

# DRAFT

## Operational Network Hierarchy Review

March 2014 (Review Version 1: 4th July 2014)



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## 1. Overview

### 1.1 Purpose

The purpose of this document is to explain the complete process and methodology used by the London Borough of Barnet (LBB) to produce their Operational Network Hierarchy using a factor based scoring system.

### 1.2 Background

The general operational characteristics\* of a road network route are typically encapsulated within the traditional designations of the road classification (see section 2), Traffic Management Act traffic sensitivity designations, the Transport for London Network (TLRN) and the Strategic Road Network (SRN).

*\* vehicle flows, percentage of HGVs, bus routes, importance to the economy, role in connecting population centres - cities/towns/settlements, network sensitivity (to congestion and disruption).*

Such factors are also key considerations and components in the designations of Highway Asset Management Plan (HAMP)/Transport Asset Management Plans (TAMP) network service level standards and for the Traffic Management Act Network Management Plan, particularly in terms of 'congestion' journey time reliability and network resilience.

Collectively such 'embedded' factors in the designation already set out the comparative importance between different parts of the network in terms of operational usage and importance between different routes and are an appropriate 'foundation' for an operational maintenance hierarchy.

There are a number of other factors that may necessitate particular localized parts of a network being recognized in the operational hierarchy as being significant and so upgraded or alternatively downgraded.

**The Operational Hierarchy** (OH) has been developed in response to a Re commitment (T3-81) to assess the whole of the LBB carriageway network against a range of operational factors which together reflect the level of use and relative importance of particular routes or localised parts of the network. The project has defined a points score based LBB operational hierarchy which will be established and maintained in an electronic database\*.

*\* The system will be maintained and used through the computerised geographical information system (GIS) and integrated with Bentley EXOR. (Appendix J sets out the database structure). Contact: Vince Thomas.*

The OH will be used by LBB and Re to formulate the strategies and policy for the Safety Inspection system and annual highway maintenance service capital and revenue programmes. The OH will help drive important service efficiencies.

*pictures to be added to final version*

# Operational Network Hierarchy Review

## 1.3 Why is an Operational Hierarchy needed?

It is necessary to have a hierarchy because different parts of the carriageway network have different characteristics and risks to road users.

All Highway Authorities must comply with the Highways Act and in particular it is essential to be able to apply the Section 58 statutory defence to defend third party claim liabilities by demonstrating reasonable systems and maintenance to ensure road user safety. **A key part of such systems is a clear basis for applying different inspection and maintenance expenditure plans for different parts of the highway network.**

Drivers using the highway network are familiar with the national road classifications on roadmaps and being guided by advance directional road signing to a destination (M1, A41, A406, A5109 etc.). This is the system used by Satellite Navigation systems to select journey route options. The use of the Transport for London (TfL) Strategic Network road classifications and signing is designed to direct traffic in an efficient manner and achieve optimum journey times with free flow traffic.

Through this system drivers recognise that Motorways have the highest classification because of the volume of traffic they carry and their importance to the economy in distributing all manner of freight and goods. They are multi lane carriageways, properly designed and constructed and have good maintenance regimes supported by revenue and capital funding. At the opposite end of the scale local roads on residential estates and in rural areas are known by their street name and will typically be narrower single carriageway roads carrying low levels of traffic, in many cases with little or no formal construction.

The Code of Good Practice for Highway Maintenance (Well Maintained Highways) provides nationally prepared guidance on how all highway authorities should define their networks in order to produce a network hierarchy. In simple terms the busiest or most important routes will be inspected most frequently and require expenditure to be prioritised over less well used or important roads.

*pictures to be added to final version*



# Operational Network Hierarchy Review

## 1.4 Benefits of an Operational Network Hierarchy

The network hierarchy is an essential tool for the Highway Authority and maintenance engineers to ensure that highway maintenance expenditure is focused where it will give the best value and is most needed. It is very important that the process followed is transparent, understandable, fair/equitable and auditable.

The reality is that demand for highway maintenance works has exceeded available budget resources for as long as maintenance engineers can remember and as a result there is a constant need for prioritization of maintenance schemes. Members and Officers alike need a justifiable basis for making decisions on which schemes to take forward and which to defer.

The application of a clear set of factors through a consistently applied points system will direct higher or lower levels of service designation for different parts of the network. The factor based adjustments will typically impact on localized sections of the network rather than whole route parts of the operational network, an example would be, for instance, in the immediate proximity of an important hospital, industrial estate or major food distribution centre.

## 1.5 Operational Network Hierarchy Scoring Process

The LBB/Re have devised a straightforward and consistent strategic network scoring system which derives a score by applying points against a range of 8 factors (see Appendix C) to each part of the network. This approach is carefully designed to assess the relative role and importance of a particular part of the network to road users. The 8 factors cover the following broad aspects of a highway network:

- actual usage in terms of volumes of traffic (both cars and heavy goods vehicles);
- strategic importance and traffic sensitivity;
- importance of a route to access key public services;
- access to town centres and prestige regeneration areas.

The starting point to the analysis is a 'foundation' score (Factor 1) applied to each part of the network. The foundation score is based on the Well-maintained Highways Code of Practice for Highway Maintenance Management categories for the LBB network (Appendices A & B).

Each part of the carriageway network is then methodically assessed against 7 further factors which have the potential to locally change the operational characteristics of a given route, either on their own or in combination. One such example would be an unclassified road which may in reality have the characteristics of a higher category 'C' road in terms of local volumes of traffic or the dependence/importance to the travelling public. Another example might be a local residential road that usually has low use but is a designated alternative or secondary route to a Hospital.

Applying this approach to the Operational Network Hierarchy will objectively and consistently identify those parts of the network which warrant 'enhanced' or 'reduced' status in the hierarchy due to their locally assessed characteristics. The factor based adjustments will typically impact on localized rather than whole route parts of the operational network.

The database contains the 8 factors, described in Appendix C, together with other data sets needed to calculate the factor scores and support map display functionality. A tabulation of the data fields is included at Appendix J.

The project to establish the hierarchy will apply a test/validation phase.

The total points score variance to the foundation score will establish either a neutral, enhanced or reduced classification for each section.

The assessed operational hierarchy scores for each part of the network are maintained in the database and subject to periodic review by the database administrator (see para. 1.2).



# Operational Network Hierarchy Review

## 2. Links to Existing Road Classifications & Hierarchies

### 2.1 Route Capacity Classifications

Established road classifications are a good indication of relative importance and usage (volume of traffic, particularly HGVs). They directly correlate to network maintenance strategy and carriageway asset deterioration (wear and tear). Road classifications will periodically be reviewed as new infrastructure impacts on strategic routing. By way of example an 'A' road may be re-classified to a 'B' Road as a result of a new by-pass.

There is a correlation between the volume of traffic flow and the risks to users. It is important to identify those sections of the network which are carrying significantly more traffic than they have been designed for. The traffic capacities for urban roads are tabulated in Appendix D. These traffic flows are the basis for assessing factor 2, the vehicular traffic volume and factor 3, the HGV adjustment.

### 2.2 Well Maintained Roads Code of Practice Hierarchy

The Code of Practice (COP) guidance for maintenance hierarchies relates to the Motorway, Principal, Non Principal and unclassified networks but offers the opportunity for refinement of categories using a range of relevant factors such as vehicle speeds, junctions, properties frontages, and pedestrian activity, by way of example.

The primary function of the maintenance hierarchy is to:

- underpin the COP directive for needs based maintenance and resource (budget) allocation;
- provide the Section 58 defence under the Highway Act 1980 in terms of risk management;

The COP adapted maintenance hierarchy determines the intervals of regular scheduled inspection and the defined intervention points in terms of safety defects and will be the basis for the Highway Maintenance Plan. The hierarchy also directs the prioritization of planned maintenance programmes (revenue and capital).

Appendix E illustrates the relationships and linkage between route classifications, road classifications, COP hierarchy guidance and inspection frequencies.

*pictures to be added to final version*

# Operational Network Hierarchy Review

## 3. Network Review and Monitoring

The network will be periodically re-assessed using the guidelines and factor based point scoring approach. It is recommended that an annual formal reassessment is conducted. The database will be the 'tool' to conduct the review.

## 4. Role of Hierarchy on Capital and Revenue Investment

The points scoring system is designed to achieve an appropriate level of sensitivity to be able to influence and justify the movement of a foundation classification route to a higher or lower band of service or prioritization attracting either an enhanced or reduced level of service and resource allocation.

The diagram in Appendix E is illustrative of the connectivity between bandings and thresholds on service delivery outcomes and ultimately ...expenditure and investment.

The factors potentially raise or lower the importance of a route or part of a route. The reasons may be permanent, semi permanent or temporary. Periodic reviews of the network will revisit such factors.

**The Operational Hierarchy classification will not formally alter the route classification but it will identify parts of the network which are required to function with non typical characteristics. This assessment will inform operational risk and budget decisions.**

In operational terms the 'importance' of a route in terms of need for maintenance (capital or revenue) will be defined by:

- Safety Defect Rating System for frequency of inspection (and defect intervention levels);
- The order/priority that the planned maintenance programme is tackled.

## 5. Role of Operational Hierarchy on Insurance Claims

Poorly maintained roads leave the Council wide open to insurance claims for vehicles, street furniture and public boundaries damaged as a result of hitting a pothole. Whilst the Council is not liable for a defect they do not know about, they will be required to demonstrate that an effective system is in place to ensure road condition surveys are carried regularly. The Council must also demonstrate that if they are notified of defects, either by their own staff or a member of the public, that repairs are completed within a timely manner.

The Operational Hierarchy enables route scores to be adjusted to capture a variety of factors which influence

the frequency of inspection surveys. The Council can define additional factors which have local significance. Appendix F refers to an additional factor which would capture links where the pavements life is near an end but yet funding is not yet available to undertake works.

This would raise the overall score of a link which is showing signs of deterioration and potentially increase the frequency at which it is inspected. This would reduce the potential for insurance claims and the lost time and cost required to deal with both liable and blameless incidents.



# Operational Network Hierarchy Review

## 6. Recommendations

It is our recommendation that the Council take the following actions:

1. Review the whole highway network with regard to an agreed set of factors for which data is available and ascertain a new Operational Network Hierarchy;
2. Use the Inspectors manual assessment to sense check the results;
3. Re-define the frequency of each link in the Barnet road network;
4. Design inspection routes based on the revised frequencies using the MapInfo database to calculate route lengths;
5. Determine other factors, for which data is not available, that have local significance and obtain data sets to strengthen database value.

*pictures to be added to final version*

## Appendix A

### Carriageway Hierarchy

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# Operational Network Hierarchy Review

## APPENDIX A

### Carriageway Hierarchy

Extract from Well-maintained Highways Code of Practice for Highway Maintenance Management.

Category	Hierarchy	Type of Road	Description
1	Motorway	Limited access motorway regulations apply	Routes for fast moving long distance traffic. Fully grade separated and restrictions on use.
2	Strategic Route	Trunk and some Principal 'A' roads between Primary Destinations	Routes for fast moving long distance traffic with little frontage access or pedestrian traffic. Speed limits are usually in excess of 40 mph and there are few junctions. Pedestrian crossings are either segregated or controlled and parked vehicles are generally prohibited.
3a	Main Distributor	Major Urban Network and Inter-Primary Links. Short - medium distance traffic	Routes between Strategic Routes and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40 mph or less, parking is restricted at peak times and there are positive measures for pedestrian safety.
3b	Secondary Distributor	Classified Road (B and C class) and unclassified urban bus routes carrying local traffic with frontage access and frequent junctions	In rural areas these roads link the larger villages and HGV generators to the Strategic and Main Distributor Network. In built up areas these roads have 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. On-street parking is generally unrestricted except for safety reasons
4a	Link Road	Roads linking between the Main and Secondary Distributor Network with frontage access and frequent junctions	In rural areas these roads link the smaller villages to the distributor roads. They are of varying width and not always capable of carrying two way traffic. In urban areas they are residential or industrial interconnecting roads with 30 mph speed limits random pedestrian movements and uncontrolled parking
4b	Local Access Road	Roads serving limited numbers of properties carrying only access traffic	In rural areas these roads serve small settlements and provide access to individual properties and land. They are often only single lane width and unsuitable for HGVs. In urban areas they are often residential loop roads or cul-de-sacs.

## Appendix B

### Footway Hierarchy

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# Operational Network Hierarchy Review

## APPENDIX B

### Footway Hierarchy

Extract from Well-maintained Highways Code of Practice for Highway Maintenance Management.

Category	Category Name	Description
1a	Prestige Walking Zones	Very busy areas of towns and cities with high public space and streetscene contribution.
1	Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes.
2	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.
3	Link Footways	Linking local access footways through urban areas and busy rural footways.
4	Local Access Footways	Footways associated with low usage, short estate roads to the main routes and cul-de-sacs.

## Appendix C

### Application of Factor Points

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# Operational Network Hierarchy Review

## APPENDIX C

### Application of Factor Points

Factor 1 is the baseline 'foundation' score to which factors 2-8 inclusive are then applied (added or subtracted) to establish the LBB operational hierarchy score.

Factor			Points Awarded
1	Foundation Score	<p>The foundation scores are based on the existing LBB Network classification (see Appendix A).</p> <p>Type 2 Strategic Type 3a Main Distributer Type 3b Secondary Distributer Type 4 Link Road Type 4b Minor Access Road</p>	<p>500 400 300 200 100</p>
2	Vehicle Flows Adjustment	<p>Where actual traffic flows are available and vary with the traffic flow baseline a graduated points scale is applied.</p> <p>Where no measured traffic flow is available an option is available to accommodate local knowledge:</p> <p>Actual/Perceived AADT &gt;50% of baseline Actual/Perceived AADT &gt;40% of baseline Actual/Perceived AADT &gt;30% of baseline Actual/Perceived AADT &gt;20% of baseline Actual/Perceived AADT &gt;10% of baseline</p> <p>Actual/Perceived AADT &lt;10% of baseline Actual/Perceived AADT &lt;20% of baseline Actual/Perceived AADT &lt;30% of baseline Actual/Perceived AADT &lt;40% of baseline Actual/Perceived AADT &lt;50% of baseline</p>	<p>+100 +80 +60 +40 +20</p> <p>-20 -40 -60 -80 -100</p>
3	Heavy Goods Vehicles (HGV)	<p>Traffic survey guidelines state that HGVs account for approx. 10% of traffic. Significantly higher or lower levels indicate the role and importance of that link in the network to commerce.</p> <p>This factor also reflects the asset wear and tear.</p> <p>Actual HGV traffic &gt;20% of traffic flow Actual HGV traffic &lt; 5% of traffic flow</p>	<p>+50 -50</p>
4	Traffic Sensitive (including Bus Routes)	<p>The NRSWA identifies that a street designated as traffic-sensitive must have one or more of the following criteria:</p> <p>(a) The street is one on which, at any time, the street authority estimates traffic flow to be greater than 500 vehicles per hour, per lane of carriageway, excluding bus or cycle lanes.</p> <p>(b) The street is a single carriageway two-way road, the carriageway of which, is less than 6.5 metres wide, having a total traffic flow in both directions of not less than 600 vehicles per hour.</p> <p>(c) The street falls within a congestion charges area.</p> <p>(d) Traffic flow contains more than 25% heavy commercial vehicles.</p> <p>(e) The street carries more than eight buses an hour.</p>	

# Operational Network Hierarchy Review

## APPENDIX C

Factor			Points Awarded
		(f) The street is designated for pre-salting, by the street authority as part of its programme of winter maintenance. (g) The street is within 100 metres of a critical signalised junction, gyratory or roundabout system. (h) The street, or that part of a street that, has a pedestrian flow rate in both directions at any time, of at least 1,300 persons per hour, per metre width of footway. (i) The street is on a tourist route or within an area where international, national, or significant major local events take place. For sections of the network (regardless of category) which are designated traffic sensitive	+25
5	Strategic Road Network	This factor adds emphasis and prioritization to operational networks service standards for the strategic integrated transport network which influences the speed and reliability of journey times. Diversionary routes (formally designated in the Network Management Plan (congestion management) and/or the Emergency Plan)	+75
6	Single Settlement and Designated Primary Accesses	The purpose of factor 7 is to recognize the 'no alternatives' (single access) function of a road as access to a settlement or the designation of one principal access road where several options exist. 6a Sole access 6b Designated primary access 6c Non primary access This factor applies a refinement in relative importance to localised groups of unclassified routes.	+75 +50 -25
7	Key Public Service (KPS) Accessibility	The purpose of this factor is to recognize the local importance of a route or road in accessing/servicing important community facilities. Additional points to be applied for sections of the network that have localised importance in accessing/servicing: 7a Major regional hospital 7b Major educational facility 7c Comprehensive school 7d Industrial estate/business park/major retail parks 7e Secondary healthcare facility 7f Emergency services 7g Leisure centre 7h Community centre 7i School 7j Major strategic car park The vicinity of specific locations will be assessed to decide on logical cut off points for application of any KPS factors.	+100 +75 +75 +75 +50 +50 +50 +50 +50 +50
8	Tourist Locations	An adjustment factor to recognise the importance of a route to the local economy, increased seasonal volumes of traffic and public perception of LBB by visitors. Applies to primary tourist destinations based on Tourism Strategy. Recognised tourist route.	+25

# Appendix D

## Traffic Capacity of Urban Roads

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# Operational Network Hierarchy Review

## APPENDIX D

### Traffic Capacity of Urban Roads

#### Extracts from DMRB TA79/99

- 1.4 This Advice Note gives the maximum hourly vehicle capacity for various types of Urban Trunk Road. All capacities quoted are for traffic compositions including up to 15% heavy vehicles; corrections are provided for higher proportions.
- 1.9 Urban All-Purpose Road (UAP)  
An all-purpose road within a built up area, either a single carriageway with a speed limit of 40 mph or less or a dual carriageway with a speed limit of 60 mph or less.
- 1.10 Capacity  
For the purposes of this Advice Note, capacity is defined as the maximum sustainable flow of traffic passing in 1 hour, under favourable road and traffic conditions.

Feature	ROAD TYPE				
	Urban Motorway	Urban All-purpose			
	UM	UAP1	UAP2	UAP3	UAP4
<b>General Description</b>	Through route with grade separated junctions, hardshoulders or hardstrips and motorway restrictions.	High standard single/dual carriageway road carrying predominantly through traffic with limited access	Good standard single/dual carriageway road with frontage access and more than two side roads per km	Variable standard road carrying mixed traffic with frontage access, side roads, bus stops and atgrade pedestrian crossings	Busy high street carrying predominantly local traffic with frontage activity including loading and unloading.
<b>Speed Limit</b>	60mph or less	40 to 60mph for dual and generally 40mph for single carriageway	Generally 40mph	30mph to 40mph	30mph
<b>Side Roads</b>	None	0 to 2 per km	more than 2 per km	more than 2 per km	more than 2 per km
<b>Access to roadside development</b>	None. Grade separated for major only.	Limited access	access to residential properties	Frontage access	Unlimited access to houses, shops & businesses
<b>Parking and Loading</b>	None	Restricted	Restricted	Unrestricted	Unrestricted
<b>Pedestrian Crossing</b>	Grade separated	mostly grade separated	Some at-grade	Some at-grade	Frequent at-grade
<b>Bus stops</b>	None	in lay-bys	at kerbside	at kerbside	at kerbside

*Table 1:  
Types of Urban roads and the features that distinguish them*

# Operational Network Hierarchy Review

## APPENDIX D

3.1 Table 1 sets out the types of Urban Roads and the features that distinguish between them and affect their traffic capacity. Tables 2 & 3 give the flow capacity for each road type described in Table 1.

		Two-way Single Carriageway - Busiest direction flow (Assumes a 60/40 directional split)									Dual Carriageway			
		Total number of Lanes									Number of Lanes in each direction			
		2				2-3	3	3-4	4	4+	2		3	4
Carriageway width		6.1m	6.75m	7.3m	9.0m	10.0m	12.3m	13.5m	14.6m	18.0m	6.75	7.3m	11.0m	14.6m
Road Type	UM	Not applicable										4000	5600	7200
	UAP1	1020	1320	1590	1860	2010	2550	2800	3050	3300	3350	3600	5200	*
	UAP2	1020	1260	1470	1550	1650	1700	1900	2100	2700	2950	3200	4800	*
	UAP3	900	1110	1300	1530	1620	*	*	*	*	2300	2600	3300	*
	UAP4	750	900	1140	1320	1410	*	*	*	*	*	*	*	*

Table 2:

Table 2 Capacities of Urban Roads - One-way hourly flows in each direction

### Notes

1. Capacities are in vehicles per hour.
2. HGV ≤ 15%
3. (\*) Capacities are excluded where the road width is not appropriate for the road type and where there are too few examples to give reliable figures.

# Operational Network Hierarchy Review

## APPENDIX D

Carriageway Width		6.1m	6.75m	7.3m	9.0m	10.0m	11.0m
		2 Lanes			2-3 Lanes		3 Lanes
Road Type	UAP1		2950	3250	3950	4450	4800
	UAP2	1800	2000	2200	2850	3250	3550

Table 3:  
Capacities of Urban One-Way roads, hourly flows

### Notes

1. Capacities are in vehicles per hour.
2. Capacities for one way road types UAP1 at 6.1m width, UAP3 and UAP4 are not shown as there are too few examples to give reliable capacities.
3. Capacities for one-way roads (e.g. UAP2 at 7.3m and 11.0m carriageway widths) are generally less than capacities of dual carriageways in one direction shown in Table 2. The reason is that one-way roads are often of short lengths and form part of a gyratory system between junctions, necessitating high proportion of vehicle weaving and stopping, thereby decreasing the capacities.



# Appendix E

## Road Classification: Safety Inspection Frequency

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# Operational Network Hierarchy Review

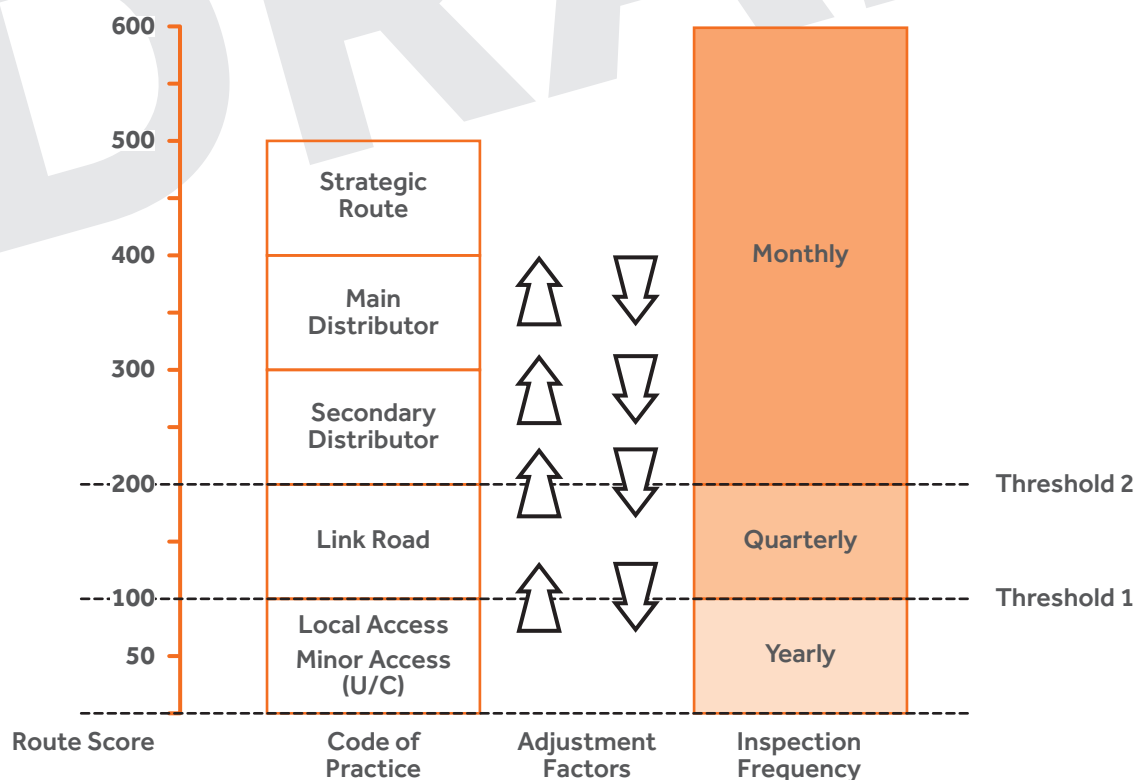
## APPENDIX E

### Road Classification – Safety Inspection Frequency

Extract from Table 4 – Safety Inspection Frequency of the Well-maintained Highways Code of Practice for Highway Maintenance Management

Description	Category	Frequency
Strategic Route	2	1 month
Main Distributor	3a	1 month
Secondary Distributor	3b	1 month
Link Road	4a	3 months
Local Access	4b	1 year
at kerbside	at kerbside	at kerbside

### Road Classification – Service/Resource Thresholds



## Appendix F

### Future Considerations for Operational Network Factors

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# Operational Network Hierarchy Review

## APPENDIX F

### Future Considerations for Operational Network Factors

#### Factor 9 Carriageway Rate of Deterioration (Wear & Tear/Usage)

This factor will reflect construction details and maintenance history (ideally from Pavement Management System) and is included in order to recognize that roads will deteriorate at different rates as a result of construction and maintenance history, requiring different safety inspection intervals (for risk assessment reasons). This factor would influence the Route Special Attention (SA) designation. Planned maintenance restoring the projected rate of deterioration to 'steady state/normal' would remove the designation. It is closely aligned with the risk management of third party claims

- Steady state/normal GREEN
- Advanced/accelerated AMBER
- Critical RED

This factor would be subject to constant review and update by reference to Pavement Management System (PMS) data.

#### Factor 10 Safe Routes in the Communities & Cycleways

This factor will reflect the particular issues where such routes connect with and coexist with the highway network. The Council may consider adjusting the score for routes identified as Safe Routes in the Communities to potentially increase the frequency of inspections on these routes.

#### Factor 11 Streets with Special Engineering Difficulties

This factor will ensure pavement deterioration on links where remedial works would cause additional costs and time, is identified early on. The Council may consider adjusting the score for these links to potentially increase the frequency of inspections on these routes.

#### Factor 12 Routes in need of complete repair

This factor will ensure pavements which are near to the end of their design life and therefore more susceptible to deterioration are inspected more regularly. The Council may consider adjusting the score for these links to potentially increase the frequency of inspections on these routes.

## Appendix G

### Frequently Asked Questions

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# Operational Network Hierarchy Review

## APPENDIX G

### Frequently Asked Questions

*"Once a route has been scored will it ever change?"*

The approach is a 'live system' that importantly allows the effects of ongoing changes to the network, such as those created by a new large housing development, to be constantly reviewed and the operational hierarchy updated as necessary to accommodate permanent, semi permanent or temporary changes.

*"How will I be able to explain that one road is a higher priority?"*

The system makes it easy to identify from the database the particular factor, or combination of factors, that has resulted in a section of road being upgraded or downgraded, for instance if the average volume of traffic is 3000 vehicles/hr and the actual is 6000 vehicles.

*"What are the benefits of this approach?"*

LBB can demonstrate a clear and transparent approach to defining its operational hierarchy resulting in services being prioritized on the basis of need in accordance with best practice Code of Practice guidance.



# Appendix H

## Strategy and Hierarchy Objectives

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# Operational Network Hierarchy Review

## APPENDIX H

### Strategy and Hierarchy Objectives

- Define the carriageway network on the basis of an operational hierarchy;
- Define the relative importance (of parts of the network) to direct capital and revenue investments in a more structured way;
- Use the route hierarchy to determine highway safety inspection frequencies

*Extract Part C Section 8, Strategy & Hierarchy from Well-maintained Highways Code of Practice for Highway Maintenance Management (updated in September 2013)*

#### 8.7.2

It is important that the hierarchy adopted reflects the needs, priorities and actual use of each road in the network. These may be determined by importance – a route leading to a major hospital, for example. They may be determined by environment – rural, urban, busy shopping street, residential street etc. They may be determined by non-vehicular traffic factors such as pedestrian usage. Indeed, footway priorities may sometimes conflict with carriageway priorities, and hence it is necessary to define separate footway and cycle route hierarchies. Collectively, these issues may be referred to as the 'functionality' of the section of highway in question.

#### 8.7.10

It is also important that hierarchies are dynamic and regularly reviewed to reflect changes in network characteristics and functionality, so that maintenance policies, practices and standards reflect the current situation rather than the use expected Well-maintained when the hierarchy was originally defined. Where major maintenance, construction or other development involves significant traffic diversion, or when congestion in one part of the network results in traffic shift to another part of the network it is important that these changes are reflected in the hierarchy and subsequently in the maintenance and network management regimes.

# Appendix I

## Glossary of Terms/Abbreviations

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# Operational Network Hierarchy Review

## APPENDIX I

### Glossary of Terms/Abbreviations

TERM	DESCRIPTION
IDNR	a unique reference for each record generated by the database (not used in scoring calculations)
Route Status	Traffic Regulations categorization eg. 'A', 'B' 'C', unclassified, green lane
COP	Code of Practice (Well Maintained Highways)
USRN	Unique Street Reference Number
SED	Streets with Special Engineering Difficulties

## Appendix J

### Database Structure

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# Operational Network Hierarchy Review

## APPENDIX J

### Database Structure

FIELD NAME	FACTOR REF.	DESCRIPTION/USE IN DATABASE
USRN		Unique street reference number used in BS7666 Gazetteer. Not used in scoring calculation.
Section_LA		xxx Not used in scoring calculation.
Ward		Subdivision of the London Borough of Barnet. Not used in scoring calculation.
Description		Text description of the network section. Not used in scoring calculation.
Length		Length of the network section. Not used in scoring calculation.
Width		Width of the network section. Not used in scoring calculation.
No. of Lanes		Number of lanes in the network section. Not used in scoring calculation.
Carriageway Type		xxx Not used in scoring calculation.
Road Type		xxx Not used in scoring calculation.
Speed Limit		Speed limit on the network section. Not used in scoring calculation.
Footway Hierarchy		xxx Not used in scoring calculation.
Status		xxx Not used in scoring calculation.
Route Category	<b>1</b>	Sections are categorised by LBB based on the Code of Good Practice Maintenance Hierarchy.
<b>Foundation Score</b>		This score is derived directly from the route category as per the values set out in Appendix C.
Traffic Capacity	<b>2</b>	Maximum hourly capacity for the network section based on DMRB TA 79/99.
Measured Traffic Flow		If traffic survey data, less than five years old is available, actual traffic flows should be recorded.
Assumed Traffic Flow		Where survey data is unavailable this optional field allows local knowledge and observation of flows to be applied.
<b>Vehicle Flow Adjustment</b>		Factor 2 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
HGV Flow	<b>3</b>	This field allows adjustment if HGV proportions significantly vary from the assumed 15% of total traffic.
<b>HGV Flow Adjustment</b>		Factor 3 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.



# Operational Network Hierarchy Review

## APPENDIX J

FIELD NAME	FACTOR REF.	DESCRIPTION/USE IN DATABASE
Traffic Sensitive Route	4	This field identifies routes designated as traffic sensitive (including bus routes) based on NRSWA guidelines.
<b>Sensitivity Adjustment</b>		Factor 4 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Strategic Route	5	This field identifies routes designated as diversionary routes in the Transport for London Network.
<b>Strategic Route Adjustment</b>		Factor 5 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Sole Access	6	This field identifies routes which are recognised as having 'no alternative'.
Designated Primary Access		This field identifies routes which are recognised as being the 'principal access'.
Non primary Access		This field identifies routes where several alternative options exist
<b>Access Adjustment</b>		Factor 6 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Major regional hospital	7	This field identifies routes key to accessing major regional hospitals.
Major educational facility		This field identifies routes key to accessing major educational facility.
Comprehensive school		This field identifies routes key to accessing comprehensive schools.
Industrial estate/business park/major retail park		This field identifies routes key to accessing Industrial estates, business parks and/or major retail parks.
Secondary healthcare facility		This field identifies routes key to accessing secondary healthcare facilities.
Emergency services		This field identifies routes key to accessing emergency services.
Leisure centre		This field identifies routes key to accessing local leisure centres.
Community centre		This field identifies routes key to accessing local community centres.
School		This field identifies routes key to accessing local primary schools.
Major strategic car park		This field identifies routes key to accessing major strategic car parks.
<b>Key Public Service Adjustment</b>		Factor 7 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Tourist Route	8	This field identifies routes which are recognised as being important for tourists.
<b>Tourist Route Adjustment</b>		Factor 8 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
<b>Operational Network Hierarchy Score</b>		This is the aggregated points score for a section of the network following application of the 8 factors. The extent to which this score varies with the foundation score dictates whether the section is upgraded or downgraded.



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