



Cabinet
23 May 2016

Report from the Strategic Director of Regeneration and Environment

For Action

Wards Affected:
ALL

Highways Investment Programme 2016-17

1.0 SUMMARY

- 1.1 Our highways infrastructure (including roads and pavements) is the asset most used by the public and the most visible. In common with other Highway Authorities, Brent has an increasing maintenance requirement which cannot be met through a standstill budget. Currently estimated in Brent at £100m, more defects are appearing year on year. Against this, public expectations are rising with more customer reports of highways defects every year asking for these to be repaired.
- 1.2 An increase in the level of investment to maintain the highway network is required to respond to public concerns, make it safer and fit-for-purpose, and to improve public satisfaction.
- 1.3 The Highways Capital Scheme Programme 2016-17, approved at the 14th March 2016 Cabinet, set out proposals to allocate £3.55m of Brent capital to maintain the highway network. At that time the report noted that future investment would be required to:
- achieve greater equality in condition between roads and pavements;
 - address localised conditions in an area patching programme to extend the life of roads;
 - accommodate members' requests to regenerate High Streets by giving them greater priority, so improving their look and feel;
 - and consider alternative materials, for instance replacing slabs with tarmac when doing full pavement renewals, to make limited resources stretch further.

Proposals for further investment of £2m in the highway network (roads and pavements) are set out in this report.

- 1.4 As well as increased investment, we can improve how we manage our highway infrastructure and offer a better customer service experience to our residents and businesses. We have made a start in implementing an asset management approach through establishing a Highway Asset Management Plan.
- 1.5 Being more efficient in how and where the investment is spent, requires confidence in our information and the ability to analyse it, including budget vs condition level modelling scenarios. We are investigating a “Brent Asset Management Tool”, a computer tool which would allow funding allocations to be better targeted for the best effect, including indicative treatment types from the condition data that will optimize the life of roads and pavements.
- 1.6 Improvement in our asset management processes could also help secure future grant allocations, should TfL follow the DfT in changing the basis for funding allocation, as anticipated. Over a 5 year period the DfT will increase the proportion of Incentive funding that is based on “performance” (as measured by the level of asset management maturity reached); whilst the proportion that is based on ‘need’ will lessen. TfL are considering reforming the allocation of maintenance funding for Principal Roads in London to be along the same lines as the DfT model.

2.0 RECOMMENDATIONS

- 2.1 That the Cabinet approves the investment of £2m in 2016/17 of Brent capital funding as summarised in Section 6.
- 2.2 That the major footway upgrade programme element of £1.3m is carried out with pavement slabs being replaced with tarmac (instead of a like-for-like replacement as has been the practice up until now, see section 3.2.1).
- 2.3 That the Cabinet approves the proposed additional highways investment programme for 2016-17 as detailed in Appendix B.
- 2.4 That, the major footway upgrade programme of £1.510m approved in the Highways Capital Scheme Programme 2016-17, approved at the 14th March 2016 Cabinet, is carried out with the pavement slabs being replaced with tarmac as a default. Category 1 & 2 footways and conservation areas will be considered on a case by case basis, but will normally be replaced like for like. (Appendix E)(see section 3.2.12)
- 2.5 That the “Footway upgrades – short sections” pavement allocation of £ 0.150m approved in the Highways Capital Scheme Programme 2016-17, approved at the 14th March 2016 Cabinet, is carried out with:
 - a) in conservation areas or Category 1 & 2 footways, considered on a road by road basis but generally slabs (See section 3.2.12);
 - b) where the length to be replaced is junction to junction, the pavement slabs being replaced with tarmac – even though it may only be only side of the street only;
 - c) otherwise, for sections shorter than junction to junction, pavement surface to be replaced like for like.

3.0 BACKGROUND

3.1 Details

The highway network consists of the following components:

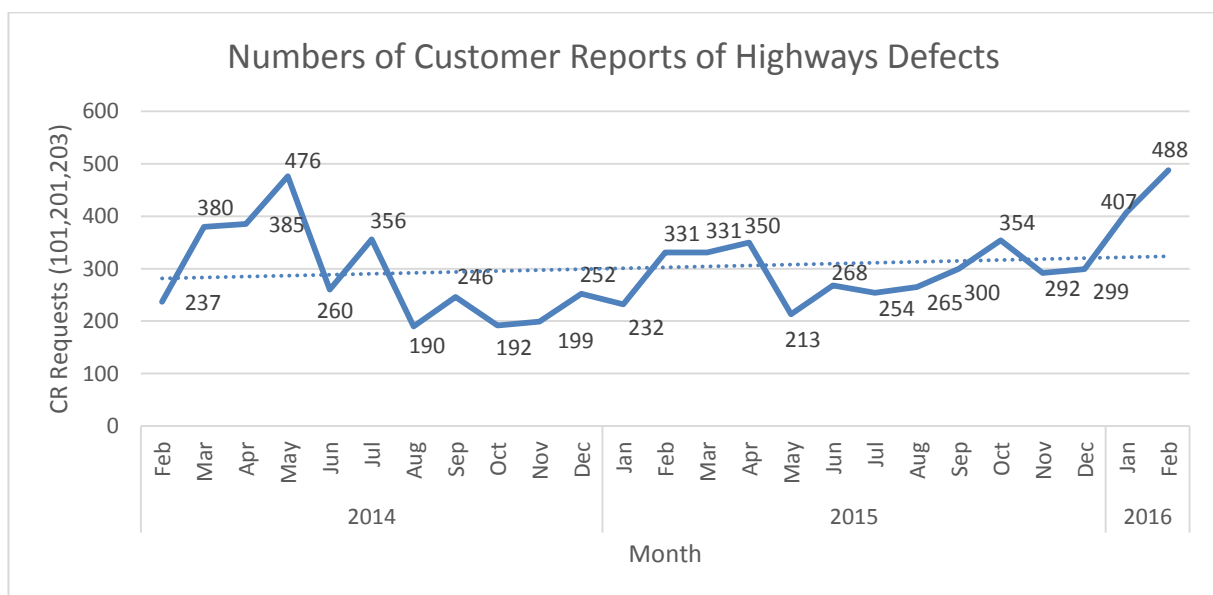
- Roads and Pavements
- Highway drainage, for example gullies and pipes
- Structures, for example bridges, culverts and retaining walls
- Traffic signs and other street furniture
- Street Lighting
- Street trees and soft landscaping.

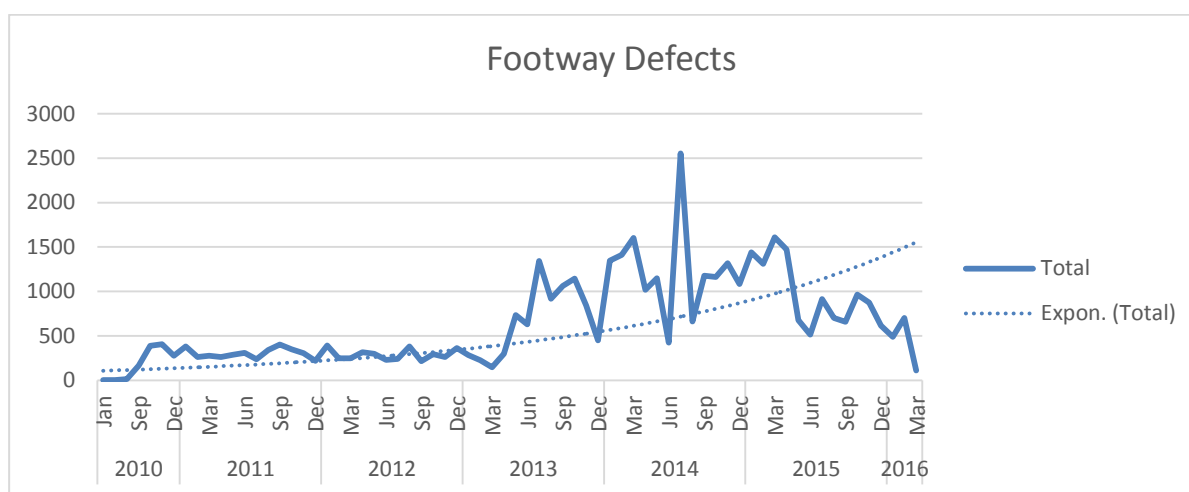
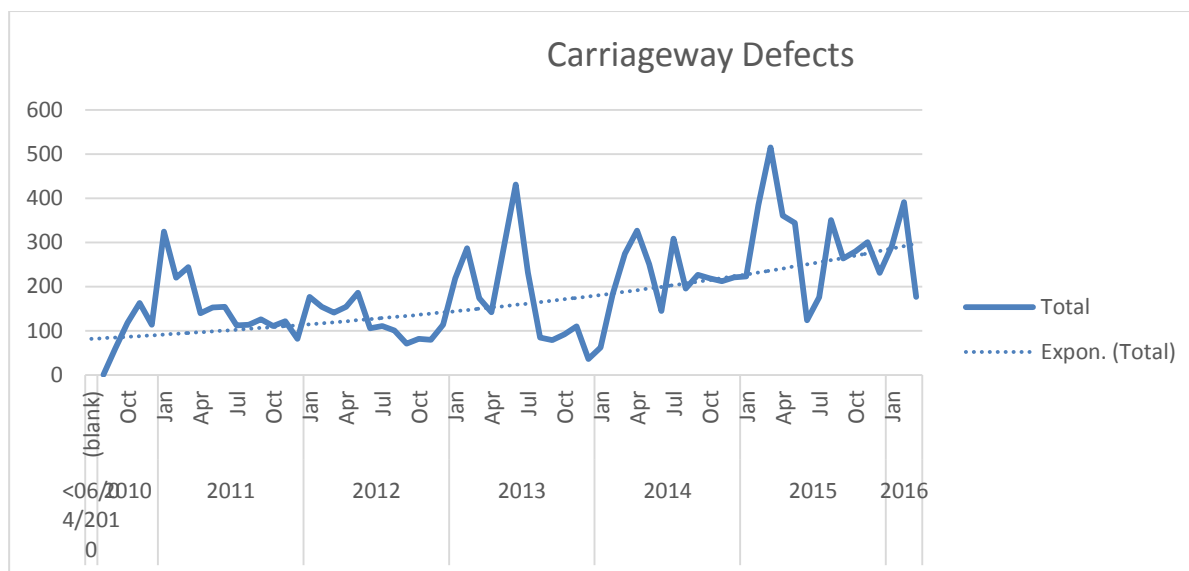
Where the term highways infrastructure is used in this report it means all of these assets, unless specified otherwise.

- 3.1.1** The highway asset, in particular roads, pavements and structures, is the most used and visible asset by the public. It is also an asset that is considered by many to be vital to economic growth. There is a good business case for additional investment for roads and pavements and structures, outlined below.

Roads and Pavements

- 3.1.2** The Council is experiencing an increase in the number of reported defects. Increasing numbers of defects are also being identified through our operations and inspections. The graphs below indicate these increasing trends. Current budget levels do not allow us to deliver the level of service expectation residents and businesses have.



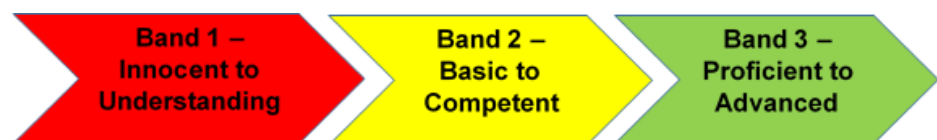


3.1.3 As we now have survey data covering 100% of the footway (pavement) network for the first time, we have been able to calculate a more accurate total backlog figure (including pavements) than that previously reported. The outcome is that the previous £38m estimate required to deal with highways infrastructure defects has now been recalculated at £100m.

Maintenance Requirement	£/km	Total Length km	% Backlog	Length Backlog km	£ backlog
Unclassified roads	£126,784.21	413.9	21	86.919	£11,019,957
B&C class roads	£172,413.79	34	10	3.4	£586,207
Principal roads	£668,902.44	56.2	6	3.372	£2,255,539
Footways	£275,761.97	847.4	37	313.538	£86,461,858

£100,323,561

- 3.1.4** This maintenance requirement means roads are resurfaced infrequently. Each year the Asphalt Industry Alliance (AIA) commissions an independent survey of all local authority highways departments in England and Wales. Questions in the survey relate solely to the maintenance of the road surface itself. Just over 50 per cent of all the authorities responsible for roads in England (including London) and Wales participated. The Alarm survey shows that the average frequency of road surfacing (all road classes) for London is 31 years. Brent's figure is 38 years.
- 3.1.5** All local highway authorities have a backlog of highway maintenance. London's estimated one-time catch up cost per authority on the maintenance backlog is £25.2m (for road surfaces only). Brent's figure is better at just under £14m.
- 3.1.6** Outside London, authorities that spend money on roads efficiently will be rewarded with extra funds to keep up the good work, while those that are deemed inefficient will receive comparatively less. The funding allocation reform will be rolled out over the next 5 years to enable all authorities to improve. The funding allocation is split into 4 categories:
- Needs formula
 - Incentive Fund
 - Challenge Fund
 - Pothole Action Fund
- 3.1.7** Over a 5 year period the proportion of Incentive funding that is based on "performance" (as measured by the level of asset management maturity reached) will increase year on year; whilst the proportion that is based on 'need' will lessen. The Incentive Fund is assessed using a self-assessment questionnaire that will be sample audited by the Department for Transport. The questionnaire determines in which of the following three bands the authority lies which has a correlation to the amount of eligible funding they would receive. The bands highlight the level of asset management maturity reached.



2016/17	90%	100%	100%
2017/18	60%	90%	100%
2018/19	30%	70%	100%
2019/20	10%	50%	100%
2020/21	0%	30%	100%

- 3.1.8** The above is currently in place for local authorities outside London. However, funding for London is provided directly to Transport for London (TfL) as a devolved

transport authority for London rather than individual boroughs. TfL then distribute across London the allocation they receive. This grant consists of Neighbourhood, Corridors and Supporting Measures, Preventative Maintenance, Bridge Strengthening and Major Projects. Preventative maintenance is used on the A roads only and not on the local road network which London Boroughs are expected to finance themselves.

- 3.1.9** For Preventative Maintenance, TfL are considering reforming the formula in alignment with the DfT. They have set their own self-assessment questionnaire which was circulated for completion this year (2015/16) on a voluntary basis and is expected to be mandatory next year. To date 50% of all London boroughs, including Brent, have completed the questionnaire. This grant funding directly affects road and pavement maintenance for the principal road network and bridge strengthening allocations received.
- 3.1.10** We have rated ourselves equivalent to the DfT's Band 1. As such there is a risk in the future of not securing the maximum grant allocations available, should TfL adopt the DfT approach fully. We believe that implementing a more systematic, evidence-led and rigorous approach, such as offered by the "Brent Horizons" tool, will help us to move forward to Bands 2 and 3 by improving the effectiveness of highways capital funding allocation decisions, and making us better placed for success in bidding for future TfL or Government grants. In 14/15 Brent secured a £298,000 pothole grant, this success was based on the progress of highways asset management in Brent at that time.
- 3.1.11** We can further improve how we manage our highway infrastructure and offer a better customer service experience to our residents and businesses. We have made a start in implementing an asset management approach through establishing a Highway Asset Management Plan. However, we need to start implementing the actions identified and linking this to our Borough Plan in a more transparent way.
- 3.1.12** Providing an increase in the level of investment to maintain the highway network is one step forward to manage the current situation of dissatisfaction with the level of service being provided. Being more efficient in how and where the investment is spent is the next step in demonstrating being competent in delivering an asset management approach and enabling maximum grant allocations to be secured. To enable this we have to be more intelligent with our decision making. This requires confidence in our information and the ability to analyse it, including budget vs condition level modelling scenarios. It should be emphasised that the investment will allow us to expand our maintenance programme whilst also developing a longer term approach for investment based on varying scenarios.

Structures

- 3.1.13** There is a statutory obligation to maintain the public highway. This embraces two essential functions of being 'safe to use' and 'fit for purpose'. The two functions are not the same.
- **Safe for use** – requires a highway structure to be managed in such a way that it does not pose an unacceptable risk to public safety.
 - **Fit for purpose** – requires a highway structure to be managed in a way that it remains available for use by traffic permitted for the route.

3.1.14 Current minimal levels of inspection and maintenance have meant we just achieve the legal obligation for safety, but there has been a deterioration in the condition of our structures with maintenance being reactive within the budget allocation. We are now at a higher risk of safety concerns with a growing maintenance backlog.

3.1.15 Investment to date means we are not meeting our obligation to keep our structures 'fit for purpose'. This is resulting in an increase in restrictions or substandard structures because structural deficiencies are not addressed in time, reducing the availability of the network to permitted traffic. This can affect the economy of an area through lack of accessibility and increase environmental impacts and costs through diversions and extra miles travelled.

3.1.16 Bridgestation, our structures asset management system, estimates £205,000 worth of damage across the structures maintained by Brent. This is likely to be lower than actually required as the estimate is out of date.

3.1.17 Best practice promotes each structure should be subject to an inspection on a six year cyclical basis, as follows:

Year 1	Principal Inspection by qualified consultancy staff
Year 2	Superficial Inspection by local authority staff
Year 3	General Inspection by qualified consultancy staff
Year 4	Superficial Inspection by local authority staff
Year 5	General Inspection by qualified consultancy staff
Year 6	Superficial Inspection by local authority staff

3.1.18 This routine is not sustainable or affordable. However an inspection routine needs to be implemented and funded accordingly using a risk management approach. There needs to be a higher number of inspections undertaken over the next 5 years to enable an understanding of condition to be ascertained.

3.1.19 Principal and General Inspections are not funded by TfL, through the London Bridge Engineering Group (LoBEG). We have many structures overdue an inspection and some that have never been inspected. In addition to this there is no evidence of any routine or reactive vegetation clearance to our structures, which increases its condition deterioration. This presents a risk in that we do not know what defects are present and their rate of deterioration to the structure increasing the risk for structure failure.

3.1.20 The Bridge Strengthening grant allocation from TfL is allocated based on bids submitted by boroughs each year. This grant can be used to complete strength assessments and strengthening works. We need information from the inspections on the condition level and evidence of defects to secure grant funding from LoBEG or other funding sources to complete maintenance work.

3.2 Objectives for the Increased Level of Investment

3.2.1 Roads and Pavements

Our aim is to:

- Secure additional sustained investment for maintaining roads and pavements
- Achieve greater equality in condition between pavements and roads
- Reduce the volume of expensive reactive maintenance and increase the volume of cost effective and efficient programmed maintenance
- Improve decision making on where and when we maintain our roads and pavements
- Improve information about our assets enabling more informed decisions to be made on interventions and future budget requirements.

3.2.2 To move from a reactive way of working to a cheaper and more effective one of programmed work, consideration has been given to alternative materials, for instance replacing slabs with tarmac when doing full footway renewals. The overwhelming majority of Brent pavements have a slabbed as opposed to a tarmac finish. However Artificial Stone Paving (ASP) is not resilient in areas where vehicles overrunning pavements or where tree roots lift pavements. This results in many cracked and broken slabs increasing the risk of injury and insurance claims as well as high maintenance costs. It makes sense to explore alternative materials in order to reduce the total cost over the whole life of the pavements.

3.2.3 Three types of materials have been considered and an indicative cost calculated from typical pavement relay jobs.

- Resin bound surface £70.63 /m²
- Crushed Gravel Tarmac finish £64.06/m²
- Existing slabbed (ASP) finish £60.95/m²
- Tarmac £56.46/m²

3.2.4 The difference per square metre may not seem that much, but when this is multiplied up over the large areas of pavement we resurface, substantial savings can be made:

Material	Overall Cost	Comparison with Current Practice (Slabs)
Pavement 1		
Resin bound surface	£106,799.56	24% increase on using slabs
Crushed Gravel Tarmac	£93,114.77	8% increase on using slabs
ASP (Slabs)	£86,017.51	
Tarmac	77,269.23	10% saving on using slabs
Pavement 2		
Resin bound surface	£139,815.44	10% increase on using slabs
Crushed Gravel Tarmac	£130,581.06	3% increase on using slabs
ASP (Slabs)	£126,819.78	
Tarmac	£119,888.62	5% saving on using slabs

Pavement 1 has fewer than average vehicle crossings, hence a greater saving by using tarmac as footway material than Pavement 2 which has a typical amount of vehicle crossings.

- 3.2.5** For the basis of comparison it was envisaged that dropped crossings and street corners will continue to be surfaced using concrete block paving, as is the practice now, with the footway (pavement) in between surfaced with either ASP (slabs), a resin bound surface or tarmac. Aesthetically the concrete block areas create “features” along the length of the street. This is an aesthetic measure, intended to mitigate against possible resident concerns about the look of tarmac compared with slabs. The concrete blocked areas are also more damage resistant than either slabs or tarmac.
- 3.2.6** Artist’s impressions of how the tarmac / resin-bound/ Crushed gavel tarmac footways might look are in Appendix B, to compare with the existing practice of using ASP (slabs).
- 3.2.7** It can be seen that the tarmac option is the most cost effective and means that existing budgets can be spread further: more streets can be resurfaced for the same money. Additionally the pavements will be less susceptible to damage by overrunning vehicles, so reducing accidents and complaints, increasing public satisfaction and reducing future maintenance costs.
- 3.2.8** The use of tarmac also has benefits around trees; existing slabs are often displaced by tree roots, creating trip hazards. This problem is not easily solved; tree root trimming is not always an option as it can have detrimental effects on the health and the structural stability of the tree; replacement of slabs with tarmac can create an unsightly “patchwork quilt” effect. Where tree roots grow under tarmac, more tarmac can simply be “domed” over the root, smoothing out any trips.
- 3.2.9** As well as the initial cost, in any assessment of options we must also take into account the cost of the pavement over the course of its life – the “whole life cost”. In the absence of “destructive factors”, a slabbed pavement can be resilient and last many years. However, the life of a slabbed pavement is limited by factors such as damage by tree roots, overrunning by vehicles and disruption by utility works. Slabbed paving also often deteriorates if not constrained at the edges. Over time the pavement spreads and gaps form between slabs. In turn this allows vegetation and water into the substructure, disrupting the foundation. Deformation of underlying clay by drought, wet or frost can also disrupt a slab pavement
- 3.2.10** Tarmac surfacing does deteriorate with age; it loses the oils that keep it flexible, it goes brittle, starts to crack and the surface weakens. Therefore the plan for maintaining a tarmac footway (the “lifecycle plan”) should include for a thin surfacing at the “mid-life” point (say after 15-20 years), to seal the surface and extend the life of the pavement. So just as we have a preventative maintenance programme for carriageways (road surfaces) going forward, we will allocate a percentage of the budget to maintain existing tarmac pavements to improve their condition, and their appearance.
- 3.2.11** The Whole Life Cost of a tarmac pavement is nevertheless expected to be less than a slabbed one, due to a large extent to the significant cost of replacing slabs broken by overrunning vehicles. Implementation of the Brent Horizons tool will allow optimisation of Life Cycle plans for various assets types (road, pavement etc) and selection of the best fit maintenance approach.

- 3.2.12** It is therefore recommended that tarmac be used as pavement material as a default.. Category 1 & 2 footways (town centres) and conservation areas will be considered on a case by case basis, but will normally be replaced like for like, although tarmac would be considered in these areas where beneficial and appropriate to do so.. If paving is considered appropriate to the location we will identify boundaries to determine an appropriate extent of paving types. Appendix D contains a list of “Shopping Centres”, i.e. the well-used footways (Cat 1 & 2 Footways).
- 3.2.13** This policy would apply to the Public Highway, i.e. highway maintainable at public expense. Equally, upgrades to pavements maintained by Brent Housing Partnership may also adopt the same approach for consistency and to achieve the same benefits.
- 3.2.14** The Highways Capital Scheme Programme 2016-17 report set out proposals for £1.510 m of Major Footway Upgrades. At that time it was envisaged that the materials used would be ASP, with concrete blocks used for dropped crossings and street corners. Given that we also have a number of major footway (pavement) upgrades proposed in this Highways Investment programme, where we are now proposing to use tarmac, it makes no sense to have two pavement upgrade programmes running concurrently but operating under different policies (i.e. one using ASP the other tarmac) Accordingly, it is proposed to use tarmac in the major pavement upgrades set out in the Highways Capital Scheme Programme 2016-17 report (Subject to the caveats in 3.2.12) (see Appendix E for the list). This will provide better value for money for the reasons set out.
- 3.2.15** The programme in Appendix A has been drawn up on using the same principles as the £3.55m Highways Capital Scheme Programme 2016-17. During 2015/16 we have assessed the network to determine the current condition. We have then taken account of a range of factors to define relative priorities for maintenance. We have used a scoring system to identify roads and pavements suitable for major resurfacing, preventative maintenance or upgrades that assessed the following:
- Network Condition - condition-based on outcomes of annual condition surveys and inspection programmes;
 - Network hierarchy and traffic usage, including proximity of local schools / colleges;
 - Risk - Level of risk in terms of numbers of accident claims, historic pothole repair records and/or collision history; and
 - Value for Money - The cost effectiveness of preserving roads that have not yet fully deteriorated and fixing those which have.
- 3.2.16** We continue to take account of councillor nominations for road maintenance and, where a number of schemes attract the same or similar scores, we prioritise councillor nominated schemes earlier in our proposed maintenance programmes. We may also deviate from priority order where, for instance, a section of road in relatively good condition may be resurfaced if it is on a street where the rest of the road needs maintenance and it would be illogical, or impractical, not to resurface the whole street. Going forward, factors to take into account both deprived wards (where there is more likely to be walking) and ageing population areas (greater probability of injury), both as defined by official council data, will be added to the scoring matrix for the prioritisation of pavements.

3.2.17 Defects in pavements may not be prioritised for repair under current policies for dealing with identified defects on a reactive basis. One of the objectives of the Increased Level of Investment is accommodating members' requests for regenerating High Streets by giving them greater priority, so improving their look and feel. In 2015/16 extensive areas of Wembley High Road pavements have been re-laid. The proposal is to carry on this work stream by including the High Road Willesden (Walm Lane to Huddleston Road) in the programme.

3.2.18 Below is a table showing the split in the 16/17 Short term investment programme for roads and pavements

Schemes	% of Capital Budget	Amount (£ 000's)
BRENT CAPITAL – Footways (<i>Pavements</i>)		
Major footway upgrade	65%	1106
Sub-total	65%	1106
BRENT CAPITAL – Carriageways (<i>Roads</i>)		
Major resurfacing unclassified roads	9%	154
Preventative maintenance unclassified roads*	21%	361
Major resurfacing of B&C roads	5%	81
Sub-total	35%	596
Total Brent Capital	100%	1702

3.2.19 The funding split in the main Highways Capital Scheme Programme 2016-17 between roads and pavements was roughly 50:50. In this £2m additional Highways Investment Programme, one of the objectives is achieving greater equality in condition between roads and pavements; therefore the split has been altered to 65:35 in favour of pavements. In future, in order to best achieve the desired levels of service, implementation of the Brent Asset Management Tool will allow better analysis of data and consequent optimisation of funding allocation, and hence the split will change over time.

3.3 Other Benefits of the Increased Level of Investment

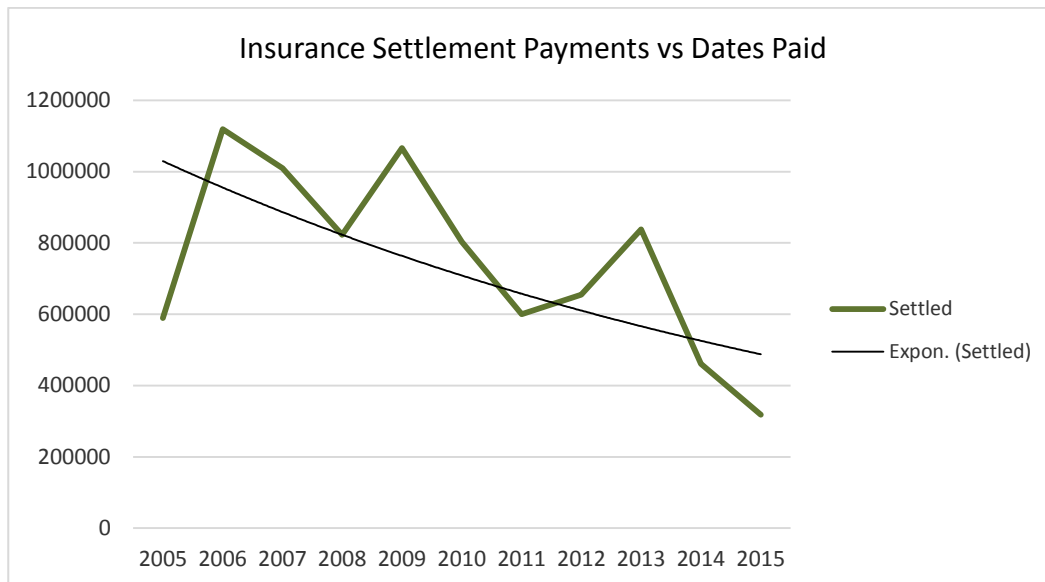
Roads and Pavements

- 3.3.2** The additional investment will enable us to address localised conditions through implementation of an area patching programme. This will help us extend the life of roads before the costs of intervention become more expensive, for example resurfacing or multiple reactive visits. Often, due to financial constraints we are not able to intervene early enough to repair areas that are not yet hazardous but are likely to deteriorate fairly quickly necessitating in a return visit. This will also improve environmental conditions through mitigating traffic noise and vibration caused by an uneven surfacing.



Example of a location that would benefit from an area patching programme, where extended areas would be repaired, not just safety defects.

- 3.3.3** The graph below shows insurance claim payments versus the payment date. The trend is one of reducing payouts, through improvements in the inspection regime and procedures improving repudiation rates (although more in depth analysis would be required to confirm this). The payments in 2015 totalled some £300,000. Improved road and pavement surface condition should decrease the number of incidents, such as damage to vehicles or personal injury, caused by potholes or pavement trips. Whether pay-outs actually result from claims depends on the robustness of the inspection regime, not the road or pavement condition per se. However improved road condition means fewer defects and so means the risk of an incident happening in the first place is reduced, and hence the risk of pay-out is also less. Costs to society from accidents could also be reduced. Improved highway condition also has the future potential to reduce reactive spend.



Structures

- 3.3.4** Having a maintenance budget from which to undertake remedial works will reduce the speed of deterioration of our structures and therefore extend the time from when an expensive intervention would be required. We will be able to reduce the risk of loss of network available and structure failure.
- 3.3.5** Being able to complete inspections will ensure that we can continue to meet our statutory obligations and secure maximum grant allocations available to strengthen weak structures. This will ensure public safety and that no barriers will materialise that could affect the economy through loss of network availability, especially freight traffic.
- 3.3.6** Information from inspections will enable us to be knowledgeable and informed on the condition of this asset group. As a result greater confidence in works required and funding needed will be obtained and enable better decisions to be made using a risk based approach. Working in this way is the most affordable and sustainable long term solution.
- 3.3.7** An overarching aim in delivering this project is to be able to provide better information to residents, manage their expectations regarding when work will likely occur and maintain the highway network at an agreed level of service.

6.0 FINANCIAL IMPLICATIONS

- 6.1 The one-off investment of £2m for 2016/17 set out in this report is proposed to be allocated as set out below.
- 6.2 £1.7m or 85% would be spent directly on additional investment in roads and pavements. Of the existing backlog about 86% relates to pavements (see the table at paragraph 3.1.3) and the backlog for roads is below the London average (see paragraph 3.1.5, although this measures the total backlog rather than being weighted for the length of roads). As a result, the advice from highways officers is that the historical split of funding, which was 50/50 should be more heavily weighted towards the pavements, with a suggested allocation of 65/35 (see paragraph 3.2.18). This would make the investment in pavements about £1.1m and the investment in roads about £0.6m.
- 6.3 As set out in paragraphs 3.1.13 to 3.1.20 maintenance of the various structures – principally bridges – in the borough also needs to be considered, and this investment need is less well quantified here. Accordingly, an immediate allocation of £0.1m is proposed for remedial works. Additionally, a further £0.1m is proposed to improve the inspection regime in order to base future decisions on better information.
- 6.4 The balance of £0.1m is proposed to be spent on improving the management information on which to base future investment decisions, including investment in structural and financial modelling tools. The Strategic Director for Regeneration and Environment and the Chief Finance Officer will determine the balance of this between bought in and in house expertise, subject to the total of the £0.1m allocated to this heading not being exceeded.
- 6.5 The proposed programme of an additional one-off £2m investment will not fix all of Brent's roads and pavements in a single year. It will, however, help to de-risk some of the proposed changes to the TfL funding regime referred to from paragraph 3.1.7. As part of the budget setting round for 2017/18 and future years proposals will be brought forward for a new investment programme, taking account of all of the available sources of funding (from the council, TfL and other sources) and the affordability of this against other council priorities.

7.0 LEGAL IMPLICATIONS

- 7.1 The Highways Act 1980 places a duty on the council to maintain the public highway under section 41. Breach of this duty can render the council liable to pay compensation if anyone is injured as a result of failure to maintain it. There is also a general power under section 62 to improve highways.

8.0 DIVERSITY IMPLICATIONS

- 8.1 The proposals in the Highways Capital Scheme Programme 2016-17 report, which are the same in nature to those in this report, have been subject to screening there are considered to be no diversity implications that require full assessment. The works proposed do not have different outcomes for people in terms of race, gender, age, sexuality or belief.
- 8.2 In addition, the design criteria used in all highway work does take note of the special requirements of various disabilities. These will take the form of levels and grades associated with wheelchair users, for example road crossing points, and for partially sighted / blind persons at crossing facilities. The highway standards employed are nationally recognised by such bodies as the Department for Transport. This programme of works continues the upgrade of disabled crossing facilities at junctions which were not constructed to modern day standards. All new junctions are designed to be compliant at the time of construction.
- 8.3 Strengthened areas of footway are far less susceptible to damage and will therefore aid the movement of pedestrians that may find it difficult to walk on uneven pavements.
- 8.4 We make sure accessibility ramps are provided to aid wheelchair users and those with prams. We make sure high visibility barriers and tapping rails are provided to allow those with visual impairments to negotiate the works as they are in progress
- 8.5 We make sure of the visibility of the required signage, also where temporary work is being carried out.
- 8.6 We monitor of the quality of the work to ensure that the finished surface is to specification and does not form a mobility hindrance; and that signage and road markings are correctly provided as aid to movement.

BACKGROUND PAPERS

None

CONTACT OFFICERS

Jonathan Westell, Highways Contracts & Delivery Manager
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APPENDIX A

Highways Maintenance Programme 2016/17 Additional £2m Funding

Unclassified Borough Roads - Major and Preventative Maintenance Programmes

Major resurfacing programme	Length (m)	Estimated Cost (£k)	Ward
Ebrington Road	380	48	KEN
Athlon Road	254	34	ALP
Fawood Avenue (Brentfield Road to Marshall Street)	191	24	STN
Cumberland Road	101	23	QBY
Hazeldean Road	192	25	STN
Total km	1.12	154	
Miles	0.70		
Total Area m2	8316		
<i>Reserve Schemes</i>	<i>Length (m)</i>	<i>Estimated Cost (£k)</i>	<i>Ward</i>
<i>Dollis Hill Avenue (A5 to 26, 46 to 86 and 117 to Parkside)</i>	<i>678</i>	<i>105</i>	<i>DOL</i>
Total km	0.68	105	
Miles	0.42		
Total Area m2	5559		

Preventative Maintenance Programme	Length (m)	Estimated Cost (£k)	Ward
Kinch Grove	125	19	BAR
Lyon Park Avenue (Woodstock Road to property no 196/198)	266	41	WEM
The Crossways	350	37	BAR
All Souls Avenue (Bathurst Gardens to Herbert Gardens)	312	49	BPK
Dobree Avenue	342	47	BPK
Gardiner Avenue	130	22	MAP
Minet Gardens	64	15	HAR
Priory Gardens	275	31	NPK
Carriageway Improvements		100	
Total km (not including reserve schemes)	1.86	361	
Miles	1.17		
Total Area m2	17618		

Reserve Schemes	Length (m)	Estimated Cost (£k)	Ward
<i>Furness Road (Wrottesley Road to High Street Harlesden)</i>	315	45	KGN
<i>Dicey Avenue</i>	252	26	MAP
Totals	0.57	71	
Miles	0.35		
Total Area m2	4460		

Non-Principal B & C Roads - Major maintenance programme

Carriageway Resurfacing B & C Roads	Length (m)	Estimated Cost (£k)	Ward
Roe Green	514	81	FRY
Total km	0.51	81	
Miles	0.32		
Total Area m2	3561		

Footway (*Pavement*) Improvements

Footway (<i>Pavement</i>) Resurfacing	Length (m)	Estimated Cost (£k)	Ward
Manor House Drive	976	239	BPK
Medway Gardens	810	172	SUD
Woodcock Hill (Kenton Road to Dovedale Avenue)	958	234	KEN
Grosvenor Gardens	270	78	MAP
Princes Avenue (Berkeley Road to Honeypot Lane)	490	142	QBY
High Road Willesden (Walm Lane to Huddlestone Road)	854	241	MAP
Total km (not including reserve schemes)	4.36	1106	
Miles	2.72		
Total Area m2	11268		
Reserve Schemes	Length (m)	Estimated Cost (£k)	Ward
<i>Dawpool Road</i>	914	206	DOL
<i>Dicey Avenue</i>	490	138	MAP
<i>Tokington Avenue (Northchurch Road to Elsley Primary School)</i>	430	97	TOK
Totals	1.83	441	
Miles	1.15		
Total Area m2	4695		

APPENDIX B



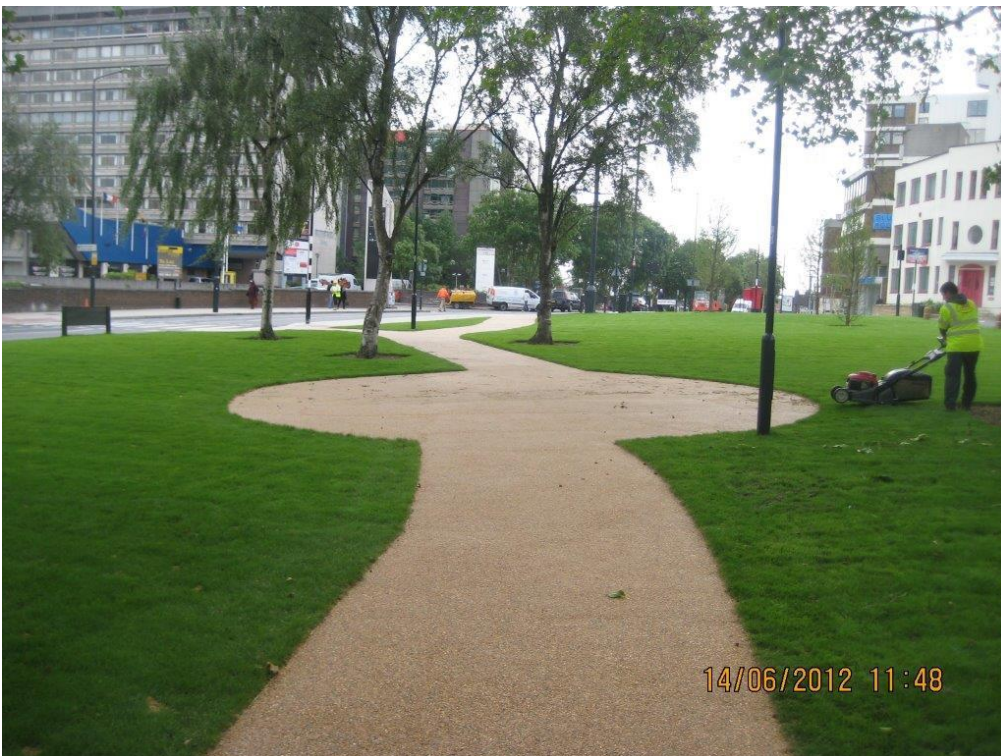
Examples of the existing practice of using ASP (slabs) as a footway material



Artist's impression of proposal to use tarmac as a footway material
(Please note the material is depicted at around 18 months old, when the colour has faded from black to grey)



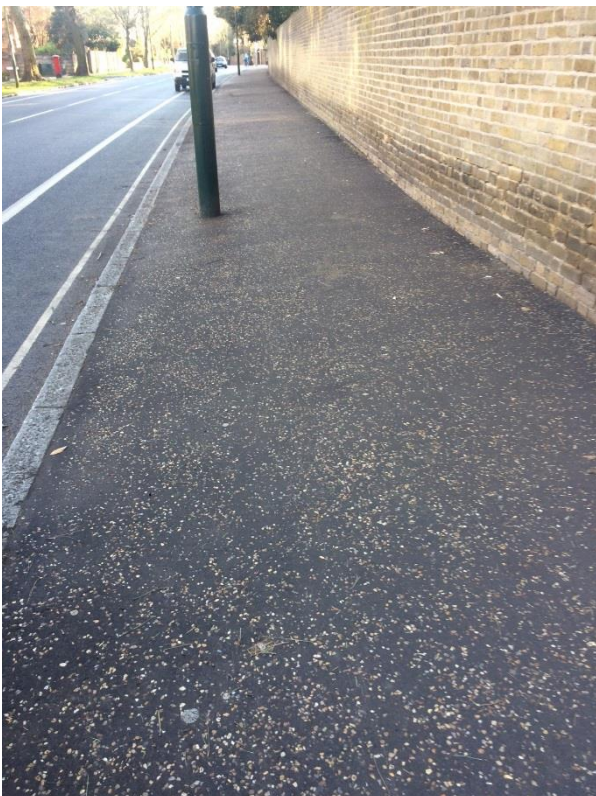
Artists Impression of how resin bound surface would look as a footway material



Example of resin-bound surface in-situ



Artists Impression of how crushed gravel tarmac finish would look as a footway material
(Please note the material is depicted at around 18 months old, when the colour has faded from black to grey)



Example of crushed gravel tarmac finish in situ

APPENDIX C

WARD ABBREVIATIONS

<u>WARD</u>	<u>ABBREVIATION</u>
- ALPERTON	ALP
- BARNHILL	BAR
- BRONDESBURY PARK	BPK
- DOLLIS HILL	DOL
- DUDDEN HILL	DNL
- FRYENT	FRY
- HARLESDEN	HAR
- KENSAL GREEN	KGN
- KENTON	KEN
- KILBURN	KIL
- MAPESBURY	MAP
- NORTHWICK PARK	NPK
- PRESTON	PRE
- QUEENS PARK	QPK
- QUEENSBURY	QBY
- STONEBRIDGE	STN
- SUDBURY	SUD
- TOKYNGTON	TOK
- WEMBLEY CENTRAL	WEM
- WELSH HARP	WHP
WILLESDEN GREEN	WLG

APPENDIX D – Map / List of Well Used Footways (Cat 1 & 2 Footways) “Shopping Centres”

Road Name	Footway Hierarchy
ABBEY ROAD	1
BEVERLEY DRIVE	1
BLACKBIRD HILL	1
BRIDGE ROAD	1
BRIDGEWATER ROAD	1
BRONDESBURY PARK	1
CENTRAL WAY	1
CHAMBERLAYNE ROAD	1
CHICHELE ROAD	1
CHURCH LANE	1
CHURCH ROAD	1
CHURCHILL AVENUE	1
CRAVEN PARK	1
CRAVEN PARK ROAD	1
CREST ROAD	1
CRICKLEWOOD BROADWAY	1
EALING ROAD	1
EAST LANE	1
EMPIRE WAY	1
FORTY AVENUE	1
FORTY LANE	1
HARLESDEN ROAD	1
HARROW ROAD	1
HIGH ROAD	2
HIGH STREET HARLESDEN	2
HOLMSTALL AVENUE	1
KENTON ROAD	2
KILBURN HIGH ROAD	2
KINGSBURY ROAD	2
KNATCHBULL ROAD	2
NEASDEN LANE	2
NORTHWICK AVENUE	2
PARK PARADE	2
PRESTON ROAD	2
ROBSON AVENUE	2
ROE GREEN	2
ROE LANE	2
RUSHOUT AVENUE	2
SALUSBURY ROAD	2
SHOOT UP HILL	2

STAG LANE	2
STATION APPROACH	2
STATION CRESCENT	1
SUDBURY COURT DRIVE	2
THE BROADWAY	2
WALM LANE	2
WATFORD ROAD	2
WEMBLEY HILL ROAD	2
WEMBLEY PARK DRIVE	2
WILLESDEN LANE	2
WINCHELSEA ROAD	2
WINDERMERE AVENUE	2

APPENDIX E - Footway (*Pavement*) Improvements to be funded by Brent Capital Budget in 2016/17

Footway Resurfacing	Length (m)	Estimated Cost (£k)	Material	Ward
Regal Way (Westward Way to Shaftesbury Avenue)	958	267	Tarmac	KEN
Chandos Road	460	129	Tarmac	DNL
Townsend Lane (Kingsbury Road to Kingsmead Avenue)	1572	243	Tarmac	FRY
Elthorne Road	610	173	Tarmac	WHP/FRY
Mallard Way	744	221	Tarmac	WHP
Chalfont Avenue (Oakington Manon Drive to Brent Way)	162	86	Tarmac	TOK
Geary Road (Cullingworth Road to Park Avenue North)	542	147	Tarmac	DNL
Mostyn Avenue	652	169	Tarmac	TOK
Maintenance to Vehicle Crossings		50		
Total km	5.70	1485		
Miles	3.56			
Total Area m2	13359			