



**CROWD/4ACCESS**

# Urban mobility using crutches

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*Bianca Pereira. Urban mobility using crutches. (Report) September, 2020. Insight SFI Research Centre for Data Analytics.*

# Urban mobility using crutches

This document summarises the experiences shared by users of crutches who participated during the Crowd4Access Experience Sharing workshops that happened on-line during July 2020.

The experiences shared were categorised according to the urban elements they refer to, including quotes from participants and examples of locations where such urban elements can be observed. Also, each participant was asked to vote on the top 3 elements that they would like to see featuring on a map. Note that the top 3 elements may not necessarily match the urban elements cited in this document. The main reason for this difference is that participants are familiar with multiple modalities of mobility (crutches, wheelchairs, etc.) and may have opted for urban elements related to any other modality.

Two crutch users participated in our workshops (1 male and 1 female), both participants also had previous experience in using wheelchairs. Table 1 shows the urban elements that support mobility and Table 2 displays the urban elements that hinders mobility according to the participants' votes.

Table 1. Urban elements that support mobility and participants would like to see on a map

Urban elements that support mobility	Votes
Flushed kerbs	1
Linked network of footpaths	1
Benches and leaning post	1
Disabled parking (near amenities)	1
Footpath pavement type (surface grip)	1
Street crossing (zebra crossing or other where the pedestrian has the right of way)	1



Table 2. Urban elements that hinder mobility and participants would like to see on a map

Urban elements that hinder mobility	Votes
Uneven pavement	2
Uncontrolled crossing at roundabouts	1
Location of disabled parking (far from amenities)	1
Presence of mobile furniture (e.g. sandwich boards)	1
No flushed kerbs (either inexistent or only lowered)	1

"(...) planning becomes very, very important when you have an issue as a disability [when] managing the urban environment."  
(crutch user)

Both participants described the experience of moving around the urban environment in Ireland and expressed the importance of planning before going anywhere. Therefore, having a map that shows the urban elements of interest to each crutch user, and apps based on this map, may support their everyday mobility planning, improving mobility and avoiding danger as much as possible.

In addition, one of the participants expressed that the way how urban elements are currently planned and built, creates a social division between people who have disabilities and those who do not have, creating a form of "apartheid". The mapping of the current urban environment in Ireland may provide an opportunity for urban planners in getting a data-driven perspective of mobility for people with different mobility modalities.



"I feel the urban environment has kind of created an apartheid system really, where people don't really differentiate between disabled people. They want to involve us in their lives, our friends in particular, but the urban environment means that we lead a life where a lot of things are out of reach for us."  
(crutch user)

The goal of this document is to enlist the types of urban elements that affect the everyday life of crutch users from the perspective of those with the lived experience. Note that, this document does not aim to be a definitive guide on what urban elements should be mapped to facilitate the mobility of crutch users. Instead, it is a first step in a broader discussion of accessibility of the urban environment in Ireland.

In the following, we enlist the urban elements cited by workshop participants during their experience sharing.

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# Mobility in footpaths

The first category of urban elements that we review refers to the characteristics of footpaths.

## Uneven (broken) pavement

Uneven, broken or worn out pavement was the top problem cited by participants as decreasing their mobility in urban areas.

The balance of a user of crutches relies on the inclination of the pavement. If the pavement contains uneven surfaces, the point of contact between the crutches and the pavement may not be as stable as needed to support the weight of the user. As a consequence, the user of the crutches may slip and fall when the point of contact does not provide enough support.

"I can measure the success of a city for mobility in terms of how many times I have fallen in it and Galway isn't a great city, I fall a lot."  
(crutch user)

The participants in the workshop cited how broken pavements can cause physical damage to someone's posture as well as social distance to other people.

"It affects your posture because you constantly have to walk with your eyes looking to the ground. You have to see what is the status of the pavement rather than holding a conversation or looking ahead. So you are relying on people to get out of your way."  
(crutch user)

"No holes, no potholes. Also, not angled. (...) If it is flat (...) and sometimes there is a big angle on the sides, so you are a bit sideways."  
(crutch user)



Participants also noted that when the pavement is too worn out it tends to get very slippery and hard to navigate, in particular after rainy days.

"Uneven broken pavements are really bad also because (...) after a rainy day there is this kind of moss or this algae that appears on footpaths and that makes it very slippery"  
(crutch user)

"Flooded areas when there's a lot of rain, it's slippery and difficult to pass through."  
(crutch user)

Crutch users would like to see if there is any particular section of a footpath that has uneven or broken pavement marked on a map.

## Pavement type

When talking about the pavement type, crutch users have a particular challenge with types of pavement that are naturally slippery and locations that are only accessible via a region with grass.

Although the presence of green areas is welcome by most citizens, trails based on grass are particularly hard to navigate for crutch users. Participants cited instances where bus stops are only accessible if they leave the footpath and step through grass. Depending on the type of soil and the recent amount of rain, these patches of grass may be a falling hazard for people who use crutches for their mobility.

"It's just grass you have to go around. I would cross with my crutches and take the risk of falling."  
(crutch user)

When the footpath is paved, there are also extra challenges under wet conditions. As the mobility using crutches relies heavily on the surface grip provided by the pavement, some types of materials that have a more smooth surface may be a hazard for crutch users. Other materials (e.g. cobble stones) that offer resistance on the point of contact between the crutches and the pavement are preferred.



"Cobble [stones] work because there is resistance if you slip. The rise of the second cobble will stop [your crutch] from going away too much [if it slips]"  
(crutch user)

"The ones I talk about are either side of, or they were either side of, Shop Street [in Galway], they are the kind of decorative ones. (...) They are particularly slippery (...) [and under wet conditions] the surface becomes very treacherous (...) for people like me who are relying on traction from the ground."  
(crutch user)

## Tactile paving

Crutch users understand the importance of the presence of tactile paving for the mobility of other footpath users (e.g. visually impaired people). However, they also point that the existence of bubble tactile paving in footpaths causes extra challenges in moving using crutches, since it causes an uneven surface and they need to be extra careful where they position the bottom part of the crutches.

"Putting your crutch in between those things [bubbles in tactile paving] is a bit tough."  
(crutch user)

## Footpath width

Participants in the workshop cited how important it is to have enough space to move around. When footpaths are narrow or there are too many people in a given area, two issues may arise.

The first issue is in having external support in case someone loses their balance. One of the participants cited the habit of walking in the inside part of footpaths closer to buildings and walls. The main reason is that if the crutches slip and they lose their balance, the wall or building can still serve as support to avoid falling.



The second issue happens when there are too many people in a given area. It becomes harder for crutch users to avoid collision with other people and losing their own balance. In addition, it becomes harder to see where the crutches are being placed and if that position is stable enough.

"I really like the Salthill Promenade [in Galway] because it is wide, it is busy but there is still space in between the people. Whereas if you go to Shop Street [in Galway] people just don't see you (...) So it is wide, but it's too busy."  
(crutch user)

## Street crossings

There are multiple elements in street crossings that can facilitate mobility using crutches or make it harder to cross a street. The elements cited by the workshop participants were: the time for traffic lights, crossings at roundabouts, wide roads, crossings where the pedestrian has the right of way, and traffic lights not aligned with crossroads.

Mobility using crutches is tiring and crutch users need extra care when moving to ensure proper balance. Due to these, crutch users need the timing of traffic lights to be adjusted according to their needs. Both participants in the workshops cited how hard it is to cross the street when the time for the street lights is so short.

"Sometimes you just don't have time [to cross] or cars come really fast. The wider the road, the harder it is to cross it."  
(crutch user)

"Crossings that have traffic lights [time] too short, you don't have time to cross before the light goes to red."  
(crutch user)

Also, in traffic junctions where there are multiple roads to cross, the timing of the different traffic lights may not be synchronised to their best use by pedestrians.

Considering the street crossings in the junction between the N6 and the Headford Road in Galway:



"Crossing roads are really long to cross (...) in a lot of places in Europe the traffic lights are aligned for the pedestrian, such that it goes green, you cross green and then when you arrive at the other end of the place, the other one goes green again. You can go kind of in a row. So, it doesn't exist there."  
(crutch user)

In a similar way, roundabouts without controlled crossings (e.g. with traffic lights) are particularly hard for people using crutches for mobility. A particular solution pointed by one of the participants are those roundabouts where the road is raised to the level of the footpath, causing cars to slow down and stop for pedestrians trying to cross.

"Roundabouts are terrible to cross (..) [because] people go fast."  
(crutch user)

Considering the raised crossings near roundabouts at the Western Distributor Road, in Galway:

"it makes the car go a little slower and they basically stop before they go to the roundabout so it means you have the priority to go through."  
(crutch user)

Considering the roundabout near the University Hospital Galway:

"Cars go and go with it. There is just no place for pedestrians."  
(crutch user)

The next challenge is to cross wider roads, in particular when no traffic lights are provided and crutch users need to negotiate the road with car drivers. The wider the road, the higher the effort to cross it. One participant cited particular road junctions where the road tends to get wider towards the junction.

[The Sea Road in Galway widens near the junction with Father Griffin Avenue so] "it is very long to cross it"  
(crutch user)



Due to all challenges in street crossings, one participant points to the importance of street crossings where the pedestrian has the right of way, may these be crossings with traffic lights, having the yellow warning lights, or at least having only a zebra or marked crossing.

Another extra challenge that exists even in the presence of street crossings is when the crossing is positioned out of someone's route. Participants state the moving long distances using crutches can be particularly tiring and disabling. Also, any small change in the route may easily add 10 minutes or more to someone's journey. Therefore, having to go out of their route just to look for a suitable street crossing may make a route inaccessible to users of crutches. One participant suggests an analysis of pedestrian routes in order to decide where to position street crossings.

"When you come from the Canal [in Galway] and you want to go straight to NUIG, you have to go around to the street crossing and come back. When you are really struggling with crutches it can add like 10 minutes to your journey."  
(crutch user)

## Flushed kerb

The participants in the workshop cited the importance of dropped kerbs in street crossings, where the kerb flushes with the road. The main issue faced, though, is that all footpath users tend to aggregate around the flushed kerb area when crossing the street. As crutch users have the need to ensure their balance and move carefully, it may lead them to having to wait for everyone crossing the street before they can actually do it, which is particularly challenging when traffic lights are soon to open for cars. A suggested solution to solve this issue is either to promote awareness for the population to only use the flushed kerbs if they have real need to use it or to have wider flushed kerbs built at street crossings.

"in a dropped kerb, everyone seems to go for it. So, it is a scrum [as in rugby] for that particular point"  
(crutch user)

## Slow/fast lane



In order to facilitate the sharing of footpaths with other users, one participant cited the separation between faster and slow lanes as seen in airports around the travelators. One suggestion would be to implement such sort of guidelines for sharing the footpath, in particular around wide boulevards in cities around Ireland.

"Could we have a fast lane and a slow lane on footpaths? (...) For people who, maybe for various reasons, walk slower or need to take more care, go on one lane, and people who want to walk faster go on the other."  
(crutch user)

"Certainly in wide boulevards such as O'Connell Street and Grafton Street in Dublin, Shop Street in Galway, O'Connell Street in Limerick, I wonder, could we do that [having slow/fast lane divisions]?"  
(crutch user)

## Linked network of footpaths

One of the participants in the workshop cited how important it would be to know that they can arrive at a place of their choice without having to face any inaccessible patch of footpath in between. For instance, knowing that they can leave home and go to a supermarket, store or work, without needing other people's help due to a part of the footpath that is inaccessible to them for any particular reason.

"A linked network of footpaths means I can just leave my house and there's already something there, a footpath that can lead me to wherever I want to go, without any [accessibility] gaps."  
(crutch user)

## Mobility in the presence of street furniture

This category of urban elements refer to items that are added on top or around the footpaths. These items are usually called 'street furniture'. Street furniture can be fixed to the location such as light poles, rubbish bins or letter boxes, or they can be mobile such as tables, chairs or restaurants' sandwich boards.



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## Benches and leaning posts

Walking long stretches using crutches can cause fatigue. Participants in the workshops cited how important it is to have places for rest such as benches or leaning posts. Leaning posts such as those commonly found in bus stops are welcome by participants that, for any reason cannot bend their knees.

"Distances are a problem with me (...) I would need a place to sit or to lean against quite regularly. (...) So places to rest are very, very important."  
(crutch user)

[Due to the lack of places to rest while walking Shop Street in Galway] "I haven't walked on Shop Street in Galway in I'd say maybe 10 years maybe more."  
(crutch user)

"In Dame Street and Camden Street [in Dublin], there's no place you can sit unless it is the window of a shop or you have to break your journey by stopping for a coffee or a tea."  
(crutch user)

"I found them [leaning posts at bus stops] good actually to rest a bit. When I had the crutches, sometimes it is difficult to sit [since in my case] I had the leg completely straight, so seating is not always handy and sometimes your leg is in the way of other people."  
(crutch user)

## Kissing gates

Kissing gates that appear in the entrance of parks and other amenities tend to be a challenge for users of crutches. Each person passing through that gate needs to do some maneuvering that may cause lack of balance and falling hazard.



## Mesh and grid covers

Covers for ventilation or for the roots of trees can sometimes impose a challenge for crutch users. In the experience of the workshop participants, however, these tend to not be a recurrent problem since the bottom of the crutches are usually bigger than the holes in the mesh and grid covers.

"Crutches can get stuck depending on the type of [mesh cover]"  
(crutch user)

## Mobility using private vehicles

This category of urban elements focuses on mobility using private vehicles. As walking long distances using crutches may become too tiring, the use of cars becomes very important for those who use crutches as a mode for footpath mobility.

### Designated Car Parking (Disabled parking)

The use of crutches may be temporary or long term. For those who use crutches on a long term basis, the existence of designated disabled car parking becomes an important urban element to allow mobility around Irish cities. The main characteristic cited by participants in the workshop was the proximity of disabled car parking to the stores and amenities.

"I am really dependent on my car (...) [so I am] kind of limited in terms of where we go because of disabled parking availability."  
(crutch user)

One participant points that although the idea of pedestrianisation of City Centre areas may be good for pedestrians in general, it may make that region completely inaccessible to users of crutches and other people who cannot afford walking long distances. In such a case, the participant's suggestion would be to have designated hours where people who need to access those areas by car can have access to designated parking spots.



"Creating a pedestrian zone in City Centre [in Galway] will make things very difficult for me. (...) There's a disabled parking place [at Cross Street] and I think there's a few of us, disabled drivers in Galway, who are in a competition for that spot. If that street becomes pedestrianised, all lower Galway becomes inaccessible to me. Unless we could negotiate a time with the City Council, where disabled drivers will be allowed to access those streets or maybe a blue badge, which allow you to access certain pedestrianised zones on certain times."  
(crutch user)

In addition to the availability of parking spots, users of disabled parking spots are particularly concerned about their use by people who do not really need them for accessibility purposes. In particular those that use disabled parking spaces as drop-off points or temporary loading bays.

"There seems to be a thing in Dublin, also Galway, where delivery people take the disabled parking as a place that they can pull it up while they are doing deliveries. 'I'll only be five minutes', that's the usual thing."  
(crutch user)

## Mobility using public transport

This last category refers to urban elements that promote mobility using public transport such as taxis, buses and trains.

### Bus Stops

The access to bus stops and the ability to embark the bus were the two key points participants cited about this mode of public transport. If bus stops are placed in a location that forces crutch users to have to walk through hazardous surfaces such as slippery surfaces or grass areas, then it may make any bus stop inaccessible. Also, the presence of seats or leaning posts were cited as very important to improve the accessibility to bus stops.



"Sometimes bus stops are not on the footpath, they are in the middle of a green grass area" [and green grass areas are hard to access with crutches].  
(crutch user)

"A bus stop without a seat does not work at all."  
(crutch user)

In addition to the elements in the urban environment, participants cited that the attitude of the bus driver in conjunction with the kerb in the footpath may cause crutch users to not be able to enter the bus. The first problem happens when the bus driver does not park the bus with the door flushed to the raised kerb. The second problem happens if the bus door is positioned at the location of a flushed kerb, in this case there is too much of an inclination for crutch users to get up on the bus.

"If the bus driver doesn't pull flushed to the footpath (...) I don't have the power on my legs to get into the bus from the road to the door."  
(crutch user)

## Train Stations

There are also challenges around Irish train stations, in particular regarding the distances required to travel between the entrance to the station and the platform.

"It's literally half a mile from where you just embark the train to the exit of Heuston Station [in Dublin]. (...) It's an impossible walk, it takes me 45 minutes to walk from the train to the street."  
(crutch user)

Also, one of the participants highlighted the fact that some train stations are not central to the city. In such a case, crutch users may need to take a taxi as another means of transportation and often face reluctance of taxi drivers in bringing them on such a short trip.

"I am not able to walk, say from Houston Station to O'Connell Street [in Dublin], that's beyond me. I would not be able and taxi drivers don't really want to take you on that route because it's too short."  
(crutch user)



# Conclusion

In this document we report the experience shared by crutch users who participated in the Crowd4Access experience sharing workshops organised during July 2020. This document also highlighted some of the urban elements that make mobility easier or harder for crutch users, while also listing the types of urban elements that users of crutches would like to see featured in a map of the urban environment.

The fixed urban elements cited in this document will be used by the Crowd4Access project to plan our data collection about the accessibility of Irish cities. Such data collection will be done through a citizen crowdsourcing initiative later in 2020.

Note that we have interviewed a very small number of crutch users, who were kind to share their experiences in the context of this project. Therefore, we do not claim that this document is a definitive guide for the mobility of crutch users or that it represents the whole range of experiences of crutch users around Ireland. Instead, we acknowledge that this is a first step towards understanding the challenges in mobility using crutches. Finally, we invite other initiatives to build upon this work and explore the accessibility of the urban environment for people using different modes of mobility.

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