

# Seven Design Principles for pop-up highway infrastructure

# **DRAFT** for consultation

## Landscape Institute Technical Guidance Note XXXXXXXXX

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# 1 Introduction

1.3

- 1.1 This draft note is intended to provide design guidance addressing the urgent provision of 'pop-up' infrastructure. There are two main aspects to this: safety an design and this note only addresses the latter. Safety considerations concerning the need to create space to allow physical distancing and the need to slow traffic speeds to respect the importance of public safety and place are paramount. It is published in response to the Covid-19 crisis and the government's response to it in issuing Statutory Guidance in accordance with Section 18 of the Traffic Management Act 2004 to Local Authorities on 9th May 2020. This Statutory Guidance is quite concise and worth reading in its original form <a href="https://www.gov.uk/government/publications/reallocating-road-space-in-response-to-covid-19-statutory-guidance-for-local-authorities/traffic-management-act-2004-network-management-in-response-to-covid-19</a>
- 1.2 The government's guidance applies to all Highway Authorities and instructs them to reallocate road space as follows:

"Local authorities in areas with high levels of public transport use should take measures to reallocate road space to people walking and cycling, both to encourage active travel and to enable social distancing during restart (social distancing in this context primarily refers to the need for people to stay 2 metres apart where possible when outdoors). Local authorities where public transport use is low should be considering all possible measures."

The Statutory Guidance sets a timescale for implementing the reallocation of roadspace:

"Measures should be taken as swiftly as possible, and in any event within weeks, given the urgent need to change travel habits before the restart takes full effect."

1.4 This Guidance Note addresses some of the concerns raised in respect of , for example etc ......on the use of unbroken lengths of roadworks barriers. Such interventions could reinforce a highway character that degenerates the street environment and encourages a race-track mentality in drivers.



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Using lengths of roadworks barriers, rather than permeable 'light segregation' to reallocate space, risks creating a character that encourages a race-track mentality in drivers (the central photo is of a race track, the other two photographs are of recent pop-up infrastructure to widen pavements)

1.5 Although these schemes are intended to create a safer street, research on pedestrian guardrail removal shows that barriers which limit pedestrian access to the carriageway can engender more aggressive driving behaviours making streets substantially more dangerous. The recent examples of ultra-speeding on the quieter roads during lockdown are a clear demonstration of the counter-intuitive impacts of what might be assumed would be a safer environment. This guidance note does not advise on Highway Engineering or Transport Planning issues and would recommend that Landscape Architects are part of multi-disciplinary design teams to ensure a balanced design solution.





Auckland has been using tactical urbanism for a number of years and produced a helpful paper on its Successes and Challenges <u>https://az659834.vo.msecnd.net/eventsairaueprod/production-harding-public/766bc787344a48dfbf8f7696a8fb3004</u>

- 1.7 The Urban Design Group have published a 'How to Guide' for 'Fast Urban Change' which sets out the issues and opportunities to developing temporary infrastructure <u>http://www.udg.org.uk/content/fast-urban-</u> <u>change-how-guide</u>. The UDG guide outlines:
  - The updated Road Traffic Regulations(see 1.1)

- What reallocations of road space Local Authorities in the UK and internationally have been implementing in response to the crisis under the headings:
  - Space for life;
  - Space for movement;
  - Space for children the elderly and disabled people
  - A long-term outlook
  - The types of measures that are available to achieve roadspace reallocation
- The types of Traffic Regulation Orders
- 1.8 Many roadspace allocation projects can be undertaken without a change to Traffic Regulation Orders. Highway Authorities are experts at this and should be consulted directly, but in general, from an non-expert point-ofview, it seems a TRO is not required if there is: no change to the types of traffic accessing a street; no change to the types of turning movements or directions of traffic flow; no change to on-street parking arrangements or loading arrangements.
- 1.9 Sustrans has developed a mapping tool for anyone to comment on new temporary infrastructure <u>https://www.sustrans.org.uk/space-to-move/ To inform good design, Landscape Institute</u> members are encouraged to use this tool to feedback on both positive and negative aspects of schemes that have been installed.
- 1.10 The Ministry of Housing, Communities and Local Government published on 13th May 'Coronavirus (COVID-19): safer public places urban centres and green spaces' . This includes a flow chart to help identify key design issues and potential temporary infrastructure by assessing potential conflicts and risks and aiming to mitigate and reduce these. The document sets out potential interventions along with management and maintenance actions. https://www.gov.uk/guidance/safer-public-places-urban-centres-and-green-spaces-covid-19
- 1.11 Section 3 of this document provides useful links and blogs from respected Transport Planners and Highway Engineers. These are opinion pieces and should be treated as such but generally provide very useful information, particularly valuable as the Covid situation and our response to it, changes regularly:
  - Updates of the latest developments
  - High Street Task Force Pre-recovery/recovery checklist
  - Traffic Regulation Orders
  - Risk and Liability
  - Materials for pop-up infrastructure
  - Decision Notice and Officers report for Lambeth temporary highway infrastructure

# 2 Design Principles

- 2.1 Seven Design Principles for pop-up highway infrastructure are listed below and described in more detail in this section:
  - 1. Design for everyone
  - 2. Declutter
  - 3. Design appropriately for the context and location as well as movement
  - 4. Make streets healthier
  - 5. Make space for social, economic and environmental functions
  - 6. Use infrastructure to communicate how you want drivers, cyclists and pedestrians to behave
  - 7. Make designs practical, robust and flexible
- 2.2 Due to the rapid response required in this situation and the novel techniques employed, Landscape Architects should keep a basic designer's risk log outlining the reasons for design decisions.

## DP1: Design for everyone

- 2.3 Inclusive Design principles should be fundamental to the design, ensuring that those most at risk: children, old peopled and the disabled, are not disadvantaged. The principles of Inclusive Design are set out in relation to temporary Traffic Management in documents such as the TfL Temporary Traffic Management Handbook <u>http://content.tfl.gov.uk/temporary-trafficmanagement-handbook.pdf</u> and have been reinforced in the latest Statutory Guidance. The Equality Duty applies to temporary installations. The Landscape Institute published a Technical Guidance Note 03/19 on Inclusive Design in the Public Realm https://www.landscapeinstitute.org/technical-resource/inclusive-design/
- 2.4 When widening footways, ensure there are no adverse impacts on cyclists who might find themselves squeezed by vehicles on the reduced carriageway. Ideally provide segregated cycle infrastructure as well. If a carriageway is narrowed, then narrow it below 3m width as this makes it less likely a driver will try and squeeze past a cyclist, unless you have sufficient space to facilitate passing comfortably (from MfS2 and LTN 2/08)):
  - Bus/HGV passing a cyclist at 20mph 5.05m
  - Bus/HGV passing a cyclist at 20mph 4.6m
  - Cars passing a cyclist at 30mph 4.3m
  - Cars passing a cyclist at 20mph 3.8m
- 2.5 It is not generally recommended that cyclists and pedestrians share a pavement but this may be appropriate in certain situations. *"Shared use*

routes for Pedestrians and Cyclists" (DfT Sept 2012, LTN 1/12) sets out the relevant parameters and limitation.

- 2.6 Sustrans Design Manual (April 2014) provides far more in-depth and valuable information on designing space for cycling "Handbook for cyclefriendly design" <u>https://ec.europa.eu/transport/sites/transport/files/cycling-</u> guidance/sustrans handbook for cycle-friendly design.pdf
- 2.7 Where there is not enough room to create segregated space for: cyclists, pedestrians and vehicles, then, if traffic speeds are very low, consider a Pedestrian Priority design. More information is given in *Design Principle 3: Design appropriately for the context and location*.
- 2.8 There are more and more types of micro-mobility that might become popular as alternatives to public transport and require more space or different movement patterns. These include cargo bikes, recumbent bikes and electric mobility vehicles including mobility scooters and electric delivery vehicles. Consider how these cross the street and access shops as well as move along it. The Sustrans Design Manual provides some information on accommodating non-standard bikes.

## DP2: Decluttering

- 2.9 Street furniture, signage, lighting columns, guard rails and advertising boards located on the footway reduce the space available to pedestrians. Undertaking an audit of these items and identifying which can be removed, or consolidated onto a reduced number of posts, will effectively widen the pavement.
- 2.10 Pedestrian guardrail, in particular, is a barrier to social distancing as it:
  - runs in long unbroken sections along the edge of footways, taking up footway space and acting as a barrier to widening footways;
  - confines pedestrians into a restricted space at crossings and junctions
  - confines pedestrians on 'sheep pens' on islands in the carriageway

2.11 Transport for London's 2018 research on Pedestrian Guardrail showed that when guard railing was removed from crossings there was a 56% reduction in the number of collisions involving pedestrians who were killed or seriously injured (48% reduction for all road users). <u>http://foi.tfl.gov.uk/FOI-2274-</u>

<u>1718/Pedestrian%20railings%20removal%20collisions%20analysis%20%28</u> <u>no%20stats19%29.pdf</u>

2.12 This enormous reduction in serious collisions was ascribed to 'drivers tunnel vision' that railings develop and a feeling that pedestrians are safely tucked behind the railings so drivers do not expect to see them in the carriageway. Without the railings people tend to cross in more locations on an 'ad hoc' basis. Rather than this being more dangerous, the feeling that

pedestrians could step out from anywhere appears to make drivers slow down and pay more care and attention.

- 2.13 Railings also caused some pedestrians to become trapped in the road, taking longer to reach the safety of the footway. Removing railings means people spend less time in the road, as a result, junctions and crossings are safer without railings
- 2.14 In July 2007, TfL adopted a policy presumption against the use of pedestrian guardrail except where there is a proven safety requirement. If a scheme proposes to remove guard rail, it is recommended that there is a clear audit trail to show the reasons for guardrail removal. The DfT LTN 2/09 on Pedestrian Guardrail provides criteria for Guardrail Removal <u>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/328996/ltn-2-09\_Pedestrian\_guardrailing.pdf</u> .
- 2.15 The Chartered Institute of Highways and Transportation 'Designing for Walking' 2015 sets out situations where guardrail is appropriate and TfL 'Planning for Walking Toolkit' is a comprehensive reference document <u>http://content.tfl.gov.uk/the-planning-for-walking-toolkit.pdf</u>

# DP3: Design appropriately for the context and location as well as movement

- 2.16 Designing appropriately for the context and location is:
  - designing to accommodate the functions of that place: social, environmental, economic and movement (see *Design Principle 5*);
  - understanding the context and space available;
  - reinforcing the non-highway character of a street or space.
- 2.17 Designing for place does not just have aesthetic, and resulting social and economic benefits, it can encourage slower, better driving, reducing the risk of injury to pedestrians and cyclists (see *Design Principle 6*).
- 2.18 There is a risk that 'temporary' plastic installations become semipermanent such as the barriers installed on the London bridges in response to the terrorist attacks. These may perform one function but impact on others and are not appropriate in such a sensitive setting.
- 2.19 The next big challenge the country will face is the economic recovery. High Streets and historic areas that look like they are continuously undergoing roadworks, due to the type of temporary infrastructure used, will experience direct economic impacts.
- 2.20 The orange and white barriers are also the design language of fear which may heighten anxiety in people. If lighter treatments including trees, planting and attractive materials are used, people will: feel calmer in the space; are more likely to enjoy the experience; and return another time.

Good examples of lighter segregation below in Enfield, Brixton, Leeds and Auckland. This include wands, fixed specialist cycle lane separators, temporary plastic kerbs and planters.



2.21

With increased physical distancing, requirements for queuing and creating social spaces for cafes to open, there is not always enough space to segregate all street functions and modes of mobility. In such instances, consideration might be given to Pedestrian Priority schemes. These must be designed by experienced designers in close collaboration with Transport Planners and Highway Engineers Pedestrian Priority Designs are only suitable where traffic speeds are already low and might lowered further through additional interventions such as street furniture, traffic flows must not be high but are less critical than traffic speeds.

2.22 Successful permanent Pedestrian Priority schemes are generally flush surfaces without a raised kerb and make the street look pedestrianised so that drivers feel like guests. Award winning examples include Frodsham Street in Chester, New Road Brighton and Castle Square Caernarfon. A different approach is required for temporary street interventions where the kerb is still present but astute placement of street furniture within the carriageway area, particularly at gateway locations: seating, parklets, planters and cycle parking will change the character of the street and influence driving behaviours. Colourful, artistic painting schemes have been used in many countries to engender a non-highway character but paint should not be used to insinuate an informal crossing point as this may Pop-up highway infrastructure widening footways and delivering cycleways

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infringe DfT guidance (see Design Principle 7). If paint is used then the more artistic the better, avoid contrasting patterns, the DfT believe any contrasting pattern, too closely resembles a Zebra crossing.

2.23 More information on the design of Pedestrian Priority schemes is given in The Landscape Institute Technical Information Note 5/19 Designing Shared Space <u>https://www.landscapeinstitute.org/technical-resource/designing-shared-space/</u>

Permanent UK examples of Pedestrian Priority environments in Chester and Caernarfon, with temporary USA examples below.



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#### DP4: Make streets healthier

- 2.24 Any pop-up infrastructure should make the street healthier. The Healthy Streets indicators, set out below, should be reviewed (ref TfL Healthy Streets and Lucy Saunders at HealthyStreets.com):
  - People choose to walk, cycle and use public transport
  - Pedestrians from all walks of life
  - Easy to cross
  - People feel safe
  - Things to see and do
  - Places to stop and rest
  - People feel relaxed
  - Not too noisy
  - Clean air
  - Shade and shelter

## DP5: Make space for social, economic and environmental functions

- 2.25 Movement is generally not an end in itself, it serves to facilitate social or economic activities. All streets, but particularly High Streets, have many social and economic functions which are often marginalized by movement functions. Due to the nature of Covid-19, outdoor spaces in urban areas are more valuable than ever for social and economic activity.
- 2.26 With less people taking public transport there may be more people walking and people will be queuing repeatedly. Regular seating makes journeys possible for large numbers of people that would not otherwise be able to remain independent. Seats are a great way to humanise the streetscape and have a traffic calming effect, particularly when placed at a gateway point or in the effective carriageway in a well-designed Pedestrian Priority scheme.
- 2.27 Queuing outside shops must be accommodated. This might mean multiple over-lapping queues in busy locations. Pedestrians should be able to comfortably navigate queues without stepping into the carriageway unless a Pedestrian Priority scheme has been designed (see Design Principle 3)
- 2.28 Café seating and outdoor retail space for business to open into will be very valuable as people may prefer not to be indoors with people outside their social bubble. Café/retail space might intrude on the pedestrian corridor for short stretches as long as it does not cause unacceptable congestion on the pedestrians corridor. Parklets might be an option for this, these have generally been located on the carriageway and their compact form can

accommodate multiple functions away from desire lines. Attractively designed, they can enhance people's experience and calm traffic.

Hackney parklet by Sustrans



# *DP6: Use infrastructure to communicate how you want drivers, cyclists and pedestrians to behave*

2.29

The design language of roadwork style infrastructure is very similar to that of a race-track and risks encouraging higher traffic speeds and more aggressive driving behaviours. The TfL research referred to previously shows that barriers between pedestrians and traffic can result in substantial increases in serious collisions due to driving behaviours they lead stimulate.



Using lengths of roadworks barriers, rather than permeable 'light segregation' to reallocate space, risks creating a character that encourages a race-track mentality in drivers (the central photo is of a race track, the other two photographs are of recent pop-up infrastructure to widen pavements)

- 2.30 There is a danger that temporary infrastructure for reallocating roadspace, intended to make streets safer, could result in greater risk to pedestrians and cyclists.
- 2.31 Any vertical elements installed should not reduce the opportunity for people to cross the road wherever they like, as drivers are more careful if they think pedestrians might step out. High Street that are easier to crisscross are also more economically resilient.
- 2.32 Permeability also ensure that people can choose to step into a cycleway or carriageway if they want to avoid passing too close to people on the widened pavement.
- 2.33 A painted line is not an effective way to segregate modes, some form of vertical element is much preferred but a continuous barrier is not recommended. There are lots of examples of 'light segregation that include temporary kerbs, wands, fixed specialist cycle lane separators, planters seating and other street furniture elements.
- 2.34 There is an on-going debate led by Transport for Greater Manchester with the DfT as to whether implied zebra crossings can be installed. This is a low-cost version of a zebra without belisha beacons or zig zag markings. The DfT are currently against this but their position may change in-light of this emergency.
- 2.35 Paint in other patterns or as a solid colour should not be used to insinuate a courtesy crossing as this apparently gives pedestrians extra confidence to cross but does not alter driver's behaviour therefore increasing the risk of a collision.
- 2.36 Paint is probably best used in Pedestrian Priority schemes (see Design Principle 3) to reinforce character change but should not be used to insinuate an informal crossing point as this may infringe DfT guidance.
- 2.37 Try to use materials that reinforce the street as a place for people rather than materials that reinforce the vehicular character. Limited resources may dictate the use of roadwork style infrastructure in some locations, so prioritise higher quality materials in key locations and at gateways. The use of light segregation is cheaper than continuous or heavy barriers so will support efficient use of resources. There may be an enormous demand for segregating elements generated by pop-up infrastructure so projects might have to be creative about materials used and perhaps involve the community in sourcing them.

Examples of light temporary segregation from around Berlin, USA, London and Auckland



2.38 Create visual gateways to a scheme that communicate to a driver the road conditions are changing and their behaviour should change accordingly. Benches and planters or trees are ideal gateway elements, incorporate reflectors so they can be seen at night. The more a piece of gateway infrastructure can pinch the carriageway and project a non-highway character, the more you will slow traffic speed, but make sure reduced carriageway space does not increase risks for cyclists (see Sustrans Design manual <u>https://ec.europa.eu/transport/sites/transport/files/cycling-guidance/sustrans handbook for cycle-friendly design.pdf</u>)

#### DP7: Make designs practical, robust and flexible

- 2.39 Management and maintenance resource implications of temporary infrastructure is an essential consideration and traffic management teams at the local council must be a key consultee on any proposals.
- 2.40 Highway drainage must not be blocked by elements that interrupt the flow to gullies which are usually located at a kerb line. Check local conditions as

some carriageway only shed water to one side, this makes it easier to widen footways on the 'higher' side of the road.

- 2.41 Infrastructure must not be too easily dislodged. A traffic cone is a standard piece of highway infrastructure so perhaps temporary infrastructure should be no easier to dislodge than a traffic cone.
- 2.42 Ideally temporary infrastructure should be fixed to the carriageway to ensure they are not too easily dislodged creating a maintenance issue. There are lots of examples of light segregation that demonstrate this using bolts. The London (Brixton) example in the previous set of pictures, is a plastic kerb with temporary tarmac extending the pavement behind it, in this instance the tarmac was laid on a sand bed to facilitate removal.
- 2.43 Temporary infrastructure that can be realigned easily can respond to issues with a scheme that has been rapidly designed or accommodate changes in use to respond to changing patterns of social distancing or perhaps increased numbers of cyclists and pedestrians.

# 3 Additional useful links and blogs

- 3.1 Section 3 of this document provides useful links to blogs from respected Transport Planners and Highway Engineers. These are opinion pieces and should be treated as such but generally provide very useful information, particularly valuable as the Covid situation and our response to it, changes regularly:
  - Updates of the latest developments
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#### Updates of the latest developments

Regular updates summarising latest developments by Dr Robert Davis, Chair of the Road Danger Reduction Forum <u>http://rdrf.org.uk</u>

#### High Street Task Force Pre-recovery/recovery checklist

https://highstreetstaskforce.org.uk/resources/covid19-checklist-prerecovery-recovery-stages

#### **Traffic Regulation Orders**

TROs are explained in more detail in these articles:

https://www.ciht.org.uk/blogs/local-active-transport-helping-addressimpact-of-coronavirus

https://adrianlordcycling.blogspot.com/2020/04/locking-in-benefits-ofcovid-19.html?spref=tw

Specifically on Experimental Traffic Orders (written pre-Covid): <u>https://therantyhighwayman.blogspot.com/2017/01/experimental.html</u>

#### **Risk and Liability**

https://therantyhighwayman.blogspot.com/2020/02/who-is-liable.html

https://therantyhighwayman.blogspot.com/2013/02/risk-liability-anddesigners.html

#### Materials for pop-up infrastructure

<u>https://therantyhighwayman.blogspot.com/</u> (this blog updates so you may have to scroll down to the section 'Practical Materials' 17<sup>th</sup> May 2020

Decision Notice and Officers report for Lambeth temporary highway infrastructure

See the Transport Strategy Programme and Appendix at the end of the Devision Notice for some very useful insight.

https://moderngov.lambeth.gov.uk/ieDecisionDetails.aspx?ID=6596