INFRASTRUCTURE MAINTENANCE HIERARCHY STRATEGY AND PROCEDURE

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Contents

Document Information

Title	*Infrastructure Maintenance Hierarchy Strategy and Procedure*
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Document History

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1. Introduction

People who live, work or pass through Newham will use the largest and most visible asset which the Council is responsible for, the highway infrastructure network.

The highway infrastructure network should be defined by 'Hierarchy' which is the foundation of a coherent, consistent and auditable infrastructure maintenance strategy. Hierarchy is crucial to asset management planning as different levels of service can be associated with different maintenance categories for to ensure key infrastructure assets are maintained appropriate to their use and agreed levels of service and are founded on a risk-based approach to Asset Management.

Recommendation 12 of the Well-managed Highway Infrastructure Code of Practice states:

'A network hierarchy, or a series of related hierarchies, should be defined which include all elements of the highway network, including carriageways, footways, cycle routes, structures, lighting and rights of way. The hierarchy should consider current and expected use, resilience, and local economic and social factors such as industry, schools, hospitals and similar, as well as the desirability of continuity and of a consistent approach for walking and cycling'.

A highway infrastructure network hierarchy needs to be based on asset functionality, which will form the foundation of a risk-based maintenance strategy in accordance with the risk-based approach detailed in the Code of Practice. Hierarchy is crucial in establishing levels of service and to the statutory network management role for developing co-ordination and regulating occupation of the network.

Whilst different infrastructure assets may have their own maintenance hierarchies we need to ensure they are related, so that they can all be considered in cross asset prioritisation and considered in relation to each other and in relation to the whole highway infrastructure network.

To ensure consistency and an understanding of maintenance hierarchies, the Highway Authority will create a 'series' of maintenance hierarchies for the major asset groups as per the following table:

Series	Asset Group
M100	Carriageways
M200	Footways
M300	Street Lighting
M400	Cycle Routes
M500	Bridges & Structures
M600	Drainage
M700	Street Scene

Table 1.0 - Maintenance Hierarchy "Series"

This document shows how the Highway Authority will consider the need for all the major infrastructure asset groups and how the maintenance hierarchy for that asset has been derived.

These maintenance hierarchies are dynamic and will be reviewed regularly to ensure any changes within the Highway Authority are reflected in the asset's functionality and therefore considered in its maintenance strategy which reflects the current situation.

The scope and definition of maintenance hierarchy for each of the asset groups may be subject to feedback, challenge and refinement from stakeholders such as Council Officers, Inspectors, Members and the Public through the provision of their feedback and each will be reviewed as part of the annual review of maintenance hierarchies on a case by case basis and updates made where appropriate.

Where roads for example cross into adjoining Council areas, hierarchies will be compared and aligned to ensure the public are given the same level of cross-boundary service, i.e. SKID resistance, Safety Inspections, winter treatment routes etc, and these services will be adjusted where considered necessary.

The following sections discuss the process and considerations in the development of the maintenance hierarchy for the asset groups of carriageways and footways and the maintenance hierarchies for the remaining asset groups will follow in due course as they are further developed.

2. M100 – Carriageway Maintenance Hierarchy

The classification of Britain's roads dates back to the 1920s, when it had become clear that it was necessary to have a system to help motorists identify good routes for driving. In the 1960s, the existing system was overhauled to help deal with an age of mass-motoring.

All UK roads (excluding motorways) fall into one of the following four categories of road classification:

- **A roads** – major roads intended to provide large-scale transport links within or between areas
- **B roads** – roads intended to connect different areas, and to feed traffic between A roads and smaller roads on the network
- **C roads** - Classified unnumbered – smaller roads intended to connect together unclassified roads with A and B roads, and often linking a housing estate or a village to the rest of the network. Similar to 'minor roads' on an Ordnance Survey map and sometimes known unofficially as C roads
- **U roads** – Unclassified local roads intended for local traffic. The vast majority (60%) of roads in the UK fall within this category

As originally conceived, these four road classes form a basic early hierarchy. There has never been a comprehensive review of the road hierarchy, however, from time to time road classifications are reviewed at a local level or for a specific project or prgramme within the Highway Authority. Maintenance need and prioritisation has always been based upon the generic road classification carried out in the 1960's, however, much has changed since that time and consequently the reliance on the road classification system to identify roads most in need of maintenance may not represent the best approach or best value.

The road network hierarchy should reflect the needs, priorities and actual use of each road and the Highways Code of Practice makes particular reference to the importance of cross-boundary continuity with the road hierarchy of neighbouring authorities. The benefit of providing consistency of approach across the region is that in the event of legal challenge this approach will strengthen the Highway Authority's legal position on its management of the highway network and it will ensure the same levels of service are adopted and applied between the authorities.

2.1. Process for developing the Carriageway Maintenance Hierarchy

In order to develop the carriageway maintenance hierarchy, there is a need to identify a criterion which affects the maintenance of each road maintenance category. The Highway Authority is and will continue to follow the Highways Code of Practrice as the basis for delivering the maintenance hierarchy definitions. Maintanance hierarchy will be based on an assessment of each road section on its own merits supported by data which is auditable, repeatable and transparent. The maintenance hierarchy category definitions contained in Table 2.0 were developed through the course of the process.

Criteria	Network Use	Description	Network Category
Prestige Network	Trunk Road	Transport for London Road Network, Strategic Road Network, maintained by TfL	1
Traffic volume	Main Distributor	Main distributor 'A' road, very high pedestrian movement, or need based on local knowledge	2
Traffic generators		School ≥1500 pupils, City / town centre, Railway stations >9m passengers p.a.	
Cyclists		If 'high traffic' and a dedicated cycle lane exists	
Buses		Buses ≥50 per hour	
Risk		Very high risk may be no claims history evidence but local knowledge prevails	
Other uses		Essential service - based on local knowledge	
Traffic volume	Secondary Distributor	Secondary distributor 'A' road, high pedestrian movement, or need based on local knowledge.	3
Traffic generators		School ≥500 ≤1499 pupils, railway stations ≥4 ≤9m passengers p.a., district centres	
Cyclists		Based on local knowledge	
Buses		Buses ≥15 ≤50 per hour	
Risk		Settled / open compensation claims ≥5 p.a.	
Other uses		Event venues	

Traffic volume	Link Road	'B' & 'C' traffic distributor / Link Roads	4
Traffic generators		School ≤500, Railway stations <4m passengers p.a., Strategic industrial areas (HGV use), Place of worship	
Cyclists		National cycle network - quietways	
Buses		Buses <15 per hour	
Historic risk		Settled / open compensation claims <5 p.a.	
Other uses		Vulnerable users - Care home, GP surgery, etc,.	

Traffic volume	Local Access Road	Local access / minor roads	5
Traffic generators		None identified	
Cyclists		Not a defined cycle network	
Buses		Not on a bus route	
Historic risk		Newly resurfaced carriageway or footway	
Other uses		None identified	

Table 2.0 – Carriageway Maintenance Hierarchy Definitions

When it is required the Highway Authority will adopt the following stepped apporoach for defining carriageway maintenance hierarchy.

Step 1: Workshop-First Draft (Hierarchies 1 to 4)
The Highway Authority will set up a workshop attended by experienced and knowledgeable highways officers, technicians and engineers to map out a first draft of the top four road maintenance hierarchies 1, 2, 3 and 4 which cover the Class A, B and C roads and also Link Roads of significance. This initial process helps focus the thought process on the definitions of maintenance hiererchy for each road type in order to achieve good understanding and consistency of approach.

Step 2: Digital Platform
The top four road hierarchies identified within 'Step 1', are transferred to a digital GIS platform for representation alongside the Local Street Gazetteer.

Step 3: Traffic Data
The digital plans produced in 'Step 2' are then sense checked against available traffic data for the borough.

From this data, changes to the road hierarchy may be applied to selected routes reflective of Annual Average Daily Traffic (AADT) which provides traffic flow differentiation between hierarchies 1, 2, 3 and 4 roads.

Step 4: Public Transport
Bus routes are added to the digitised map and public transport is assessed through the following resources:

https://tfl.gov.uk/maps/bus

Step 5: Hierarchy 5
Attention is then switched to establishing the lower hierarchy category 5 which account for the remaining local access roads and other minorv roads which are then added to the digitised GIS layer.

Step 6: Review
Through the course of this stepped process, the hierarchy development team will develop a good and and pragmatic understanding of assigning hierarchies to the Authoritiy's road network. This enables earlier work to be reviewed and sense checked multiple times to ensure that a consistent approach is applied across the network.

Figure 1: The process chart below illustrates the 'step procedure process' which is adopted by Newham Borough Highways in determining the carriageway maintenance hierarchy definitions.

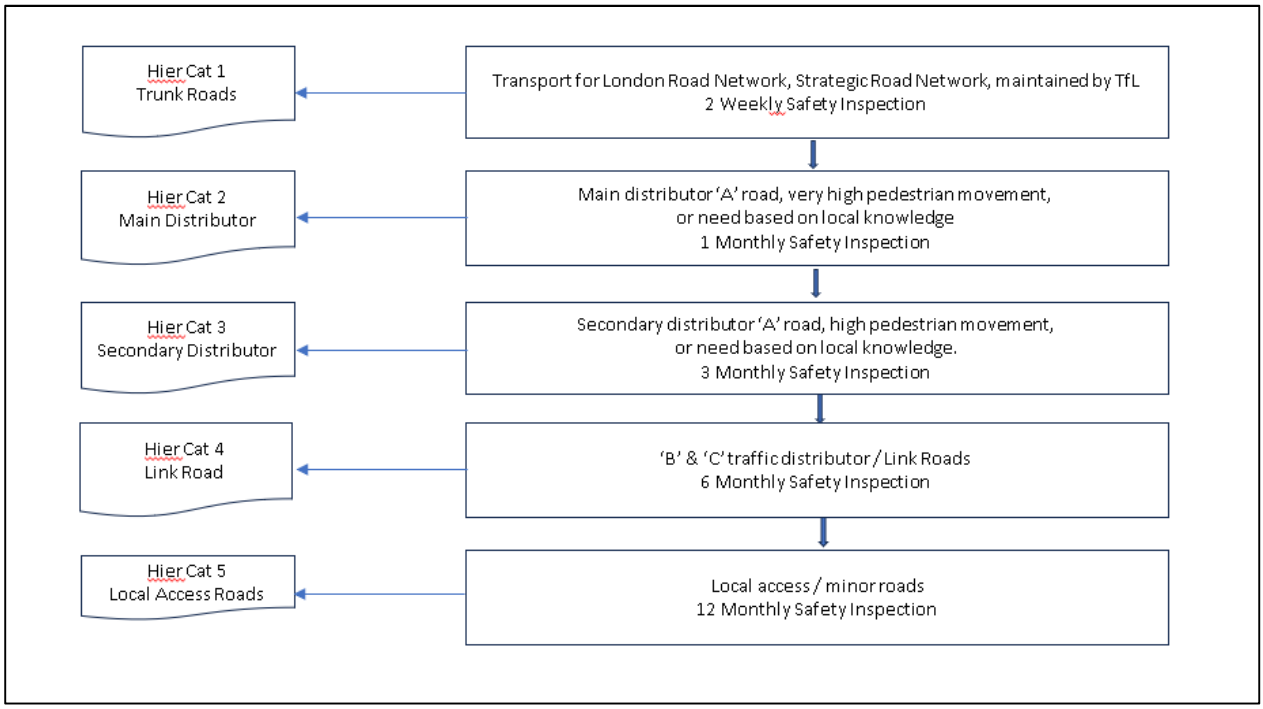

Figure 1 – Carriageway Maintenance Hierarchy Process

3. M200 – Footway Maintenance Hierarchy

Whilst the classification of Britain's roads dates back to the 1920s, footway hierarchy classifications similarly existed for authorities but they weren't officially defined and accepted until the introduction of the Local Authority Association publication of the 'Highway Maintenance Code of Good Practice' (LAA Code). The TRL Report, TRL535 (2002), saw the introduction of the following footway hierarchies which were adopted nationally and formed the basis for Best Value reporting BV187.

Footway Category	*Category Name*	*Description*
1	*Prestige walking Zones*	*Prestige areas in towns and cities with exceptionally high usage, such as Princes Street in Edinburgh and Oxford Street in London.*
2	*Primary walking zones*	*Busy urban shopping and business areas, and main pedestrian routes linking interchanges between different modes of transport, such as railway and underground stations and bus stops etc.*
3	*Secondary walking zones*	*Medium usage routes through local areas feeding into primary routes, local shopping centres, large schools and industrial centres etc.*
4	*Link footways*	*Linking local access footways through urban areas and busy rural footways.*
5	*Local access footways*	*Footways associated with low usage, including estate roads and cul-de-sac.*

Table 3.0 – Existing Footway Hierarchy Definitions (LAA Code & TRL 535 (2002))

3.1. Process for developing the Footway Maintenance Hierarchy.

In order to develop the footway maintenance hierarchy, there is a need to identify a criterion which reflects and affects the maintenance of each footway category. The Highway Authority has decided to follow the new Highways Code of Practice to deliver the footway maintenance hierarchy whereby each footway section will be assessed on its own merits based around data which is auditable, repeatable and transparent. This will then help towards any disclosure packs required to defend claims against the Council. The footway maintenance hierarchy definitions contained in Table 3.1 were developed through the course of the following process.

Criteria	Network Use	Description	Network Category
High Profile	Prestige Walking Zone	Transport hubs i.e. Meridian Square	1
Very High Pedestrian Volume	Primary Walking Route	Local Knowledge	2
Traffic generators		School ≥1500 pupils, City / town centre, Railway stations >9m passengers p.a.	
Other uses		Essential service - based on local knowledge	
High pedestrian movement	Secondary Walking Route	Local Knowledge	3
Traffic generators		School ≥500 ≤999 pupils, railway stations ≥4 ≤9m passengers p.a., district centres	
Cyclists		Based on local knowledge	
Medium Pedestrian Volume	Link Footway	'Local Knowledge	4
Traffic generators		School ≤500, Railway stations <4m passengers p.a., Strategic industrial areas (HGV use), Place of worship	
Cyclists		Based on local knowledge	
Low Pedestrian Volume	Local Access Footway	Local access	5
Traffic generators		None identified	
Cyclists		Based on local knowledge	

Table 3.1 – Footway Maintenance Hierarchies

When required the Highway Authority will adopt the following stepped apporoach for defining footway maintenance hierarchy.

Step 1: Identification of Category 1-Prestige Walking Zones and Category 2-Primary Walking Routes
Consideration will initially be given to identifying the Cat 1 Prestige Walking Zones and Cat 2 Primary Walking Routes. This will be supported by reference to a GIS mapping layer showing shopping areas across the borough to assist with this process.

Local knowledge gained through the existing highway inspection arrangements is utilised in this process such that an appropriate distinction could be made between the main Town Centre shopping areas and the District shopping centres. Town Centre shopping area footways (and pedestrian areas) are designated as Cat 1-Prestige Walking Zones, whilst pedestrian routes in the District shopping centres are designated as Cat 2-Primary Walking Routes.

Step 2: Identfication of Category 3 - Secondary Walking Route
It is appropriate to consider the presence of other significant local amenities in the borough and to reflect their presence and impact on the footway network. A GIS mapping layer is derived from the 'Local Property Gazetteer' using a property classification attribute.

The locations of properties with the following amenity characteristics are included on the mapping layer:

- Arena/Stadium
- Care/Nursing Home
- Children's Nursery/Crèche
- College
- Hospital/Hospice
- Educational Establishment
- Preparatory/First/Primary/Infant/Junior/Middle School
- Public/Village Hall/Other Community Facility
- Secondary/High School
- Special Needs Establishment
- Station/Interchange/Terminal/Halt
- University
- Place of Worship

Any streets with one or more of these amenities present are designated as a Category 3-Secondary Walking Route.

Step 3: Identfication of Category 4 and Category 5 Footways
Finally, attention is then switched to establishing the lower footay hierarchy levels Cat 4 and Cat 5.

- Category 4 Link Footways - routes principally found in residential areas linking or collecting footfall from local access footways typically collecting pedestrian traffic from more than 100 properties associated with neighbouring roads.
- Category 5 Local Access Footways - serving individual streets.

Through the examination of a number of localities across the borough this enables a definition to be established for what constitutes the Cat 4 Link Footways. The threshold set is that a link footway would collect pedestrian traffic from more than 100 properties from adjacent roads. It should be noted that the properties associated with the link footway street itself are not included in this count as the aim is to identify footways attracting pedestrian traffic from neighbouring routes.

Step 4: Review
During the course of this stepped process the hierarchy development team will develop a good understanding of assigning maintenance hierarchies to the footway network. As experience, knowledge and understanding developes, previous work may be reviewed and sense checked multiple times to ensure that a consistent approach is applied across the borough.

4. Safety Inspection Frequency

The significance, importance, usage and risk associated with individual roads and footways are reflected in their maintenance hierarchy status. This hierarchy definition underpins the operational and service delivery needs of the highway asset and impacts on how and when the highway is safety inspected and maintained.

The frequency of highway safety inspections is linked to maintenance hierarchy and in general the higher the hierarchy the more frequent the safety inspection is undertaken.

The safety inspection frequency for a given street section (typically comprising of carriageway and footway) will be the shorter of the inspection frequencies determined separately for the carriageway and footway elements, i.e. where the carriageway hierarchy dictates an inspection frequency of 3 monthly and the footway hierarchy requires an inspection frequency of monthly then the street as a whole will be inspected on a monthly basis. Table 4.0 below shows the hierarchy inspection frequencies adopted by Newham Highways.

Newham Highways Safety Inspection Regime

Network Category	Carriageway	Footway	Inspection Frequency
1	Trunk Road *	Prestige Walking Zone	Two (2) weeks
2	Main Distributor	Primary Walking Route	One (1) month
3	Secondary Distributor	Secondary Walking Route	Three (3) months
4	Link Road	Link Footway	Six (6) months
5	Local Access Road	`Local Access Footway	Twelve (12) months

** Mainly the A13, A406 and A117 Woolwich Manor Way, inspected and maintained by TfL*

Table 4.0 – Safety Inspection Regimes

5. Monitoring and Review

The network has been created using data currently available. A 'Lessons Learned' review of the process for determining maintenance hierarchy will challenge or confirm that the correct process is being used and it will help refine the process (if required) in order to achieve consistency of approach and understanding.

To ensure the network is kept current and up to date an annual review will be undertaken to take account of any network changes and consideration of any lessons learned.

This will involve the following:

- Review critical service locations and updating GIS information
- Updating traffic flow data
- Review neighbouring Council networks

Any changes to the designated maintenance hierarchy should be registered, date stamped and evidenced, as this may have an impact on the Council's defense of legal challenges.

The consistency and reliability of the maintenance hierarchy modelling process is of particular significance and importance in association with legal challenge whereupon the hierarchy designation process may be questioned and explored in some detail to ascertain how it was derived and to determine the correctness of the safety inspection frequency.

Review Date	Comments	By
September 2024	Alleyways and Public Rights of Way amended Lower Lea Crossing removed from Network	AT

It is evident that 'Maintenance Hierarchy' is critical to the risk-based operational maintenance management of the Council's highways infrastructure assets and for the prioritisation and adequacy of its financial investment in suport of asset condition and longevity.