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## Northside Partnership "Healthy Community" Pilot Area Walkability Audit

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## NORTHSIDE PARTNERSHIP "HEALTHY COMMUNITIES" PILOT AREA WALKABILITY AUDIT

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### Abstract

Poor health has been identified as an issue for people who live in areas affected by structural disadvantage and social exclusion. One area in the North East of Dublin City has been identified for the development of a project addressing health inequality and promoting a "Healthy Community" by Northside Partnership, a local development company established in 1991 to address social exclusion. The Partnership has been assisted in the development of the programme by a wide range of statutory and community organisations, and in particular the Health Service Executive (HSE) Dublin North Health Promotion Department. DIT engaged with Northside Partnership in a *Students Learning with Communities Initiative* to research levels of mobility and the potential for sustainable transportation within the study area.

In 2013 an assessment of mobility (presented at the 2013 AESOP Congress) was undertaken among key disadvantaged communities in the Northside Partnership "Healthy Community" area. The study revealed that while mobility levels are high, perceptions of the quality of mobility services are very low, particularly in relation to service reliability. Furthermore, significant barriers to mobility are presented by poor environmental conditions as well as safety issues. Other issues are prevalent, such as poor perceptions of active travel and further research was recommended in this area.

The study examines walking mode share for the area over recent census periods. Walking to work and school has declined from 18% to 14% between 2002 and 2011. While much of this is explained by a changing demographic, deteriorating environmental conditions and anti-social behaviour appear to also be relevant factors.

The study identifies the key trip demand centres within or adjacent to the study area. Many of the routes examined are commonly used walking links yet provide a very low level of amenity. In some cases, pedestrians are routinely enforced into unsafe and unpleasant circumstances. Current conditions derogate significantly from the best practice national guidance document, the Design Manual for Urban Roads and Streets.

Social inhibitors to walking also exist within the study area. The area is classified by low income, significantly lower participation rates the labour force and a higher degree of welfare dependency than the rest of the city. In many cases "soft" measures can be as critical to counteract these barriers and to increase the general amenity of the area for the most elemental of the transport modes.

The development of the Santry River Greenway, not just as a physical piece of green infrastructure but as a socially connected community space, is recommended. The development of practical solutions capable of addressing the complexity of issues identified in this paper requires a collaboration of actors from different policy arenas and agencies.

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### Introduction

The Healthy Communities Initiative was set up by the Northside Partnership (NSP), a local development company, in collaboration with the Health Service Executive (HSE) in order to promote wellbeing and reduce health inequalities within a pilot area taking in 6 electoral districts in Priorswood, Darndale and Kilmore West on the northside of Dublin City. The pilot area for the initiative manifests a number of determinants, which can contribute to poorer than average health, such as low income and welfare dependency [1]. The area exemplifies how social and economic deprivation can reinforce and contribute to undesirable behaviours and attitudes towards the environment and individuals' own health [11]. In line with the World Health Organisation's (WHO) *Healthy Settings Approach to Health Promotion* [2], the Healthy Communities Initiative aims to tackle health problems through fostering supportive networks and creating healthy environments.

Transport and mobility have been identified as key factors in the promotion of health and wellbeing. Car dependency, for example, can have a number of negative outcomes, such as: physical inactivity; pollution and carbon emissions; traffic congestion; fragmented communities; reduced social interaction and urban sprawl, [3], all of which impact negatively on public health. Conversely, active transport, such as walking and cycling, not only promotes physical activity, but also has a benign impact on the environment, is more affordable, and contributes to social cohesion [3].

As part of the *Community Links Programme*, the Dublin Institute of Technology (DIT) has partnered with the NSP in order to address issues of sustainable transport and mobility in the NSP Healthy Communities Initiative Pilot Area (see figure 1). This has led to a number of projects, which have targeted issues related to public transport, cycling and walking [1, 5, 6].

In 2013, DIT Masters students undertook an assessment of mobility among the pilot area communities. The assessment included: mode share analysis, trip distribution analysis, journey-to-work survey of targeted NSP clients and an attitudinal survey which included a Travel Diary [8]. The study reveals that while travel demand levels are high (interviewees make more trips than national and urban averages) the quality of mobility services is very low. Furthermore, significant barriers to mobility are presented by poor environmental conditions as well as safety issues. Other issues are prevalent, such as poor perceptions of active travel as a transportation alternative.

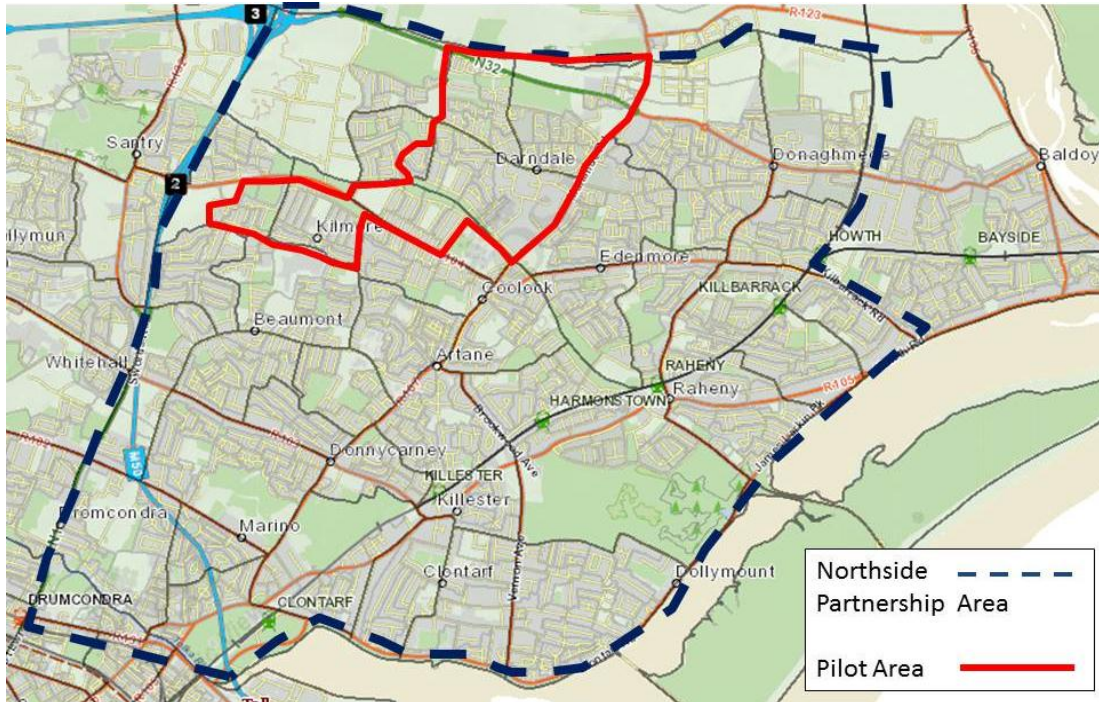


Figure 1: Northside Partnership Healthy Communities Initiative Pilot Area

## The Northside Partnership Healthy Communities Initiative Pilot Area

The pilot area largely consists of low-density housing estates, most of which were built in the 1960s and 1970s [1]. It is not very conducive to active transport due to structural factors, such as impermeable blocks, cul-de-sacs, wide carriageways and large junctions [4]. Previous studies demonstrated negative attitudes towards active transport, due partly to perceptions of safety and the environment [1].

Building on the 2014 studies of public transport use [4] and cycling [5], the DIT Mobility Project focused on walkability for the pilot area. This paper presents the findings of the projects. It begins by outlining the methodology used. It then provides a brief description of the walking share modes in the area. Four representative routes from the project are discussed in terms of the issues identified and ensuing recommendations. The paper goes on to highlight social barriers to walking in the area and concludes by proposing recommendations for further research and action.

### Empirical evidence and data collection

The collation of information, data and the empirical research was based on the following:

First, using small area data from the Central Statistics Office (CSO) for 2002, 2006 and 2011, walking mode shares for the 6 electoral districts (ED) that comprise the pilot area were gathered and displayed in tabular, graphic and map form.

Second, using demographic data from the CSO and consulting with the NSP, 12 key trip demand centres (including schools, health care facilities, retail outlets, employment, bus stops and community facilities) were identified and mapped using ArcGIS, a geographic information system.

Third, from the 12 key trip demand centres, 6 destinations were chosen and 2-3 routes towards each point were identified. Routes were assessed in terms of their walkability and barriers to walking were identified.

A permeability index was carried out using the Pedestrian Route Directness (PRD) formula, which was devised in 2001 by Todd Randall, a town planner who was working on a large-scale housing project in Ontario, Canada, called Berrisfield [7]. PRD calculates permeability by dividing the network (or path) distance by the euclidean (as-the-crow-flies) distance. The result can be classified as high or low. A low PRD, which is 1.5 or under, is considered to be acceptable, whereas a score over 1.5 means that a route is relatively indirect [7].

- Low PRD, PRD 1 - 1.5
- Medium PRD, PRD 1.5 - 2
- High PRD, PRD > 2

Figure 2: PRD scores

Finally, drawing on the Travel Diary Data from 2013 mobility appraisal and observations made in the walkability audit, social barriers to walking were discussed and recommendations were made [8].

### Findings

#### 1. Walking Mode Share:

As can be seen in Table 1, the walking mode share in 2011 was on average 13.9%. This is a drop from 2002, where the average was 17.61%, with some areas experiencing a larger decrease than others. For instance, in Priorswood C the walking mode share dropped by 37.45%, whereas in Priorswood D and E the differences were 19.71% and 115.1% respectively and Kilmore B actually experienced a slight increase of 3.06%. Nevertheless, there was an overall downward trend over the study period as the walking mode share decreased by 21.07%

In 2002, employment levels in the area were considerably higher than in 2011, though on a proportional basis to the rest of the city, the areas were still performing poorly. The Study area has two distinctly different areas. Kilmore West is located north of Beaumont Hospital and across a busy road south of Northside Shopping Centre. The area has an older population profile than Priorswood and Darndale both of which have a younger population



structure. The changing demands of people in ageing communities regarding services, interests and activities will be an issue for these neighbourhoods in the coming fifteen years as these areas are further away from key community facilities and suffer more deep-seated deprivation than Kilmore West.

**Table 1: Walking mode share for 2002, 2006 and 2011**

ED	2002 Total Walking Mode/ Total Pop.	2006 Total Walking Mode / Total Pop.	2011 Total Walking Mode / Total Pop.	Change 2002-2011
Priorswood B	20.04%	19.33%	15.60%	-22.16%
Priorswood C	25.90%	23.11%	16.20%	-37.45%
Priorswood D	15.07%	13.66%	12.10%	-19.71%
Priorswood E	10.96%	10.11%	9.30%	-15.15%
Kilmore C	18.63%	16.10%	14.70%	-21.10%
Kilmore B	15.04%	15.29%	15.50%	+ 3.06%
<b>Average</b>	<b>17.61%</b>	<b>16.27%</b>	<b>13.90%</b>	<b>-21.07%</b>

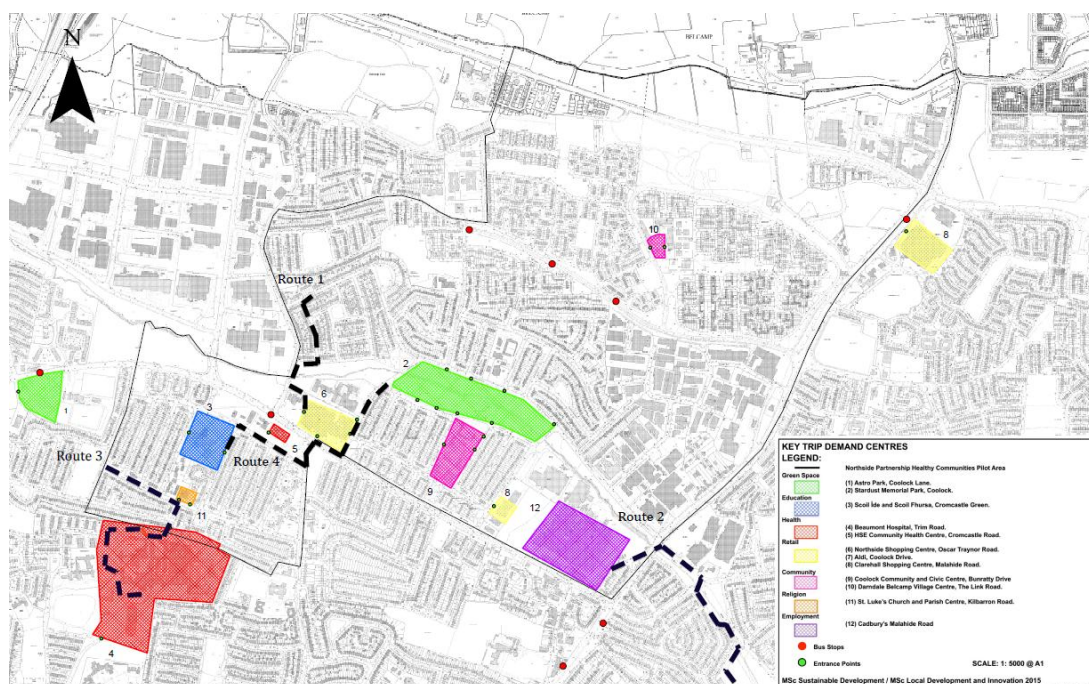
## 2. Identification of Key Trip Demand Centres:

The study team initially established the key trip demand centres affecting the study area. While most of these were within the pilot area itself, all were at least within walking distance of part of it. The selection was done in consultation with Northside Partnership.

The principle centres identified were places of employment, education, community services and recreation (see Figure 3). For the overall study a total of eleven routes were identified. For the purposes of this paper, a sample of four routes is highlighted. Each route covered a short 5-10 minute walking distance but could also form part of a longer route.

These four of the most critical routes were:

- Route 1: Riverside Park to the Northside Shopping Centre
- Route 2: Lein Park to the Cadbury Factory
- Route 3: Dundaniel Road to Beaumont Hospital
- Route 4: Adare Road to Scoil Fhursa and Scoil Íde (Cromcastle Green)



**Figure 3: Map of Key Trip Demand Centres showing key surveyed routes**

### 3. Walkability Audit

#### Route 1: Riverside Park to the Northside Shopping Centre

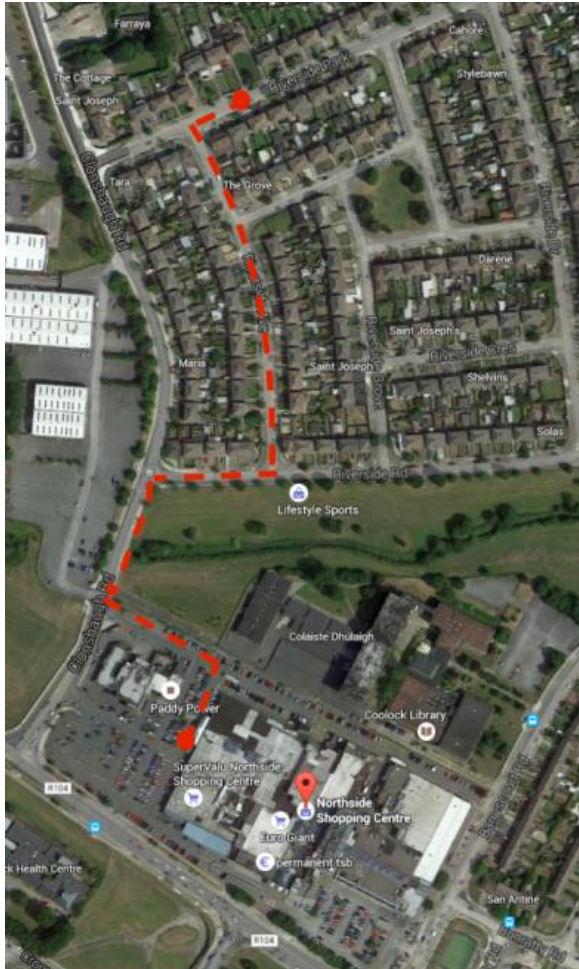


Figure 4: Aerial view of route 1

The first route is from Riverside Park to the Northside Shopping Centre. The Northside Shopping Centre is a busy focal point for the area, consisting of two anchor stores (Dunnes Stores and SuperValu), clothes shops, pharmacies, cafés and a public swimming pool, which is operated by Dublin City Council. It is adjacent to Coolock Library and Colaiste Dhulaigh (a second level school and a college of further education), further increasing the footfall in the area.

The chosen route runs from a housing estate north of the shopping centre and is approximately 600m in length. The route is very typical of the wider residential environment and is of key importance because Northside Shopping Centre is the main retail facility in the area. A number of factors that impact on pedestrian comfort were identified:

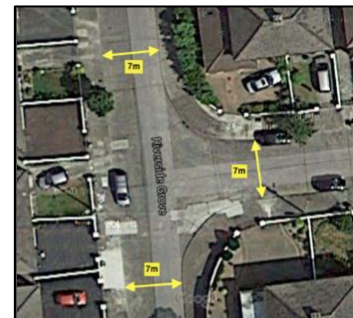


Figure 5: Carriageway width on Riverside Grove

- The carriageway width (approx. 7-8m) and corner radii (approx. 9m) allow cars to travel at high speeds and create long crossing distances for pedestrians (see figures 5 & 6).
- There is a roundabout at one of the junctions (see Figure 6), which does very little to restrict car movement, thus posing more of a problem for pedestrian mobility.
- The patchy, uneven surface characterises most of the route is generally unattractive and also could potentially cause people to fall and (see Figure 8).
- Litter is also problematic for certain parts of the route, particularly in the Stardust Memorial Park (see Figure 8). In the area audited, including the park, only one bin was identified. There is also a lack of seating, which could invite people to rest or be a focal point for social encounters.



Figure 6: Corner radius at Riverside Grove and Riverside Avenue



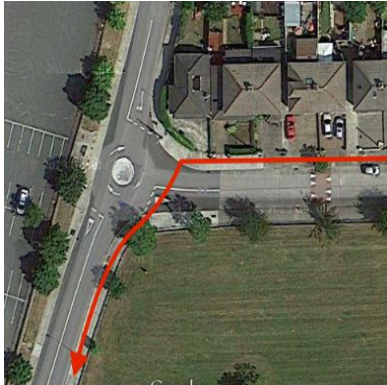


Figure 7: Roundabout at Riverside Road and Clonshaugh Road



Figure 8: Broken paving on Riverside Avenue



Figure 9: Uncollected rubbish bags in the Stardust Memorial Park

- Access through the park is restricted by a fence and a stream (the Santry River), which runs through (see Figures 10 & 11). This not only reduces the directness of the route but it also leaves the park underutilised, allowing for antisocial behaviour such as littering.



Figure 10: The Stardust Memorial Park



Figure 11: Stream in the Stardust Memorial Park

- The lack of designated footpaths or walkways in the shopping centre car park makes walking very difficult, potentially unsafe and certainly unappealing, particularly during busy times.

The permeability index gave a figure of 1.46. This indicates that the route is relatively direct; however, as mentioned above, providing access through the park would increase pedestrian mobility.

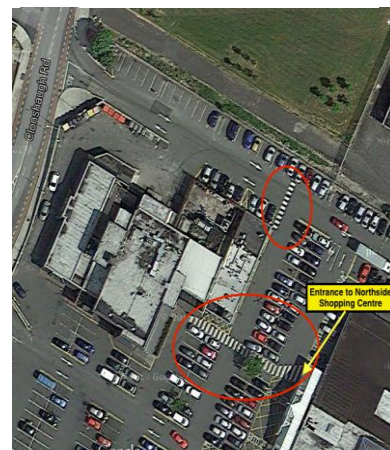
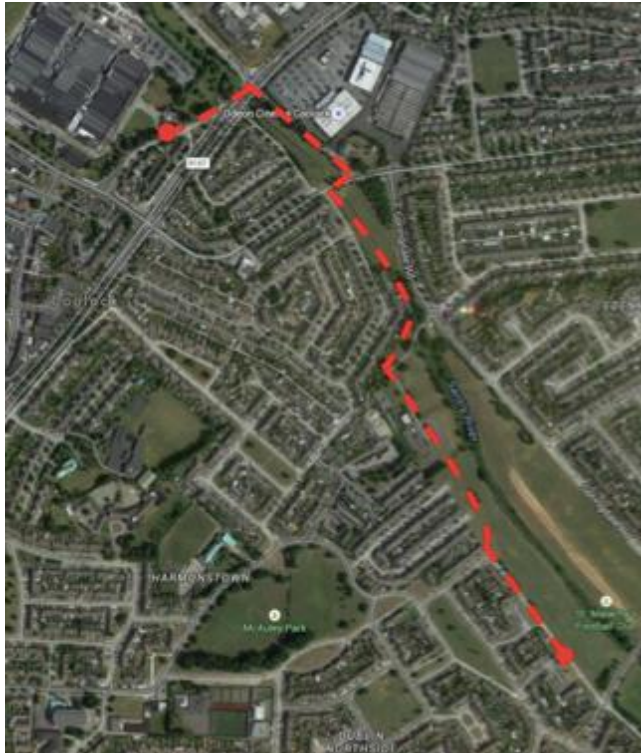


Figure 12: Car park in the Northside Shopping Centre



Route 2: Lein Park to the Cadbury's Factory



The second destination is the Cadbury Factory, which employs 450 people, many of whom live locally. The assessed route leads from Lein Park, a housing estate, to the Cadbury Factory site entrance and is over 1000m in length. This is a commonly used route on a desire line to a major employer. Significantly, it also forms part of a designated Greenway and strategic cycle route in the Dublin City Council Development Plan [9]:

Figure 13: Aerial view of route 2

- There is no footpath from the beginning of the route, though an informal walking route can be seen through the grass (see Figures 13 & 14). This is problematic as this path is slippery and uneven.
- Moving through the park, there is a strong perception of anti-social behaviour based on the presence of litter. This is aggravated by poor lighting and overgrown vegetation, which inhibits passive surveillance of the area.
- The absence of a footpath continues until the route meets Glenwood Road, where there is narrow paving (less than 1m in width).
- In addition, there is no cycle path, resulting in cyclists and pedestrians sharing the same footpath.



Figures 14 & 15: Informal trail through Santry River Park



Figure 16: Combined footpath and cycle lane



Figure 17: Overgrown vegetation

- The footpath widens and the route becomes more attractive as it transects the Santry River Park. The absence of seating and street furniture in the park was noted.
- Another problem arises when the route passes across the Tonleage Road; the most direct route does not have a pedestrian crossing – it is 37m to the left (see figures 18 & 19). This results in pedestrians choosing to cross the road without the use of signals.



Figure 18: Crossing at the Tonleage Road



Figure 19: Desire line crossing the Tonleage Road

- Approaching the Cadbury Factory, pedestrians are required go through 4 crossings to cross the Malahide Road (see Figures 20 & 21), increasing the waiting time by approximately 7 minutes.

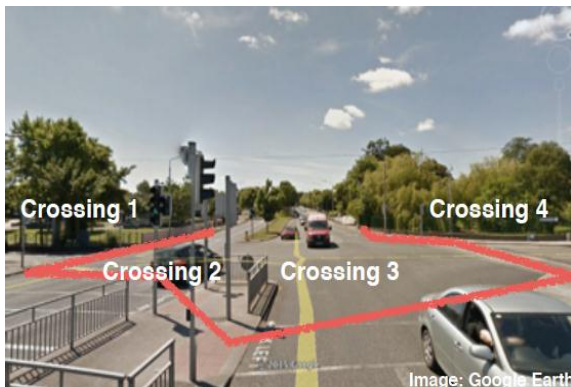


Figure 20: Multiple crossings at the Malahide Road



Figure 21: Indirect crossing at the Malahide Road

The PRD for this route is 1.3, which is considered low, suggesting that directness should not be a major issue for this route, which in turn supports the idea of the Santry River Park as a natural greenway. Nonetheless, as can be seen above, crossing major roads reduces the amenity of the route.

This route forms part of a designated greenway and strategic cycle route in the current development plan and the NTA Cycle Strategy for the Greater Dublin Area [10]. No plans have been made to advance this route as of yet but to do so is likely to require more than physical infrastructural development.

Strong investment in community and socially integrative measures are likely to be required if this scheme is to be a success. To do so could create a strongly integrative piece of green infrastructure connecting communities and breaking down barriers in some of the most marginalised and socially excluded areas of the city.

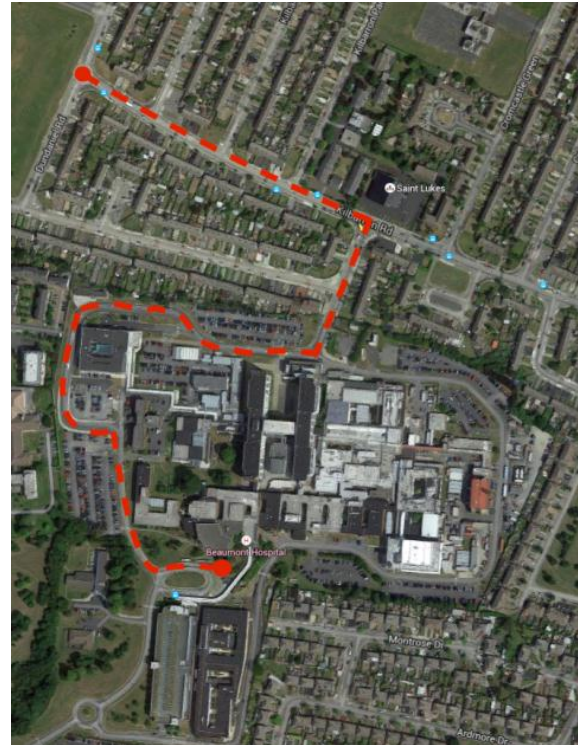


*Route 3: Beaumont Hospital to the Dundaniel Road*

The third route, which is approximately 510m in length, runs from the front entrance of Beaumont Hospital, through the hospital grounds and ends in a residential area.

Beaumont Hospital is a teaching hospital for the Royal College of Surgeons that has 820 beds and employs approximately 3,000 staff. Its importance as a health care facility and place of employment means that there is a high volume of people entering and exiting the hospital. There were a number of issues relating to pedestrian mobility identified on the hospital campus:

- Narrow, or lack of, paving, which is particularly problematic as there are likely to be wheelchairs and people with mobility issues (see Figure 23).
- The paving comes to a stop and pedestrians are forced to cross over the street (see Figure 24).
- The uneven paving and street clutter pose a further barrier to walking, particularly for the elderly and people who are unsure on their feet.
- The presence of high walls and fences result in a lack of passive surveillance, which is not only unpleasant for walking but can also lead to making people feel unsafe.
- The surrounding housing estates are impermeable due to the presence of cul-de-sacs, which disconnect them from the hospital.
- Few safe pedestrian crossings coupled with wide corner radii, further reducing pedestrian safety.



**Figure 22: Aerial View of Route 3**



**Figure 23: (left) Lack of paving in Beaumont hospital**  
**Figure 24: (right) End of footpath in Beaumont Hospital**

The permeability index for this route was calculated as 2.06. This is a high PRD score, suggesting that the route is quite indirect. As can be seen in Figure 22, the surrounding housing estates consist of long blocks and the hospital itself is relatively impermeable. The poor quality of access to a national health facility has consequences for the mobility of employees, who may live locally, as well as those going there for health purposes. There is an almost planned level of disconnect between the hospital and its surrounding community, which is highly detrimental and contradicts accepted best practice.



Route 4: Scoil Fhursa and Scoil Íde (Cromcastle Green) to Adare Road



The fourth route has a distance of 780m and connects the entrance of Scoil Fhursa and Scoil Íde on Cromcastle Green with Adare Road and. These are two local primary schools located in a housing estate.

The following issues were observed:

Figure 25: Aerial view of route 4

- Narrow and uneven footpaths, which continue for much of the route.
- Wide corner radii and a lack of clear pedestrian crossings make it very difficult for pedestrians to cross the street.
- A mini roundabout at the junction on Cromcastle Road, allowing motorised vehicles to move at high speed, posing a threat to pedestrians.
- The underpass beneath Oscar Traynor and Kilmore Road (see Figure 26) is far from a safe and amenable walking experience; high levels of litter, dog fouling, the stench of urine, broken glass, graffiti and a lack of lighting are not only unattractive but also increase the perception of anti-social behaviour. Local knowledge suggests that such perceptions are very justifiable [8]. This underpass was due to be removed as part of a redevelopment of the area which received planning permission in 2009 but which did not progress due to the downturn in the economy [10].
- Multiple crossings to reach the other side of the street (see Figure 27). Moreover, the medians are quite small, which could lead to pedestrians standing on the road. The lack of safe pedestrian crossings and wide corner radii also continue for this part of the route.



Figure 26: Litter and graffiti at the underpass at the Oscar Traynor Road



Figure 27: Multiple crossing and small median on the Oscar Traynor Road

The PRD for this route is 1.4, suggesting that the route could be direct if made safe and amenable.

### **3. Social Barriers to Walking:**

The 2013 Travel Diary data demonstrates that while some respondents felt there were no barriers to walking, the majority could identify some areas of concern [8]. These, along with observations made during the walkability audits, are summarised as being: i. Anti-social behaviour; ii. Litter; iii. The public realm, and iv. Street design

#### **i. Anti-social behaviour**

Anti-social behaviour was identified by many respondents as a barrier to walking in the area, particularly at night. Activities such as vandalism, reckless driving, roaming horses or vicious dogs, littering and burning rubbish and drinking were named. Some respondents attribute these activities to a lack of policing, while others pointed out the way in which the built environment, such as underutilised green space, promotes anti-social behaviour. Anti-social behaviour was also linked to the social infrastructure of the area and the need for young people to get involved in community activities, with one respondent (herself a local youth leader) stating: 'if young people are encouraged to participate in worthwhile activities at a young age, there is a chance they can do better.'

#### **ii. Litter**

Litter was identified as being quite problematic in the area in both the travel diary data and the walkability audits. This ranges from small-scale individual littering to illegal dumping. It is particularly prevalent in parks and open green spaces. Not only does this create perceptions of crime, but it also reduces the attractiveness of the area. Moreover, the litter can pose a real threat to safety as in many cases it consists of broken glass or cans.

She [resident] complained about the area being constantly... covered with litter and black bags and even armchairs just thrown all around the place. [8]

#### **iii. The public realm**

The quality of the public realm was also mentioned as having a negative impact on the walkability of the area. Poor paving, badly lit areas, little shelter and unattractive streets contribute to a negative view of the area and a perceived lack of safety.

... older people could feel unsecure or uncomfortable when walking in the area  
... more walking could be encouraged by improved footpaths. These improvements should be wider footpaths and a resurfacing. [8]

#### **iv. Street design**

As was repeatedly observed in the walkability audits, the structural layout of most of the area is not conducive to walking. Cul-de-sacs, roundabouts, wide carriageways and corner radii promote a culture of car dominance and discourage more active transport. For example, one resident pointed out that 'there are long stretches of grass where no pathway access is present in the boundary between Priorswood Road and its adjoining estates' [8].

### **Concluding discussion**

Walking in the NSP Healthy Communities Initiative Pilot Area has decreased in recent years. The findings of the walkability audits coupled with the 2013 Travel Dairy data has provided insight into the factors which may deter people from walking as a mode of transport. The four routes on which this paper focuses represent different types of destinations: retail, employment, a school and a hospital, all of which attract a range of different people and at various times of day. Nevertheless, there are commonalities to be found across the routes in the walkability audits and travel diary data. The study area is not alone one of the most disadvantaged urban areas in the state, it also typifies a "modernist" approach to transport planning, prevalent in the 1960s and 1970s, which developed primary infrastructure for private motorists first and accommodated other modes around this. Not only has this poorly planned environment never been addressed, in many cases public infrastructure has deteriorated – through natural decay, overuse, vandalism and insufficient investment in maintenance – leaving a hostile and often forbidding environment for pedestrians.

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The car-dominant street layout in the area - wide carriageways, wide corner radii, narrow or non-existent paving, roundabouts and lack of pedestrian crossings - results in an environment that is not safe and amenable to walking. Moreover, deficiencies in the public realm in terms of lighting, seating, planting and attractiveness act as further barriers to walking. Socially undesirable behaviour patterns in the area are equally problematic. These include: littering, reckless driving, drinking, and real and perceived crime and antisocial behaviour.

In light of the above, this paper recommends the following policies and measures:

- Stringent application of Design Manual for Urban Roads and Streets [12] standards throughout, including multi-disciplinary, area-wide and people-friendly approaches to the design of streets and spaces.
- Infrastructure: wider footpaths; traffic-calming measures (tighter corner radii, chicanes and narrower carriageways); increased permeability (for example, more access through parks); and more pedestrian crossings.
- Improvements in the public realm: more lighting; better quality paving; more public bins and facilities for dog litter; planting; seating; removing fencing from parks; and addressing poor open space.
- Programming: events such as park(ing) day; organised walks; and street markets, and the promotion of walking for health.
- Policy and management: more regular cleaning; park maintenance; policing;
- Area-based approach which focuses on networks and integrates different modes of transport, e.g. walking/cycling and public transport.
- Better provision of quality public transport that would reduce the need for car travel;
- Discussions with the Gardaí and the Local Areas Policing Committee.
- Encouraging the community to take back their space from those engaged in anti-social behaviour, those using the public realm inappropriately and from car transport.
- Development of the Santry River Greenway; to incorporate community collaboration and socially integrative design.

Structural and social barriers do not exist in isolation of one another and each kind of barrier compounds and amplifies the effects of the other. It is evident that addressing the barriers to walking requires a multi-disciplinary approach, which tackles the physical and social infrastructure and also addresses structural disadvantage and associated behavioural aspects. It is recommended to build inter-sectoral partnerships that involve local partners and communities and link relevant expertise across a number of policy arenas such as transport, health, the environment, education, policing and social services.

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