# Groups

* In & out
  + Group 1 Assorted Barrier Busters
  + Group 4 Cats and Dogs
* Up & down
  + Group #2
  + Group 5 The A Team
* Getting around
  + Group 3 Hedgehog
  + Group 6 Challenging

# Step One: Thresholds encountered

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| **Threshold** | **Themes** | **Teams** |
| Bed (hospital) | Up & down | Group #2 |
| Bike lane (between sidewalk and streetcar, interfere with Wheel-Trans ramp) | Getting around | Challenging, Hedgehog |
| Bus | Getting around | Challenging, Hedgehog |
| Bus stop (including navigating obstacles such as benches) | Getting around | Challenging |
| Construction (navigation) | Getting around, In & out | Assorted Barrier Busters, Challenging |
| Controls and buttons (access button for example) | Getting around, In & out | Cats and Dogs, Challenging, Hedgehog |
| Crosswalk | Getting around | Hedgehog |
| Curb (cuts, depressed) | Getting around, Up & down | The A Team, Challenging, Group #2 |
| Doors (automatic, elevator, multiple sets of, revolving, sliding, subway) | Getting around, In & out, Up & down | Assorted Barrier Busters, Cats and Dogs, Challenging, Group #2, Hedgehog |
| Elevator/Lift | Getting around, Up & down | The A Team, Challenging, Group #2 |
| Escalator | Up & down | The A Team, Group #2 |
| Ferry | Getting around | Hedgehog |
| Gurney | Up & down | The A Team |
| Hanging baskets from patios | Getting around | Challenging |
| Hill | Up & down | Group #2 |
| Kneeling bus | Up & down | The A Team |
| Ladder (fixed) | Up & down | The A Team |
| Noise | Getting around | Hedgehog |
| Ordering/hailing a taxi/Uber/Lyft | Getting around | Challenging |
| Parking lanes/spots | Getting around | Challenging, Hedgehog |
| Railing (guard rail, handrail) | In & out, Up & down | Assorted Barrier Busters, The A Team |
| Ramp (permanent, temporary such as StopGap) | In & out, Up & down | Assorted Barrier Busters, The A Team, Group #2 |
| Roundabouts | Getting around | Hedgehog |
| Scaffolding | Up & down | The A Team |
| Sidewalk/pavement (cracked, uneven; navigating obstacles such as planters, garbage bins) | Getting around, Up & down | Challenging, Group #2 |
| Slide | Up & down | The A Team |
| Sloped floor | Up & down | The A Team |
| Sloped ramp conveyor | Up & down | The A Team |
| Sloped sidewalks and exterior paths | Up & down | The A Team |
| Stair climber | Up & down | Group #2 |
| Stair lift | Up & down | Group #2 |
| Steps and stairs | Getting around, In & out, Up & down | Assorted Barrier Busters, The A Team, Challenging, Group #2 |
| Streetcar entering/leaving (deep steps, getting to the streetcar in the middle of the road) | Getting around | Hedgehog |
| Streetcar track | Up & down | Group #2 |
| Subway platform (including navigating obstacles such as bins) | Getting around, In & out | Cats and Dogs, Challenging |
| Surface material and transition | Getting around, Up & down | Group #2, Hedgehog |
| Train | Getting around | Hedgehog |

# Steps Two and Three: Negative and Positive Experiences

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| **Threshold** | **Negative** | **Positive** |
| Bikes |  | * Bike rental: not your bike to get stolen and you don’t have to carry |
| Bike lane | * Blocking access to street car * Interfere with Wheel-Trans ramp * Pedestrians wonder into bike lanes * Feeling terrified around bike lanes | * Segregated bike lanes: separate from cars and pedestrians, comfortable, not at risk or be a risk |
| Bus | * Chokepoints due to internal bus design | * Announcements for stops * Bike rack on bus (pain to get on but otherwise good experience) * Kneeling bus * “Next bus” apps |
| Bus stop | * Bus stops that move such as due to construction * Obstacles such as pole in the way when getting off the bus, benches |  |
| Controls and buttons | * Building is locked with no indication of how to get in * Inconsistent placement * Having to use a badge to gain access but have hands full | * Accessible, well positioned, large * At foot level * Consistent placement (for example, easier for a service dog to find if consistent) * Motion detection |
| Crosswalk |  | * Audio indicator with amount of time * All-way crossing (such as Yonge and Dundas) - sense of joy and freedom * Good audio at Yonge and Bloor crossing |
| Curb | * Curb cuts missing * Curb cuts need to be placed not just at the apex of the corner * Curb cuts not where needed when moving from a car to the sidewalk |  |
| Doors | * Automated doors that don’t stay open long enough * Difficulty in exiting subway doors * Door too narrow * Heavy doors * Not clear which side the door opens on * Not clear whether push or pull * Not enough space between sets of doors * Revolving doors are awkward (have an accessible door nearby) | * Auditory signal when doors open * Doors that open with motion detection * Sliding doors * Wide doors with automated well positioned buttons |
| Elevators | * Lack of emergency communications * Location of buttons * No braille or tactile markings * Size of cab * Timing of the doors: for example when there is a bank of elevators and the far one comes or getting stuck in the closing door * Unclear indication of floor * Uneven entrance | * An elevator system with a ‘wheelchair’ button: press before selecting floor, you are then instructed which elevator to go to and the door stays open longer * Audio alert about floors reached * Braille and raised print * Button to hold door open * Friendly voice * Sensitive doors * Sensor detecting people and adjusting door * Signage indicating floor number, on wall opposite elevator * Talking elevators (such as in subways) * Wide enough |
| Escalators | * Directions not clear, not right next to each other |  |
| Ferries | * Not announcing which dock you are at |  |
| Parking lanes/spots | * Spots not wide enough (for ramp for example) |  |
| Railing (guard rail, handrail) | * Fell off balcony due to railing being too low | * Sturdy handrails |
| Ramps | * Hard on balance, ankles, knees * No handrail * Too steep |  |
| Roundabouts | * Hard to navigate * Have to walk around * No indicators for low vision * No straight crossing * Terrifying |  |
| Sidewalk/pavement | * Cracked * Inconsistent (bad for scooters and wheelchairs) * Obstacles such as planters, garbage bins * Uneven * When crossing the street, can’t get from curb to sidewalk when there is a wall of people |  |
| Sloped floor | * Lack of tonal contrast to communicate depth or end of slope |  |
| Steps and stairs | * Crowded * Falling due to missing first step * Handrail not continuous * Lack of indication of transition into stairs * Lack of tonal contrast to communicate depth or end of steps * Loose nosing * Treads too shallow or too steep/deep | * Contrasting step demarking ends of staircase |
| Subway platform and station | * Not enough space between shelter and tracks * Obstacles such as bins * Shelters too wide * Step between platform and subway * Too narrow | * Talking elevators |
| Surface material and transition | * Slippery materials * Some surfaces, such as metal gratings may be hard for a dog to walk on * Sometimes hard to tell between different areas based on surface (such as grass and path) |  |
| Train (Subway and others) | * Crowded, claustrophobic * Feeling rushed getting off * Doors close too fast * Need to travel across or under tracks | * Announcements for stops * Better when less crowded, such as late at night or early - not rushed * More openings |

## Other negative experiences

* *Access denied due to have a service animal - attitudinal rather than physical barrier. Human barrier (ignorance, lack of awareness).*
* *From in to out - extreme light and temperature and noise changes can be difficult to adjust to*
* *Glass walls are confusing for dogs because they look like doors*
* Having to be alert all the time
* Inconsistent changes in level (for example a curb can indicate threshold between sidewalk and road, but if there is no curb, there is no indication)
* Lack of awareness, advocacy, sensitivity, education
* *Lack of adequate indicators (for stairs, floor number, elevator)*
* Lack of signage or other way-finding supports after going through a threshold
  + Such as surfaces to indicate which way to go - to direct people away from the threshold
  + *Getting off transit and not knowing where you are*
    - *Better announcements*
    - *Lights which stop traffic if you’re in the street*
    - *Finer resolution on personal GPS*
* Misinformation
* Missing street crossing where there needs to be one (such as McCaul and Queen at OCAD)
* Nowhere for guide dogs to relieve themselves
* *Obstacles*
  + *Benches*
  + *Bike Stands too close to road*
  + *Bike parked in the way*
  + *Garbage bins*
  + *Planters*
  + *Poles*
  + *Tied up dogs*
* Poor signage
* *Tight corners*
* *Turning radius is too tight*

## Other positive experiences

* Apps and websites
  + Be My Eyes
  + BlindScreen (BlindSquare?)
  + BlindSquare app
  + CNIB website
* Arrows on train
* Audio info (parking lot example, conveyor belt)
* Audio call outs at subway stations, in streetcar, etc.
* Beacons for way-finding
* Good signage
  + Information about distance
* Illumination (flashing is noticeable)
* Integrated changes of transportation
* Info people
* People who listen to what we’re saying and act to make a change (for example, a restaurant that added an access button)
* Promotion of independence
  + Saves time and energy not having to wait for help
* Ramp placement alerts to ends of ramp
* Rumble strips throughout the city and indication at forks/transition
* Seating for rest periods
* Seamless transition from bathroom to shower
* Security procedures in place to accommodate people with disabilities so they know they are safe in an emergency and will not be forgotten
* Tactile indicators
  + Dots - warnings
  + Direction
* TTC giving wheelchairs to blind people
* Washrooms without doors - don’t have to touch buttons
* Wide aisles: uncluttered passageway

# Step Four: Imagine a better experience in the future

## In & out

* Automatic door
* Building identifies people and provides predetermined preferred level of assistance
* Building supports ease of movement and assistance through technology according to each person’s parameters
  + Doors open for you
  + Sending texts for assistance
* Commitment to accessibility support
* Developing systems and procedures for all tenants during an emergency, including people with disabilities
* Plans and procedures to keep entranceways, and approaches to the buildings, clear of snow and ice and mush
  + Coverings to sidewalk edge
  + Loading & unloading areas
  + Heated areas
  + Robot to shovel
  + Better snow drainage at curb cuts
* Elevators
  + Signal when doors open/floor
  + Longer timing
  + Different cues - light, sound, voice
  + Badge - elevator knows your needs & language
  + Different way to interact - ex by voice
* Driverless vehicles
  + Satellite intermediate vehicle that docks with a vehicle and brings the person from the roadside into the building over all terrain, winter conditions and obstacles

## Up & down

* Good handrails
  + Extensions
  + Sturdy, graspable
* Announcements - multimodal (audible and visual)
* Tactile directional wayfinding
* Tactile warning surfaces
  + Audible feature
* Snow removal/melting
* Be able to tell escalators apart
* Accessible elevator
* Build wide
* Clear and easy to find accessible route
* Light at night
* Good tonal contrast in the right places
* Gentler ramps
* Crowd flow/control
* Standard approaches for change in level
* Maintenance

## Getting around

* Finer details in navigation apps
* Obvious audio announcements when exiting public transit >> for wayfinding as well
* Standardize everything
  + Bus stops, ramps, curb cuts, voice over support, sidewalk material, accessibility standards for public transit, consistency in bus stops, getting on/off, audio announcement frequency, placement of controls
* Be My Eye for transit/ transportation
* Ubiquitous data connections for GPS + Be My Eyes
* Wider sidewalks to accommodate 2 wheelchairs
* Airport
* Navigation app for wheelchairs/ or blind people
* Unlimited data for people with disabilities
* More pedestrian focused streets
* Street furniture which encourages use - But put it where it won’t obstruct pedestrians
* Dedicated pick up/ drop off areas for taxis
* Easier thresholds for cars/ taxis
* Accessible/ audio meters in taxis
* Integration with transit apps to inform service provides of blindness
* Contain construction within a site
* Construction site boundaries which are solid (For canes) - Audio warnings
* Updates to wayfinding apps for construction
* Crossing parking lots
  + Wayfinding for parking
* More phone integration
  + ID (student ID)
  + Payment
* Automatic TTC payment - TTC takes Apple Pay

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* Foot rest (for bikes similar to curb cuts at appropriate height (similar to Copenhagen)
* Speed bump cut for bikes and wheelchair
* Frequent green space for humans and dogs with appropriate waste disposal and for relief particularly for service animals
* Rumble strip throughout the city
* Path through grass for wayfinding
* Public emergency phones
* Boardwalks - Indication on curb to buses and cutoffs for boardwalk - Knowing where to cross - walking on the boardwalk, where to get off to go back, path to road/ restaurant, bus stop, where bikelanes are
* Guide dogs are so smart that if they are doing something they love, they will keep doing it
* Automatic train control - Always stop in the same spot (e.g. hong kong) - barriers and doors are at the same spot - don’t feel as nervous at the edge - same with streetcar stops
* Streetcar stops need islands
* Old automatic indicators city used to have and pedestrians didn’t need to find post with a button -- Buttons are inconsistent - Toronto buttons don’t work, no feedback - White horse?? Is automatic
* Option to give priority to automatic sliding door > power > batteries and generators,
* Timing of the automatic doors (right now they are too fast), using beam to activate the automatic doors, height of these doors (right now they should be careful of the service dogs and their tail

# Step Five: Prototype Themes

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| Prototype Theme | Group Name |
| * Mobile app that provides information to users when transitioning between modes of transportation * Simple, easy to use app that provides info about surroundings when getting off a bus/ subway and transitioning to another mode (TTC, streetcar, walking) * 311 and GPS information systems in 1 app (Support from google, microsoft apple get funding * An app that provides information about construction/ road closures + info to navigate these situations * Entering the address and getting an accessible route, providing details about the route, width of the sidewalks, curb cuts, closures, integrated with social media and other newsfeed to get information about the city wide emergencies * Real-time data - receive information about changes throughout the city and input data to update others about the ongoing events in the city that may impact them | Challenging Hedgehogs |
| * Set accessibility preferences for environments: what are the individual needs? * In internal spaces the app can:   + Manage the temperature range   + Activate doors   + Provide directions (light)   + Help button - broadcast messages   + Identify accessibility features in the buildings   + Voice activate the elevator * In external spaces the app can:   + Call accessibility vehicles (come to curb to bring person into building)   + Identify accessible pathways   + Activate voice directions   + Weather forecasts   + Help button * At Thresholds app can:   + Open / close doors - manage settings and timing of doors   + Help with language settings | Assorted barrier busters |
| Indoor accessible mapper | Group 4 |
| Promote respectful helping   * Stop:   + Auditory announcements, clear, loud, slow,   + Written in clear words,   + Phone vibrates in hand at stops * Getting off:   + Ramp extended for smooth transition   + Elevated platforms   + No barriers, no running into anyone, no gaps, drops   + Properly illuminated, braille * Sidewalk to elevator:   + 100ft that are straight and clear, wide enough for 2 wheelchairs   + Braille strip with beacon system integrated with app   + Button on streetcar, app, and sidewalk that activates sound indications, includes visual indications (illuminated) * Elevator doors:   + Clearly visible, tactile and auditory indications   + Well light, spacious, buttons lower, contacts also lower, and higher, voice command, button for emergency contact   + Guidelines for helping someone panicking   + Convex mirrors to see others around | Group#2 |
| * Curb cut - tactile indicator, audible, colorful, illuminated, aromatic, vibration (haptic) * Hollow noise * Micro circuitry * Heated * Still tactile * Redundancy power * On the ground,digital and analogue * Multi sensory * Continuous with other connections * Tactile indicators at changes of level, multi-modal message * Traditional domes - bigger surface (1.3 square meter) + hollow nise | A Team |