

# Highway Infrastructure Asset Management Plan

## PLANNED

(INCORPORATING HIGHWAYS SCHEME SELECTION METHODOLOGY)

Revision	Date	Description	Owner
01	26.05.2022	Updated preliminary issue, for comment and approval	Rachel Sandbrook, Head of Highways
00	25.06.2021	Preliminary issue for comment	Mark Eaton, Highway Asset Manager

## 1) Planned Maintenance

## 1.1 Purpose

This component document supports a Highways Infrastructure Asset Management Plan Framework. It explains Lambeth's risk-based approach to planned maintenance.

## 1.2 Authors

The original framework components were prepared through collaborative workshops.

Lambeth Officers	Position	Involvement
M. Eaton	Highways Asset Manager	Main Author
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## 2) Surveys

## 2.1 Condition Surveys

The London Borough of Lambeth commissions independent companies to undertake borough wide carriageway and footway condition surveys. The purpose of these commissions is to gather condition data from an impartial source.

The surveyors employ technical specialists to capture and review images. They assess different carriageway and footway damage types. They also place an emphasis on any specific trigger points, e.g., cracks which indicate structural defects.

The damaged areas are recorded in unique polygons rather than uniform lengths. In this way, the polygons define the areas with specific problems, e.g., major cracking. The polygons are divided by the extent of damage rather than by uniform linear distances. The surveyor defines defective areas rather than the performance of a set length. They use an algorithm to assess damage types and compute a condition grade for each polygon.

The imagery plus descriptions and scores are made available to Lambeth. Verification checks can be performed from a desk. This efficient approach provides auditable quality assurance several years after the original survey date.

The London Borough of Lambeth tells the surveyor to recommend a scheme if they find one or more of six trigger points. They represent significant condition concerns. The below table shows some different damage types:

Trigger Point	Significance	Defect Appearance
Wheel Track Cracking	Cracks within typical wheel paths may suggest structural damage.	A 2003 Store Murrent
Major Cracking	Transverse or whole area cracks may suggest surface course deterioration.	

Severe Subsidence	A difference in levels greater than 30 mm between the defective region and its surroundings may suggest either a failed utility reinstatement or heave from tree roots.	P. 11-2004
Rutting	Undulations greater than 13 mm may retain water, which can become slippery in icy conditions.	
Major Fretting	A loss of material that may result in potholes.	
Major Fatting	The bituminous binder course appearing within the surface course may suggest a loss of friction, which can affect vehicular breaking distances.	

The London Borough of Lambeth asks the surveyor to assess different footway materials. The information will be presented on a map with coloured polygons that demonstrate condition grades. The survey imagery will be accessible from an online viewer. A scheme recommendation will be triggered by the presence of defects. The below table presents a selection of different paving materials.

Type of material	Footway Defect Triggers	Image of material
Bitumen Macadam	Major Cracking	
	Major Fretting	
	Material Loss	

	Severe Settlement	
	Exposed Roots	
	Trips	
Blocks	Major Depression	
	Trips	A HANN
	Major Cracking	
Concrete	Major Scaling	
	Severe Settlement	
	Trips	
Grass Verge	Exposed Roots	
	Major Depression	
	Muddy patches	
	Trips	
Granite Setts	Major Depression	
	Trips	
Modular Paving (including tactile)	Cracked and depressed	
	Depressed	ZI I
	Trips	
Natural Stone Paving	Cracked and depressed	
	Depressed	
	Trips	
Pre-cast Concrete Flag Paving	Cracked and depressed	
	Depressed	
	Trips	
Kerbs (Granite, concrete, or rubber)	Chipped	
	Misalignment	

#### **Condition Scores**

Most surveyors depict condition grades with the three traffic light colours of red, amber, and green. Whereas Lambeth prefers more granularity and choose surveyors who present conditions in with one of five colour grades. The best condition is grade 1 and grade 5 is the worst condition. These grades match different descriptions and suggest possible treatments.

#### Condition Grade Colours:

Condition Grade	Colour	Description
1	Blue	Damage free
2	Green	Signs of wear and tear
3	Yellow	Serviceable
4	Orange	Malfunctioning
5	Red	Structural or surface failure

#### Treatment Options:

Condition Grade	Colour	Treatment Option
1	Blue	
2	Green	Rejuvenation Spray*
3	Yellow	
4	Orange	Take a core sample, before deciding whether to only plane off the surface and inlay it with a new one
5	Red	Take a core sample, before deciding whether full reconstruction is necessary

\*Rejuvenation treatments are applicable to bituminous surfaces.

#### Core Samples

A core sample involves drilling a narrow hole into the surface and removing some of the material. This sample is sent to a laboratory, where the fabric is identified by a material specialist.

## Condition Map

The condition data is visualised on a borough map.



Specific locations can be magnified. Polygon shapes represent the condition grade of individual sections. The polygons are drawn to the full width of the carriageway or footway. This measurement does not necessarily mean the damage is across the full width. The width of the actual damage is specified within the record data.



#### Leigham Court Road

Each polygon has information on dimensions and damage types within the record data.

#### Leigham Court Road

0

	Unnamed f	eature
		🖍 Edit
Q	road_no:	
	area:	75.7215433861408
E TA	length:	10.7562658782454
õ –	width:	7.03976121855522
a la la	grade:	5
0	surface:	Bituminous
eigh	damages:	Cracking - Crazing, Cracking - Wheel Track Crazing, Subsidence, Fretting, Cracking - Coarse Cracking, Cracking - Wheel Track, Chipping Loss
osoft Corporation, © 2020 HERE, Bing, © 2020	damage_wd:	Lane Width

The carriageway condition survey vehicles are fitted with high-definition cameras, which are positioned to capture a 360 degree view of the highway. The images are made available to the London Borough of Lambeth via an online mapping viewer, which is like Google Street View. The online viewer sees what influenced the surveyor's scores. It also helps the authority to review scheme proposals.



Leigham Court Road

Each image comes with an ability to enlarge any point of interest.



#### Leigham Court Road

## 3) Highway Scheme Selection

#### 3.1 Prioritised Investment

We invest in highways which provide important local infrastructure and suffer from heavy usage.

We use the risk below factors to prioritise investment:

- Condition Grade
- Scheme Size
- Highway Classification
- Amenities (e.g., schools)
- Reactive Maintenance History
- Sustainable Travel

Each factor has a risk rating value. The value reflects each factor's influence on the likelihood and consequences of asset failure. Each value is worth a set number of points. The total maximum score is 100 points. Highways with the highest number of points are given greater priority.

Factor	Maximum Points
Scheme size & Condition Grade	60
Highway Classification	15
Amenities (e.g., schools)	10
Reactive Maintenance History	10
Sustainable Travel	5
Total	100

#### Condition Grade

We use the condition grade information from our borough wide footway and carriageway survey commissions. To be considered a viable scheme, a high proportion of the area must have condition grades of either 4 or 5.

Scheme Size

Major schemes provide value for money because material suppliers offer discounts for bulk orders. if two or more minor schemes are close enough together to be delivered efficiently by a contractor in one go, they can be merged into a single major scheme.

Scheme Type	Minimum Area
Major Carriageway	1000 Square Metres
Major Footway	500 Square Metres
Minor Carriageway	500 Square Metres
Minor Footway	250 Square Metres

We combine defective sections to generate the optimal minimum area. Highways which satisfy these conditions will be given 60 points. Those highways which do not achieve this standard will score zero points and will not be considered for the Highway Improvement Programme.

#### Highway Classification

Every highway in the network is classified by how it distributes traffic. Surfaces with high volumes of either vehicular or pedestrian traffic depreciate faster than those with low amounts of traffic.

The below table describes the different types of highway in the Network Hierarchy and how many points are awarded for each type.

Category	Highway Type	Description	Points
1	Motorway	Major infrastructure for a high volume of fast traffic	N/A
2	Trunk Road	Strategic route providing transportation between boroughs	N/A
3	Prestige	High profile location with top quality assets	15
3a	A Class	Principal road providing a direct route through a local area, which connects external strategic routes with internal highways	13
3b	B Class	Secondary traffic distributor linking a principal road with unclassified highways.	11

4a	C Class	An unnumbered (classified) road, which links principal roads and secondary traffic distributors to unclassified roads. It has front access points and several junctions.	9
4b	Unclassified	A local road providing access to a limited number of properties	7

#### Amenities (e.g., schools)

Amenities can be features of either the built or natural environment. They provide local infrastructure for communities. Amenities generate traffic, which suggests more damage and a greater exposure to hazards. Points are based on the number of amenities and the maximum score is 10. The below table establishes which features may be considered an amenity:

Amenities			
School	Place of worship		
Community or leisure centre	Park		
Museum	Hospital		
GP clinic	Care home		
Library	Transport hub		
Town centre	Open space		

Reactive Maintenance History

Reactive maintenance records show which highways are expensive to maintain. We assess repairs over the previous three years. The records also include sites which were repaired because of compensation claims.

Reactive Maintenance Repairs	Points
Over 50	10
Over 30 and Less than 50	8
Over 20 and Less than 30	6
Over 10 and Less than 20	4
Over 0 and Less than 10	2
None	0

#### Sustainable Travel

Healthy Routes and Cycling Routes promote sustainable travel. Healthy Routes have cleaner air than other routes, because they either have less motorised traffic or offer a separate space for pedestrians. Cycle Routes are recognised as highways that are popular with cyclists. Routes that promote sustainable travel are awarded 5 points.

Sustainable Travel	Points
Yes	5
No	0

#### Other Work Programmes

During the planning stage, we will check if another type of project (e.g., sustainable drainage) is being planned for the proposed scheme location. If possible, the two work streams will be brought together. This collaborative approach reduces disruption for residents and the net cost to the council.

#### 3.2 Funds

Due to funding limitations, we apply strict criteria when selecting highway schemes. Our selections match engineering knowledge with local priorities.

Greater investment opportunities would allow broader selection criteria. Additional capital funding for highways would enhance the borough's reputation and bring prosperity.

The selected schemes are ranked by their total score out of 100. This prioritisation method allows Lambeth to take a risk-based approach to asset management. The risk assessment measures the likelihood and consequences of asset failure. The risk is greater for highways which are in a poor condition and have a high volume of users.

## 4) Development Related Works

#### 4.1 Highway Agreements

#### Community Infrastructure Levy (CIL)

The London Borough of Lambeth may seek developer funds for infrastructure, including either highway or transport improvements.

#### Section 106 Agreements - Town and Country Planning Act 1990

The London Borough of Lambeth may seek developer contributions for improvements to its highway network if it enhances the development.

#### Section 278 Agreements - Highways Act 1980

Objections to development proposals can be overcome by design changes to the existing public highways. Developers can pay for the undertaking of works such as realignments, roundabouts, traffic signals, right-turning lanes, or passing bays. Prior to construction, Lambeth will ask developers to submit drawings for approval and enter into a Section 278 Agreement with a Bond to cover the construction costs.

#### Section 38 Agreements - Highways Act 1980

When a developer wishes for the London Borough of Lambeth to adopt highways. They must benefit the wider public and meet our standard specifications for publicly maintainable highways. Developers are requested to submit drawings for approval and enter into a Section 38 Agreement with a bond to cover the full road construction costs. Applications should meet the recommendations within Lambeth's Design Guide and the Department for Transport's Design Manual for Roads and Bridges.

#### Commuted sums

For traffic signals, structures, soakaways, landscaping, street furniture and works not normally of standard construction, layout or provision, a commuted maintenance sum may also be charged to the developer.

#### 4.2 Entering into an agreement

When a developer wishes to enter into a highway agreement with the London Borough of Lambeth, the Development Related Works team will fulfil the below tasks:

- Assess design and variations
- Provide comments
- If necessary, arrange a road safety audit\*
- Prepare legal agreement
- Grant technical approval
- Approve pre-construction requirements
- Confirm works permit

\*Road Safety Audits will be charged separated and based on third-party costs.

The London Borough of Lambeth is entitled to recover the costs relating to highway agreements. A fee of 20% will be added to the estimated cost of delivering highway works. Our fee covers:

- Legal support in preparation of the agreement\*\*
- Design assessment
- Technical approval
- Liaison with the Developer, Consultants, Solicitors and Contractors
- Construction supervision
- Identification of remedial works and site visits
- Monitoring of maintenance period
- Issuing of Completion and Maintenance Certificates

\*\*A Legal fee will be charged separately

## 4.3 Application Fee

The London Borough of Lambeth will charge a separate and non-refundable fee for assessing and giving technical advice on applications relating highway agreements. To enter into an agreement with a developer, the London Borough of Lambeth requires them to submit the below items to <u>DRW@lambeth.gov.uk</u>, which will be assessed by the Development Related Works team:

• The development's function and scale

- Site layout plans, including boundaries\*\*\*
- Site accessibility proposals
- Demolition Management Plan
- Construction Management Plan
- Planning Permission
- Transport Assessment
- Section 106 Town and Country Planning Act 1990 (if applicable)
- Community Infrastructure Levy agreement (if applicable)
- Delivery and Service Management Plan
- Description of the highway works
- Preferred delivery programme for the highway works
- Planned site occupation date
- Impact on highway drainage, streetlights, street furniture or street trees
- Diversion or connection to utility apparatus
- Changes to traffic signals
- Changes to existing structures
- Installation of new structures
- Traffic Regulation Order amendments
- Soil contamination issues

\*\*\*Highway boundary information can be requested from <u>HighwaySearches@lambeth.gov.uk</u>. There are separate charges for this information.