

What makes a good path?



Background: Quality of paths in England

- There are tens of thousands of miles of public rights of way and other public paths across the UK that citizens can use.
- While most of these paths are legally recorded and mapped, their quality and ease of use is unknown, which means that users may not be fully aware of whether the paths they want to use, or might use, are suitable for their intended use (e.g. manual or electric wheelchair, trail running, horse riding, family walks and rides etc.).
- Furthermore, if improvement works need to be done to make them more inclusive, safer (e.g. through the removal of challenging or hazardous obstacles) and more usable, there is no systematic way to capture and convey this information to the relevant authorities.

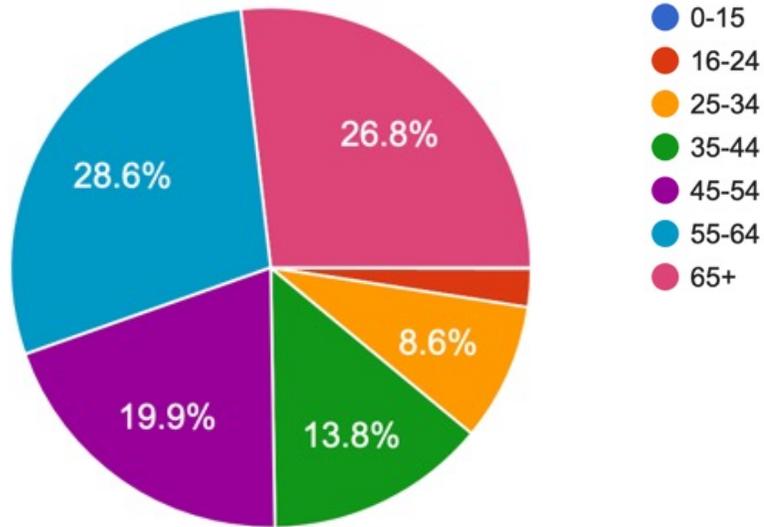
Background: Quality of paths in England

- To overcome this knowledge gap, Natural England commissioned the Oxfordshire County Council, Systeme D and the University of Oxford (via the GreenspaceHack project) to create a free, open, crowdsourced tool that any citizen can use to capture and share the quality of public rights of way and public paths across the UK.
- The first step in developing our tool is to identify the key quality metrics that define a good/bad path for different types of uses.
- We used two methods to collect this information:
 - We conducted a scan of academic and non-academic literature to identify the quality metrics that have been used by other groups to define the quality of paths for different types of uses.
 - We conducted a short survey to collect feedback from user groups across England to identify the top quality metrics for different use types. To collect this information, we distributed a short survey consisting of seven questions that asked for respondents non-identifiable demographic information, how they use paths, as well as what they would define as good and poor features of a path (the survey can be seen [here](#)). We received 1522 responses, the full raw dataset of which can be viewed [here](#).

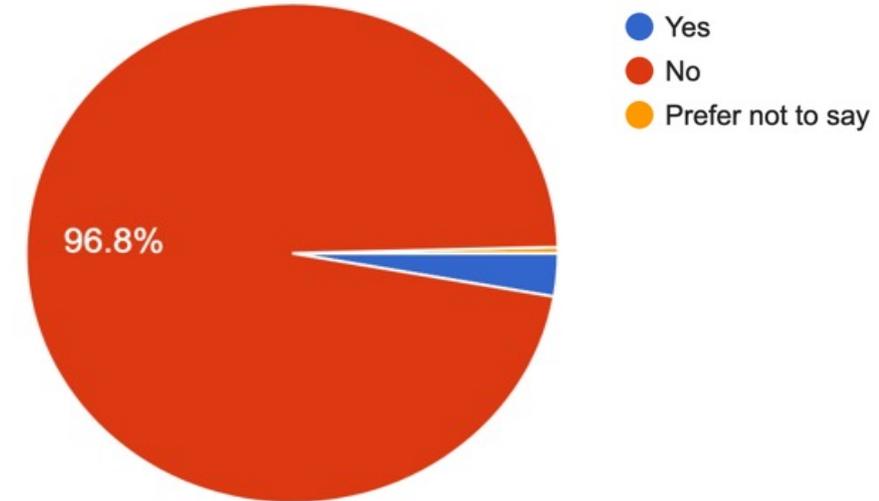
Profile of survey respondents

Demographic characteristics of survey respondents

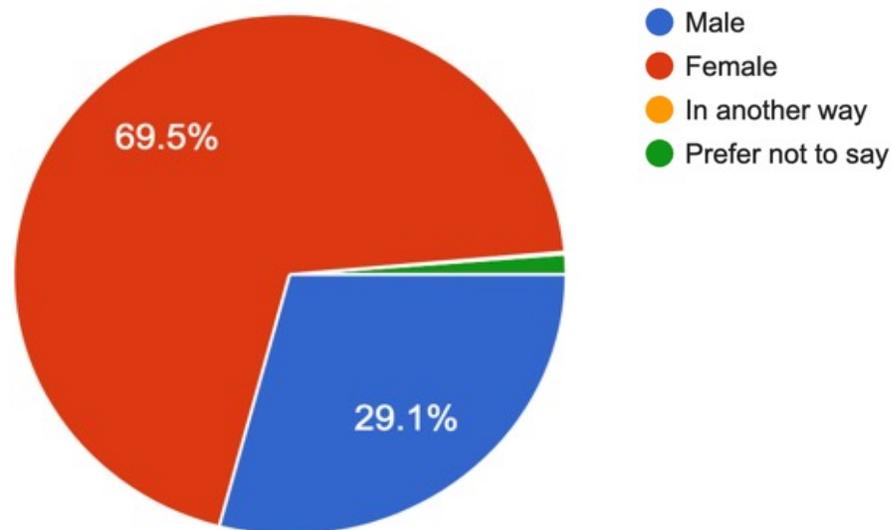
Age (1520 responses)



Use of mobility aid (1515 responses)



Gender identification (1515 responses)



How survey respondents use paths

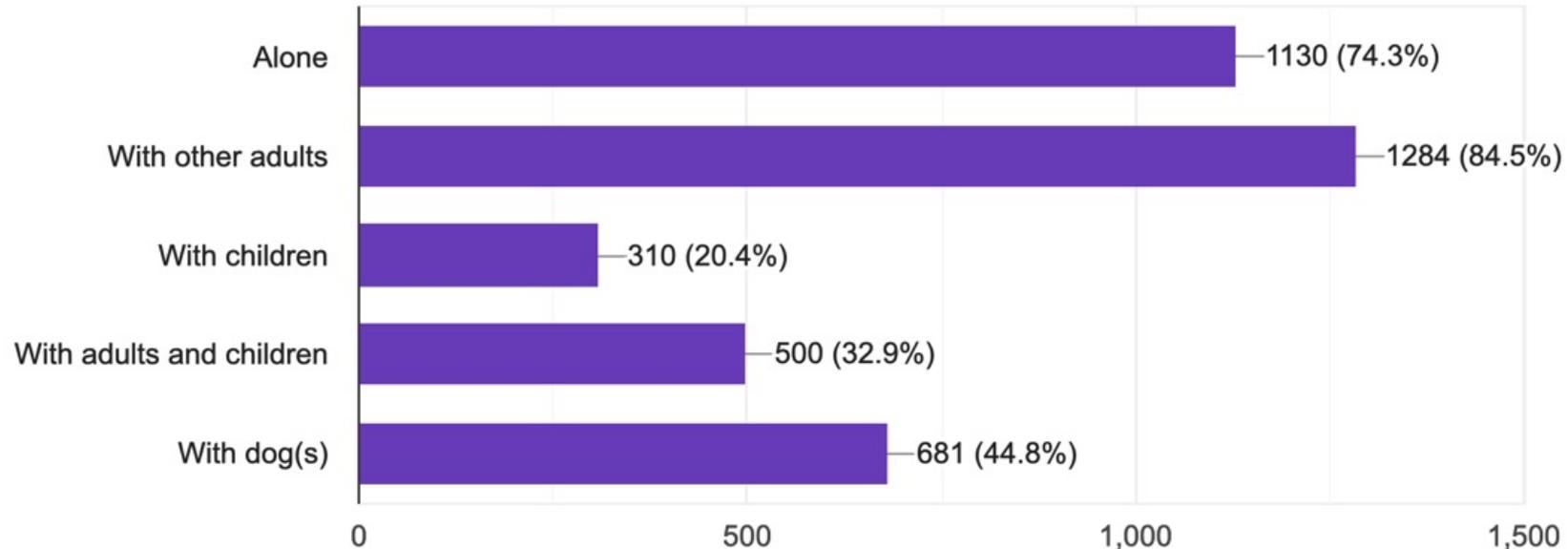
Uses of paths (1520 responses):

- Walking, Rambling, Jogging, Running, Walking with a Pushchair, Wheelchair: 78.4% (1192)
- Cycling: 33.8% (514)
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- Horse riding: 60.2% (915)

Other uses included:

- Carriage driving, motorcycling/motorbiking, dog walking, mountain biking, handcycling, birdwatching, e-biking

How respondents engage in these activities (1520 responses)



Analysis of survey results

Methodology for analysing survey results

- To analyse the free text responses to the survey questions on the poor and good pathway characteristics, we utilised a free word cloud generation software (<https://monkeylearn.com/word-cloud>)
- The text for all of the responses to a given question were aggregated and input into the software. Words that appeared more frequently in the word cloud show up in a larger font size in the word cloud – the largest words were compiled and then integrated into common themes.
 - The themes that recurred across all free text responses included: Surface; Path; Vegetation; Gates/Stiles.
- Words that were linked to these themes were compiled for different use types (All uses; Walking, Rambling, Jogging, Running, Walking with a Pushchair, Wheelchair; Cycling; and Horse Riding) for both poor and good pathway characteristics.

Our findings from the survey, based on a subset of 1403 responses, can be seen in the next slide

Survey Results: Poor and Good pathway characteristics

		All uses - incl. combined/multiple uses (n=1403)	Singular uses		
			Walking, Rambling, Jogging, Running, Walking with a Pushchair, Wheelchair (n=223)	Cycling (n=36)	Horse Riding (n=256)
Poor pathway characteristics	Surface	tarmac; uneven; poor quality; slippery; deep mud; boggy; potholes; deep rut; sharp stones	poor drainage; puddle; muddy; bad; slippery; uneven; deep rut;	broken; dangerous; excessive erosion; unmaintained drainage; deep mud; wet spot; sharp edged stone/exposed rock;	deep mud; concrete; slippery tarmac; poor quality; wet; pothole; lot of stone; hidden hole; rutted
	Path	narrow; poor/lack of signage; poor access; mixed use/rights of way; (cyclists);	barbed wire; ploughed field; dangerous animals; shared; steep slope; narrow; traffic noise; dog mess; lack of and/or poor signage, poor waymarking; furniture	road crossing; selfish dog owners; poor sight line; dog poop; frequent disruption; shared use path; narrow traffic; straightline	difficult/poor access; narrow; mountain bikers; barbed wire; boggy; poor signage; safe passing place; loose dogs;
	Vegetation	overgrown/hedge; low branches; nettle; fallen tree;	overgrown; bramble; nettle	overgrown; low branches; nettle; tree root	overgrown/hedge; bramble; fallen tree; low branch
	Gates/Stiles	broken; locked; too many;	broken; locked	locked;	difficult; too many; broken
Good pathway characteristics	Surface	appropriate' (hard/firm/soft); good footing; smooth; level; safe; drained	'appropriate' surface (hard/firm/soft); good walking surface; natural; smooth; level; safe; drained	natural; good drainage; sound cycling surface; solid; packed gravel base;	good surface (soft/natural/flat); good footing/grip; grass; stony; good drainage; safe;
	Path	good signage; sufficient width; circular route; footpath; defined rights of way?; nice view	good access; sufficient width; occasional bench; good signage; good/nice view; varied surroundings	good signage; good view; access; wild country; good marking; car parking; straight line; decent section (single weaved); variety of terrain; shared use; designated bridleway	good signage; easy access; sufficient width; clear; circular route; nice view
	Vegetation	vegetation (well maintained bramble)	vegetation (well maintained nettle/bramble)		well maintained vegetation
	Gates/Stiles	good 'friendly' gate	good 'friendly' gate; maintained stile		good 'friendly' gate

Survey results: Summary

	Summary of poor pathway characteristics	Summary of good pathway characteristics
Surface	uneven; muddy; slippery; broken; potholes; deep rut; sharp/lots of stone; boggy	appropriate (hard/firm/soft/smooth/natural) surface; good footing/walking surface; smooth; level; safe; good drainage;
Path	narrow; poor access; poor signage; obstructions/obstacles (barbed wire;); ploughed field; dangerous animals; steep slope; dog mess; poor quality furniture; shared use paths; problems with dogs (loose dogs, feces, etc.);	good signage; good/easy access; sufficient width; defined rights of way; nice view/varied surroundings; good state of repair (furniture, etc.); car parking; appropriate route (straight/circular);
Vegetation	overgrown; bramble; nettle; low branches; fallen trees	well maintained vegetation (nettle/bramble)
Gates/Stiles	broken/locked gates	good 'friendly' gate

Ramblers survey

- In addition to the survey conducted for this project, we were also able to leverage survey results from the Ramblers on a similar set of questions

Positive Characteristics		
Category	Sub-category	Count
Welcoming	Signs	672
	Other	368
	Person	41
Attractive views	Open country	478
	Woodland	170
	Mountains and hills	108
	Other	82
	Town/City	68
	Coastal	63
	Buildings	141
Interesting	Lake or body of water	85
	Natural features	61
	Bench	57
	Pub or tea shop	46
	Toilets	15
	Flora	Flowers
	Trees	97
	Fungi	58
	Other	20
Fauna	Birds	113
	Larger mammals	58
	Other	29
	Butterfly	24
	Insects	20
	Small mammal	16

Negative Characteristics		
Category	Sub-Category	Count
Obstructions	Other	6170
	Undergrowth	4050
	Overhanging vegetation	1787
	Barbed wire (across path)	1743
	Crops	1591
	Fallen or hanging tree	1499
	Electric fence (across path)	1042
	Barbed wire (close to path)	253
	Electric fence (close to path)	117
	Bridges, gates & stiles	Unsafe stile
Locked gate		1793
Other		1379
Missing bridge, gate, stile		1316
Unsafe bridge		592
Unsafe gate		357
Finding your way	Missing sign on route	3163
	Missing sign at road	2761
	Path not found	1893
	Other	1187
	Broken sign on route	771
	Broken sign at road	535
Path surface	Discouraging sign	401
	Other	1080
	Ploughed	1023
	Muddy	729
	Flooded	431
Intimidating	Potholed	154
	Other	803
	Person	565
	Cow	312
	Dog	304
	Bull	277
Road crossing	Horse	222
	No safe way to cross	79
	Other	31

Results of Literature Scan

Literature scan summary

General principles	Safe: Safety and a stress-free environment are core tenets of achieving a successful Local Path. Conflict points such as high vehicle numbers and high speeds should be minimised by providing a consistent level of experience across the Paths network. Crime prevention and enhanced social safety are also key outcomes of well-designed Local Paths. Crossing aids; crossings; verge width; surveillance; presence of hazards; feelings of reassurance; lighting (photopic illuminance; spectral power distribution; spatial distribution)
	Connected: Local Paths should connect destinations such as residential neighbourhoods, schools and universities, town centres, transit stations, and bicycle facilities. They should seamlessly connect to the wider transport network including Express Paths. Additionally, these connections should be designed to be easily navigated. Where intuitive design is unachievable, clear and consistent way finding signage should be employed. Car parking, bike parking.
	Accessible & Comfortable: Paths infrastructure should be accessible for all users, including children and people with disabilities. Considerations include ample width, gentle gradients, smooth transition in surfaces, and avoidance of high volumes of traffic that create fumes and noise. Accessible points are also important (e.g. car parks, bus stops and/or train stations); barriers: illegal obstructions such as fences, buildings and encroachments
	Enabling: Local community and stakeholders should be engaged early in the process to incorporate Te Aranga principles and community driven initiatives. Local Paths should integrate with the existing streetscape and celebrate Auckland's unique character by responding to and incorporating elements of the surrounding natural and built environment, heritage and culture. Opportunities to include ecological function through planting, water sensitive design, and low energy/low toxicity materials should be integral to each Local Path design
Signage	Entry/exit, services/facilities, route precautions/restrictions
Conflict points	High vehicle numbers/speed; bike speeds); level of shared use (are paths segregated for different uses?); avoid high levels of traffic
Aesthetic	Cleanliness (dog mess, litter, vandalism); sights; garden maintenance; parks; pollution/air quality; trees; architecture; street maintenance; noise levels; naturalness/greeness (plant cover, tree canopy, biodiversity, scenery, beauty, preservation)
Surfaces	Gentle gradients; pinch points; smooth transition in surfaces; tactile paving; general guidance in Section 2G: https://www.royalparks.org.uk/__data/assets/pdf_file/0005/85658/The-Royal-Parks-Walking-and-Cycling-Technical-Design-Guidance-2017.pdf); path width: p12 here: https://www.pathsforall.org.uk/mediaLibrary/other/english/outdoor-access-design-guide.pdf & Section 3a here: https://www.royalparks.org.uk/__data/assets/pdf_file/0005/85658/The-Royal-Parks-Walking-and-Cycling-Technical-Design-Guidance-2017.pdf
Built items	all integral mechanisms such as latches and handles, are accessible and easy to use; further guidance: https://www.pathsforall.org.uk/mediaLibrary/other/english/outdoor-access-design-guide.pdf

Key references: https://content.aucklanddesignmanual.co.nz/streets-and-parks/Documents/Local_Path_Design_Guide_Rev_1.2.pdf;
<https://www.tandfonline.com/doi/full/10.1080/15502724.2016.1169931>;
https://discovery.ucl.ac.uk/id/eprint/10089037/7/Berent_10089037_thesis.pdf; <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/countryside-access-and-management/rights-of-way/improvement-plans/rights-of-way-improvement-plan-201718-202728.pdf>

Literature scan summary

In addition to the general characteristics highlighted in the table on the previous slide, we also found characteristics linked to specific use types:

- **Walking, Rambling, Jogging, Running, Walking with a Pushchair, Wheelchair:** Walkability index: <https://edg.epa.gov/metadata/catalog/search/resource/details.page?uuid=%7B251AFDD9-23A7-4068-9B27-A3048A7E6012%7D>
- **Cycling:** Sustrans Design Manual Handbook for cycle-friendly design (Sustrans, 2014b, p6) states that comfortable cycle paths should ‘be smooth, non-slip, well maintained, drained and free of debris’, ‘have sufficient width for the level of use’, ‘have easy gradients’, ‘be designed to avoid complicated manoeuvres’, ‘enable cyclists to maintain momentum’ and ‘minimise impacts of noise, spray and headlight dazzle from other traffic’

Next steps

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The quality metrics we have identified through this phase of work will be used to inform the design of the free, open, crowdsourced tool we are currently developing for use on OpenStreetMap.

*If you have any questions or would like any further information,
please reach out to anant.r.jani@gmail.com*

