# Response to

# Greater Cambridge City Deal's Proposals for Milton Road, Cambridge

from:

Hurst Park Estate Residents' Association
65 Hurst Park Avenue, Cambridge

Submitted to:
Greater Cambridge City Deal

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## 1. Executive Summary

**There are major concerns from residents that the City Deal proposals will compromise safety, health and quality of life for residents, and lead to environmental degradation and pollution. Alternative proposals to achieve the City Deal's aims are suggested.**

**Detail**

Hurst Park Estate Residents' Association (HPERA), which represents around 450 households/1000 residents, has considered the City Deal Proposals carefully and has the following comments.

We support the broad aims of the proposals, and agree that residents and commuters should be encouraged to use public transport and bicycles instead of cars. However, we think the specific actions outlined in the proposals would have undesirable consequences for the local population, and that some of the underpinning assumptions are incorrect. We propose some alternative measures.

**Specifically:**

- Residents are extremely concerned that the proposed changes to routing around Milton Road will: increase traffic flow through the Hurst Park Estate, create rat-runs, and force detours for residents of one road (Highworth Avenue), compromising safety of residents and quality of life in the Estate, and causing environmental degradation; create rat-runs in other neighbourhoods (Ramsden Square, Lovell Road, Campkin Road), with similar consequences; increase the danger to children and parents on school runs on and around Milton Road as more vehicles access Hurst Park Avenue, Ascham Road and Gurney Way.

- The proposed road restrictions in the vicinity of the Hurst Park Estate and the rat-runs that will be created will lead to significant pollution and health hazards. In particular, the annual mass of greenhouse gas emissions will be of the order of 50 tonnes $CO_2e$ which is equivalent to the emissions attributed to 30 seats on trans-atlantic air journeys.

- The proposal to replace the Highworth Roundabout is flawed. Traffic on the roundabout currently runs smoothly for much of the day and it is attractive with a "country" feel, enjoyed not just by local residents. The proposed replacement traffic lights would delay traffic flow on Milton Road at all times of day, increase noise, pollution and energy use, and be unattractive. The argument that the roundabout is more dangerous for cyclists than traffic lights is not, in our view, sufficiently compelling. Accident statistics show clearly that this roundabout is not an "accident black-spot" and its removal is unwarranted on such grounds. Residents are strongly opposed to its removal, and suggest that modifications to the roundabout will meet safety concerns.

- The current proposal to widen the road to make a four-lane highway involves the removal of most of the trees, bushes and grass verges from Milton Road. This is not an acceptable state of affairs. We believe that cities should be planting more trees not destroying them.
- The lack of information about how an increase in bus traffic will be dealt with at Mitcham's Corner and the City Centre leaves the impression that Milton Road could become a bus-lane corridor without a destination.

**We suggest the following alternative measures to keep traffic moving:**

- Retain the Highworth roundabout, and make modifications to address safety concerns and improve traffic flow further (described in 5.2 p.21 and Appendix G).
- Abandon the no-right-turn into Arbury Rd measure and, instead, improve the safety of the existing junction by: moving the bus stops- one to north side of the junction along Milton Rd, the other to lay-by further south; implementing a right filter and improve the signal phasing.
- Extend the left filter on Milton Road approaching the Arbury Road lights to divert vehicles from the central lane earlier and reduce tailbacks.
- Abandon the no-right-turn measure for Milton Road south-bound at Gilbert Road and, instead, re-configure the junction slightly to north-west and re-implement a right-filter.

**To address the congestion problem generally we recommend:**

- Incentivise commuters to use existing and new P&R sites which are properly sheltered, free (or low cost) and are destinations in themselves – offering franchises for Car-Wash, mini-mart, collect+ parcel pick-up and so on.
- Incentivise bus use by implementing off-bus or cashless ticketing with extended service times to/from P&R sites.
- Press ahead with orbital bus routes and the idea for a new Addenbrookes rail station to connect with Cambridge North.

**Some dis-incentive strategies for consideration:**

- Mandatory pre-pay and booking for city-centre car parks – drivers on essential journeys are then guaranteed a space and others will no longer be cruising around and forming queues.
- Extension of parking restrictions into residential streets 1-2 miles out from the centre.
- Road charging at peak times for all road users (also to help subsidise P&R running costs)

HPERA stands ready to discuss these ideas, provide further evidence as required to support our arguments, and elaborate on our alternative suggestions.

## 2. Purpose and Scope

The purpose of this document is to provide a consolidated response to The Greater Cambridge City Deal's proposals for:

- the "Milton Road Corridor" development
- the "Arbury Road Route" development of the proposed Cross City Cycling schemes particularly where each affects the residents of the Hurst Park Estate.

Please Note, it is **not** the intention of this submission just to complain about undesirable effects of the proposals presented. We wish to arrive at suggestions for considered improvements to the plans that will both support the aims of The City Deal while avoiding the unwelcome and unintended consequences of environmental damage and excessive and unnecessary restructuring.

The scope of this document covers concerns of the residents of the Hurst Park Estate, and suggested amendments to the proposed plans, related to:

- The general environmental degradation and negative impact on the streetscape of the city and its attractiveness to visitors and tourists by the removal of trees, bushes and grass verges etc. and replacing them with concrete and tarmac.
- The City Deal priorities which favour the smooth running of out-of-town buses to and from the city centre (which will not serve local residents at all), over and above the interests of communities and the safety of Cambridge City residents.
- The turn-left prohibition at the junction of Milton Road and Kings Hedges Road for outward-bound traffic along Milton Road.
- The turn-right prohibition at the junction of Milton Road and Arbury Road for city-bound traffic along Milton Road.
- The turn-right prohibition at the junction of Milton Road and Gilbert Road for city-bound traffic along Milton Road.
- The closure of Union Lane to car traffic from Milton Road and Arbury Road.
- The removal of the "Highworth Roundabout" and its replacement with traffic lights.
- The closure of Highworth Avenue at the south end and opening of the north end forcing residents to exit via Leys Road or Hurst Park Avenue.
- The abrupt stopping of the Arbury Road cycle route just south of Arbury Court.
- The closure of Mansel Way to car traffic from Arbury Road.

The above items are examined in more detail on the following section, but they serve to illustrate the essence of concerns of local residents.

# 3. Introduction

## 3.1 Hurst Park Estate Residents' Association (HPERA)

The **Hurst Park Estate Residents' Association** (HPERA) acts to support the interests of the residents of The Hurst Park Estate, which includes the following streets:

- Hurst Park Avenue
- Orchard Avenue
- Leys Avenue
- Leys Road
- Highfield Avenue
- Highworth Avenue
- Mulberry Close

HPERA acts in the interests of around 450 households, which comprises in the region of 1000 Cambridge residents. See **Appendix A** for a diagram illustrating the Hurst Park Estate locality and environs.

## 3.2 The Greater Cambridge City Deal proposals

The Greater Cambridge City Deal is a collaborative development project involving the following stakeholders: Cambridge City Council, Cambridgeshire County Council, South Cambridgeshire District Council and Cambridge University, together herein referred to as "City Deal".

Cambridge City ("the City") has a well-known problem of motorised vehicle congestion. In addition, three additional pressures are certain to exacerbate the problem if action is not taken. These are: the growing attraction of Cambridge as a business base, the growth of business accommodation in Cambridge City (e.g. Cambridge Science Park, Cambridge Business Park, Marshalls, Addenbrookes Bio-Medical Campus, The University), and the growth of new housing areas in villages and regions on the outskirts of the City (e.g. Northstowe, Waterbeach, Marshalls, Trumpington, Bourn Airfield). Additional issues under consideration are cyclist safety and the efficient progression of buses through the City.

City Deal has commissioned external consultants WSP to consider the problems facing the City and to recommend measures for re-engineering traffic systems in the City in the light of these additional pressures and concerns.

Two measures ("Do Something" and "Do Maximum") have been presented in the form of two leaflets ("Milton Road" and "Cross-City Cycling") to HPERA residents. From the leaflets, it appears the case that The City Deal team favours the principles of:

- Encouraging workers from outside the City to park at Park & Ride sites and travel into the City by bus, so reducing the level of car traffic entering the City;
- Changing the behaviour of City residents to encourage the use of bicycles and public transport for inner-City journeys, rather than using cars;

- Applying road priorities to enable buses and cycles to travel easily through the City;
- Implementing access restrictions to key roads to reduce the likelihood of delays to buses travelling through the City and to improve cyclist safety;
- Improving the Cycle path road network across the City encouraging more residents to use bicycles in preference to using cars.

On the face of it, these aims are laudable. It is clear that the City is congested, and that it would be desirable in a cycling city such as Cambridge to encourage more people to cycle. It would be preferable for residents to use public transport instead of cars where possible, especially for inner-City journeys.

**However,** there are several unintended and undesirable consequences resulting from the City Deal's proposals, which are detailed below. In overview, HPERA believes that certain assumptions which underpin the proposals are incorrect, such as:

- that buses, as currently scheduled, regularly stop to pick-up passengers within walking distance of their homes and travel reasonably near to their destination point. Anyone living on and around Milton Rd knows all too well that it is largely a stopping-bus-free-zone. The residents of Milton Rd and the Hurst Park Estate are not well-served at all by the bus companies, so there is little or no incentive at the moment to forego the car for the bus;
- that cyclists will use cycle lanes if they exist. This is not necessarily the case. The majority of commuting cyclists take the fastest route to their destination, using cycle paths, footpaths, roads, verges or other grassed areas. They use whatever appears safe and expedient at the time;
- that bus drivers and taxi drivers will actually use the bus lanes proposed, and will not hog the private transport lanes thus adding to congestion. Current evidence is that bus and taxi drivers go in whichever lane they please, while other vehicle drivers are ***fined*** if they enter bus lanes;
- that the majority of residents do not need to use their cars to travel. Cambridge hosts a large number of residents who need to use their cars, some of which are specially adapted, because they are incapable of walking far (such as to a bus stop), or of using a bicycle;
- that it is acceptable to remove trees, bushes and grass verges etc., all of which enrich the experience of City residents, in the interests of laying new road structures to benefit commuters mostly coming from outside the city. This is a highly unpopular feature of the proposals, and for residents, wholly unacceptable;
- that drivers will accept the road closures and turning restrictions proposed and will be content to add 10-15 minutes, plus the increased energy usage, to their journey time taking the longer way round and sitting in queues. The evidence suggests that drivers will quickly find workarounds to traffic restrictions, giving rise to a growth of rat-runs;
- that traffic light systems are safer than roundabouts for cyclists. Perception or not, international evidence suggests an opposite viewpoint. (See Reference **[5]**).

# 4. Issues Arising from the Greater Cambridge City Deal Proposals

## 4.1 Overview

For the Hurst Park Estate and neighbouring areas there are serious unintended consequences deriving from the City Deal proposals. In overview, these are as follows:

- There will be a **significant increase in through-traffic** in the Hurst Park Estate, in both directions between the Arbury Rd/Leys Rd junction and the Milton Rd/Hurst Park Ave junction. (See **Section 4.2** below and **Appendix B**). Drivers will seek to avoid the two sets of traffic lights on Milton Road by cutting through the estate. The results will be congestion, increased pollution, increased danger to pedestrians & cyclists, and frustration as commuters endure increased delays. In addition, these streets, which were not built to be major thoroughfares, will suffer accelerated decay and higher maintenance costs will result.
- **Additional rat-runs** will emerge as drivers seek to avoid delays incurred due to additional access restrictions. (See **Section 4.3** below and **Appendices C & D**). These include: the **Ascham/Gurney** rat-run which will become an important route to avoid the ***no right turn*** into Gilbert Rd from Milton Rd; the **Ramsden Sq**. and **Lovell Rd** rat-runs for outbound drivers avoiding the new ***no left turn*** into Kings Hedges Rd, and the **Campkin Rd** rat-run for City-bound drivers heading towards the Arbury, Histon or Castle areas who wish to avoid the delays of two sets of traffic lights near Elizabeth Way, and finally the **Mere/Fortescue/AlexWood** rat-run for drivers compensating for the ***closure of Mansel Way*** to and from Arbury Rd as part of the Cross-City Cycling plans.
- **Serious degradation to the environment** will result if the proposed removal of trees along Milton Road and the replacement of the Highworth roundabout with traffic lights goes ahead. The basis for removal of the Highworth roundabout appears to be more founded on "perception" than evidence and cannot justify the huge expenditure of public funds when simpler and lower cost improvements might be made to the existing roundabout structure.
- **Increased danger to parents and carers and their children** on the way to and from local schools will result from the restrictions preventing City-bound traffic turning north at Arbury Road and Gilbert Road. The "rat-running" that will inevitably occur as drivers seek to circumvent the restrictions will increase the risk of danger to everyone on the school runs. The proposals for the pavement from Hurst Park to Ascham Road are particularly problematic.
- **Danger to cyclists** following the Arbury Road Route, where cycle lanes will only protect southbound cyclists on Arbury Rd as far as Arbury Court, after which cyclists must either continue on standard (narrow) lanes, or cross the carriageway at Arbury Court and navigate the congestion in the Hurst Park Estate, again unprotected by cycle lanes.
- **Mixed Effects of New Cycle Lanes in Milton Road** as many cyclists prefer to have greenery, trees and even parked cars between themselves and the fast moving traffic. Rather than this, there would be buses speeding dangerously close cyclists, many of whom would be young children.

Also, crossing a four- lane carriageway on a bicycle would be a forbidding prospect, even with lights on. The result is that the improvements will be perceived as a more hostile environment for cyclists. From this point of view the proposals are problematic even in their own terms.

- **Forced detours** for residents of Highworth Avenue, who, depending on their source or destination direction will incur delays and additional travel as a result of the closure of the southern access to Milton Road and opening of the northern access to Leys Road.

## 4.2 Congestion in the Hurst Park Estate, and the rat-run

There are four proposed changes that will result in increased congestion in the Hurst Park Estate. These are:

a. City-bound traffic along Milton Rd prevented from turning right into Arbury Rd;
b. City-bound traffic along Milton Rd prevented from turning right into Gilbert Rd;
c. The "Highworth Roundabout" replaced by a new traffic light system (in both the City Deal's ***Do Something*** and ***Do Maximum*** options).
d. Access to Highworth Avenue from Milton Road closed, and Highworth Avenue opened at the north end.

**Changes (a) & (b).** (no right turns into Arbury Rd or Gilbert Rd – **Appendix C**) will force City-bound Milton Rd motorists, intending to head towards the Arbury area or Histon, to continue along Milton Rd as they will no longer be able to turn right into Arbury Rd. They will not be able to turn right along Gilbert Rd either. So their choices will be:

- a long detour around Mitcham's corner, back along Milton Rd, left into Gilbert Rd;
- right into Ascham Rd, left along Gurney Way (the "Ascham/Gurney rat-run") , right along Gilbert Rd, if, of course, the traffic in Gilbert Rd will let them out of Gurney Way;
- right into Hurst Park Ave, then right into Orchard Ave, right into Leys Ave, and left along Leys Rd and out onto Arbury Rd (the "Hurst Park Estate rat-run")

**Change (c).** (replacement of the Highworth roundabout with traffic lights – see **Appendix C (c)**). There is an opinion that roundabouts are bad for cyclist safety and this appears to be the reasoning behind replacing the Highworth roundabout with a traffic light system. Local residents are not aware of any trends supporting the perception that the roundabout is dangerous to cyclists. In addition, International experience suggests a contrary view, and indicates that a mere perception of being unsafe is not enough to justify a huge investment of resources and sanctioning considerable destruction of the environment. This point is covered in detail in the next section.

The consequence of installing traffic lights where the existing roundabout stands, and of closing off the southern end of Highworth Ave, opening the northern end, will be as follows:

- two sets of traffic lights in quick succession on Milton Rd will delay motor traffic in both directions to the extent that vehicle drivers will seek to avoid the primary route.
- motor vehicles travelling south down Arbury road will cut through the Hurst Park Estate to avoid the queues at the two sets of traffic lights.

- motor vehicles travelling out of town along Milton Road will cut through the Hurst Park Estate heading for Arbury Rd to avoid delays and congestion at the traffic lights. This already occurs sometimes and residents are concerned that this will increase significantly.
- Highworth Ave traffic will be trapped by a road closure at the southern end of that road and the queues and congestion at the two exits from the Hurst Park Estate. Currently the traffic from Highworth Ave is able to get onto Milton Road via the Highworth roundabout without contributing to congestion or causing delays.

## 4.3 Other rat-runs will emerge to avoid new access restrictions

### 4.3.1 Ramsden Square and Lovell Road

The ***no-left-turn*** into Kings Hedges Rd for outbound traffic along Milton Rd will force drivers to turn left either into **Ramsden Square** or into **Lovell Rd** instead, and from there north along Kings Hedges Rd. Both Ramsden Square and Lovell Rd are already used as short-cuts to avoid traffic lights for southbound traffic along Kings Hedges Rd wanting to turn left along Milton Rd. Hence, both Ramsden Square and Lovell Rd are destined to see a significant increase in through traffic.

See Appendix D(a).

### 4.3.2 Campkin Road

For City-bound traffic heading along Milton Road towards The Golden Hind at Kings Hedges Rd, the prospect of three sets of traffic lights and a ***no-right-turn*** at Arbury Rd will send drivers up Kings Hedges Rd (or Lovell Rd to avoid the traffic Lights) and then along Campkin Road to Arbury Rd.

See Appendix D(b).

Campkin Rd is not a wide road. It passes through a large residential community and was never designed as a thoroughfare. However the junction restrictions will force drivers to make the unpopular decision to travel along Campkin Rd, because the alternative will be an even longer detour.

**NOTE**: Residents who live on Milton Rd **between** the **Arbury Rd** and **Kings Hedges Rd** junctions, and those residents of **Woodhead Drive**, who can only exit onto Milton Rd, and who wish to head north, will no longer be able to turn left up Kings Hedges Rd or right up Arbury Rd, and so their only choices will be to take a short-cut through the Hurst Park Estate or take a very long detour round Mitcham's corner. (see Appendix C (a)).

## 4.4 Degradation of the Environment

### 4.4.1 The importance of preserving the environment

In 2010, the value of tourism to Cambridge was around £393 million, and the proportion of the population employed supporting tourism in some form was 14%. (source: Tourism South-East). Given that the population of Cambridge is in the region of 130,000 and growing rapidly, tourism is undeniably a critical local industry and one that must be protected.

Cambridge is known for many things. Obviously, the University is a major draw. It is also a beautiful medieval city with many historic and iconic buildings, monuments, and wide open spaces. It is a cycling city, a high-tech centre of excellence, an academic's ideal base, and a fun place for students and young people generally. People come to visit the City as tourists because it is a very pleasant place to walk around and spend some time. Central to the ambiance of the City is the feeling that this is a green, leafy, environmentally-friendly City, in which considerable efforts have been made to hold back the concrete and allow vegetation and wildlife to thrive.

Companies base themselves in the City partly to be close to other key businesses and the University, but also because they wish to retain their staff by being based in a very pleasant location. It is critical both for tourism and for Cambridge businesses that no changes are made to the City that adversely affect its beauty, its green leafy nature and its attractiveness. Integral to this requirement are the approaches through residential and industrial areas towards the City centre.

### 4.4.2 The environmental impact of the proposed changes to Milton Road

Milton Road is an attractive approach road for visitors to Cambridge. However, the main road and cycle and foot-paths are in a very poor state of repair in places. Attempts at fixing the road surface following the frost damage of last winter have failed to endure, suggesting inadequate reinstatement methods. Nevertheless, the approach is generally pleasing to the eye and gives the right impression for a City significantly dependent on tourism.

The proposed changes to Milton Road are not at all sympathetic to the environment. In the documentation accompanying the proposals is a statement that the City Deal team will "consider the potential for enhancing the environment" which is not exactly re-assuring. In fact it is unconvincing and totally lacking in commitment.

The cross-section diagram of Milton Road included in the consultation leaflet distributed to residents in December showed a stark treeless corridor, inferring removal of the majority of trees, verges and foliage alongside the road. This proposal has proved to be extremely unpopular and is not at all in the interests of residents, visitors or the attractiveness of the City.

Alternative designs have been put forward by Smarter Cambridge Transport and by Cambridge Cycling Campaign, both of which seek to support the overall aims of the City Deal in respect of removing congestion but to do so in a manner much more sympathetic to the environment and considerate to local residents. HPERA would like an assurance that these alternative approaches will be given serious consideration.

### 4.4.3 Replacing the Highworth Roundabout with traffic lights and tarmac

The Highworth roundabout (at the junction of Milton Road and Elizabeth Way) is the centrepiece of smooth-running traffic for most of the day. During peak periods, the roundabout becomes congested because traffic backs up from the traffic lights at the foot of Arbury Road.

The roundabout is spacious, functional and very attractive. Considerable effort has been made planting bushes, grasses and flowers on the roundabout to enhance the beauty of the local area, and is appreciated by local residents, commuters and other road users.

Local residents do **not** wish to see this roundabout, with its country feel, replaced by tarmac, concrete and traffic lights.

The argument for the replacement of the Highworth roundabout appears to be a perception of danger to cyclists. There is no evidence that the roundabout has hosted more bicycle accidents than any other junction in Cambridge, and the experience of traffic light systems in the City is that they **delay** traffic flow, whereas roundabouts have been assessed to improve traffic flow over traffic lights by up to 50%.

A perception of danger is not adequate to justify the huge expense of demolishing the roundabout structure, creating a traffic light installation and causing massive environmental damage. There are many studies that have been carried out around the world into the justification of replacing roundabouts with traffic lights. In some UK cities there has been great enthusiasm for doing so, but this runs counter to attitudes in other countries such as the US and the Netherlands.

(See Reference **[5]**)

## 4.5 Increased danger to parents and carers and their children

Parents and carers of young children at Milton Road School and those of older students at the Castle School and Chesterton Community College will face increased danger on their way to and from school due to the greatly increased traffic levels:

- at the end of Hurst Park Avenue
- along Ascham Road and Gurney Way

The increased incentives for drivers to take short-cuts through the Hurst Park Estate and using the Ascham/Gurney rat-run, coupled with the speed with which drivers turning right across 10m of tarmac will enter Hurst Park Avenue and Ascham Road will present significantly increased danger to anyone with the need to cross these junctions during peak periods.

It is essential to remove the incentives for drivers to take short-cuts through these residential areas by enabling City bound traffic to turn north-west at Arbury Road and Gilbert Road. In addition, if the right turn into Arbury Road is barred, then the Highworth roundabout would provide the only feasible means for drivers to make a U-turn and so turn left into Arbury Road instead.

## 4.6 Danger to southbound cyclists following "Arbury Road Route"

In principle, the construction of improved cycle-ways under the "Cross-City Cycling" initiative is a welcome development, although the proposed implementation of the **Arbury Road Route** is questionable. With the Arbury Road Route, southbound cyclists can travel as far as the end of the Arbury Court play area, where the cycle paths will end. At that point, southbound cyclists, who do not wish to travel further down Arbury Road using the vehicle traffic lane, must cross Arbury Road, effectively turning right to follow the new mixed-use cycle/pedestrian track to Leys Avenue.

From there, southbound cyclists may take two legal routes to Milton Road (Mulberry Close is private property and so not accessible to others), via Leys Ave, Leys Rd, Highworth Ave, or via Leys Ave, Highfield/Orchard Ave, Hurst Park Ave. In both cases, cyclists will find that there are no cycle paths to protect them and, in addition, they will find the routes congested and so relatively intimidating and dangerous.

There is experience of danger to cyclists frequently involved in near-misses with "rat-running" cars at the junction of Leys Road and Leys Avenue. Greater volumes of traffic will increase this danger for cyclists especially as the new Arbury Road cycle route will channel more riders into Leys Avenue rather than other routes, see 4.8.

See Appendix E.

## 4.7 Problems for cyclists and pedestrians travelling southbound from Highworth Avenue to Ascham Road

In the morning there is a cavalcade of primary school parents with buggies and children on bikes heading towards Milton Road School along with secondary children going to Chesterton Community College, plus other cycling commuters travelling south on the stretch of pavement from Highworth Avenue to Ascham Road. The current proposals expect cyclists to traverse the traffic lights at Highworth Avenue, travel south on the cycle lane on the East side of Milton Road, then cross back to the West side of Milton Road at the St Laurence's pedestrian crossing. In reality, cyclists will not do this. They will simply use the north bound cycle lane, against the prevailing cycle traffic, and the pedestrian area. This will have the secondary effect of channelling all cyclists down the Leys Avenue route rather than down Hurst Park Avenue accentuating the car to cyclist conflict outlined in 4.6 above. This illustrates the danger of considering Milton Road purely as a "corridor" and not as a "community".

## 4.8 Unwelcome detours forced on Highworth Avenue residents

The City Deal proposals recommend closing Highworth Avenue at its southern end and opening the road at its northern end. Presumably this is to reduce the cycle time of the proposed traffic light installation and also for the safety of cyclists travelling along Milton Road.

The repercussions of this measure for residents of Highworth Avenue using motor vehicles amount to detours and delays as a result of having to navigate the Hurst Park estate instead of connecting directly with Milton Road - illustrated in Appendix F.

The justification for the removal of the roundabout on cyclist safety grounds is challenged following a traffic survey of cycle and vehicle movements during morning peak traffic. Please see research section 5.1.5 and Appendix G which suggests that the risk to cyclists at this roundabout is low even during periods of peak traffic flow. An initial idea for the reworking of the Highworth roundabout is illustrated in Appendix G. This suggests improved cycle paths encircling the roundabout with a wide two-way path on the Highworth Avenue side of Milton Road. Cyclists would be given priority when crossing the access to Highworth Avenue.

# 5. Research Findings

## 5.1 Traffic Surveys

### 5.1.1 Gilbert Road

A count of motor vehicles travelling south along Milton Road and turning right into Gilbert Road was carried out on Tuesday 26th January (evening) and Friday 29th January (morning). The findings are as follows:

| Period 26th January 2016 | No. of light phases | No. of vehicles Straight on | No. of vehicles Turning Right | % turning right |
|---|---|---|---|---|
| 16.38 – 16.51 | 9 | 45 | 35 | 44% |
| 16.53 - 17.07 | 11 | 55 | 57 | 51% |
| 17.09 – 17.23 | 11 | 43 | 43 | 50% |
| | **Totals:** | **143** | **135** | **49%** |

| Period 29th January 2016 | Light phases no. | Straight on no. | Right turn no. | % turning right |
|---|---|---|---|---|
| 0910 - 0922 | 9 | 84 | 43 | 34% |
| 0925 - 0939 | 12 | 93 | 40 | 30% |
| 0941 - 0955 | 10 | 62 | 44 | 42% |
| 0955 - 1010 | 10 | 80 | 46 | 37% |
| | **Totals:** | **319** | **173** | **35%** |

Approximate daily total turning right: **1500 (40%)**
Calculated as follows:
Vehicles turning right during observed period ( 1.67 hrs )= 135+173 = 308
No. vehicles turning right during 4hr peak periods (2hr am + 2hrs pm) = 2 x (135x3/2 + 173) = 751
Assume non-peak volume = 0.25 x peak, so no. of vehicles turning right daily = 2 x 751 = 1502.
The calculation of annual volume assumes 220 working days, to be conservative.
**Approximate annual total of vehicles turning right: 330,000.**

If the Gilbert Rd *no-right-turn* is implemented then around 1500 vehicles/day will have no choice but to use the Ascham/Gurney and Hurst Park Estate routes towards North Western areas of the City. In our modelling a 50%/50% split has been assumed.

### 5.1.2 Hurst Park Estate

A traffic survey was carried out in the Hurst Park Estate on 3rd February 2015. The purpose of this was to ascertain the current status of traffic flow in the estate to check the inclination or otherwise of drivers to use the Estate as a cut-through or for commuter parking.

The methodology was as follows: Cars entering and leaving the Estate at the end of Hurst Park Avenue and at the end of Leys Road were recorded for 90 minutes during the morning and afternoon peak periods, those being 0715 – 0845 and 1615 – 1745. Data at each entrance/exit was

compared to determine what proportion of cars entering the estate passed straight through (taking a short-cut).

The results were as follows:

| | | Leaving | | | | |
|---|---|---|---|---|---|---|
| | | Estate | Hurst Park Ave (am) | Leys Rd (am) | Hurst Park Ave (pm) | Leys Rd (pm) |
| Entering | **Estate** | **201** | **40** | **26** | **25** | **31** |
| | **Hurst Park Ave (am)** | **32** | 19 | 6 | 9 | 2 |
| | **Leys Rd (am)** | **35** | 49 | 6 | 4 | 13 |
| | **Hurst Park Ave (pm)** | **34** | 11 | 4 | 14 | 21 |
| | **Leys Rd (pm)** | **34** | 4 | 8 | 14 | 11 |
| | **Total** | **336** | **123** | **50** | **66** | **78** |

Vehicle passing straight through:

- 27 vehicles from HPA to LD during peak periods
- 63 vehicles from LD to HPA during peak periods

The observation period was 90 minutes.

The peak flow period is generally accepted as 2hrs in the morning and 2hrs in the evening, as in 5.1.1.

**Total annual flow through the Estate HPA to LD is 15,840**

**Total annual flow through the Estate LD to HPA is 36,960**

This represents the number of vehicles using the estate as a short-cut.

### 5.1.3 Arbury Road and Union Lane

A count of motor vehicle entering Arbury Road from Milton Road heading south (i.e. turning right into Arbury Road) and from Union lane (straight ahead into Arbury Road) was carried out on Monday 1st February 2016. The results were as follows:

| Period 1st February 2016 | No. of light phases | No. of vehicles Straight On to Arbury Road from Union Lane |
|---|---|---|
| 16.35 – 16.50 | 8 | 19 |
| 16.51 – 17.05 | 8 | 21 |
| 17.07 – 17.20 | 7 | 25 |
| 17.22 – 17.35 | 7 | 13 |
| | **Total:** | **78** |

**Approximate daily total heading north from Union Lane into Arbury Rd: 624 (annual: 137,280)**

If Union Lane is closed at the north end, then we cannot be sure how drivers will head north. All we can say is that they will have to either head to the A14 along Scotland Rd/Green End Rd/Milton Rd, or head to the Chesterton roundabout.

In either case the closure of Union Lane will force an extra journey distance of at least 450m.

| Period<br>1st February 2016 | No. of<br>light phases | No. of vehicles<br>Turning Right<br>Into Arbury Rd from Milton Rd |
|---|---|---|
| 16.35 – 16.50 | 7 | 6 |
| 16.51 – 17.05 | 7 | 7 |
| 17.07 – 17.20 | 8 | 3 |
| 17.22 – 17.35 | 7 | 10 |
| | **Total:** | **26** |

**Approximate daily total turning right into Arbury Rd from Milton Rd: 208 (annual: 45,760)**

If the *no-right-turn* at Arbury Rd and closure of Union Lane at the north end is implemented then, S-bound traffic along Milton Road wishing to head North, and Union Lane traffic heading north will travel either through the Hurst Park Estate or via Ascham Rd/Gurney Way to Gilbert Rd. In our modelling a 50%/50% split has been assumed.

### 5.1.4 Left Turn into Kings Hedges Road

A count of motor vehicles turning left in Kings Hedges Road from Milton Road was carried out on Friday 29th January. The findings are as follows:

| Period | No. of<br>light phases | No. of vehicles<br>Straight on | No. of vehicles<br>Turning Left | % turning left |
|---|---|---|---|---|
| 16.26 – 16.40 | 9 | 146 | 19 | 12% |
| 16.42 – 16.55 | 7 | 107 | 6 | 5% |
| 16.56 – 17.08 | 7 | 106 | 12 | 10% |
| 17.10 – 17.24 | 9 | 93 | 14 | 14% |
| **Totals:** | | **452** | **51** | **11%** |

Approximate daily total turning left (5.1.1 method): **204 (11%)**

**Approximate annual total turning left: 44,880**

Unable to turn left, N-bound traffic along Milton Road wishing to head North will travel either through Ramsden Sq. or north along Lovell Rd to reach Kings Hedges Road. In our modelling a 50%/50% split has been assumed.

### 5.1.5 Highworth Roundabout

Observations of traffic using and crossing the Highworth Avenue arm of the roundabout were made on Monday 1st February 2016 from 0745 to 0900. The findings were as follows:

Milton Road north-bound:

- 3 cyclists on the main MR highway turned left into Highworth Ave
- 107 cyclists on main MR highway continued up Milton Rd
- 10 cyclists on foot/cycle path turned left into Highworth Ave
- No motor vehicles entered Highworth Ave from this direction
- 1 motor vehicle exited Highworth Ave and turned left up Milton Rd

Milton Road south-bound:

- 175 cyclists (many parents/children) either crossed the arm or emerged from Highworth Ave using the foot/cycle path on the west side
- 1 motor vehicle entered Highworth Ave from this direction

Elizabeth Way east-bound:

- 22 cyclists exited Highworth Ave and went down Elizabeth Way using main highway
- No motor vehicles exited Highworth Ave to take this route

Elizabeth Way west-bound:

- 5 cyclists exited Elizabeth Way and entered Highworth Ave using main highway
- No motor vehicles entered Highworth Ave from this direction

These observations provide evidence that a wide cycle path and footpath across the Highworth arm and continuing down to Gilbert Road is needed for the safety of cyclists and pedestrians. This should accommodate two-way traffic of pedestrians and two-way traffic of young cyclists heading to and from the Primary school and Community College.

**It is clear that the risk to pedestrians and cyclists from motor vehicles entering or leaving Highworth Ave was negligible when these observations were made – there were only two vehicle movements. Based on this evidence there is insufficient justification for the closure of Highworth Avenue.**

## 5.2 Roundabouts versus Traffic Lights – which is safer for cyclists?

Whether you are for or against roundabouts or traffic light systems depends on context. The argument in the UK's public sector has been swaying against roundabouts of late, the points of issue being along the following lines:

**For** Roundabouts:

- *Roundabouts allow traffic to flow better, reportedly by up to 50%.*

- *Traffic lights introduce delays and are responsible for tailbacks.*
- *Roundabouts are safer for cyclists because accidents happen as traffic moves off from traffic lights because cyclists are too close to motor vehicles.*

**For** Traffic Lights:

- *Roundabouts are more dangerous for cyclists because cars travel faster than bicycles and car drivers entering and leaving roundabouts do not notice cyclists.*
- *Roundabouts can cause congestion if there is a dominant entry and exit and other entrances/exits get cut off. Traffic lights better manage uneven loads on roads that meet at a junction.*
- *Traffic lights allow for the controlling of crossings across the carriageway.*

International experience on the subject is that while the UK seems keen to change from roundabouts to traffic lights, the US, and much of mainland Europe is moving in the opposite direction. See reference **[5]**. There is no doubt that large roundabouts encourage car drivers to enter and exit the junction at higher than safe speeds from a cyclist's viewpoint. Dutch solutions to this problem have featured reducing the size of roundabouts to tighten the radius of turn and so slow down the traffic speed.

However, it is also true to state that roundabouts facilitate improved traffic flow and are far less costly to maintain than traffic lights. Also, that standard traffic light systems introduce unacceptable delays during peak traffic times is indisputable. An item not often considered is *the environment*. Roundabouts often *double-up* as oxygen-generating leafy attractions for local residents and become an essential contribution to a healthy environment.

In the case of the Highworth roundabout, the overwhelming preference of local residents is to leave it where it is, although better lane marking and the re-implementation of a right filter on the southern approach to facilitate positioning for traffic turning right into Elizabeth Way would help reduce any north-bound queues.

Residents are sympathetic of the need to protect cyclists. Indeed a large proportion *are* cyclists. However accident statistics show that the roundabout is probably no more dangerous than other junction types:

| Year | Slight (no medical attention) | Major (medical attention) |
|---|---|---|
| 2010 | 3 | 0 |
| 2011 | 3 | 0 |
| 2012 | 4 | 0 |
| 2013 | 2 | 0 |
| 2014 | 6 | 0 |
| 2015 | 3 | 0 |

Claims to the contrary are not supported by the facts.

Residents who know the area well contend that the Highworth roundabout is normally free-flowing and self-regulating, even in congested conditions. The roundabout is not the cause of congestion –

any that occurs is due to pinch-points elsewhere in the system – in particular the unintelligent and outdated Arbury Road traffic light system. One wonders how installing yet more traffic lights is going to improve the situation.

### So what is the optimum solution for the Highworth roundabout?

- Retain the roundabout in its existing position and retain access to Highworth Avenue at the southern end. This will continue to facilitate good traffic flow, including that of buses while maintaining the environmental benefits of the existing trees and greenery.
- Reduce the inner radius of the roundabout somewhat to enable dual-lane marking and encourage better lane discipline and speed reduction.
- Add a separate cycle path around the periphery of the roundabout with kerbing to protect cyclists.
- Reduce geometry of traffic island on southern approach to allow vehicles to line up with dual-lane markings.
- Install signage to create awareness among road users about new road layout and priorities.
- Ensure that all pedestrian pavements line up with appropriate crossings across the carriageway.

**This is illustrated in Appendix G p.42**

## 5.3 What measures protect cyclists in other cities and countries?

### 5.3.1 Jumping Red Lights

In The Netherlands, Belgium and parts of France it is legal for cyclists to jump red lights and travel ahead or turn to the near side (turn left in UK). This happens anyway across most of Cambridge City as cyclists seek to get well clear of motorised traffic. Why not extend the advantage to the more law-abiding cyclists and make the practice legal?

### 5.3.2 Safer Cycle Routes

The Netherlands, Denmark and Germany have far higher rates of cycling compared to the UK largely because their better developed cycling infrastructure renders the perception that cycling is safer which encourages a greater proportion of the population to participate. (see reference [4]).

Cycling routes should form networks that are useful, joining places where people live and work, as well as giving access to public transport. The safest routes physically separate cyclists from traffic. In Canada, a study of such infrastructure suggested that cyclists reduced their risk of injury by 89% as compared with cycling on busy roads.

The principle of connected, segregated cycleways is also endorsed by Smarter Cambridge Transport.

## 5.4 How does Cambridge City attract tourists and businesses?

The "Cambridge Network" (Reference [6]) is a membership organisation linking together businesses and academic institutions in Cambridge. In many ways the Cambridge Network typifies what the "Cambridge phenomenon" is all about. Ideas, scientific results, services and technologies generated by the Universities and colleges capitalised on by local businesses ultimately for the benefit of the City as a whole. On the Cambridge Network's website, the reasons for coming to Cambridge are expressed thus:

- "a unique and beautiful city..."
- "the beauty of its ancient centre is preserved with its walkable medieval streets, college courts, gardens and bridges."
- "renowned for its world-class university and the thriving cluster of high technology businesses"
- "an enhanced quality of life"

The "Visit Cambridge" web site says:

- Admire the beautiful architecture and majestic college buildings
- Explore quaint passages set around the historic market place and colleges, where a unique and relaxing shopping experience can be found.

The Bellerby's College site states:

- Cambridge has one of the loveliest and peaceful atmospheres in Europe and it is especially student friendly.
- Cambridge is also a family friendly place.

Of course the numerous obvious attractions, such as the Colleges, punting, theatres, museums, green spaces etc. all get a mention as well. The point here is that the beauty and peacefulness of Cambridge City is a major draw for workers, students and those that wish to live here. The City is seen as a safe haven with excellent schooling, a calm, assured atmosphere and a civilised welcoming culture that is attractive despite a higher than average cost of living.

Any major change to the City that destroys these plus points, particularly the unique environmental beauty of the City, will result in fewer tourists, fewer office-based business wanting to stay, and fewer City-centre retailers wishing to come here.

Relating this need to Milton Road and the Hurst Park Estate, Milton Road is currently one of the more attractive routes from outside the City into the centre. It needs maintenance and improvement – especially to cycle lanes and footpaths. However, what must not happen, is wholesale destruction of the trees and greenery and the generally leafy look and feel of the road. Clearly a four-lane highway is **not viable** if the look and feel of the road is to be maintained. The City Deal team is urged to think again and consider the alternatives to dual bus lanes and the consequential environmental damage.

## 5.5 What comes first – road expansion or better services?

The measures under consideration by City Deal team appear to be strongly focussed on faster bus-based traffic through the City, and a general squeezing out of car drivers.

Measures have been suggested that close off road access to prevent interference with bus traffic flow. The intentions behind the proposals are that the extra workers seeking to work in Cambridge from outside must commute by bus. If this is the case, then the number of park & ride sites must be increased greatly, the cost of bus services reduced and the services extended to later in the evening to make them attractive.

In the City, residents have no choice but to use their cars for many journeys because buses are too expensive, do not stop locally or frequently enough to be of use, or do not serve locations of interest to residents. Some residents are physically unable to walk to a bus stop or use a bicycle, and have to use a car. The outlook for these residents is bleak indeed under current proposals.

The argument from the City Deal team appears to be that buses are slow and unused because the road system needs expanding to avoid congestion.

But what comes first?

Congestion would be alleviated to some extent if residents had a bus alternative at all, which many do not. Moreover, if cycling lanes on the main roads were safer, many car drivers would willingly opt to use bicycles for short journeys, which would also help.

Complaints that the park & ride bus services do not stop locally have been met with exasperated agreement by some officers who appeared not to have realised this. When questioned why bus services do not stop locally, the usual response is that bus operators will see the sense in making stopping services available once the infrastructure is put in place – which appears to mean more bus lanes. The Smarter Cambridge Transport team have put forward the assertion that more intelligent traffic signals (so-called Smart Traffic Management. Reference **[7]**) would also go a long way to reducing congestion by managing bus priorities at junctions and obviating the need for dedicated bus lanes and the extra expanse of road space that comes with them. It will be interesting to see the City Deal team's analysis of this option.

We question the logic underpinning plans to relieve congestion. If congestion remains as it is then journey times over an hour will persist. This being the case, a 5-minute time-saving along Milton Road is unlikely to tempt anyone from the relative comfort and convenience of their cars.

We support the case that Councillor Ian Manning is making to prototype changes to traffic flows on a temporary basis to find the most effective solutions before embarking on irreversible changes.

## 5.6 What are the Energy and Pollution implications of rat-running??

All traffic intervention schemes will have unintended consequences – some foreseen, some not. One of these is higher energy use and pollution caused by vehicles making necessary journeys but forced to make detours. In the case of Milton Road the greenhouse gas emissions as a result of the rat-runs have been calculated and are shown in the following table. Emissions of NOx and particulates are also factors but have not been calculated.

| **Route:**<br>***The route calculations are based on the distance of the route through the rat-run less the distance a vehicle would travel otherwise.*** | **Frequency**<br>***journeys/year*** | **Extra distance 1 journey** | **Annual EXTRA greenhouse gas emissions tonnes $CO_2e$ **** |
|---|---|---|---|
| Traffic travelling N along Milton Rd: Diversion from foot of HPA to end of Leys Rd to avoid T- lights<br>*Journey length through HPE via Orchard Ave: 844m* | Unable to estimate the increase<br><br>(7,920 in the existing rat-run) | 219m | 0<br><br>(0.32 now) |
| Traffic travelling S along Milton Rd: Foot of HPA to end of Leys Rd because no-right-turn at Arbury Rd or Gilbert Rd<br>*Journey length through HPE via Orchard Ave: 844m* | 165,000 (Gilbert Rd restriction)<br>22,880 (Arbury Rd/Union Lane)<br><br>(7,920 in the existing rat-run) | 969m | 33.94<br><br>(0.32 now) |
| Traffic travelling S along Arbury Rd: End of Leys Rd to foot of HPA<br>*Journey length through HPE via Orchard Ave: 844m* | <br><br>(39,960 in the existing rat-run) | 219m | 0<br><br>(1.63 now) |
| Traffic travelling out of Union Lane N along Arbury Rd forced to either head towards A14 or go via Chesterton roundabout. | 137,280 (Union lane closure) | 450m | 11.51 |
| Traffic Travelling through Ascham Rd/Gurney way because no-right-turn at Arbury Rd or Gilbert Rd | 165,000 (Gilbert Rd restriction)<br>22,880 (Arbury Rd/Union Lane) | no net increase | 0 |
| Highworth Ave residents commuting via Leys Rd | 6,600 est. | 250m | 0.31 |
| Highworth Ave residents commuting via Hurst Pk Ave | 6,600 est. | 960m | 1.18 |
| N bound traffic along Lovell Rd to avoid the no-right-turn at KHR | 22,440 (KHR no left turn) | 200m | 0.84 |
| N bound traffic through Ramsden Sq. to avoid the no-right-turn at KHR | 22,440 (KHR no left turn) | no net increase | 0 |
| Arbury/Mere/Fortescue Rd | 22,000 est. | 523m | 2.14 |
| **Total extra Emissions per annum resulting from local City Deal road restrictions (tonnes $CO_2e$)** | | | **49.92** |

** based on the conversion factor of 0.18635 kg $CO_2e$ / km[1]

**These calculations indicate additional greenhouse gas emissions of 50 tonnes per annum** resulting from proposed traffic restrictions at Arbury Rd, Gilbert Rd, Union Lane and Kings Hedges Rd.

**This is equivalent to making 30 economy air-travel journeys across the Atlantic or the total greenhouse gas emissions associated with the annual electricity consumption of 24 homes in the UK.**

[1] Conversion factor based on UK Government greenhouse gas conversion factors 2015. Units used are kg $CO_2e$ / km, which means "mass of 'carbon dioxide equivalent' in kg, per kilometre travelled". The term 'carbon dioxide equivalent' refers to a unit of greenhouse gas expressed as if all gas emitted was carbon dioxide. In practice there are many greenhouse gas variants (sulphur dioxide, carbon monoxide, methane etc.), so it is common practice to use the simpler unit 'carbon dioxide equivalent' to include all relevant greenhouse gases in known proportions.

## 5.7 How connected are the Bus companies with the City Deal priorities?

Much of the reasoning underpinning the decision by the City Deal Team to implement Bus Lanes on radial routes relates to the apparent need to support more reliable bus transport through the City. This has led to proposals for a 4-lane highway for radial routes that support two-way bus lanes in addition to two lanes for commercial and domestic transport.

Our research suggests that this rationale is out of kilter with the priorities assigned by the bus companies themselves. It is agreed that City congestion is responsible for unacceptable delays for bus travellers and with the projected increase in commuter traffic, new measures to build the effectiveness of the network are needed. However, our feedback from bus companies suggests that their need is ***priority at junctions*** rather than bus lanes as such.

Bus companies are not calling for more bus lanes. What they are seeking is faster access through the City centre. Bus lanes might appear to be a simple solution but they often remain underutilised and can themselves be a cause of congestion and delay. It is worth noting that:

- Twenty-two out of twenty-six bus lanes were recommended for removal in Liverpool by a Mott MacDonald report in Oct 2013.
- A dedicated bus lane in Truro was scrapped in Nov 2015 three months after opening.
- A bus lane on the M4 was removed in 2011.

These were all found not to have delivered any worthwhile improvements in journey times, to be very unpopular with the public and not to have been adequately researched in advance in terms of environmental impact and knock-on effects of vehicle emissions and pollution elsewhere.

Better solutions have been implemented in other cities, and have already been presented as part of the City Deal consultation process, by groups such as Smarter Cambridge Transport, and Cambridge Cycling Campaign.

## 5.8 Alternative road schemes

While it is accepted that there is an urgent need to deal with the congestion in Cambridge City, we do not believe that sufficient effort has been expended to consider alternative strategies for achieving the same ends, but in ways more sensitive to the needs of the community and sympathetic to the environment.

Accordingly, we would like the City Deal team to consider the following alternative strategies:

### 5.8.1 Multiple usage of bus lanes

If bus lanes cannot be avoided, then they should at least be multi-use for non-peak periods. The City of Edinburgh began trialling multi-use bus lanes on 5th October 2015. (See reference **[1]**). The idea is to allow all vehicles to use bus lanes outside published times of the day (peak periods). Aberdeen City Council and Hull City Council operate bus lanes in the same way (See references **[2],[3]**).

There exists a wide range of operational practices across the UK, from 100% operational bus lanes to peak period only, but the above are examples of authorities keen to experiment with more progressive and acceptable regimes.

### 5.8.2 Tidal flow bus lanes

The principle of Tidal Flow applied to bus lanes is that a bus lane would operate in one direction in the morning and in the opposite direction in the afternoon. Buses would have exclusive use of one lane travelling in the dominant direction during peak periods. Returning buses during the same period would use the standard lane.

Initial suggestions that a single bus lane in the centre of Milton Road operating under Tidal Flow principles have been met with the objection that signage would have to be mounted on overhead gantries, which would be ugly.

There are advantages to this option:

- There would be no necessity for two bus lanes, and therefore, no need to widen the road.
- The environmental damage to Milton Road would be considerably reduced;
- There would be enough space for a much improved protected cycle path, separated from both traffic and pedestrians;

That overhead gantries might be unsightly is a small price to pay for saving the trees and other greenery and at the same time improving the cycle and pedestrian paths. In any case, with some imagination and design talent, the gantries could be made into an attractive series of gateway features.

**NOTE**: the proposed road cross-section illustrated in the consultation leaflet distributed to residents is not actually achievable. Apart from the diagram not being to scale and therefore giving a misleading impression of what is possible, there are the following flaws:

- The proposed lane width of 3m is insufficient for buses and lorries to fit safely, since the width of both exceeds 3m (mirror to mirror) and risk of collisions will be high. The minimum accepted standard for dual and single carriageway lane widths is 3.65 m which cannot be supported within the current design (source: Design Manual for Roads and Bridges, Highways Agency, 2005, TD 27/05, Ch.4).
- The overall proposed road width of 20m is not available for large portions of Milton Road. This means that either cyclist or pedestrian space will be squeezed or they will risk the danger of larger vehicles encroaching on to their space.

### 5.8.3 Smarter Traffic Management

The "Smarter Traffic Management" suggestions proposed by Smarter Cambridge Transport (Reference **[7])** remove the need for dedicated bus lanes altogether and have synergy with views expressed by bus companies which seek only to have priority access through the City and are not so concerned that they travel on bus lanes at all times.

### 5.8.4 Positioning of Bus Stops and adjustments to traffic lights

- Using vacant land adjacent to the Gilbert Road Junction to enlarge and re-position the junction would allow space for a proper right-filter without impeding buses and traffic continuing straight on. An Advance Stop Line could be provided for the safety of for cyclists.
- Moving the north-bound bus-stop outside the shops in Milton Road (between Highworth roundabout and Arbury Road) further south so that buses do not park in the middle of the highway, would ease congestion greatly. Moving the south-bound bus-stop further north to the other side of Union Lane so that buses can stop in the current bus-lane would avoid causing an obstruction.
- Re-configure signal phasing at the Arbury Road Junction which, with the above two adjustments, should allow implementation of a right filter into Arbury Road without impeding south-bound flow.
- Provide bus and cycle priority at all junctions through smart signalling and Advance Stop Lines.

### 5.8.5 Orbital road system

An orbital road system is considered to be an obvious addition to the general road infrastructure and would be likely to have a more positive impact on reducing congestion by taking commuters to and from the new centres of employment to the west and south-west of Cambridge rather than via radial routes leading to the city centre. Orbital bus connections to the new Cambridge North station would have obvious advantages.

### 5.8.6 Prototyping

Before expensive and irreversible decisions are taken on some of the interventions that have been proposed, carrying out trials or prototyping of road layouts would enable the outcomes and, hopefully, some of the unintended consequences to be tested and measured.

### 5.8.7 Bus services

One of the underlying assumptions of the City Deal proposals seems to be that if dedicated bus lanes are put in place then the bus services will follow automatically and commuters will leave their cars at home.

But behavioural change is more than about infrastructure, and the time spent on a bus is only one part of the overall journey experience. Routes, fares, frequency, comfort and convenience are all required along with off-bus or cashless ticketing to speed up the put-down/pick-up cycle. Some of these could surely be put in place now.

Once the bus lanes are built there will be no guarantee of any de-regulated operator using them. Perhaps the time is coming for de-regulation to come to an end.

# 6. Conclusions and Recommendations

## 6.1 Specific to the Hurst Park Estate

- **Arbury Road and Gilbert Road** contain important destinations needing vehicular access including a Primary School, Castle School, Care Home, Community College, Academy School, Dentist, Veterinary Practice etc. The proposed traffic turn restrictions and road closures will result in **significant delays for cross-corridor traffic** around Milton Road, significant **inconvenience** to residents and commuters needing to navigate local streets by car, and an increase in danger to pedestrians, noise, **pollution** and energy usage. Additional greenhouse gas emissions are conservatively calculated at 50 tonnes **$CO_2e$** per year which will be exacerbated by loss of trees and greenery.

  **Recommendation:**

  Proceed on the basis of 'doing least harm'. Make intelligent incremental changes at critical pinch points in the system as outlined in this report and measure the results, rather than embarking on major and irreversible road widening.

- **The rationale for the removal of the 'Highworth roundabout'** and its replacement with a traffic light system is twofold: i) a perception that roundabouts are more dangerous for cyclists than traffic light systems, and ii) that a traffic light system will better regulate the flow of buses through City environs, avoiding the delays at roundabouts. **In both cases, we believe that these justifications are flawed**, and that the proposal flies in the face of trends in other countries.

  **Recommendation:**

  Leave the roundabout in place but make modifications as outlined in this report to improve traffic flow further. In particular, install new cycleways and footpaths to accommodate the particular needs of cyclists and pedestrians. Allow the grass to remain and the flowers to blossom. Modifications at pinch-points up-stream and down-stream in the system should help to improve the passage of buses in this section.

- **Current options for Milton Road will be to the detriment of the public realm and environment**. Cities should be planting more trees, not getting rid of existing ones. They are the lungs of our community, provide an attractive environment and assist in cleaning up air pollution. Grass verges assist by providing natural drainage.

  **Recommendation:**

  Abandon ideas for a four-lane motorised highway. If smart, incremental modifications to the network fail to deliver the improvements required then consider a three-lane tidal flow arrangement.

## 6.2 Not Specific to the Hurst Park Estate:

- Radial routes need to be upgraded but full-length dedicated bus lanes are not the answer. There is insufficient road width and some bus lanes are rarely occupied by buses. What is needed is priority when approaching and leaving junctions at peak times.
  **Recommendations:**
  Consider bus gating through smart signalling during peak hours. Outside peak times, road space should be shared by public and private vehicles.

- New cycle lanes should be segregated from traffic and pedestrians where possible and positioning of bus stops should take account of passenger's needs.
  **Recommendations:**

  Use the experience of Huntingdon Road where some cyclists prefer to travel in the 'wrong' direction on both sides of the highway rather than try to cross traffic lanes, risking collision with other traffic. There is anecdotal evidence of motor cyclists under-taking buses on Huntingdon Road by using the cycle lane. This should be banned and enforced by the police. The floating bus stops have not proved popular with passengers, can cause queueing and should not be implemented generally.

- More ambitious plans are needed to encourage commuters from outside the City to use public transport.
  **Recommendations:**
  Provide more P&R hubs further out from the city in convenient locations which are properly sheltered, low-cost and are destinations in themselves – offering franchises for Car-Wash, mini-mart, collect+ parcel pick-up and so on. Ticketing should be off-bus or cashless and service hours should be extended to cater for user needs. Note: the implementation of charges at the existing P&R sites resulted in 500,000 less passenger journeys per annum (-14%).
  Provide better signage when drivers approach P&R sites to enable them to make a sustainable journey choice before embarking on a city-centre commute.
  Press ahead with the idea for a rail station at Addenbrookes to link up with Cambridge North.

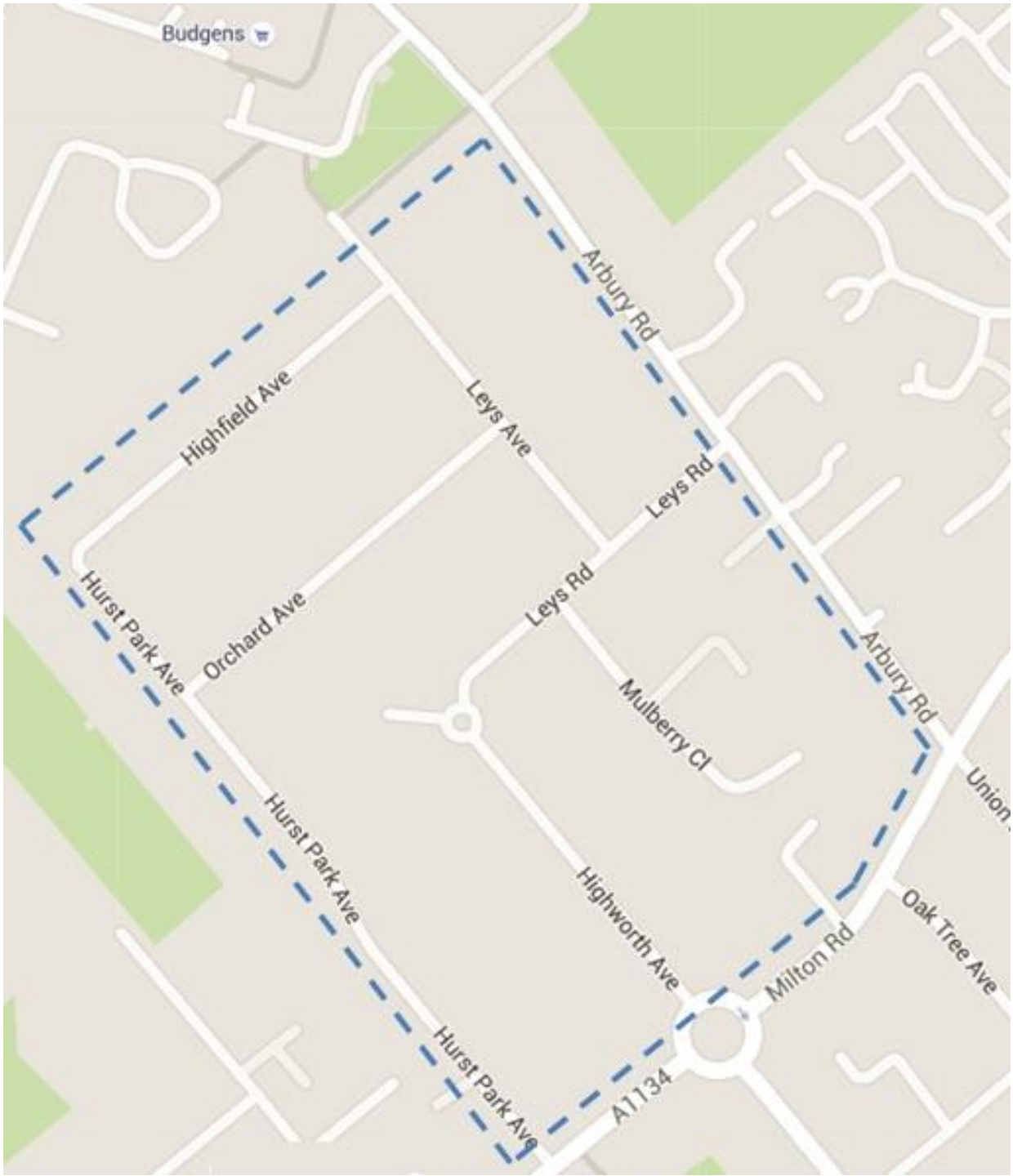
- More ambitious plans are needed to dis-incentivise drivers from entering the city.
  **Recommendations:**
  Encourage sixth- form colleges and private schools to start their day at 10.00am.
  Introduce mandatory pre-pay and booking for city-centre car parks – drivers on essential journeys will then be guaranteed a space and others will no longer be cruising around and forming queues.
  Extend parking restrictions into residential streets 1-2 miles out from the centre.
  Consider road charging at peak times for all road users (would also generate income to subsidise P&R running costs).

## 7. Credits

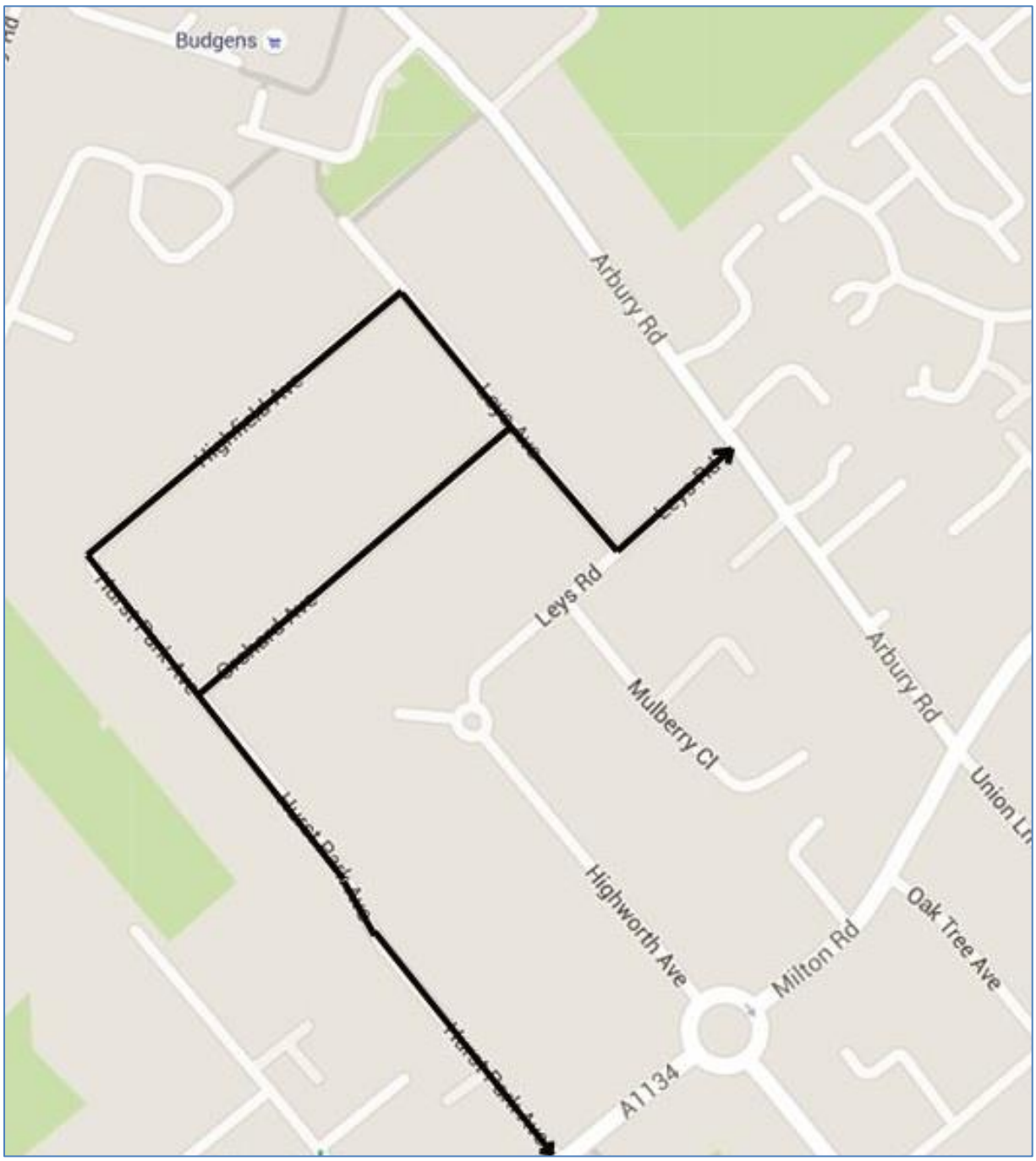
This document is the result of work by members of HPERA. Special thanks to the following participants:

| | |
|---|---|
| John Beasley | Initial Drafting, Editing, Traffic Surveys |
| Michael Page,<br>Mary Pountain | Drafting content, Document Review & Editing |
| Richard Cushing | Traffic Surveys, Research & Analysis, Document Review & Editing |
| Glyn Burton, Margaret Burton,<br>John Latham,<br>John Harrod,<br>Shirley Shipton,<br>Judith Rattenbury | Hurst Park Estate Traffic Survey |
| John Latham | Numerous Independent Traffic Surveys |
| Jo Tunmer, Luke Tunmer | Document Review & Editing, Drafting Alternatives content |
| Andrew Milbourn | Document Review & Editing |
| Sarah Cullum | Document Review & Editing, Drafting Executive Summary |
| David Robinson | Document Review & Editing, Verification of modelling |

## Appendix A – The Hurst Park Estate



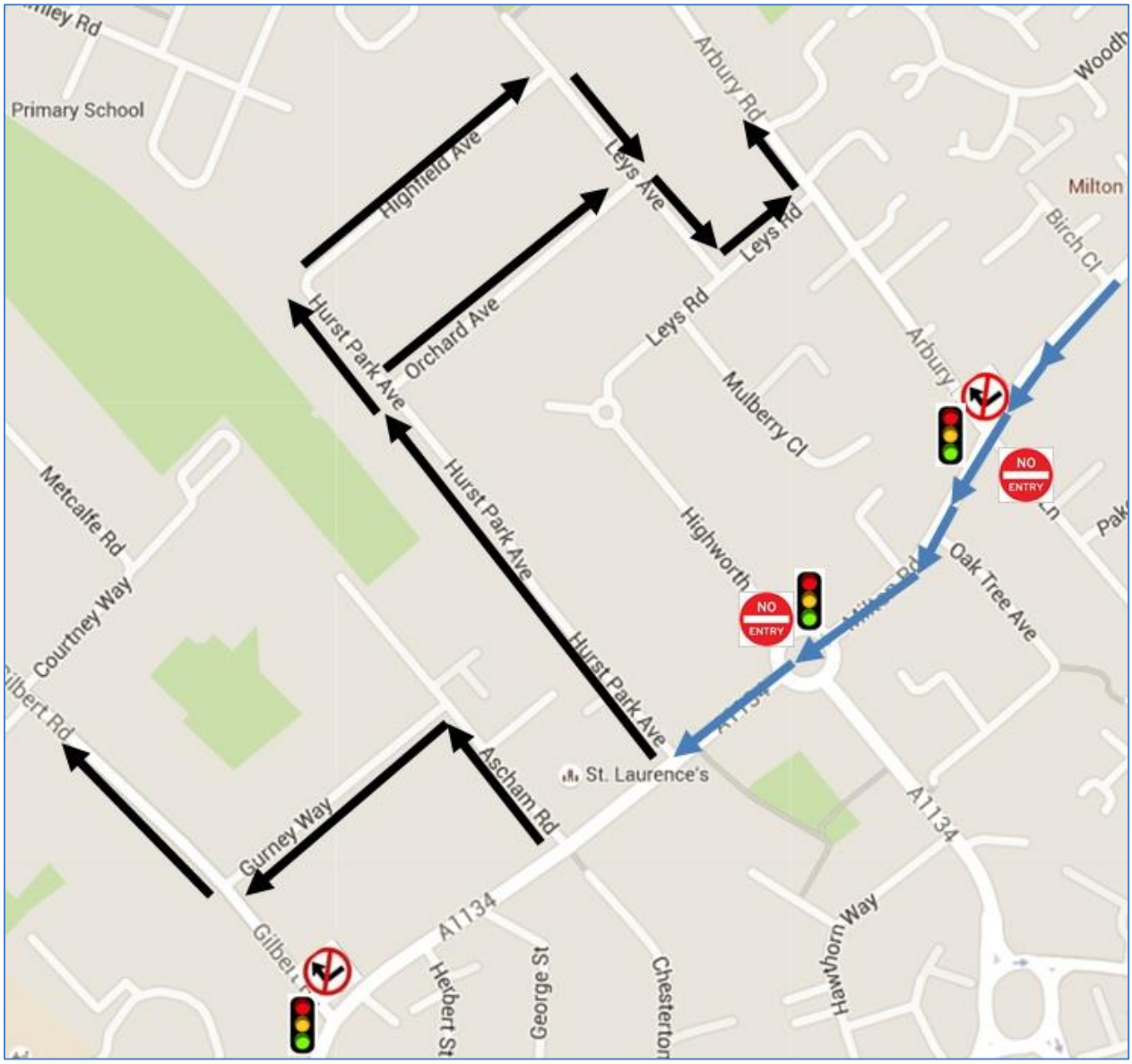
## Appendix B – Increased Traffic in Hurst Park Estate




Traffic will increase significantly in both directions between the Arbury Rd/Leys Rd junction and the Milton Rd/Hurst Park Ave junction. The streets are narrow with cars parked on both sides leaving a single lane space. The area is already a rat-run during peak periods as drivers seek to avoid the Arbury Rd/Milton Rd traffic lights. Increased traffic levels will result in congestion and travel delays especially at the two exits from the estate.

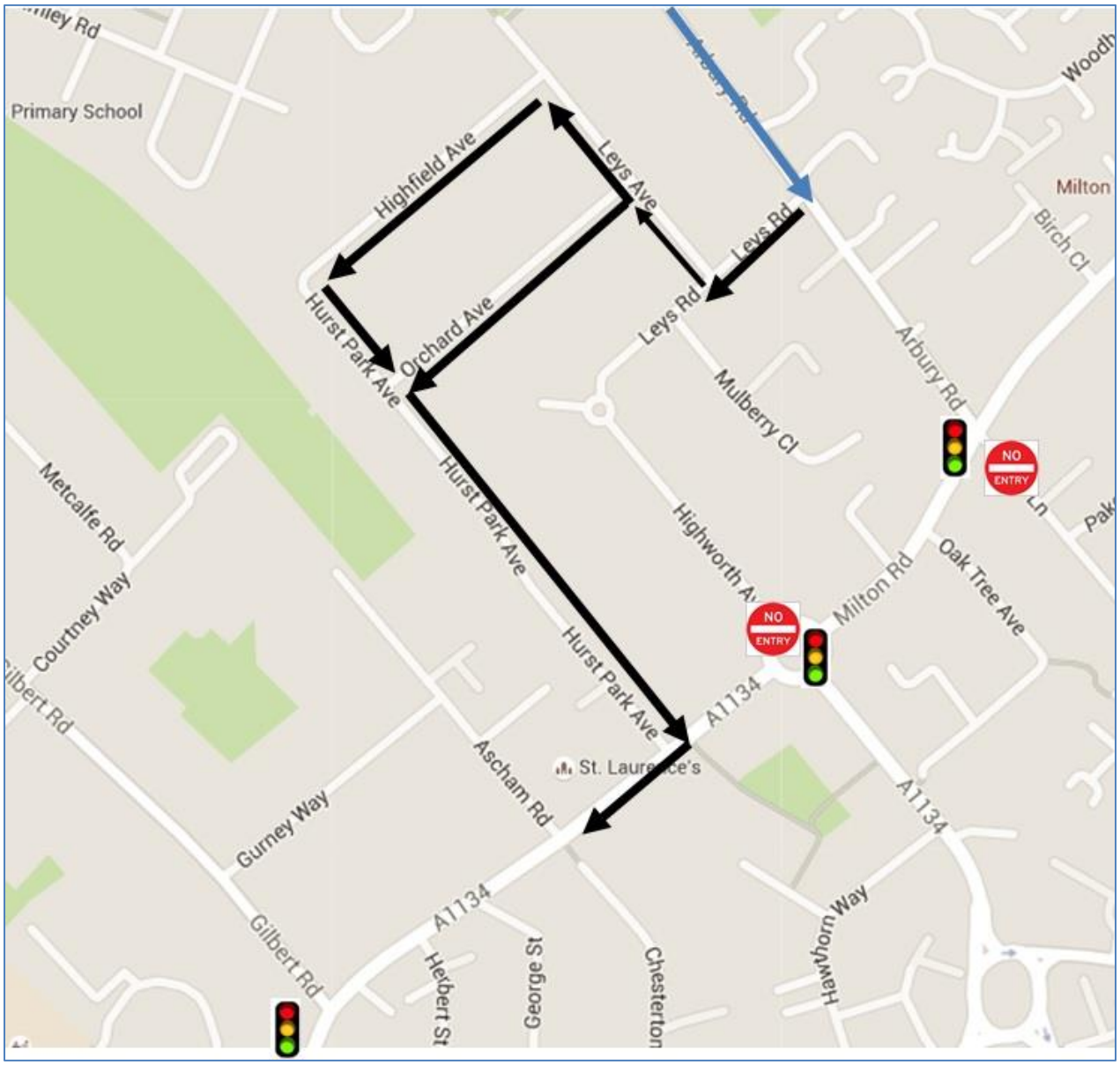
## Appendix C - Congestion in the Hurst Park Estate

### Changes (a) and (b) – City-bound traffic turning north



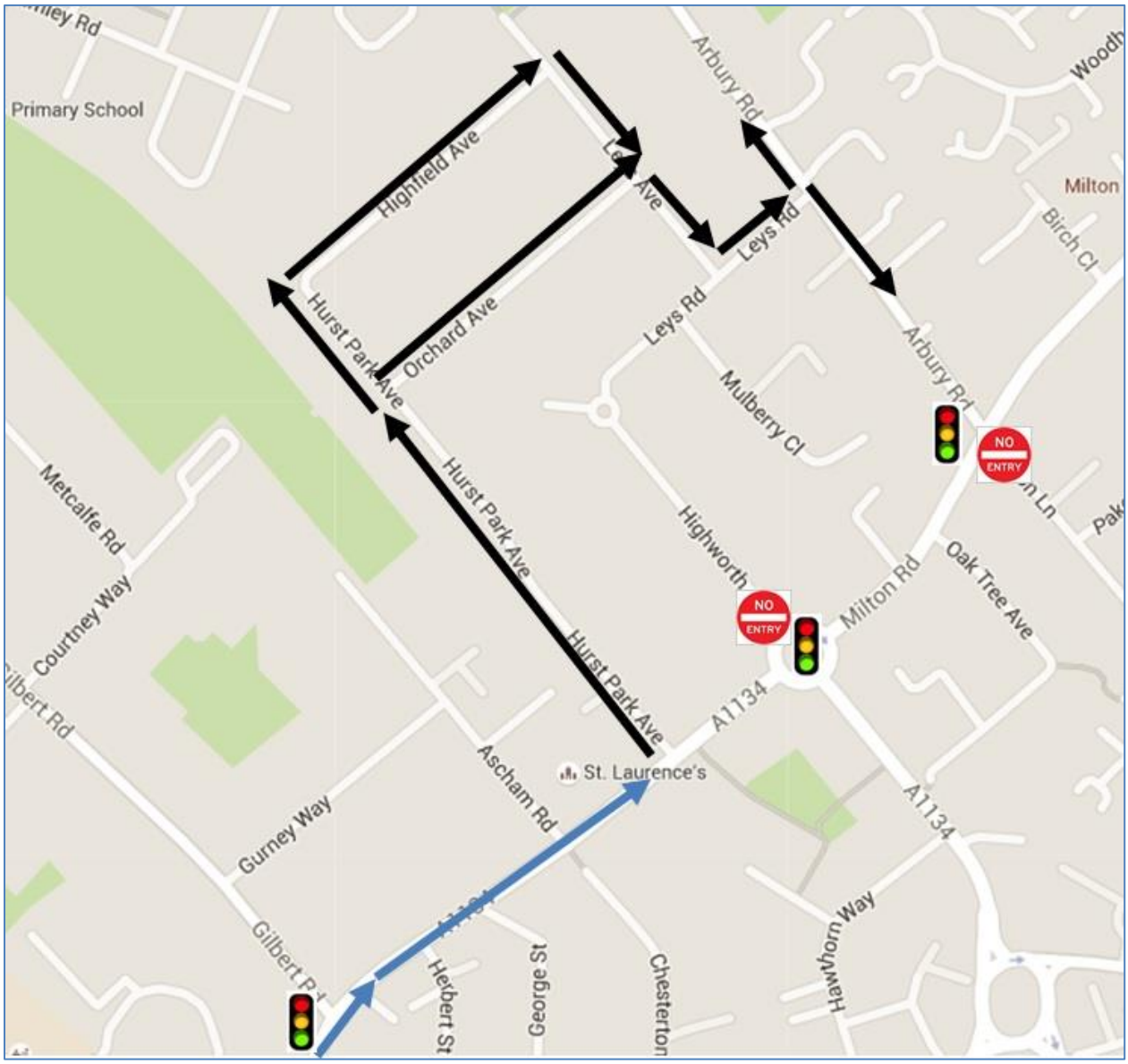

Traffic flow restrictions at the Arbury Rd and Gurney Way junctions with Milton Road will encourage City-bound car drivers, who wish to head north to the Arbury or Histon areas, to take a cut through the Hurst Park Estate.

## Appendix C (c) – 1. Arbury Rd southbound traffic heading to the City



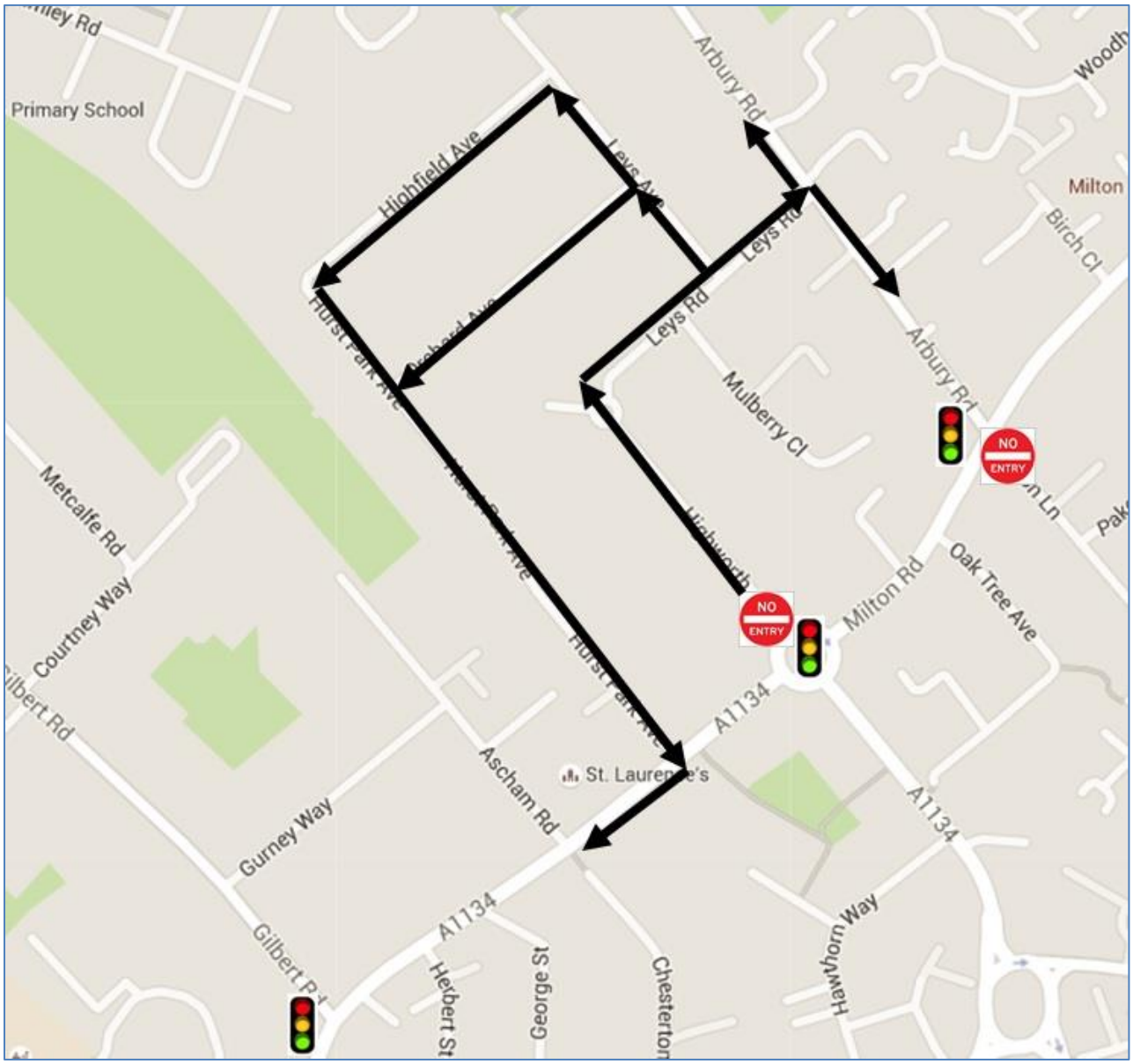

Faced with the prospect of one delay turning right at the bottom of Arbury Rd, followed soon afterwards with another delay caused by traffic lights near to Highworth Ave, drivers will opt for the short-cut through the Hurst Park Estate.

## Appendix C (c) – 2. Milton Rd outbound traffic heading to Arbury/Histon




Outbound traffic will have the choice to turn left along Gilbert Rd, cut through the Hurst Park Estate to Arbury Rd or endure the delay of two sets of traffic lights and eventually turn left at the foot of Arbury Rd.

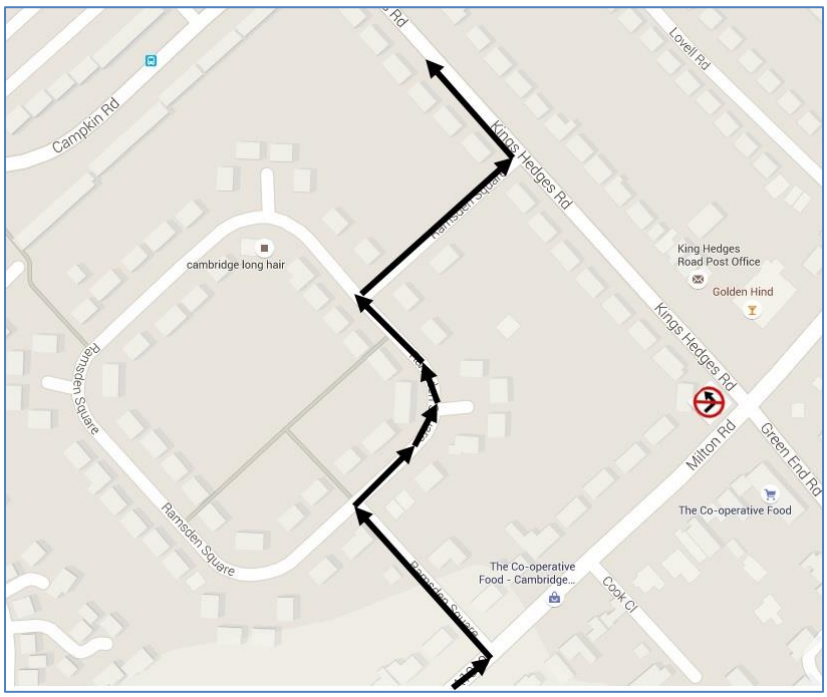
## Appendix C (d) – Highworth Ave traffic proposed route out of the Hurst Park Estate



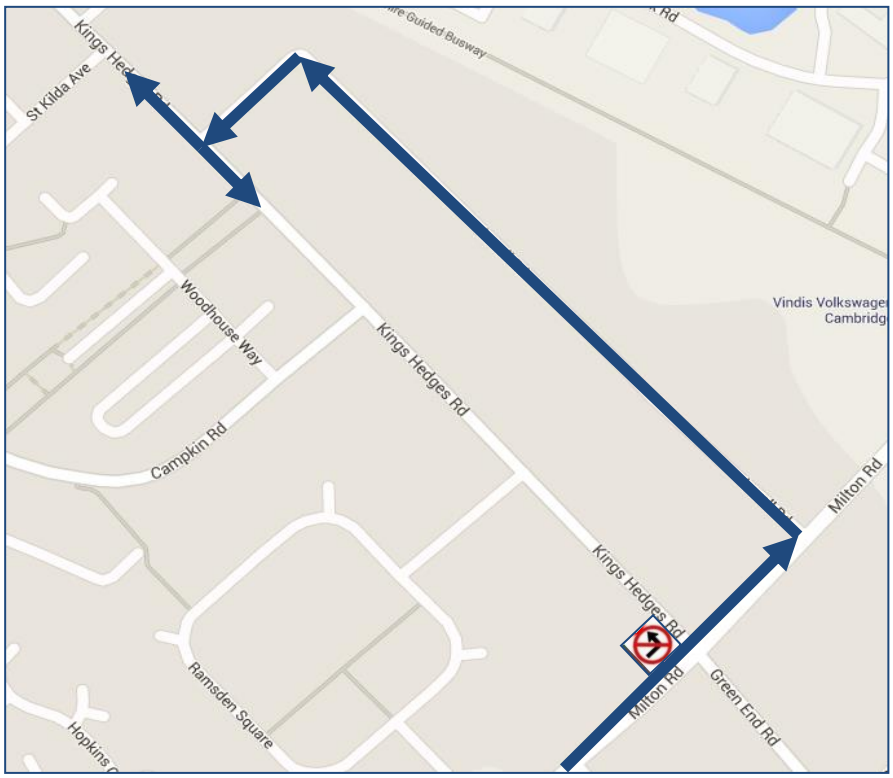

Highworth Ave traffic will have to exit either via Leys Rd or Hurst Park Ave. In both cases exiting the Estate will involve joining a queue and enduring a delay not currently experienced when exiting directly onto Milton Rd. In addition Highworth traffic will be travelling counter to cycle traffic from the "Cross-City Cycling / Arbury Road Route", travelling from Arbury Court to Milton Rd.

# Appendix D – Other rat-runs

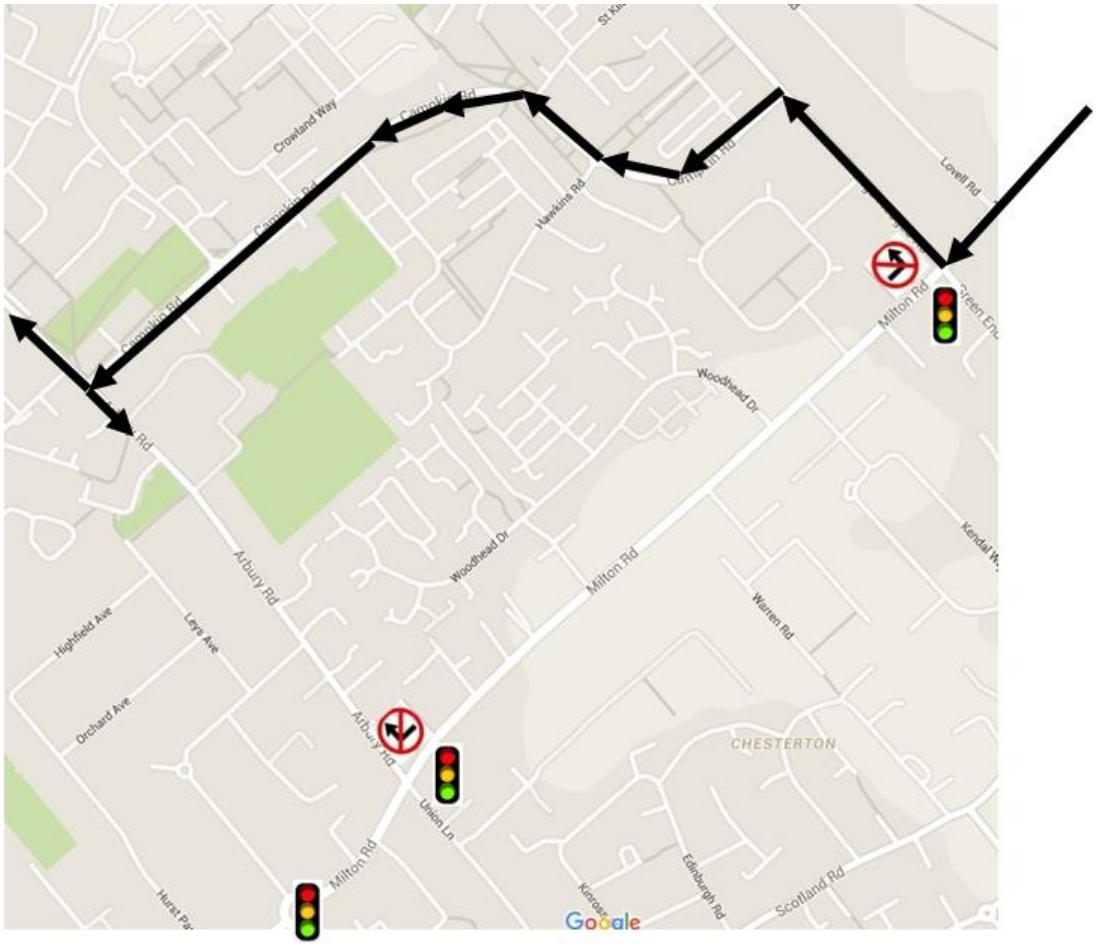
## Appendix D (a)– Other rat-runs: Ramsden Sq. & Lovell Rd




Northbound traffic will no longer be able to turn left at "The Golden Hind" and so will have the choice of turning left into Ramsden Sq., or at Lovell Rd (see below).



## Appendix D (b) – Other rat-runs: Campkin Rd



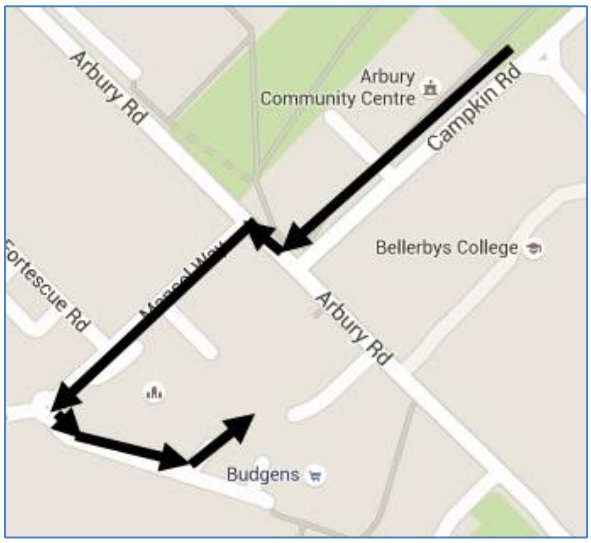

Faced with a ***no-right-turn*** at **Arbury Rd**, City bound traffic wishing to head north will use ***Campkin Rd*** to get to Arbury Rd.

**But also note:** Residents who live on Milton Rd between the Arbury Rd and Kings Hedges Rd junctions, and those residents of Woodhead Drive who can only exit onto Milton Rd in the same area, and who wish to head north will no longer be able to turn left up Kings Hedges Rd or right up Arbury Rd and so their only choices will be to take a short-cut through the Hurst Park Estate or take a very long detour round Mitcham's corner. (see Appendix C (a) above).

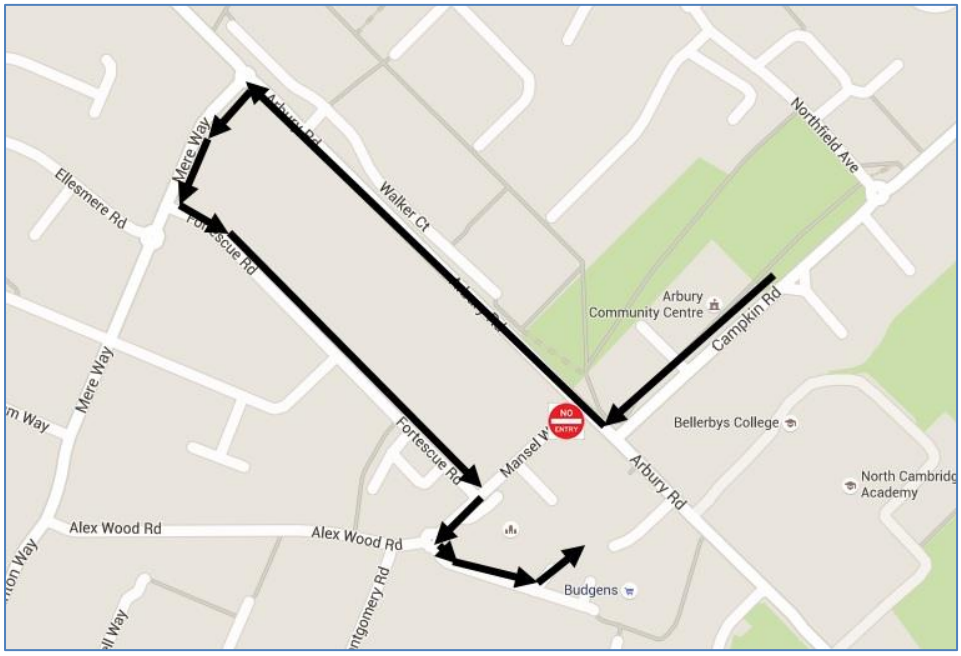
## Appendix D (c) – Other rat-runs: Mere Way/Fortescue Rd/Alex Wood Rd

**Getting to Bugden's car park from Arbury Road or Campkin Rd:**

Before closing Mansel Way to Arbury Rd:

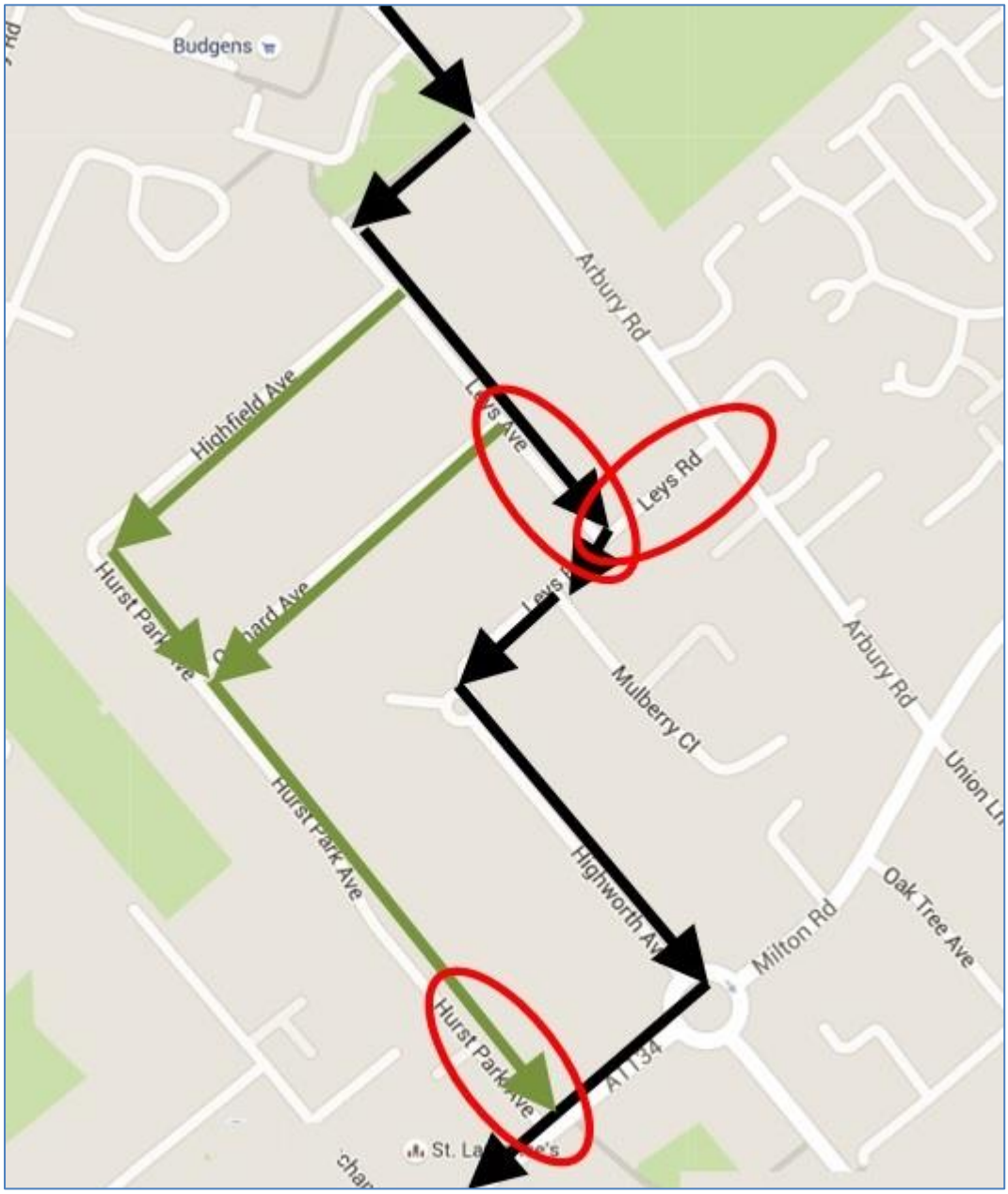



After closing Mansel Way to Arbury Rd:



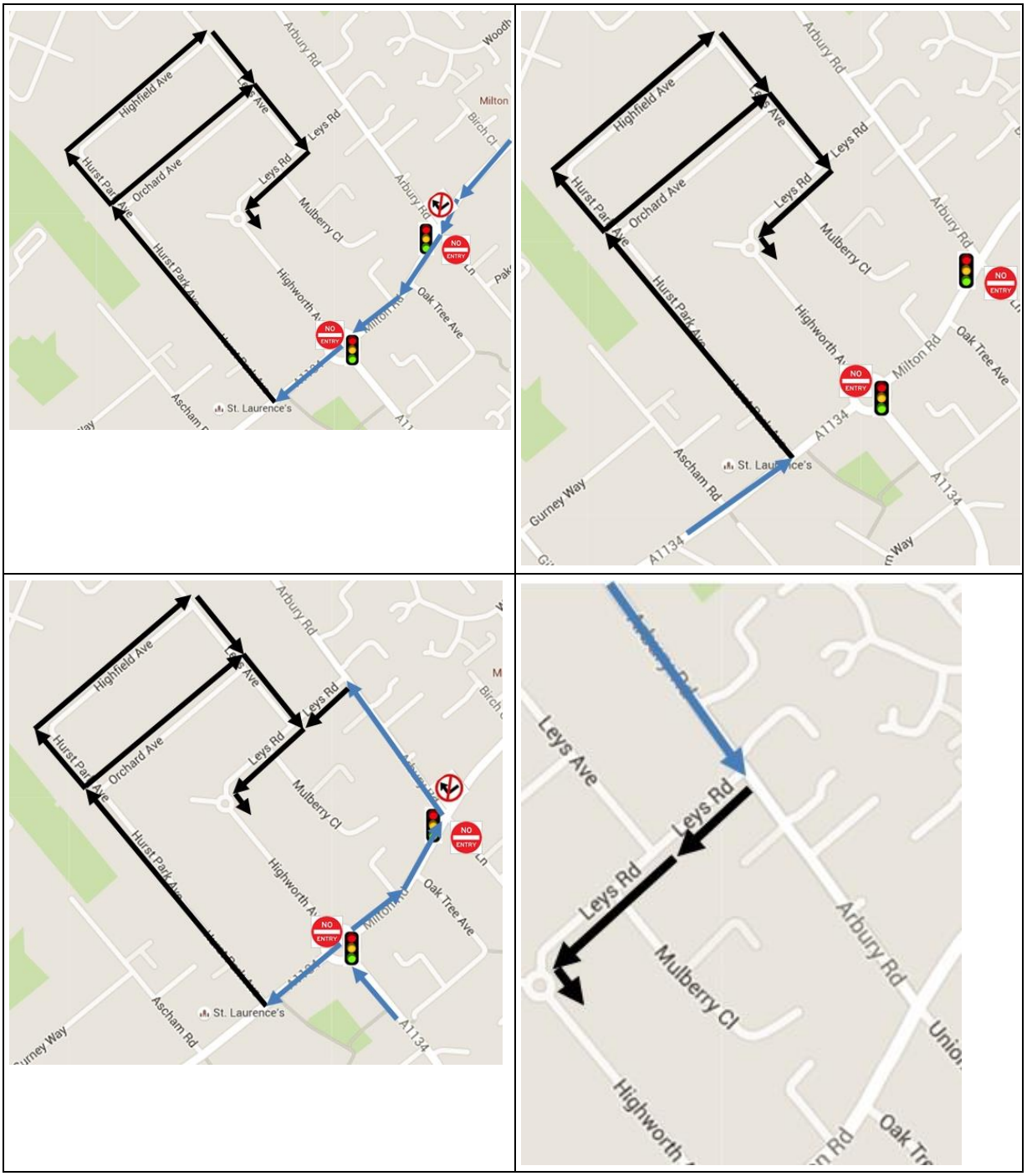

The proposed closure of Mansel Way to motorised traffic along Arbury Road will require residents wishing to visit the Bugden's supermarket to make a long detour along Arbury Rd, Mere Way, Fortescue Rd and Alex Wood Rd. Many residents shop regularly at Bugden's and need to use their car to transport their purchases home. Many would be physically unable to use a bicycle.

## Appendix E – Dangers to cyclists following the Arbury Road Route



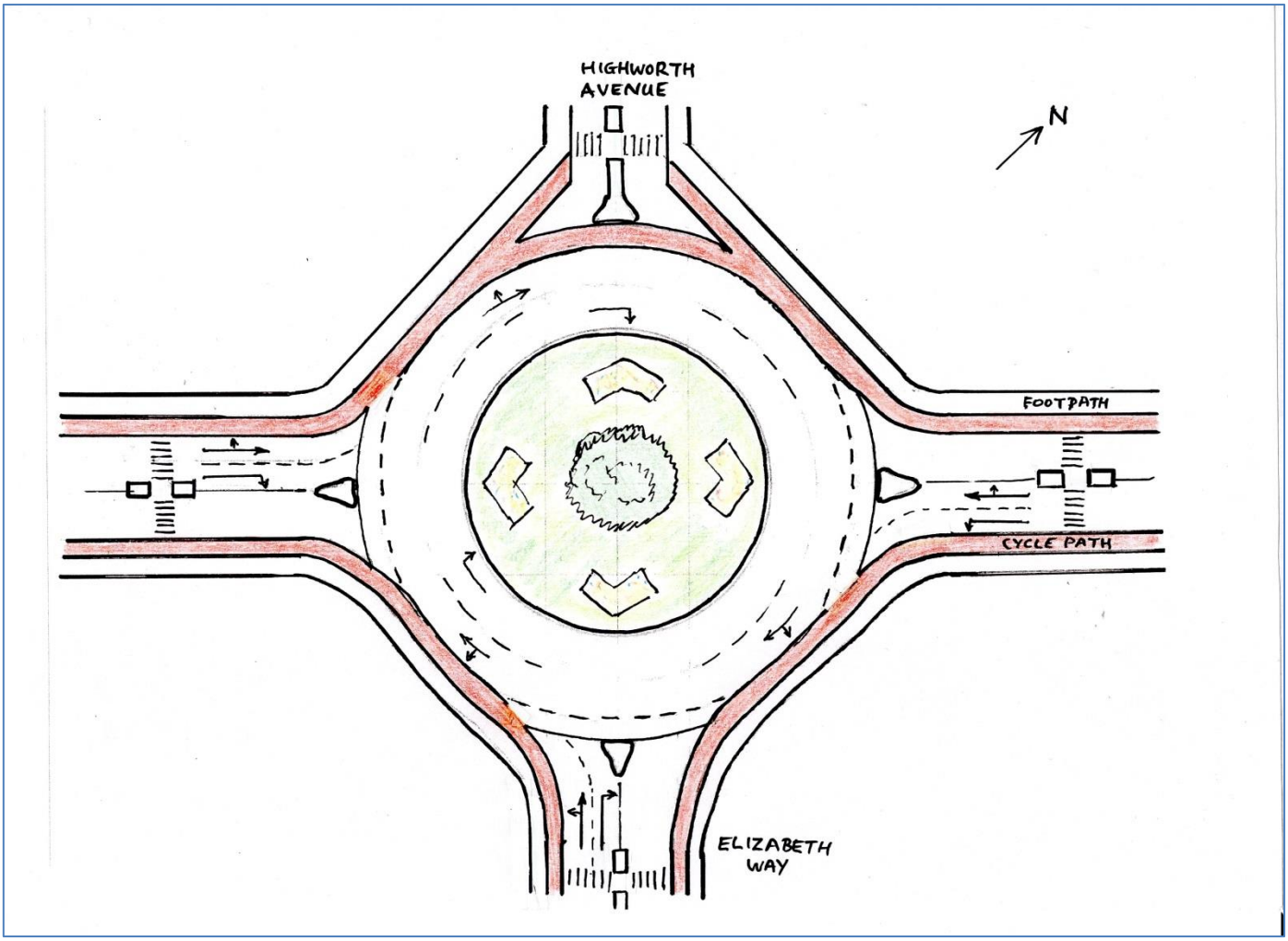

The red hoops show the areas of likely elevated congestion under the City Deal proposals. In addition, with Highworth Avenue closed at the southern end, traffic from Highworth Avenue will be travelling counter to the flow of southbound cyclists. Hence, if southbound cyclists opt to take the Highworth Ave exit, they will face congestion in Leys Ave and Leys Rd, and then face oncoming traffic from Highworth Avenue, all without the safety of cycle paths. If, instead, they opt to head for the Hurst Park Avenue exit, then they face the prospect of navigating the congestion at the end of Hurst Park Avenue.

## Appendix F – Getting into Highworth Ave under the new proposals




With the exception of residents entering southbound via Arbury Road, all other entry routes (Elizabeth Way, Milton Rd N, Milton Rd S) involve a significant detour for traffic heading towards Highworth Ave. Exiting Highworth Ave would be the reverse of the above and the same detours, albeit in the reverse direction, would apply.

## Appendix G – Initial ideas for improvements to Highworth roundabout




The diagram illustrates initial ideas for the improvement of Highworth roundabout.

For the protection of cyclists new cycle paths are shown along Milton Road, and around the outside of the roundabout on the Highworth Avenue side. On this side the cycle path would be wide enough to be two-way and would continue down to Gilbert Rd to accommodate the large volume of parents and child cyclists who regularly make their way to and from the Primary School and Community College. Although only two motor vehicles were observed to cross into or out of Highworth Ave during the traffic survey (see 5.1.5) it might be prudent to have signage to indicate that cyclists would have priority at this crossing point. On the Elizabeth Way side the cycle path would **not** follow the roundabout crossing Elizabeth Way, nor would the cycle path cross Milton Road at any point. Instead, cyclists would follow the cycle path round down Elizabeth Way and cross the road at the crossing before resuming their journey on the cycle path.

Reducing the geometry of the traffic island on the southern approach from Milton Rd together with new lane markings would encourage motorists to align better for continuation up Milton Rd or a right-turn into Elizabeth Way, which would alleviate one cause of congestion which currently occurs.

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**[6] The Cambridge Network, "Living and Working in Cambridge"**
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