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# THE POTENTIAL EFFECTS OF REDUCED STREET LIGHTING ON CRIME: AN EMPIRICAL STUDY OF THE 'SELECTIVE PART-NIGHT STREET LIGHTING' SCHEME IN LEEDS.

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# ABSTRACT

*'The Potential Impacts of Reduced Street Lighting on Crime: An Empirical Study of the 'Selective Part-Night Street Lighting' Scheme in Leeds'.*

This dissertation will examine whether reductions in street lighting can lead to a rise in crime just as improved street lighting has been found to reduce crime in other studies. In executing this aim, this study will apply routine activity and informal social control principles to deduce that reductions in street lighting may increase the likelihood of crime, both during the daytime and night-time hours; through a stimulatory effect on potential offenders' perceptions of crime opportunities, and erosive consequences upon the informal social control mechanisms in the community which serve to deter crime. To test this hypothesis, the 'selective part-night street lighting' scheme throughout residential areas in Leeds will be assessed, using police recorded crime data and a quasi-experimental research design, to determine whether it has prompted any spatial crime displacement between treatment and control streets since its launch in 2013. This study will find that, in the aggregate, selective part-night street lighting did not lead to either an increase or decrease in crime. However, there is significant variation between the different areas that seek further study.

# INTRODUCTION

Systematic reviews of the effects of street lighting on crime have identified some evidence for an overall reduction in crime with improved street lighting. However, many lighting authorities across England and Wales have adopted schemes that reduce some street lighting at night. For example, the street lighting authority in Leeds, i.e. the Leeds City Council (LCC), adopted a 'selective part-night street lighting' (SPNSL) scheme whereby specific streetlamps automatically switch off every day between midnight and 5:30am.

Advantages of this scheme include: reductions in energy costs, environmental light pollution and greenhouse gas emissions. However, in urban areas such as Leeds, reductions in street lighting can also raise concerns about road traffic safety and crime. These concerns may be justified, in part, by situational crime prevention and community safety studies which purport that street lighting helps prevent crime. These studies suggest that street lighting may reduce victimisation: firstly, as a situational crime prevention measure that suppresses crime opportunities; and secondly, as an informal social control mechanism which sustains behaviours and social attitudes in the community that discourage crime.

The first view is based upon routine activity theory whereas the second is based upon informal social control principles. In a similar vein, this paper will apply these principles to formulate the hypothesis that, conversely, reductions in street lighting could potentially increase the likelihood of crime. It is suggested that if SPNSL did impact crime through the mechanisms prescribed, rational choice principles would support an expression of this in the form of temporal and/or spatial crime displacement. Therefore, this paper gathered police recorded crime data and formulated a quasi-experimental research design to assess potential spatial crime displacement between SPNSL treatment and control streets. This study found that, in the aggregate, reductions in street lighting in the form of SPNSL have not led to either increases or decreases in crime throughout residential areas in Leeds. However, there are significant variations between the different areas which could benefit from further study.

Although limited by a variety of extraneous and confounding variables that naturally exist in the social environment, this may nonetheless be considered an important and innovative study because although lighting authorities can consult national guidance and/or professional standards, they ultimately make street lighting assessments on their own. Therefore, it is important to add empirical evidence of the effects of reduced street lighting strategies, e.g. SPNSL, on public health outcomes, such as crime, to inform public policy as well as further national research. Pursuant to this objective, the following study will be presented in 4 chapters: Chapter 1 will introduce the SPNSL scheme and develop the hypothesis' foundations. Chapter 2 will present the empirical study; Chapter 3 will display the results while Chapter 4 will engage in data analysis and evaluate the research limitations.

# Chapter 1 BACKGROUND

## Leeds City Council's 'selective part-night street lighting' scheme

LCC introduced SPNSL in October 2013 with the aim of reducing energy costs, greenhouse gas emissions and environmental light pollution caused by street lighting throughout the city. This scheme involves the conversion of selected streetlights to part-night lighting, whereby specific streetlamps automatically switch off every day between midnight and 5:30am – the selection of which follows an on-site risk assessment based on the avoidance criteria outlined below. LCC's selection criteria follow that part-night switching would be avoided:

- On roads with a significant road traffic accident record during the proposed switch-off period;
- In areas with an above average record of crime during the proposed switch-off period;
- In areas with a police record of frequent anti-social behaviour during the proposed switch-off period;
- In areas provided with local authority CCTV or police surveillance equipment;
- In areas with sheltered housing and other residences accommodating vulnerable people;
- Around 24hr operational emergency services sites, including hospitals;
- At formal pedestrian crossings, subways and enclosed footpaths and alleyways where one end links to a street that is lit all night;
- Where there are potential hazards on the highway such as roundabouts, central carriageway islands, chicanes and traffic calming features; and
- Where public transport stops are in use during the proposed switch-off period.

(Leeds City Council, 2014)

In 2013, the council offered an autumn 2016 completion date. Therefore, it is assumed that the SPNSL scheme is complete at the time of this study. It is projected to save around £1.3 million in energy costs over 10 years at the energy prices of October 2014; and reduce carbon emissions caused by street lighting by 4.7% per year during the switch off period.

On residential routes, SPNSL installations involved converting every other streetlight to part-night lighting. LCC suggested that the potential adverse effects of varying light levels would be less harmful in residential areas because residential routes normally have lower speeds and little vehicular traffic other than which is mainly generated by residents. In contrast, on main traffic routes installations involved converting at least three lights in a row to part-night lighting because otherwise, drivers may not be able to adapt quickly enough to a rapid "on/off" difference in light levels – potentially leading to reduced night-time visibility and more accidents (Leeds City Council, 2014).

## Selective part-night street lighting's potential impacts on crime

Reduced street lighting's potential impacts on crime can be explained with support of routine activity and informal social control theories. Routine activity theory, first formulated by Lawrence E. Cohen and Marcus Felson (1979), is a descendant of rational choice theory or the principle that, as reasoning actors, offenders weigh the means, ends, costs and benefits of offending – subsequently engaging in the rational choice to offend (Clarke and Felson, 2004). On this basis, routine activity theory claims that crime is opportunistic, and that crime opportunities depend on the convergence in space and time of the following elements:

1) a suitable target(s);
2) a potential offender(s); and
3) the absence of capable guardianship.

Applying routine activity principles, Clarke (1995) suggested that street lighting is a situational crime prevention measure that reduces the likelihood of crime at night by influencing the factors listed. This follows that, as visible offending carries greater risks of getting caught, street lighting coverage may increase the efforts of offending and hence reduce the suitability of illuminated targets. This is linked to street lighting's ability to provide 'passive' guardianship, i.e. in itself, through the exposure of offending and offenders; and its potential to encourage active guardianship in the form of street usage. Darkness, particularly in urban areas, can introduce fears about personal and road traffic safety (Atkins et al., 1991) which may deter street usage at night. On the other hand, a well-lit landscape is said to signal a safe environment and thus encourage street usage in the night-time. In turn, street usage may improve surveillance against offending and facilitate reactive responses to crime.

Other theoretical perspectives have emphasised street lighting's potential effects on the communal behaviours and social attitudes that influence the risk of crime. Applying informal social control principles, Farrington and Welsh (2008) suppose that as a positive sign of economic investment, street lighting might cause community members to value their community and respond with a willingness to use, monitor and protect their neighbourhood conditions. These behaviours are said to nurture social cohesion and strengthen informal social controls, which enable community members to enforce conformity and adhesion to their laws and social norms.

Informal social controls can manifest in the form of proactive neighbourhood watch/patrol groups; which address routine activities and block crime opportunities by providing capable guardianship against offending. Alternatively, they may manifest through reactive peer/community pressure upon known offenders to undergo treatment and reform; which would redress the motivated offender component of crime opportunities. Furthermore, this paper suggests that community cohesion may also facilitate cooperation between local authorities, agencies and private citizens – helping to engage the community with any interventions that target the root causes of crime and disorder.

In summary, by presupposing that offending is a rational choice, routine activity theory claims that offending decisions are influenced by perceptions of risk. Based on its hypothetical impacts on routine activities, situational crime prevention and community safety studies claim that street lighting discourages offending during the night-time; through its provision of passive guardianship, i.e. visibility and exposure, and encouragement of active guardianship in the form of street usage. On the other hand, informal social control principles suggest that street lighting may reduce crime through its potential to elicit and sustain behavioural and attitudinal responses from community members that discourage crime. These responses may include measures that provide active guardianship, such as neighbourhood watch groups; or inter-personal attitudes that seek to redress the potential offender.

With these arguments, this study understands that street lighting has the potential to impact crime in the long-term, via informal social control mechanisms; and the in the short-term, as per routine activities. Unlike the above, however, this study is concerned with the question of whether, conversely, reductions in street lighting, such as SPNSL, could increase the risk of crime. Consequently, by applying these principles and a similar line of thought, this paper deduced that SPNSL could potentially increase the likelihood of crime during the night-time by incentivising offending motivations; as well as in the daytime, by causing the local informal social controls to decay.

This hypothesis follows that: firstly, SPNSL would inhibit passive guardianship in its streets as it diminishes the surveillance coverage of offending and potential offenders during the night-time – potentially increasing the suitability of unilluminated crime targets. Secondly, SPNSL could deter active guardianship in the form of street usage as street users are repelled by the relative darkness. Weakened guardianship and surveillance may lead potential offenders to perceive lower risks of getting caught; and hence increase their likelihood of offending. In addition, SPNSL's ensuing relative darkness may signal a lack of care towards neighbourhood conditions and/or that the area is dangerous – potentially leading community members to renounce usage of public places and/or concern with monitoring or protecting their neighbourhood conditions. The subsequent damage to community pride may weaken social cohesion and diminish the informal social controls in the community; which may attract and sustain crime and disorder in the long term. Therefore, this paper expects SPNSL to eventually stimulate crime during the daytime as well as during the night-time hours.

It is suggested that if SPNSL did impact crime in the ways prescribed by this thesis, this process may be evidenced by the occurrence of temporal crime displacement within the SPNSL treatment areas; and spatial crime displacement from intact control areas onto the areas affected by SPNSL. This is because as the principles of crime displacement derive from rational choice theory as well; therefore, the likelihood and extent of displacement could be closely affected by any changes in crime opportunities. Consequently, displacement may not only serve as a detectable by-product of SPNSL's effect on crime, but its mechanisms could also serve as a useful analytical device with which to evaluate the hypothesis.

## Reductions in street lighting and crime displacement

Crime displacement occurs when rather than desisting, offenders change the offence, place, time, target, or tactic of offending (Reppetto, 1974). Like routine activities, its principles derive from rational choice theory, and the likelihood of displacement is tied to potential offenders' perceptions of the relative risks and benefits of alternative crime opportunities (Clarke, 1995).

As discussed, routine activities claim that the likelihood of offending depends on the convergence in time and space of the following elements, which are said to constitute crime opportunities: a suitable target(s); a potential offender(s); and the absence of capable guardianship. Situational crime prevention measures seek to manipulate one or more of these elements to deter offending. However, situational barriers to crime may not simply erase crime because, as routine activities suggest, if offending is a rational choice then offenders may respond to situational barriers by changing how, when or where they offend – depending on how motivated they are to carry on offending. In other words, situational crime prevention measures can simply deflect crime by prompting motivated criminals to displace if suitable alternative crime opportunities are identified. Therefore, displacement can occur as a rational adaptation to situational barriers to crime, e.g. street lighting. Having said that, this paper suggests that displacement may also occur as a rational adaptation to new crime opportunities.

By reinterpreting its principles in rational choice theory, this paper suggests that displacement need not be restricted to crime prevention initiatives but could also arise from any stimulus that affects offenders' perceptions of relative risks and benefits. Therefore, rather than as a reactive mechanism, displacement could arise as a proactive process in which offenders exercise rational choice. For example, offenders may evolve or adapt their crime techniques when certain situations favour a particular type of crime or time, tactic, target or place. So rather than being 'pushed' to displace, this paper argues that offenders may equally be 'pulled' into it as they weigh the relative costs and benefits of alternative crime opportunities.

It is hypothesised that the potential crime opportunities discussed, arising from reductions in street lighting, could cause a transfer of daytime offending onto night-time hours within the treatment streets. Furthermore, crime could also displace from control streets onto treatment streets as the latter develop comparatively more advantageous crime opportunities at night; as well as overall as they begin to attract crime following a decay in informal social controls.

Although the underlining theories could support other types of displacement, the following empirical study intended to focus on temporal (i.e. changes in the time of offences) and spatial crime displacement (i.e. changes in target locations) because of its reliance on police recorded crime data and the nature of SPNSL. For example, temporal crime displacement could have been assessed by comparing crime trends during the daytime and the switch off period. However, this study could not empirically explore temporal crime displacement further due to unforeseen obstacles impeding access to data. In response, spatial crime displacement was solely assessed instead, and the following research methods reflect this new objective.

# Chapter 2 EMPIRICAL STUDY

## Preliminary concerns

Initially, this study intended to assess temporal crime displacement within the treatment streets. However, although the type of crime, date and location of offences are readily available in publicly accessible police recorded crime data, the police declined further access to their recorded time of offences on the grounds that this could jeopardise victim confidentiality (Appendix 1, figure 1). In response, this paper studied total yearly crime rates – focusing on spatial crime displacement between treatment and control streets instead. Consequently, this approach can be said to endorse informal social control theories to a greater extent than routine activities. Having said that, the predictions made with routine activities can be maintained as spatial crime displacement data does not logically rule out potential temporal crime displacement.

The vast extent of SPNSL throughout Leeds also caused sampling difficulties in the beginning. At first, this study sought to compare crime trends between entire treatment and control metropolitan ward subdivisions. However, the widespread distribution of SPNSL made it difficult to identify suitable control wards for comparison. On the other hand, it was possible to do this on a micro/street-by-street scale. Having said that, there are thousands of streets in Leeds and the distribution of SPNSL throughout is very inconsistent, unpredictable, and dosages vary widely. In response, a quasi-experimental design was deemed appropriate because it was necessary to control the treatment conditions using an eligibility criterion rather than random assignment.

The eligibility criterion not only yielded a manageable sample size for effective time-management, but also helped to counterbalance, to some extent, any confounding variables which could not be controlled or accounted for in this study, by enabling this study to stipulate a minimum treatment dosage requirement. Moreover, the eligibility criterion helped formulate sampling conditions that sought to detect the direction of spatial displacement. It is held that if the direction of spatial displacement were known, stronger inferences could be made about its potential causes/links to SPNSL in the attempt to redeem the hypothesis.

Lastly, although not the focus of this study, total crime rates were also measured for the metropolitan wards under study. This is because it is widely accepted that crime rates in the UK have been falling since the mid 1990s; therefore, it was important that street level crime evaluations consider 'the bigger picture' in order to calibrate their micro assessments, which would enable a more profound analysis. Having said that, it is important to note that although the street level crime data was collected through primary research methods, the ward level data was gained through a secondary source; namely, *UKCrimeStats.com*, which is an open data platform operated by the Economic Policy Centre that condenses the publicly available crime data published by the police online via *Police.uk*.

## Research methods

This study began by defining sampling criteria for the treatment and control streets with which to assess displacement. Considering LCC's SPNSL installation and distribution mechanisms outlined in Chapter 1, it was determined that:

1. Each treatment street sample must
    a) have at least a third (33.33%) of a total number of streetlights converted into part-night lighting; and
    b) be adjacent to its relative control street.
2. Each control street sample must
    a) have a complete lack of SPNSL; and
    b) be adjacent to its respective treatment street and no other eligible treatment.

Sampling involved extensively observing every SPNSL site map (Appendix 3) and making street-by-street eligibility assessments. The SPNSL site maps were not always legible so in addition, it was necessary to cross reference the streets in observation on Google maps; and the distribution of SPNSL with the data spreadsheet provided by the council's Highways Services.

SPNSL dosages were calculated by counting the proportion of SPNSL in each treatment street and calculating a percentage. If the treatment dosage fell at or above 33.33%, all its adjacent streets were checked against the control sampling conditions. In the rare occasion that more than one control street was eligible for selection, the street that was most identical to the treatment street, e.g. in length, was selected as the control.

Throughout sampling, the names of the treatment and control streets selected were noted down on a separate document for later police recorded crime data collection. The sampling steps were repeated at least twice and on separate occasions, to prevent data collection errors and ensure consistency in the discretionary application of the treatment and control criteria.

In the interests of time management, sampling was restricted to 5 treatment and 5 control streets per ward – amounting to a maximum of 10 streets per ward given the 1 control per treatment condition. Having said that, the sampling criteria was thorough enough that this restriction was only necessary once. Therefore, this is not expected to significantly impact the internal validity of the research findings.

In total, Leeds has 33 metropolitan wards spread over 10 administrative areas (Appendix 1, figure 2); out of which 31 have received SPNSL. Although all 31 wards were individually scrutinised, eventually not every ward was included in the study because many treatment streets did not meet the treatment and control sampling conditions specified. In total, 126 streets (i.e. 63 treatment and 63 controls across 18 metropolitan wards in 8 administrative areas) were sampled because they met the sampling criteria.

In summary, the eligible treatment and control street samples are found in the following administrative areas and metropolitan ward subdivisions:

- Inner North East
  - Moortown
  - Roundhay
- Inner North West
  - Kirkstall
  - Weetwood
- Inner South
  - Beeston and Holbeck
  - Middleton Park
- Outer North East
  - Aldwoodley
  - Harewood
  - Wetherby
- Outer North West
  - Adel and Wharfedale
  - Guiseley and Rawdon
  - Horsforth
  - Otley and Yeadon
- Outer South
  - Morley North
  - Rothwell
- Outer East
  - Cross Gates and Whinmoor
  - Kippax and Methley
- Outer West
  - Calverley and Farsley

After the sampling process was complete, police recorded crime data from 2010 to 2016 was collected for each individual treatment and control street using a crime map tool available on *Police.uk.* This tool enables users to create custom crime maps by manually outlining specific geographical areas. Alternatively, users can also access a list of every street in any given area and click through their monthly crime records; which is the method this study relied upon.

For each 12-month period, recorded crime data for the month of October was obscured because the exact start date of SPNSL is unknown. Therefore, it was unclear whether the whole month of October could be considered part of the intervention period or not when SPNSL commenced in 2013. By obscuring this month, it was possible to demarcate the presence of SPNSL and categorise 'before' and 'after' SPNSL periods. In addition, data from the month of November was also obscured because the earliest month available on *Police.uk* is December 2010. Without access to data from November 2010, the month of November was scrapped from all the remaining time periods to preserve consistency.

Street level crime data was noted down individually first, and then organised into wards and aggregated into treatment and control categories per ward, as illustrated under Appendix 2. Subsequently, a percentage change for the periods before and after SPNSL were calculated for both treatment and control categories during the analysis.

Following street level data collection, crime data for their respective metropolitan wards was gathered from *UKCrimeStats.com*. A secondary data collection method was chosen for this step because the very detailed datasets available on *Police.uk* would have made the process of collecting metropolitan ward data too taxing. In contrast, *UKCrimeStats.com* is a platform in which users can handle data published by *Police.uk* in more user-friendly scales. The ward level crime data was accessed under 'crime by subdivision' and statistics for the same periods (i.e. 2010 to 2013; Dec to Sept) were exported, filtered and noted through Excel (Appendix 4).

# Chapter 3 SUMMARY OF RESULTS

Primary data: street level crime trends

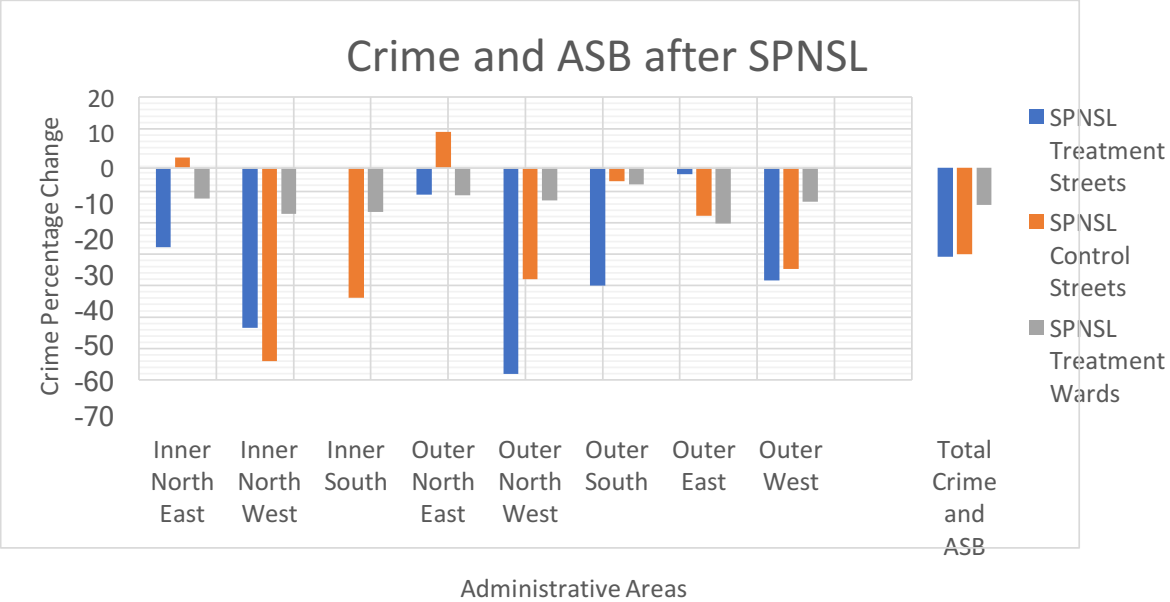
| Treatment Wards | | SPNSL Treatment Streets | | SPNSL Control Streets | |
|---|---|---|---|---|---|
| | | Total Crime and ASB Before (2010 – 2013) | Total Crime and ASB After (2013 – 2016) | Total Crime and ASB Before (2010 – 2013) | Total Crime and ASB After (2013 – 2016) |
| Inner North East | Moortown | 78 | 53 | 14 | 35 |
| | Roundhay | 74 | 65 | 55 | 36 |
| | **Total Crime & ASB** | **152** | **118** | **69** | **71** |
| | **Percentage Change** | | **-22.36842105** | | **+2.898550725** |
| Inner North West | Kirkstall | 37 | 14 | 43 | 33 |
| | Weetwood | 100 | 61 | 85 | 25 |
| | **Total Crime & ASB** | **137** | **75** | **128** | **58** |
| | **Percentage Change** | | **-45.25547445** | | **-54.6875** |
| Inner South | Beeston and Holbeck | 26 | 42 | 61 | 43 |
| | Middleton Park | 70 | 54 | 26 | 12 |
| | **Total Crime & ASB** | **96** | **96** | **87** | **55** |
| | **Percentage Change** | | **0** | | **-36.7816092** |
| Outer North East | Alwoodley | 21 | 13 | 29 | 35 |
| | Harewood | 30 | 20 | 19 | 14 |
| | Wetherby | 2 | 16 | 1 | 5 |
| | **Total Crime & ASB** | **53** | **49** | **49** | **54** |
| | **Percentage Change** | | **-7.547169811** | | **+ 10.20408163** |
| Outer North West | Adel and Wharfedale | 0 | 3 | 5 | 2 |
| | Guiseley and Rawdon | 14 | 6 | 4 | 9 |
| | Horsforth | 55 | 17 | 33 | 27 |
| | Otley and Yeadon | 15 | 9 | 34 | 14 |
| | **Total Crime & ASB** | **84** | **35** | **76** | **52** |
| | **Percentage Change** | | **-58.33333333** | | **-31.57894737** |
| Outer South | Morley North | 10 | 1 | 12 | 11 |
| | Rothwell | 71 | 53 | 42 | 41 |
| | **Total Crime & ASB** | **81** | **54** | **54** | **52** |
| | **Percentage Change** | | **-33.33333333** | | **-3.703703704** |
| Outer East | Cross Gates and Whinmoor | 70 | 66 | 34 | 37 |
| | Kippax and Methley | 43 | 45 | 40 | 27 |
| | **Total Crime & ASB** | **113** | **111** | **74** | **64** |
| | **Percentage Change** | | **-1.769911504** | | **-13.51351351** |
| Outer West | Calverley and Farsley | 22 | 15 | 7 | 5 |
| | **Total Crime & ASB** | **22** | **15** | **7** | **5** |
| | **Percentage Change** | | **-31.81818182** | | **-28.57142857** |
| **Total Crime and ASB** | | **738** | **553** | **544** | **411** |
| **Total Percentage Change** | | **-25.06775068** | | **-24.44852941** | |

Secondary data: ward level crime trends

| Treatment Wards | | Total Crime and ASB before (2010 – 2013) | Total Crime and ASB after (2013 – 2016) |
|---|---|---|---|
| Inner North East | Moortown | 4264 | 3918 |
| | Roundhay | 5675 | 5157 |
| | **Total Crime and ASB** | **9939** | **9075** |
| | **Percentage Change** | **-8.70%** | |
| Inner North West | Kirkstall | 7935 | 7500 |
| | Weetwood | 5034 | 3774 |
| | **Total Crime and ASB** | **12969** | **11274** |
| | **Percentage Change** | **-13.07%** | |
| Inner South | Beeston and Holbeck | 11442 | 10542 |
| | Middleton Park | 10754 | 8876 |
| | **Total Crime and ASB** | **22196** | **19418** |
| | **Percentage Change** | **-12.52%** | |
| Outer North East | Alwoodley | 3671 | 3317 |
| | Harewood | 2340 | 2005 |
| | Wetherby | 3525 | 3483 |
| | **Total Crime and ASB** | **9536** | **8805** |
| | **Percentage Change** | **-7.67%** | |
| Outer North West | Adel and Wharfedale | 3201 | 2684 |
| | Guiseley and Rawdon | 3695 | 3644 |
| | Horsforth | 3931 | 3683 |
| | Otley and Yeadon | 4521 | 3919 |
| | **Total Crime and ASB** | **15348** | **13930** |
| | **Percentage Change** | **-9.24%** | |
| Outer South | Morley North | 5093 | 5442 |
| | Rothwell | 4824 | 4014 |
| | **Total Crime and ASB** | **9917** | **9456** |
| | **Percentage Change** | **-4.65%** | |
| Outer East | Cross Gates and Whinmoor | 5905 | 5063 |
| | Kippax and Methley | 3567 | 2916 |
| | **Total Crime and ASB** | **9472** | **7979** |
| | **Percentage Change** | **-15.76%** | |
| Outer West | Calverley and Farsley | 5949 | 5377 |
| | **Total Crime and ASB** | **5949** | **5377** |
| | **Percentage Change** | **-9.62%** | |
| **Total Crime and ASB** | | 95326 | 85314 |
| **Total Percentage Change** | | **-10.50%** | |

# Chapter 4 Discussion

## Analysis




The hypothesis postulated that SPNSL may stimulate crime, and that this process could be evidenced by spatial crime displacement from control streets onto their treatment streets. However, these results show that, in the aggregate, SPNSL has not led to an either increase or decrease in crime; and the very close crime rates between the treatment and control street categories do not indicate that crime displacement has occurred between the two. Having said that, there is significant variation across the different areas drawing attention away from the aggregate results, which can be summarised as follows:

Evidence in favour of hypothesis

### Inner North West

In the treatment streets, crime fell by 45.26% whereas in the control streets, crime fell more significantly by 54.69%. At face value, displacement from control streets onto treatment streets may be possible. However, it must be noted that both drops exceed their wards' overall 13.07% drop in crime.

### Inner South

In the treatment streets, crime trends stayed the same whereas the controls saw crime fall by 36.78%; which is a greater drop than the wards' overall 12.52%. decline. The treatment streets' stagnant rates, and the difference between the control streets and ward averages, suggest that displacement from control streets onto treatment streets may be possible.

### Outer East

In the treatment streets, crime fell by 1.77% whereas in the control streets, it fell more significantly by 13.51% – which is close but slightly less than the wards' 15.76%. overall fall in crime. This difference strongly suggests that crime may have displaced from control onto treatment streets as expected.

## Evidence Against the hypothesis

### Inner North East

In the treatment streets, crime fell by 22.37% whereas in the control streets, crime rose by 2.9%. At the same time, their respective wards saw an 8.7% overall drop in crime. The control streets' rise in crime, in addition to a greater drop than average in the treatment streets, strongly suggests that crime may have displaced from the treatment streets onto their controls; which is the opposite of what was expected.

### Outer North East

In the treatment streets, crime fell by 7.55%, which is close to the wards' 7.67% overall drop. However, in the control streets, crime rose by 10.2%. At face value, this strongly suggests that crime may have displaced from the treatment streets onto their controls.

### Outer North West

In the treatment streets, crime fell by 58.33% whereas in the controls it dropped less significantly by 31.58%. This suggests that displacement from treatment streets onto control streets is possible, but it must be noted that both treatment and control drops exceed the wards' overall 9.24% decline in crime.

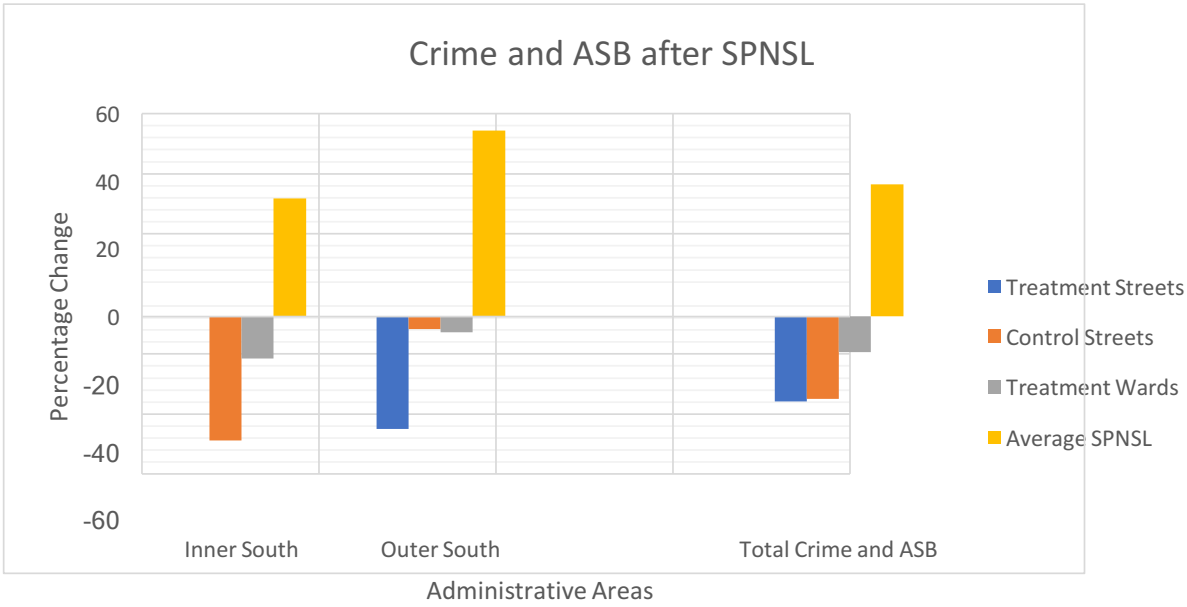
### Outer South

In the treatment streets, crime fell by a third (i.e. 33.33%) whereas in the control streets, crime fell less significantly by 3.7% – the latter which is close to but less than the wards' overall drop of 4.65%. Considering the treatment streets' more significant drop, and the control's shortfalls from the ward average, these differences strongly suggest that crime may have displaced from the treatment streets onto the control streets.

### Outer West

In the treatment streets, crime fell by 31.82% whereas in the control streets it dropped less significantly by 28.57%. At face value, this suggests that crime may have displaced from the treatment onto the controls. However, both drops were more significant than the wards' overall 9.62% decline in crime.

This study chose to explore these variations further by comparing the Inner South and Outer South area trends in isolation. The Inner South is not alone in supporting the hypothesis, and the Outer South is not alone in refuting it, but these areas were singled out because their samples have received the biggest difference in SPNSL dosages – with the Inner South treatment samples having had the smallest average dose of SPNSL at 35%; and the Outer South samples having had the highest average dose of SPNSL at 54.93% (street-by-street SPNSL dosages and ward averages can be found under Appendix 2).




To reiterate: the hypothesis predicted that SPNSL would stimulate crime in treatment streets; potentially prompting displacement from control streets onto treatment streets. Although the Inner South area appears to display the direction of displacement that is expected, i.e. from control streets onto treatment streets, its samples have received the weakest dosage of SPNSL treatment throughout the entire study. Likewise, although the Outer South area appears to refute the hypothesis, displaying potential crime displacement from treatment streets onto the controls, its samples have received the strongest dosage of SPNSL throughout the study.

Although these are only 2 out of the 8 sample areas observed, these results highlight serious potential flaws in the hypothesis. Technically, it is feasible that reductions in street lighting, such as SPNSL, may not stimulate crime; and alternatively, may even supress it. If SPNSL could be argued to repel crime, then the contradictory potential spatial displacement trends observed in these two wards could be explained.

In discussing this study's limitations, the next section will attempt to reconcile these contradictions by re-interpreting routine activities to deduce the possibility that reductions in street lighting may decrease the likelihood of crime, instead of increasing it – potentially prompting crime to displace from the treatment streets onto their controls.

## Research limitations

The hypothesis is partly based upon routine activities, which was applied to suggest that SPNSL may facilitate crime opportunities during the night-time by weakening the surveillance coverage of offending and offenders; and deterring the active guardianship of crime targets in the form of street usage. These conditions were hypothesised to increase the likelihood of crime during the night-time because, presupposing that crime is a rational choice, they may lead offenders to perceive lower risks of offending. Having said that, it is likely that this part of the hypothesis is flawed because routine activities could be reinterpreted to predict a contradictory effect of SPNSL on crime opportunities.

Firstly, not only could reduced street lighting's restrictions on visibility conceal offending and offenders, but it could also conceal crime targets e.g. such as objects and victims – potentially reducing the suitability of targets, rather than raising it, by making targets less accessible to offending or impeding offenders from making informed assessments about access and suitability. Secondly, reduced target visibility may also decrease the likelihood of temptation, which could redress opportunistic motivations in the potential offender. Lastly, by discouraging the prevalence of night-time traffic, reduced street lighting could decrease the likelihood of direct victimisation – as there are less potential crime targets in circulation; as well as the likelihood of indirect victimisation – as these guardians potentially remain at home guarding their property and themselves against burglaries (Farrington and Welsh, 2008).

This version of events suggests that reductions in street lighting in the form of SPNSL may suppress crime opportunities, rather than enhance them, by reducing the suitability and volume of potential crime targets; and redressing opportunistic offending motivations. This may result in potential offenders perceiving comparatively higher risks than rewards of offending in the treatment streets, which could decrease the likelihood of offending and victimisation in the treatment streets during the night-time following SPNSL.

These criticisms not only refute the potential impacts of SPNSL on crime alleged in the hypothesis; but they can also be applied to make contradictory predictions. For instance, it was suggested that SPNSL could instigate temporal and spatial crime displacement from control streets onto treatment streets, as the latter develops enhanced crime opportunities during the night-time. However, this version of events demonstrates that crime opportunities in treatment streets may not become enhanced, which means that temporal displacement within treatment streets may be avoided; and as SPNSL potentially suppresses treatment streets' crime opportunities during the night-time, both temporal and spatial crime displacement could demonstrably occur in the opposite direction than was expected.

This follows that, on the basis that crime is a rational choice, the suppression of crime opportunities in the treatment streets may lead the intact street lighting conditions in the control streets to appear relatively more attractive to determined offenders. For example, if SPNSL visibility impairments concealed or hindered access to crime targets in treatment

streets; or obstructed assessments about target access and suitability; the intact street lighting conditions in the control streets may provide suitable opportunity alternatives. Secondly, the alternative version of events notes that SPNSL may reduce the availability of potential crime targets, as street users are potentially repelled by the relative darkness. In comparison, control streets' intact lighting conditions may retain their street users/potential crime targets, and/or encourage migration from the nearby treatment streets; e.g. as pedestrians or motorists reroute to avoid darker paths or parking near turned off lights.

In summary, the alternate version of SPNSL's impacts on routine activities demonstrates that treatment streets may develop comparatively less advantageous crime opportunities than their controls; which could potentially prompt a transfer of offending from treatment streets onto control streets during the night-time – a result which not only refutes but also directly contradicts the hypothesis.

Although this may be considered a severe challenge, it is important to note that this criticism is directed at the routine activities' component of the hypothesis, while the hypothesis is also reliant upon informal social control principles. In comparison, the predictions grounded upon informal social control principles do not inspire the same challenges. Having said that, it is not clear why the Inner South and Outer South's contradictory results were observed; especially considering that this study was expected to endorse informal social control theories to a greater extent than routine activities.

It is important to note that, ultimately, routine activity theory merely suggests the likelihood of crime rather than making definite claims about when or where crime will occur. The presence of a suitable target, a potential offender and a lack of guardianship may constitute a crime opportunity but it does not mean that crime is inevitable. Instead, the theory argues that the likelihood of crime increases or decreases based on the existence of these three elements. Therefore, although its criticisms may be severe, the predictions based upon routine activities may nevertheless be considered reliable because they only serve to discuss the likely impacts of SPNSL on crime. The exact way that SPNSL may influence crime opportunities is unknown and may vary, which means that SPNSL's impacts on the suitability of targets, potential offenders, and guardianship can go either way that was described; as potentially evidenced by some of the remaining area results. Therefore, it is not logical to rule out this part of the hypothesis because of these criticisms, which apply to 2 out of 8 areas.

Also, as the routine activity model is founded upon rational choice theory, it maintains that crime ultimately stems from individual decision-making processes. Therefore, it is impossible to truly predict offending and unpredictable internal factors must be considered when discussing the likelihood of crime. This point leads to another important factor in the realisation of crime, which is also a potential major confounding variable in the research methodology, concerning offending motivations. Whether street lighting has any effect on crime may ultimately depend on individual offender motivations, which in turn can vary widely.

This study attempted to circumvent any confounding variables by maximising the effects of SPNSL, because crime may be influenced by factors other than street lighting that this study cannot control. For example, this study could not account for the unique or individual reasons why someone might commit crime, which may include an overwhelming need to finance substance dependency, or opportunism or professionalism (i.e. if crime is the chosen career option). It was thought that by maximising the treatment conditions, stronger causal inferences could be made about SPNSL and crime.

A 50% threshold dose per treatment street was considered ideal because the council opted to install SPNSL across alternate streetlights in residential areas. To 'alternate' means to interchange repeatedly and regularly. Therefore, a treatment dosage of 50% was considered ideal because the installation of SPNSL in residential streets was expected to follow a regular 'on/off' pattern of distribution. However, by observing LCC's SPNSL site maps, it became clear that the council did not follow a strict alternate pattern during SPNSL installation. This may be due to varying street-by-street assessments of suitability – which per the avoidance criteria outlined, considered street specific crime trends as well as features of area design. As the proportion of SPNSL per treatment street frequently fell below 50%, it meant that this threshold would have left very few subjects to analyse. Consequently, a 33.33% minimum dosage was required because it was thought to reflect a strong enough dosage without severely restricting the sample size; and because it is smallest possible proportion of SPNSL possible in any legitimate alternating sequence.

Despite this precaution, quasi-experimental designs are naturally subject to contamination by confounding variables, and it is unknown whether this dosage was sufficient to counter any and/or elicit effects on crime; which raises questions about the reliability and internal validity of this study's results and its subsequent causal inferences. However, although the lack of randomisation may have introduced threats to internal validity, this was just inevitable as the sampling eligibility criteria was necessary to make this research feasible. Therefore, this setback may not be considered too heavily because studies of any causal relationship involving crime are due to carry a variety of extraneous and confounding variables that naturally exist in the social environment. A perhaps a more incriminating critique can be found in this study's reliance on police recorded crime data alone.

There is strong evidence that the police under-record crime – which is partly due to an under reporting of offences – meaning that police recorded crime may not reflect the true number of offences. In turn, if the data relied upon does not reflect the true levels of crime, then this criticism may critically impact the external validity of this study and its findings. There is also the risk that some offences reflected in this study were not actually influenced by SPNSL, as police recorded crime data does not differentiate between crimes which have happened outside and may therefore have been affected by reduced street lighting; and crimes that have occurred in the home and may not have been influenced by SPNSL.

This is problematic because this discrepancy may impair the internal validity of these findings. Having said that, police recorded crime data was more useful to this study than any other crime statistic because police recorded crime records displays street specific crime data. This study relied upon measuring, assessing and comparing spatial crime displacement between streets, using street specific crime data. Therefore, the use of police recorded crime for this purpose can be justified.

Other research limitations can be found in this study's sampling methods. Specifically, the fact that the sampling criteria specified that eligible controls must be adjacent to their respective treatment streets and no other qualifying treatment, without making the same requirement of treatment streets. This condition was intended to accumulate relative displacement without having to collect data for every street onto which displacement may have dispersed to and/or from. However, it has grown apparent that this condition presupposes the direction of displacement from control onto treatment streets.

As previously discussed, this paper holds that if the direction of spatial displacement were known, stronger inferences could be made about its relation to SPNSL. Perhaps the true direction of displacement may have been more accurately portrayed if the sampling conditions specified one qualifying control street per treatment street as well. Having said that, such onerous conditions may have yielded very few samples, if any at all. Therefore, this paper suggests that this sampling imperfection is tolerable for the purpose of having an adequate sample size.

Lastly, it is important to note that the reason why control streets didn't receive any SPNSL in the first place may be attributed to them not meeting the council's SPNSL selection criteria. Therefore, it is reasonable to infer, for example, that the control streets selected already had relatively high or rising crime rates; which would serve an exclusionary factor per LCC's avoidance criteria. If so, how well could they serve as control variables for a hypothesis that supposes control streets would see a relative decline in crime? The fact that most results depicted displacement from treatment onto control streets may be attributed to this, or in the very least in conjunction with this; perhaps instead of the flaws in the hypothesis outlined.

In summary, this study can be considered flawed in respects to its hypothesis and research methods; the latter which include sampling errors like the treatment and control conditions' selection bias and non-sampling errors such as possible manual mistakes during data collection, and reliance on flawed police recorded crime data sources. Having said that, these criticisms have been demonstrated to be either not that damaging or unavoidable. This is an imperfect study but one which hopes to nonetheless shed some light onto the effects of reductions in street lighting on crime.

# CONCLUSION

Street lighting can affect crime by stimulating changes in the perceptions, attitudes and behaviours of residents and potential offenders. Since 2013, the Leeds City Council has systematically reduced some street lighting at night throughout residential and traffic routes in Leeds, via a 'selective part-night street lighting' scheme whereby specific streetlamps automatically switch off every day between midnight and 5:30am.

In principle, this scheme was presumed to raise the treatment streets' relative likelihood of crime, which could manifest in the form of inbound displacement, on the basis of SPNSL'S proposed impacts on routine activities and informal social control mechanisms. For example, it was proposed that SPNSL's reductions in street lighting could cause potential offenders to perceive lower risks of offending during the night-time, and thus prompt a temporal displacement of daytime offences onto night-time hours within treatment streets. Secondly, the proposed stimulatory effects of SPNSL's on crime opportunities were also anticipated to attract spatial crime displacement from control streets onto treatment streets during the night-time; and overall, as reductions in street lighting were also expected to elicit behaviour and attitudinal responses in the treatment streets which may stimulate crime in the long term.

The empirical study found that, however, SPNSL's reductions in street lighting have not led to either increases or decreases in crime overall in the residential areas sampled. Having said that, there is significant variation between the different areas which seek further clarity. For example, the Inner South and Outer South areas in particular appeared to show a contradictory causal relationship between SPNSL and crime – based on the hypothetical terms established. Granted that, theoretically, it is feasible that reductions in street lighting could decrease crime opportunities, rather than increase them, through an alternative impact on routine activities. Nevertheless, these results were unexpected because the research methods were thought to endorse informal social control principles to a greater extent than routine activities.

Due to the complex nature of the subject, and the difficulty of conducting and drawing causal conclusions from empirical research, street lighting's impacts on crime may never accurately be solved. What is clear, however, is that the Leeds City Council's efforts to counterbalance the effects of reduced street lighting, i.e. through their SPNSL installation mechanisms and selection/avoidance criteria, demonstrate that SPNSL was conducted with the Council's express acknowledgement that street lighting can indeed affect crime and road traffic safety.

In future, rather than assessments after the fact, strategies could implement smaller scale evaluative trials of the impacts of street lighting reductions on local levels of crime before application. Additionally, it may help to supplement street lighting studies with local surveys which gauge its impacts on perceptions of crime, personal safety, and individual/community behavioural influences. This would help understand the wider social impacts of the policy, as well as test theories about the effects of street lighting on informal social controls mechanisms.

[redacted]

# APPENDIX

## Appendix 1: Supplementary evidence

Request solved | data.police.uk Contact Form 2016-11-14 01:40:35

[redacted]

Mon 14/11/2016 09:02

[redacted]

##- Please type your reply above this line -##

Your request has been updated and marked as solved. To reopen this request simple reply to this email.

[redacted]

Nov 14, 09:02 GMT

[redacted]

I'm afraid that neither data.police.uk or www.police.uk provides data at such a granular level, as we feel to do so would adversely impact the privacy and anonymity of victims.

Kind regards

[redacted]

Police.uk support

[redacted]

Nov 14, 01:40 GMT

Enquiry type:
Question about the data

Message:
To whom it may concern,

I am writing to enquire about how I may view the time these offences were recorded by police. I am a student at the University of Leeds and I need this information for research. However, there is no time column in these CSV files and such information is essential to my study. To be specific, I am looking for police recorded crime data from West Yorkshire Police from Oct 2012 to Oct 2015 that also includes the time offences were recorded/reporded.

Yours faithfully,

[redacted]

Email address:
[redacted]

This email is a service from Police.uk support.

[1GOXDW-Q9D2]

*Figure 1 Acess to police recorded time of offences was declined.*

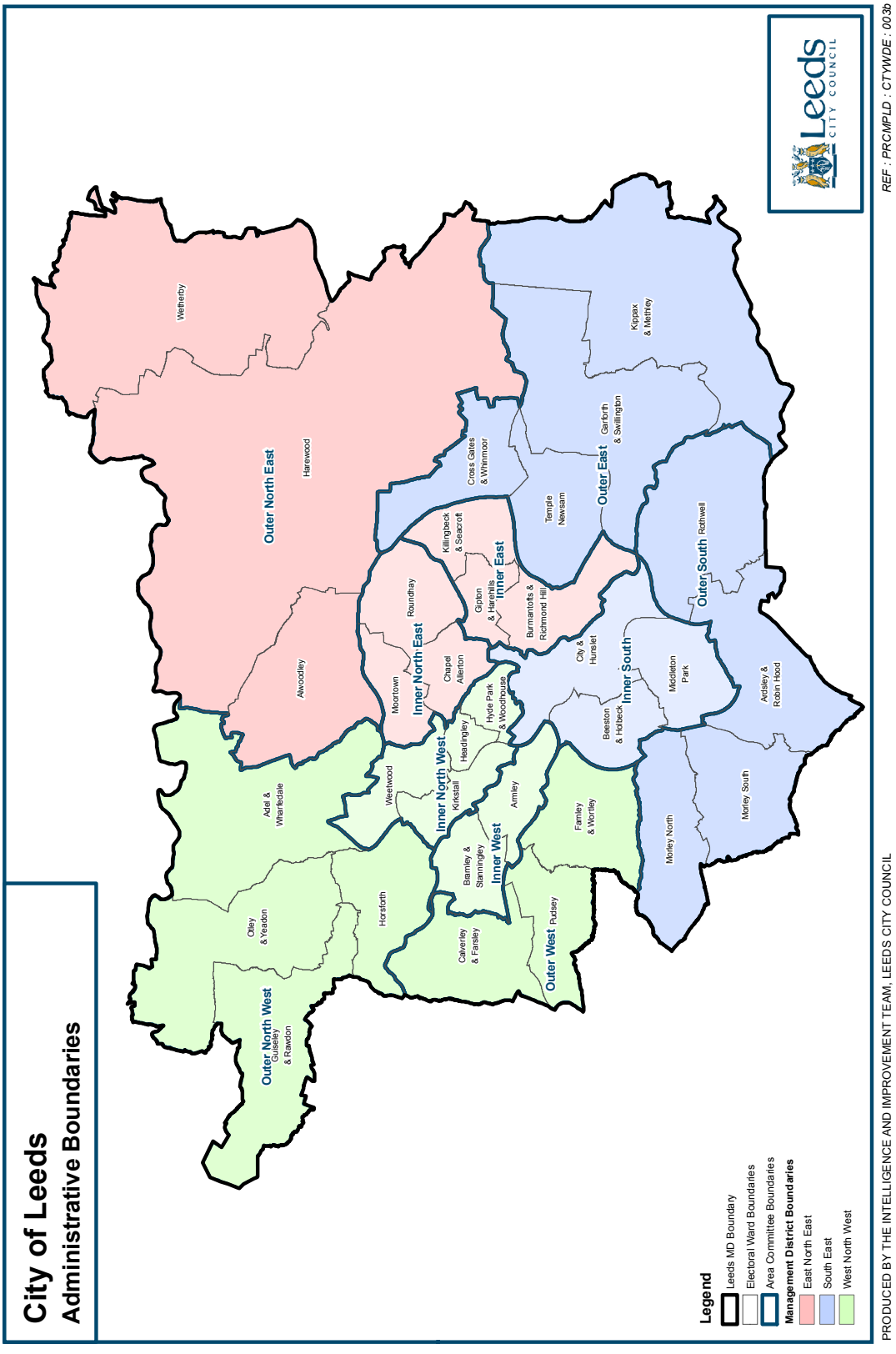



*Figure 2 City of Leeds Administrative Boundaries*

## Appendix 2: Raw primary research data

Inner North East

36.42% SPNSL average

1. Moortown

SPNSL treatment streets:

- Sunset Hilltop – 40% SPNSL (Map 3)
- West Lea Close – 33.33% SPNSL (Map 6)
- Highwood Crescent – 33.33% SPNSL (Map 10)
- Bentcliffe Lane – 40% SPNSL (Map 11)
- Moor Allerton Avenue – 33.33% SPNSL (Map 12)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 47 | 78 |
| 2011 – 2012 | 16 | |
| 2012 – 2013 | 15 | |
| 2013 – 2014 | 13 | 53 |
| 2014 – 2015 | 21 | |
| 2015 – 2016 | 19 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Sunset Avenue
- West Lea Drive
- Highwood Grove
- The Green
- Moor Allerton Way

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 5 | 14 |
| 2011 – 2012 | 5 | |
| 2012 – 2013 | 4 | |
| 2013 – 2014 | 7 | 35 |
| 2014 – 2015 | 20 | |
| 2015 – 2016 | 8 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

2. Roundhay

SPNSL treatment streets:

- Westcombe Avenue – 33.33% SPNSL (Map 1)
- Park View Crescent – 40% SPNSL (Map 3)
- Borrough Avenue – 40% SPNSL (Map 6)
- Elmete Avenue – 37.5% SPNSL (Map 12)
- Springwood Grove – 33.33% SPNSL (Map 12)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 44 | 74 |
| 2011 – 2012 | 9 | |
| 2012 – 2013 | 21 | |
| 2013 – 2014 | 23 | 65 |
| 2014 – 2015 | 30 | |
| 2015 – 2016 | 12 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Kingswood Gardens
- West Park Crescent
- Borrough View
- Tree Tops Court
- Springwood Mews

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 18 | 55 |
| 2011 – 2012 | 19 | |
| 2012 – 2013 | 18 | |
| 2013 – 2014 | 20 | 36 |
| 2014 – 2015 | 7 | |
| 2015 – 2016 | 9 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Inner North West

36.31% SPNSL average

3. Kirkstall

SPNSL treatment streets:

- Vesper Rise – 33.33% SPNSL (Map 3)
- Birfed Crescent – 33.33% SPNSL (Map 4)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 25 | 37 |
| 2011 – 2012 | 6 | |
| 2012 – 2013 | 6 | |
| 2013 – 2014 | 2 | 14 |
| 2014 – 2015 | 2 | |
| 2015 – 2016 | 10 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Abbeydale Grove
- Burley Wood Mount

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 18 | 43 |
| 2011 – 2012 | 15 | |
| 2012 – 2013 | 10 | |
| 2013 – 2014 | 12 | 33 |
| 2014 – 2015 | 11 | |
| 2015 – 2016 | 10 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

4. Weetwood

SPNSL treatment streets:

- Haigh Wood Crescent – 50% SPNSL (Map 5)
- Laith Green – 33.33% SPNSL (Map 6)
- Laith Road – 37.5% SPNSL (Map 6)
- Wynford Avenue – 33.33% SPNSL (Map 7)
- Weetwood Court – 33.33% SPNSL (Map 8)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 37 | 100 |
| 2011 – 2012 | 30 | |
| 2012 – 2013 | 33 | |
| 2013 – 2014 | 22 | 61 |
| 2014 – 2015 | 17 | |
| 2015 – 2016 | 22 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Holly Drive
- Iveson Drive
- Laith Garth
- Wynford Mount
- Weetwood Crescent

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 76 | 85 |
| 2011 – 2012 | 6 | |
| 2012 – 2013 | 3 | |
| 2013 – 2014 | 6 | 25 |
| 2014 – 2015 | 8 | |
| 2015 – 2016 | 11 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Inner South

35% SPNSL average

5. Beeston and Holbeck

SPNSL treatment streets:

- Southleigh Drive – 40% SPNSL (Map 4)
- Southleigh Grove – 33.33% SPNSL (Map 4)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 6 | 26 |
| 2011 – 2012 | 5 | |
| 2012 – 2013 | 15 | |
| 2013 – 2014 | 6 | 42 |
| 2014 – 2015 | 19 | |
| 2015 – 2016 | 17 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Southleigh Crescent
- Southleigh Avenue

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 29 | 61 |
| 2011 – 2012 | 18 | |
| 2012 – 2013 | 14 | |
| 2013 – 2014 | 22 | 43 |
| 2014 – 2015 | 11 | |
| 2015 – 2016 | 10 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

6. Middleton Park

SPNSL treatment streets:

- Raylands Place – 33.33% SPNSL (Map 5)
- Thorpe Mount – 33.33% SPNSL (Map 9)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 25 | 70 |
| 2011 – 2012 | 18 | |
| 2012 – 2013 | 27 | |
| 2013 – 2014 | 18 | 54 |
| 2014 – 2015 | 12 | |
| 2015 – 2016 | 24 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Raylands Close
- Thorpe Garth

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 10 | 26 |
| 2011 – 2012 | 8 | |
| 2012 – 2013 | 8 | |
| 2013 – 2014 | 4 | 12 |
| 2014 – 2015 | 4 | |
| 2015 – 2016 | 4 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer North East

38.01% SPNSL average

7. Alwoodley

SPNSL treatment streets:

- Overdale Avenue – 33.33% SPNSL (Map 1)
- Linton Rise– 36.36% SPNSL (Map 4)
- Linton Drive – 42.86% SPNSL (Map 4)
- Highthorne Mount – 33.33% SPNSL (Map 5)
- The Lane – 42.86% SPNSL (Map 15)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 13 | 21 |
| 2011 – 2012 | 4 | |
| 2012 – 2013 | 4 | |
| 2013 – 2014 | 2 | 13 |
| 2014 – 2015 | 5 | |
| 2015 – 2016 | 6 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Carlton Garth
- Linton Close
- Linton View
- Valley Terrace
- Grove Rise

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 11 | 29 |
| 2011 – 2012 | 10 | |
| 2012 – 2013 | 8 | |
| 2013 – 2014 | 6 | 35 |
| 2014 – 2015 | 13 | |
| 2015 – 2016 | 16 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

8. Harewood

SPNSL treatment streets:

- Elmete Avenue –42.86% SPNSL (Map 7)
- Belle Vue Avenue – 45.45% SPNSL (Map 7)
- Gascoigne Avenue – 33.33% SPNSL (Map 9)
- Flats Lane – 41.66% SPNSL (Map 9)
- Elmwood Avenue – 42.86% SPNSL (Map 9)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 18 | 30 |
| 2011 – 2012 | 6 | |
| 2012 – 2013 | 6 | |
| 2013 – 2014 | 4 | 20 |
| 2014 – 2015 | 7 | |
| 2015 – 2016 | 9 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Elmete Croft
- Lyndhurst View
- Parlington Meadow
- The Mount
- Wendel Avenue

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 9 | 19 |
| 2011 – 2012 | 5 | |
| 2012 – 2013 | 5 | |
| 2013 – 2014 | 4 | 14 |
| 2014 – 2015 | 3 | |
| 2015 – 2016 | 7 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

9. Wetherby

SPNSL treatment streets:

- Derwent Rise – 33.33% SPNSL (Map 1)
- Bownas Road –33.33 % SPNSL (Map 5)
- Firbeck Road –33.33 % SPNSL (Map 7)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1 | 2 |
| 2011 – 2012 | 0 | |
| 2012 – 2013 | 1 | |
| 2013 – 2014 | 3 | 16 |
| 2014 – 2015 | 10 | |
| 2015 – 2016 | 3 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Ouse Drive
- Hayfield Avenue
- New Road

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 0 | 1 |
| 2011 – 2012 | 0 | |
| 2012 – 2013 | 1 | |
| 2013 – 2014 | 0 | 5 |
| 2014 – 2015 | 5 | |
| 2015 – 2016 | 0 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer North West

35.88% SPNSL average

10. Adel and Wharfedale

SPNSL treatment streets:

- Kirkwood Crescent – 33.33% SPNSL (Map 4)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 0 | 0 |
| 2011 – 2012 | 0 | |
| 2012 – 2013 | 0 | |
| 2013 – 2014 | 3 | 3 |
| 2014 – 2015 | 0 | |
| 2015 – 2016 | 0 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Controlled streets:

- Kirkwood Gardens

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 4 | 5 |
| 2011 – 2012 | 0 | |
| 2012 – 2013 | 1 | |
| 2013 – 2014 | 0 | 2 |
| 2014 – 2015 | 2 | |
| 2015 – 2016 | 0 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

11. Guiseley and Rawdon

SPNSL treatment streets:

- Shaw Lane Gardens – 37.5% SPNSL (Map 3)
- Lakeside Gardens – 33.33% SPNSL (Map 7)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 6 | 14 |
| 2011 – 2012 | 4 | |
| 2012 – 2013 | 4 | |
| 2013 – 2014 | 1 | 6 |
| 2014 – 2015 | 4 | |
| 2015 – 2016 | 1 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Shaw Lane
- Lakeside View

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1 | 4 |
| 2011 – 2012 | 1 | |
| 2012 – 2013 | 2 | |
| 2013 – 2014 | 1 | 9 |
| 2014 – 2015 | 1 | |
| 2015 – 2016 | 7 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

12. Horsforth

SPNSL treatment streets:

- Brownberrie Avenue – 33.33% SPNSL (Map 2)
- Billingwood Drive – 33.33% SPNSL (Map 5)
- Church Grove –33.33 % SPNSL (Map 7)
- Autumn Crescent – 33.33% SPNSL (Map 9)
- Craggwood Close – 33.33% SPNSL (Map 9)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 34 | 55 |
| 2011 – 2012 | 12 | |
| 2012 – 2013 | 9 | |
| 2013 – 2014 | 4 | 17 |
| 2014 – 2015 | 7 | |
| 2015 – 2016 | 6 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Brownberrie Drive
- Intake Lane
- Church Crescent
- Jackman Drive
- Craggwood Road

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 16 | 33 |
| 2011 – 2012 | 10 | |
| 2012 – 2013 | 7 | |
| 2013 – 2014 | 3 | 27 |
| 2014 – 2015 | 15 | |
| 2015 – 2016 | 9 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

13. Otley and Yeadon

SPNSL treatment streets:

- Ridding Gate – 50% SPNSL (Map 1)
- Harecroft Road – 40% SPNSL (Map 3)
- Banksfield Grove – 33.33% SPNSL (Map 10)
- Hawthorn Drive – 36.36% SPNSL (Map 11)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 11 | 15 |
| 2011 – 2012 | 2 | |
| 2012 – 2013 | 2 | |
| 2013 – 2014 | 3 | 9 |
| 2014 – 2015 | 4 | |
| 2015 – 2016 | 2 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Rumple Croft
- Chippendale Rise
- Banksfield Mount
- Hawthorn Avenue

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 17 | 34 |
| 2011 – 2012 | 10 | |
| 2012 – 2013 | 7 | |
| 2013 – 2014 | 3 | 14 |
| 2014 – 2015 | 6 | |
| 2015 – 2016 | 5 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer South

54.93% SPNSL average

14. Morley North

SPNSL treatment streets:

- Croft House Lane – 40% SPNSL (Map 7)
- Croft House Grove – 42.86% SPNSL (Map 7)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 5 | 10 |
| 2011 – 2012 | 2 | |
| 2012 – 2013 | 3 | |
| 2013 – 2014 | 0 | 1 |
| 2014 – 2015 | 0 | |
| 2015 – 2016 | 1 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Croft House Avenue
- Croft House Close

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 5 | 12 |
| 2011 – 2012 | 5 | |
| 2012 – 2013 | 2 | |
| 2013 – 2014 | 3 | 11 |
| 2014 – 2015 | 5 | |
| 2015 – 2016 | 3 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

15. Rothwell

SPNSL treatment streets:

- Willans Avenue – 54.54% SPNSL (Map 2)
- Sandyacres – 62.5% SPNSL (Map 2)
- Gipsy Mead – 50% SPNSL (Map 2)
- Thorne Grove – 63.15% SPNSL (Map 2)
- Haighside Way – 71.43% SPNSL (Map 3)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 21 | 71 |
| 2011 – 2012 | 24 | |
| 2012 – 2013 | 26 | |
| 2013 – 2014 | 19 | 53 |
| 2014 – 2015 | 14 | |
| 2015 – 2016 | 20 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Churchfield Lane
- Sandyacres Crescent
- Gipsy Lane
- Springhead Road
- Low Shops Lane

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 16 | 42 |
| 2011 – 2012 | 11 | |
| 2012 – 2013 | 15 | |
| 2013 – 2014 | 11 | 41 |
| 2014 – 2015 | 15 | |
| 2015 – 2016 | 15 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer East

38.89% SPNSL average

16. Cross Gates and Whinmoor

SPNSL treatment streets:

- Kelmscott Garth – 33.33% SPNSL (Map 4)
- Thane Way – 33.33% SPNSL (Map 5)
- Croftdale Grove – 33.33% SPNSL (Map 6)
- Kennerleigh Drive – 33.33% SPNSL (Map 7)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 30 | 70 |
| 2011 – 2012 | 16 | |
| 2012 – 2013 | 24 | |
| 2013 – 2014 | 27 | 66 |
| 2014 – 2015 | 21 | |
| 2015 – 2016 | 18 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- The Fold
- Barnard Way
- Marshall Avenue
- Kennerleigh Walk

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 16 | 34 |
| 2011 – 2012 | 10 | |
| 2012 – 2013 | 8 | |
| 2013 – 2014 | 7 | 37 |
| 2014 – 2015 | 13 | |
| 2015 – 2016 | 17 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

17. Kippax and Methley

SPNSL treatment streets:

- Greenfield View – 33.33% SPNSL (Map 3a)
- Thirsk Drive – 33.33% SPNSL (Map 3a)
- Ramsden Street – 50% SPNSL (Map 5)
- Glencoe Terrace – 33.33% SPNSL (Map 5)
- Summerhill Road – 66.66% SPNSL (Map 9)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 17 | 43 |
| 2011 – 2012 | 15 | |
| 2012 – 2013 | 11 | |
| 2013 – 2014 | 12 | 45 |
| 2014 – 2015 | 19 | |
| 2015 – 2016 | 14 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

- Ebor mount
- Greenfield Avenue
- Helena Street
- Glencoe close
- Savile Road

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 17 | 40 |
| 2011 – 2012 | 11 | |
| 2012 – 2013 | 12 | |
| 2013 – 2014 | 4 | 27 |
| 2014 – 2015 | 9 | |
| 2015 – 2016 | 14 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer West

40% SPNSL average

18. Calverley and Farsley

SPNSL treatment streets:

- Woodhall Park Avenue – 40% SPNSL (Map 8)

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 12 | 22 |
| 2011 – 2012 | 7 | |
| 2012 – 2013 | 3 | |
| 2013 – 2014 | 5 | 15 |
| 2014 – 2015 | 7 | |
| 2015 – 2016 | 3 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Control streets:

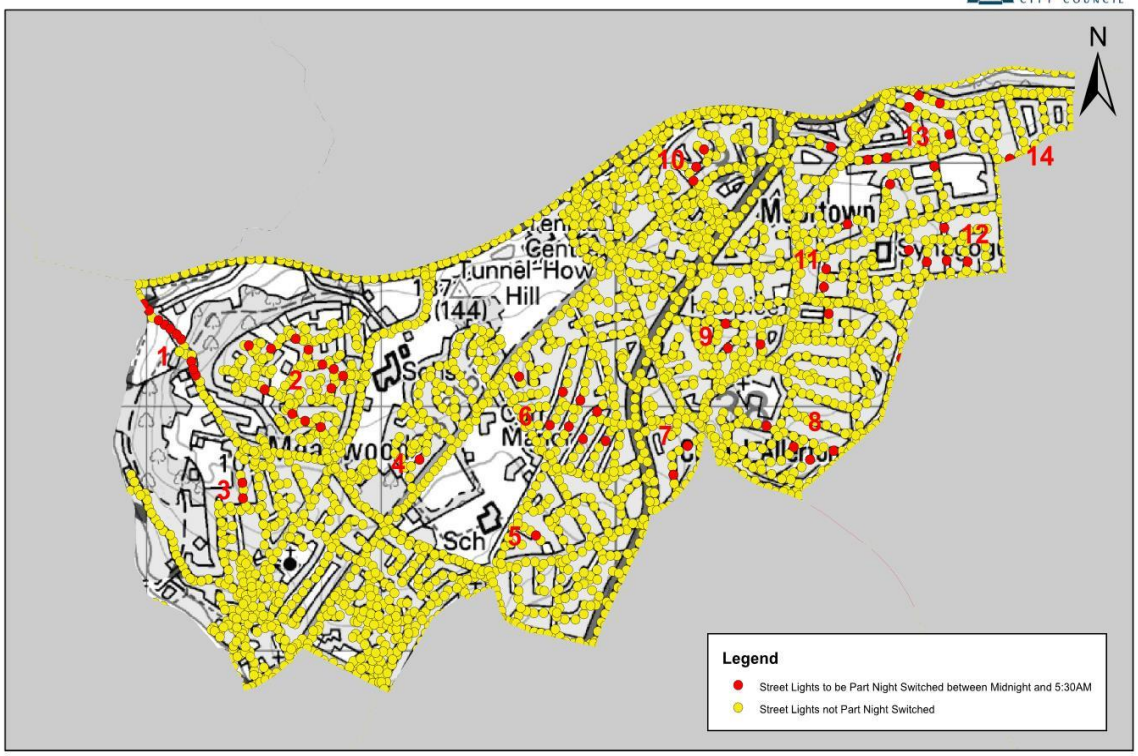
- Woodhall Park Grove

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 6 | 7 |
| 2011 – 2012 | 0 | |
| 2012 – 2013 | 1 | |
| 2013 – 2014 | 4 | 5 |
| 2014 – 2015 | 0 | |
| 2015 – 2016 | 1 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

## Appendix 3: SPNSL site maps

1. Moortown

**Moortown Part Night Switching Overview Map**




(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:17,092

**Moortown Map 3**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:1,500

**Moortown Map 6**


 1:2,000

**Moortown Map 10**


 1:1,500

**Moortown Map 11**

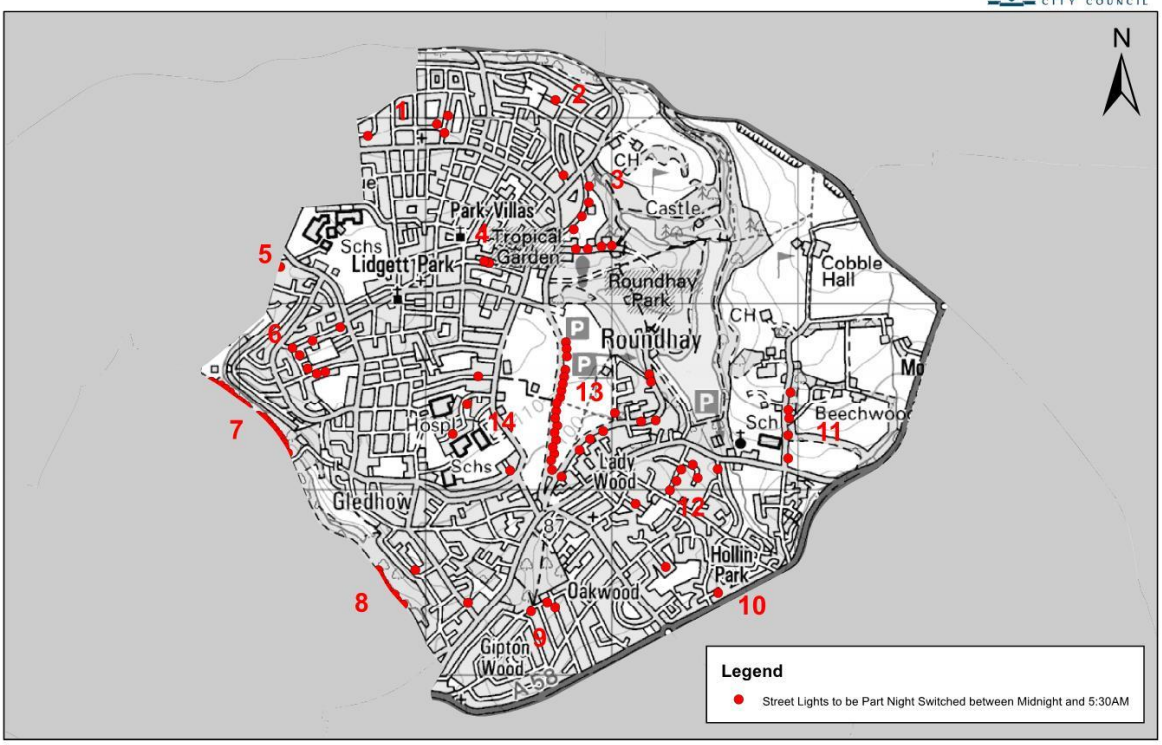

 1:2,607

**Moortown Map 12**


 1:1,500

## 2. Roundhay

**Roundhay Part Night Switching Overview Map**

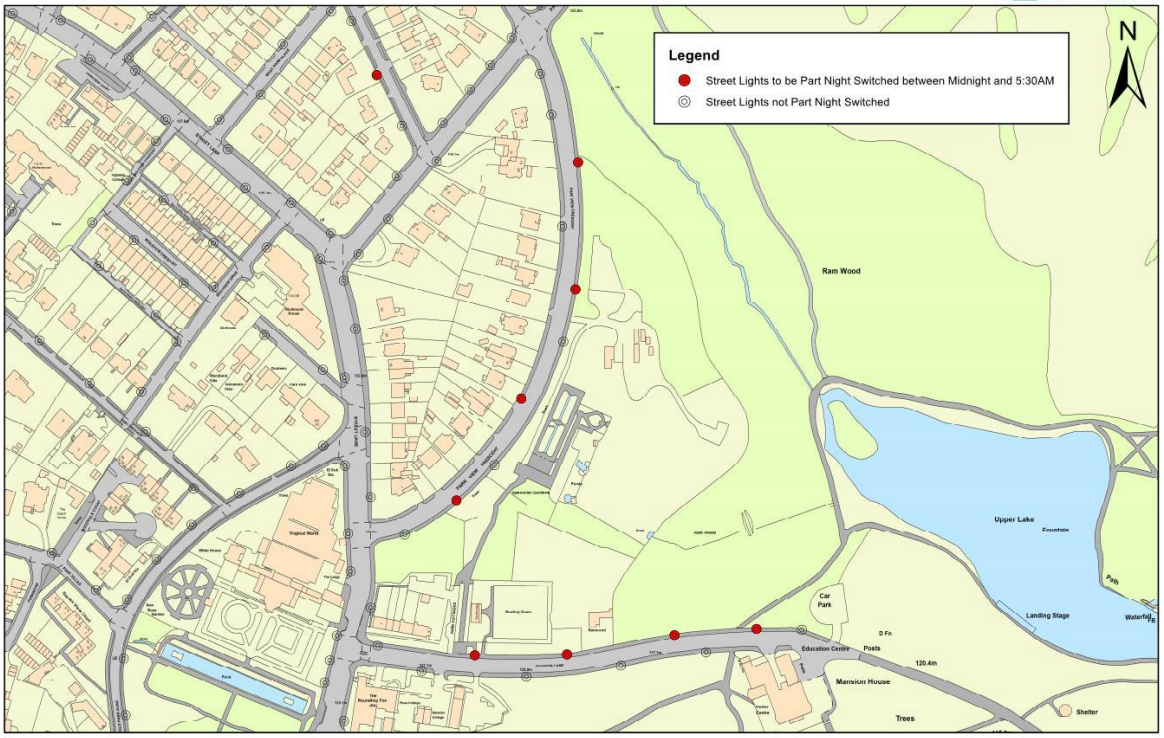



(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:22,000

**Roundhay Part Night Switching Map 1**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:1,800

**Roundhay Part Night Switching Map 3**




 1:2,800

**Roundhay Part Night Switching Map 6**

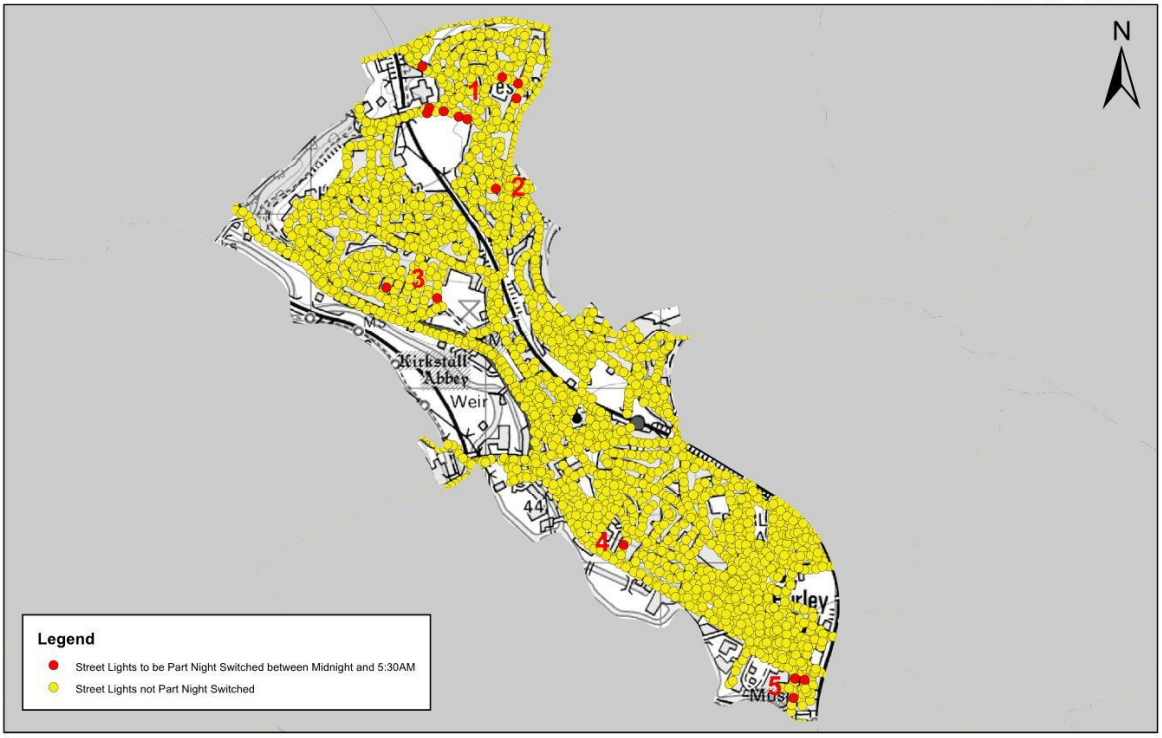

 1:1,900

**Roundhay Part Night Switching Map 12**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:2,000

## 3. Kirkstall

**Kirkstall Part Night Switching Overview Map**

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**Kirkstall Map 3**

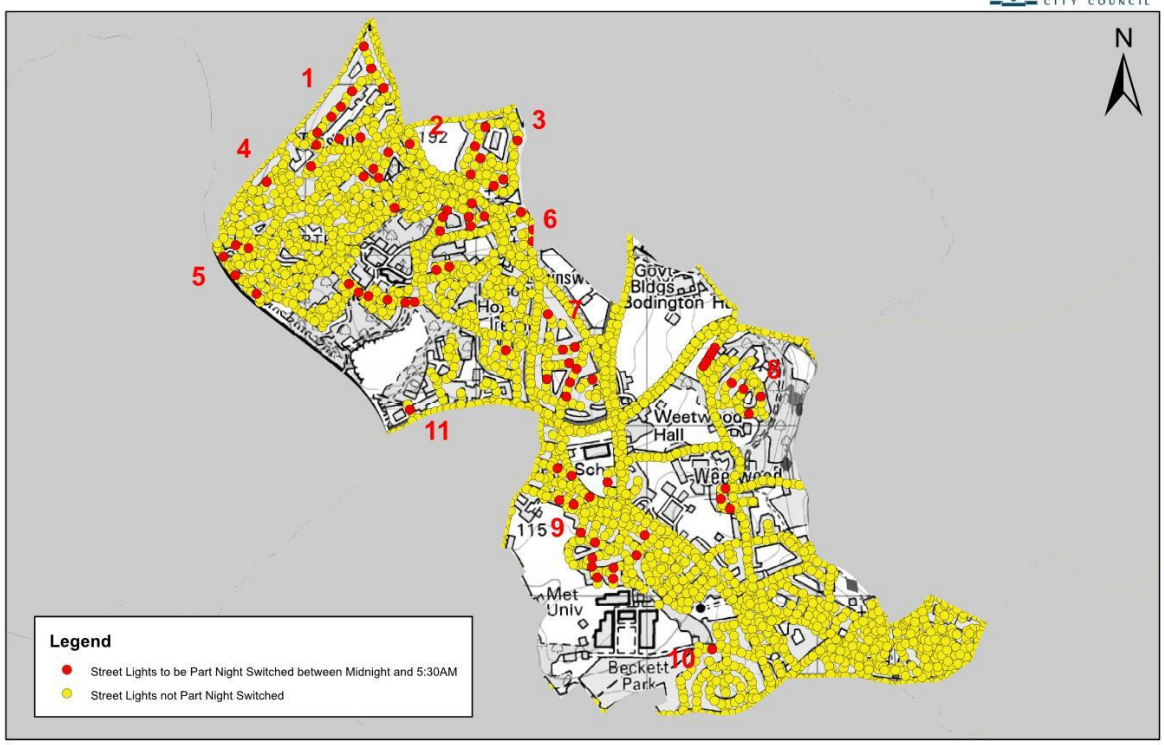

(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:1,500

**Kirkstall Map 4**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:1,000

## 4. Weetwood

**Weetwood Part Night Switching Overview Map**




(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:24,000

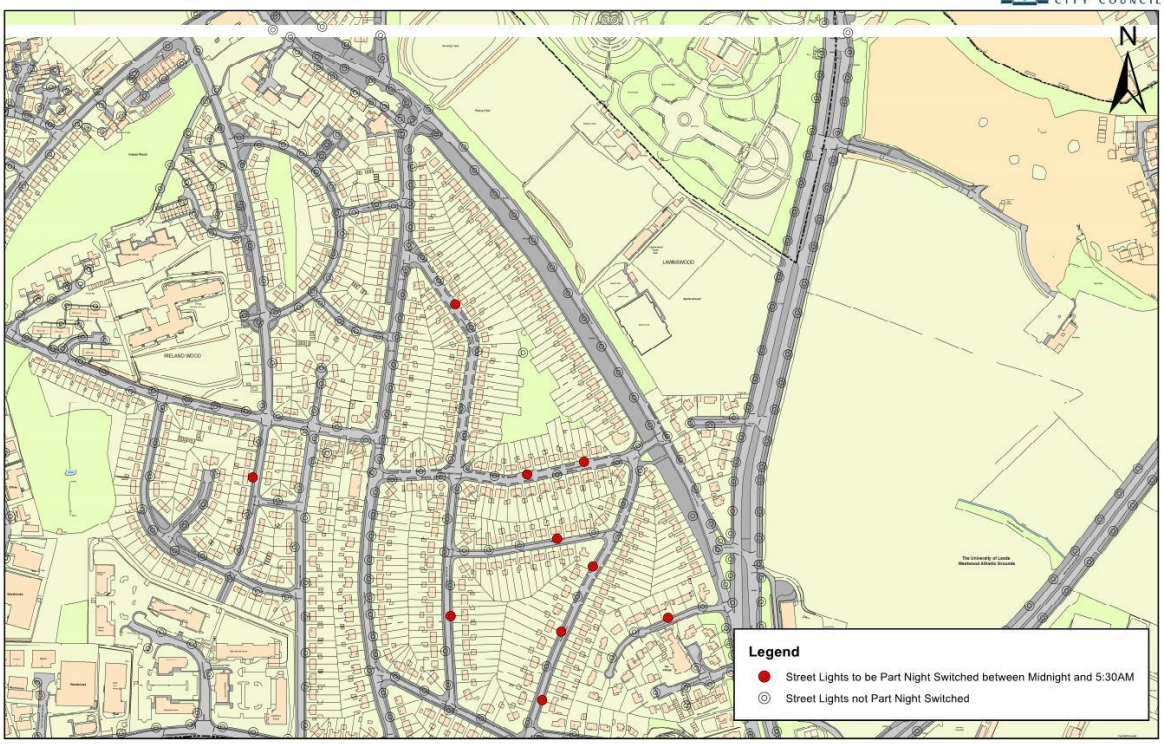
**Weetwood Part Night Switching Map 5**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:1,888

**Weetwood Part Night Switching Map 6**


 1:2,196

**Weetwood Part Night Switching Map 7**

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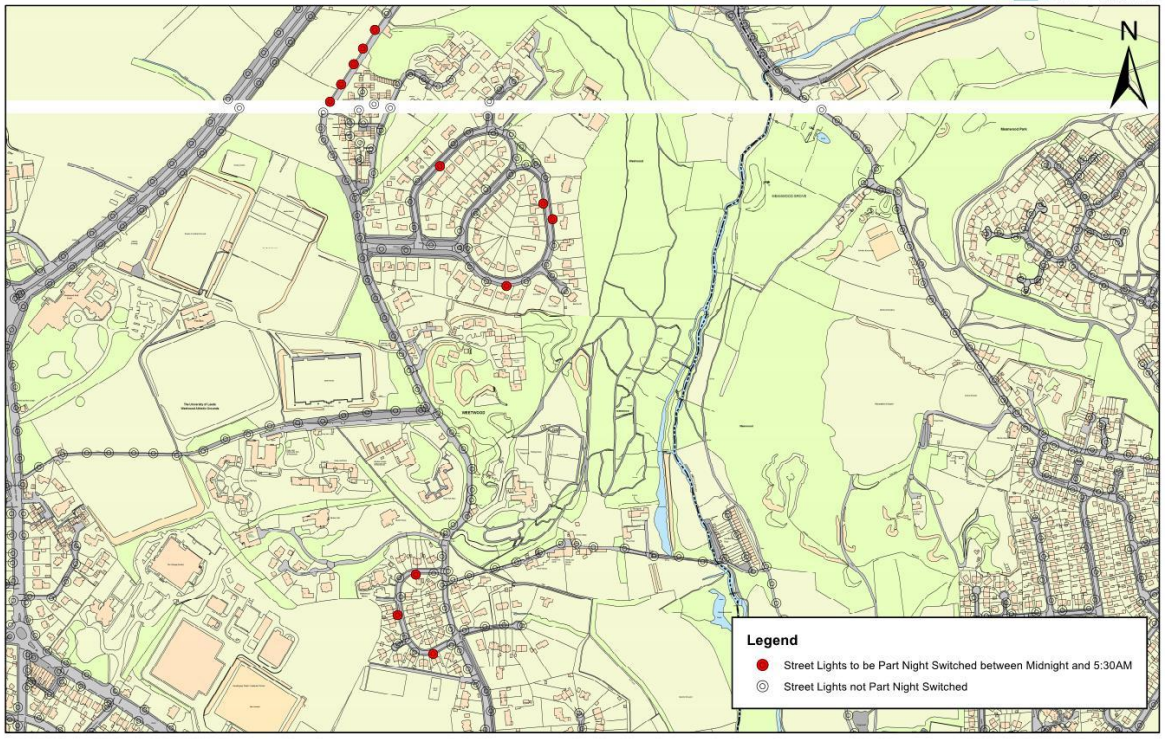
**Weetwood Part Night Switching Map 8**

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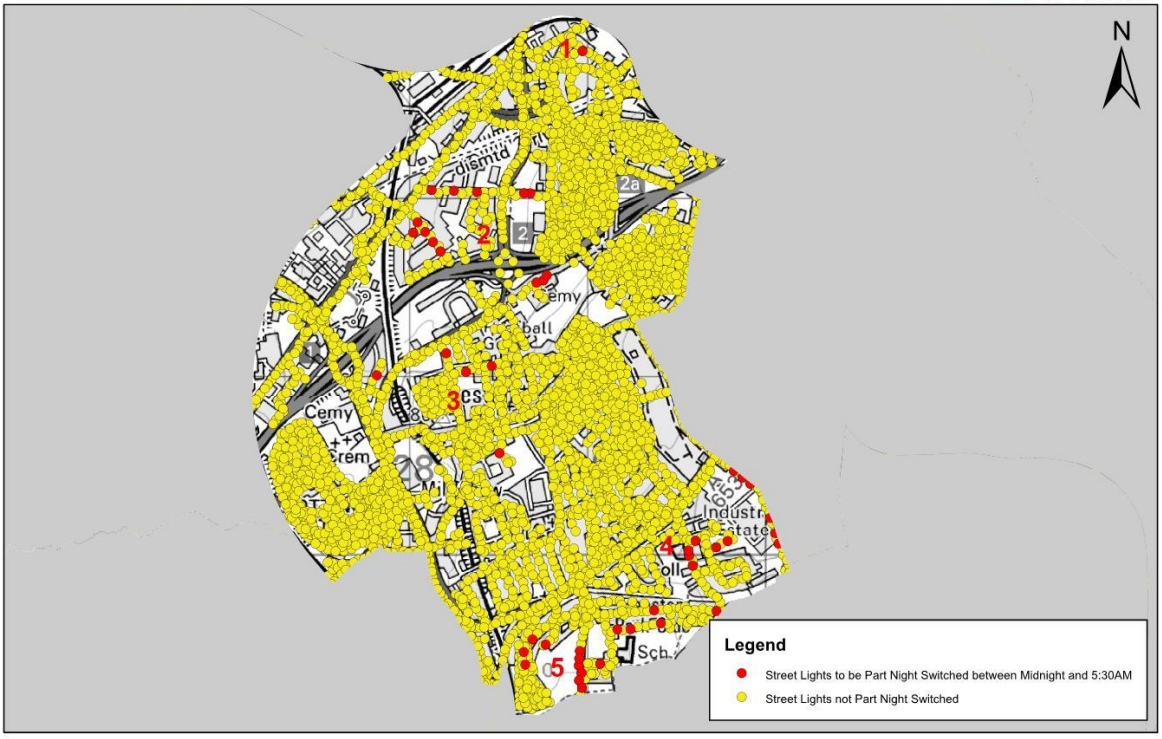
## 5. Beeston and Holbeck

**Beeston and Holbeck Part Night Switching Overview Map**

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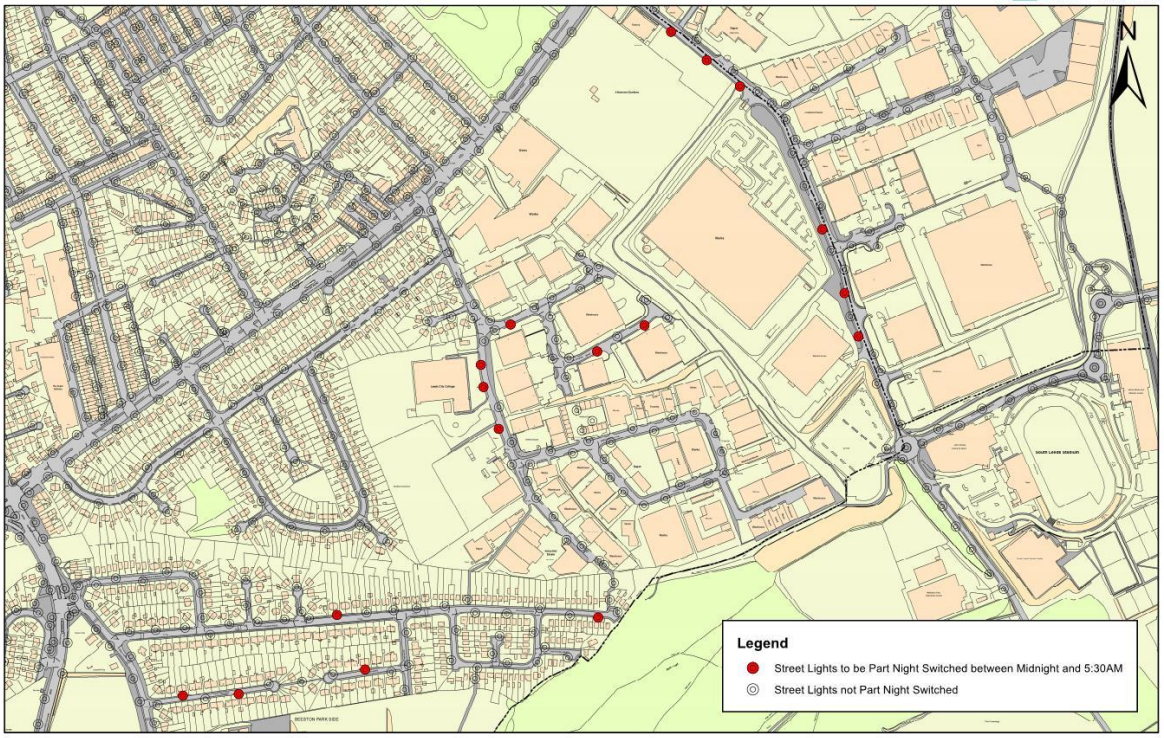
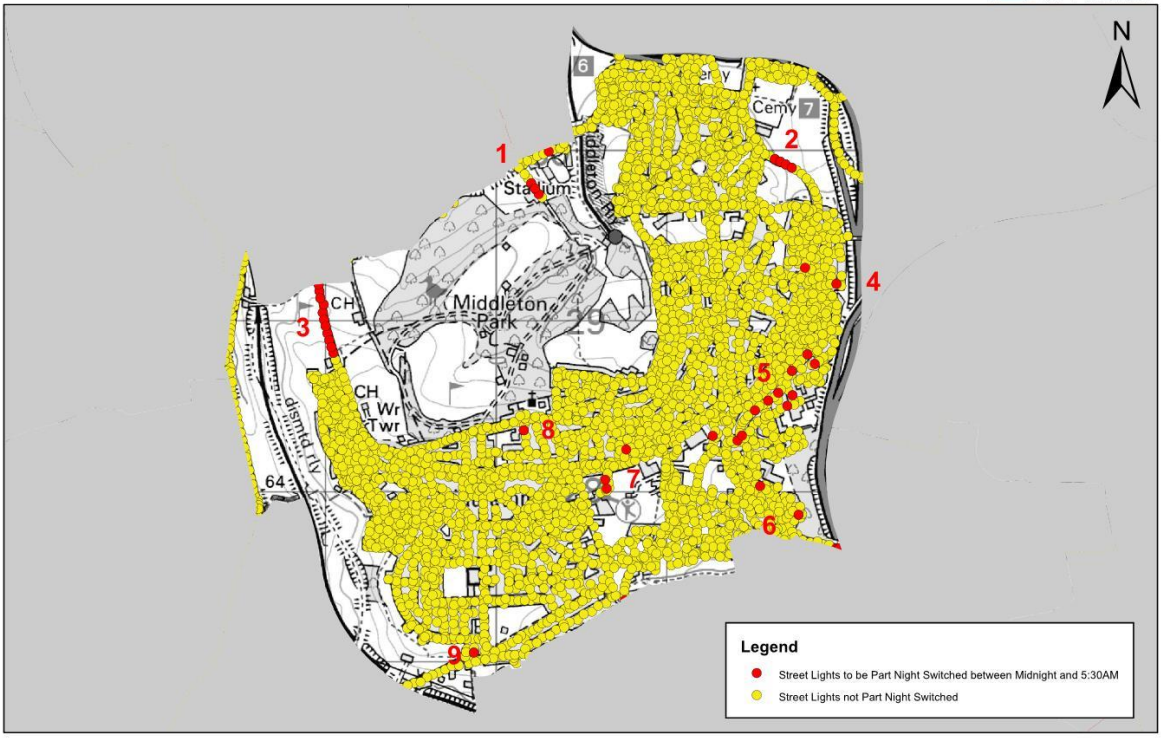
**Beeston and Holbeck Part Night Switching Map 4**




(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:5,500

## 6. Middleton Park

**Middleton Park Part Night Switching Overview Map**




(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:24,000

**Middleton Park Map 5**

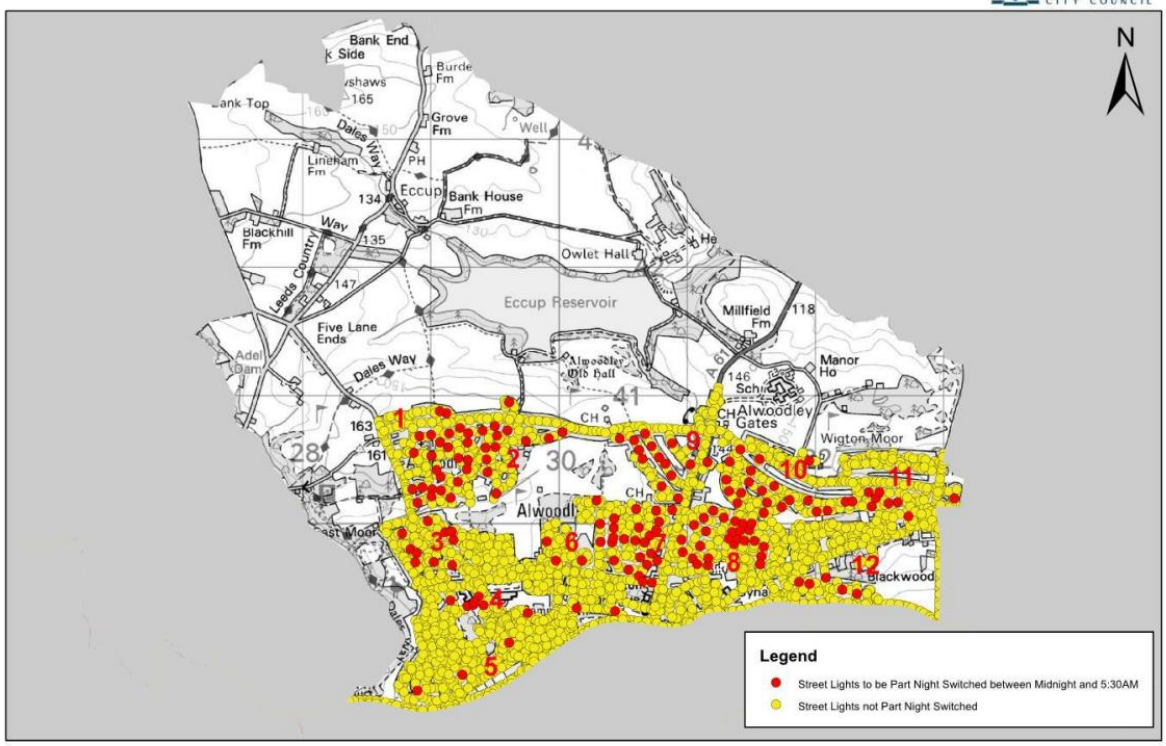

 1:4,000

**Middleton Park Map 9**


 1:1,000

7. Aldwoodley

**Alwoodley Part Night Switching Overview Map**




(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:32,000

**Alwoodley Map 1**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:3,000

**Alwoodley Map 4**


 1:2,500

**Alwoodley Map 5**

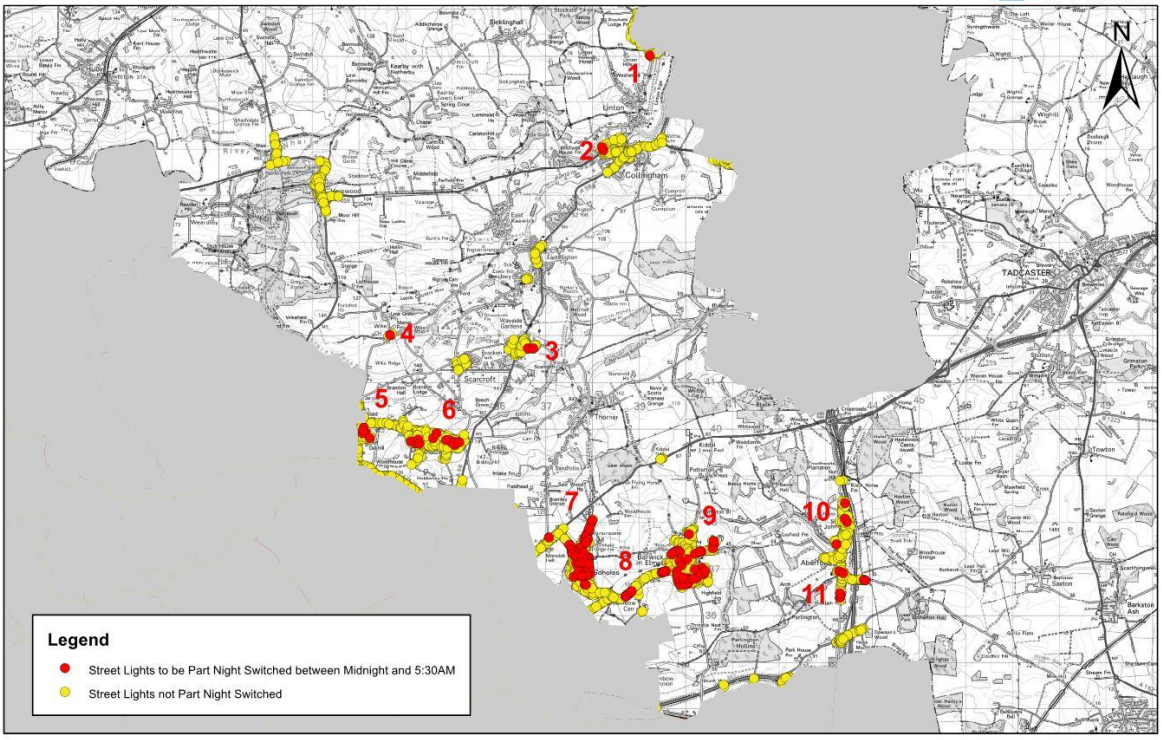

 1:2,500

**Alwoodley Map 15**


 1:2,000

## 8. Harewood

**Harewood Part Night Switching Overview Map**

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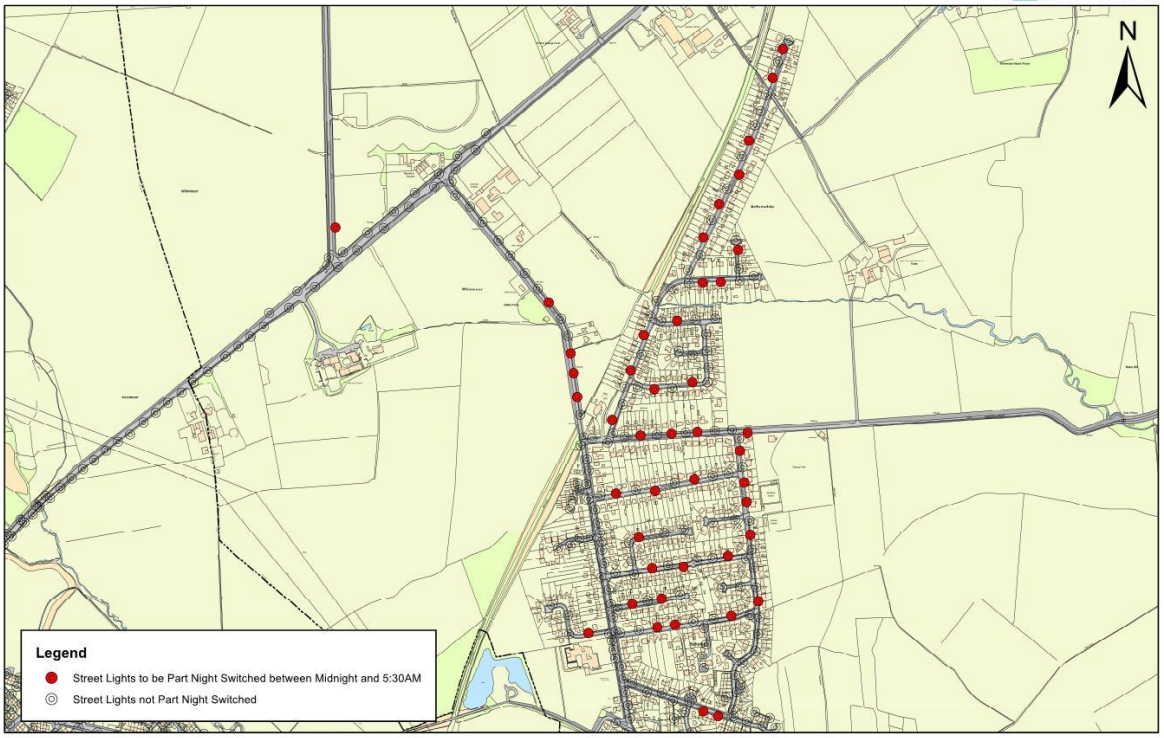
**Harewood Part Night Switching Map 7**

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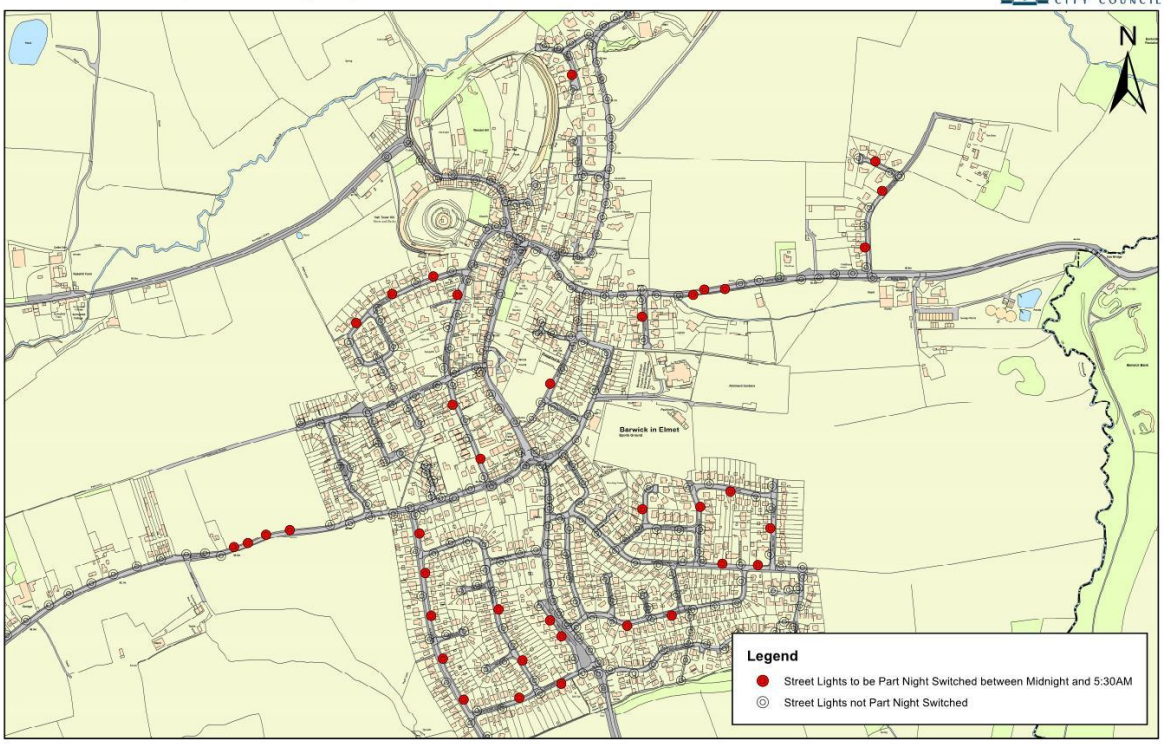
**Harewood Part Night Switching Map 9**

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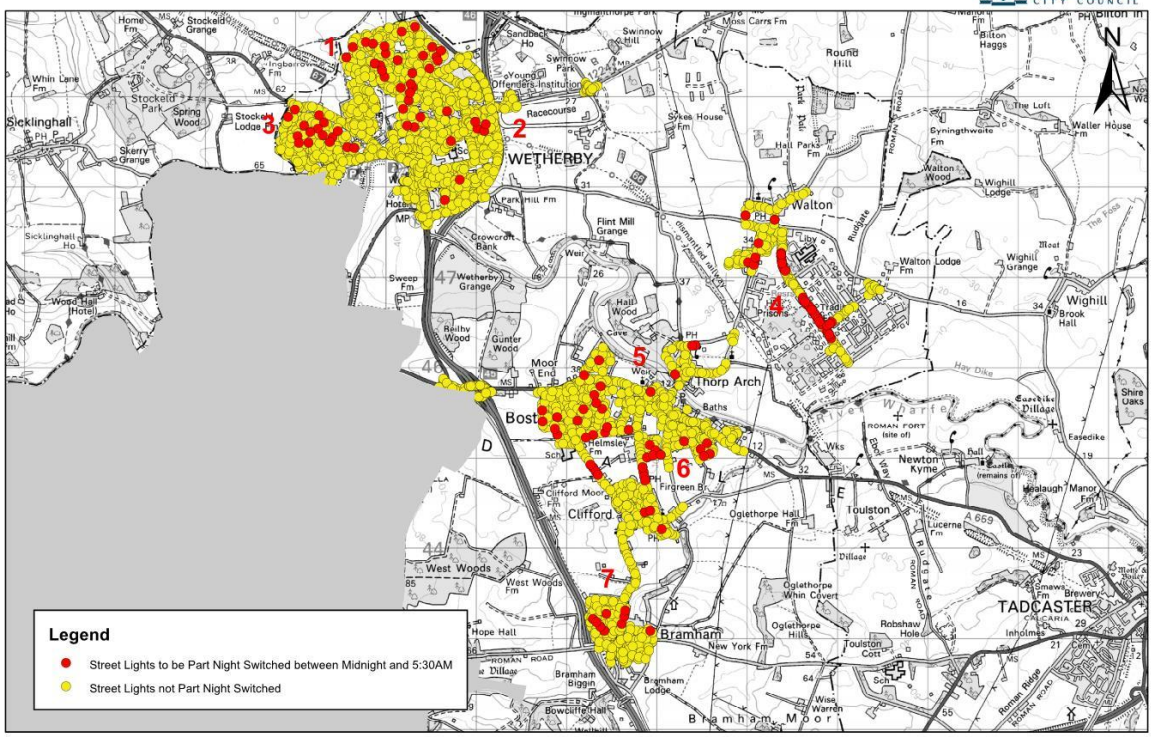
## 9. Wetherby

**Wetherby Part Night Switching Overview Map**

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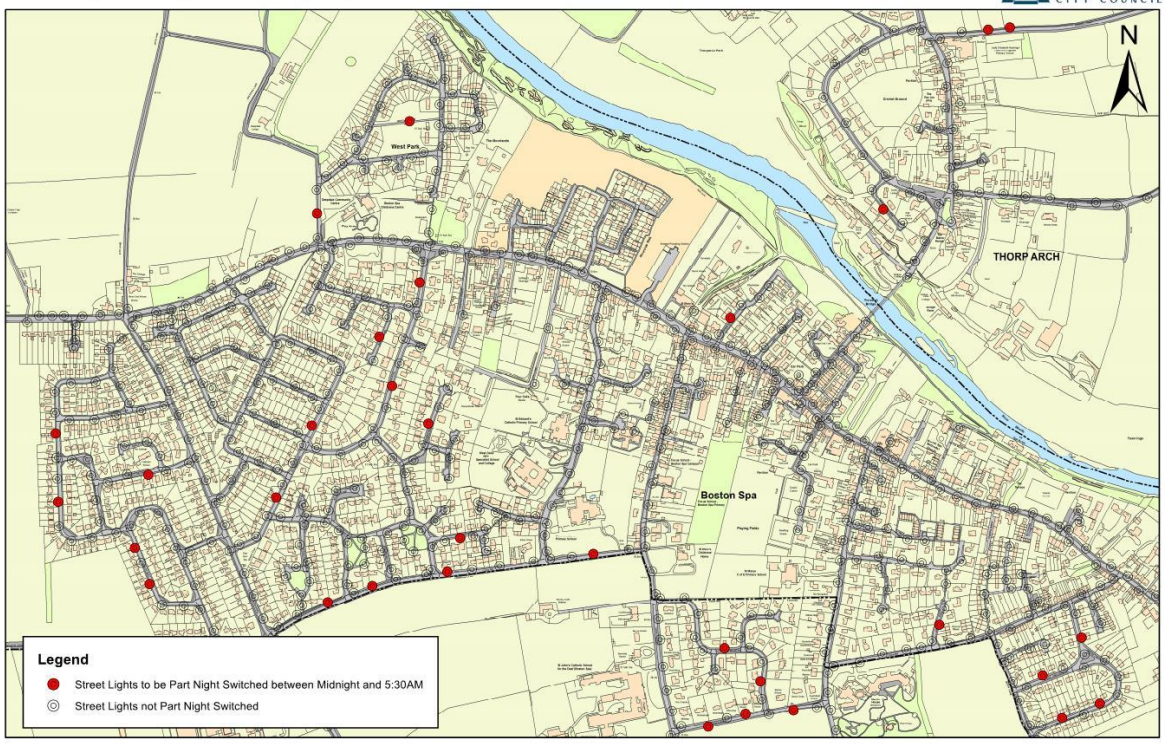
**Wetherby Part Night Switching Map 5**

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**Wetherby Part Night Switching Map 7**


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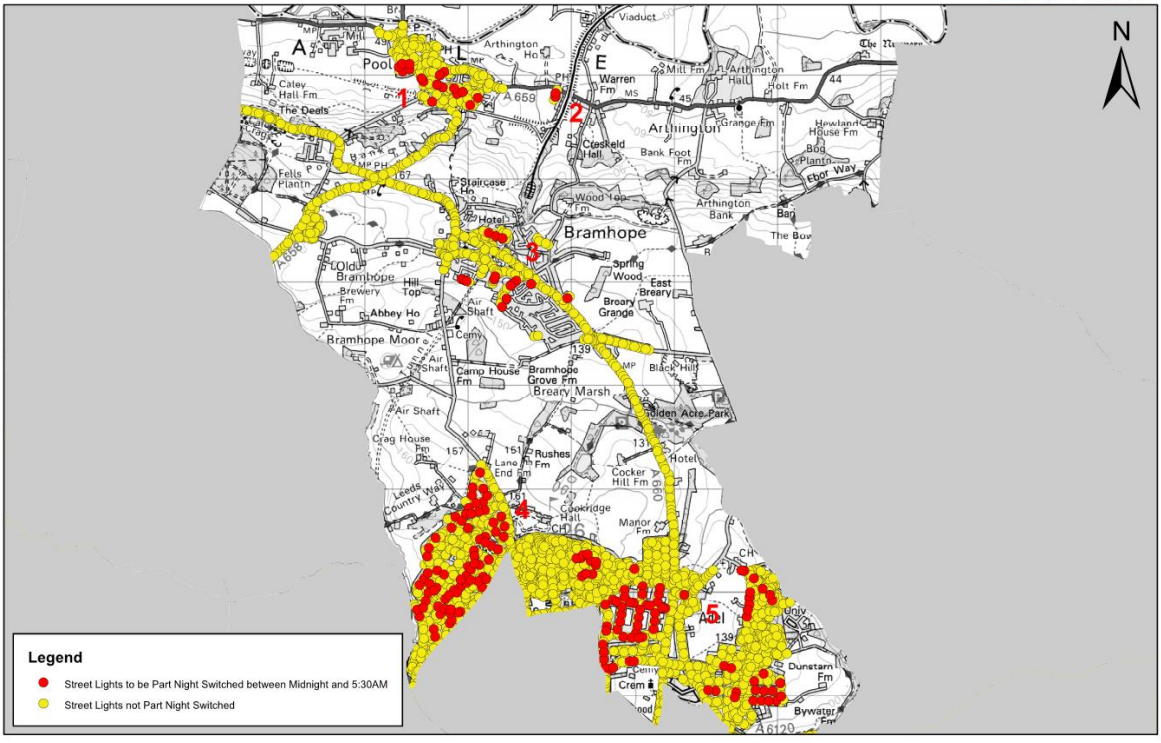
## 10. Adel and Wharfedale

**Adel and Wharfedale Part Night Switching Overview Map**

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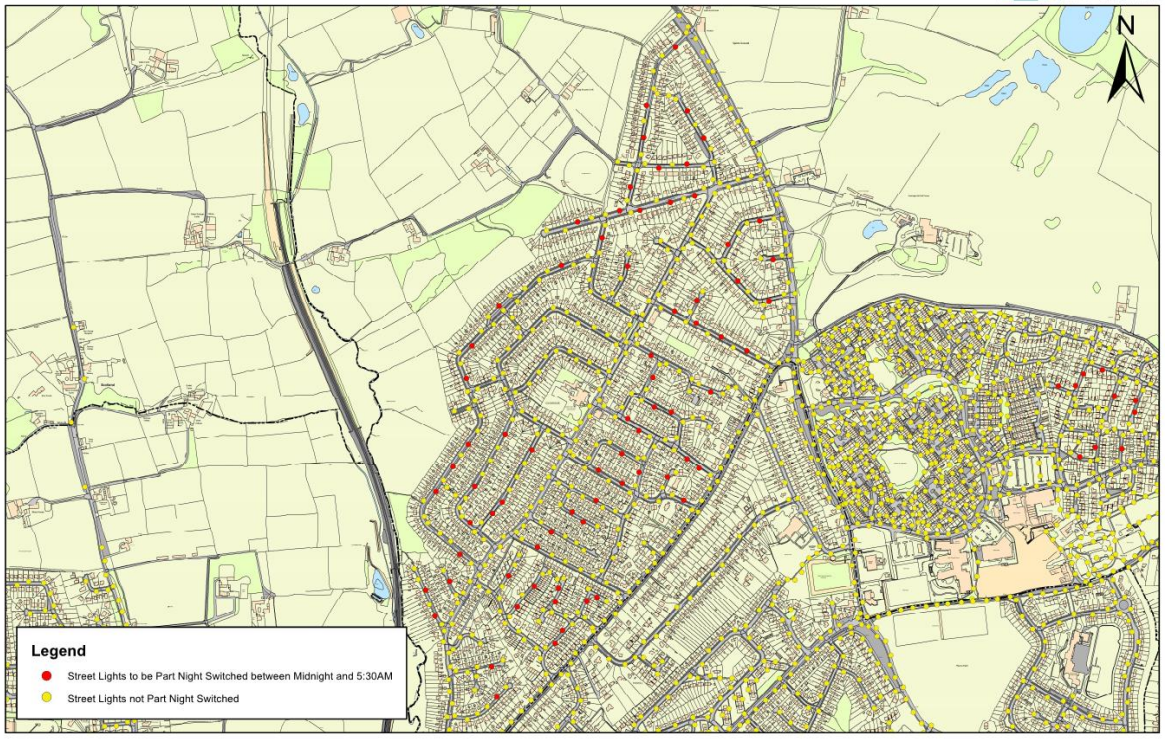
**Adel and Wharfedale Part Night Switching Map 4**

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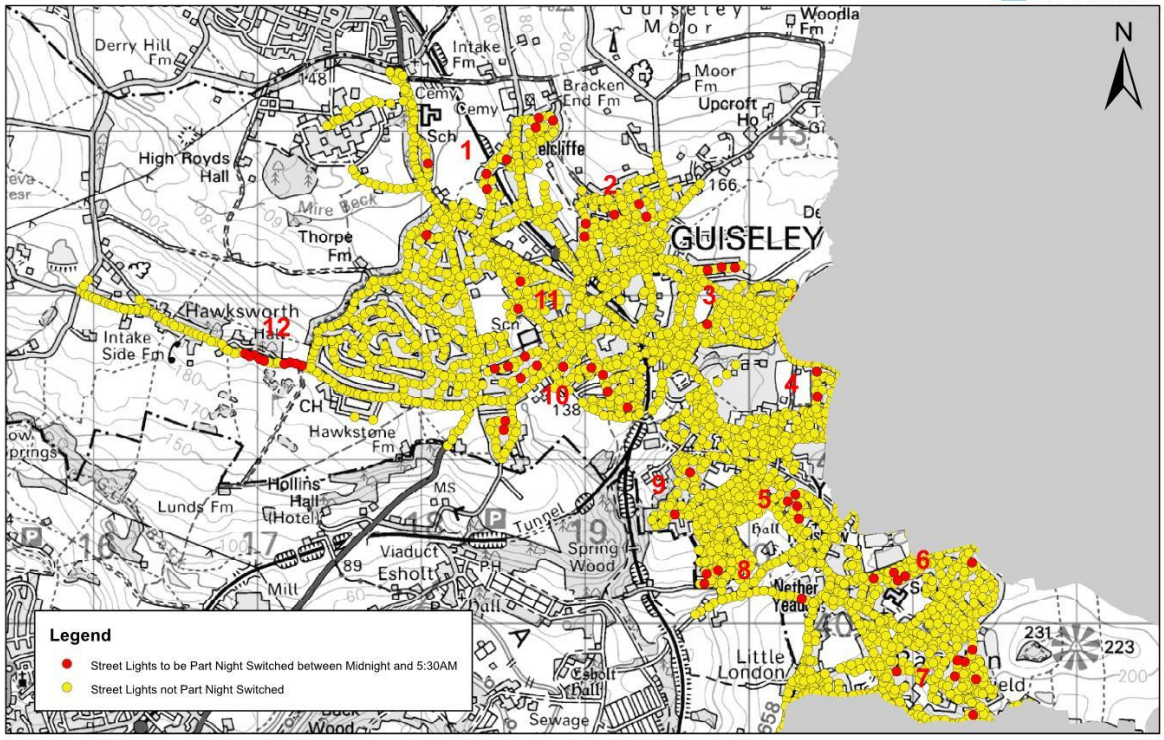
## 11. Guiseley and Rawdon

**Guiseley and Rawdon Part Night Switching Overview Map**

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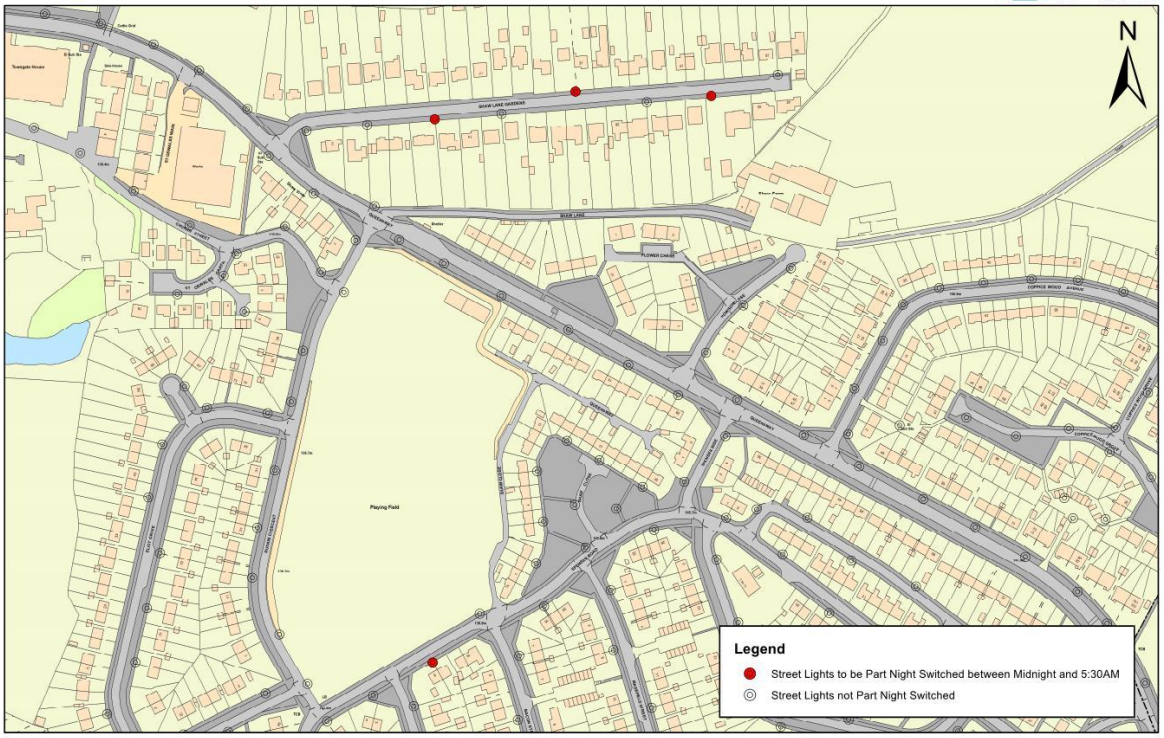
**Guiseley and Rawdon Part Night Switching Map 3**

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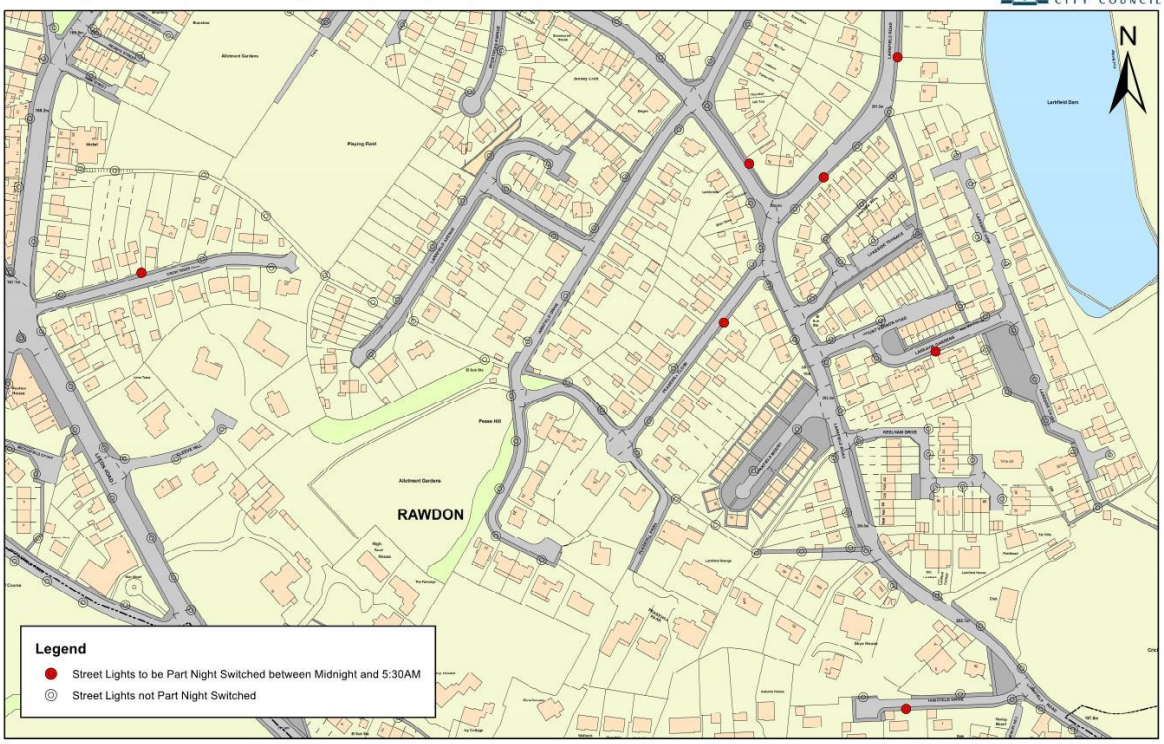
**Guiseley and Rawdon Part Night Switching Map 7**

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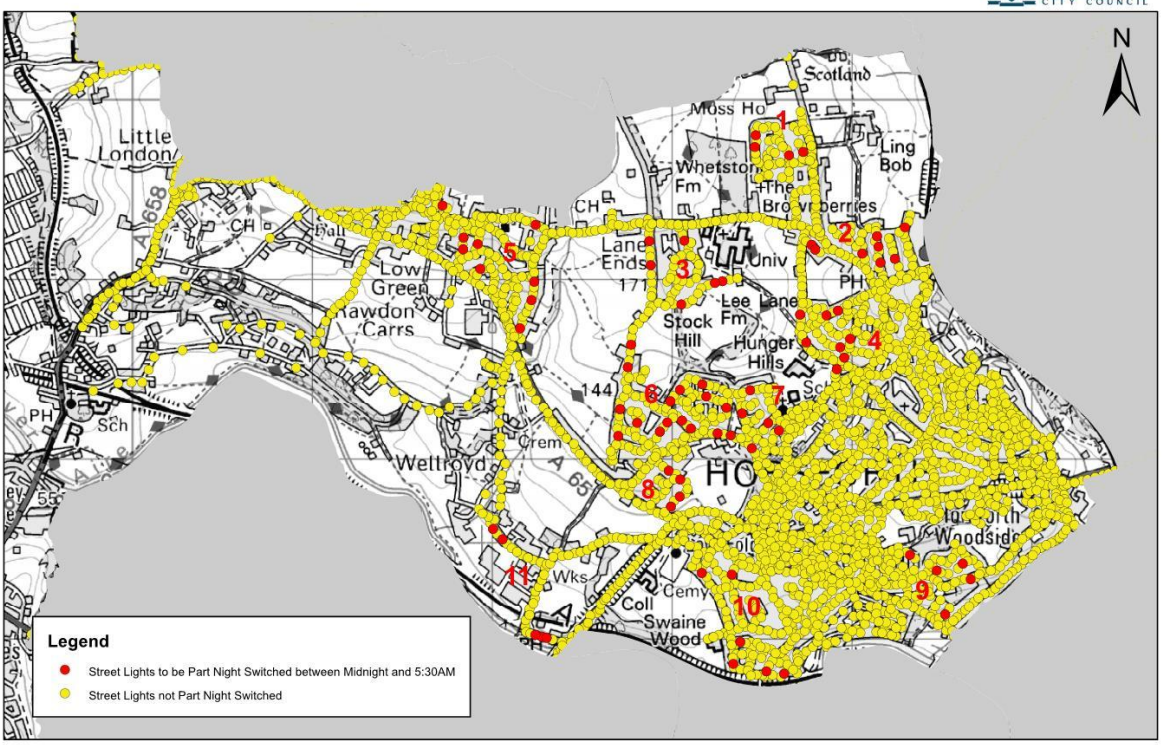
## 12. Horsforth

**Horsforth Part Night Switching Overview Map**

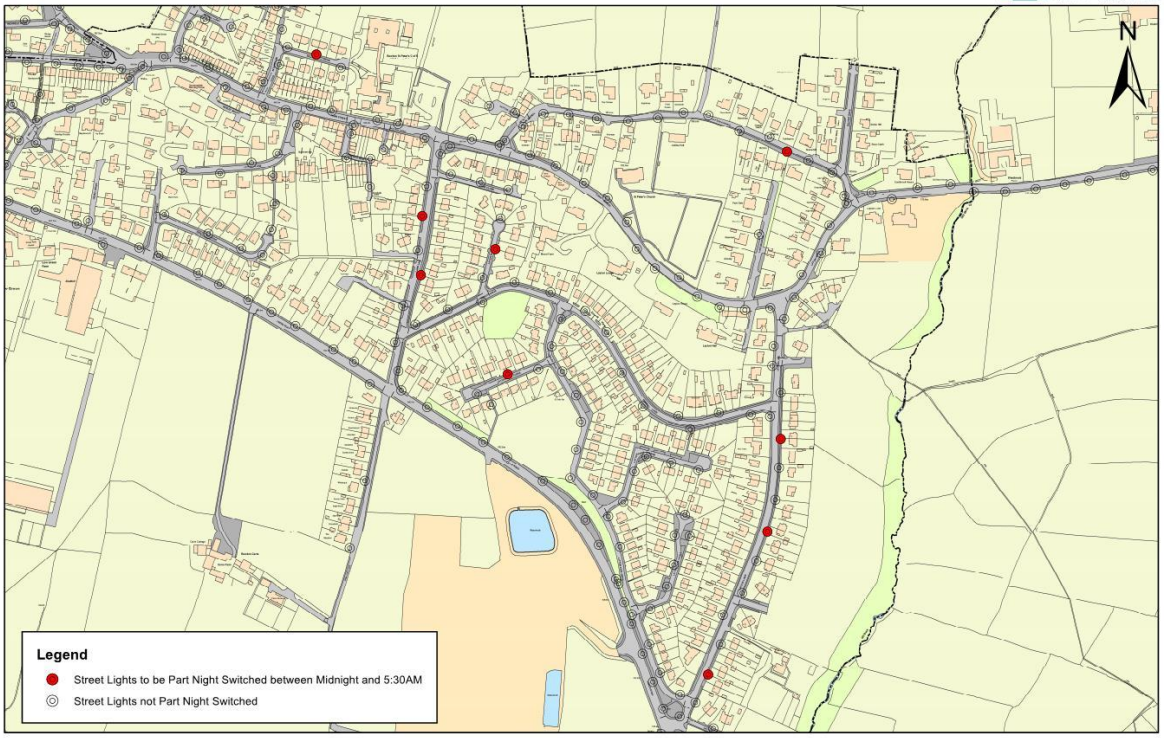



(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:22,765

**Horsforth Part Night Switching Map 2**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:2,500

**Horsforth Part Night Switching Map 5**

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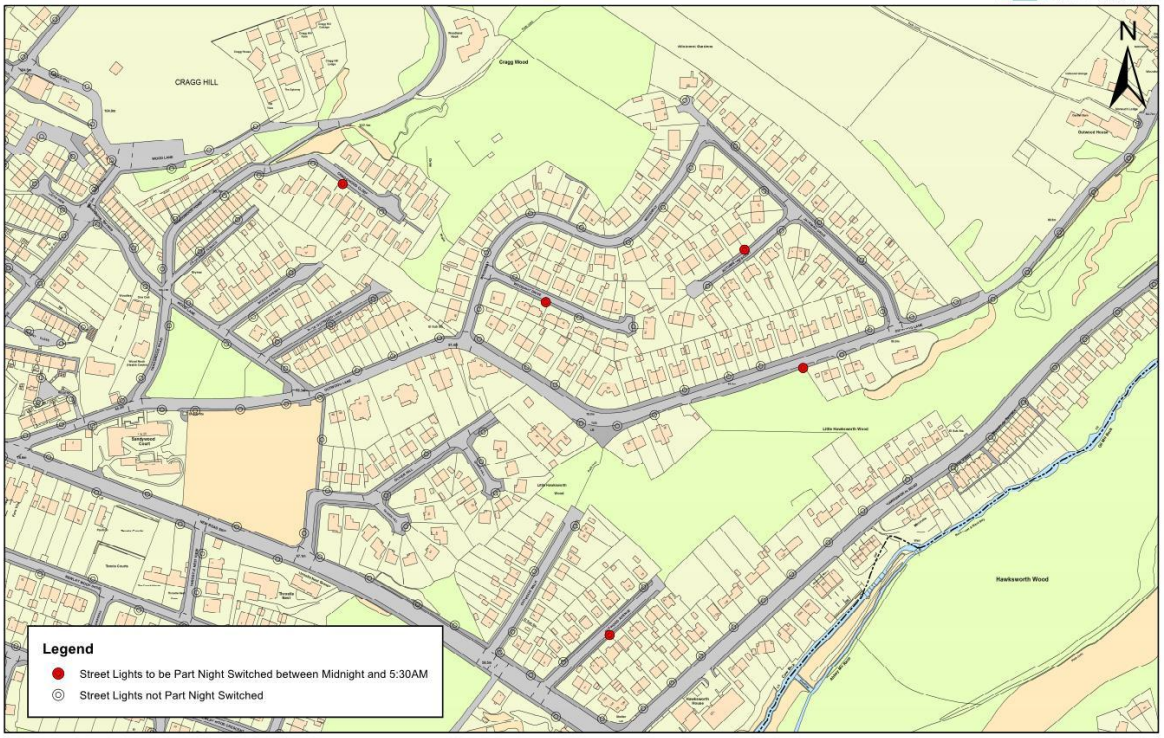
**Horsforth Part Night Switching Map 7**


 1:2,337

**Horsforth Part Night Switching Map 9**

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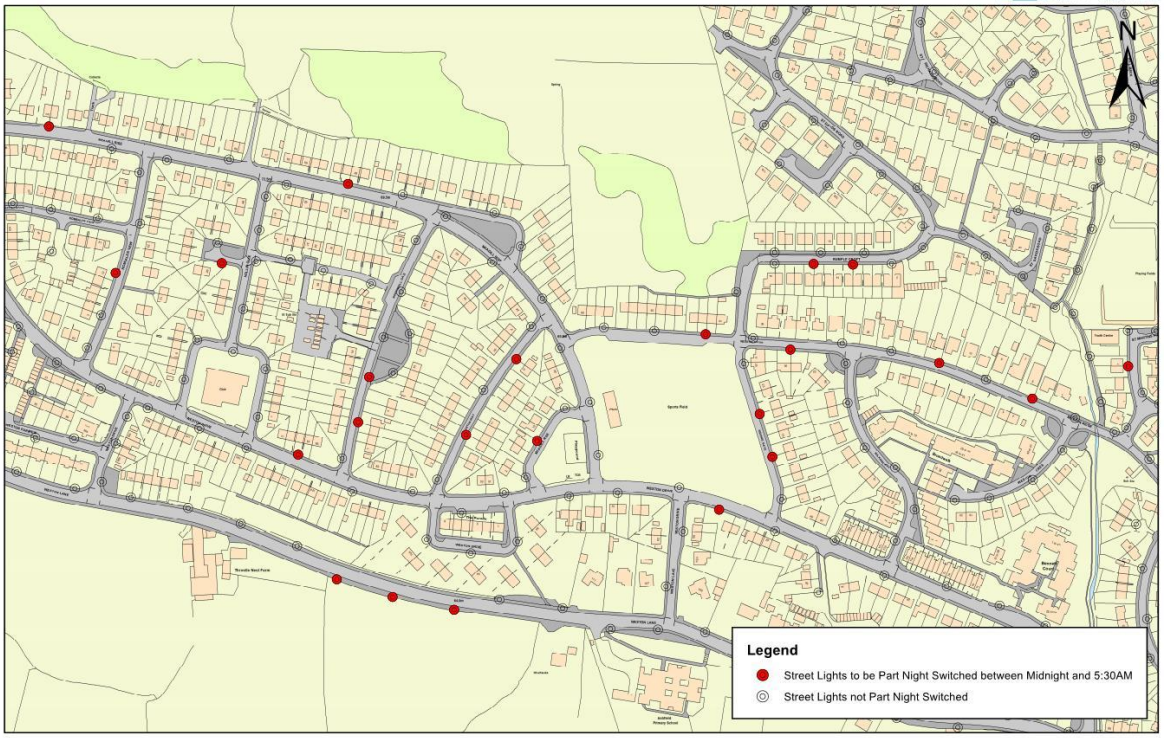
## 13. Otley and Yeadon

**Otley and Yeadon Part Night Switching Overview Map**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:45,297

**Otley and Yeadon Part Night Switching Map 1**

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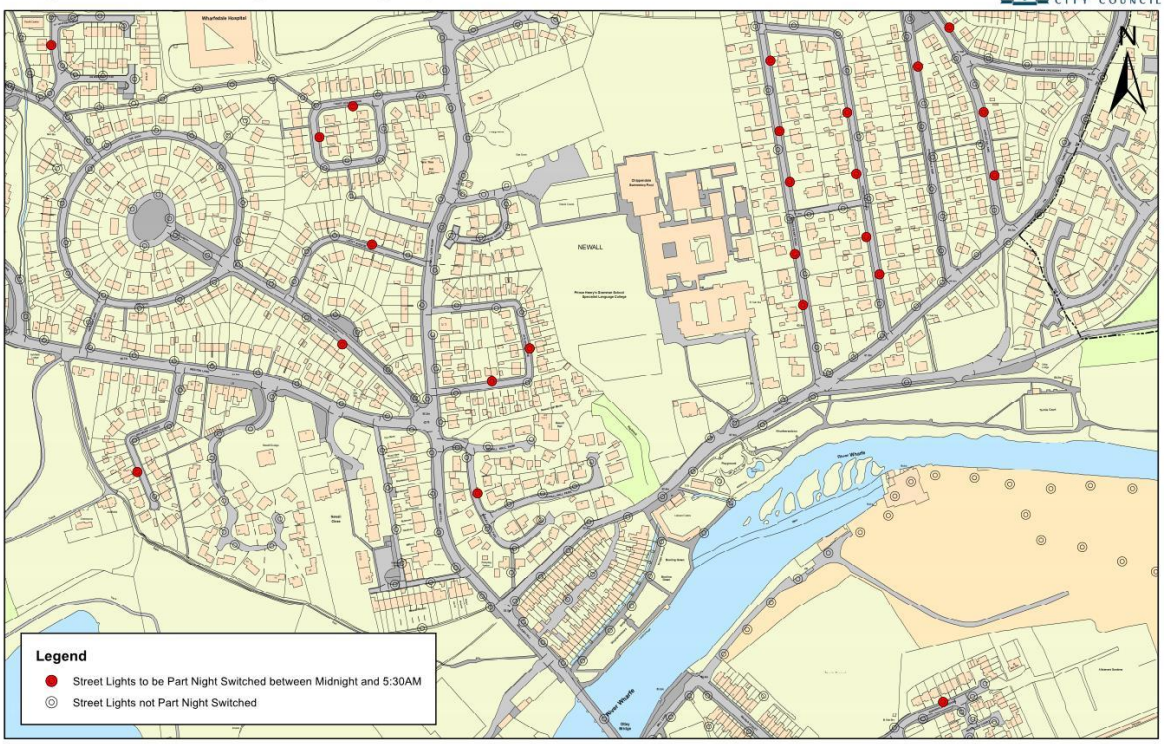
**Otley and Yeadon Part Night Switching Map 3**

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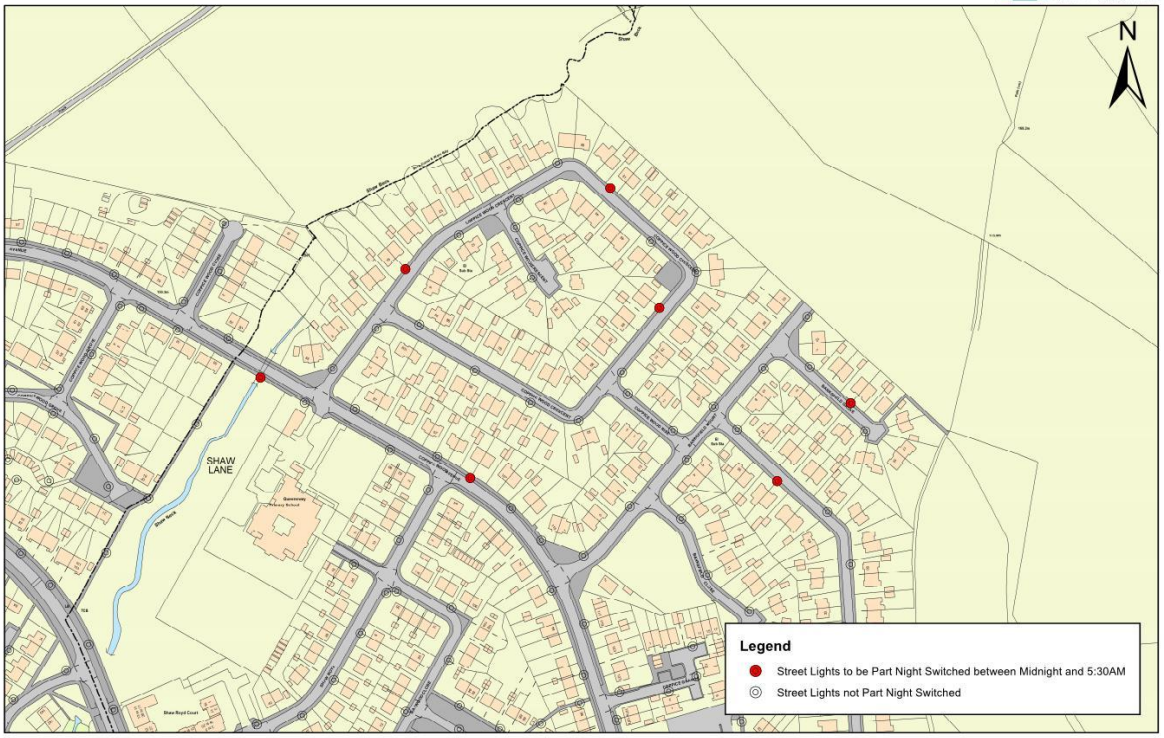
**Otley and Yeadon Part Night Switching Map 10**



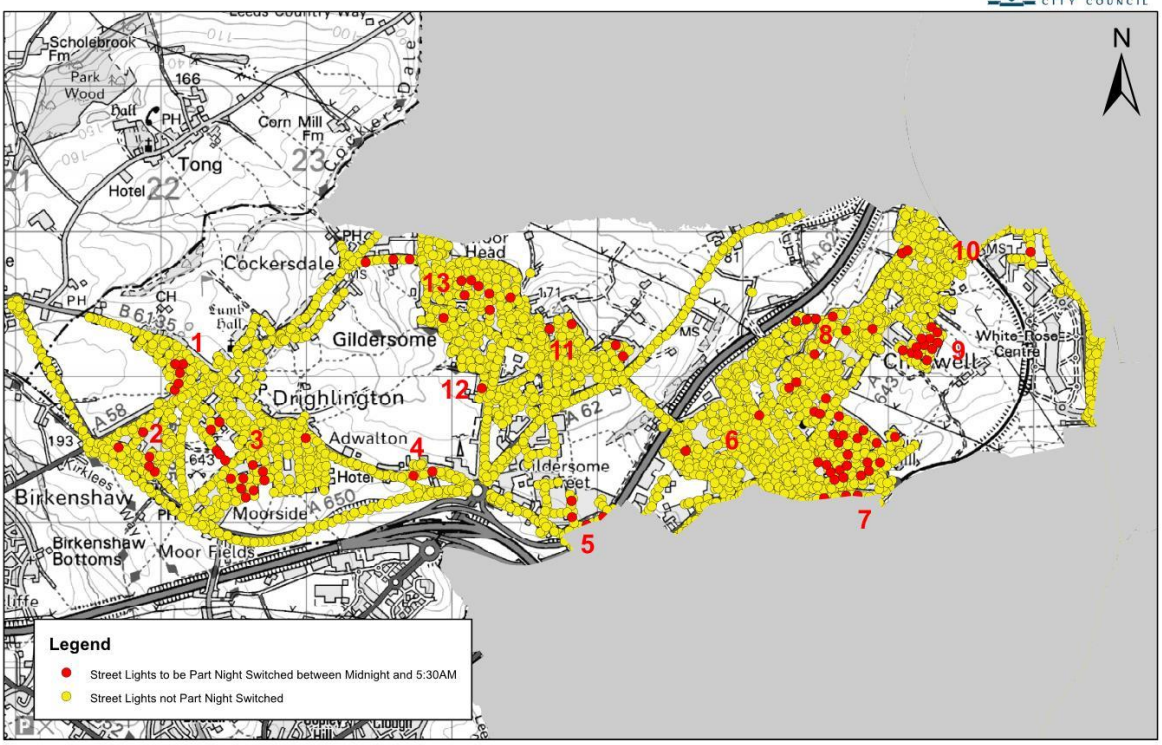

 1:2,500

**Otley and Yeadon Part Night Switching Map 11**


 1:2,500

## 14. Morley North

**Morley North Part Night Switching Overview Map**

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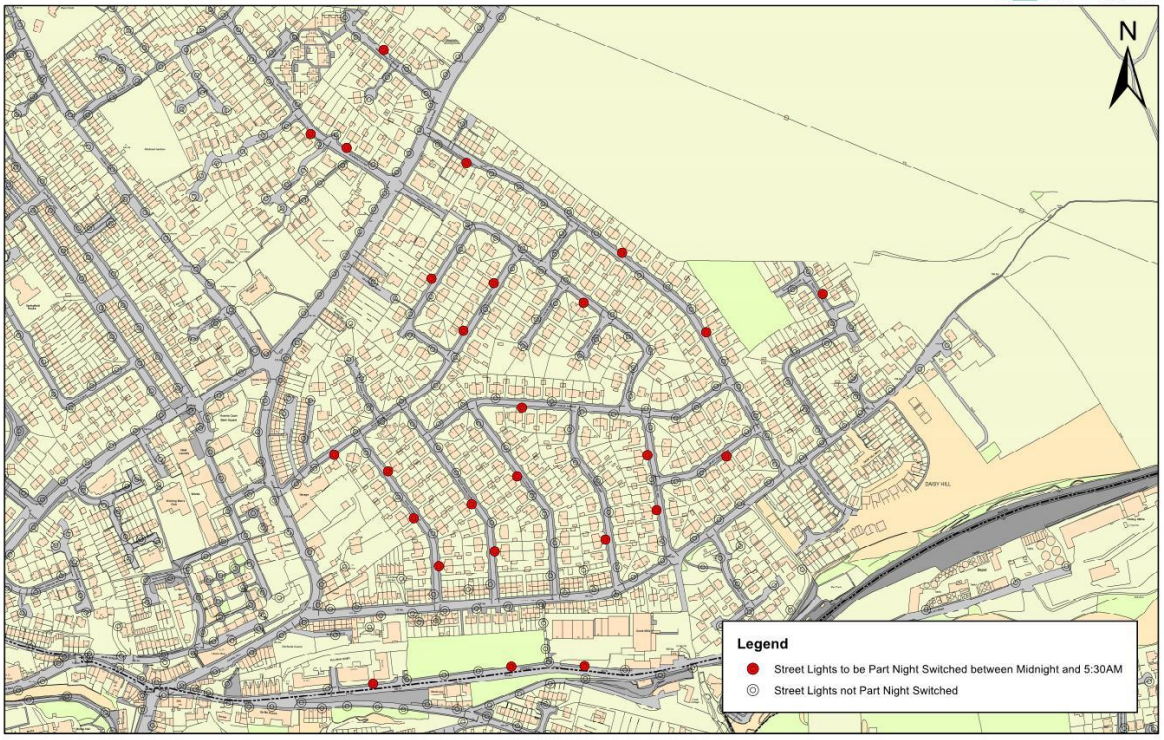
**Morley North Map 7**

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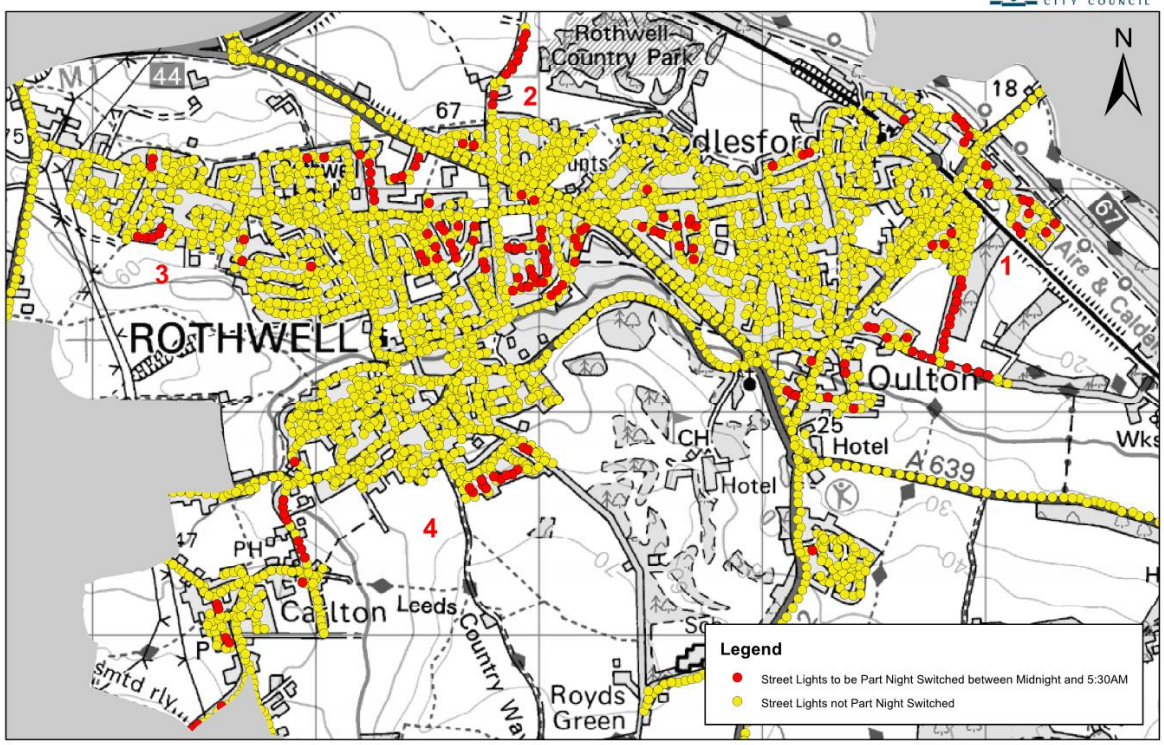
## 15. Rothwell

**Rothwell Part Night Switching Overview Map**

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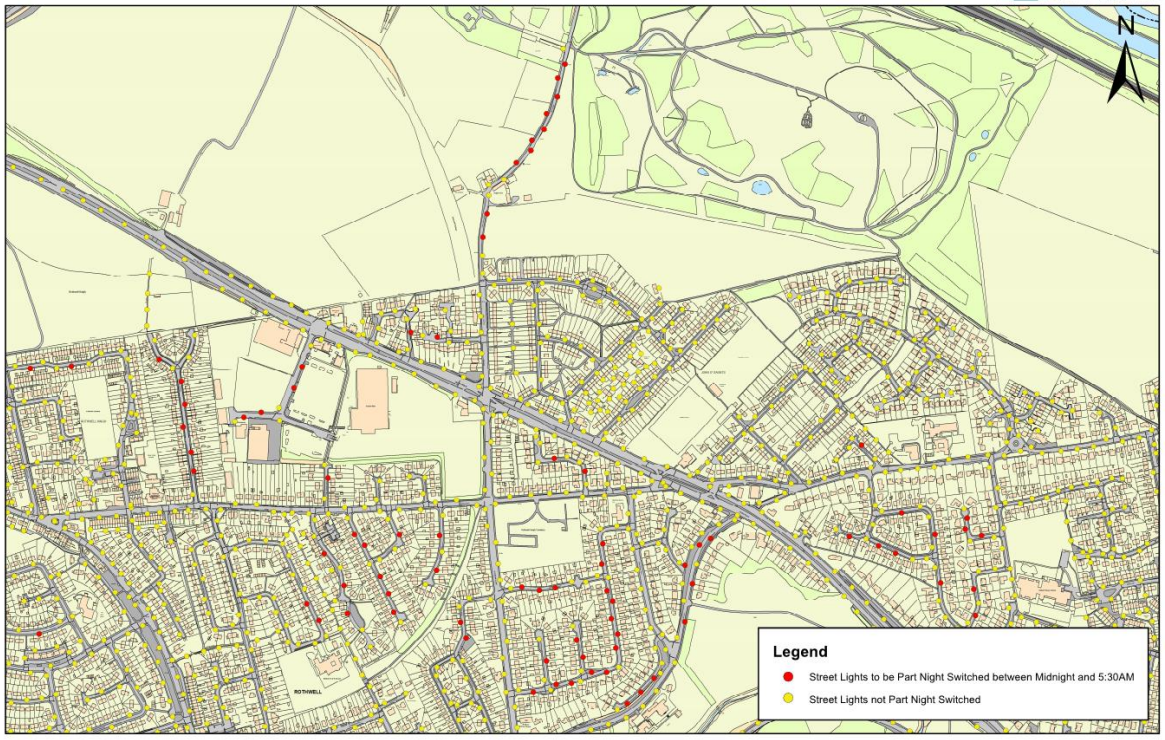
**Rothwell Part Night Switching Map 2**

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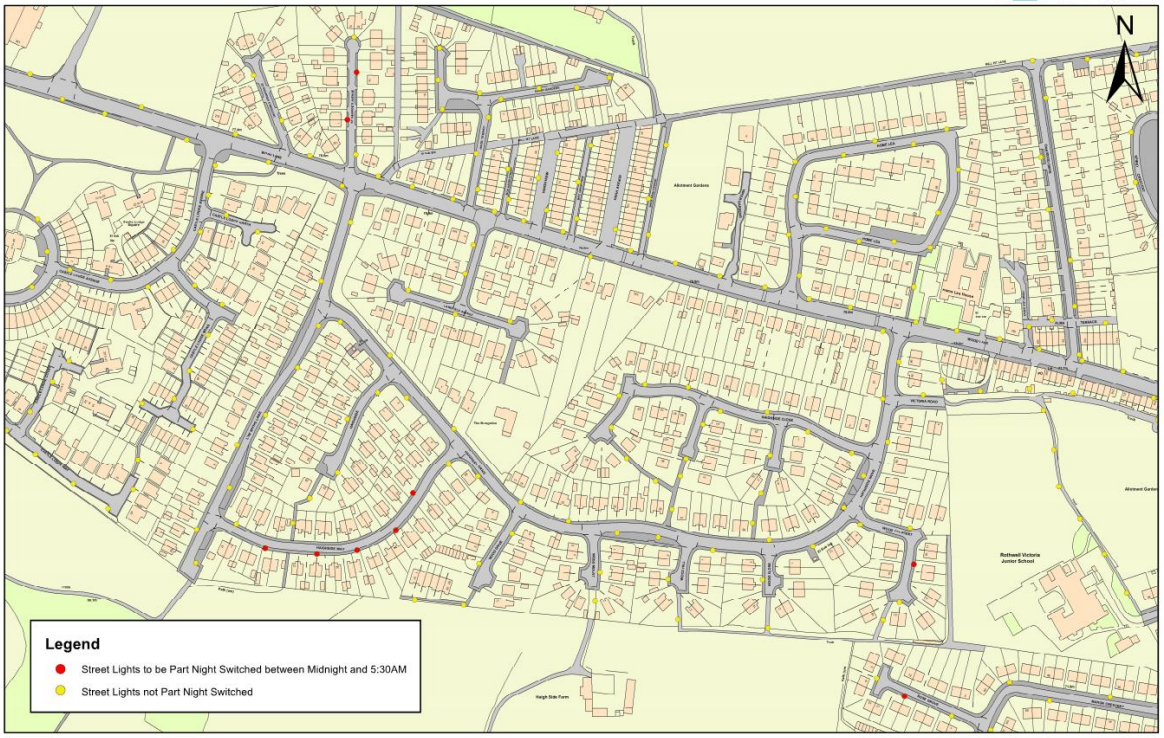
**Rothwell Part Night Switching Map 3**

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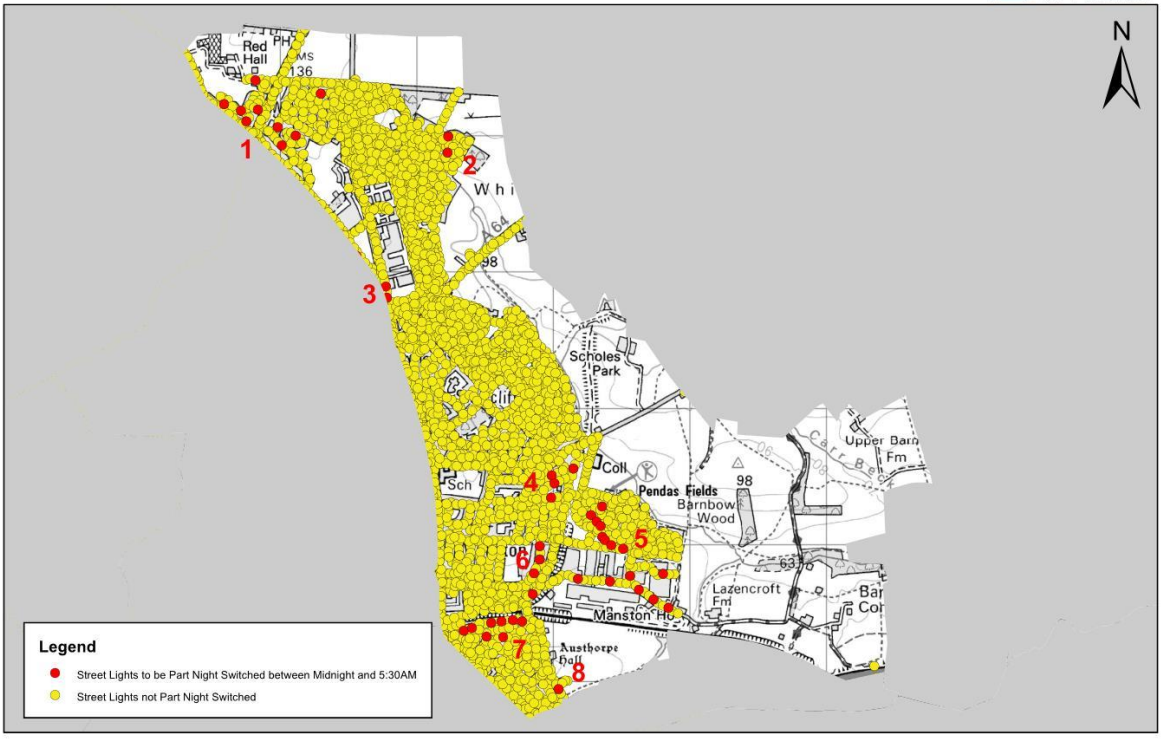
## 16. Cross Gates and Whinmoor

**Cross Gates and Whinmoor Part Night Switching Overview Map**

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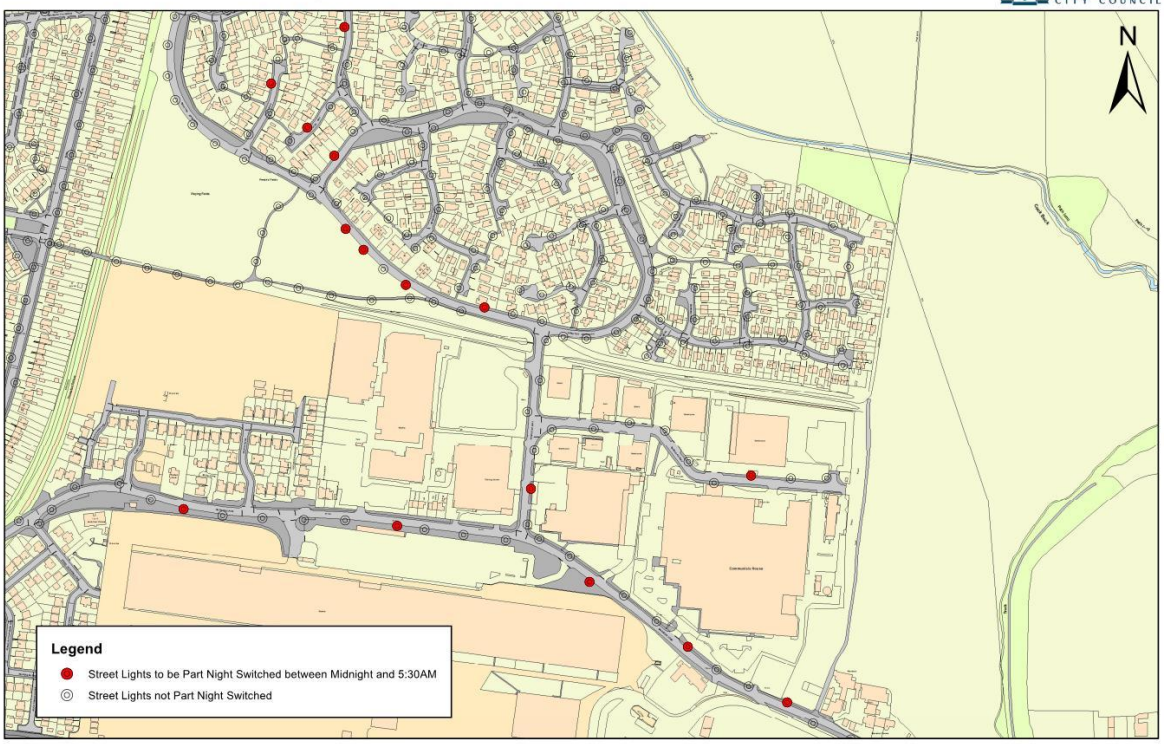
**Cross Gates and Whinmoor Map 4**


 1:2,000

**Cross Gates and Whinmoor Map 5**




 1:4,500

**Cross Gates and Whinmoor Map 6**

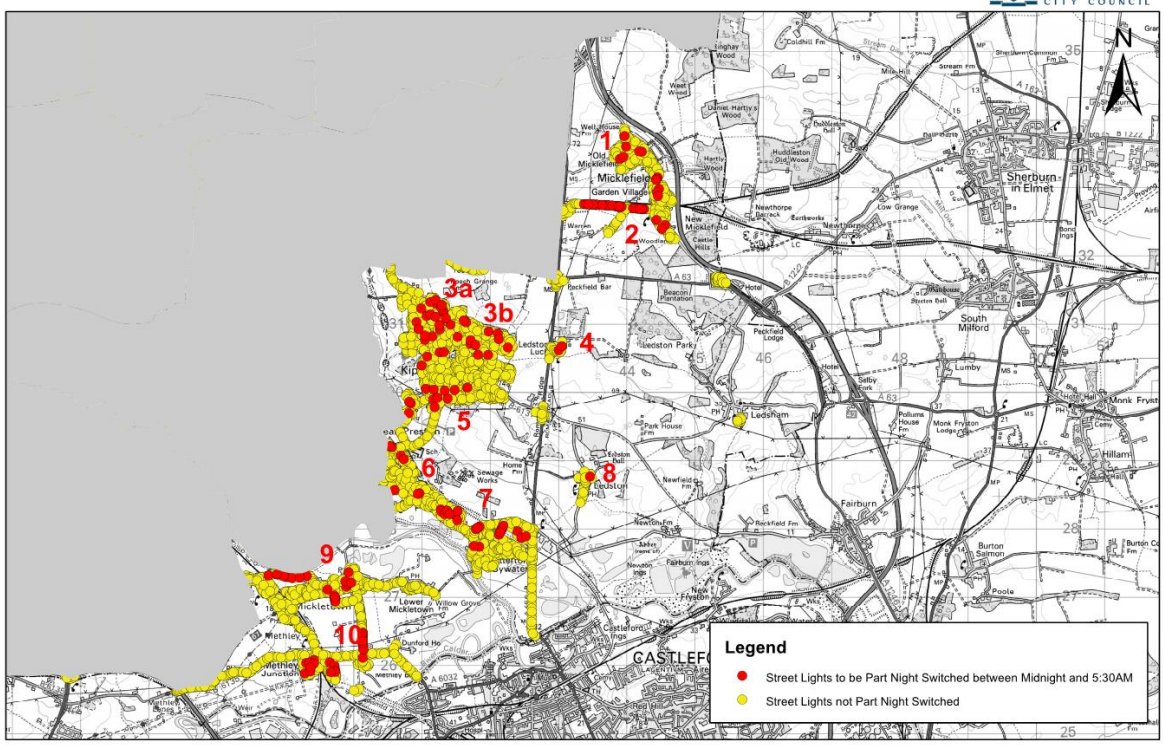

 1:2,500

**Cross Gates and Whinmoor Map 7**


 1:2,000

## 17. Kippax and Methley

**Kippax and Methley Part Night Switching Overview Map**

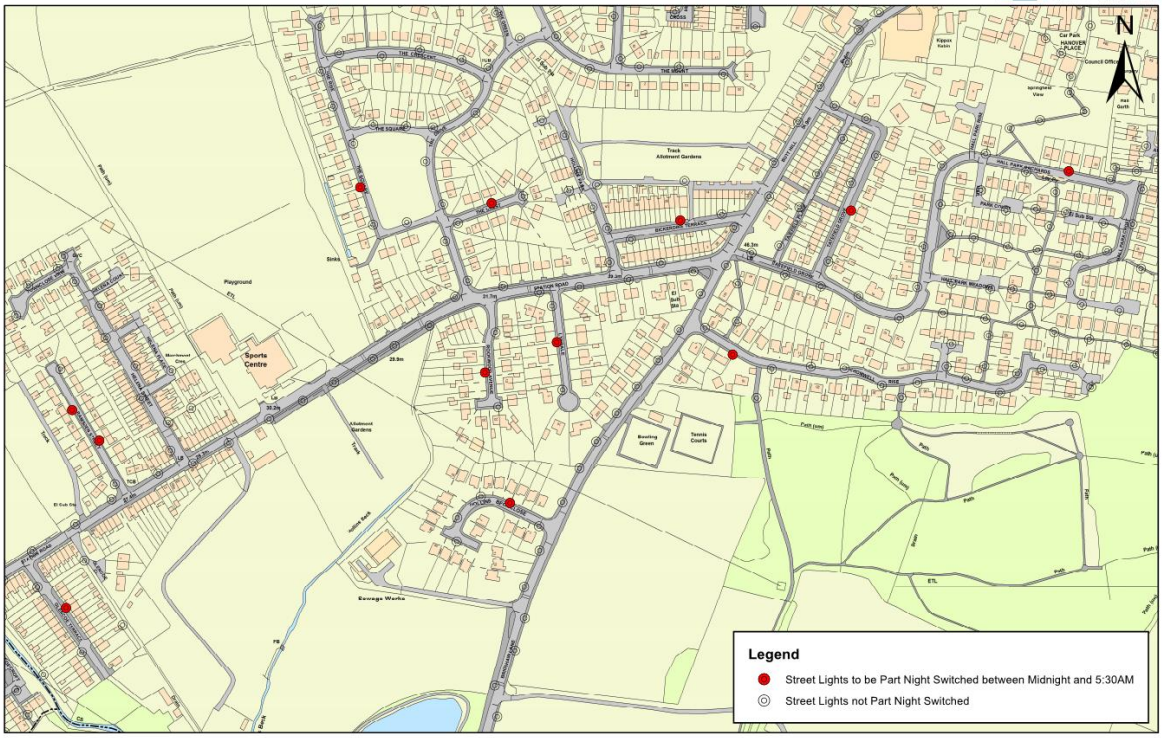



(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:60,000

**Kippax and Methley Part Night Switching Map 3a**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:5,635

**Kippax and Methley Part Night Switching Map 5**

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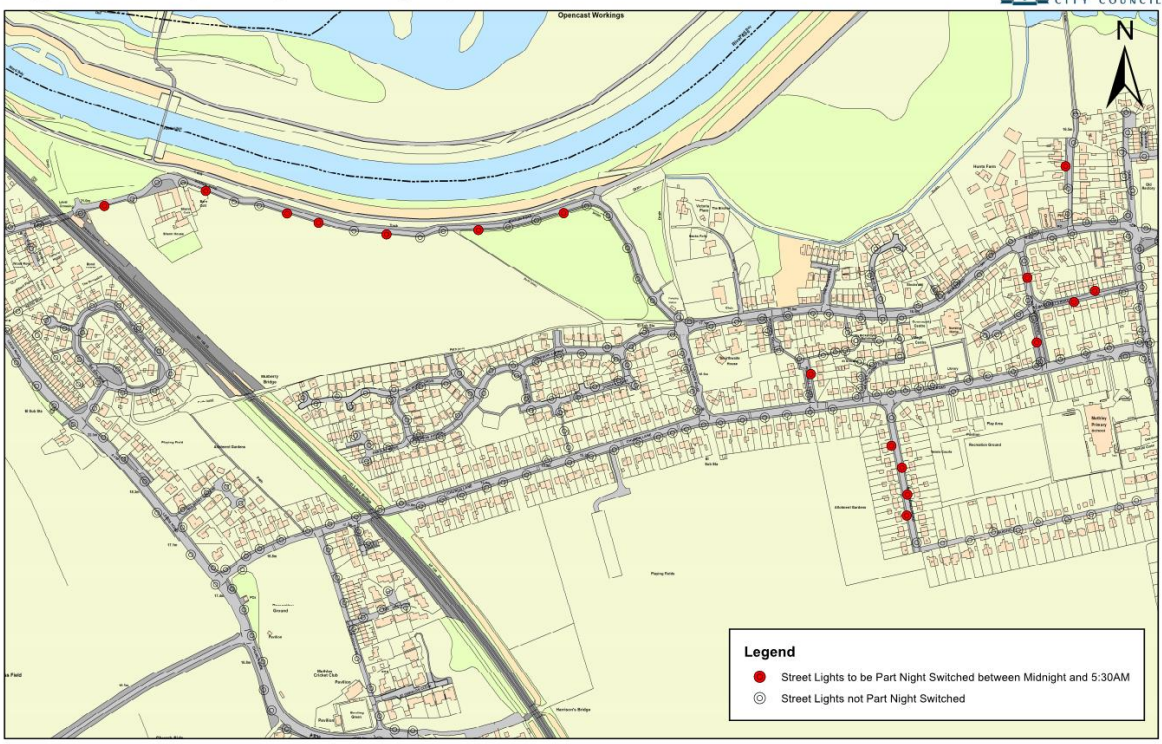
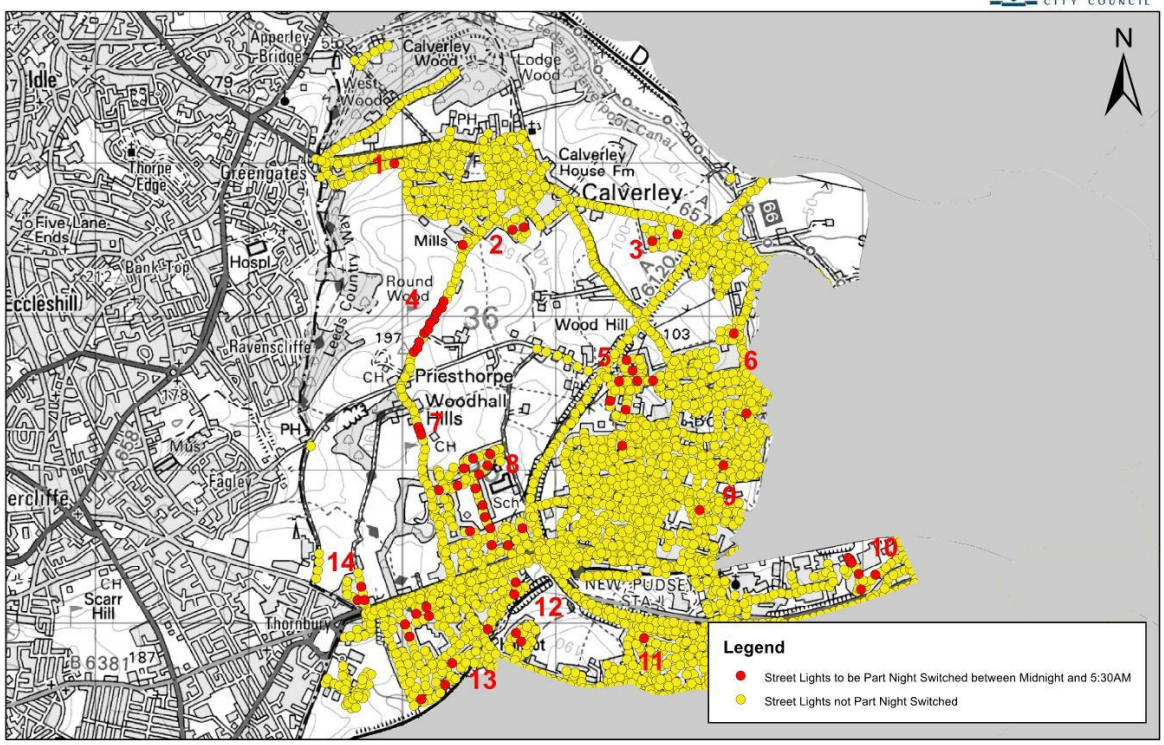
**Kippax and Methley Part Night Switching Map 9**




 1:5,000

## 18. Calverley and Farsley

**Calverley and Farsley Part Night Switching Overview Map**




(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:26,699

**Calverley and Farsley Part Night Switching Map 8**


(c) Crown Copyright and database right 2014 Ordnance Survey LA100019567 1:3,800

## Appendix 4: Raw secondary research data

### Inner North East

1. Moortown

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1741 | 4264 |
| 2011 – 2012 | 1342 | |
| 2012 – 2013 | 1181 | |
| 2013 – 2014 | 1139 | 3918 |
| 2014 – 2015 | 1368 | |
| 2015 – 2016 | 1411 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

2. Roundhay

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 2164 | 5675 |
| 2011 – 2012 | 1338 | |
| 2012 – 2013 | 1673 | |
| 2013 – 2014 | 1618 | 5157 |
| 2014 – 2015 | 1889 | |
| 2015 – 2016 | 1650 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

### Inner North West

3. Kirkstall

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 3118 | 7935 |
| 2011 – 2012 | 2391 | |
| 2012 – 2013 | 2426 | |
| 2013 – 2014 | 2150 | 7500 |
| 2014 – 2015 | 2498 | |
| 2015 – 2016 | 2852 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

4. Weetwood

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 2177 | 5034 |
| 2011 – 2012 | 1575 | |
| 2012 – 2013 | 1282 | |
| 2013 – 2014 | 1147 | 3774 |
| 2014 – 2015 | 1336 | |
| 2015 – 2016 | 1291 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Inner South

5. Beeston and Holbeck

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 4601 | 11442 |
| 2011 – 2012 | 3498 | |
| 2012 – 2013 | 3343 | |
| 2013 – 2014 | 3048 | 10542 |
| 2014 – 2015 | 3336 | |
| 2015 – 2016 | 4158 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

6. Middleton Park

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 3821 | 10754 |
| 2011 – 2012 | 3658 | |
| 2012 – 2013 | 3275 | |
| 2013 – 2014 | 2589 | 8876 |
| 2014 – 2015 | 2939 | |
| 2015 – 2016 | 3348 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer North East

7. Aldwoodley

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1362 | 3671 |
| 2011 – 2012 | 1309 | |
| 2012 – 2013 | 1000 | |
| 2013 – 2014 | 866 | 3317 |
| 2014 – 2015 | 1106 | |
| 2015 – 2016 | 1345 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

8. Harewood

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 841 | 2340 |
| 2011 – 2012 | 874 | |
| 2012 – 2013 | 625 | |
| 2013 – 2014 | 582 | 2005 |
| 2014 – 2015 | 668 | |
| 2015 – 2016 | 755 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

9. Wetherby

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1523 | 3525 |
| 2011 – 2012 | 1051 | |
| 2012 – 2013 | 951 | |
| 2013 – 2014 | 908 | 3483 |
| 2014 – 2015 | 1188 | |
| 2015 – 2016 | 1387 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer North West

10. Adel and Wharfedale

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1250 | 3201 |
| 2011 – 2012 | 1065 | |
| 2012 – 2013 | 886 | |
| 2013 – 2014 | 887 | 2684 |
| 2014 – 2015 | 861 | |
| 2015 – 2016 | 936 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

11. Guiseley and Rawdon

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1442 | 3695 |
| 2011 – 2012 | 1057 | |
| 2012 – 2013 | 1196 | |
| 2013 – 2014 | 1065 | 3644 |
| 2014 – 2015 | 1140 | |
| 2015 – 2016 | 1439 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

12. Horsforth

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1479 | 3931 |
| 2011 – 2012 | 1188 | |
| 2012 – 2013 | 1264 | |
| 2013 – 2014 | 1167 | 3683 |
| 2014 – 2015 | 1171 | |
| 2015 – 2016 | 1345 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

13. Otley and Yeadon

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1796 | 4521 |
| 2011 – 2012 | 1345 | |
| 2012 – 2013 | 1380 | |
| 2013 – 2014 | 1241 | 3919 |
| 2014 – 2015 | 1296 | |
| 2015 – 2016 | 1382 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer South

14. Morley North

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1599 | 5093 |
| 2011 – 2012 | 1765 | |
| 2012 – 2013 | 1729 | |
| 2013 – 2014 | 1767 | 5442 |
| 2014 – 2015 | 1696 | |
| 2015 – 2016 | 1979 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

15. Rothwell

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1670 | 4824 |
| 2011 – 2012 | 1539 | |
| 2012 – 2013 | 1615 | |
| 2013 – 2014 | 1133 | 4014 |
| 2014 – 2015 | 1350 | |
| 2015 – 2016 | 1531 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer East

16. Cross Gates and Whinmoor

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 2373 | 5905 |
| 2011 – 2012 | 1761 | |
| 2012 – 2013 | 1771 | |
| 2013 – 2014 | 1331 | 5063 |
| 2014 – 2015 | 1715 | |
| 2015 – 2016 | 2017 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

17. Kippax and Methley

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 1348 | 3567 |
| 2011 – 2012 | 1160 | |
| 2012 – 2013 | 1059 | |
| 2013 – 2014 | 875 | 2916 |
| 2014 – 2015 | 900 | |
| 2015 – 2016 | 1141 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |

Outer West

18. Calverley and Farsley

| Year | Total Crime and ASB | |
|---|---|---|
| 2010 - 2011 | 2174 | 5949 |
| 2011 – 2012 | 1762 | |
| 2012 – 2013 | 2013 | |
| 2013 – 2014 | 1758 | 5377 |
| 2014 – 2015 | 1804 | |
| 2015 – 2016 | 1815 | |
| Key: Before SPNSL ☐ After SPNSL ☐ | | |