

P2 – Promoting Pedestrian Movement and Activity

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Promoting Pedestrian Movement and Activity

A positive sense of a place is fundamental for a richer and more fulfilling pedestrian experience.

To ensure high quality street design for pedestrians, designers should look to understand existing (and predicted) patterns of pedestrian movement and the experience and implications of the street layout.

General approach

- understand pedestrian experience, needs and movement
- accommodate/strengthen pedestrian desire lines
- assess and improve pedestrian comfort
- increase accessibility; and
- ensure streets are inclusive

Zebra crossing on pedestrian desire line, George Street, Edinburgh.



The City of Edinburgh Council

Entry treatment at uncontrolled crossing, Royal Mile, Edinburgh.



The City of Edinburgh Council

5m wide footway to accommodate high pedestrian flows, Princes Street, Edinburgh.



The City of Edinburgh Council

Ramp walkway to tram stop, Princes Street, Edinburgh.



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Analysing Movement and Activity – Available Methods

Analysing existing streets

As part of the Design Brief, identify which data requirements are necessary for informing design decisions.

Pedestrian flow counts

To identify areas of highest footfall across the day and at different times of the week. This could include identifying specific user groups depending on the nature of the project.

Pedestrian comfort assessments

To ensure sufficient footway capacity.

Static activity assessments

To show frequent stationary pedestrian uses of the street such as sitting, waiting and standing.

Origin-destination assessments

To highlight how people move across a contained and measurable study area.

Pedestrian desire lines

To inform the placement of crossings and other pedestrian facilities.

Qualitative observations

To document pedestrian behaviours relating to urban configuration and road layout, as well as issues relating to pedestrian desire lines and urban severance.

Shared use interaction analysis (pedestrians & cyclists)

To provide evidence on desire lines, user behaviour and conflict issues.

Pedestrian Environment Review System (PERS)

Use the Transport Research Laboratory's PERS process where assessing the existing quality and condition of the public realm, as well as walking hazards and street clutter, inform and prioritise design proposals for improving conditions for walking.

Relevant Factsheets:

Footways (P3)
Pedestrian Desire Lines (P2)

Anticipating pedestrian movement on new streets

Design appraisal of the new street network, the location of trip attractors and land uses across a new development and existing pedestrian flow densities in the surrounding area can be used to forecast pedestrian demand across new streets (for further information: Walkable Neighbourhoods in Designing Streets).

This process can also be used to estimate latent demand and the impact that proposed improvements will have on attracting new users.

HERE+NOW studies illustrate some of the available methods used for 'public life' studies in five town centres and streets in Edinburgh.

Complex pedestrian cross-flows supported by a shared space design layout.



The City of Edinburgh Council

Informal pedestrian crossing desire lines to major trip attractors supported by a central reservation.



The City of Edinburgh Council

Pedestrian Comfort (P2)
Crossings (G4)

Shared Space (P8)

Pedestrian Desire Lines

Designers should to accommodate key pedestrian desire lines and design interventions, that provide benefits relating to access, legibility and safety. Use analysing activity and movement techniques to establish priorities.

Avoid channelling or restricting pedestrian movements, unless a specific safety issue has been identified and no alternative options for mitigating the issue have been identified.

Understanding existing pedestrian desire lines

Video surveys can be used to track pedestrian origin-destination movements within a limited field of view. This can be useful for understanding complex crossing issues at key junctions.

On-street path following surveys can allow for pedestrian movements within a wider study area to be tracked to inform the placement of formal crossings, street furniture, parking and loading.

Other qualitative observations can be used for movement trends to highlight where the existing urban environment is lacking provision for pedestrians. This can include identification of informal pedestrian routes worn onto grass, or behavioural observations including informal crossings.

Relevant Factsheets:

Corner Radii (G6)
Pedestrian Guardrail (P5)

Planning for pedestrian safety

Investigate collision datasets alongside the analysis of pedestrian desire lines, to define existing safety issues for pedestrians.

Consider improving safety by:

- Changing conditions surrounding the desire line to minimise the potential for vehicle conflicts (such as providing a raised table for the desire line to reduce vehicle speeds on the approach, or by providing kerb build-outs to reduce the crossing distance).
- Relocating local trip attractors such as bus stops to shift pedestrian desire lines to a safer position.

Informal pedestrian crossing movements diagonally across junctions are a significant cause of vehicle / pedestrian collisions.



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Raised profile on desire line – Cockburn Street Edinburgh



The City of Edinburgh Council:

Pedestrian Comfort

Pedestrian comfort is defined by the density of pedestrian movement in a given area of footway and by the quality of the walking experience from a pedestrian's perspective.

[The Pedestrian Comfort Guidance for London \(TfL, 2010\)](#) provides a comprehensive assessment process which can be used to provide a measure for pedestrian density based on the number of people passing a given space per minute (pedestrians per metre per minute – ppm). Designers should refer to this guidance for acceptable levels of comfort across different urban settings.

- By analysing pedestrian flows and the available footway width for movement, it is possible to make recommendations on the placement of street furniture to avoid/minimise pinch-points and/or justify footway widening proposals.
- Pedestrian comfort assessments should be used to future proof streets by anticipating changes in pedestrian flows. Consider for example the proximity of new developments to an existing street, and the impact it will have on pedestrian flows in the future.
- Plan to accommodate the corresponding uplift in pedestrian flow by considering opportunities to widen footways or relocate street furniture that creates a pinch-point.

Relevant Factsheets:

Footways (P3)
Minimising Street Clutter (P7)

Sources of pedestrian discomfort

Pedestrian congestion on footways at bus stops and at street furniture pinch-points. Tables, chairs and advertising boards require to be better managed.



Atkins, 2016

Lack of footway capacity causing pedestrians to frequently walk out onto the carriageway.



The City of Edinburgh Council

Pedestrian / cyclist interactions on busy urban streets. Significant levels of footway cycling are likely to indicate that there is a lack of alternative safe places to cycle.



The City of Edinburgh Council

Lack of crossing width capacity resulting in pedestrians waiting on the carriageway



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Furniture Zone (F1)


Locating Shelters on Footways (PT2)

P2 - Promoting Pedestrian Movement and Activity – Desire Lines and Comfort

Factsheet

Pedestrian comfort level (PCL) on footways

PCL A COMFORTABLE FOR ALL AREAS



A+ < 3ppmm
< 3% Restricted Movement

A 3 to 5 ppmm
13% Restricted Movement

A- 6 to 8 ppmm
22% Restricted Movement

The pedestrian environment is very comfortable at PCL A+ to A- with plenty of space for people to walk at the speed and the route that they choose.

PCL B B+ RECOMMENDED MINIMUM FOR ALL AREAS



B+ 9 to 11ppmm
31% Restricted Movement

B 12 to 14ppmm
41% Restricted Movement

B- 15 to 17 ppmm
50% Restricted Movement

PCL B+ is the recommended level of comfort for all area types. This level provides enough space for normal walking speed and some choice in routes taken.
At PCL B and PCL B- normal walking speed is still possible but conflicts are becoming more frequent and, in retail areas, people start to consider avoiding the area.

PCL C INCREASINGLY UNCOMFORTABLE



C+ 18 to 20ppmm
59% Restricted Movement

C 21 to 23 ppmm
69% Restricted Movement

C- 24 to 26 ppmm
78% Restricted Movement

The pedestrian environment is becoming increasingly uncomfortable, with the majority of people experiencing conflict or closeness with other pedestrians and bi-directional movement becoming difficult.

PCL D or E VERY UNCOMFORTABLE



D 27 to 35ppmm
100% Restricted Movement

E >35 ppmm
100% Restricted Movement

At PCL D walking speeds are restricted and reduced and there are difficulties in bypassing slower pedestrians or moving in reverse flows.

At PCL E people have very little personal space and speed and movement is very restricted. Extreme difficulties are experienced if moving in reverse flows.

Note: pedestrians per metre of clear footway width per minute (ppmm) is used to measure the crowding level on a footway

PCL for different area types for use in peak hours and for average maximum activity level

	HIGH STREET		OFFICE AND RETAIL		RESIDENTIAL		TOURIST ATTRACTION		TRANSPORT INTERCHANGE	
	Peak	Ave of Max	Peak	Ave of Max	Peak	Ave of Max	Peak	Ave of Max	Peak	Ave of Max
A	COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE	
B+	COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE	
B	ACCEPTABLE		ACCEPTABLE		ACCEPTABLE		ACCEPTABLE		ACCEPTABLE	
B-	AT RISK		ACCEPTABLE		ACCEPTABLE		ACCEPTABLE		ACCEPTABLE	
C+	UNACCEPTABLE/ UNCOMFORTABLE		ACCEPTABLE		ACCEPTABLE		ACCEPTABLE		ACCEPTABLE	
C-	UNACCEPTABLE/ UNCOMFORTABLE		AT RISK		AT RISK		UNACCEPTABLE/ UNCOMFORTABLE		AT RISK	
D	UNACCEPTABLE/ UNCOMFORTABLE		AT RISK		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		AT RISK	
E	UNACCEPTABLE/ UNCOMFORTABLE		AT RISK		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		AT RISK	
	Peak and Average of Maximum Activity levels have similar guidance as people visiting retail areas stated they were particularly sensitive to crowding.		The "at risk" level is set at a lower PCL during the Average of Maximum Activity than peak flows. This is because of the greater number of single travellers and the short duration of maximum activity.		The "at risk" level is set at a lower PCL than peak flows in Residential Areas to reflect the short time this is likely to occur. A site visit to Residential sites is particularly important to check if there is school activity or a bus stand in the area.		Peak and Average of Maximum Activity levels have similar guidance as people visiting tourist areas are likely to be particularly sensitive to crowding		The "at risk" level is set at a lower PCL during the Average of Maximum Activity than peak flows. This is because of the greater number of single travellers and the short duration of maximum activity.	

The Pedestrian Comfort Guidance for London (TfL, 2010)

An example can be found in Aldgate Gyratory the City of London Pedestrian Comfort Analysis

Designing Inclusive Streets

Public spaces and streets play a key role in improving accessibility and helping to create social cohesion and should be designed to consider the needs of all users.

Inclusivity is becoming important in the light of ageing population and the need to create safe environments for people of all abilities.

All streets should therefore be designed to be convenient, safe and welcoming for as wide a demographic as possible.

“Design should give special consideration to the young, old and those with disabilities” and “free from barriers such as footway obstructions”

Equality Act 2010

The Council has a statutory duty to take into account the diverse needs of everyone, regardless of age, gender or ability.

We need to make reasonable adjustments to comply with this duty.

Key requirements

Inclusive design must be embedded in the design process for all works on Edinburgh streets.

An inclusive approach to design should consider the needs of vulnerable users, particularly:

- People with visual impairments;
- People with mobility impairments including buggies;
- Wheelchair users;
- Elderly and young people;
- Gender equality;
- Ethnic minorities; and
- Visitors with language difficulties.

These user groups can be accommodated by employing the following design priorities overleaf and consultation with the Edinburgh Access Panel.

Relevant Factsheets

Minimising Street Clutter (P7)
Shared Space (P8)

Promoting Pedestrian Movement and Activity (P2)
Flush / Drop Kerb Detail (G4)



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Design priorities – check list

- ❑ Maintain sufficient **effective clear widths** (see **Footway Factsheet**) to accommodate wheelchair users on all footways.
- ❑ Minimise street clutter by undertaking a **De-cluttering Assessment**.
- ❑ Maintain surface materials in a good condition to **avoid trip hazards**.
- ❑ Provide consistent **crossing facilities** at regular intervals.
- ❑ Employ a consistent approach to **tactile paving** layout and design.
- ❑ Ensure **good sightlines** are maintained across the street.
- ❑ Provide places for rest at intervals appropriate to the street type – see **Seating**.
- ❑ Consider **lighting improvements** where there are issues of safety and security.
- ❑ Where a proposed layout deviates from a conventional configuration, such as that of a **shared surface**, a comprehensive consultation process should be conducted to ascertain wider user needs.
- ❑ Provide convenient and safe access to parks and green space, by providing **dropped kerbs and parking restrictions** at park entrances.



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Relevant Factsheets

Crossings (G4)
Seating (F2)
Shared Space (P8)

Street Furniture (F1)
Minimising Clutter (P7)

Tactile Paving (M4)
Footways (P3)

Equality & Rights Impact Assessment (ERIA)

An Equality & Rights Impact Assessment should be completed for any scheme that involves a significant change to the existing street configuration.

Tactile paving and handrail to assist visually impaired, elderly and less mobile users etc. at Waverley Mall steps, Edinburgh.



The City of Edinburgh Council

Engagement process

The Edinburgh Access Panel provides advice on access arrangements for new developments and should be consulted where appropriate.

1. Engage with representatives from vulnerable user groups and consider their specific requirements throughout the design process; utilise Edinburgh Access Panel.
2. Maintain an ongoing dialogue with these groups where appropriate to ensure that design considerations are documented as part of the design development.
3. Provide feedback to the relevant user groups on a regular basis and demonstrate a consistent approach to consultation.

Relevant Factsheets:

Tactile Paving (M4)



The City of Edinburgh Council

Relevant standards and information:

- [Equality Act \(Scotland\) 2010](#)
- [PAN 78 Inclusive Design, 2006](#)
- [Designing Streets, 2010](#)
- [Inclusive Mobility, DfT, 2005](#)
- Equality & Rights Impact Assessment Proforma, The City of Edinburgh Council

Shared Space (P8)

Footways (P3)

Image References

Promoting Pedestrian Movement & Activity

Promoting Pedestrian Movement and Activity: The City of Edinburgh Council 2016

Analysing Movement & Activity – Available Methods

Complex pedestrian cross-flows supported by a shared space design layout: The City of Edinburgh Council 2016

Informal pedestrian crossing desire lines to major trip attractors supported by a central reservation: The City of Edinburgh Council 2016

Pedestrian Desire Lines

Informal pedestrian crossing movements... : The City of Edinburgh Council 2016

Pedestrians will often cross around a designated... : The City of Edinburgh Council 2016

Pedestrian Comfort

Pedestrian congestion on footways at bus stops and at street furniture pinch-points: Atkins 2016

Lack of footway capacity: The City of Edinburgh Council 2016

Pedestrian / cyclist interactions on busy urban streets: The City of Edinburgh Council 2016

Lack of crossing width capacity: The City of Edinburgh Council 2016

Pedestrian Comfort Level on Footways

Pedestrian comfort level diagrams. Pedestrian Comfort Guidance for London: Guidance Document (2010). [ONLINE]. Available at: <http://content.tfl.gov.uk/pedestrian-comfort-guidance-technical-guide.pdf>. [Accessed 5 December 2016]

Designing Inclusive Streets

Clutter footway with insufficient clear width: The City of Edinburgh Council 2016

Clear footway width behind bus stop: The City of Edinburgh Council 2016

Tactile paving at refuge island: The City of Edinburgh Council 2016

Lack of crossing width capacity: The City of Edinburgh Council 2016

Design Priorities – Check list

Street design poor example: The City of Edinburgh Council 2016

Street design good example: The City of Edinburgh Council 2016

Equality and Rights Impact Assessment

Jackson's Close, Edinburgh – slabs: The City of Edinburgh Council 2016

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