

Operational Network Hierarchy Review and Management Plan

Review Version 6: December 2021 - DRAFT



Project No: CS/078817



Doc Ref: T3-81:

Rev:

Client: London Borough of Barnet

Issue Date: December 2021

Operational Network Hierarchy Review and Management Plan
Review Version 6 - DRAFT

	NAME	SIGNATURE	DATE
AUTHOR	Stephanie Malson		July 2018
CHECKER	Mark Rees-Williams		July 2018
APPROVER	Andrew Gudge /LBB Client Team		Dec 2021

Issue Record

REV	DATE	DESCRIPTION/COMMENTS	AUTHOR/ PREPARED BY:	APPROVED FOR ISSUE BY:
V1	JULY '14	Original Issue – Re. Commitment T3-81	Mark Rees-Williams	
V2	MAY '15	Update- agreed actions Zurich Review comments	Mark Rees-Williams	Dean Cronk
V3	AUG '15	Update: minor edits plus recommendations progress	Mark Rees-Williams	Dean Cronk
V4	NOV '16	Annual review – minor edits - Appendix N	Stephanie Malson	
V5 Draft	JULY'18	Annual review - Minor edits to reflect 2016 Code of Practice and Dynamic Assessment Process	Mark Rees-Williams	
V6 Draft	DEC'21	Annual review - Minor edits to confirm 2016 Code of Practice and Dynamic Assessment Process	Mark Rees-Williams	Andrew Gudge

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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 (ONH) using a factor based scoring system. The ONH applies to the carriageway, footway and designated cycleway networks where such exist, but excludes Public Rights of Way.

1.2 Background

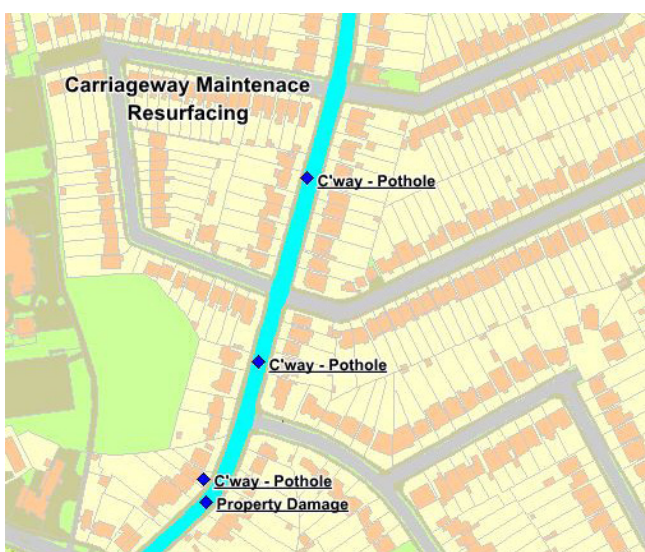
The general operational characteristics* of a road network route are typically encapsulated within the traditional designations of the road classification (see section 2), Traffic Management Act traffic sensitivity designations, the Transport for London Road Network (TLRN) and the Strategic Road Network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



Manage risk by targeted planned maintenance

The Operational Hierarchy (ONH) was developed in 2014 as a Re. investment commitment (T3-81). The process has assessed the whole of the LBB maintained carriageway and footway network together with any designated cycleways. The LBB ONH does not cover those parts of the main strategic network directly and wholly managed by Transport for London TfL. The LBB network comprises a total of 687km of carriageway/footway equating to approximately 5million square metres of carriageway and 3 million square metres of footway.

Operational Network Hierarchy Review

The process assessed each defined section of the network against a range of operational factors which collectively reflect the level of use and importance of particular routes or localised parts of the carriageway and footway networks.

The project has defined and established a point score based LBB ONH which is maintained in an electronic GIS database*

*the MapInfo based GIS integrates with the CONFIRM system. Governance of key data sets (Appendix I sets out the database structure) is documented in the ONH Data Management Plan (Appendix M)

The ONH is used by LBB/Re. Highways to formulate the Highway Asset Management strategies and policies for the Safety Inspection system and annual planned maintenance programme. The ONH is designed to be a dynamic review approach to changing risks to help support service optimisation and operational efficiencies.

1.3 Why is an Operational Hierarchy needed?

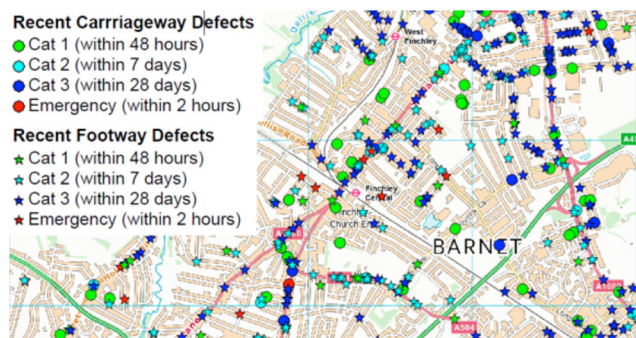
It is necessary to have a hierarchy because different parts of the carriageway and footway network have different characteristics and risks to users (drivers/vehicles, pedestrians and cyclists).

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 Well-Managed Highway Infrastructure: A Code of Practice 2016 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.



GIS analysis of reactive maintenance

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 traffic or pedestrian generator such as a hospital, industrial estate, major shopping centre, school and transport hubs such as underground or mainline stations.

The example below shows how the inspection frequencies on local pedestrian routes to schools are increased from annual to 6-monthly on a permanent basis following the application of the key public services factor.

Barnet Network Inspection Frequencies

Monthly Quarterly 6-Monthly Annually



Foundation score inspection frequencies



Adjusted score inspection frequencies

Operational Network Hierarchy Review

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 11 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 11 factors cover the following broad aspects of a highway network:

- actual usage in terms of vehicular traffic (both cars and heavy goods vehicles);
- Significant (above normal) pedestrian generating sections of the footway network
- strategic importance and traffic sensitivity;
- importance of a route to access key public services;
- access to town centres and prestige regeneration areas.
- Available incident and claims history (risks)

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-managed Highway Infrastructure: Code of Practice for Highway Maintenance Management categories for the LBB network (Appendix A & Appendix B).

Network sections are assessed as a carriageway and adjacent footway combination with the inspection requirement being applied to both footway and adjoining carriageway.

Each part of the carriageway/footway network has then been methodically considered against 10 further categories although not all factors will apply to all sections of the network and data may also not be available to apply the factor.

The application of the factors has the potential to locally change the operational characteristics of a given network section, either on their own or in combination with other adjoining sections. 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. For footways the characteristic may be influenced by the proximity of schools and underground stations. The review has specifically analysed such locations (for example Appendix J).

In the example below sections have been moved down into less frequent and up into more frequent inspections as a result of greater vehicle flows, lesser pedestrian flows and/or sensitivity to rush hour traffic.

ROAD NAME	FOOTWAY LOCAL HIERARCHY	CARRIAGEWAY LOCAL HIERARCHY	FACTOR 1 FOUNDATION SCORE	FACTOR ADJUSTMENTS			ADJUSTED SCORE
				FACTOR 2 VEHICLE FLOW	FACTOR 3 PEDESTRIAN FLOW	FACTOR 5 TRAFFIC SENSITIVE	
Barnet Gate Lane	Cat4 Local Access Footway	Cat4a Link Road	200	0	-100	0	100
Barnet Road	Cat3 Link Footway	Cat3a Main Distributor	400	0	-200	50	250
Hendon Wood Lane	Cat3 Link Footway	Cat3b Secondary Distributor	300	0	-100	0	200
Mays Lane	Cat4 Local Access Footway	Cat4a Link Road	200	0	-100	0	100
Nuption Drive	Cat4 Local Access Footway	Cat4b Local Access	100	0	0	50	150
Quinta Drive	Cat3 Link Footway	Cat4b Local Access	100	50	0	0	150



Foundation score inspection frequencies



Adjusted score inspection frequencies

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 11 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 I.

The project to apply the hierarchy applied a test validation phase (sense check) in conjunction with the LBB Client representatives.

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). A Data Management plan to ensure due process, governance and sign off of change control to the ONH applies (see Appendix M).

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. Footways may be changed as a result of major development regeneration projects such Brent Cross which could create Prestige Walking Zones or Primary Walking Routes.

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 Managed Highway Infrastructure - Code of Practice Hierarchy

The current 2016 publication Code of Practice (Well Managed Highway Infrastructure) retains the predecessor Code guidance and importance placed on locally appropriate network hierarchies.

The Code of Practice (COP) guidance for maintenance hierarchies is set out in Section 4.3 Functional Hierarchy and A 4.3.11 Table 1 and A 4.3.14 Table 2 and covers Motorway, Strategic, Main and Secondary Distributors, Link Roads, Local Access and Minor Roads (carriageways) and the Prestige/Primary and Secondary walking routes/ Link/Local Access and Minor Footways as well as Cycleways.

The primary function of the maintenance hierarchy is to:

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

The COP risk based maintenance hierarchy directs the intervals for regular scheduled inspection and the defined intervention points in terms of safety defects and is 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, COP hierarchy guidance and inspection frequencies. The 2016 COP no longer provides specific guidance for inspection intervals related to designated types of carriageways or footways. The Authority has retained the intervals that had been established based on previous best practice and local risk assessment.

3. Network Review and Monitoring

As part of the ONH Management Plan the local network hierarchy will be periodically re-assessed using the guidelines and factor based point scoring approach to accommodate any significant changes to the network environment. It is recommended that an annual formalized reassessment is conducted with the database being the 'tool' to conduct the review in line with the dataset management and update protocols identified in Appendix M.

In addition in response to dynamic network condition risks a dynamic ongoing assessment will be undertaken every 6 months based on actual safety defect and third party claim information.

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 at risk of receiving third party insurance claims for vehicle or property damage and/or personal injury as a result of potholes in carriageways or defects in the surface of footways. Whilst the Council as Highway Authority is not liable for a defect they do not know about, they are required to demonstrate that an effective system is in place to ensure road condition surveys (inspections) are carried out at appropriate intervals.

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 commensurate with clear and reasonable decision making and response times.

Operational Network Hierarchy Review

These factors are used as a **dynamic assessment** to apply if necessary a temporary increased risk, and more frequent scheduled inspection, based on enhanced probability of safety defects developing in the asset prior to planned maintenance and/or the next scheduled inspection. The ONH GIS database management plan sets out periodic data update processes for reactive maintenance workticket instructions, ongoing claims and planned maintenance schemes to allow changes to the ONH to be proposed. The current frequency for the assessment is twice yearly.

This ONH Management Plan integrates with the LBB HAMP and the current Network Recovery Plan NRP supplement to the HAMP which are strategically focused on directing maintenance expenditure to close out such risks as quickly as possible through targeted planned maintenance. Upon completion of planned maintenance the number of defects and claims recorded at that location should reduce to zero. The absence of defect and claims will return a section to its original adjusted score and inspection frequency and it will no longer appear on the temporary increased risk list.

6. Recommendations

It was originally recommended that the Council take the following actions:

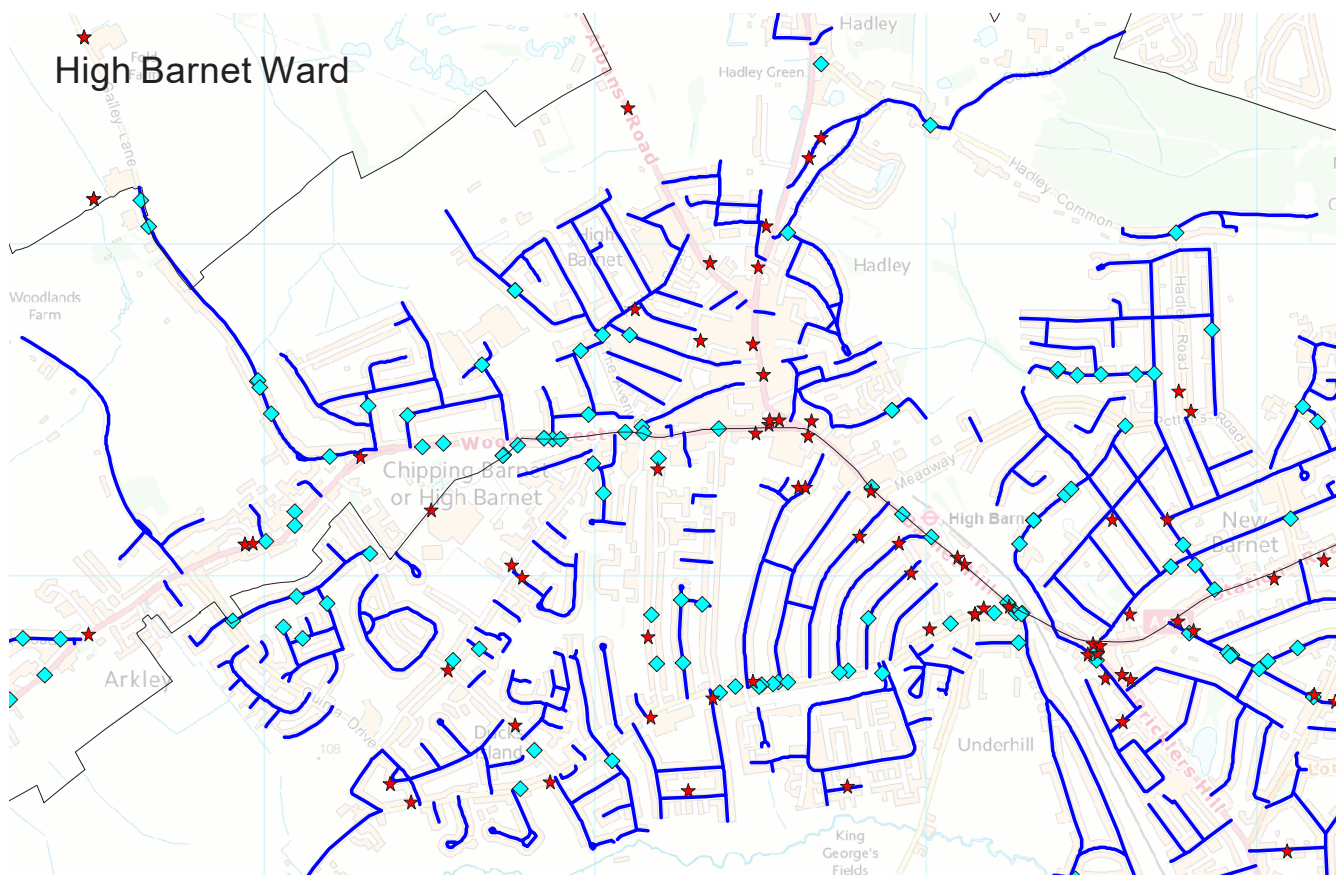
1. Review the whole highway network with regard to an agreed set of factors for which data is available and ascertain a new Operational Network Hierarchy;
2. Use the Inspectors manual assessment to sense check the results;
3. Re-define the frequency of each link in the Barnet road network;
4. Design 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.

The progress status of each of the recommendations, as of December 2021, is:

1. An operational network hierarchy database has been produced by application of the methodology set out in this document. The hierarchy has been the subject of discussion between LBB and Re. officers and an LBB commissioned review by Zurich. The review findings were incorporated into Version 2 May 2015 update.
2. The local highway inspectors were used in the preparation of the ONH to capture their local knowledge. In addition following the Zurich review a number of specific analytical data processes have taken place to help sense check the hierarchical assessments. A specific review of school sites and undergrounds stations was undertaken and a specific risk review of the network based on a combination of actual safety defects instructed (to LBB safety policy) and claim incident history. These parts of the network are scheduled for 6 monthly inspections.
3. Completed – each section of the network has been categorised and an appropriate code of practice guidance safety inspection assigned.

Operational Network Hierarchy Review

4. Completed. A comprehensive investment has been completed to move the previous paper system inspection routes to an electronic geographical information system (GIS) as part of Re.'s move to introduce mobile working. There are now 5 defined inspection areas.
5. The dynamic risk review process runs a systems report to identify actual personal injury insurance claims and reactive footway defects for a rolling 12-month period. The process is undertaken in May and November each year and is documented in the process flow chart at Appendix M Database Management Plan. The process uses an initial threshold of two or more insurance claims and/or six or more reactive safety defects per km to inform a specific review by the local inspector of the reasons for the incidents. If corrective action cannot be undertaken at that point in time the process will result in a temporary adjustment to the sections' score which may in turn lead to a temporary increase in its inspection frequency to ensure a follow up inspection within 6 months. This is particularly relevant for annually inspected sections which, if affected, will be inspected bi-annually until further notice.



Temporary risk increase analysis of safety defects and claim incidents

Appendix A

Carriageway Hierarchy

Operational Network Hierarchy Review

APPENDIX A

Carriageway Hierarchy

Extract from 2016 Well Managed Highway Infrastructure. A 4.3.11

Carriageway hierarchy will not necessarily be determined by the road classification, but by functionality and scale of use. Table 1 is intended to be used as a reference point from which to develop local hierarchies. The descriptions relate to the most usual circumstances encountered in the UK.

There are likely to be, some very significant variations and authorities should take their own circumstances into account.

Category	Type of Road General Description	Description
Motorway	Limited access - motorway regulations apply	Routes for fast moving long distance traffic. Fully grade separated and restrictions on use.
Strategic Route	Trunk and some Principal 'A' class 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.
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.
Secondary Distributor	B and C class roads and some unclassified urban routes carrying bus, HGV and local traffic with frontage access and frequent junctions	In residential and other built up areas these roads have 20 or 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. Onstreet parking is generally unrestricted except for safety reasons. In rural areas these roads link the larger villages, bus routes and HGV generators to the Strategic and Main Distributor Network.
Link Road	Roads linking between the Main and Secondary Distributor Network with frontage access and frequent junctions	In urban areas these are residential or industrial interconnecting roads with 20 or 30 mph speed limits, random pedestrian movements and uncontrolled parking. 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.
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.
Minor road	Little used roads serving very limited numbers of properties.	Locally defined roads.

Table 1: Factors to Consider - Carriageways

Appendix B

Footway Hierarchy

Operational Network Hierarchy Review

APPENDIX B

Footway Hierarchy

Extract from 2016 Well Managed Highway Infrastructure. A 4.3.14

Footway hierarchy should be determined by functionality and scale of use. Table 2 is intended to be used as a reference point from which to develop local hierarchies. The detailed descriptions relate to the most usual circumstances encountered in the UK. There are, however, some very significant variations from the norm and authorities should take their own circumstances into account.

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

Table 2: Factors to Consider - Footways

Appendix C

Application of Factor Points

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>Town Centre Type 2 Strategic Type 3a Main Distributer Type 3b Secondary Distributer Type 4 Link Road Type 4b Minor Access Road</p>	<p>600 500 400 300 200 100</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 >50% of baseline Actual/Perceived AADT >40% of baseline Actual/Perceived AADT >30% of baseline Actual/Perceived AADT >20% of baseline Actual/Perceived AADT >10% of baseline</p> <p>Actual/Perceived AADT <10% of baseline Actual/Perceived AADT <20% of baseline Actual/Perceived AADT <30% of baseline Actual/Perceived AADT <40% of baseline Actual/Perceived AADT <50% of baseline</p>	<p>+100 +80 +60 +40 +20</p> <p>-20 -40 -60 -80 -100</p>
3	Pedestrian Flow Adjustment	<p>The purpose of this factor is to make use of the inspectors' local knowledge in terms of pedestrian flows. The points awarded are variable as the basis for the change is to ensure a 'low' observed flow moves the section into a less frequent inspection regime and an observed 'high' flow moves the section into a more frequent inspection regime.</p>	<p>Varies within a range of +400 to -400</p>
4	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 >20% of traffic flow Actual HGV traffic < 5% of traffic flow</p>	<p>+50 -50</p>
5	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>	

Operational Network Hierarchy Review

APPENDIX C

Factor			Points Awarded
5 (cont)		<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> <p>(f) The street is designated for pre-salting, by the street authority as part of its programme of winter maintenance.</p> <p>(g) The street is within 100 metres of a critical signalised junction, gyratory or roundabout system.</p> <p>(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.</p> <p>(i) The street is on a tourist route or within an area where international, national, or significant major local events take place.</p> <p>For sections of the network (regardless of category) which are designated traffic sensitive</p>	+50
6	Strategic Road Network	<p>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.</p> <p>Diversionary routes (formally designated in the Network Management Plan (congestion management) and/or the Emergency Plan)</p>	+75
7	Single Settlement and Designated Primary Accesses	<p>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.</p> <p>7a Sole access 7b Designated primary access 7c Non primary access</p> <p>This factor applies a refinement in relative importance to localised groups of unclassified routes.</p>	+75 +50 -25
8	Key Public Service (KPS) Accessibility	<p>The purpose of this factor is to recognize the local importance of a route or road in accessing/servicing important community facilities.</p> <p>Additional points to be applied for sections of the network that have localised importance in accessing/servicing:</p> <p>8a Major regional hospital 8b School, college and/or university pedestrian route 8c Overground/underground Station 8d Other significant public service</p> <p>The vicinity of specific locations will be assessed to decide on logical cut off points for application of any KPS factors.</p>	+100 +50 +50 +50
9	Tourist Locations	<p>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.</p> <p>Recognised tourist route.</p>	+25

Operational Network Hierarchy Review

APPENDIX C

Dynamic Risk Review

Factors 10 and 11 are used for the periodic dynamic risk review based on actual maintenance management system information. The decision making governance is set out in the Management Plan at Appendix M.

10	Reactive Safety Defects	A temporary adjustment factor to recognise sections where 6 or more footway defects have been recorded within a 12 month period.	+50
11	Incident and Claim History	A temporary adjustment factor to recognise sections where 2 or more personal injury claims have been recorded within a 12 month period.	+50

Appendix D

Traffic Capacity of Urban Roads

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
General Description	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.
Speed Limit	60mph or less	40 to 60mph for dual and generally 40mph for single carriageway	Generally 40mph	30mph to 40mph	30mph
Side Roads	None	0 to 2 per km	more than 2 per km	more than 2 per km	more than 2 per km
Access to roadside development	None. Grade separated for major only.	Limited access	access to residential properties	Frontage access	Unlimited access to houses, shops & businesses
Parking and Loading	None	Restricted	Restricted	Unrestricted	Unrestricted
Pedestrian Crossing	Grade separated	mostly grade separated	Some at-grade	Some at-grade	Frequent at-grade
Bus stops	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 \leq 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.

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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

Safety Inspection Frequencies

Operational Network Hierarchy Review

APPENDIX E

Code of Practice - Safety Inspection Frequency

The 2016 Code of Practice Well Managed Highway Infrastructure at A 5.7.5* directs a practical and reasonable risk based approach to safety inspection frequencies. A 5.7.6 no longer provides specific time related guidance on frequencies. It advises that frequencies for safety inspections of individual network sections or individual assets should be based upon consideration of a range of factors which include amongst others **category within the network hierarchy, characteristics and trends and incident and inspection history**. The LBB adopted safety inspection frequencies remain unchanged from Version 4 and are as follows:

Footway

DESCRIPTION	FREQUENCY
Prestige Walking Zone	1 month
Primary Walking Route	1 month
Secondary Walking Route	3 months
Link Footways	6 monthly
Local Access Footways	12 months
Minor Footway	12 months

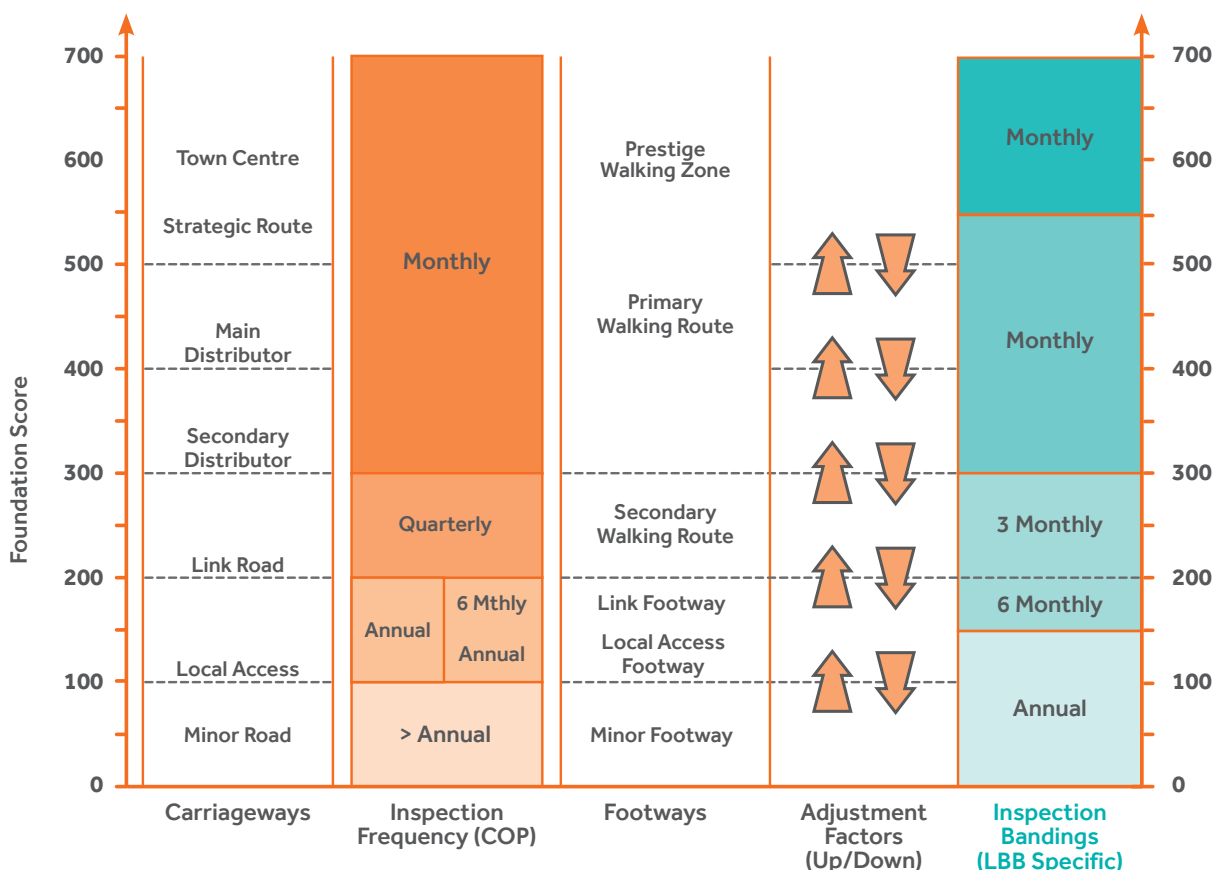
Carriageway

DESCRIPTION	FREQUENCY
Strategic Route	1 month
Main Distributor	1 month
Secondary Distributor	1 month
Link Road	3 months
Local Access	1 year
Minor Footway	12 months

☐ Category not applied to LBB local network

Factor Applied Safety Inspection Threshold

Most frequent interval is applied to adjacent footways and carriageways.



Appendix F

Frequently Asked Questions (FAQs)

Operational Network Hierarchy Review

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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 G

Strategy and Hierarchy Objectives

Operational Network Hierarchy Review

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Strategy and Hierarchy Objectives

The 2016 Code of Practice Well Managed Highway Infrastructure provides useful guidance on network hierarchies.

A.4.3.1. A network hierarchy based on asset function is the foundation of a risk-based maintenance strategy. It is crucial in establishing levels of service and to the statutory network management role for developing co-ordination and regulating occupation.

A.4.3.2. It is important that the hierarchy adopted reflects the whole highway network and the needs, priorities and actual use of each infrastructure asset. The carriageway hierarchy, for example, may be determined by traffic volume or by local social and economic importance – perhaps a route leading to a major hospital or industrial area, or urban, rural or busy shopping street, residential street, etc. Hierarchy may also be influenced by factors such as pedestrian or cyclist usage. Collectively, these issues may be referred to as the 'functionality' of the section of highway in question.

In addition A.4.3.8. Hierarchies should be dynamic and regularly reviewed to reflect changes in network characteristics and functionality so that maintenance strategy reflects the current situation, rather than the use expected when the hierarchy was originally defined.

Recommendation 12 – Network Hierarchy

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 take into account 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.

Appendix H

Glossary of Terms/Abbreviations

Operational Network Hierarchy Review

APPENDIX H

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 I

Database Structure

Operational Network Hierarchy Review

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Database Structure

FIELD NAME	FACTOR REF.	DESCRIPTION/USE IN DATABASE
Uniq_Ref_SectionLA		Unique reference number for the section <i>Not used in scoring calculation.</i>
Ward		Subdivision of the London Borough of Barnet. <i>Not used in scoring calculation.</i>
Extents		Text description of the network section. <i>Not used in scoring calculation.</i>
Road Name		Text description of the network section. <i>Not used in scoring calculation.</i>
Length_m		Length of the network section in metres. <i>Not used in scoring calculation.</i>
No_of_Lanes		Text description of the network section. <i>Not used in scoring calculation.</i>
Speed_Limit		Speed limit on the network section. <i>Not used in scoring calculation.</i>
FW_Local_Hierarchy		Footway Hierarchy. Sections are categorised by LBB condition survey sub contractors based on the Code of Good Practice Maintenance Hierarchy. <i>Not used in scoring calculation.</i>
CW_Local_Hierarchy	1	Carriageway Hierarchy. Sections are categorised by LBB based on the Code of Good Practice Maintenance Hierarchy.
Foundation_Score		This score is derived directly from the route category as per the values set out in Appendix C.
Veh_Flow_Capacity	2	Maximum hourly capacity for the network section based on DMRB TA 79/99.
Veh_Flow_Actual		If traffic survey data, less than five years old is available, actual traffic flows should be recorded.
Veh_Flow_Assumed		Where survey data is unavailable this optional field allows local knowledge and observation of flows to be applied.
Factor_2_VehFlowAdjust		Factor 2 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Ped_Flow_Est	3	This field identifies routes where low pedestrian flow is observed by inspectors
Factor_3_PedFlowIAdjust		Factor 3 - points added/deducted based on the application of the scoring guidelines set out in Appedix C
HGV_Flow	4	This field allows adjustment if HGV proportions significantly vary from the assumed 15% of total traffic.
Factor_4_HGV_Adjust		Factor 4 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.

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FIELD NAME	FACTOR REF.	DESCRIPTION/USE IN DATABASE
TrafficSensitive	5	This field identifies routes designated as traffic sensitive (including bus routes) based on NRSWA guidelines.
Factor_5_SensitiveAdjust		Factor 5 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Strategic_Route	6	This field identifies routes designated as diversionary routes in the Transport for London Network.
Factor_6_StrategicAdjust		Factor 6 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Sole_Access	7	This field identifies routes which are recognised as having 'no alternative'.
Primary_Access		This field identifies routes which are recognised as being the 'principal access'.
Non_Primary_Acc		This field identifies routes where several alternative options exist.
Factor_7_AccessAdjust		Factor 7 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
KPS_Hospital		This field identifies routes key to accessing major regional hospitals.
KPS_Education		This field identifies routes key to accessing schools, colleges and universities.
KPS_Station		This field identifies routes key to accessing overground/underground stations.
KPS_Other		This field identifies routes key to accessing other significant public services
Factor_8_KPS_Adjust		Factor 8 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Tourist_Route	9	This field identifies routes which are recognised as being important for tourists.
Factor_9_TouristAdjust		Factor 9 - points added/deducted based on the application of the scoring guidelines set out in Appendix C.
Change Record		Date and details where required of the last change to the section <i>Not used in scoring calculation.</i>
Adjusted_Score		<p>Operational Network Hierarchy Score</p> <p>This is the aggregated points score for a section of the network following application of the 9 factors.</p> <p>The extent to which this score varies with the foundation score dictates whether the section is upgraded or downgraded.</p>

Operational Network Hierarchy Review

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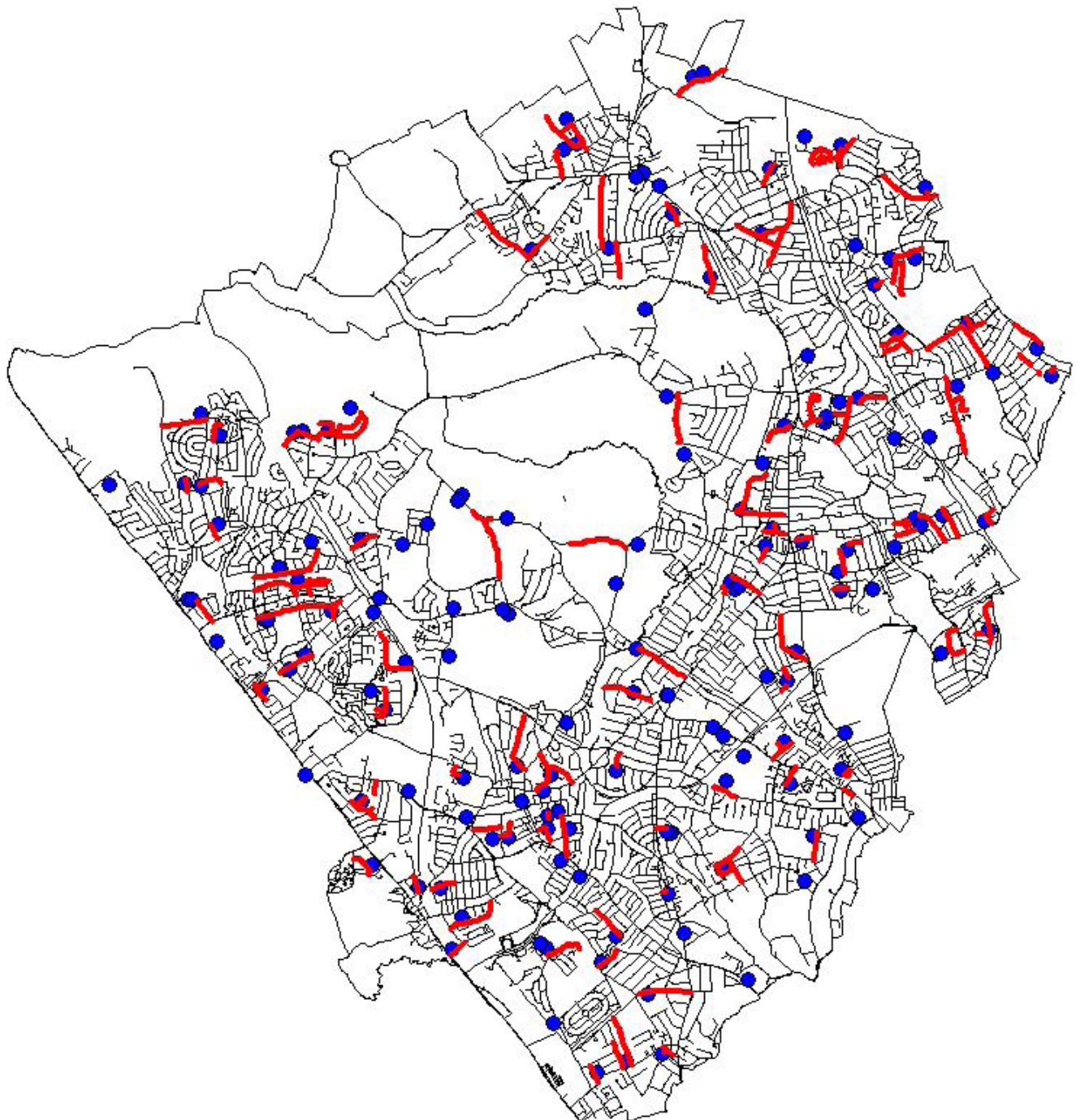
FIELD NAME	FACTOR REF.	DESCRIPTION/USE IN DATABASE
CW_Defects	10	This field identifies the number of reactive safety defects on the carriageway in this section within a 12 month period
FW_Defects		This field identifies the number of reactive safety defects on the footway in this section within a 12 month period
FW_Defects_per_km		This field identifies the number of footway reactive defects per km in an 12 month period.
Factor_10_DefectAdjust		Factor 10 - points temporarily added/deducted based on the application of the scoring guidelines set out in Appendix C
PINJ Claims	11	This field identifies the number of personal injury and claims on this section within a 12 month period
PINJ Claims PerKm		This field identifies the number of personal injury and claims per km on this section within a 12 month period
Factor_11_ClaimAdjust		Factor 11 - points added/deducted based on the application of the scoring guidelines set out in Appendix C
Temp_Adj_Score		<p>Temporary Operational Network Hierarchy Score</p> <p>This is the aggregated points score for a section of the network following application of all 12 factors.</p> <p>The extent to which this score varies with the foundation score dictates whether the section is temporarily upgraded or downgraded.</p>



Appendix J

Schools Affecting Route Inspection Frequencies

Operational Network Hierarchy Review

APPENDIX J



-  Section inspection frequency increase from annual to 6-monthly due to school access routes
-  School location

Operational Network Hierarchy Review

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Barnet Network route sections with permanently increased inspection frequency resulting from proximity to school site access

Unique Reference	Description	Length (m)
5090U00060/00000	ABBOTS ROAD - EVERSFIELD GARDENS TO ORANGE HILL ROAD	983.67
5090U00160/00005	ABINGDON ROAD - AVONDALE ROAD TO END	83.27
5090U00540/00000	ALBERT STREET - LODGE LANE TO END	43.75
5090U01400/00000	ARMSTRONG CRESCENT - LAWTON ROAD W TO LAWTON ROAD	192.06
5090U02300/00000	BARING ROAD - CASTLEWOOD ROAD TO LAWTON ROAD	176.02
5090U02940/00000	BEDFORD ROAD - WORCESTER CRESCENT TO END	137.21
5090U03260/00005	BELLEVUE ROAD - FRIERN BARNET ROAD TO CRESCENT THE	379.25
5090U03360/00000	BENEDICT WAY - HAMILTON ROAD TO END	89.46
5090U03620/00000	BIGWOOD ROAD - MEADWAY TO NORTHWAY	323.28
5090U03660/00000	BIRKBECK ROAD - NETHER STREET TO HUTTON GROVE	153.96
5090U04040/00000	BOHUN GROVE - RIDGEWAY AVENUE TO WINDSOR DRIVE	98.31
5090U04240/00000	BOW LANE - GRANVILLE ROAD TO SQUIRES LANE	673.54
5090U04560/00002	BRENT PARK ROAD - BRENT PARK ROAD FROM DALLAS ROAD TO EDGEWARE ROAD	219.38
5090U05120/00000	BROADHURST AVENUE - BROADFIELDS AVENUE TO EDGEWARE WAY	281.07
5090U05560/00000	BROOKLAND RISE - MIDHOLM TO BROOKLAND RISE INC RBT	324.04
5090U05660/00000	BROOKSIDE SOUTH - B1453 TO PARKSIDE GARDENS	544.10
5090U05900/00005	BRUNSWICK PARK ROAD - FROM SPENCER TO BRUNSWICK WAY	839.47
5090B1453_/00060	BRUNSWICK PARK ROAD - OSIDGE LANE TO CHURCHILL ROAD	70.95
5090U06140/00000	BURLINGTON RISE - AVONDALE AVENUE TO GALLANTS FARM ROAD	437.58
5090U06460/00005	BYNG ROAD - WENTWORTH ROAD TO END	580.93
5090U06740/00000	CAMLET WAY - HADLEY GREEN ROAD TO BOROUGH BOUNDARY	628.41
5090U07000/00000	CARLISLE PLACE - CARLISLE PLACE FROM A109 TO END	92.83
5090U07180/00000	CASTLEWOOD ROAD - NORTHFIELD ROAD TO FORDHAM ROAD	372.73
5090U07320/00010	CECIL ROAD - CECIL ROAD FROM ARLINGTON ROAD TO END	42.56
5090U07320/00000	CECIL ROAD - OAKDALE TO CHASE WAY	189.92
5090U07540/00000	CENTRAL SQUARE - FROM NORTHWAY TO SOUTHWAY	129.85
5090U07580/00000	CHALGROVE GARDENS - ALLANDALE AVENUE TO END	146.89
5090U07855/00005	CHARLES GROVE - OXFORD AVENUE TO BURLEIGH GARDENS	57.86
5090U08140/00002	CHESTNUT GROVE - DANELAND TO RIDGEWAY AVENUE	246.08
5090U08380/00000	CHILDS WAY - FINCHLEY ROAD TO END	116.97
5090U08940/00000	CHURCH WAY - MOUNT PLEASANT TO BORO BOUNDARY DEFINITIVE FOOTPATH EB15	57.55
5090U09620/00000	CLOVELLY AVENUE - CLOVELLY AVENUE FROM A5150 TO END	160.28
5090U10340/00000	CORNER MEAD - GRAHAME PARK WAY TO FIELD MEAD	684.71
5090U10580/00000	COURTLAND AVENUE - HANKINS LANE TO A1	174.88
5090U10880/00000	CRESCENT ROAD - CRESCENT ROAD FROM GLENTHORNE ROAD TO BETHUNE AVENUE	135.14
5090U39100/00000	CROMER ROAD - POTTERS ROAD TO BOLEYN WAY	264.98
5090U11300/00000	CROSSWAY - CROSSWAY FROM CRESCENT WAY TO END	169.43
5090U35305/00000	DERSINGHAM ROAD - DERSINGHAM ROAD FROM A407 TO PURLEY AVENUE	320.57
5090U12620/00005	DICKENS AVENUE - SQUIRES LANE TO END AT BLDG NO 39	137.68
5090U12820/00020	DOLLIS PARK - No2 TO END	605.47
5090U12960/00000	DOWNAGE - A1 TO B552	709.31
5090U13165/00000	DRYFIELD ROAD - DRYFIELD ROAD FROM DEANSBROOK ROAD TO BANSTOCK ROAD	558.95
5090U13280/00000	DUNSTAN ROAD - DUNSTAN ROAD FROM FINCHLEY ROAD TO VALE THE	610.56
5090U00700/00012	ESSEX PARK - WENTWORTH AVENUE TO NETHER STREET	94.08
5090U16080/00000	FLIGHT APPROACH - FOOTPATH THROUGH LANACRE AVENUE TO BDLG NO.1 TO 6	422.32
5090U16960/00000	FURTHER ACRE - FURTHER ACRE FROM LANACRE AVENUE TO END	78.97
5090U44813/00000	GASKARTH ROAD - PLAYFIELD ROAD TO WATLING AVENUE	231.45
5090U17525/00000	GEORGE CRESCENT - GEORGE CRESCENT FROM COLNEY HATCH LANE TO COLNEY HATCH LANE	486.48
5090U17905/00000	GLENTHORNE ROAD - FRIERN BARNET ROAD TO CRESCENT ROAD	307.88
5090U18000/00005	GLOUCESTER ROAD - LYONSDOWN ROAD TO STATION ROAD	520.90
5090U18040/00000	GOLD HILL - GOLD HILL FROM DEANSBROOK ROAD TO THE MEADS	107.22
5090U29240/00005	GOLD HILL - GOLD HILL FROM THE MEADS SOUTH TO THE MEADS NORTH	46.13
5090U18040/00002	GOLD HILL - GOLD HILL FROM THE MEADS TO END	36.16
5090U18100/00002	GOLDBEATERS GROVE - ABBOTTS ROAD TO END	92.70
5090U18100/00005	GOLDBEATERS GROVE - WATLING AVENUE TO GOLDBEATERS GROVE	97.08
5090U18240/00002	GOLDERS RISE - CREST THE TO APPROACH THE	165.52
5090U29760/00005	GOODWYN AVENUE - MILLWAY TO CLARENCE COURT	312.85
5090U18560/00000	GRANGE AVENUE - GRANGE AVENUE FROM GALLANTS FARM ROAD TO BURLINGTON RISE	231.19
5090U26940/00000	GRASVENOR AVENUE - WESTERN WAY TO FAIRFIELD WAY	557.86
5090U19220/00000	GREEN LANE - BRENT STREET TO BELL LANE	463.34
5090U19340/00000	GREENFIELD GARDENS - GREENFIELD GARDENS FROM VALE THE TO A407	605.39

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Unique Reference	Description	Length (m)
5090U09060/00002	HALE DRIVE FROM DEANS LANE TO HALE LANE	891.82
5090U20500/00005	HAMILTON ROAD - BRACKENBURY ROAD TO EAST END ROAD	272.70
5090U20820/00000	HANKINS LANE - FROM WORCESTER CRESCENT TO BARNET WAY	286.09
5090U21080/00000	HARTLAND DRIVE - BROADFIELDS AVE TO EDGEWAREBURY LANE	527.49
5090U31120/00000	HATCHCROFT - NEWARK WAY TO END	51.05
5090U21280/00005	HATLEY CLOSE - B550 TO HATLEY CLOSE T	240.43
5090U21280/00000	HATLEY CLOSE - S END TO END	20.59
5090U21460/00000	HEATH VIEW - PARK FARM CLOSE TO HEATH VIEW CLOSE	246.87
5090U21540/00000	HEATHER WALK - HEATHER WALK FROM A5100 TO PENSHURST GARDENS	188.12
5090U21700/00000	HEMING ROAD - HEMING ROAD FROM DEANSBROOK ROAD TO END	291.23
5090U21720/00000	HEMINGTON AVENUE - B550 TO END	229.67
5090U43880/00005	HENDON AVENUE - DOLLIS AVENUE TO VILLAGE ROAD	575.84
5090U22500/00004	HIGH STREET - B552 TO START OF SPLITTER ISLAND	38.98
5090U22500/00002	HIGH STREET - END OF SPLITTER ISLAND TO B552	23.39
5090U22500/00000	HIGH STREET - START OF SPLITTER ISLAND TO B552	223.32
5090U23020/00000	HILLSIDE GARDENS - WOOD STREET TO MAYS LANE	819.79
5090U23140/00000	HILTON AVENUE - HILTON AVENUE FROM WOODHOUSE ROAD TO END	271.75
5090U24540/00000	HYDE CRESCENT - FOOTPATH BLG NO 54 TO OPP 10A	313.09
5090U25520/00000	KNOLL DRIVE - MONKFRITH WAY TO END	150.63
5090U43860/00000	LEESIDE - MAYS LANE TO END AT BLDG NO 62	401.31
5090U27100/00010	LITTLEGROVE - BROOKSIDE TO ST MARYS SCHOOL	84.54
5090U27400/00005	LORING ROAD - MYDDELTON PARK TO ORCHARD AVENUE	144.64
5090U27820/00015	LYONSDOWN ROAD - FROM RICHMOND TO WARD BOUNDARY	60.32
5090U27820/00025	LYONSDOWN ROAD - FROM SOMERSET ROAD TO STATION ROAD	213.63
5090U27820/00020	LYONSDOWN ROAD - FROM WARD BOUNDARY TO SOMERSET ROAD	59.52
5090U27820/00000	LYONSDOWN ROAD - RICHMOND ROAD TO LYTTON ROAD	443.90
5090U28450/00000	MARBLE DRIVE - MARBLE DRIVE FROM CLAREMONT ROAD TO END	471.59
5090U29600/00004	MILESPIT HILL - WISE LANE TO HIGH STREET	692.09
5090U29900/00015	MONKFRITH WAY - OAKWAY TO BROOKSIDE SOUTH	223.30
5090U29980/00000	MONTAGU ROAD - AUDLEY ROAD TO ALGERNON ROAD	287.92
5090U30260/00000	MOSS HALL GROVE - A598 TO NETHER STREET	383.47
5090U25785/00002	MOUNT PLEASANT - MOUNT PLEASANT RBT TO BOROUGH BOUNDARY	709.25
5090U30500/00005	MOWBRAY ROAD - EDGEWARE LANE TO MOWBRAY ROAD	156.54
5090U34540/00000	MYDDELTON PARK - A109 TO B550	554.54
5090U31100/00000	NEW WAY ROAD - NEW WAY ROAD FROM HILLFIELD AVENUE TO END	360.76
5090U31120/00002	NEWARK WAY - GREYHOUND HILL TO NEWARK WAY	98.72
5090U31120/00004	NEWARK WAY - NEWARK WAY TO NEWARK WAY	37.09
5090U31400/00002	NORRICE LEA - LINDEN LEA TO LYTTELTON ROAD	344.51
5090U31880/00002	NORTHWAY - THORNTON WAY TO NORTH SQUARE	348.51
5090U05900/00004	NURSERYMANS ROAD - BRUNSWICK PARK ROAD TO END	357.98
5090U33840/00002	PARKSIDE GARDENS - BROOKSIDE SOUTH TO CHURCH HILL ROAD	483.14
5090U33960/00000	PARTINGDALE LANE - READING WAY TO PARTINGDALE LANE NEAR PARTINGDALE LODGE	695.12
5090U09720/00020	PERCY ROAD - No1 TO BUILDING NO 59	243.08
5090U34580/00000	POOLSFORD ROAD - POOLSFORD ROAD FROM NEW WAY ROAD TO END	153.11
5090U34580/00005	POOLSFORD ROAD - POOLSFORD ROAD FROM POOLSFORD ROAD NE TO POOLSFORD ROAD	71.06
5090U34680/00020	PORTSDOWN AVENUE - PORTSDOWN AVENUE FROM FINCHLEY ROAD TO TEMPLARS AVENUE	48.10
5090U35140/00000	PROSPECT RING - MARKET PLACE TO PROSPECT RING	178.57
5090U35200/00000	PROTHERO GARDENS - A41 TO END	316.40
5090U35580/00000	QUEENS ROAD - QUEENS ROAD FROM SQUIRES LANE TO END	258.23
5090U35700/00010	QUINTA DRIVE - AITKEN ROAD TO GARTHLAND DRIVE	249.60
5090U35700/00000	QUINTA DRIVE - GARTHLAND DRIVE TO BARNET ROAD	207.70
5090U37760/00000	QUINTA DRIVE - GREENLAND ROAD TO AITKEN ROAD	353.10
5090U35760/00000	RALEIGH CLOSE - RALEIGH CLOSE FROM WYKEHAM ROAD TO RALEIGH CLOSE INC TURN	267.81
5090U02940/00002	RAMILLIES ROAD - BEDFORD ROAD TO WORCESTER CRESCENT	322.01
5090U36380/00000	REGINA CLOSE - QUEENS ROAD TO END	79.03
5090U36500/00010	RICHMOND ROAD - RICHMOND ROAD FROM LYONSDOWN ROAD TO GLOUCESTER ROAD	307.04
5090U36560/00030	RIDGE ROAD - FROM THE BUNGALOW TO A407	170.89
5090U36560/00010	RIDGE ROAD - RIDGE ROAD FROM RIDGE ROAD TO END	44.48
5090U36720/00005	RIDGEWAY AVENUE - BOHUN GROVE TO END	378.35
5090U32580/00002	RUSSELL ROAD - RUSSELL ROAD FROM SIMMONS WAY TO OAKLEIGH ROAD NORTH	314.47
5090U39600/00004	SILKSTREAM ROAD - BARNFIELD ROAD TO GASKARTH ROAD	99.66
5090U40180/00015	SOUTHWAY - BIGWOOD ROAD TO CENTRAL SQUARE	160.62
5090U38300/00000	ST MARYS ROAD - CHURCH HILL ROAD ACCESS ROAD TO BURLINGTON RISE	89.26
5090U40580/00020	STANHOPE ROAD - FROM COLLEGE TO GROVE ROAD	186.33

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Unique Reference	Description	Length (m)
5090U40660/00000	STANLEY ROAD - STANLEY ROAD FROM PEMBROKE ROAD TO END	84.80
5090U07102/00002	STRATFORD ROAD - BELL LANE TO END	66.56
5090U26245/00006	STURGESS AVENUE - STURGESS AVENUE FROM PARK ROAD TO DALLAS ROAD	638.19
5090U41840/00002	SWAN LANE - No19 TO SW END	300.99
5090U12900/00008	SWEETS WAY - B550 TO END	563.81
5090U41860/00050	SWEETS WAY - SWEETS WAY 1ST RIGHT SPUR	43.77
5090U41860/00045	SWEETS WAY - SWEETS WAY FROM GREENSIDE CLOSE TO END	55.02
5090U41940/00015	SYDNEY ROAD - SYDNEY ROAD FROM ALEXANDRA ROAD TO ROMAN ROAD	496.23
5090U42150/00000	TAYSIDE DRIVE - GLENGALL ROAD TO END	262.06
5090U42420/00000	TENTERDEN GARDENS - A504 TO TENTERDEN GROVE	357.14
5090U42440/00000	TENTERDEN GROVE - B552 TO A504	514.03
5090U01940/00000	THE AVENUE N11- CARLISLE PLACE TO FRIERN BARNET ROAD	116.40
5090U07220/00000	THE CAUSEWAY - EAST END ROAD TO END	123.28
5090U10960/00010	THE CREST - CREST COTTAGE TO GOLDERS RISE	67.84
5090U13140/00000	THE DRIVE - DRIVE THE FROM WOODSTOCK AVENUE TO HIGHFIELD AVENUE	416.59
5090U15240/00000	THE FAIRWAY - FROM BARNET WAY TO ELLESMERE AVENUE	455.37
5090U13165/00006	THE MEADS - MEADS THE FROM BENNINGHOLME ROAD TO DRYFIELD ROAD	420.30
5090U29240/00007	THE MEADS - MEADS THE FROM GOLDBEATERS GROVE TO END	263.59
5090U42540/00005	THIRLEBY ROAD - MONTROSE AVENUE TO GERVASE ROAD	432.30
5090U42700/00002	THORVERTON ROAD - THORVERTON ROAD FROM SOMERTON ROAD TO A407	226.10
5090U43060/00000	TOTTERIDGE GREEN - TOTTERIDGE VILLAGE TO END	595.53
5090U33100/00000	U07920 - FOOTPATH FRONTING CHASE SIDE NO125 TO 209	86.80
5090U07920/00005	U07920 - FOOTPATH FRONTING CHASE SIDE NO125 TO 209	177.04
5090U07920/00025	U07920 - FOOTPATH FRONTING CHASE SIDE NO125 TO 209	99.85
5090U43800/00000	VALE DRIVE - MAYS LANE TO MILTON AVENUE	298.90
5090U44580/00000	WARNHAM ROAD - WARNHAM ROAD FROM LEWES ROAD TO END	164.48
5090U45160/00000	WENTWORTH ROAD - FROM THE AVENUE TO BYNG ROAD	520.73
5090U45200/00000	WESSEX GARDENS - WESSEX GARDENS FROM RIDGEWAY THE TO A41(T)	291.65
5090U22140/00002	WESTBROOK CRESCENT - LAWTON ROAD TO LAWTON ROAD E	418.97
5090U46140/00002	WHITINGS ROAD - QUINTA DRIVE TO TRINDER ROAD	320.69
5090U46220/00005	WILBERFORCE ROAD - HERBERT ROAD TO GARRICK ROAD	206.35
5090U46700/00000	WINDSOR DRIVE - RIDGEWAY AVENUE TO ETON AVENUE	382.37
5090U47140/00005	WOODFIELD AVENUE - WOODFIELD AVENUE FROM NEW WAY ROAD TO END	59.06
5090U47380/00000	WOODSIDE GRANGE ROAD - WOODSIDE AVENUE TO WOODSIDE PARK ROAD	592.43
5090U47440/00005	WOODSIDE PARK ROAD - A1000 TO GAINSBOROUGH ROAD	122.69
5090U47440/00010	WOODSIDE PARK ROAD - GAINSBOROUGH ROAD TO END	266.52
5090U47440/00021	WOODSIDE PARK ROAD - No1 TO GAINSBOROUGH ROAD	172.07
5090U47640/00000	WORCESTER CRESCENT - HANKINS LANE TO END	581.76

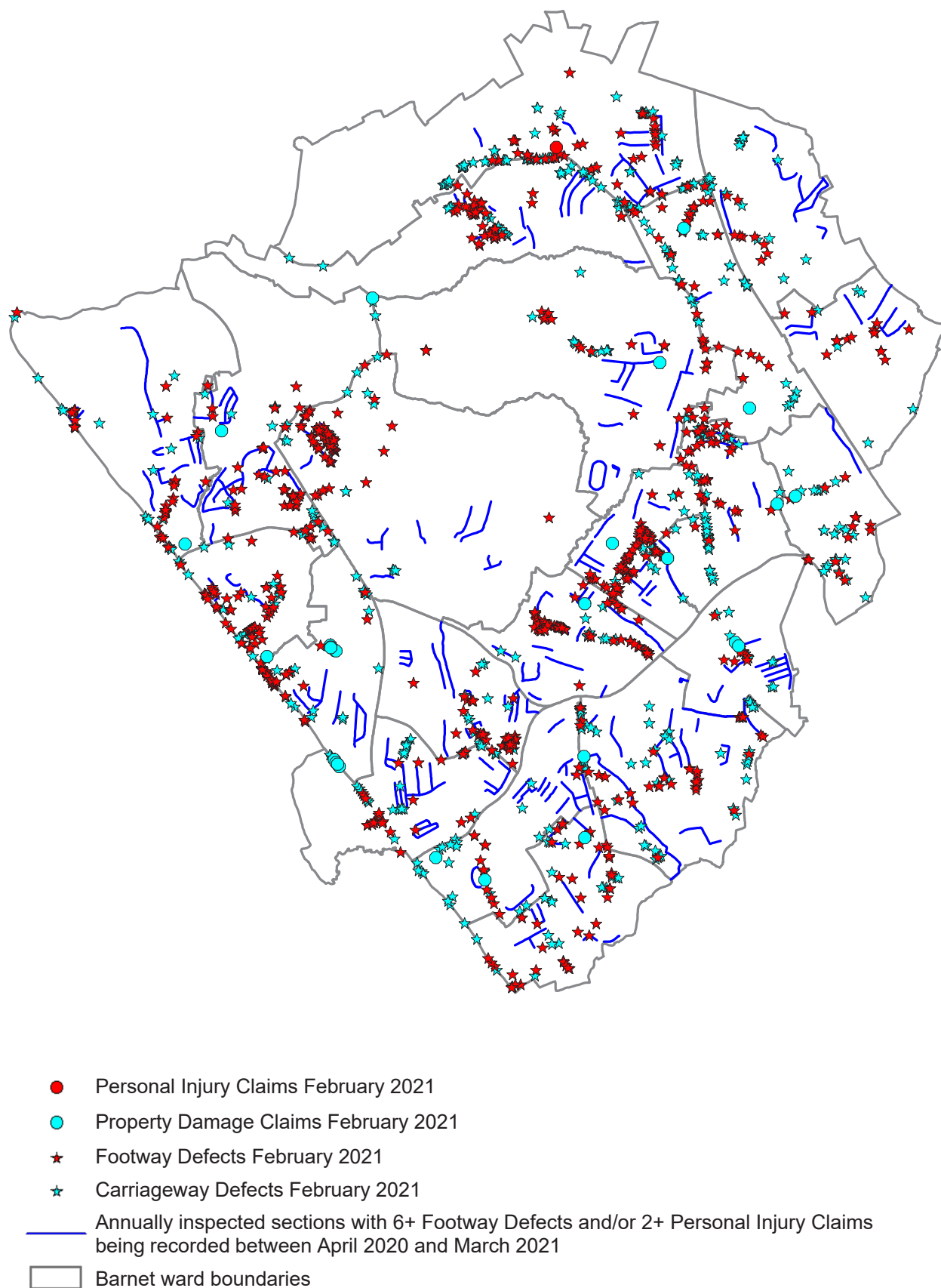
Appendix K

Defect and Claim History Risk Review

February 2021

Operational Network Hierarchy Review

APPENDIX K



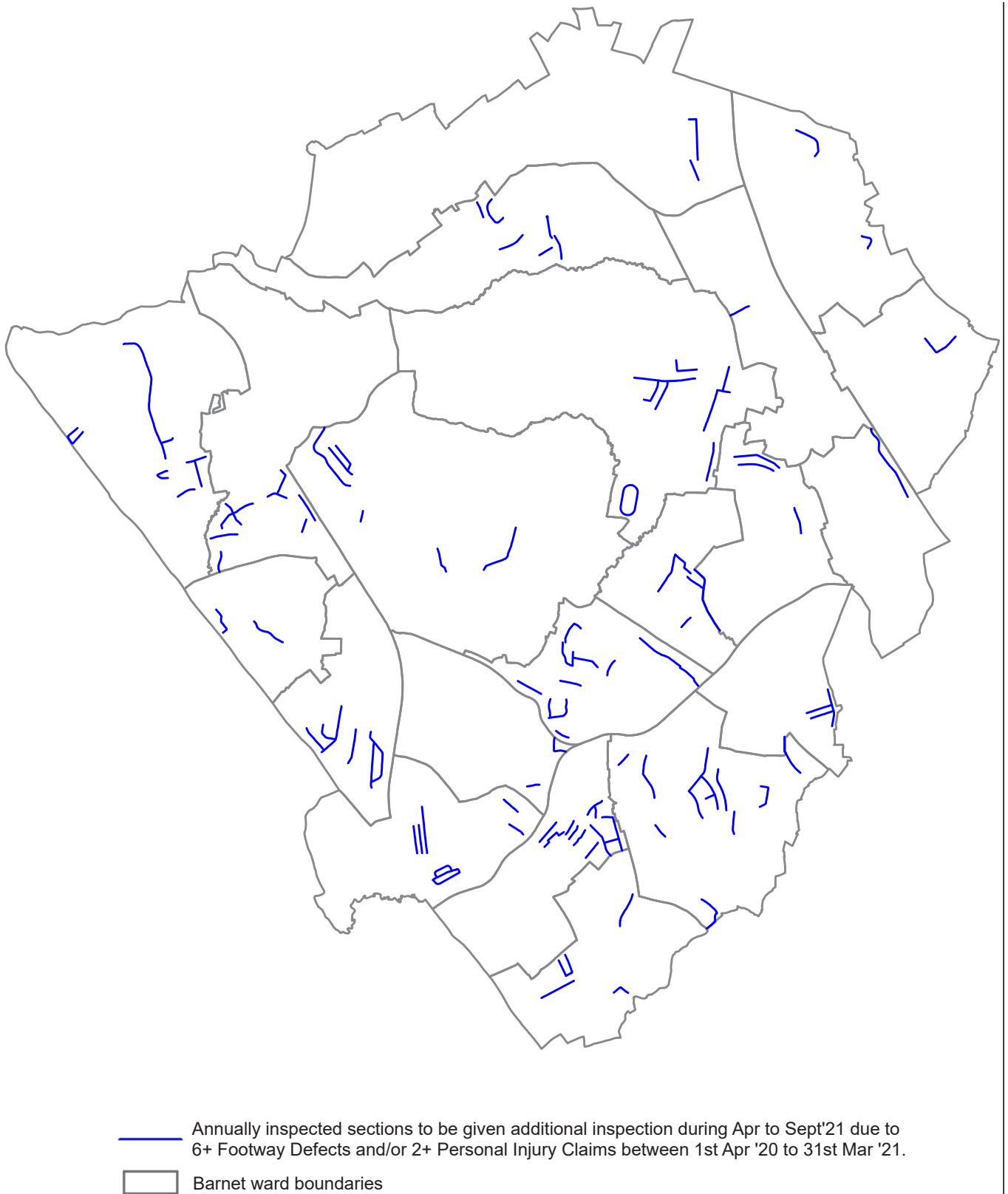
Appendix L

Local Access Road with
Temporary Enhanced Risk

April to September 2021

Operational Network Hierarchy Review

APPENDIX L



Appendix M

ONH Data Management Plan

Operational Network Hierarchy Review

APPENDIX M

Appendix M: Database Management Plan

Project Manager: Mark Rees-Williams (on behalf of Andrew Gudge)
t: 07825 937474 **e:** mark.rees-williams@capita.co.uk

Database Manager: Saqib Amin
e: Saqib.Amin@Barnet.gov.uk

Database software: Mapinfo Professional 12.0

Database filename: BarnetNetwork August 2021

Database structure: as detailed in Appendix I

Password protected: Yes (Database Manager)

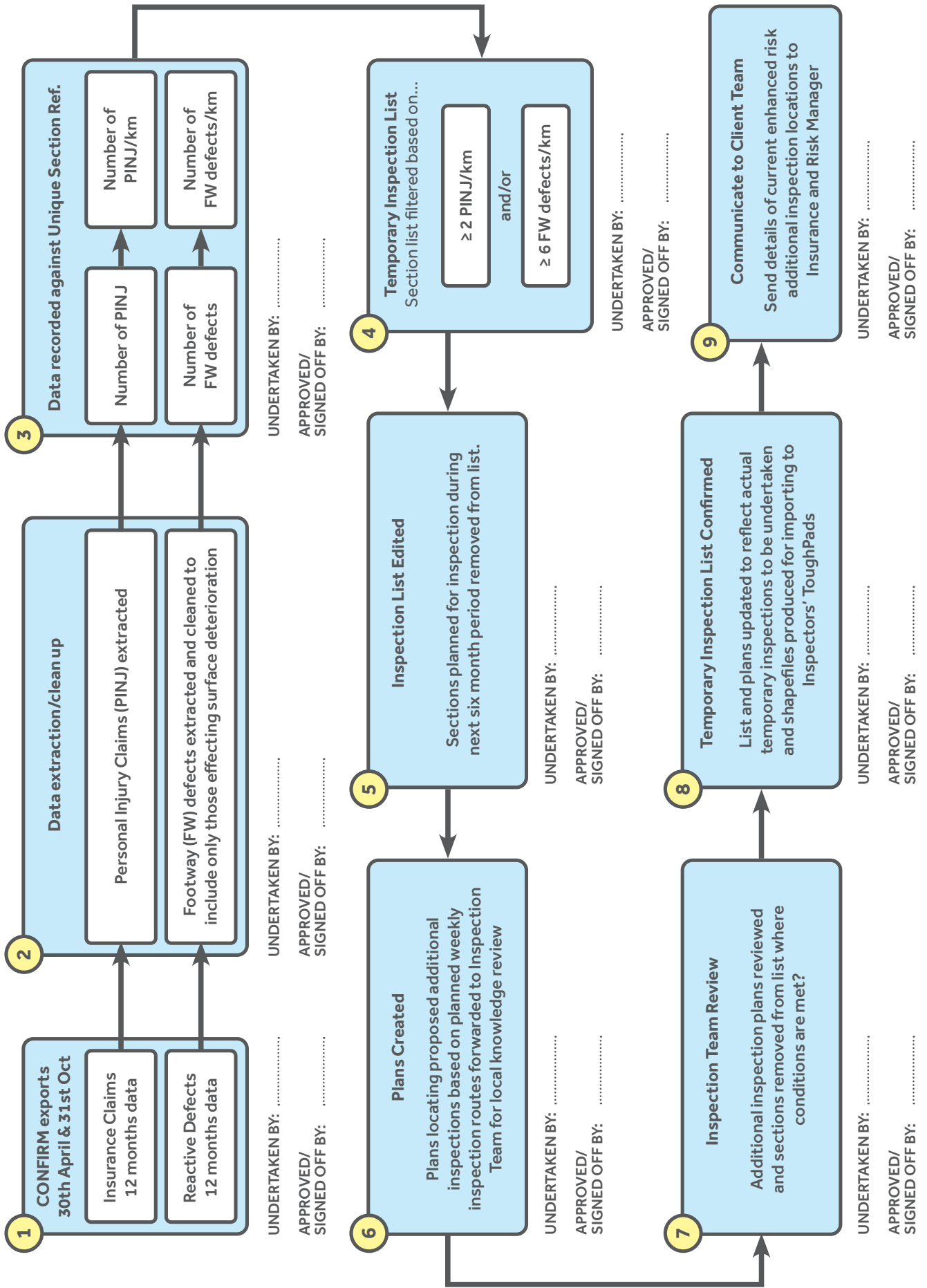
Database backup: In place - monthly

Map Management: OS Mastermaps © London Borough of Barnet, 2021

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Dynamic Assessment Flow Chart



Operational Network Hierarchy Review

APPENDIX M

Data Set Management and Update Protocols

REF	DATASET	DATA SOURCE	UPDATE FREQUENCY	SUPPLIED TO/FILE FORMAT
1	Planned Maintenance, Carriageway Resurfacing, Start/end dates, Variations.	Re. Programmer	Monthly - nearest working day to end of month	Carriageway and Footway Shapefile
2	Planned Maintenance, Surface Dressing, Start/end dates, Variations.	Re. Programmer	Monthly - nearest working day to end of month	Carriageway and Footway Shapefile
3	Planned Maintenance, Microasphalt, Start/end dates, Variations.	Re. Programmer	Monthly - nearest working day to end of month	Carriageway and Footway Shapefile
4	Planned Maintenance, Footways, Start/end dates, Variations.	Re. Programmer	Monthly - nearest working day to end of month	Carriageway and Footway Shapefile
5	Reactive maintenance instructed safety defects	Stuart Renouf	Six monthly (Apr & Oct)	Database Mgr/ database file format
6	Incident/Claims History	Pedro Shaw & Patrick Gormley	6 monthly - mid April and mid October	Database Mgr/ database file format
7	Schools	Via Rob Marchand	Annual - January - new, closures, entrance reconfiguration	Database Manager
8	Main line and Underground stations	Not used. Original assessment applies. New stations to be assessed as necessary		
9	New Adopted Highways & changes to Network Sections/Street Gazetteer	Stuart Renouf	Annual in March	Database Manager/ Shapefile

Operational Network Hierarchy Review

APPENDIX M

Controlled Reports/Information/Links from Database

REF	DATASET	DATA SOURCE	UPDATE FREQUENCY	SUPPLIED TO/FILE FORMAT/REPORT NAME
A	GIS Plan - Planned Maintenance schemes in month	Database Manager	Monthly	Andrew Gudge
B	Safety defect reactive maintenance plot	Database Manager	Monthly	Andrew Gudge
C	Website link – planned maintenance sites	Database Manager	Live link	TBC
D	Site extent/location plans (e attached to worktickets)	Database Manager	Commencement of year plus as built final review	TBC
E	Scheduled Safety Inspection Routes	Database Manager	Annual Review	Andrew Gudge/ Rob Marchand
F	Precautionary Salting Winter Maintenance treatment routes	Database Manager	Annual Review	Andrew Gudge/ Rob Marchand

Appendix N
Schedule of Changes
(DRAFT under preparation)

Operational Network Hierarchy Review

APPENDIX N

Appendix N: Schedule of Changes

Version 5 updates (September 2018)

The following updates have been made to the Version 4:

- 2.2 Adjustments to acknowledge the publication of the latest 2016 Well-Managed Highway Infrastructure: A Code of Practice
- 3. Network Review and Monitoring. Section updated to confirm the dynamic assessment review process undertaken 6 monthly.
- 5. Role of Operational Hierarchy on Insurance Claims. Section updated to document the dynamic assessment review process and reference the process decision making flow chart.
- 6. Recommendations. Point 5 updated in line with other updates on the dynamic assessment.
- Appendix A Carriageway Hierarchy. Existing table replaced with the equivalent table from the 2016 COP (Well-Managed Highway Infrastructure) A.4.3 Functional Hierarchy/A4.3.11 Table 1 - Factors to Consider – Carriageways. No impact on ONH. - minor changes only – COP has added a lower category 'Minor Road'. Category numbers no longer apply.
- Appendix B Footway Hierarchy. Existing table replaced with the equivalent table from the 2016 COP (Well Managed Highway Infrastructure) A.4.3 Functional Hierarchy/A4.3.14 Table 2 - Factors to Consider- Footways. No impact on COP - minor changes only - COP has added a lower category 'Minor Footways'. Category numbers no longer apply.
- Appendix C page 16. Minor text adjustments to emphasise that factors 10 and 11 are the dynamic risk assessment factors.
- Appendix E Safety Inspection Frequencies. A range of adjustments made to align with the minor changes to the 2016 COP carriageway and footway types. The latest 2016 COP no longer includes specific guidance for the frequency of safety inspections as was previously the case. Current LBB/Re. inspection frequencies have been retained unchanged.
- Appendix G. Strategy and Hierarchy Objectives. Updated to reflect the new 2016 Well-managed Highway Infrastructure: A Code of Practice. Replaced with key extracts from the COP - A4.3.1, A4.3.2, A4.3.8 (hierarchies should be dynamic), A 4.3.9 plus Recommendation 12 Network Hierarchy.
- Appendix K. Defect and Claim History Risk Review. Updated to September 2018. Existing map representation of data replaced with latest information.
- Appendix L. Local Access Roads with Temporary Enhanced Risk @ September 2018. Existing map representation of data replaced with latest information.
- Appendix M. Database Management Plan. Updated to include the process flow chart for the periodic dynamic risk assessment. New flow chart added.
- Appendix N. Schedule of Changes. Version 5 updates.

Operational Network Hierarchy Review

APPENDIX N

Version 6 updates (December 2021)

- Document Control/Issue: updated to reflect latest V6 December 2021
- Miscellaneous text changes to reflect new personnel and edits to names and change from Bentley EXOR to CONFIRM. No significant changes undertaken.
- Appendix E. Format change to table of COP network categories to highlight categories not used on LBB network. Graphic amended to correct incorrect frequency against footways.
- Appendix K. Defect and Claim History Risk Review. Updated to latest 2021. Existing map representation of data replaced with latest information.
- Appendix L. Local Access Roads with Temporary Enhanced Risk @ December 2021. Existing map representation of data replaced with latest information.
- Appendix M. Database Management Plan. Minor edits to named people and software/datasets
- Appendix N. Schedule of Changes. Version 6 December 2021 updates.

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