience along the arterial route.

**UPHAM ARCH CHARACTER**

**SWITCHBACK RAMP DESIGN**

The only access up to the Upham Hall Arch existed in the form of a classic, historically significant staircase. In order to preserve the historical significance of the site while still providing universal access, this design developed symmetrical flanking ramps sloping at 1.75% on both sides of the staircase and adjacent to the building.

Construction with slate, the ground plane of the flanking ramps was designed to continue the “spine of campus” with the slate material along the new circulatory path. Raised planting beds and retaining walls with touchable planting materials further enhanced and equalized the user experience along the arterial route.

**HYPER SENSORY:**

**TOUCH**

- Raised Planting Bed with touchable plants and tactile materials
- Symmetrical, flanking ramps on both sides of stairs running along slope of earth
- Approaching sound of reverberating water wall
- Slate Paving (Arterial Path)
Upham Arch Exterior Access: Existing Conditions
Figure 7.31

Upham Arch Switchback Ramp & Touchable Plantings Design
Figure 7.32
The sole access through the Upham Hall Arch existed in the form of two separate staircases. The design implemented a gently rising, even slope of slate material starting at the end of the switchback ramps and stretching through to the other side of the arch.

This allowed the ground plane to slope at 4.76% to accommodate equal access for all abilities while still keeping the historically-significant architectural integrity of the site intact.

**HYPER SENSORY:**

**SOUND**

- Reverberating Water Wall
- Touchable, Fragrant Plantings
- Walking Cane Tap Rail (Clefted Slate)
- Slate Paving (Arterial Path)
- Even, Sloped Ground plane
Upham Arch Approach: Existing Conditions
Figure 7.34

Upham Arch Approach: Grading Design and Approaching Water Wall
Figure 7.35
The Upham Hall Arch is a notable site within Central Campus and home to a long-standing tradition: couples who kiss under the Arch’s lantern at midnight are destined to marry. It is also the main entrance to the academic building and did not provide equal access to users. With the implementation of the 1:21 sloping ground plane, equal access was provided through the design.

Reverberating water walls were also designed and implemented to create a hyper-sensory node celebrating the sense of hearing. The addition of these water walls changed the space and made it a much more sensory-enhanced experience for all users.

**HYPER SENSORY: SOUND**

- Bishop Woods
- Reverberating Water Wall (Touchable, Tactile, Audible)
- Seating wall
- Alumni Name-Engraved Slate Pavers in middle of archway
- Raised, even, sloped ground plane of slate material
Upham Arch Interior Access: Existing Conditions
Figure 7.37

Upham Arch Interior Access: Reverberating Water Wall Design
Figure 7.38
Bishop Woods Site Plan
Figure 7.39
Bishop Woods: Existing Conditions
Figure 7.40

Bishop Woods: Focus Areas
Figure 7.41
### BISHOP WOODS SENSORY PLANTING PLAN

#### BISHOP WOODS AREA PLANT SCHEDULE

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**Figure 7.42**

- Animated Oats
- Lavender
- Common Lilac
- Ludo Wild Oats

- Lamb's Ear
- Bamboo
- Raised Planting Beds

Bishop Woods Planting Palette
Bishop Woods Planting Plan

Figure 7.43
A series of braille sculptures were designed alongside a raised boardwalk path through Bishop Woods. The stainless steel sculptures were designed to be permanent structures, much like the Lambton Quay Sculpture project in Wellington, New Zealand.

The braille, itself, was designed within the structure to be interchangeable, allowing the stories and “text” to adapt with time, events, and student projects. This allowed the Bishop Woods experience to transform from a mere route to a multi-sensory journey. The braille sculptures were designed to be both a literal and emotionally appealing display.

Bishop Woods Reference Map
Figure 7.44

HYPER SENSORY:
TOUCH

Shade & Seasonal Interest Trees

Braille Sculpture (Permanent Pieces, Rotating Text)

Explanatory Braille & Auditory signage for Sculptures

Boardwalk Ground plane
Braille Sculpture Journey: Bishop Woods Existing Conditions
Figure 7.45

Braille Sculpture Journey Design and Implementation: Tactile Storytelling
Figure 7.46
Bishop Woods existed as a natural lab setting for zoology, botany, and other classes at Miami University. Containing wildflowers, scrub, young trees, and trees nearly 150 years old, it is a much more natural setting in comparison to the rest of Miami’s neatly manicured lawns.

This design proposed an elevated boardwalk that would serve as a pedestrian route, protecting the ground cover while providing an accessible path. The middle terminus was designed to be a gathering space for students and to serve as a multi-sensory node. Touchable and audible plants in raised beds were implemented to fully engage the senses.

**HYPER SENSORY:**

**TOUCH**

**SOUND**

Shade & Seasonal Interest Trees

Axial Views through Understory & Canopy Plantings

Path-side Benches, Space for Wheelchairs

Raised Planting Beds with touchable, audible, fragrant plantings (rattlesnake grass, lambs ear)

Boardwalk Ground plane
Bishop Woods Path Terminus: Existing Conditions
Figure 7.48

Bishop Woods Path Terminus: Boardwalk and Terminus Design
Figure 7.49
Armstrong Student Center Site Plan
Figure 7.50

Armstrong Student Center Existing Conditions
Figure 7.51
Armstrong Student Center Focus Areas
Figure 7.52
## ASC Plaza Planting Plan

### ASC Area Plant Schedule

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### Armstrong Student Center Planting Palette

**Figure 7.53**

- Feather Reed Grass
- Java Moss
- Wormwood
- Creeping Thyme
- Lamb’s Ear
- Wisteria
- Raised Planting Beds
Armstrong Student Center Planting Plan
Figure 7.54
The future Armstrong Student Center is located at this site and the landscape design was based on the future development. This focus area was developed as a pedestrian gathering space, providing an exterior space for students as this area becomes more activated by the addition of the new student center. This plaza also connects pedestrians to the other two focus areas of the site: Bishop Woods and the Upham Hall Arch.

This character image (figure 7.57) shows how the design developed an exterior, pedestrian plaza space based on the location of a future building. A braille-embossed retaining wall forms one edge of the intimate seating area, engaging people of all abilities physically and emotionally.

**HYPER SENSORY:**

TOUCH

- Future Armstrong Student Center
- Shade & Seasonal Interest Trees
- Semi-Permeable Glass “Bridge”
- Stramp Terracing
- Braille Engraved Retaining Wall
- Slate and concrete patterned ground plan material in plaza space
ASC Pedestrian Plaza Design: Existing Conditions Looking SW
Figure 7.56

ASC Pedestrian Plaza Design: Day Conditions
Figure 7.57
The design of the Armstrong Student Center’s (ASC) exterior plaza aimed to provide an aesthetically pleasing, safe, and multi-sensory engaging space at night. By utilizing lighting, color, and tactile elements, this space was transformed into a completely different experience during the night hours.

The design provided campus users with a safe place to gather at night time, engaging students in a completely different way than the space allowed for in daytime conditions. This set the precedent for other night-adaptable spaces to be designed throughout the quad and throughout campus.

**HYPER SENSORY: SIGHT**

- Future Armstrong Student Center
- Shade & Seasonal Interest Trees (Lights at evening for safety, aesthetic beauty with ornamental tree uplighting)
- Semi-Permeable Glass “Bridge”
- Stramp Terracing
- Outdoor Cafe Seating for Student Center Eatery
- Braille Engraved Retaining Wall
ASC Pedestrian Plaza Design: Existing Conditions Looking SW
Figure 7.59

ASC Pedestrian Plaza Design: Night Conditions
Figure 7.60
This plaza and terracing platform (see figure 7.63) created a sense of enclosure for users, creating a more intimate space near the Armstrong Student Center, opening up to the ground-level cafe seating.

Strips of concrete ran through the slate-lined plaza, directing users to the other focus areas and nodes of the design as well as through the plaza to other quads of campus. This not only aided in the pedestrian circulation redevelopment, but also made the paving materials more economically-feasible and allowed the large connective tissue of the pedestrian plaza to be broken up into smaller, more intimate spaces.

Armstrong Student Center Reference Map
Figure 7.61

HYPER SENSORY:
SIGHT

Shade & Seasonal Interest Trees

Bishop Woods/Braille Entrance

Braille-engraved Retaining Wall

Terrace Platform/Cafe Seating

Stramp Access

Stair Terracing
ASC Pedestrian Plaza Design: Existing Conditions Looking North
Figure 7.62

ASC Pedestrian Plaza Design: Looking North
Figure 7.63
The “stramp” (stair-ramp combination) implemented near the Armstrong Student Center building was used as both an artistic and literal display of universal accessibility. This stramp allowed users of all abilities to enjoy and access elevated cafe seating in a manner that did not cause social or physical isolation of users. The stairs within the stramp acted not only as climbing stairs, but as additional seating and part of the overall artistic quality of the space.

The design of the stair-ramp combination allowed users who cannot normally navigate elevation change in the landscape to experience the vertical journey with all other users.

HYPER SENSORY: TOUCH

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ASC Pedestrian Plaza & Stramp Design: Existing Conditions Looking North
Figure 7.65

ASC Pedestrian Plaza & Stramp Design
Figure 7.66
ASC Pedestrian Plaza & Stramp Design Detail A
Figure 7.67
This stramp design concept, extrapolated from the IIT Student Center and Robson Square precedents, aimed to provide an artistic means of universal accessibility. This stramp allowed the plaza design near the ASC building to feel intimate, yet provide seating for a large number of students.

It also allowed for elevation change to happen on site without physical isolation of students and users. The plan (above) and section (left) both show that verticality is achieved through hardscape design. The design of the ramps within the stairs sloped up individually to the top of the intimate platform.

Touchable, aromatic plants, as well as shade trees were planted in the retaining wall/raised planter. This provided an interactive and comfortable experience for all users alike.
CONCRETE STEPS IN TERRACED PLAZA
(AS PART OF ASC PLAZA STRAMP DESIGN)
Figure 7.69
SLATE VENEER WALL
(AS PART OF ASC PLAZA STRAMP DESIGN)
Figure 7.70
CONCRETE RAMP AND CHEEK WALL
(AS PART OF ASC PLAZA STRAMP DESIGN)
Figure 7.71
SLATE PAVERS ON SAND SETTING BED
(AS PART OF ASC PLAZA AND CIRCULATION DESIGN)
Figure 7.72

*SLATE PAVERS ON SAND SETTING BED
(PENNSYLVANIA BLUESTONE TO BE SPECIFIED AS AN AS-NEEDED, MORE COST-EFFECTIVE ALTERNATE PAVING MATERIAL)
This section of the pedestrian plaza, located near Laws Hall, was designed as a mirrored plaza to the ASC exterior space. This area, located on the opposite side of Bishop Woods than ASC, was connected to the adjacent plaza through the concrete and slate paving materials.

Both the Laws Hall plaza and the ASC plaza were designed to be collectors and activators, drawing users to the spaces from Bishop Woods and other arterial routes throughout Main Campus.

Armstrong Student Center Reference Map
Figure 7.73

HYPER SENSORY:
SIGHT

Laws Hall
Shade & Seasonal Interest Trees
Cafe Seating
Hyper-Sensory Plantings
Paving Pattern Design
Slate Ground Plane
ASC Pedestrian Stramp Design: Existing Conditions Looking North
Figure 7.74

Laws Hall Pedestrian Plaza Design: Mirrored Plaza
Figure 7.75
ADDITIONAL FOCUS AREAS
MAIN CAMPUS CHARACTER FOCUS

Additional Areas of Focus
Figure 7.76
Areas of Focus
Figure 7.77

Slant Walk

View to King Library
### General Sensory Planting Plan

#### General Campus Schematic Planting Plan Schedule

<table>
<thead>
<tr>
<th>Symbol</th>
<th>QTY.</th>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Sensory Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deciduous Trees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACE OCT</td>
<td>20</td>
<td><em>Acer Rubrum</em> 'October Glory'</td>
<td>October Glory Red Maple</td>
<td>Fall Color</td>
</tr>
<tr>
<td>ACE SAC</td>
<td>15</td>
<td><em>Acer Saccharum</em></td>
<td>Sugar Maple</td>
<td>Fall Color</td>
</tr>
<tr>
<td>CLA KEN</td>
<td>42</td>
<td><em>Cladrastis Kentukea</em> AMERICAN YELLOWWOOD</td>
<td>American Yellowwood</td>
<td>Fall Color, Spring Flower</td>
</tr>
<tr>
<td><strong>Ornamental Trees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AME ARB</td>
<td>15</td>
<td><em>Amelanchier Arborea</em></td>
<td>Downy Serviceberry</td>
<td>Orange Fall Color, Fragrant Blooms</td>
</tr>
<tr>
<td><strong>Shrubs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIB ACE</td>
<td>15</td>
<td><em>Viburnum Acerifolium</em> MAPLELEAF VIBURNUM</td>
<td>Maroon Fall Color</td>
<td></td>
</tr>
<tr>
<td><strong>Perennials/Ornamental Grasses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAL STR</td>
<td>100</td>
<td><em>Calamagrostis Acutiflora Stricta</em> FEATHER REED GRASS</td>
<td>Tactile, Audible Grasses</td>
<td></td>
</tr>
<tr>
<td>CLY SPP</td>
<td>30</td>
<td><em>Cyclopia Spp</em> HONEYBUSH</td>
<td>Aromatic, Visual Interest</td>
<td></td>
</tr>
<tr>
<td>CON MAJ</td>
<td>50</td>
<td><em>Convallaria Majalis</em> LILY OF THE VALLEY</td>
<td>Visual, Tactile Interest</td>
<td></td>
</tr>
<tr>
<td>COR SEL</td>
<td>100</td>
<td><em>Cortaderia Selloana</em> PINK FEATHER PAMPAS GRASS</td>
<td>Tactile, Audible Grasses</td>
<td></td>
</tr>
<tr>
<td>HOR JUB</td>
<td>40</td>
<td><em>Hordeum Jubatum</em> SQUIRREL TAIL</td>
<td>Tactile, Audible Interest</td>
<td></td>
</tr>
<tr>
<td>MIS SIN</td>
<td>10</td>
<td>*Miscanthus Sinensis 'Silberfeder' Silver Feather Grass</td>
<td>Audible Planting</td>
<td></td>
</tr>
<tr>
<td>THY PRA</td>
<td>10</td>
<td><em>Thymus Praecox</em> CREEPING THYME</td>
<td>Tactile Interest</td>
<td></td>
</tr>
<tr>
<td>THY VUL</td>
<td>10</td>
<td><em>Thymus Vulgaris</em> THYME</td>
<td>Tactile Interest</td>
<td></td>
</tr>
<tr>
<td>VES DUB</td>
<td>20</td>
<td><em>Vesicularia Dubyana</em> JAVA MOSS</td>
<td>Tactile Interest</td>
<td></td>
</tr>
<tr>
<td>WIS SIN</td>
<td>10</td>
<td><em>Wisteria Sinensis</em> WISTERIA</td>
<td>Visual, Tactile Interest</td>
<td></td>
</tr>
</tbody>
</table>

---

![Honeybush](image1.png)  ![Java Moss](image2.png)  ![Lily of the Valley](image3.png)  ![Creeping Thyme](image4.png)  

![Squirrel Tail](image5.png)  ![Wisteria](image6.png)  ![Pink Feather Pampas Grass](image7.png)  

**Additional Areas of Focus Planting Palette**  
Figure 7.78
Additional Areas of Focus Planting Plan
Figure 7.79
SLANT WALK CHARACTER
MATERIALS INTERSECTION

The intersection of paths that meet where Slant Walk crosses the main arterial route allowed the circulation design to represent the three different kinds of circulation routes throughout Central Campus: the Arterial or Prime routes (in slate or brick), and the Secondary Routes (in concrete).

The designer chose to implement harsh and sudden material changes instead of gradually transitioning the paving pattern. This allowed the design to very clearly showcase the three main types of ground plane and pedestrian routes in one very prominent location within the quad.

HYPER SENSORY:
SIGHT

Shade & Seasonal Interest Trees
Axial Views through Understory & Canopy Plantings
Slate Ground plane: Arterial Corridor
Concrete Ground plane: Tertiary Corridor
Brick Ground plane (Slant Walk): Arterial Corridor
Slant Walk: Existing Conditions
Figure 7.81

Slant Walk: Intersection of Paving Materials
Figure 7.82
The arterial path running through campus acted as a spine for the quad and the rest of the campus as a whole. This path, part of the arterial route extending from the other side of Upham Hall Arch, had its terminus at King Library.

The designer wanted to focus attention on King Library and the path, itself, by framing the view with vegetation as well as creating pocket sensory nodes along the route lined with aromatic ground covers. The slate-covered route was designed to be a striking and dominant piece of the landscape, leading users equally and accessibly through campus.

Additional Areas of Focus Reference Map
Figure 7.83

HYPER SENSORY:
SIGHT
SMELL

Shade & Seasonal Interest Trees
Axial Views through Understory & Canopy Plantings
Pocket Nodes for Gathering
Aromatic Ground Covers
Pebbles/Varying Ground Textures (act as tap rail for walking cane)
Slate Ground plane: Arterial Corridor
Arterial Path to King Library: Existing Conditions
Figure 7.84

Arterial Path to King Library: Design Character
Figure 7.85
Reflective Summary
REFLECTIVE SUMMARY

As the comprehensive project has demonstrated, universal design is a frame of mind and a process in which to develop wholistic designs. Accommodating the needs of all users to benefit people as a whole is an important tool with which landscape architecture professionals can lead designers.

By utilizing the seven design principles, marrying the classic past of the campus with the future accessible renovations, incorporating the spirit of Miami through student traditions, and by working with the existing campus master plan as well as with disabled clients, this campus landscape master plan was able to provide a new campus experience for students, visitors, and faculty alike.

This master plan removed the physical and social isolation that is typically associated with standard accessible design by providing one artistic design solution that facilitated the needs of mobility, auditory, and visually impaired individuals at Miami University to the fullest extent possible. Through the use and implementation of hyper-sensory nodes throughout the campus that engaged each of the five senses uniquely, this design was able to provide an emotionally appealing experience for all users.

Through the use of ground plane materials, a pedestrian circulation redevelopment plan guided users through the campus to different hyper-sensory nodes, which could be enjoyed equally by every student and user. This design incorporated artful design with slope engineering, emotional sculpture, and tactile pieces of the landscape to ensure a sensory experience for each and every user.
APPENDICES

Appendix A: Goals Recap
Appendix B: Site Photos
Appendix C: Methodologies
Appendix D: References
Appendix E: List of Figures Citations
Appendix F: About the Author
APPENDIX A: GOALS RECAP

• Pedestrian circulation was redeveloped through ground plane materials and tactile experiences.

• The ground plane and vertical materials design was accomplished with implementation of slate, brick, concrete, pavers, walls, and plantings.

• Sensory vegetation was developed with seasonal change and tactile qualities.

• Tactile activators and textures were implemented throughout the quad.

• The emotional experience of site was implemented through alumni-recognition, braille storytelling, and other tactile features.

• The incorporation of ADA Guidelines were implemented through artful design.

• The incorporation of Universal Design Principles were incorporated as one cohesive design solution through campus.

Alumni Name-Engraved Pavers
Figure A.1

Braille Storytelling
Figure A.2
ACCOMPLISHED GOALS

GOAL 1: Encouraged social interaction between people of all physical abilities through landscape design.

GOAL 2: Designed a campus landscape that added to the existing beauty of Miami’s campus and architecture through materials.

GOAL 3: Encouraged increased interaction and use of outdoor spaces on campus through emotionally significant elements.

GOAL 4: Encouraged/Preserved existing campus beauty by minimizing cut/fill ratio and disturbance of historical land.
APPENDIX B: SITE PHOTOS

View through Upham Hall Arch: Central Campus
Figure A.4

Kumlar Chapel: Western Campus
Figure A.5

Pedestrian Sidewalks: Central Campus
Figure A.6

Aerial View: Western College
Figure A.7
Site photos taken before and during the comprehensive project site visits, as well as photos borrowed (courtesy of the Planning Architecture & Engineering Department at Miami University) show the strong, classic character of Miami University and demonstrate the true beauty of the campus landscape that was preserved through the redevelopment of the campus landscape master plan.
APPENDIX C: RESEARCH METHODOLOGIES

The methodology was used to investigate how universal design was used as a primary theme in landscape design as well as in campus planning design, how Landscape Design was seamlessly integrated into universal design in a campus environment, how the history and culture of Miami Oxford’s campus was integrated into the overall accessible campus landscape design, and how universal design benefited the life of everyone by making the built environment more usable by as many people as possible. Both historical and descriptive, as well as quantitative and qualitative research methods were used to gather primary and secondary data for each sub-problem.

To determine how universal design was being used as a principal theme in landscape design and campus planning design, primary qualitative and secondary quantitative research methods were utilized. A secondary method that has been utilized were case studies of ideal as well as unsuccessful micro and macro accessibility designed environments around the United States, which were further examined to evaluate prime design features and the integration of ADA codes. These case studies included the The Rem Koolhaas IIT Student Center Stramp in the McCormick Tribune Campus Center at the Illinois Institute of Technology, the stramp at the Robson Square in Vancouver designed by Arthur Erikson, The Indiana School for the deaf, The Pedestrian Way Study at the University of Pennsylvania, The Wellington Braille Sculpture Project, and the Simcoe Wavedeck by West 8. Further case studies were researched included the Special Needs Accessible Playground (SNAP), and the Zonta Accessible Playground in Ontario (ZAP). The research also relied on the following case studies found in journal articles located at both the Ball State University Architecture and Bracken Libraries. “Universal Experience in the Outdoors” was an article by Thomas J. McCarthy in Landscape Architecture Magazine that explored accessibility in outdoor environments, which featured ways to make parks accessible for people of all abilities. “Environmental Barriers and Disability” by Gray, Gould, and Bickenbach was an article in the Journal of Architectural and Planning Research that discussed certain goals the authors think are important in order to develop environments and spaces that remove barriers for users who may or may not have physical and mental impairments or differences. The research also relied on professional websites about barrier free environments. “Universal Design…What It Is and What It Isn’t” by Vanderheiden, found on the Trace Research and Development Center’s website, explored how Universal Design is a process more than an end result, and that it is currently impossible to provide a single environment that provides for everyone. Studying articles on current projects and leading designs in this field of universal design including “Designing for Inclusive Play” on ncaonline.org, “Accessible Play Areas” on USaccessboard.com, and “Playground for the Hearing-Impaired” on PTOtoday.com revealed important and essential characteristics that a barrier-free design should include. Micro designs were analyzed including The Indiana School for the Deaf found at http://www.deafhoosiers.com and The Washington State School for the Blind found at http://www.wssb.wa.gov, which both excelled in providing
environments for students with disabilities, but haven’t dealt with the issue of social isolation. An additional portion in this research segment was the primary data source of the observation of universally designed environments in surrounding areas. These projects include but were not restricted to the direct qualitative observation of: The Indiana School for the Deaf, The Ohio State School for the Blind, and the Kentucky School for the Blind. An evaluation of these environments helped secure a greater understanding of design tendencies as well as model ideals to be applied to the project. Furthermore, this data collection was used to construct a design that utilized key principles of existing universally designed environments.

Secondary methods were predominantly used when analyzing how landscape design could be seamlessly integrated into universal design in a campus environment. This part of the research problem was separated into two sections of research: the theoretical role of universal design in the built environment and how different case studies employ these principles. Two case studies that became key in understanding the theory of how entire environments can be universally designed architecturally were The Rem Koolhaas IIT Student Center Stramp in the McCormick Tribune Campus Center at the Illinois Institute of Technology found on Arcspace.com and the stramp at the Robson Square in Vancouver designed by Arthur Erikson and Cornelia Oberlander. Ratzka’s theory of macro solutions in “Micro vs. Macro Solution in Planning - Creating a Barrier-free Environment for All” found within the Independent Living Institute also explained the theory of planning designs to be a cohesive, flowing unit and is important in understanding the principles of macro universal design. Due to the fact that there were very few physical examples of macro designs implemented in the built environment, two books found in the Ball State University Architecture Library, More than Ramps by Lisa Lezzoni and Bonnie O’Day and Awakening to Disability by Karen Stone, were read and analyzed in order to understand the theory of universal design in the built environment and how environments could become macro-designs.

Gathering information on how the history and culture of Miami Oxford’s campus could be integrated into the overall accessible campus landscape design was a compilation of secondary and primary data which was applied later to the design. This research relied on information found on Miami’s website, www.miami.muohio.edu, and included the following articles: “History and Traditions,” “OEO | Miami University,” “Office of Disability Resources,” and “What Does Sustainability Mean to Miami? | Environmental Sustainability | Miami University.” These articles were key in the understanding of Miami’s campus, its culture, its history, and how these elements could be used to enhance the design of the campus landscape master plan. Primary research methods were also used to develop a greater understanding of Miami’s campus. Site visits and qualitative as well as quantitative observations provided current data that may not have necessarily been made otherwise. Qualitative and quantitative surveys and interviews with faculty and staff members at Miami University
employed a primary research method that was informal, yet key in understanding the
direct clients’ needs. Informal interviews were conducted with the following people,
each of which had a different perspective on a similar selection of questions: Robert G.
Keller (University Architect & Campus Planner, Miami University), John Seibert (Senior
Project Architect/Manager, Miami University), Randy Stephens (Senior Project Architect/
Manager, Miami University), and J. Andrew Zeisler, M.Ed. (Associate Director, OEEO
& Director, ODR, Miami University). The data gathered from this part of the research
problem was used to develop a greater understanding of the qualities that make Miami
a unique campus and how the previously researched principles of universal design could
be interwoven with Miami’s culture to create a collaborative and complex design that
fulfills the needs of all clients.

Finally, largely secondary research methods were used to analyze how universal design
benefited the life of everyone by making the built environment usable for as many
people as possible. The secondary research methods relied heavily on books and
articles found in the Ball State Architecture and Bracken Libraries including Access for
All: Approaches to the Built Environment by Wolfgang, Design for Accessibility: a Cultural
Administrator’s Handbook by NASAA, and “A Brief Survey of Studies on Costs and Benefits
of Non-handicapping Environments” by Ratzka. These books discussed how universal
design can not only benefit the lives of disabled persons, but can also benefit the lives
of existing users of all abilities and discuss in detail how accessible design touches the
lives of disabled persons in a very positive way. Similar to other research problems,
this information and design philosophies gathered on universal design and barrier
free theories of design were applied to the redevelopment of the campus landscape
master plan at Miami University. Another article by Vanderheiden, “Universal Design..
What It Is and What It Isn’t,” also talked about how more users without disabilities take
advantage of accessible design in the long run, further strengthening the philosophy
that universal design benefits all users of all abilities. These articles were used to gain an
understanding of the barrier free design trends and to better understand how the end
result of the campus landscape master plan at Miami University benefited its users.

DESIGN METHODOLOGIES

Upon finishing the majority of the literature review and research process, the design
process was started. A thorough site inventory and analysis study was conducted of the
entire Miami University campus. This analysis indicated that Central Campus should
be the quad chosen for master planning, and was thus inventoried and analyzed in a
much more detailed manner. The quad analysis looked at native plantings, pedestrian
circulation, views into, through, and out of the site; barriers and obstructions within the
quad, topography, and site culture.
This analysis led to conceptual design, which resulted in four different design concepts. The first concept centered around the idea of using slate as a unifying element and theoretical backbone of campus, but lacked the sustenance that a strong design concept needs to thrive. The second concept resulted in a design that improved the landscape for individual impairments, but also segregated individuals by their impairment. The third concept resulted in a design that separated the sensory zones with too much distance. The fourth concept, the chosen design idea, combined the notion of using slate as a unifying theme and providing hyper-sensory nodes throughout Central Campus.

After choosing a design concept to develop further, the concept was worked out in greater detail. Master Planning of Central Campus was then started, designing the quad to the guidelines set forth by the conceptual development. Once the general, schematic master plan was complete, a focus area was chosen for the site planning: the space that lied between the future Armstrong Student Center, Bishop Woods, and Upham Hall. This is where, presumably, there would be the most pedestrian activation on the quad once the student center was erected.

The site plan was then further divided into the three different detail plans: the future Armstrong Student Center area, Bishop Woods, and the Upham Hall Arch. These three focus areas were each designed in great detail in plan, section, perspective, and construction details. By narrowing down the scope of the project to focus on three different areas, the project was allowed to vary in diverse levels of specificity, setting up a framework for the rest of the quad, and for the rest of campus as a whole.

Upon completing the comprehensive project design, the work was replicated and redeveloped to fit in the thesis booklet, to be viewed as both a digital and hardcopy project.
APPENDIX D: REFERENCES


APPENDIX E: LIST OF FIGURES CITATIONS

FIGURE 3.1 7 Principles People

FIGURE 4.1 Western College Topographic Map
FIGURE 4.2 Western College Terrain Map
FIGURE 4.3 IIT Stramp Precedent
FIGURE 4.4 KKG Campus Master Plan
FIGURE 4.5 Western College Historical Imagery

FIGURE 6.4 Geography Department Barriers Map
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FIGURE 6.20 IIT Student Center Stramp Precedent
FIGURE 6.21 Simcoe Wavedeck Precedent
FIGURE 6.22 Lambton Quay Sculpture Project Precedent
FIGURE 6.23 University of PA Pedestrian Way Study

FIGURE 7.9 Central Campus Aerial Photo
FIGURE 7.26 Upham Arch Planting Palette
FIGURE 7.42 Bishop Woods Planting Palette
FIGURE 7.53 ASC Area Planting Palette
FIGURE 7.78 Additional Areas of Focus Planting Palette

FIGURE A.4 View through Upham Hall Arch: Central Campus
FIGURE A.6 Pedestrian Sidewalks: Central Campus
FIGURE A.7 Aerial View: Western College
FIGURE A.8 Pedestrian Sidewalks: Central Campus
*All figures not listed were original drawings, photos, or documents of the designer*
APPENDIX F: ABOUT THE DESIGNER

Miami University Design Charette
Figure A.10
The designer of this comprehensive project, J. Kaitlin Vaughn, was a fifth year Landscape Architecture student in the College of Architecture and Planning at Ball State University. She has interned with the Planning, Architecture, & Engineering department at Miami University in Oxford, OH in the past and is interested in campus design, universal design, and urban design.

Kaitlin also studied abroad in Australia during the Spring of 2010 and had the opportunity to immerse herself in Australian culture, democratic sustainability, aboriginal studies, and landscape architecture along the East Coast and in the Outback. She is passionate about the experiences she gained while traveling the country and hopes to revisit the Australian continent in the future.