CAMPUS ACCESSIBILITY:
A CASE FOR UNIVERSAL DESIGN
AT THE UNIVERSITY OF ALBERTA

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UNIVERSITY OF ALBERTA
STUDENTS' UNION

ABOUT THE REPORT

The following report is a product of the Department of Research and Advocacy of the University of Alberta Students' Union. Named the *Campus Accessibility: A Case For Universal Design at the University of Alberta*, the report serves as a narrative of the state of accessibility in the physical environment of campus as described by students, instructors, administrators, alumni, and members of the community.

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1 BACKGROUND

1.1 EQUITY, DIVERSITY, AND INCLUSIVITY STRATEGIC PLAN

The University of Alberta has a four-year plan to "embed EDI into the culture of the University culture of the University of Alberta community" (pg. 3). The following study was done in response to the theme of Climate: "The University strives to create an equitable and inclusive environment and culture for all members of the university community." Goal 5.1 (pg. 25) outlines the EDI Strategic Plan's commitment to this environment.

2018/2019 **GOAL:** Develop Terms of Reference and establish a working group to develop a set of guiding principles, design guidelines, and category priorities for planning, design, and budgeting purposes. **OUTCOME AND DELIVERABLE:** Working group established and guiding principles.	**2019/2020** **GOAL:** Develop a three-year planning, and implementation road map to align with the university's Infrastructure Strategy as supported by GOA-allocated capital and Infrastructure and Maintenance Program (IMP) funding. **OUTCOME AND DELIVERABLE:** Road map for project planning and implementation developed.
2020/21 **GOAL:** Implement Year One projects. **OUTCOME AND DELIVERABLE:** Implement funded projects.	**2021/22** **GOAL:** Evaluate completed projects and adopt lessons learned to Year Two projects. **OUTCOME AND DELIVERABLE:** Evaluation of lessons learned from implemented projects integrated into year two and beyond design & project execution.

1.1.1 BENCHMARK FOR EXCELLENCE:

- “The University of Alberta meets or exceeds accessibility standards articulated in the Alberta Building Code and strives to achieve principles of Universal design.”
- “The university has a robust process for recognizing accessibility barriers and reducing them wherever possible.”

1.2 PROJECT BACKGROUND

The “Campus Accessibility: A Case For Universal Design at the University of Alberta” study (henceforth, the Campus Accessibility study) is a study to inform the University of Alberta Students’ Union (UASU) and the Facilities and Operations department of the University of Alberta of the state of accessibility in the physical campus environment. However, our understanding of accessibility that emerges from the research should work to empower the entire university community, inclusive of faculties, departments, administrative units, students, and community members. Everyone who uses campus facilities has a role to play in improving our accessibility and in achieving universal design.

We will learn that barriers to accessibility are a product of attitudes that have influenced design that benefits distinct users groups while disadvantaging others. Our environments have conditioned us not to see with a universal lens. The UASU and Facilities and Operations have a unique opportunity, as both are in the best position to weave a universal lens into our culture and to collaborate on plans and initiatives that reduce accessibility barriers.

As a commitment to work toward the EDI Strategy, the definition of Accessibility from the EDI Strategy (pg.7) is being used for the research. *Accessibility refers to the degree to which physical, pedagogical, and administrative structures of the University of Alberta are (re)designed to enable the full, meaningful, and equitable engagement of all of the university’s community members. Accessibility includes, but is much broader than, ramped access to buildings. It also includes, for example, designing for physical, financial, sensory, social, and language-level access. Whereas accommodation refers to making specific changes to support the full participation of an individual who has encountered barriers, an accessible campus is one that seeks pro-actively to reduce as many barriers as possible, while creating efficient and transparent processes for individuals to gain the accommodations they require and are entitled to by law.*

This project was initiated on February 20th, 2019 by the Office of the Architect of Facilities and Operations, in collaboration with the Department of Research and Advocacy of the Students’ Union, only days after the release of the EDI Strategy. Prior to the

commencement of the study, the Department of Research and Advocacy was researching the state of student spaces on campus: informal public interior spaces that fulfill an important social and academic function for all users of the university community. Naturally, by way of studying how individuals interact with the interior of our buildings, an understanding of the campuses accessibility was being articulated, and barriers identified.

By exploring the state of accessibility of the physical campus environment, this research will lay the groundwork for EDI Strategy Goal 5.1 so the *Benchmark for Excellence* can be achieved. While this research will define how we can achieve principles of universal design, determining how the University can exceed the standards in the Alberta Building Code is not the focus. The user experience will take precedence over comparing ourselves to existing standards and guidelines, as their application is contingent on understanding the user experience of our campus first. Per the *Benchmark for Excellence,* the research will explore how the "The university [can create] a robust process for recognizing accessibility barriers and reducing them wherever possible." This report aims to set the stage for an appropriate process to be constructed, and to identify future research needs. This approach complements the EDI Strategic Plan, which embraces taking "deliberate action informed by the best available evidence and institutional data" and "working together, [so that] we can ensure EDI thrives in our community and enriches the lives of all" (pg. 3).

1.2.1 RESEARCH OBJECTIVES

- **Stakeholder Identification:** Who are the stakeholders that would need to be engaged when talking about campus accessibility?
- **Issue Identification:** What are all of the issues related to accessibility on campus?
- **Effects on One-Day-In-The-Life:** How do these issues impact the lives of users, including, their enjoyment on campus, their health, friendships, and academics?
- **Priorities:** Of the issues, what are the priorities that need to be addressed?
- **Potential Groups to Collaborate With:** What are all the different groups that have a vested interest in accessibility and the quality of the built environment on campus?

1.3 QUESTIONS & PROBLEMS

In the early stages of the research, three immediate questions emerged, each of which helped inform the methods used, the individuals collaborated with, and the questions that were asked when interviewing stakeholders. Each question is fundamental to understanding how the benchmarks can be achieved at the university, and each has the potential to yield complementary research projects.

1.3.1 HOW DOES OUR CAMPUS THINK ABOUT ACCESSIBILITY?

Answering this question will require an understanding of the different research groups who are invested in a field of study related to accessibility at the University of Alberta. The field of study is not reducible to those researching universal design: any group or an individual thinking about how users interact with objects and the environment is in some way, deliberately or inadvertently, advancing our understanding of how barriers can be reduced.

The question is twofold. The university has individuals, services, and supports that work to reduce barriers on campus, and, in some cases, provide support for individuals who face the most barriers in the built environment. There then is a responsibility to understand who are the individuals, services, and supports, how they work together with other departments, and the processes they are involved in.

1.3.2 HOW SHOULD WE VIEW UNIVERSAL DESIGN AT THE UNIVERSITY?

As universal design is the benchmark for the EDI Strategic Plan's "guiding principles, design guidelines, and category priorities for planning, design, and budgeting purposes," and eventually, "three-year planning, and implementation road map," there is an onus on the working group to interpret the complexities of universal design correctly. Further, there is also a responsibility to understand how universal design may be misunderstood, and the weaknesses of its approach to addressing barriers through design.

This question will be answered through a myriad of different approaches, including:

- How universal design is encouraged at the federal and provincial level;
- How the City of Edmonton has approached universal design;
- How the University of Alberta has articulated universal design; and
- How other comparable post-secondary institutions have embraced universal design.

Accessibility barriers and individuals experiencing disabilities are inextricably linked. Therefore, we must explore how individuals experiencing disabilities are accommodated at a post-secondary institution, and more directly, how the Universal of Alberta interacts with individuals experiencing disabilities who use our campus.

1.3.3 HOW DOES OUR CAMPUS CREATE BARRIERS TO ACCESSIBILITY?

Of the three questions posed, the report addresses this question the most directly. Since thinking with a universal lens is not automatic, and it is a process to work toward, a clear and comprehensive understanding of the meaning of 'barriers' is imperative. Addressing this question will require a highly qualitative approach, and by identifying the stakeholder groups

who face the greatest barriers while in the environment. Only through conversations and interviews with a diverse group of stakeholders will a narrative of “how our campus creates inaccessibility” will form. This research draws upon individuals and groups working on accessibility and universal design, who can identify barriers that are not conspicuous at first glance.

1.4 METHODOLOGY

Several qualitative research methods were used to collect data to answer the objectives and questions. Each method is described below, and in chronological order:

In the beginning, an environmental scan was completed to identify *collaborators* for the research. A collaborator could be any individual in and around the University of Alberta community who has a relationship to any one of the three research questions. More specifically, the scan looked to cover:

- The research landscape (the groups and individuals doing accessibility related research work, including students, staff, and instructors);
- The administrative landscape (the applicable units and services that work to address accessibility-related barriers); and
- Other specialists who can help address the research questions.

When meeting with collaborators, the intent of the meeting was to build a trusting relationship, to receive feedback and recommendations for the research, and to see if the collaborator could contribute ideas and information to any of the objectives. While, at first, the list was minor, a snowballing effect occurred, and most participants recommended other potential collaborators in the ‘accessibility ecosystem.’ A total of 30 individuals, identified at the start of the report, made meaningful contributions to the research.

1.4.1 RECRUITING PARTICIPANTS

Participants were identified through three methods. The first method involved contacting the project collaborators to pass off a *participant survey* within their networks and, in some cases, newsletters or mailing lists. The second method involved asking every Faculty at the University of Alberta, and other community organizations, to pass on the *participant survey* through their communication channels. The third method involved disseminating a separate survey via the UASU newsletter (the *undergraduate survey*) as a way to seek participation specifically from undergraduate students.

Participants could interact with the research in three ways (a survey, a one-on-one interview, and/or a walkthrough of campus), and had the opportunity to be as involved as they desired. For research ethics and transparency purposes, a “Research Study Information Sheet” was provided to each participant to communicate the research purpose, to define key definitions, the study procedures, benefits, risks, and the confidentiality of the study (see Appendix B for the template). Participants also completed a consent form to demonstrate their understanding of the research and their participation in it.

The baseline participation for participants was either the *participant survey* or the *undergraduate survey*. In the case of the *participant survey*, participants were not filtered based on their experience with disability (either personally or as a family member or caregiver), as those completing the survey would have been contacted through a specialized channel soliciting their interest. Anyone completing the survey could request a one-on-one interview or a walk around.

In the *undergraduate survey*, participants had the option to answer textual questions related to physical campus barriers and explain how they interact with the campus. In the case of the *undergraduate survey,* only individuals who identified with experiencing a disability would be filtered to the option of participating in the one-on-one interview. As the filtering process was selective, anyone interacting with the survey had the opportunity to interact with a question set reflecting the content in the one-on-one interview and the walk around.

The one-on-one interview: This interview was a semi-structured interview based on a predetermined but loosely-approached set of questions (see Appendix A for the question set). This approach facilitated an informal dialog about issues and barriers that participants found the most meaningful. Moreover, this approach allowed the interview to feel like an open conversation, as a way to facilitate a relaxed and casual environment. Interviews lasted anywhere between 15 and 90 minutes, and took place in an environment the participant identified as being the most comfortable for them. Those interviewed were also provided an opportunity to follow up with any comment that couldn’t be made in the interview itself.

The question set helped the participants relate their experiences and stories to the subjects of transportation, navigation, exterior routes, interior routes, design amenities and features, and their perception of buildings. Participants were also asked, “What do you think the university could be doing to make the campus more accessible,” as an opportunity to summarize their experience and highlight their priorities.

Walkthrough of Campus: The walkthrough of campus provided participants with an opportunity to walk a route that is characteristic of their routine. The walkthrough took the form of a non-directive interview. With little or no direction from the interviewer, respondents were encouraged to relate their experiences, to describe whatever event seems the most significant to them, to provide their own definitions of their situations, and to reveal opinions and attitudes where they saw fit. Walkthroughs lasted anywhere between 30 minutes and two hours. The walkthrough usually followed a one-on-one interview, and many of the barriers described in the interview could be supported visually.

Both the one-on-one interviews and the walkthroughs of campus were conducted over a period of three weeks. The first activity occurred on April 3rd and the last occured on April 18th. In both activities, participants were not personally identified in any way, including whether they identified with experiencing a disability. This was a deliberate choice, recognizing that the topics covered are personal and sensitive to the respondent. Further, in an attempt to cover the essence of universal design, a single barrier should not be directly attributed to a type of disability, as universal design is not meant to accommodate a defined user group.

Literature Review and Policy Precedent: Simultaneous with the other research methods, a literature review identified relevant precedents. Sources included municipal policy and strategic plans, news articles, government publications, and academic research papers. The literature review and the policy precedent helped inform the entire document, particularly the following section on principles of universal design. The literature review included two artifact analyses: qualitative research focusing on objects that individuals and society create. In the context of universal design research, two artifact analyses have collected information about the artifacts found as part of the University of Alberta built environment.

- The first artifact analysis was conducted with Dr. Megan Strickfaden, a professor in the Department of Human Ecology. Dr. Strickfaden's University bio describes her as "a design anthropologist who focuses on complicated problem solving through design environments and products for older adults, caregivers, and persons with disabilities."
- The second artifact analysis was conducted with Robert Lipka, the Acting Senior Urban Designer for the City of Edmonton. Robert was the chair of Auckland Transportation Capital Projects Accessibility Group in Auckland, New Zealand.

A total of 23 individuals participated in the interview and walkarounds, and of the 5

individuals who completed a walk around, each participated in a one-on-one interview. Instructors, alumni, undergraduate students, graduate students, administors, and community members all participated in one-on-one interviews and walkarounds.

A total of 94 individuals completed the *participant survey* or the *undergraduate survey* and participants overwhelmingly chose to answer the open-ended questions. 24.5% of survey respondents opted to participate in the other activities. As no incentive was introduced to complete the study, there was clear intrinsic motivation in the study.

2 UNIVERSAL DESIGN

2.1 WHY UNIVERSAL DESIGN

The complete and conscientious application of universal design across campus will create safe, functional, usable, and convenient spaces, and ways to travel around, for the greatest number of people. When universal design is done well, we are designing a university for children, an aging population, disabilities, and any user of a space. There no longer remains a need to consider groups as independent, and in requirement of special design interventions.

2.1.1 WHAT IS UNIVERSAL DESIGN?

Universal design affords any user the same choice while in the built environment (all structures and human-made surroundings). Emphasis on 'any user' stands at the root of universal design and distances itself from other forms of design. Universal design, is, therefore, not identical to barrier-free design.

Universal design will become more urgent with time. More than one in five Canadians identifies as having a disability. Each member of the University of Alberta community will likely experience disability at some point in their lives, and this may a result by accident or injury, or simply by aging.

We are not conditioned to think about disability. We are also not conditioned to think of how the environments we visit and use every day leave others with fewer choices, thinking about their own solutions rather than operating freely from a myriad of choices. Our environments can deter people from visiting certain buildings and valued destinations, and, ultimately, exclude people from society. Consequently, the modest act of seeing yourself in an environment becomes half of the struggle. Charles Riley III, in his book *High Access Home*, cogently illustrates how our environments work to disable us:

> *Most of the elements in our society that define us as 'the disabled' are caused by poor design. If I cannot find a building's address because the numbers are tiny or artistically hidden, I am 'visually impaired.' If a friend of mine in a wheelchair blocks the narrow aisle in a grocery store or cannot get onto a sidewalk because there is no curb cut, my friend is 'mobility impaired'...There is not a single aspect of our daily lives unaffected by designers. Too often their creations throw up barriers that result in our being labeled 'the disabled.'*

Universal design cannot be achieved if the design of new buildings and retrofits of existing buildings focuses on simple barrier free standards, critical dimensions, and even by exceeding the existing building code. Instead, universal design succeeds when user input and perspectives, chiefly from users who experience barriers in the built-environment, are taken into account as first priorities. This idea becomes obvious when we consider that our university is used by a diversity of individuals with unique needs. Each user of campus is fundamentally different. When taking their diverse experiences into account, barriers to accessibility require creative and adaptable solutions, so that future interventions in the space are not required. Where universal design meets new infrastructure projects, it is critical that the space is made completely accessible from the beginning. In this way, universal design can speak to the long-term needs of deferred maintenance on campus.

2.1.2 PRINCIPLES OF UNIVERSAL DESIGN

The 2018 Access Design Guide for the City of Edmonton explains universal design as follows (pg. 88):

> *The concept of universal design was developed by Ronald Mace, the founder and former program director of The Centre for Universal Design at North Carolina State University. Universal design can be thought of as a living, evolving approach to design that considers the varied abilities of users. A working group comprised of architects, product designers, engineers, and environmental designers defined seven principles of universal design in 1997.* The seven principles are:
>
> - ***Equitable Use:*** *The design is useful and marketable to people with diverse abilities.*
> - ***Flexibility in Use:*** *The design accommodates a wide range of individual preferences and abilities.*
> - ***Simple and Intuitive Use:*** *Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.*
> - ***Perceptible Information:*** *The design communicates the necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.*
> - ***Tolerance of Error:*** *The design minimizes hazards and the adverse consequences of accidental or unintended action.*
> - ***Low Physical Effort:*** *The design can be used efficiently and comfortably with minimum fatigue.*
> - ***Size and Space for Approach and Use:*** *Appropriate size and space is*

provided for approach, reach, manipulation, and use regardless of body size, posture, or mobility.

Architect Ron Wickman, one of the study's collaborators, summarizes these principles as a design philosophy that is "dedicated to accommodating the broadest diversity and number of people who interact with the built environment through their lifespans. Effective universal design is invisible, adaptable, adjustable and flexible."

2.1.3 BENEFITS OF UNIVERSAL DESIGN

At a prima facie level, universal design intrinsically creates a safer campus. The City of Calgary's Universal Design Handbook offers an in-depth look at the benefits of this approach (pp. 10-12). This material proved foundational to the research and is reproduced at length for reference.

Universal design is becoming ever more popular as mainstream projects are headed by well-known practitioners, and prominent design companies increasingly apply its principles…

Universal design provides an excellent opportunity to exercise creativity in a field that will see increased demand in coming years…The market for universal design is unlimited because the focus on better design for everyone, not just an accessible design for people with disabilities...Universal design is a concept primed for growth and optimal creativity.

Many designers, developers, architects, and planners have a specific group in mind for whom they are designing. With universal, design, all people are considered. Therefore, no particular group is the focus. By designing products around social inclusion, the quality, value and longevity of a project increases along with the scope of work...As we move towards a more integrated society by including people, technology, businesses and ideas on a global level, it becomes apparent that universal design is a concept ahead of its time.

Longevity is one area of focus in every design project. Once money is invested, the assumption is that the project is built to function for years and leave a lasting impression. The assumption of longevity means these may be the same buildings the designers, architects, developers, and planners will sue in the future...

Generally, it's more cost effective to build new homes and buildings that are accessible to a wide range of people than it is to build homes and buildings that don't include some foresight, or are inappropriate to our changing needs. Fortunately, universally designed projects foresee our changing environments and are more suitable to the needs of the future population. Universal designed projects are more marketable because they address the needs of a more diverse population.

...By starting with a universal design approach, designers and architects can create the look they want without having to make changes or modifications to accommodate a greater number of users. By applying universal design principles at the front end of the project, these issues are already addressed. Therefore, the integrity of the project can be maintained, as well as its marketability.

2.2 IMPACTED STAKEHOLDERS

Universal design aims to provide parity of choice to a broad and inclusive range of users. This approach can help stave off relatively cursory targeted accommodations, such as a wheelchair ramp standing in for a more holistic approach. Universal design should be be understood as embracing *all* the usage and access needs of those who suffer from specific challenges. At minimum, a universal design assessment leads this research to consider the following sets of needs:

- Mobility considerations
    - People running
    - People standing
    - People using manual/motorized wheelchairs or scooters
    - People using canes or walkers
    - People pushing strollers or cars
    - People pushing bicycles: and
    - Users of various other low-speed forms of human locomotion (e.g. skateboards)
- Blind or low-vision access
- Deaf or hard-of-hearing access
- Cognitive limitations access
- Children and parents
- Aging population
- Gender-based lens
- Users under winter conditions

3 FINDINGS

The following list consolidates themes that emerged from the *participant survey*, the *undergraduate survey*, the *one-on-one interviews*, the *campus walkarounds, and the artifact analysis.* The findings have organized the information in sections that reflect the question set used for *one-on-one interviews*. Information that appears below does not reflect all of the comments that all participants made, but instead, are representative of the significant themes that emerged, often, a result of shared barriers among participants.

3.1 TRANSPORTATION

Transportation would include preferred mode of transportation to get to and from campus, the length of the commute, and any associated barrier.

3.1.1 PRIORITY WAITING AREAS

Priority Waiting Areas, a feature of our LRT Platforms, should also become a feature of our bus terminals to provide individuals experiencing disabilities with an easier opportunity to enter the bus.

3.1.2 SECURING A FREE SEAT

Individuals experiencing invisible disabilities have explained that they often have to stand on a full-bus on their ride to or from campus, even though they are uncomfortable doing so. Frequently, they have to convince people to give up a seat for them.

3.1.3 INSTALLATION OF MORE TRANSIT SCREENS

Individuals experiencing some forms of disabilities are unable to tolerate cold or hot weather conditions for long time periods. Respondents have found the transit departure and arrive screens to be helpful, but suggest they could be more frequent. They are also absent near the transit hubs, too.

> *Walking outdoors when it's -10 or lower will aggravate my chronic migraine disability, causing issues before I even arrive to class.*

3.1.4 DATS INTERACTION WITH THE UNIVERSITY

DATS (Disabled Adult Transit Service) is a bus service that numerous members of the university use to reach the campus for class, meetings, and work. A significant amount of respondents have pointed towards service issues:

- DATS drop-off locations should cover more of the campus. While there are several drop-off locations, an unreasonable walking distance separates some campus buildings from the drop-off. For example, the closest drop-off point for Assiniboia Hall is the Students' Union Building. For individuals experiencing physical disabilities, this commute is too far.
- The entrance nearest several of the DATS drop-off points are not equipped with a push paddle to automatically open the door. Examples include the Law Centre and the Students' Union Building.
- DATS drop-off locations may lack a curb cut that allows the user to get onto the sidewalk safely. The Katz Building is the exemplar. Once dropped off here, the user has to wheel on the road, alongside oncoming traffic, until the nearest curb cut is reached.
- DATS has hour restrictions, and service terminates at 10 pm. The outcome of the service is that users are restricted when choosing nighttime activities on campus to participate in. Users will have less time to socialize and to make spontaneous plans. Users must also book the service three days in advance, and allow for a two-hour window around the scheduled time to allow the bus to arrive. Users have noted that it's common to miss scheduled appointments and to be late to valued time commitments by way of the uncertainty of the system.
- DATS often goes to the wrong door, or appears on the wrong side of the street, even though there are defined drop-off locations on the map. The drivers not knowing exactly where to go is the problem, and this remains true for a pick-up too. DATS would benefit from learning where each building and stop is located.
- DATS passengers have been left behind before when they have entered a building to take a quick trip to a washroom. Moreover, DATS passengers said they would benefit tremendously from learning where the closest accessible washroom is from each stop.

- DATS is described to be missing a functional communication system, and if there is one, it is not being followed deliberately. Drivers, most of the time, are provided with personalized notes from the users. From many experiences, the notes are ignored.

3.1.5 TRAINING AND RESOURCES FOR TEMPORARY DISABILITIES

Students, staff, administrators, and community members may become temporality disabled during the term as a result of injury, illness, or a sudden accident. Respondents under this classification reported stress from learning how to make adjustments to their routine to accommodate the disability.

3.1.6 BUS DRIVERS AND VISUAL LIMITATIONS

The bus terminal does not have a predictable arrangement of buses along the street. While bus numbers are provided on the front and back of the bus, individuals with visual impairments have difficulty reading the text. One respondent suggested that having bus drivers temporarily hold up a sign of the bus number on the platform would help tremendously.

3.1.7 ACCESSIBLE PARKING RATES

Many respondents suggested that they have no other choice but to drive to the university. Parking rates for any student should become cheaper and the university should work with the City of Edmonton to ensure students can get reduced parking passes at park-and-rides along the LRT system.

3.1.8 WALKABILITY

The sidewalks leading up to the university campus require major improvements. Not only are the sidewalks in poor condition, but the driveways along the sidewalks do not always comply with the City of Edmonton Complete Streets Design and Construction Standards, which suggest alternative driveway designs friendly for all users.

3.1.9 PRIORITY WAITING AREAS ABSENT OR PROBLEMATIC

The bus terminals at the university often lack priority waiting areas. Meanwhile, the existing priority waiting areas at Health Sciences-Jubilee Station and University Station do not align with the doors of the stopped LRT. These two barriers should be assessed.

3.2 NAVIGATION

Navigation would include one's experience locating buildings, classrooms, and specific destinations on campus.

3.2.1 ONLINE VISUALS

Campus users, especially individuals experiencing disabilities, often use online visual tours and Google Street View to learn about the quality of the built inventory before commuting to the environment for the first time. The visual interaction assists with determining sidewalk conditions, building entrances, and any potential barrier along the route. Locations that would benefit from greater use of these tools include major corridors, the interior of classrooms, and lobby areas of buildings.

3.2.2 UNIVERSAL DESIGN IN NORTH CAMPUS MAP

While respondents highlighted that the campus map is helpful, it is difficult to read for individuals experiencing cognitive, learning, and/or sensory disabilities. The size of the text and the choice of color have been seen as problematic characteristics. Moreover, respondents would also like to see the map made more available, and emphasize the immediate surroundings of where the map is located.

Individuals who are legally or partially blind would benefit from a special version of the campus map. The consensus is that a readable map should take preference over a tactile version of the map, although both can support one another.

> *As a legally blind person with very limited vision, I would appreciate maps that I could actually read, either large print or tactile. It would be helpful to have a resource person available to walk with me to show me the routes to buildings with which I am unfamiliar.*

3.2.3 CONSISTENT LOCATIONS FOR INTERIOR LAYOUT MAPS

Any given building's interior layout map is often placed in a non-intuitive location. In some instances, the map has been found to be around a quiet corner away from a lobby or mid-way up a ramp. Having the maps immediately near the entrance is viewed as a preference.

3.2.4 NAVIGATIONAL SIGNAGE

Navigational signage is reduced to brown posts displaying the building name, streets names, and exterior campus maps. Participants and best practices suggest a robust navigational signage network that identifies the nearest accessible path, washroom, and entrance. Where there is signage that identifies the accessible entrance of a building, the signage is often hidden, or expects to the user to be within a few yards of the sign to notice it.

Respondents noted that it would be helpful if the brown posts displaying the building names could also include a small description of what is located inside the respective building. For instance, Pembina Hall could include a note about the Faculty of Native Studies. Moreover, directional signage would be helpful to orient uses towards buildings that are out of view.

3.2.5 ACTIVE TRAVEL SIGNAGE

Campus needs more signage encouraging individuals who are able-bodied to take the stairs and otherwise make active travel decisions that free up space in elevators. The existing signage is relatively rare and simply encourages users to take the stairs. There are opportunities to extend the messaging.

3.2.6 PEDWAY SIGNAGE

While some pedways have successfully included signage identifying the route to the connected building, other pedway systems do not benefit from this detail. One problematic connection includes the pedway between the Katz Building and the Education Complex.

3.2.7 ROOM NUMBER SIGNAGE

Room number signage throughout campus is missing the necessary tactile features and colour contrast to be considered universal, and particularly to accommodate individuals who are colour blind, and/or individuals with sensory or cognitive disabilities. One respondent explained that the room numbers are also not at a consistent and expected height across buildings.

3.2.8 REINTRODUCE ONLINE INTERIOR MAPS

Respondents of all categories mentioned their desire to see the online interior buildings maps reintroduced. For any type of users, the interior building maps play a helpful role in helping individuals find classrooms, offices, washrooms, and the like. These maps have been linked to reduced stress and anxiety as users learn how to succeed while navigating

campus. Having the system connected to Bear Tracks to automatically locate classrooms would be a helpful feature.

3.2.9 WAYFINDING IN SPECIFIC BUILDINGS

Tory Marshall Hall and connected buildings (Tory Breezeway and Tory Lecture Theatre) should be assessed to identify a system that reduces congestion and confusion. Rather than circulating users through the hallways of the building, existing wayfinding gives users a small space in which to decide whether (and how) to reach one half of the floor or the other. Having one key decision-making point in the building creates foot traffic difficult for individuals experiencing disabilities. Users also noted that the list of room numbers is unmanageable.

Although less descriptive feedback was received, several respondents described difficulty in locating and accessing the psychology wing in the Biological Sciences Building.

3.2.10 AUGUSTANA CAMPUS WAYFINDING

Respondents from Augustana Campus agreed that the existing wayfinding system provides little direction to reach desired destinations. Respondents explained that some buildings have several different wayfinding systems due to buildings receiving large additions over time. Further research should include site visits to Augustana Campus.

3.2.11 REMOVED ACCESSIBILITY FEATURES

Several respondents previously used the HUB Mall to Rutherford Library Atrium pedway to reach an elevator (located on the second floor of Rutherford North). They explained that they had to commute all the way to the closed-off entrance to determine it no longer remains an option. Other examples include the lack of “No Exit” signs in buildings that produce dead ends.

3.3 INTERNAL BARRIERS

Where the previous section discussed ease of navigation and wayfinding, this section focuses on barriers faced when commuting and spending time indoors on campus.

3.3.1 ASSESS ACCESSIBILITY IN ST. JOSEPH’S COLLEGE

Respondents, when speaking of St. Joseph’s, explained that the college is inaccessible, and the existing accessible features, like elevators, are seldom in operation. The following examples were provided to illustrate the condition: The single elevator was down in excess

of six months; the single accessible entrance leads users to an elevator via a half floor, separated by stairs from any other features; and key destinations like the cafeteria are not accessible via the elevator.

3.3.2 MISSING LINKS BETWEEN BUILDINGS

The following linkages between certain buildings, or within buildings, are missing as a result of no connecting elevator or ramp.

- Clare Drake Arena and Van Vliet Complex
- The first floor of the School of Business and the basement of Business
- The south entrance of the Van Vliet Complex leading toward ECHA
- The southwest entrance of Education South

3.3.3 PROBLEMATIC ROUTES DURING EMERGENCIES AND FIRE DRILLS

Several interior routes and their pedways are problematic during an emergency or fire drill for individuals experiencing physical disabilities. For example, an individual using a mobility device found themselves trapped in the pedway between HUB Mall and the Fine Arts Building for two hours, as both doors on each end of the pedway locked shut.

3.3.4 ADDRESS VISUALLY DANGEROUS POSTS

Throughout the interior of our buildings, and commonplace in our pedways, are white posts between double doors or white posts serving as support beams. These design features are not detectable for individuals with visual limitations, and consequently are dangerous features. Each post would benefit from having a contrasting band, or preferably, to be painted another color entirely, so that they are detectable. This is a relatively inexpensive and straightforward way to tangibly improve safety on campus, and should be considered for all new construction.

3.3.5 CONTEMPLATE ALTERNATE ROUTES

Individuals experiencing disabilities sometimes prefer to travel faster or slower than the crowd, and/or prefer to travel a different way to reach the desired destination. It would be beneficial to highlight secondary interior routes, both through design and on maps. New construction would benefit from the articulation of alternative routes at the start of the design so that the route presents itself as equally desirable as the main route.

An alternative route becomes immensely important when a building is reliant on one or two elevators or lifts to the next floor, both of which may fail simultaneously.

> *I cannot easily get to my classroom in Humanities due to construction and elevator outages. A friend of mine who uses a wheelchair cannot use the stairs unless I carry the chair. This makes stairs inaccessible for both of us because we like to talk and take the same routes to class.*

Congested routes are problematic for individuals experiencing disabilities, and can slow down the individual's travel time, with implications for academic scheduling. For instance, students experiencing disabilities who have courses in buildings that have confusing layout and/or that are difficult to reach will often leave an hour break in between classes.

Note also that some pedways naturally close earlier than others, as buildings run on distinct operating hours. When some pedways close earlier than others, individuals with physical disabilities frequently remain outside for long periods of time. For instance, Agriculture and Forestry Centre pedway closes earlier than the remaining buildings in the chain. Therefore, an individual is forced to remain outside when moving from Engineering Quad to the bus terminal. Reaching the accessible entrance and the required elevator or ramp is a time-consuming endeavor.

3.3.6 REGULAR ELECTRONIC LIFT MAINTENANCE

Respondents routinely brought up the example of the lift connecting the Henry Marshall Tory Building and Tory Theatre as a problematic lift. One respondent told of getting stuck on the lift for an hour, and missing classes in Tory Lecture Theatre on other occasions for similar reasons. As individual rely on these connectors, their reduced service can have significant impacts.

3.3.7 PROVIDE MORE REST AREAS ALONG LOCAL CORRIDORS

Large buildings with long corridors between rooms are often missing benches or other seating along the longest routes. Individuals experiencing physical disabilities appreciate abundant opportunities to take breaks and rest in buildings. An example provided was ECHA, and specifically on the upper floors.

3.3.8 AVOID REFLECTIVE GLASS AND MIRRORS

Reflective glass and mirrors, although not prevalent in campus interiors, should be managed so that they do not result in collisions for individuals who are unable to detect the surface. Where reflective glass or mirrors are present on campus, a colour contrasting strip

needs to be applied to the glass. The Fine Arts Building is an example of having abundant reflective glass as a decorative feature around the doorways.

3.4 EXTERIOR ROUTES

Exterior routes involve barriers faced when commuting and spending time outdoors on campus.

3.4.1 A UNIVERSAL LENS ON CONSTRUCTION PRACTICES

Construction on or around exterior walking paths should avoid parking vehicles and laying equipment in a way that blocks the path. One respondent said that parked vehicles sometimes block a path altogether, requiring users to backtrack and choose another route. It is preferred if this practice is avoided altogether. In a scenario where the vehicle must block a walking path, the workers creating the block should be required to set up signage before the path begins to warn of the disruption and suggest another route.

3.4.2 SNOW AND ICE CLEARANCE

The following areas of campus have been flagged for unsatisfactory snow clearance, high levels of ice, and other poor outdoor conditions:

- The sidewalks between the Law Building and the Telus Centre.
- The sidewalks and roads approaching the Faculty Club.
- The path between Rutherford Library and HUB Mall parking lot.
- The sidewalk between Tory and Earth Atmospheric Sciences was the most frequently noted route. The route itself, beyond the outdoor conditions, was noted to be poor.
- The route leading from the Steadward Centre parking lot into Van Vliet Complex sometimes has snow packed up against the entrance. This problem has been exacerbated with the existing construction in the parking lot.
- Paths connecting parkades to main pathways have been noted to have less attentive snow shoveling
- The parkades in general.

Ice presented as a primary challenge. A number of respondents had fallen and injured themselves by way of slipping on icy sidewalks. A couple of respondents noted the injuries

they have sustained have been permanent. Prioritizing ice management should be a risk mitigation priority.

3.4.3 RAMP CLEARANCE

Users report that snow is often piled on accessibility ramps or in front of accessibility entrances, while staircases and other paths have been cleared of snow. For example, the snow has regularly been piled up against the accessibility door for Assiniboia Hall. In some instances, the snow has been piled around the DATS stop.

3.4.4 UPGRADING SWING GATES

Swing gates have the potential to severely hurt an individual with a visual limitation as they are not detectable at their base. Swing gates are in abundance around campus. An alternative design needs to be identified to replace the existing swing gates.

3.4.5 AUDIBLE CROSSWALKS

Individuals who are blind or partially blind would prefer audible traffic signals for our crosswalks, and principally for the crosswalks connecting to the neighboring communities. Respondents also requested improvements to existing curb cuts, which have been described as difficult and disorienting. The inclusion of traffic lights would be welcomed likewise.

> *Because of executive functioning difficulties. I have a hard time with crosswalks which aren't regulated by lights, so having some instructions in places like the street busses go down between SUB and HUB would help me with my difficulties.*

3.4.6 AVOID STREET TREES WITH DEEP PLANTERS

When respondents talk about problematic street furniture, they often note that many campus street trees have dangerously large surrounding holes that take on a different grade than the sidewalk tile. A drop is produced, and individuals experiencing physical and sensory limitations suffer the externality of the design.

3.4.7 IMPROVING CURB CUTS

Respondents have commented at length on the quality, abundance, and usefulness of curb cuts around campus:

- University of Alberta vehicles have parked in front of curb cuts for long periods of time. This is an impediment as curb cuts are the only way an individual experiencing a physical disability can get access to the sidewalk.
- Several curb cuts take users to an unsafe space on campus. Curb cuts should not only be designed to allow a user to cross the street safely, but to guide them to a safe destination on the other side of the street. For example, a curb cut takes users across the bus route on Student Boulevard, and continues to lead them into the Education parking lot. There is a responsibility for curb cuts to take users to a safe space as they are points of natural trajectory.
- Some roads have a curb cut, but a matching curb cut is missing on the other side of the street. This scenario is found often on the northern edge of North Campus.
- It is necessary for the end of a curb cut to include a street feature (e.g. a street sign, fire hydrant, plant, or decorative element) that assists with orientation. The majority of curb cuts on campus do not have orientation points.
- At several locations, the street is designed so the snow would melt into the curb cut and create a liquid or frozen puddle at the base. In other instances, the bottom of the curb cut does not transition evenly to the road pavement, and acts as a barrier for individuals using mobility devices.

3.4.8 STUDENT BOULEVARD (89TH AVENUE)

Student Boulevard serves as a central travel corridor on North Campus. It includes high foot traffic, public transportation hubs, and organized street activity. As Student Boulevard redevelopment is underway, user feedback is especially timely. Some problematic elements include the following.

- The sidewalk and road tile and the remaining design elements create an environment with low visual contrast, with implications for both wayfinding and safety.
- Both sides of the street have demarcated sidewalk tiles that work well as a guideline for individuals who are legally or partially blind. Technically, this urban design element is known as a tactile designation stip, a strip of pavement that is distinct from the movement zone that is easily detectable with a cane. The inclusion of the design element is positive, although street furniture, in the form of park benches and planters, is often placed overtop of the stip.

- Near University Hall and the Students' Union Building, a set of decorative pillars with glass panels blend in with the rest of the streetscape. These decorative pillars have the opportunity to act as orientation points. Adding colour contrasting strips to the pillars would allow them to be recognizable from a distance.

3.4.9 WINTER ACCESSIBILITY AND MAINTENANCE

Winter accessibility is another part of universal design, although it is not the focus of this report. While snow is maintained on our sidewalks and roads to allow for active transportation during seasonal conditions, other design interventions to improve the pedestrian experience in the winter time are few and far between.

3.4.10 ACCESSIBLE ENTRANCES UNDETECTABLE

Accessible entrances are undetectable along exterior routes. This is not only a function of signage but also the lack of definition of the exterior routes. If an individual is to successfully locate the accessible entrance of a building, the exterior route leading to the entrance needs to be punctuated and clearly demarcated to guide the user toward the entrance. Respondents noted that the Earth Sciences Building, Biological Sciences Building, and HUB Mall all lack a punctuated exterior path.

3.4.11 CAB TO SAB PEDWAY TUNNEL

One exterior route deserves to be highlighted. The tunnel underneath the Central Academic Building and South Academic Building was consistently seen to be an unsafe route regardless of one's ability. Many respondents reported slipping on either the stairs or the immediate pathway under the tunnel.

3.5 DESIGN FEATURES AND AMENITIES: WASHROOMS

This section focuses on barriers faced when interacting with elements of our built environment, particularly in and around washrooms. This was an area of special concern to participants.

3.5.1 WASHROOM ACCESSIBILITY TESTING

Routinely, participants note that accessible washrooms fall short on accessibility. Individuals experiencing disabilities should test the washrooms as they are being designed. While some of the washrooms may include the necessary features and correct measurements in their design, the user experience is neglected during the design process.

Without the user experience, the guidelines being followed are ill interpreted. For example, grab bars in several accessible washrooms are placed in unreachable locations. In other cases, wheelchair users cannot transfer onto toilets that are located too close to the wall.

3.5.2 WASHROOM SIGNAGE - BRAILLE

For the most part, our washroom signage is absent of braille. Respondents who identified as blind or partially blind reported that they have difficulty determining if the washroom is male or female. Braille would solve the predicament.

3.5.3 CHANGING TABLES

Design for children is also a part of universal design and a lens that is easily justified based on our university's demographics. Students in graduate programs, instructors, administrators, and visitors all have reasons to bring young children to campus, either for a visit, an event or ceremony. More of our washrooms require changing tables.

3.5.4 TOILETS

Respondents noted that in newer facilities (for example, the basement of the Students' Union Building), the toilets are too low to the ground. For any user who has difficulty bending at the knee, these toilets are uncomfortable or impossible to use. Meanwhile, in older facilities (for example, the Van Vliet Complex), toilets are mounted to the wall instead of the floor. Wall-mounted toilets have a weight capacity and are more difficult for transfers. Wall-mounted toilets should be avoided where possible.

3.5.5 PUBLIC CONSULTATION

The general opinion of participants was that washroom renovation has been renovated in response to requests by administrators and instructors. The requests often stem from recognizable complaints the administrators and instructors hear about. When the washrooms have been renovated, those renovating the washrooms have done so without thoroughly consulted those requesting the renovation, and more importantly, the users of the building experiencing the most barriers. Naturally, the renovations have undershot accessibility, defeating the purpose of the renovation in the first place.

3.5.6 WASHROOM DOORS

Participants noted the following issues with washroom doors.

- Individuals using mobility devices frequently get stuck between double doors and have to yell to receive help. The second door cannot be opened as soon as the individual gets past the first door. In every washroom of this nature, the second door should be removed.

- Doors are often non-automatic and heavy. Individuals with lower dexterity and upper-body strength cannot open many bathroom doors on campus. Once inside the door, the individual has to wait inside the washroom until another user opens the door. One user was trapped in a washroom for 30 minutes while in this situation.

3.5.7 ACCESSIBLE/GENDER-NEUTRAL WASHROOMS

Accessible washrooms stood out as a leading issue.

- Accessible washrooms are only labeled as accessible washrooms on the door itself. The wayfinding/signage does not direct users to an accessible washroom. Where they are most abundant (for example, the Van Vliet Complex), they are difficult to find.

- Accessible washrooms, while typically also serving as gender-neutral washrooms, are not identified as accessible washrooms on maps. Individuals experiencing disabilities are unaware if they can use the washrooms due to labelling. It would be preferred if the labeling included both “accessible washroom” and “gender-neutral washroom”.

- Accessible washrooms are equipped with a timer. Respondents who regularly use accessible washrooms have noted that the lights have turned off while they have been in there. In turn, the respondents had to struggle in the dark to reactive the light. One participant suggested that the timer needs to be extended to one hour.

- Similar to the timing on the lighting, the timing on the door needs to be extended, too. Respondents have noted that the automatic doors start to close as they are still attempting to enter the washroom. Some accessible washrooms require the user to make a 90-degree turn through a narrow entrance, causing delays.

- Some accessible washrooms have manual soap and drying devices instead of automatic devices.

- The single accessible washroom in Arts and Convocation Hall does not have a push paddle to open the extremely heavy door. The washroom is also used as a kitchen, and for this reason, the washroom is not often available.
- A number of accessible washrooms are equipped with signs indicating that priority should be provided to users who need them. However, the signs are often attached to the door in a way that allows them to be torn down frequently.
- For some buildings, like Humanities, the accessible washroom is positioned on a half floor between two floors. The user has to climb down a staircase to use a washroom with accessible features.
- Having one accessible washroom in each building is preferred. Presently, one accessible washroom is meant to serve a cluster of two to three different buildings.

3.5.8 OTHER WASHROOM ISSUES

The following issues were also identified by a few respondents, less commonly than the concerns listed above.

- Outside or near the doors of washrooms, it would be preferred if seating was always available.
- The accessible stalls in washrooms may not be large enough to accommodate a user and their service dog.
- All accessible stalls in washrooms should be equipped with a grab bar near the toilet.

3.6 DESIGN FEATURES: CLASSROOMS, LECTURE HALLS, AND LABS

3.6.1 HEIGHT OF SCREENS

In most lecture theatres and classrooms, the height of the screen is too high for students sitting at the front of the class, especially students who require designated seating. Designated seating is often oriented at the front of the class, frequently ahead of the front row. Sitting in this position for long periods of time is uncomfortable and sometimes unmanageable. Individuals who have mobility difficulties in their back or shoulders are unable to sit in this position.

3.6.2 FLUORESCENT TUBES IN FRONT OF BOARDS

In several buildings, fluorescent tubes are stationed directly above the board in a lecture theatre or a classroom, as a way to illuminate the screen. For individuals experiencing cognitive and sensory disabilities, the fluorescent tube can cause distraction, anxiety, and even nausea. One respondent noted fluorescent tubes as the biggest challenge they face while studying on campus. Another respondent once requested for the tube in a class to be removed, only to be told it would be impossible to do so.

> *I have an issue with fluorescent light bulbs, so I am most comfortable in rooms that use compact fluorescent light bulbs - if fluorescent lighting is necessary for a space, it helps me when either there is a dimmer function installed so they aren't at full brightness, or there is a barrier in place which changes the color of the lights to a warmer hue, such as an orange-brown tinted plastic casing.*

3.6.3 HEIGHT OF INSTRUCTORS' DESKS

In a number of lecture halls and classrooms, especially in newer buildings, the height of the computer desk at the front is viewed as a barrier, as the face of the instructor is easily hidden. Some students rely on seeing the face of the instructor to understand information, especially if the student experiences sensory impairments. Respondents have indicated that they have learned best when the instructor moves around the class.

3.6.4 DESIGNATED SEATING

The designated seating in lectures is often isolated from the rest of the seating, and secluded into the corner, either at the top or bottom of the theatre or classroom. Both scenarios present their own barriers. If the seat is located at the bottom, the student may be uncomfortable looking at a high screen for long periods of time, and the noise behind the student may also be distracting. If the seating is at the back, then being able to view the screen and hear the instructor are often challenges. In both situations, respondents find themselves isolated from participating in class, sitting with friends, or interacting with the instructor.

Respondents would find it helpful if classrooms are mapped, and their accessibility features are cataloged. This would include information on where the designated seat is located, how you enter and leave the room, and the features that are included in the room. For example, a student could easily have the following questions answered: Is the room equipped with screens? Does the room have an accessible stage? How many accessible spots are there?

Another theme that emerged on this topic is that buildings constructed recently (for example, CCIS and ECHA) still routinely have classrooms that do not provide students experiencing disabilities with equal choice, and instead, provide one or two undesirable options to sit. Classroom design that does not provide equivalent choices for all users is not universal design, but instead continues to segregate different users.

3.6.5 LABORATORIES

Laboratories on campus need to be assessed throughout to understand their level of accessibility as the majority of respondents do not use labs as part of their routine. However, one respondent recognized that the lab desks are designed at a standing height, and the desks are solid at all sides, restricting a mobility device from wheeling directly up to one. Further investigation is needed on this front.

3.6.6 NARROW STAIRCASE DESIGN

Any staircase in a lecture hall is a barrier - often unavoidable, but able to be mitigated. Lecture theatres routinely have narrow staircases that cause congestion while allowing for cramped seating arrangements. Individuals experiencing visual limitations find these arrangements problematic and stressful to use. Moreover, during transition periods between classes, the congestion is also a contributor to the students' stress. Several respondents mentioned that students do not always move out of the way as they enter or leave the lecture theatre.

> *I have to sacrifice my well-being to participate in class activities, attend classes, and get to classes because there are so many stairs everywhere.*

3.6.7 RAMP RETROFITS

Where theatres or classrooms have installed ramps, handrailing is not often included as part of the retrofit. One example is the lecture theatres in V-Wing, where it is easy for the user to step off of the ramp by mistake. To reduce the risk of falling by way of a misstep, the railing should be automatically included in the design of any ramp.

3.6.8 LEFT-HANDED DESKS

Left-handed desks should be included in each classroom and lecture theatre, and their inclusion is part of universal design. Left-handed desks can address a wide variety of student needs. For example, students who have difficulty with their posture, as a result of

injuries or concussions, are unable to use a desk designed for their non-dominant hand. Augustana Campus and the Tory Building were noted as being equipped with relatively few left-handed desks.

3.6.9 ADJUSTABLE STOOLS FOR INSTRUCTORS

More classrooms need to be equipped with a stool with an adjustable height for the instructor. If an instructor is experiencing physical disability, they cannot stand for long periods of time. While sometimes a stool is provided, the height may not work for the instructor. Stools that lack wheels can also provide challenges.

3.6.10 FLASHING EMERGENCY LIGHTS

Every classroom should be equipped with flashing emergency lights. Respondents noted several instances where an alarm has gone off in a building, and an instructor or other involved person (experiencing an auditory impairment), is unable to hear the alarm.

3.7 DESIGN FEATURES: STAIRWAYS, HANDRAILS, AND RAMPS

3.7.1 NOSINGS

Most staircases on campus are missing a nosing at the edge of the step, a rudimentary feature needed on our stairs to ensure they are detectable. Where there are nosings, they have failed to have a contrasting surface and/or a contrasting tactile surface, defeating the purpose of a nosing. Many users have tremendous difficulty going down staircases, and without appropriate design, the staircases will be avoided.

In some cases, the concrete has been painted with contrasting colour along the edge. Respondents who have visual limitations noted that this simply is not enough.

3.7.2 DANGEROUS STAIRCASES

The following staircases have been recognized to be dangerous and/or difficult:

- The Tory/Business Atrium to HUB Mall pedway staircase
- The LRT entrance stairs for each entrance point, and notably, the entrance point outside the Dentistry and Pharmacy Building.
- The staircase underneath the South Academic Building and Central Academic Building pedway. It has also been mentioned the area is poorly lit, exacerbating the dangerous staircase.

- The staircases in Rutherford Atrium and Tory Atrium are exceedingly difficult to detect and navigate for individuals with visual limitations as a result of the color, lighting, and design of the stairs.

One respondent avoids the stairs altogether, and chooses an alternative (often slower) way to enter any given building. This can be applied to any set of brick stairs on campus.

3.7.3 RAMPS

The following ramps have been recognized to be dangerous and/or difficult:

- The ramp leading into the accessibility entrance of Pembina Hall is noted to have serious ice issues during winter conditions. Moreover, the lamp above the door goes out frequently.
- The ramp connecting Cameron Library and Central Academic Building is difficult to use for individuals using mobility devices. The 90-degree turn of the ramp is reported to be difficult to work with, and the proper turning radius is not provided.
- While the ramp on the south end of Social Street in Van Vliet Complex is built at an appropriate grade, the handrailing blends in with the wall, and there are no highlighted rest areas along the length of the ramp.

One theme that has emerged is that when ramps have been retrofitted into the building, they are designed in a way not to include everyone, but to be more accessible for a specific disability. While their existing is required to allow access into a building or area, a universal design approach would not design for a specific disability.

For example, the ramp leading between Cameron Library and the Central Academic Building is narrow and demarcated from the adjacent staircase. However, with the space available, there is also an opportunity to have converted the staircase into a ramp suitable for all users. When designing ramps, there is an opportunity to make the ramp the dominant vertical passage in an area.

3.7.4 HANDRAILS

Handrails in the pedways and for staircases should include notches at the beginning and at the end of the handrail as a method to notify the user that they are about to approach an incline or a set of stairs, or that level ground is imminent. Notches can also be used to orient users to where they are in an environment. For example, by having notches in the

handrail approaching HUB Mall while on the Fine Arts Building to HUB Mall pedway, the user will recognize they are close to the bus terminal.

3.8 DESIGN FEATURES: MEETING AND CONFERENCE ROOMS

3.8.1 LABEL AND CATALOG ACCESSIBLE MEETING ROOMS

When booking a meeting room, users would like to know if the room has a push button AT the door, and preferably if the room is accessible. Respondents noted that many rooms have fixed table setups, and the distance between the table and the wall does not maintain an appropriate wheelchair turning radius.

The doorway width into some meeting spaces is not large enough to accommodate individuals in electric wheelchair or scooters. A respondent provided an example that an electric scooter user could not enter a Computer Science Building meeting room, and had to position themselves in the doorway for the duration of the meeting.

If this information is available, Accessibility Resources will have an easier time to find a room that works well for a student writing an exam.

3.9 DESIGN FEATURES: ELEVATORS AND ESCALATORS

3.9.1 ELEVATORS OVERVIEW

Many buildings on campus have either one or two elevators. For the older building stock, in particular, the only elevators in the building may be down anywhere from a day to several months at a time. The outages may also be repetitive rather than outliers; therefore, some buildings may be inaccessible on an ongoing basis throughout a year.

Having both elevators breaking down in a given building impacts every aspect of the user's life. Attending class, a meeting, an event, or time with a friend may no longer be options. When classes are scheduled on the third floor of a building, and in a building that is characteristic of these conditions, individuals experiencing disabilities are completely discluded from participation. A reliable system coupled with retrofits can address these barriers. Examples of buildings that fall under this description include the following: Arts and Convocation Hall, Earth Sciences Building, Tory Marshall Hall, Humanities, St. Joseph’s College, Cameron Library, and the School of Business, Corbett Hall.

Two respondents spoke about the School of Business building, which has seen perpetual elevator failures over recent years. The School of Business building is not only used for

classes, and administrative offices, but the facility is also popular for events that gather attendance from the public and alumni. When the elevator has broken down, attendees of events who are unable to surmount a steep flight of stairs have not been able to attend. Those catering the event are required to carry the food up to the stairs.

One issue that has been mentioned is the uncertainty of when an elevator is expected to be brought up to working condition. Moreover, elevators that stop working are not always on the radar of Facilities and Operations, and for this reason, respondents consider the system untrustworthy.

3.9.2 ALTERNATIVE ROUTES

If an elevator is out of order, an alternative route is not often identified near the broken elevator. When an alternative route is provided, the suggested route does not take a universal lens, and instead, only reflects what an able-bodied individual could achieve.

3.9.3 AUDITORY ASSISTANCE

Every elevator needs to be equipped with auditory signals to let users know which floor they are on. Auditory assistance allows individuals who are legally or partially blind to recognize which floor they are on. Respondents noted that having a combination of braille and auditory commands would be preferred.

3.9.4 ELEVATORS APPEAR TO BE SERVICE ELEVATORS

Many elevators resemble a service elevator, creating confusion. The frame of the elevator blends in with its surroundings. Often times, there is no signage around the frame of the elevator to present itself as a device anyone can use. There usually is only scant signage directing users to the whereabouts of the elevator.

Another identified issue is that lighting is not used to punctuate the elevator entrance. Instead, several elevators are in dark corners and are not defined by any environmental feature.

3.9.5 ELEVATOR SIZE

A number of elevators were designed to the dimensions for a manual wheelchair, instead of an electric scooter. For this reason, individuals using the latter sometimes do not fit in the dimensions of the elevator, or risk their legs getting caught by the doors.

3.9.6 DOOR SPEED

Many elevator doors close too quickly, and do not allow enough time for a user to get safely inside. Extending the opening time by a couple of seconds would make a tremendous improvement to users who need elevators. In the Education Centre, the doors sometimes will physically close on a user. In the Law Centre, the elevator door once closed on and broke a user's cane.

3.9.7 ELEVATOR CUES

Elevators on campus usually lack wall displays that project the elevator cue and notify users which door will be opening first. Including these features would be seen as helpful.

3.10: DESIGN ELEMENTS: LIGHTING

3.10.1 FLUORESCENT AND HALOGEN LIGHTING

Fluorescent and halogen lighting are the dominant choice in the interiors of our buildings; however, many users on our campus are unable to tolerate this form of lighting and succeed with it. Both forms of light are particularly problematic for anyone with chronic migraine conditions.

Instead, our lighting on campus needs to reflect or imitate natural lighting, and if the building is new construction, incorporates more natural lighting. Preferred interior lighting includes task lighting, adjustable lighting, or indirect lighting. Where fluorescent and halogen lighting must be maintained, respondents noted that dimmer switches would reduce their stress.

> *Lack of spaces with lighting that can accommodate me (and the subsequent disability flares caused by exposure to fluorescent lighting and bright lighting) have deterred me from returning to the university.*

> *The overall use of fluorescent lighting is a problem for me. I also find that places that have natural light are not the best study spaces because they are more designated for noisy spaces. The main floor of [Rutherford Library] is a great place for me physically but with it designated as a collaborative space makes this space unusable.*

3.10.2 TREE LIGHTING

The flashing lights on trees in the winter holiday season produce migraines for some respondents, particularly in the morning. It was mentioned that if the lights were to glow consistently instead of flashing, much stress would be reduced.

3.10.3 EXTERIOR LIGHTING

Exterior lighting on campus was routinely characterized as unsafe and inadequate. Several respondents avoid outdoor walking paths during the evening for their own safety. Outdoor lighting design must be conscientious of individuals experiencing reduced vision and mobility limitations as they require well-lit outdoor conditions to travel safely. Respondents would like to see outdoor lighting studied and monitored.

It was also noted that entrances, ramps, and signs are not illuminated in the nighttime. Notable examples included accessible door signs - for example, the accessible door leading into the University LRT entrance.

3.11 DESIGN ELEMENTS: COUNTERTOPS, SERVICE DESKS, AND VENDORS

3.11.1 COUNTERTOP HEIGHT

The consensus is that the heights of countertops, service desks and vendors simply need to be reconsidered. After visiting most campus facilities, an example of an accessible countertop has yet to be observed, with the exception of some libraries. Without adjusting the height of or around our service desks, these spaces are exclusionary.

3.11.2 PROVIDE AN OPTION TO MESSAGE IST AND FACILITIES AND OPERATIONS

Instructors, administrators, and students who experience auditory limitations do not have a straightforward way to call IST or Facilities and Operations to make a request or ask for help. For example, an instructor who is hard of hearing would have difficulty letting IST know that a control panel in a classroom is not working on a moment's notice.

3.11.3 EQUIP STUDENTCONNECT WITH AUDITORY CUES

StudentConnect does not notify patrons with an auditory message when their number is called. Instead, the number is displayed on a screen. An individual who is legally or partially blind would fail under this system. A respondent provided an example of a student who sat in the lobby for over an hour, only to find out they were called up to the desk long before.

3.12 DESIGN ELEMENTS: FURNITURE (CHAISES, BENCHES, TRASH CANS, FOUNTAINS, PLANTERS)

3.12.1 EXTERIOR TRASH CANS

Some users, especially users with reduced dexterity, are unable to open many exterior trash cans.

3.12.2 WATER FOUNTAINS

Several respondents noted that water fountains are inaccessible for them. The height of most water fountains makes them unusable by individuals with mobility devices. Moreover, many of our water fountains have a floating design that is undetectable by an individual with visual limitations.

3.12.3 FLOATING GLASS

Floating glass has the potential to be exceedingly dangerous. One example provided is the IST space in the General Services Building. While the glass is tinted and does not have a strong reflection, the edges of the glass should be decorated with a darker film, so that the glass is detectable.

3.12.4 OUTLETS

Individuals experiencing disabilities rely heavily on their electronic devices to assist with navigation, to record and receive notes, to schedule appointments, and to recharge assistive devices like wheelchairs. When power stations and outlets are few and far between, users are unable to charge their devices. At risk is their ability to fully participate without stress, and to move around the environment.

Respondents have found power access and outlets to be infrequent and not located in expected places, and even in newer facilities.

3.12.5 OFFICE FURNITURE

Staff and instructors, once hired, do not have an individual working with them immediately to determine what accommodations they require for their office and class space. Often, the staff and instructor have to ask for these forms of accommodations. One respondent explained that another university conducts a personal assessment immediately upon hiring.

Measurements are taken of the staff member to determine the suitability of the office desk, for example. The same respondent, although having made several requests, has yet to receive a new desk, even after close to a decade of working at the University of Alberta.

3.12.6 CHAIRS

A common and expected theme across respondents is the criticism of chairs (and specifically, their size) found in the classrooms of older buildings. The classrooms in Tory Marshall Hall, Earth Sciences Building, and Humanities were all brought up as critical examples. The shape of the chairs was also noted as problematic for students with injuries or physical limitations.

In social spaces, students experiencing physical disabilities prefer to have lower chairs, and preferably, a combination of several seating styles. Tall stools were viewed as the least preferred option and should be avoided when possible. Having an option of chairs with and without armrests is seen as a preferable scenario.

3.13 DESIGN FEATURES: ENTRANCES AND DOORWAYS

3.13.1 AUTOMATIC DOORS

Automatic doors were noted as the most practical door for respondents for their universality, and for the lack of physical effort required. These comments were often in the same vein as describing a lot of the doors on campus as heavy and/or lacking a push button.

When asking respondents of the preference between automatic sliding doors and automatic doors which swing outward, respondents had fewer issues with the automatic sliding door.

3.13.2 PUSH PADDLES

Push paddles have been identified to have the following attributes and challenges:

- Push paddles are not cleaned thoroughly and regularly, and consequently are seen as unsanitary to use.
- Push paddles on campus are almost always conditional on there being a ramp leading to or away from a doorway. This condition makes the assumption that those who experience a physical disability always use the ramped entrance. However, a

lot of individuals experiencing physical disabilities prefer to use the stairs, where they are unable to open the door because of the absence of a push paddle.

- Push paddles are not regularly monitored to see if they are in working condition. When they are checked to see if they are in working condition, the individual conducting the test takes the perspective of an able-bodied individual, with upper-body strength. When push paddles are not working, it is often because the mechanism is not responding to less physical force from a seated position. Many of the paddles are designed in a way where they stick if they are pressed from a seated position.
- Push paddles are often in impractical locations for the user. There are several examples of entrances that require the user to cross a line of doors to get to the push paddle. The user has to cross traffic to reach the push paddle, and by the time the opened door is traveled back to, it may already have closed. The user is forced into a stressful situation to simply enter a building.
- On weekends and/or during the evening, push paddles no longer serve to open a door. Individuals who rely on push paddles are not notified of the time restrictions of the push paddles, and, therefore, must find an alternative entrance. The user may not be aware of the alternative route that is available.
- Key indoor routes sometimes lack push paddles, despite their high traffic volumes or the role they play in connecting individuals to the rest of the building. South Academic Building serves as an example.
- Similar to accessible doors and DATS entrances, snow is also shoveled toward the location of push paddles. Consequently, the paddles are unreachable.

  I was on crutches for two weeks. I found that many of the buttons that open doors automatically did not work. This made getting through the doors very difficult.

3.13.3 ACCESSIBLE ENTRANCES

Beyond the specific issue of push paddles, respondents outlined several examples of problematic routes whose challenges centre on their accessible entrances.

- At the Arts and Convocation Hall, there is a large lip in front of the doorway, which has been difficult for individuals with mobility devices. Near the entrance in the door, there is a significant drop to the lower part of the level, representing a low tolerance for error. Moreover, the accessible entrance is also the same spot where the garbage and recycling is collected and temporality stored. How individuals enter a

building is a metaphor for how we welcome them to campus. By having this accessible entrance converge with the waste system, “what are we saying about how we welcome individuals experiencing disabilities,” one respondent noted.

- The following accessible entrances (among others) are not well articulated on the building's facade, let alone marked by appropriate signage: Tory Marshall Hall, Earth Sciences Building, Education Complex, Industrial Design Studio, and Fine Arts Building.

- The accessible entrance into the Fine Arts Building is the same spot where cigarette smoking is encouraged; meanwhile, another cigarette disposal container is located only feet away, near the entrance of HUB Mall. Moreover, the entrance has a deep recess into the wall. After hours, neither the handicap signs nor the entrance is illuminated by sufficient lighting.

3.13.4 DOORKNOBS

Doorknobs are a barrier to individuals with less dexterity: they should be avoided, and ideally, replaced wherever possible. Doors equipped with doorknobs can found throughout the campus.

3.13.5 CREAKING DOORS

Doors that are too old and produce a loud creak when they open are problematic for users with several forms of disability.

3.13.6 DOOR STOPPERS

Students registered with Accessibility Resources can request to have door stoppers put onto the doors of their classrooms. While Facilities and Operations may install a door stopper on the door, a student running late may be welcomed by a closed door. What is missing is communication with the instructor that the door stopper was set down for a particular student to enter the room. In some instances, the door stopper may not be put down altogether; the system is unreliable.

3.13.7 AUDIBLE DOOR LOCKS

Doors that require swipe card access need to be audible as a way to notify individuals experiencing sensory disabilities that the door has been correctly swiped.

An example was provided by a student who accessed a locker in a room behind a locked door. As the student has reduced vision, the student had difficulty finding the swipe side of their OneCard, and also to recognize if the door had been opened by the OneCard. For this reason, the student opted to always carry all of their books with them.

3.14 PARKING LOTS

3.14.1 ACCESSIBLE PARKING

Accessible parking needs to be re-evaluated, as there is a recognized need for parking to be close to every building. The number of stalls should increase where accessible parking already exists. While the distance between the accessible parking stall and a building seems trivial to someone who is able-bodied, the reality is considerably different for individuals who use accessible parking. The following characteristics have been used to describe accessible parking on campus:

- Large and public-facing buildings (for example, ECHA) do not have accessible parking in the parking lot nearest the building.
- The walkways between the accessible parking stalls and the adjacent buildings need to be assessed. Some of the paths have been described as poorly maintained. Often, the individual has to maneuver on the road for some distance before arriving on a sidewalk, which poses significant risks.
- Users are not reliably informed of elevator outages in parking structures, and alternate routes are not communicated. One respondent had to get down three flights of stairs on crutches because of a broken elevator.
- Increased clarity would benefit the signage communicating to users that a given parkade is not equipped with an elevator.
- There is limited accessible parking around the Van Vliet Complex, and at facilities besides the Steadward Centre.
- Much of the accessible parking is reserved for instructors and staff. Visitors to the university, for this reason, find it difficult to find a spot remotely close to their building.
- While accessibility resources offers proximal parking for students, the students still have to pay for it, and students who experience disabilities typically face significant financial barriers.

- Receiving a private accessible parking stall for University of Alberta staff has been described as an arduous process. In one instance, it took a university staff member over eight months to receive a private accessible parking stall close to their building.

- University construction vehicles routinely park on the accessible parking stalls. Individuals who require those parking spots are forced to park at a more distant parking structure.

3.15 OTHER BARRIERS

3.15.1 LONG-DISTANCE CALLING

Respondents from Augustana mentioned that if they are to call Facilities and Operations to report a feature in a building that needs repair, they have to do so long distance. Knowing this, there is a reluctance to phone the number, and users attempt to solve the situation on their own, sometimes incurring risk.

3.15.2 LOOPING TECHNOLOGY

Looping technology urgently needs to be integrated into our communal spaces on campus, in the destinations where students learn and instructors teach. Looping technology allows for assistive listening in public places that connects to a receiver already built into most hearing aids. Respondents experiencing auditory limitations expressed interested in having our active public places (for example, lecture theatres and cafeterias) equipped with the technology.

3.15.3 ACCESSIBILITY ADVISORY COMMITTEE

Several participants questioned why an accessibility advisory committee does not exist at the University of Alberta. These remarks were made in the context that it is difficult to function at the university if you experience a disability, and there should be a group that can serve as a place to discuss barriers and feel heard.

These remarks were also made in the context that when a retrofit takes place in the environment, individuals experiencing disabilities are not consulted. Moreover, when retrofit in a space with an accessibility feature is completed, individuals who require the new feature explain that they are interacted with to see if the feature is working as intended.

Respondents also suggested that the Advisory Committee could take on a similar role to the City of Edmonton’s Accessibility Advisory Committee. If equipped with a similar mandate, the committee would be consulted for all building retrofits and constructions to provide feedback and recommendations for the project. The committee could also advise

on policy, and could work with different administrative units and community organizations to develop initiatives and programming that raise awareness of accessibility issues.

Respondents emphasized if they are to be represented on any project, board, or committee, a caregiver, a parent, or medical professional should not be included as a representative in their place.

3.15.4 AWARENESS CAMPAIGN

The university community would benefit from an awareness campaign so that every individual understands what role they can play in reducing barriers on campus, conquer the attitudinal barriers we create, and recognize that many individuals on campus experience disabilities. One respondent noted that they would benefit tremendously if individuals more frequently offered to meet at the respondent's office, as it's stressful for them to figure out if they will be able to get to the other person's office.

Several respondents experiencing physical disabilities suggested that other users of the environment sometimes don't get out of their way on a path, hold the door open for them, offer their seat on the bus, and the like. Another frequently cited example is that individuals who do not require accessible washrooms, or stalls, will often occupy them. Meanwhile, those washrooms or stalls are the only washrooms that some community members can use.

3.15.5 QUIET SPACES

A significant number of respondents said that campus needs more quiet spaces to decompress, especially spaces that are not located in libraries, which receive high traffic. Another way this has been stated is to have more spaces dedicated to individuals with sensory needs.

> *The university needs more spaces devoted to sensory regulations...Other than the bathroom, there are virtually no places I've found on campus where I can be alone - during the day, I don't get the opportunity to decompress, without the need for masking - without [these spaces], I've had daily headaches and frequent overloads.*

4 SUGGESTED COLLABORATORS

We recommend consulting with many of these experts when looking to address the barriers listed in this report. Some of the suggested collaborators also contributed to this report; any such contributions are noted and defined. Note also that the extended quotes within this section reference official and public-facing descriptions or biographies.

4.1 ADVOCACY BODIES AND CIVIL SOCIETY

4.1.1 OFFICE OF THE ADVOCATE FOR PERSONS WITH DISABILITIES

> *The Office of the Advocate for Persons with Disabilities represents the rights, interests and well-being of Albertans with disabilities. The Advocate builds relationships with community members to understand the issues and concern they face every day. The Office helps children, youth and adults with disabilities find and get access to the supports and services available to them. The Advocate's Office acts as a point of contact between the community and government.*

The Advocate's Office was informed of the Campus Accessibility Study. As part of the Government of Alberta, the Office can assist future efforts by helping to engaged the community, build partnerships, and identify gaps in programs and services.

4.1.2 VOICE OF ALBERTANS WITH DISABILITIES

> *Voice of Albertans with Disabilities (VADS) actively promotes full participation in society and provides a voice for Albertans with disabilities….Since 1973, Voice of Albertans with Disabilities has been a provincial, cross disability organization of individuals with physical, mental, sensory, learning, and intellectual disabilities… Over the years we have consulted and collaborated with like-minded organizations on many important projects that impact the daily lives of individuals with disabilities.*

As a advocacy organization that has spent almost five decades representing individuals experiencing disabilities, VADS would be an essential resource for future efforts.

4.1.3 SKILLS SOCIETY

> *Skills Society provides support services to children and adults with developmental disabilities, survivors of acquired brain inquiries, and their families. Through our independent projects and those with our community partners, Skills Society aims to test new ideas and challenge old assumptions - pioneering betters ways to value and include people with disabilities within community and contribute to the growing body of knowledge around Social Innovation Research and Development with Canada.*

The Skills Society are notable for their background in building relationships with individuals experiencing disabilities, and for involving them in social change initiatives.

4.1.4 ASSET-BASED COMMUNITY DEVELOPMENT INSTITUTE (ABCD)

> *The Asset-Based Community Development Institute (ABCD) is located at the Steans Centre for Community-based Service learning at DePaul University. The Asset-Based Community Development Institute (ABCD) is at the center of a large and growing movement that considers local assets as the primary building blocks of sustainable community development. Building on the skills of local residents, the power of local associations, and the supportive functions of local institutions, asset-based community development draws upon existing community strengths to build stronger, more sustainable communities for the future.*

The ABCD brings strong potential for sharing resources and research.

4.1.5 THE CNIB FOUNDATION

> *CNIB delivers innovative programs and powerful advocacy that empower people impacted by blindness to live their dreams and tear down barriers to inclusion. Our work as a blind foundation is powered by a network of volunteers, donors and partners*. Through their branch, Vision Loss Rehabilitation Alberta, *training that enables people who are blind or partially sighted to develop or restore key daily living skills, helping enhance their independence, safety and mobility* is provided.

CNIB, through the help of certified specialists, work with the university to train students to navigate the campus. CNIB should be considered a key resource for their understanding of how our campus environment works for students with visual impairments.

4.2 CITY OF EDMONTON

4.2.1 ACCESSIBILITY ADVISORY COMMITTEE

> *The Accessibility Advisory Committee (AAV) provides advice and recommendation to Council about facilities and other infrastructure, programs, services, activities, and policies, for the purpose of improving the City's livability, inclusiveness and accessibility for individuals with disabilities.*

Recently, the committee has been involved in Virtual Licence Plate Recognition (VLPR) technology, the citywide strategy for on-street parking, and policy C464, *Accessibility to City of Edmonton Owned and Occupied Buildings*. The Edmonton Accessibility Advisory Community should be collaboratively for all stages of the Goal 5.1 and provide recommendations on how the benchmark can be achieved. Dr. Paige Reeves, who serves on the committee, was one of the participants consulted in this research.

4.2.2 WINTER CITY EDMONTON

Winter City Edmonton is responsible for the publication *Winter Design Guidelines: Transforming Edmonton Into a Great Winter City*, and assists the City of Edmonton with other winter programming and initiatives.

> *The winter design guidelines provide flexible guidance and inspiration for future development decisions throughout Edmonton. The guidelines are intended to facilitate leading-practice urban decision solutions with a winter lens to transform Edmonton.*

Good design for the winter supports the objective of universal design. Winter City Edmonton is well equipped to make suggestions for how Edmonton can decision for seasonal conditions.

4.2.3 AGE-FRIENDLY EDMONTON

Age-Friendly Edmonton, as a joint project of the city and the Edmonton Seniors Coordinating Council, focuses on ensuring that the city's design respects and actively supports the well-being of seniors. Age-Friendly Edmonton is responsible for the Access Design Guidelines, as cited in this report. Members of Age-Friendly Edmonton would be

well equipped to assist in creating guiding principles, design guidelines, and category priorities for planning, design, and budgeting purposes. Diana O'Donoghue, who serves in Age-Friendly Edmonton, was one of the participants consulted in this research.

4.3 CONSULTANTS AND DESIGNERS

4.3.1 RON WICKMAN

Ron Wickman is an architect born and raised in Edmonton, Alberta, who has had his own Edmonton-based practice since 1955. In the late 1990s, Ron wrote a universal design guide for the University of Alberta and has experience in universal design with respect to campus infrastructure. Ron was one of the participants consulted in this research.

> *Ron's interest and expertise is in barrier-free design, that is accommodating the needs of individuals with disabilities; he also has a special interest in multi-family housing and urban and community planning. He specializes in providing consulting services for performs with disabilities and for projects focused on affording individuals with disabilities greater choices for independent movement.*

4.3.2 RICK HANSON FOUNDATION

> *The Rick Hanson Foundation Accessibility Certification (RHFAC) is a rating system that uses trained professionals to evaluate the meaningful access of commercial, institutional, and multi-unit residential buildings and sites. Once rates, a site may be certificate at one of the two levels, 'RHF Accessibility Certified' or 'RHF Accessibility Certified Gold.' Organizations can then publicly list their certification level on the RHFAC Registry, hosted by CSA Group, and purchase a window decal or plaque to showcase that the location is accessible.*

Through communicating with the Rick Hanson Foundation, the University of Alberta has the opportunity to get its buildings certified. The value in the certification for the university is the scorecard, which can highlight specific areas of how accessibility can improve in our buildings.

4.4 UNIVERSITY OF ALBERTA STAKEHOLDERS

4.4.1 REHABILITATION ROBOTICS LABORATORY

> *Rehabilitation Robotics is an inter-disciplinary research group focused on improving quality of life through robotics and technology. Our research focuses*

on wheelchair biomechanics, new technologies to assess spinal structure and function, assistive robotics and virtual reality in rehabilitation medicine.

The Rehabilitation Robotics Lab is involved in Click & Push Accessibility Inc., an effort to create dynamic route maps that account for physical effort, as for wheelchairs, at a granular level.

4.4.2 SPECIAL INTEREST GROUP ON AGEING

The group is represented by faculty members in the Faculty of Rehabilitation Medicine with a specific interest in aging including those from occupational therapy, physical therapy, speech-language pathology, and the rehabilitation research centre...Our research covers areas such as arthritis, sleep, pain, communication, swallowing, mental health, resiliency, health-related quality of life and the use of technology to promote independence.

The group engages older adults and their family caregivers related to ageing and function. Their collaboration would help develop an age-friendly lens.

4.4.3 BARIATRIC CARE AND REHABILITATION RESEARCH GROUP

The Bariatric Care and Rehabilitation Research Group (BCRRG) is a multidisciplinary research collaboration focused on improving the care and rehabilitation outcomes of patients with obesity. We aim to reduce the disability experienced by persons living with obesity; improve the quality of care patients with obesity receive; and reduce the burden of obesity on the health-care system.

Bariatrics is part of the universal design lens; BCRRG could be a valuable partner for future efforts.

4.4.4 CENTRE FOR HEALTHY COMMUNITIES

The Centre for Healthy Communities works with our partners to address complex issues that impact community health, well-being and sustainability. We recognize that health and wellness are created outside of the health-care sector, so we work across sectors to focus on root causes, prevent illness and promote community health and equity.

5 APPENDICES

APPENDIX A: INTERVIEW QUESTIONS

Getting to and from Campus

Transportation would include how your preferred mode of transportation to get to and from campus, the length of the commute, and any associated barrier.

1. Are there any barriers or challenges you have when getting to or leaving the University? If so, what do you think could improve so it's easier for you to make these trips?

2. How have the barriers impacted your day and experience attending university?

Navigation

Navigation would include your experience locating buildings, classrooms, and specific destinations on campus.

1. Are there any barriers or challenges you have getting to certain buildings or finding certain locations/rooms? What would make it easier for you to locate/find where you need to get to?

Interior Routes

Interior routes will look at barriers you face when commuting and spending time indoors on campus.

1. Are there any barriers you have when using the indoor routes, hallways, and/or pedways on campus? If so, what would you like to see changed?

Outdoor Routes

Outdoor routes will look at barriers you face when commuting and spending time outdoors on campus.

1. Are there any barriers you have when using the outdoor walking paths, and main roads on campus? If so, what would you like to see changed?

2. How are you impacted by winter conditions and weather?

Design Features and Amenities

Design Features and Amenities will look at barriers you face when interacting with the specific elements of our built environment

Includes

- Washrooms
- Classroom/Lecture Halls/Labs
- Stairs/Handrails/Ramps
- Meeting/Conference Spaces
- Recreational Facilities (i.e. Gym, Swimming Pools)
- Elevators/Escalators
- Lighting (Indoor and Outdoor)
- Countertops/Service Desks/Vendors
- Furniture (i.e. Chairs, Benches, Trashcans, Water Fountains)
- Entrances/Doorways
- Parking/Transportation Hubs

1. Of the list, please describe some of the barriers associated with some of the features you face?

Building Perception

Building Perception will look at the potential emotional/psychological barriers of campus buildings, rooms, and locations

1. Are there any buildings/locations on campus that you feel are unwelcoming, intimidating, uncomfortable?

Closing

1. What do you think the university could be doing to make the campus more accessible.

APPENDIX B: PARTICIPANT INFORMATION SHEET

Project Title: University of Alberta Accessibility Study

Project Lead:

Cooper Csorba, Planning Analyst, University of Alberta Students' Union
2-900, Students' Union Building
University of Alberta
Edmonton, AB, T6G 2S4
cooper.csorba@su.ualberta.ca | 780-224-0655

Dear Participant,

Background and Purpose

My name is Cooper Csorba and I am an undergraduate student at the University of Alberta. I am seeking participants for a project I am conducting for the University of Alberta Students' Union (UASU). The purpose of this project is to learn about the state of accessibility across the campus built-environment (including buildings, indoor facilities and rooms, outdoor paths, transportation hubs, and other design features part of our environment). The project will identify the accessibility barriers and identify areas of improvement to work towards access for all user groups. You are receiving this letter as a person whose input would be valuable for this project.

Definitions

Accessibility: The ability or ease for any person, regardless of ability, to approach, enter and use buildings, facilities, and services.
Barrier: Obstacles that exclude people, hinder progress, prevent an individual from fully participating in or limit their access to certain programs, services or environments.
Built Environment: All structures and human-made surroundings.

Study Procedures

I will be seeking user feedback in two main areas, outlined below. You may choose to participate in one or more of these sessions:

1. One-on-one Interview: In this interview, a relaxed and casual environment will be created to allow for an open dialogue of your experience using the campus environment. Questions will focus on how you move around the campus, where you spend your time on campus, what types of environments you enjoy, and what barriers you come across. I estimate this process will take 15-30 minutes.
2. Walkthrough of Campus: In this session, you, along with a member of the project team will walk through a route you're familiar with that is characteristic of your routine as a student. You will be asked to provide comments about these features along the route and provide feedback on your overall experience. Your comments may be audio recorded for a full record of your involvement in the walkthrough. We estimate that this process will take approximately 45-90 minutes.

Benefits

As a benefit of taking part in this project, you will get to share your thoughts and experiences about the current state of accessibility at the UofA. You may not personally benefit from this study, but key ideas from this project may provide the basis for improving accessibility across campus which could improve the future user experience. The intended outcome of the research is to inform the UofA on how we can design and retrofit buildings in ways that make our campus more accessible.

Risks

The risk involved in participating in this project is minimal, no greater than you would encounter in your everyday life. If we learn anything during the project that may affect your willingness to continue being involved, we will tell you right away.

Voluntary Participation

You are under no obligation to participate in this project and participation is completely voluntary. You may opt out of this project and may request to have any collected data withdrawn and not included in the project. If you wish to opt-out of this project, you may do so by contacting me, Cooper Csorba, verbally or in writing by **April 28th**.

Confidentiality and Anonymity

The information collected in this project will primarily be used for quality assurance purposes and will form the basis of an external report for the UASU and University of Alberta Facilities & Operations which will consist of a report on how the campus environment can become more accessible. Participants will not be personally identified in any current or potential uses of these data unless the participant requests to be given credit for their contribution to this project. Data will be kept confidential to the UASU staff unless otherwise requested by the participant. Data will be kept secure on a password protected UASU server for a minimum of 5 years following the completion of the study and when appropriate destroyed in a way that ensures privacy and confidentiality.

If you agree to take part in this project, you can indicate your consent by completing the attached consent form or by email to Cooper Csorba (cooper.csorba@su.ualberta.ca).

Further Information and Additional Contacts

If you have any questions about this project, please feel free to contact me, Cooper Csorba, through email to cooper.csorba@su.ualberta.ca

Thank you for your consideration.

Respectfully,

Cooper Csorba, Undergraduate Student, Planning Analyst
University of Alberta Students' Union