TOWN CENTRE TRANSPORT PLAN

Prepared by the Transport Working Group of the RTW Town Forum

TOWARDS CHANGE

It is evident that the favoured mode of transport in and around Tunbridge Wells is by private car. They provide convenience, comfort and privacy. However, this results in congestion and pollution – severe at times – for which Tunbridge Wells is infamous.

Large numbers of parked cars line our streets despite car parks with adequate capacity. The road structure with A roads going through the centre of the town delivering HGVs into a 19th century road network, is aggravated by well known 'pinch-points' , and with parking and road works, the whole town can be brought to a halt. Our roads are now beyond their effective operating capacity. Increasing the efficiency in the use of our limited road space requires us to re-examine our use of this resource and to adopt new ideas.

The RTW Town Forum's 2017 Vision document recognises this need for change:
"Solving the transport issue is a necessary precursor to further population growth; failure to provide a solution is likely to preclude the realisation of the predicted housing need. The Borough Council's health obligations and the recent NICE consultation on air quality[1] make clear the need to tackle road traffic issues. The root cause is that transport infrastructure has not, and in the historic centre of the town cannot, keep up with the increase in population and cars. According to DfT guidance, a road such as St John's Road, with a capacity of 750 – 900 vehicles per hour[2] is exceeded for much of the working day and cannot be materially increased by smart signals or better junction design.

As far as transport is concerned, the challenge for the local plan is to

1. Build housing in areas where public and sustainable transport already exists or is easily accommodated.
2. Radically reduce reliance on cars in both existing and new developments"

The focus of this Transport Plan will therefore be on Active Travel and on public transport, including new technology such as driverless cars, but some new infrastructure will be necessary to remove through freight traffic from the centre of town and at specific pinch points. Parking contributes to congestion and changes to parking culture will be needed.

MAKING IT HAPPEN

ACTIVE TRAVEL

The increase in population of 10.3% between 2001 and 2011 was outstripped by a rise in car ownership of 14.7% and the Borough's projected population rise of a further 10% over the next decade is unsustainable without a reduced reliance on the car as a transport mode. We believe that Active Travel should become the PREFERRED mode for all short journeys and that Active Travel needs to be integrated into planning. Every new development project should be required to show that the project increases Active Travel in the town. Notwithstanding the challenging topography, Tunbridge Wells is a good place to adopt Active Travel: there is an active cycling community, Borough Council support for cycling and walking and popular schools with high numbers of school age children. There is pent up demand for more cycling – all that is needed is a safer and more attractive environment for cyclists and pedestrians. Tunbridge Wells has the ambition, enthusiasm and the ability to become a beacon for Active Travel in Kent; the Town Forum is suggesting that Tunbridge Wells is an early adopter in order to demonstrate how Active Travel can become THE mode of travel for short journeys in Kent's urban communities.

The *RTW Town Forum's[5] Vision 2017* (pages 15-18) suggests a way forward. "The Joint Transportation board for TWBC has already placed road safety at the top of the agenda. Reducing road danger should be a key priority in

the local plan to increase levels of walking and cycling and improving the quality of life for current and future residents. Measures to reduce road danger include:

- Build on the pedestrianised and shared space already installed in the town centre at every opportunity
- 20mph limits, with traffic calming measures where necessary, in all residential streets
- Many more pedestrian refuges and crossings across key roads and junctions on main pedestrian routes into and around the town centre
- Segregated safe routes for walking and cycling to work, schools and leisure
- Restricting access to residential streets for through traffic

Specific actions proposed are

1. Within the existing built environment, classify streets and roads according to their purpose – as a place to 'be' or as a traffic conduit;
2. Include road danger reduction as a key planning aim
3. Activate the Town Forum's Green Network proposal for walking and cycling;
4. Require major economic development to be supported by active travel plans and non-motorised commuting;
5. Consider impact of e-bikes and electric and driverless vehicles.
6. Enhance rail links including High Brooms and Tunbridge Wells West Station (BML2) and integrate complementary bus services;
7. Focus new development in areas where the necessary related transport infrastructure can be most easily accommodated
8. Consider densification to reduce urban sprawl and consequent transport infrastructure"

Pedestrians

Royal Tunbridge Wells has beautiful Commons and other parks that are ideal for walking but walking in the town needs to be made more attractive than it is. The improvements to the public realm at Fiveways shared space shows how it can be with people going about their business freely, and lingering in cafes and seating to enjoy their outing. Add to this the potential for public art and water features and the effect can be transformative across the town.

Instead, access to the town centre is limited by traffic and parking, unsafe crossing points, multiple changes in level across kerbs, narrow pavements creating pinch points for people waiting for crossing lights, plus A board hazards and more on the pavements. Simple rethinking of the space and how people move around is the place to start. **Specific proposals are shown in Appendix 1**.

Extend pedestrianisation and shared space as opportunities arise. One such is the Hub and Monson Road. Proposals were provided from the Transport Working Group to Gary Stevenson on 31 May 2017. **See details and sketch plan in Appendix 1a**

Cycling

At first sight Tunbridge Wells does not look a promising "cycling town". The steep hills in the centre of the town tend to discourage all but the toughest cyclist and the many narrow streets are a worry for the less confident rider. And yet, all sixty cycle racks at the station are full by 8.15 am with later commuters forced to lash their bikes to trees or lampposts. Large numbers of local cyclists have turned out for the various "pro-cycling" rallies and the town now has several cycle shops. However, the town only has a few stretches of tolerable cycle tracks. The Town Forum's Green Network has developed a network of quiet ways for cycling and walking and supports 20mph on residential streets and in town and village centres. The Town Forum also supports TWBC trialling of the Department for Transport's Propensity for Cycling Tool, as a useful aid for determining which routes can achieve the most number of people cycling. The priority must be to make it safe for children to cycle to school so that congestion due to the school run can be reduced. **Specific proposals are contained in Appendix 2**

PUBLIC TRANSPORT

Buses

The town has excellent bus services. The 281 service has been a great success and we need to emulate this success on other routes. We need a more vigorous effort to persuade people out of their cars, such as:

- Better marketing
- Smart ticketing
- Expedite the trend to better buses
- Particular focus on journeys to the hospital
- Workplace levy to discourage car commuting and fund public services
- More bus lanes
- Public subsidies comparable to the railways

<u>An analysis of bus services is shown in Appendix 7.</u>

Park and Ride

While the Transport Strategy's Park and Ride scheme based on the Tesco car park at Pembury and with a dedicated bus link along Pembury Road was seen to not be practicable as a solution on congestion on a key arterial road, Park and Ride schemes that 'piggy back' on existing transport links have been shown to have more success. Such links exist in Tunbridge Wells as follows:

- The train service from High Brooms has 4 trains an hour and a 4 minute ride into the centre of town
- The train service from Frant and Wadhurst could be improved to 4 trains an hour with a 5 or 9 minute ride into the centre of town
- The Tunbridge Wells Hospital at Pembury has a bus hub with 4 buses an hour into Tunbridge Wells
- Southborough has 6 buses an hour into Tunbridge Wells

<u>Specific proposals are shown in Appendix 3 and others Park and Ride options based on 'pod' routes in Appendix 7 P19-21</u>

New Vehicle Technology

"The driverless car is accelerating towards us. It is a revolution that promises to reduce city congestion, cleanse the air we breathe and rid us of a dangerous 20th-century obsession with owning large chunks of metal on wheels. Crucially, these robotic vehicles will give us back our land. There are about 30 million cars in Britain and 95% of the time they squat on the kerb or hog asphalt that could be better used. The parked car is the thief of urban space"
(The Times 27 May 2017)

The Town Forum believes that this new technology could help to solve congestion on our arterial roads and in the inner town, and welcomes that we could be in the forefront of its development.

<u>Comprehensive proposals are shown in Appendix 7</u>

PROVIDING THE INFRASTRUCTURE

While the success of an Active Travel strategy depends large numbers of individuals make choices to change their mode of travel, the need for new and improved infrastructure is nevertheless a priority, made more so by the growth of population planned for the Borough and neighbouring communities to the north (Tonbridge and Malling) and south (Weald).

Roads for through and freight traffic

If we wish to promote the town centre as an attractive and thriving place for retail and leisure, then it is essential to minimize the flow of through freight traffic with all its noise, pollution and sheer ugliness from the centre of town. In a recent survey, more than a quarter of the HGVs just enter the town to get to the other side. Planning for an alternative route to the A264 must be part of future planning as the town and its traffic grows. This may require either upgrading of roads or a new road to the south of the town where there is housing expansion

planned. Regular monitoring of the traffic levels should be undertaken to understand the nature of the issues to be faced.

Pinch Points
Strategies for walking and cycling will in time create some modal shift, as will technological change such as driverless vehicles. Meanwhile, there are some useful small infrastructure improvements that could be made, as highlighted in the A26/A264 Route Study, originally presented to the JTB on 19 October 2015. The re-design of the North Farm roads is an excellent example of what can be done to improve the flow of traffic. In general, junctions can be improved by:

- Converting some traffic lights to mini roundabouts
- Eliminating right turns
- Limiting access to some roads in residential areas.

Specific proposals are shown in Appendix 4.

Roundabouts
As already stated, roundabouts rather than signalled junctions can make the traffic flow better. In many towns, and especially in France, beautiful roundabouts establish civic pride at arrival points. The roundabouts in our town are a disgrace. They need to have dramatic flower displays, public art, water features or other means of establishing the Arcadian brand of our town. They can be sponsored to provide funding.

PARKING
Parking for 'free' on residential roads and in the town centre is unsustainable. It is a major contributor to traffic congestion and pollution, and creates unsafe conditions for pedestrians and cyclists. Surveys show that 90% of cars entering the town stay in town for much of the day either in Multi-storey Car Parks (MSCP) or on the street. We suggest that by following a few key Parking principles congestion caused by parking and drivers looking for parking spaces can be transformed.

1. Decisions on current and future changes to on-street parking must consider the aim to reduce congestion and pollution, increase safety of all road users, enable active travel and the better use of public transport.
2. There should be no or restricted parking on all through A roads, on bus routes and on cycle routes (advisory and mandatory) and limited loading and unloading.
3. Busy subsidiary roads should be limited parking to one side only, and regulated to control vehicle speed and improved traffic flow.
4. An inner zone (marked in red on the map below) should be residents parking only and this includes all roads leading onto shared space, and all cul de sacs
5. Residents parking zones could be arranged in concentric circles aligned to times of walking to town centre. Visitor parking should be limited when an MSCP is within 5-10 minutes walk.

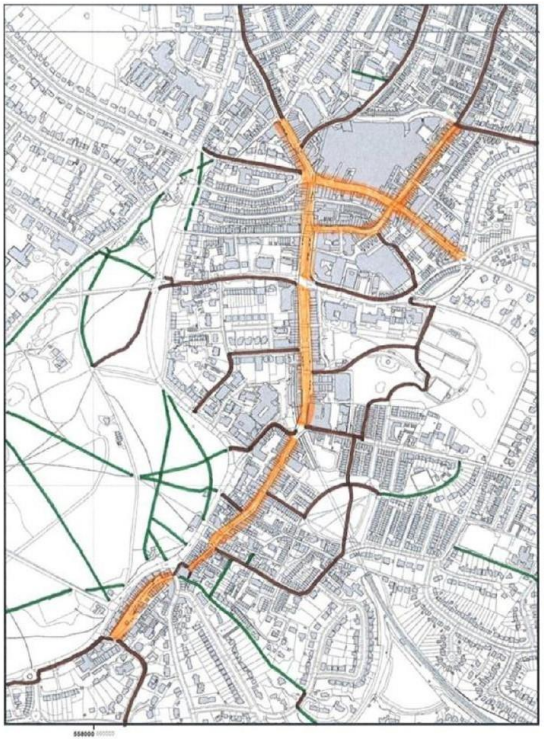
Better enforcement of no parking on double yellow lines, inconsiderate parking, parking on pavements and red bricks, and overstaying. **Specific proposals are shown in Appendix 5**

APPENDIX 1 - PEDESTRIANS:

The Urban Design Supplementary Planning Document shows some of the main pedestrian routes within and to and from the town centre. By ensuring these routes are free flowing, level and easy to navigate, a pedestrian enabled environment can be built up. With and increasingly elderly population level walking surfaces are needed with minimal climbing of kerbs to make a pedestrian friendly environment. But this is also a benefit for the disabled, families with buggies, and general users. Clear level pathways on key routes should be the framework on which to add to establishing clear high standard pathways, pedestrian priorities and a welcoming town centre for many local improvements.

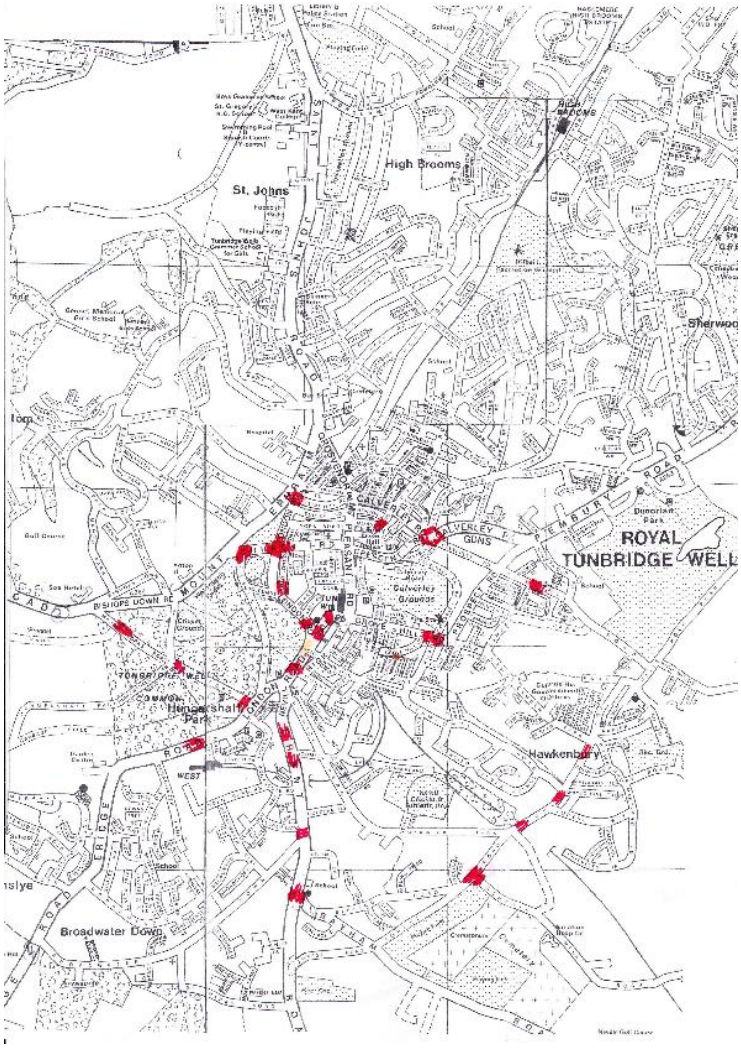
Establishing pedestrian priority will also assist in traffic calming and speed control. It is not necessary in all instances to consider light controlled crossings. We have experienced how in the shared space area the level and semi-formal crossing works well, and how with calm traffic people move freely in the space.

The *RTW Town Forum's Green Network* map shows concentric rings around the town centre to show that
1. Within the first circle of 1 mile radius lie some tens of thousands of inhabitants. Any normally healthy adult should find it quicker to walk rather than drive when parking, congestion and walk to the final destination are taken into account..
2. Within the second circle of 1- 1.25 miles (2km) walking remains competitive with driving and cycling begins to become competitive with walking on overall time.
3. Within the third circle of 1.25 -2 miles, energy used and time taken to walk (about 30 minutes) compares to a 10-15minute cycle ride.
4. Within the fourth circle of 2-3 miles incorporating more distant households in Tunbridge Wells, Southborough, Bidborough, Rusthall, Langton Green and most of Pembury. Depending on topography and fitness, a 3 mile journey can be covered by bicycle in 15-25 minutes. Over these distances there should be a realistic prospect of appreciable modal shift to cycling for work, school and other journeys if adequate green routes, with physically segregated lanes on the main roads, can be provided or enhanced.
(Below)The **Urban Design SPD Fig 5.2 Section Movement Framework – Pedestrian** - Highlights the key walking routes within and to and from the town centre, and provides a framework for improving flow around the town centre. However, getting to the town centre safely is currently not easy as the Town Forum's Green Network Report reveals.



Using the Green Network's *'Proposed new, relocated or enhanced pedestrian crossings'* as a start, the flow and safety of pedestrians across the town can be improved. The map (on page 6) shows some key crossing points but this list is not exhaustive.

1. **A 26 London Road**: Controlled crossing to connect Lime Hill Road to Mount Ephraim and the network of streets running west of it.
2. **A26 London Road/ Church Road junction:** Currently no pedestrian phase at all. Requires a pedestrian phase operated by push button to enable safe access to Tunbridge Wells Commons and recreational walking, and residential streets to the west.
3**. A26 London Road**: Relocate the existing traffic island on the London Road from a point below the junction with Inner London Road to a point to the north side of the junction with Mt Edgcumbe Road to provide a safer sight line and better connectivity with the Common.
4. **A26 London Road:** Relocation of the existing traffic island from its poor sight line on a blind bend on the London Road adjacent to the junction with Vale Road to a point further north adjacent to the junction with Vale Avenue, with consequential changes to the footpath emerging from the Common.
5**. A26 London Road/ Major York's Road**. A controlled crossing on Major York's Road to access the car park and the Common, and an improved better footway link to the existing pedestrian crossing at Castle Road opposite the Pantiles. (Scheduled for 2017/18)
6. **Major York's Road** : Pedestrian crossing at the junction of Nevill Park and Fir Tree Road to link footpaths and green routes across the Commons.
7**. A264:** A Zebra crossing or traffic island connecting the footpath on both sides Church Road where it forks to Mt Ephraim to serve an important pedestrian route from the bottom of the town to Mt Ephraim via the Common.
8. **Vale Road**: Relocation of the Zebra crossing at the old Vale Road Post office to near the station access road and the railway bridge to allow for safe access for passengers to the main entrance to the railway station and for pedestrians from the High Street to the retail unit (now Range).
9**. A264**: Solutions to the pedestrian/vehicle conflicts at Carr's Corner and Calverley Park Gardens. (Now agreed and to report with solutions by March 2018)



10**. Forest Road** : With 000's houses and a new school planned in Hawkenbury and Benhill Mill Road areas the availability of safe crossings points with pedestrian and cycle priority at several locations to enable the residents and school children to access the town centre, schools and work safely.

11**. Bayhall Road**: Zebra crossings across Bayhall Road to provide safe access to Dunorlan Park via the entrances near to Camden Park and Croft Lodge.

10. **B2023 Grove Hill Road**: A Zebra crossing by the junction with Claremont Road to allow safe access from the town centre to Claremont Primary School and the network of streets off Claremont Road.

13. **A 26** near St Paul's Church: High levels of vehicle and pedestrian traffic requires an additional safe crossing point to access the bus stops and residential streets nearby.

14. **A267 Frant Road**: no safe pedestrian crossing exist to enable safe access to the Mead school and residential communities in the Broadwater Down area . Safe crossing points near Rodmell Road (for the school), Broadwater Down, and Birling Road are needed to cross the busy A264 safely.

15**. A26:** A safe crossing point between Nevill Terrace and Brighton Lake on the A26 to allow safe access to the lake, the bus stop and footpaths across the Common.

16**. Monson Road** from the rear exit of Crescent Road car park: create a pedestrian only Monson Road from Mount Pleasant (the Hub) to Monson Way (beside Blacks), with share space for access only from there to the junction with Calverley Road/Camden Road.

APPENDIX 1a HUB – TOWN SQUARE

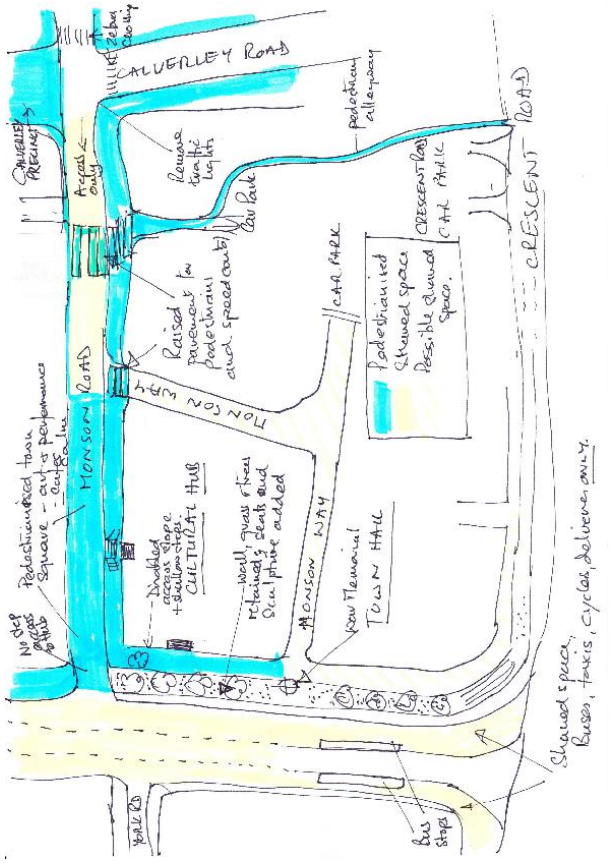
Since the opening of Fiveways and the removal of traffic other than buses in this section, the level of traffic along Monson Road has been much reduced. However, its junction with Monson Road has created a hazardous road crossing for pedestrians. The traffic island is inadequate for the level of foot traffic, and pedestrians travelling north have to turn behind them to see the oncoming traffic turning into their path.

There is no specific reason or advantage for traffic to use Monson Road to access Camden Road when they can do so from Calverley Road or Lansdowne Road. We believe that these proposals to pedestrianise part of Monson Road will not materially affect other roads and junctions, but be of considerable benefit to people accessing the Hub and create a new 'town square' location.

1. **A Town Square**: If the plan was to create a Town Square where people can meet and events happen, then we do not feel that the architect's plan will achieve this overlooking as it does an extended shared space for people and buses, and open to traffic outside restricted times. We strongly argue that the 'town square' must be in a dedicated pedestrian space.

2**. Monson Road (west)**: Closing Monson Road between Mount Pleasant and Monson Way to all traffic will –

- Display the frontage of the architecturally important Adult Education Centre to best advantage.
- A café-based street scene that has been successful throughout the town can be created
- Art works and performance events could be staged here
- A continuous pathway from Fiveways can be created by removing the dangerous crossing of Monson Road at Mount Pleasant to give safe and easy access to the Hub



- Entrance to the Hub could be via the Adult Ed main entrance or via the slope and gradual steps to the Library entrance – or both.
- Monson Way(west) would be closed to traffic in front of the hub and possibly in front of the Town Hall depending on future development, to create a gathering place with seating and artwork on the existing lawn and hard standing, thus creating a busy and visible entrance to the new centre.
- The line of trees and the historic wall would be retained and enhanced with planting and sculpture etc.

3. **Monson Road (east)**: We believe that ultimately Monson Road could be pedestrianised along its length to the junction with Calverley Road, and linking up with the pedestrianised Calverley Precinct. However, given the uncertain future of the Town Hall complex, we recommend that for the time being -

- Monson Road is changed to shared space for access only from Calverley Road/Monson Road traffic lights as far as Monson Way. Calverley Road to Monson Way would have access only for loading and unloading for shops, adult education, offices, Assembly Hall, flats above accessed via Calverley Road.
- The loop road, Monson Way, should be retained in the short term depending on future use of Town Hall but in future access could be changed to shared space to provide a pedestrian/cycling link around the town centre and the new Hub.
- The plans for 'improvement' to the Monson Road/Calverley Road junction paid for by S106 from the RVP development would no longer needed and could be redirected to these changes in Monson Road.
- There is an opportunity for wide and continuous pavement across Monson Road to access Crescent Road car park and the proposed improved pedestrian alleyway to Crescent Road. The narrow pavements and light controlled pedestrian crossing at Monson Road/Calverley Road currently creates a congested and inadequate access to the central shopping area. This is particularly so for disabled, elderly and families with buggies. A continuous ramp/walkway from the disabled parking in Crescent Road car park to the wider and raised pedestrian crossing would be helpful as would the benefits of shared space.
- The Draft Planning Document has identified the alleyway beside Crescent Road Car Park for improvement. This provides a walking link to Crescent Road and beyond.
- There is also potential for linking Newton Road into the shared space with vehicle access only for residents and deliveries.

4. **Mount Pleasant to Fiveways**

- Buses only on Mount Pleasant
- Traffic exiting Newton, Dudley and York Roads would continue but consideration to be given to changing traffic flow to provide quiet roads and cycle ways.
- Consideration should be given to removing all traffic other than buses, taxis and cycles (and vehicles exiting Newton, Dudley and York Roads) from the share spaces 24/7.
- The concentration of bus stops should be accompanied by appropriate seating and shelters, and wide pavements to ease the transition for bus users.
- War memorial – The location is still unsatisfactory. While it was central to the Town Hall complex, it is now peripheral to the Hub and in front of buildings with an unknown future use. In addition, the proximity of the bus stop area will be busy, noisy and polluting. An alternative location could be to move it towards the 'town square' on Monson Road where people can congregate in pedestrianised area for ceremonies and the traffic will not have to be stopped to allow them to happen.

5. Calverley Road/Camden Road:

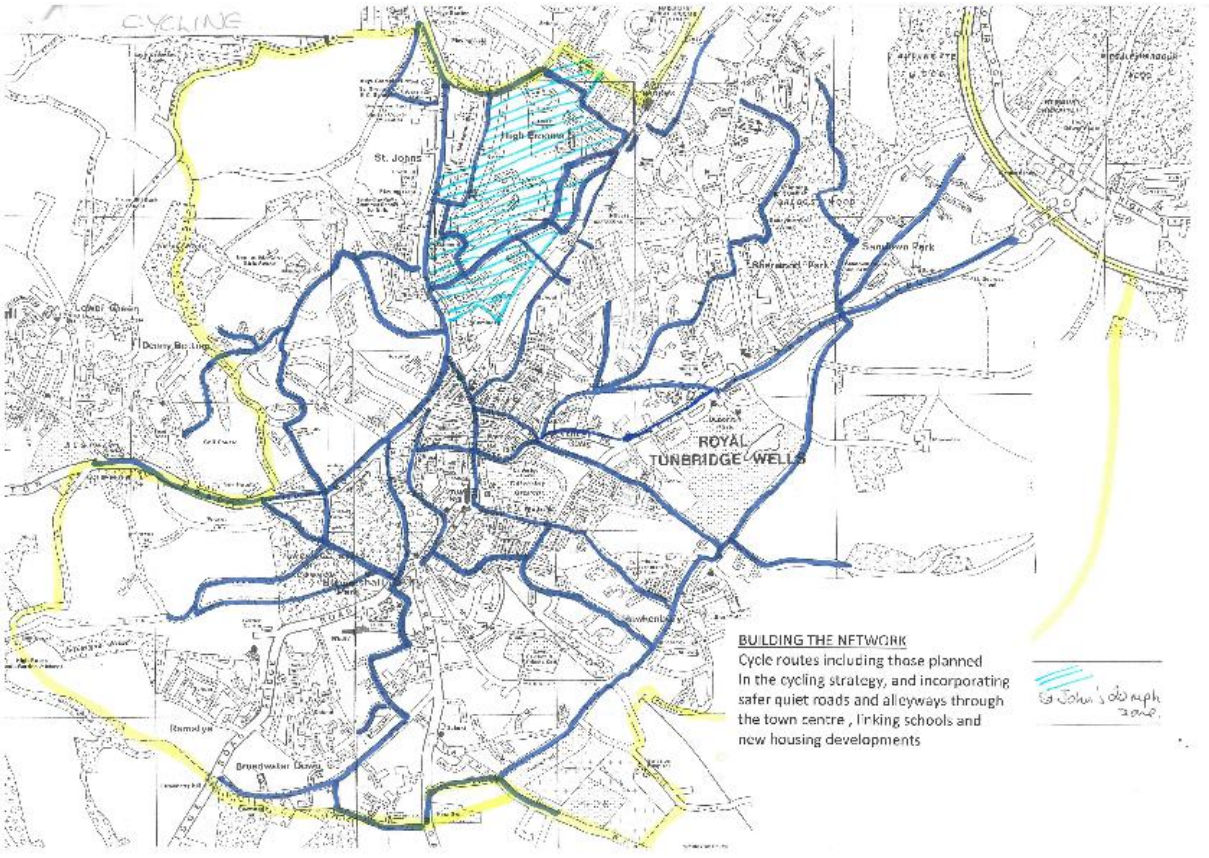
- The current traffic lights could be removed as the junction will be simplified into a simple left/ right turn. Pedestrian crossings across Camden Road and Calverley Road near the junction would be retained, and serve to slow and regulate traffic on the approach to the turn.
- The plans for 'improvement' to the Monson Road/Calverley Road junction paid for by S106 from the RVP development need to be amended and redirected to these changes in Monson Road.

6. Buses:

- The architect's plan requires the bus stops to be compacted at the southern end of Mount Pleasant close to the junction with Crescent Road/Church Road in order to make the proposed steps workable as an entrance to the Hub. Our plan could enable the bus stops to be located a little further from the junction which should ease congestion.
- Monson Road bus stop L currently services the 277, 6 and 293, and Bus stop M serves 283, 285, 287 and 296 routes. These would need to be changed in discussion with the bus operator and users to achieve the advantages presented by the Hub project. These services could use the planned bus interchange.

APPENDIX 2 - CYCLING

Segregated cycle routes will go some way to creating a cycle friendly town but the adopting 20mph zones in residential areas in addition to near schools, however, creating quiet ways for both cycling and walking with the 2 mile radius of the Town Hall, improving signage, sharing 'back alleys ' with pedestrians, raising pavements and allowing for filtered permeability will do even more. These small improvements to cycling infrastructure also benefit users of mobility scooters, pedestrians, the elderly and baby buggies. The TWBC Cycling Strategy did not sufficiently consider the shared use of footpaths preferring instead to concentrate long term projects that required large infrastructure investment. RTW is lucky to have a network of alleyways and footpaths creating off-road links and short cuts. Most are currently forbidden to cyclists and little used by pedestrians and would need little adaptation to achieve the 2.5 - 3m width and signage for shared use for quick access to the town and its schools. Both TW Bug and the Town Forum's Green Network report 'Developing our Green Network' agree that opening up shortcuts and alleyways has real potential, as follows:



1. Grove Park – links Claremont Road to Sutherland Road
2. Pantiles – link Pantiles Lower Walk with Market Street
3. Farncombe Lane – link Farncombe Road with Mount Sion
4. Highgrove to Warwick Park – link through
5. Hurstwood Lane to Bishops Down Park Road – link to local schools
6. Upper Cumberland Walk – consider the length from Cavendish Drive to Chapel Place
7. Broadwater Lane to Showfields Road avoiding A26
8. Broadwater Rise to Linden Gardens - limit traffic to encourage use of quiet roads to Pantiles
9. Hawkenbury Recreation Ground – cycling permitted signs
10. Campbell Road to Southfield Road – link for TWGGS
11. Teise Close to Camden Park - allow cycles but is a private road.
12. Warwick Road/High Street and Little Mount Sion/High Street – no access for cars
13. The Chase, Farncombe Road to Claremont Road – safe off road to Claremont School
14. Camden Park to the Chase – safe off road to Claremont School but on private roads?
15. Broadwater Lane to Broadmead to Broadwater Down.

APPENDIX 3 PARK AND RIDE

High Brooms (Tunbridge Wells Parkway) Park and Ride: The best solution for a Park & Ride is a rail link that avoids all the congestion on the roads. Tunbridge Wells is well served by train from the north with 4 trains an hour. High Brooms station is just a 4 minute ride from the centre of town and is just 1.5 miles from the North Farm roundabout on the A21 but it currently has significant disadvantages:

- The car park is very small
- The railway bridge on Dowding Way severely restricts traffic.

It ought to be possible to build additional car parking on nearby industrial land as an interim solution and the ideal would be a new integrated bridge/carpark/station.

Frant and Wadhurst Park and Ride: Frant (5 minutes from Tunbridge Wells) has only 1 train an hour and Wadhurst (9 minutes from Tunbridge Wells) has 2 trains an hour. Because of this poor service, some passengers take their cars into Tunbridge Wells with 4 trains per hour. A better service from Frant and Wadhurst would reduce this unnecessary traffic from the south. Frant station is 1.6 miles from A267 and Wadhurst is 2.5 miles from A267 so Park and Ride from both these stations ought to be of interest for visitors from the south of the town. A better service could be provided by extending the intermediate trains that currently terminate at Tunbridge Wells to terminate at Wadhurst. Additional requirements would be:

- Two sets of cross over points at Wadhurst
- Additional parking at both stations
- Possibly a need for addition sets of carriages

Tunbridge Wells Hospital Park and Ride

There are 4 buses per hour (was 6 per hour until 2015) from the hospital into Tunbridge Wells and the hospital has a mini hub with services to Tonbridge, Maidstone, Tenderden, Benenden and Paddock Wood as well as the centre of Tunbridge Wells. The hospital is less than a mile from the North Farm roundabout on the A21 (M25) and even closer to the A228 from Maidstone. There is probably sufficient car parking space at the hospital at present but it ought not to be difficult to provide more. All it would take to establish a Park and Ride system are a few signs. It could all be done at minimum cost in a very short time. Granted, the ride into town would still be subject to the congestion on Pembury Road but the cost is minimal and even if it only attracts a few people out of their cars it ought to be worth it.

Southborough Park and Ride

There are 6 buses per hour through Southborough along A26 into Tunbridge Wells. All that is needed for a Park and Ride is to build a car park near Bidborough Corner. Again, the buses are subject to congestion on A26 but there are a few bus lanes that help the buses along.

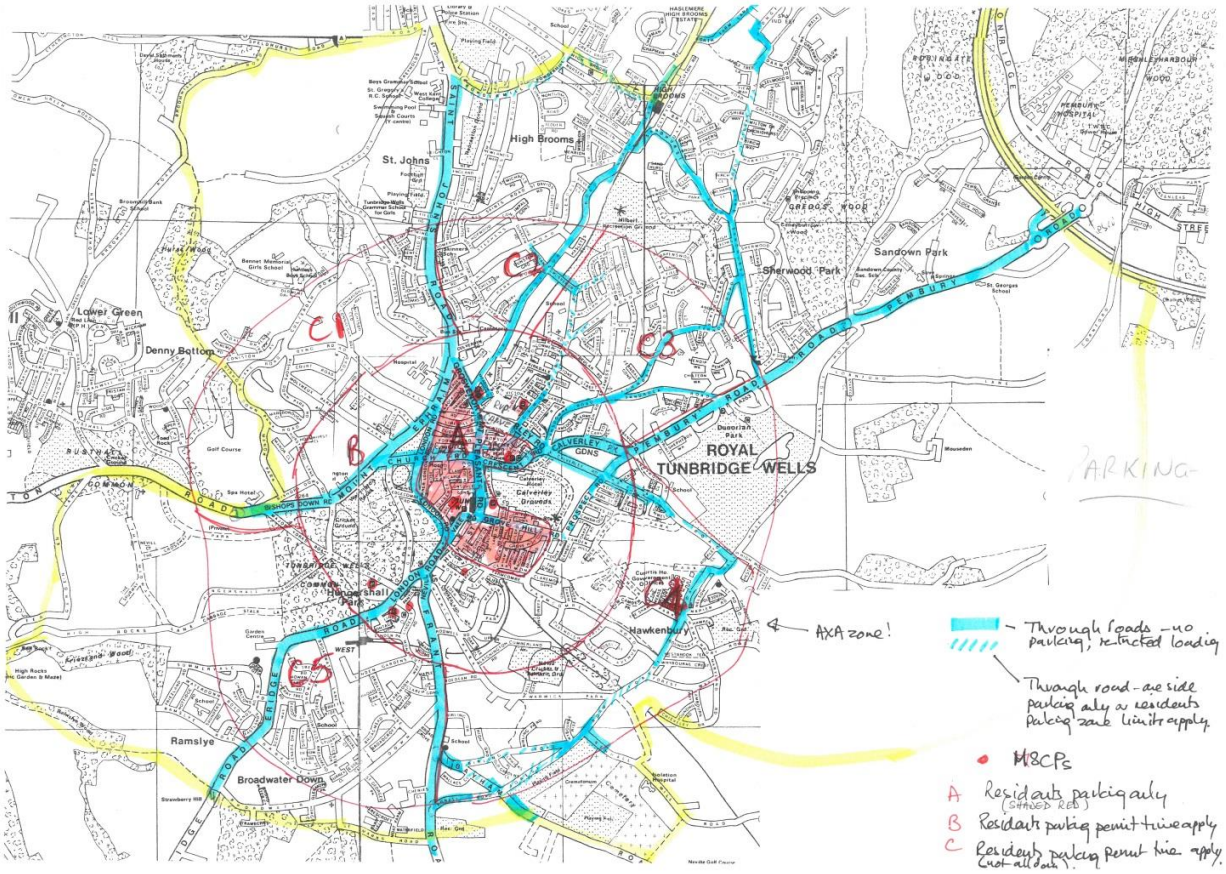
APPENDIX 4 PINCH POINTS

1. Camden Road Traffic Lights – re-examine priorities at this junctions for pedestrians and accommodate variable flows at peak times when the RVP car park exits.
2. Lansdowne Road /Garden Road/ Sandrock Road – the triangular island creates a complex junction and could be replaced by a mini roundabout. This would enable easier turns into and out of Lansdowne Road and slow traffic approaching the traffic lights at Camden Road.
3. Mount Ephraim junction with London Road, is busy with unclear priorities and a steep hill for north flowing traffic. The road width is limited by parking for the shops and the school adds to peak time use.
4. Carr's Corner – severe danger for pedestrian crossing without refuges or priority on all roads approaching this junction. In particular, HGVs cause additional danger and damage by attempting tight turns.
5. Vale Road /London Road Junction has difficult exits from and turns into Vale Road. The creation of a small roundabout would help and ease this congestion and accident hot spot..
6. Halls Hall Road junction at Hawkenbury: growth in traffic using Halls Hole Road to by pass Pembury Road approaches this junction fast and largely unsighted from Forest Road, making exit from Halls Hole Road very risky and at times difficult to find a gap in the traffic flow.
7. Broadwater Down exits at both Frant Road and Eridge Road have wide but confusing road alignments resulting in vehicles using the wrong lanes.
8. Sandhurst Road/ Pembury Road junction would benefit from a mini roundabout to facilitate right turns to and from Sandhurst Road. Several accidents have occurred here.
9. Sandrock Road Junction at Dunorlan Park entrance – a mini roundabout would help the flow from Sandrock Road, improve the left turn into Sandrock Road, facilitate exits from the park and right turns from Pembury Road to Sandrock Road. Currently this unregulated junction caused a severe jams at am/pm peak flows.
10. Mount Pleasant/station taxi rank: Taxi's being parked the wrong way round, resulting in the need to cross into the oncoming traffic in both lanes. Taxi should to park pointing north, a mini roundabout at the entrance of Mount Pleasant Avenue/Sainsbury metro could provide a U turn to head south. Taxi's always going with the flow of traffic and manoeuvring for parking up is eliminated.

Appendix 5 PARKING

Changing Parking Culture

1. Limit 'free' on-street parking times and spaces where MSCP within 5-10 minutes walk.
2. With plenty of spaces in MSCPs are unfilled and not generating income for TWBC (see http://www.kentlive.news/this-is-why-there-is-enough-parking-in-tunbridge-wells/story-30318927-detail/story.html), consider offering a free first hour parking in an MSCP can lead to change of parking culture. (The proposed loss of the Great Hall, AXA, Linden Road and Union House car parks will affect parking places for the High Street and Pantiles area, but capacity is proposed to largely replace this.)
3. Better signage to spare car park places and variable pricing to maximise the use of MSCPs.
4. Develop an internal frequent bus/driverless vehicle park and ride service between top and bottom of town centre and linking MSCPs to maximise car park usage, minimise congestion and pollution, and encourage active travel . Innovative technology such as driverless vehicles could be employed.



Residents parking

5. Parking permit is not a right but a valued benefit - create a waiting list for parking permits
6. Limit residents parking permits –one per household, and/or higher fee for second car permit
7. Limit growth of front garden parking except for disabled, electric car charging and to reduce congestion.
8. Enforce a penalty for permit misuse, fraud, renting out off street parking etc – penalty suggested is cancelling of residents parking permit and returning to the waiting list.

Employers, employees, parents

9. Businesses should adopt transport plans to minimise on-street parking by customers and employees; they can be rewarded with reserved or cheaper parking in MSCPs for workers.
10. A town wide employee car sharing scheme could have allocated reserved spaces in MSCPs
11. Unregulated on-street parking impedes emergency and delivery vehicles and damages pavements. However, regulated on-street parking can be used as a strategy to reduce speeds in residential roads
12. Reduce the congestion caused by the 'school run' by working with schools and parents

APPENDIX 8 SOURCES

www.nice.org.uk/guidance/GID-PHG92/documents/draft-guideline
www.standardsforhighways.co.uk/ha/standards/DMRB/vol5/section1/ta7999.pdf
RTW Town Forum's Green Network 2016
RTW Town Forum's Vision 2017
TWBC Transport Strategy 2015-16 and RTW Town Forum consultation response
A26 and A264 study Route Study 2015
Local Cycling and Walking Investment Strategy 2017
Clean Air Zone Framework 2017

APPENDIX 7

Buses and Self-Driving Public Transport[6]

I. Introduction & Scope

It is evident from any casual observation of people in transit and from surveys, that the favoured mode of transport by many in and around Tunbridge Wells is the use of private cars. They provide convenience, comfort and privacy. However, this results in congestion – severe at times – and large numbers of parked cars lining our streets and occupying substantial car parking facilities. The various 'pinch-points' in our road network and any temporary problem (such as a loading vehicle, a breakdown or road damage) all add to the lines of slow or stationary vehicles during peak hours – which seem to cover longer periods of time as the years go past.

It is also notable that while bus lanes clearly help speed travel – and thus add to the attraction of buses – the lanes are limited. The buses still end up in the congestion. The bus lanes also represent under-utilised road space. However, removing the bus lanes would not speed up other vehicles but merely, at best, shorten the lines of vehicles to two lines all waiting to get through the same pinch-points in our network. Improving bus lanes (or removing the existing pinch-points) has proven to be unacceptable due to the potential impact on our town in widening roads.

This heavy use of our roads by cars, commercial vehicles and buses also reduces their attractiveness to cyclists and pedestrians for safety and pollution reasons. While rail traffic also takes many passengers it also encourages car use to reach the station and for parking in our streets.

Each car requires substantial road space in front and behind but also on either side to accommodate movement within traffic lanes. We have essentially a fixed amount of road space available with very limited ability to expand our roads to accommodate more cars. Our use of the roads is now beyond their effective operating capacity. We therefore need to find ways of increasing our efficiency in the use of our limited road space. This requires us to re-examine our use of this resource and to adopt new ideas. Forms of public transport and new technology have the potential to improve our use of existing space, reducing the amount of road space used by each traveller. Guidance systems have the potential to reduce the space needed between cars and on each side as they travel. Other narrower roads/pathways of light construction can be created that do not have the same level of detrimental impact on our environment, history and culture.

Government (National and Kent County Council) currently uses taxes paid by all for the roads and subsidies for some of the buses. Car users do pay various motoring taxes; however, these are not earmarked specifically for transport but part of the general taxation system. Road parking and permit charges are used specifically to apply for enforcement of parking restrictions. Some people advocate raising taxes further to subsidise public transport but this is also opposed by many. It is likely that future transport needs to be self financially sustaining.

It is preferable to find ways of attracting people to alternative forms of transport rather than making existing journeys less desirable. The question is therefore: how do we make public transport more attractive to existing car users? While doing so can we create new arteries to increase capacity of the existing road network while not damaging the history or character of our town?

The need is to attract a reasonable percent of existing car users to other modes of transport. This could ease traffic flows for the remaining car users. Reduced congestion could also encourage others to return to other modes of transport (cycling, walking and buses) as they feel safer and not as overwhelmed by traffic on our roads.

(Written by David A. Scott, Member of the Town Forum Transport Group. This paper was not written on behalf of or designed to reflect any other person or other Group's views)

II. The Bus Network

To make the public transport more attractive we need to find ways to reduce their negative features and enhance their positives in comparison to cars (e.g. improve routes, proximity to start and end points, timing, cost, availability, comfort, speed/time taken, ability to carry luggage/shopping, children and babies and those with disabilities, personal space) while enhancing the benefits of not driving cars (e.g. parking, capital cost, ability to work/read/use electronic devices).

We start by examining the existing bus system. What is it and can it be substantially improved at an affordable cost sufficiently to attract a significant number of existing car users?

A. Routes & Frequency

A map of existing routes[7] is shown at the end of the section (II.) along with a list of bus routes and their frequency for general public and school use. What is apparent from the bus map is that the routes more or less serve all parts of Tunbridge Wells. Clearly there are some areas where a significant walk would be required to reach a bus route. However, the distances involved are unlikely to be a major factor discouraging their use. Many of residential roads not currently directly served by buses are unsuitable for bus traffic due to the size of the buses, the width of the roads and the lines of parked cars lining the streets.

Most routes start (or terminate) in the centre of Tunbridge Wells and continue to some, often diverse point. Travellers starting elsewhere, not on the direct route to their final destination will often require the traveller to change buses in the centre of town.

It should be noted that a high number of bus services from Tunbridge Wells also travel through, start or end in the centre of Tonbridge. They travel predominately north through Southborough. Others go via the Pembury Road, via the hospital and Tonbridge Road. Hence, Tonbridge and Tunbridge Wells services should be seen as an integrated single system. A change to the services in one town will result in impacting services in the other town.

One Tunbridge Wells bus route of particular note is the 281 'Town Hopper' service which operates from Rustall, via the Pantiles, the centre of Tunbridge Wells and Upper Grosvenor Road to High Brooms. This frequent service (up to every 12 minutes during the day Mon-Sat) provides a link along the main shopping streets and the two stations. Other local services link the key residential areas at the edge of the town (Showfields, Ramslye, Culverden, Ferndale, Sherwood, Knights Park and Hawenbury).

The many school bus services cater for large numbers of children, often allowing them to commute from surrounding towns and villages. However, there are many children also carried by car to their schools requiring substantial additional journeys by parents and others. This adds to the congestion during the morning and afternoon periods.

Routes are dependent on the operators' economic evaluation which may change over time. Some routes are also subsidised by Kent County Council and are subject to periodic negotiation between bus operators and KCC.

It is therefore unlikely that the existing routes can be substantially enhanced, It is also unlikely that increased routes or changes to existing routes would increase materially the number of people choosing this mode of transport.

B. Bus Frequency

From the tables showing the various routes and frequency it can be quickly assessed that many routes have limited frequency. Many bus routes use the key roads north through Southborough and east along the Pembury

[7] Extracted from a Kent County Council Bus map for Tonbridge & Tunbridge Wells and for Kent. See: http://www.kent.gov.uk/__data/assets/pdf_file/0004/4657/tonbridge-bus-map.pdf http://www.kent.gov.uk/__data/assets/pdf_file/0015/3921/Kent-and-Medway-bus-map.pdf .

Road. This should make these routes highly attractive to commuters. However, many commuters commence/end their journeys at locations widely dispersed and beyond these points. Each of these locations are inevitably less well served by the bus network.

Bus frequency greatly tails of in the evenings and on Sundays. This makes the service less attractive to anyone who may wish to travel at those times.

The lack of frequency of both the 'inward' trip and the 'outward' trip restricts the degree of flexibility of the traveller adding an additional negative to this form of transport. The result of this can often be seen in the few passengers in buses outside of key commuting times.

C. Bus speed of travel

Journey times, in comparison to cars, benefit from bus lanes but are impacted by the number of stops as well as the amount of waiting time for the bus arrival (including contingency time needed to avoid missing the bus). To this must also be added the amount of time the passenger takes to reach the bus stop from his/her starting and/or to his/her final destination.

Bus frequency is driven by both lack of demand and the cost of operating the service. Clearly there are sufficient buses to increase the frequency of services during the evening or Sundays. These buses sit stationary at the bus depo. However, the cost of the driver and other support personnel, together with the cost of fuel and other operating costs make it uneconomic to run buses outside the peak times.

Hence in most journeys undertaken by bus take substantially more time than commutes by car whether it is for work, shopping or for pleasure. They also do not provide the convenience of flexible travelling times.

D. Other Benefits / Negatives

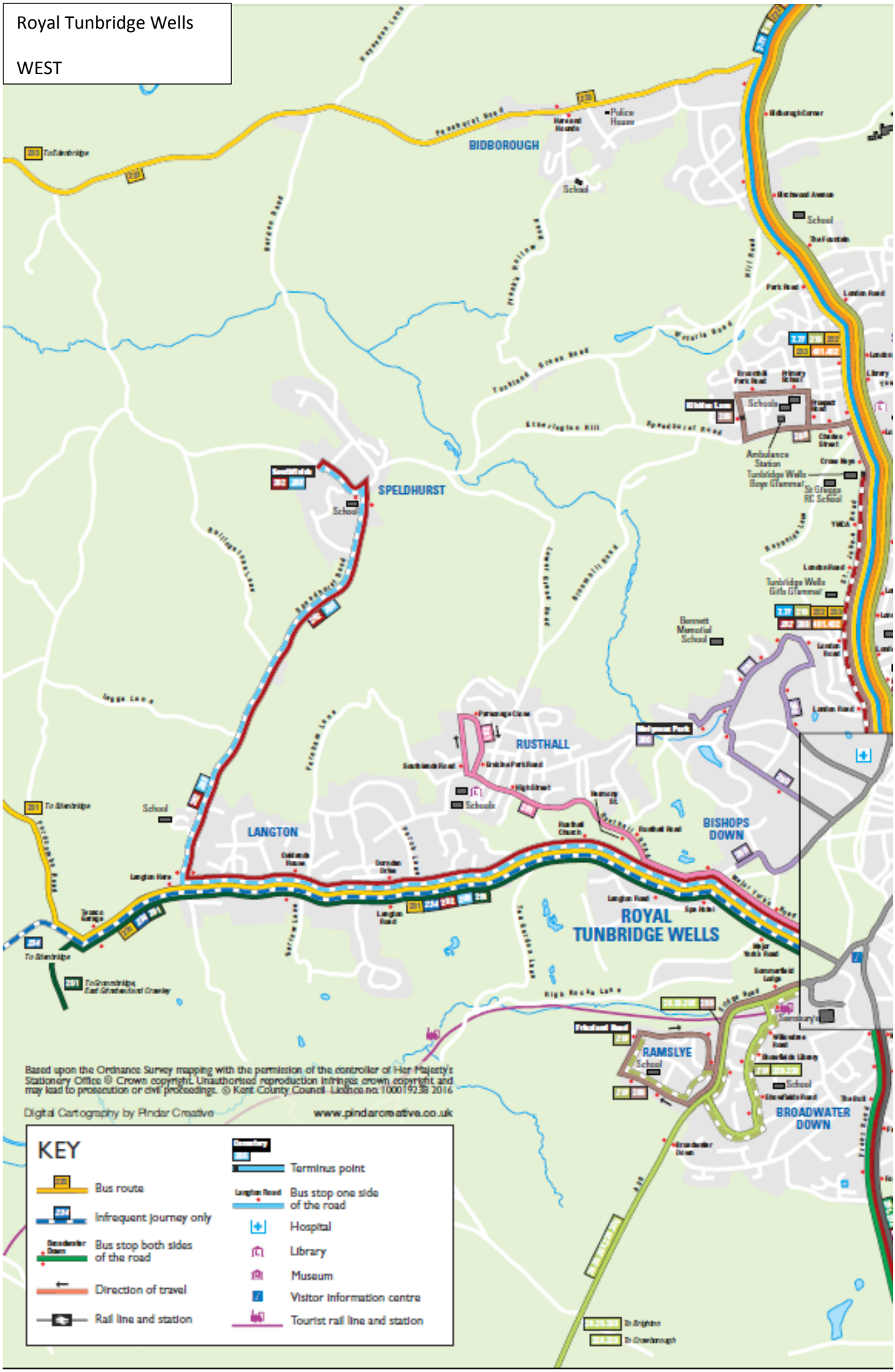
For most people buses offer few benefits in comparison to cars. New technology has improved buses (e.g. WiFi, electronic timetables, bus accessibility). However, it is difficult to see how buses in Tunbridge Wells can be improved significantly to change this balance in favour of buses.

E. Conclusion

Marginal improvements can still add to the attractiveness of the bus routes, frequencies and other aspects of buses. However, these enhancements are unlikely to attract substantial numbers of new Tunbridge Wells passengers to them. Hence alternative means of transport need to be put into place or substantial restrictions, costs and other negative features must be imposed on cars and car users to reduce the number of car users and increase the number of bus users. There is likely to be a strong reaction by travellers against this – a move which will make journeys less acceptable for many as they are forced to give up their car for bus transport.

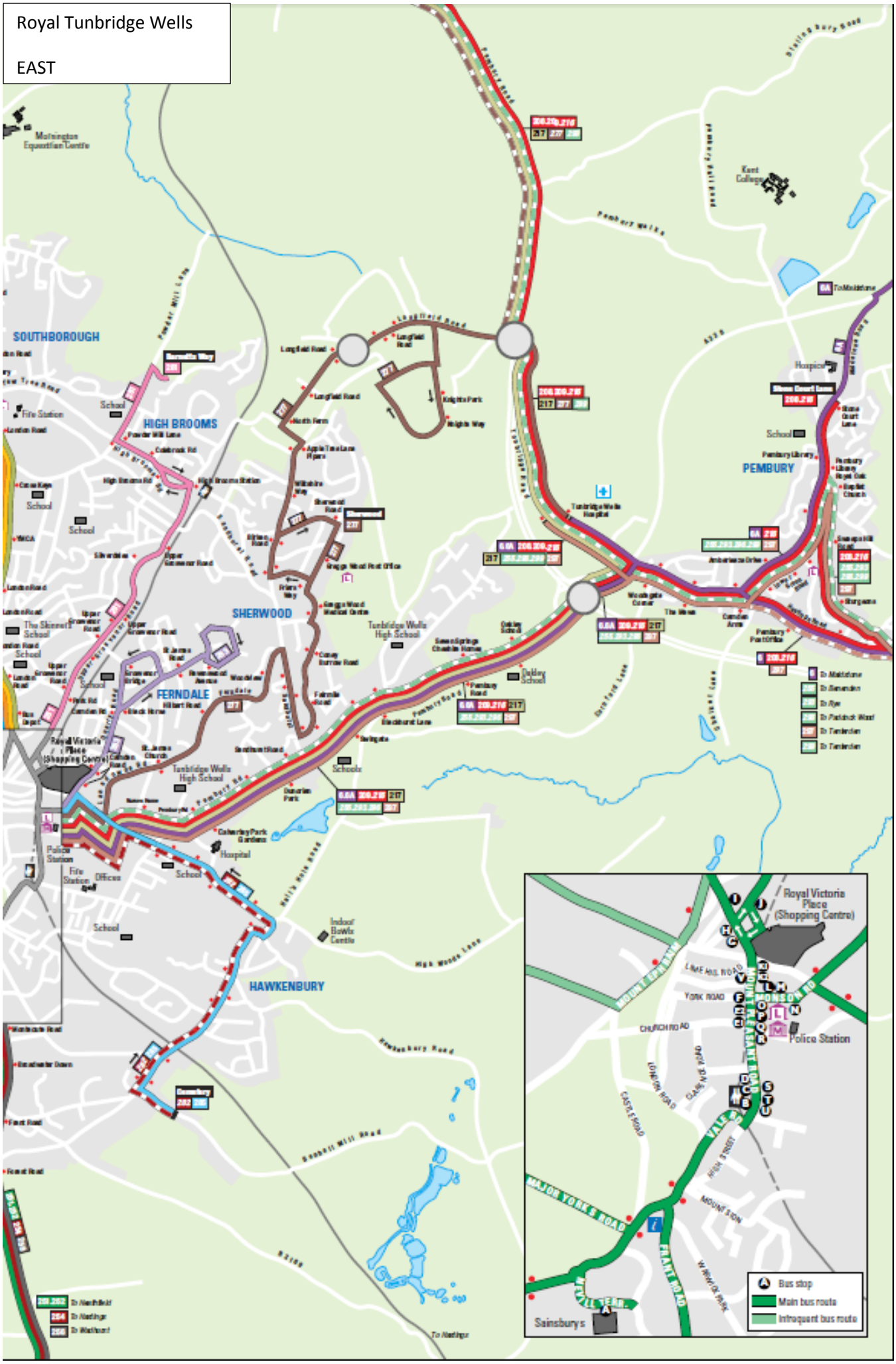
Royal Tunbridge Wells

WEST



Royal Tunbridge Wells

EAST



Appendix B: Bus Routes (non-school)

Service	Route 'Start'[1]	Route	Route 'End'	Direction[2]	Route[2]	Monday - Saturday		Sun	Operator[3]
						Daytime	Evening		
77/147*	Tunbridge Wells	Tonbridge, Hadlow, Kings Hill - West Malling - West Malling, Larkfield	Kings Hill Snodland Maidstone	N	S	hrly	4 jnys 2 jnys	2 hrly 2 hrly	AK
217*	Tunbridge Wells	Tonbridge	Cage Green	N	S	2 jnys	4 jnys		AK
702*	Tunbridge Wells	Southborough, Tonbridge, Sevenoaks	Bluewater	N	S	1 jny (MtoF)			COCO
219/402	Tunbridge Wells	Southborough, Tonbridge	Willow lea	N	S		4 jnys	Hrly (219)	AK
7	Tunbridge Wells	Tonbridge, Hadlow, Wateringbury	Maidstone	N	S	2 per hr		2 hrly	AK
222	Tunbridge Wells	Tonbridge, Shipbourne, Plaxol, Borough Green	Wrotham	N	S	Hrly (MtoF) 6 jnys (Sat)	4 jnys (M-F)		AU
233	Tunbridge Wells	Southborough, Penshurst, Four Elms	Edenbridge	N	S	2 hrly			GO/MB
234	Southborough (sch days)	Tunbridge Wells, Ashurst, Holtye Common,Cowden, Hever	Edenbridge	N	S	3 jnys			GO
237	Tunbridge Wells	Southborough, Penshurst, Four Elms	Edenbridge	N	S				GO
289	Southborough	Tunbridge Wells, Ramslye,Tunbridge Wells	Southborough	N	S	30			GO
402	Tunbridge Wells	Tonbridge, Hildenborough, Sevenoaks Weald - Knockholt, Badgers Mount, Farnborough	Sevenoaks Bromley	N	S	2 per hr Hrly	2 per hr Hrly		AK
6/6A	Tunbridge Wells	Pembury, Matfield(not 6A), Paddock Wood, East Peckham, Wateringbury	Maidstone	E	P	30 Mins	3 jnys (6)		AK
216	Tunbridge Wells	Pembury Rd, Pembury, Bo Peep Corner, Pembury, TW hospital	Tonbridge	E	P	-		2 hrly	AK
255	Benenden	Hawkhurst, Kilndown, Lamberhurst, Pembury	Tunbridge Wells	E	P	1 jny (W,F,Sat)			NE
293	Tunbridge Wells	Pembury, Lamberhurst, Kilndown, Hawkhurst, Tenteden, Appledore	Rye	E	P	1 jny			NE
296	Paddock Wood	Horsemonden, Brencchley	Tunbridge Wells	E	P	2jny (M,Th,Sat)			NE
297	Tunbridge Wells WChair	Pembury, Gouldhurst, Cranbrook	Tenterden	E	P	8 jnys (7 Sat)			RT
297	Gouldhurst	Gouldhurst, Pembury	Tunbridge Wells	E	P	1 jny (MtoF)			AK
251/252	Tunbridge Wells	Frant, Rotherfield(252), Mayfield	Heathfield	S	F	2 per hr	1 jny	2 hrly	SC
254	Tunbridge Wells	Frant, Wadhurst,Ticehurst, Hawkhurst	Hurst Green	S	F	Hrly			AU
256	Tunbridge Wells	Frant, Bells Yew Green, Lamberhurst	Wadhurst	S	F	5 jnys			AU
023*	Bexhill	Hastings, Tunbridge Wells, Lewisham	London	SW	E	1 jny		1 jnys	NX
28/29/ 29X/29B*	Tunbridge Wells	Eridge, Crowborough, Uckfield, Lewes	Brighton	SW	E	30 Mins	3 jnys	Hrly	BH
231	Tunbridge Wells	Langton, Penshurst, Four Elms	Edenbridge	W	R	2 hrly			MB
281	Rusthall	Tunbridge Wells	High Brooms	W	R&G	12 mins	30 mins	30 mins	AK
282	Speldhurst	Langton	Tunbridge Wells	W	R	6 jnys			NV/AK
285	Speldhurst	Langton, Tunbridge Wells	Hawkenbury	W	R&L	15-30 mins			AK/NV
291	Tunbridge Wells	Langton, Groombridge, East Grinstead	Crawley	W	R	Hrly		4 jnys	MB
208	East Peckham	Tonbridge, TW hospital	Pembury	A21		Hrly			AU
277*	Pembury	Sherwood	Tunbridge Wells	Local		1 jny (MtoF)			
277	Tunbridge Wells	Sherwood, Knights Park	TW hospital /Tonbridge(Sun)	Local		30		2 hrly	AK
280	Tunbridge Wells WChair	Molyneux Park	Culverden Down	Local		5 jnys			AK/MB
283	Tunbridge Wells WChair	(hourly Sat)	Ravenswoods Ave	Local		4-6 jnys			AK

Note 1 *WChair – Services marked are wheelchair accessible.

Notes 2 & 3 – see tables below

2. General Direction of Travel From the Centre of Tunbridge Wells

Code	Route Direction	Direction - outward
S	Southborough	North
P	Pembury	East
F	Frant	South
E	Eridge	South-West
R	Rustall	West
A21	A21 bypass	
G	Upper Grosvenor	
L	Local	

3. Operator

CODE	Bus Company
AK	Arriva Kent & Sussex
AU	Autocar
BH	Brighton & Hove
CN	Centaur Coaches
COCO	County Connect Hire
GO	Go-Coach Hire
HT	Hams Travel
MB	Metrobus
NX	National Express
NE	New Enterprise Coaches
NV	Nu-Venture Coaches
RR	Redroute Buses
RT	Renown Transport
SC	Stagecoach
SD	Seaford & District Motor

Appendix C: School Services

Service	Route 'Start'	Route	Route 'End'	School	Route[2]	Operator[3]
207*	Collier Street	Yalding, Paddock Wood	Culverden Down	S	P	AU
228*/289*	Tunbridge Wells	Eridge, Crowborough	Alderbrook	S	E	SD
230*	Tunbridge Wells	Rusthall, Langton, Penshurst	Tonbridge Schools	S	S	AU
235*	Leigh	Penshurst, Southborough	Culverden Down	S	S	SC
257*	Hawenbury		Tunbridge Wells	S	L	AK
288*	Groombridge	Langton green, Speldhurst, Bidborough, Tonbridge	Weald Kent school	S	S	AU
315*	Badgers Mount	Westerham, Brasted, Sundridge,Chipstead,Riverhead	Tunbridge Wells	S	S	RR
432X*	Greatness (Knole Accad.)	Sevenoaks, Sevenoaks Weald	Tunbridge Wells schools	S	S	GO
434*	Westerham	Eynesford, Shorham, Otford, Knole Academy, Chipstead Cnr, Southborough	Tunbridge Wells schools	S	S	GO
442*	Tunbridge Wells	Tonbridge, Hildenborough, Weald, Sevenoaks,Knole Academy,	Trinity school	S	S	NE/AK
502* - 582*	Tonbridge /T. Wells		Schools	S	L	AK
581*/582*	Tunbridge Wells	Grosvenor Bridge, Tonbridge	Hugh Christie Tech College	S	S	AK
402X	Badgers Mount	Halstead, Knockholt, Dunton Green, Riverhead,Southborough	TW schools	S	S	GO
431X	Kemsing	Seal, Riverhead, Bessels Green, Chipstead Corner, Southborough	Tunbridge Wells schools	S	S	GO

III. Self-Driving Vehicles

If self-driving cars are simply the same as existing cars with a computer instead of a driver, then little is to be gained. Some benefit will accrue e.g. travellers will no longer require to drive or to be driven; town centre parking problems may be reduced. However, these 'benefits' may also result in a substantial increase in numbers of cars causing increased congestion.

However, the new technology also gives an opportunity for vehicles to be considerably rethought in both design and in their use. Understanding exactly how these vehicles will be used will only be fully understood after trials of the vehicles and the evolution of services as they are implemented. However, by looking at current design features of the vehicles some insight may be gained regarding their like or possible use in the future.

A. Design Features

There are a number of different self-driving vehicles being used in active and in trial situations. The vehicle believed to be most appropriate is one currently on trial in the Greenwich (London) GateWay project. This vehicle design is based on the same body as the Heathrow Terminal 5 pod service which has been in operation for the past 6 years between the terminal and a business car park. The guidance system has been totally redeveloped to allow this type of vehicle to be used in pedestrian areas as well as along segregated routes. The interior has also been changed to accommodate an additional 2 drop-down seats, room for a wheelchair and a electric ramp. A similar vehicle, with a sleeker looking exterior, is also in service in Masdar City PRT Personal Rapid Transit.

See attached YouTube videos:

Heathrow Airport

Masdar City PRT Personal Rapid Transit

The key features of these self-driving vehicles (Pods) are as follows:

	Feature	**Detail**	**Description**
1	Size:	1.46m X 3.65m	Narrower than most cars (compared to a 3 door mini: 1.73m X 3.82m)
2	Height	1.85m	Adult height, thus higher than most small cars.
3	Capacity	6 people	2 bench seats and 2 drop down seats
4	Accessibility	Yes	Capacity for an electric wheelchair or pushchair
5	Luggage	Yes	Large floor space, 1.44m X 1.2m
6	Doors	Electric	Double, one side only
7	Propulsion	Electric	Battery capacity, no problems in range or in daily use

	Feature	Detail	Description
			encountered
8	Speed (max)	25 mph	Along segregated / dedicated routes; Speed is limited to 25mph by legislation
9		3 to 5 mph	In pedestrian areas
10	Noise	None	Warning noise can be added as required
11	Pollution	None locally	Electric power generated elsewhere
12	Road width	1.5m min	Approx. cycle path width. Guidance system maintains accurate and narrow pathway. Wheel base width is 1.4m
13	Road surface	Paved	Light weight paving, minimum of two paved strips but normally on 'cycle path' type surface.
14		Roads, pathways	When not in pedestrian areas pods can currently best operate along segregated routes. Can be open grid to let light and rain pass through.
15		Flexibility	Can operate on the ground or on light weight, ariel structures at tree canopy height, or in cut-and-cover structure (possibly glass covered tunnels).
16	Separation	4 sec.	Minimum operation distance between pods (4 seconds) allows a high capacity use of pod pathways.
17	Guidance	Self-guided	Most routes pre 'visualised' to assist fast recognition of new or moving obstacles
18	Control	Central	Constant link to central computer and personnel
19	Cameras	In & out	Video available to central control room
20	Safety	Constant	Monitored by computer diagnosis, call to control room staff
21	Evacuation	Safety door	Extra access to front in emergency
22	Communications	To control room	Full communications and video system on board
23	Reliability	High	Lower break-down frequency reported than London tube trains
24	Passengers	1 up to 6	Dedicated travel for self-selected travelling companions (single or small group)
25	Routes	Direct	Passenger selects destination and computer programs the fastest route
26	Passenger Call	Electronically	In Heathrow the average weighting time is less than 4 seconds.

	Feature	Detail	Description
27	Waiting time	Minimal	Computer anticipates demand and send pods for anticipated busy points e.g. railway stations, cinemas etc.
28	Tickets	Electronic	Anticipated ticket price - no more than bus ticket levels
29	Pod Stops	Direct	Nonstop until passengers' desired destination. Pods automatically overtake other pods that have stopped along the way to allow passengers to board or leave their pod.
30	Maintenance	Small facility	Pods proceed direct for maintenance, repairs or cleaning as determined by the automatic monitoring and maintenance schedules. Spills and other issues dealt with as appropriate.
31	Construction: body	Light weight	Common motor components, fibre glass shell on chassis. Batteries and electric motors. Standard car computer.
32	Construction: Pathways	Light weight	Fast construction design to avoid utility services
33	Comfort	Climate control	Full heating and air conditioning

B. System Trial

An initial trail of two vehicles is at the early stage of being considered for trial to take place in the centre of Tunbridge Wells (Mount Pleasant Road and the High Street i.e. from Fiveways to Mount Sion).

The primary objective is to allow everyone to gain experience of the vehicles in a pedestrian environment and to spark interest and ideas from the public of how they could be best deployed in Tunbridge Wells and at other locations in Kent or elsewhere. Other technical aspects would also investigated during the trial.

The trial, which will be for a limited period, will only exhibit a small range of the vehicles capabilities. Due to the 'experimental' nature of the trial the vehicles will have an 'emergency' operator on board who will be able to stop the vehicle and provide information to users.

A wide range of various public groups should be invited to the trials. It is hoped that as many school children as possible will be included. Each participant will be invited to give their comments and suggestions, particularly school pupils who will be asked to write or draw picture of how they think the pods may be used in the future. Various information boards and sheets will be made available.

C. Anticipated Operation

Two initial modes of travel are assumed:

1. Centre of town (Pedestrian mode): Operating at walking pace

2. Park and Ride (segregated, dedicated routes): Operating at 25 mph

In the longer term, it is anticipated additional routes will be added and the capability of the pods will be enhanced to allow them to travel along normal roads.

The pods can be available 24 hours a day, 7 days a week. As there is no driver, maintaining late and through the night services requires few additional staff and no additional vehicles. As the pods are electrically operated with no noise, no undesired disturbance is caused. Only the pods actually called by passenger are required. Hence no vehicle will travel empty except to pick up specific passengers.

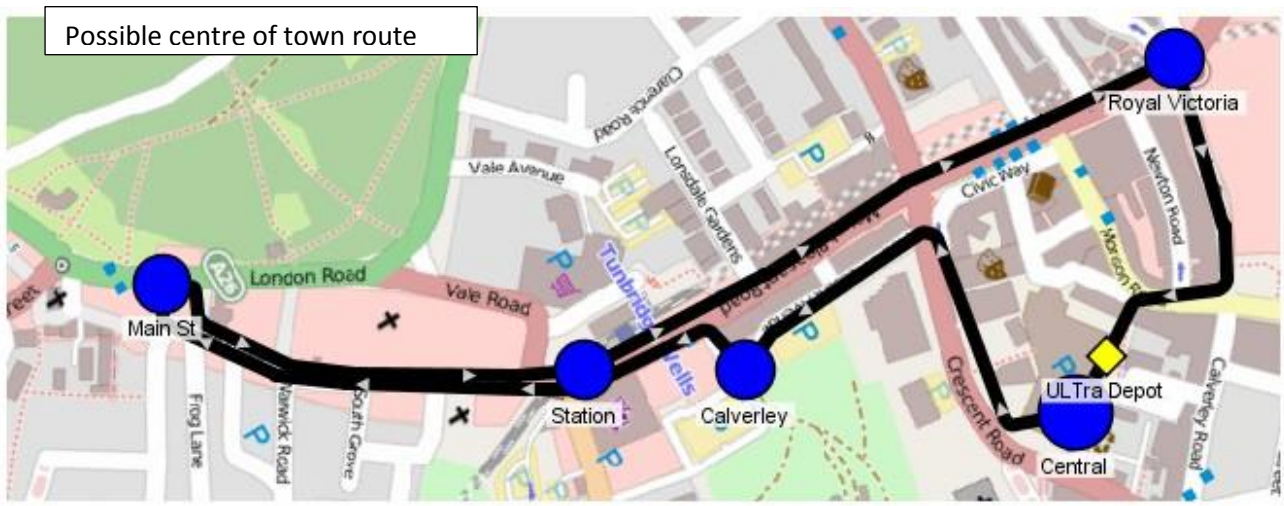
Any new dedicated park and ride route will allow the possibility of more pods per hour than cars per hour that currently use the Pembury Road.

D. Anticipated Routes

The initial routes and future routes will depend upon public consultation. In the longer term, it should be possible to serve all of the Tunbridge Wells routes, including routes to Tonbridge. Passengers will be able to transfer to long distance buses at key points at the edge of the town or elsewhere as appropriate.

1. Centre of Town Operation.

One side of Mount Pleasant Road and the High Street may be dedicated to the pods while the other side of the street may be allocated to one way for existing traffic including buses, commercial vehicles and

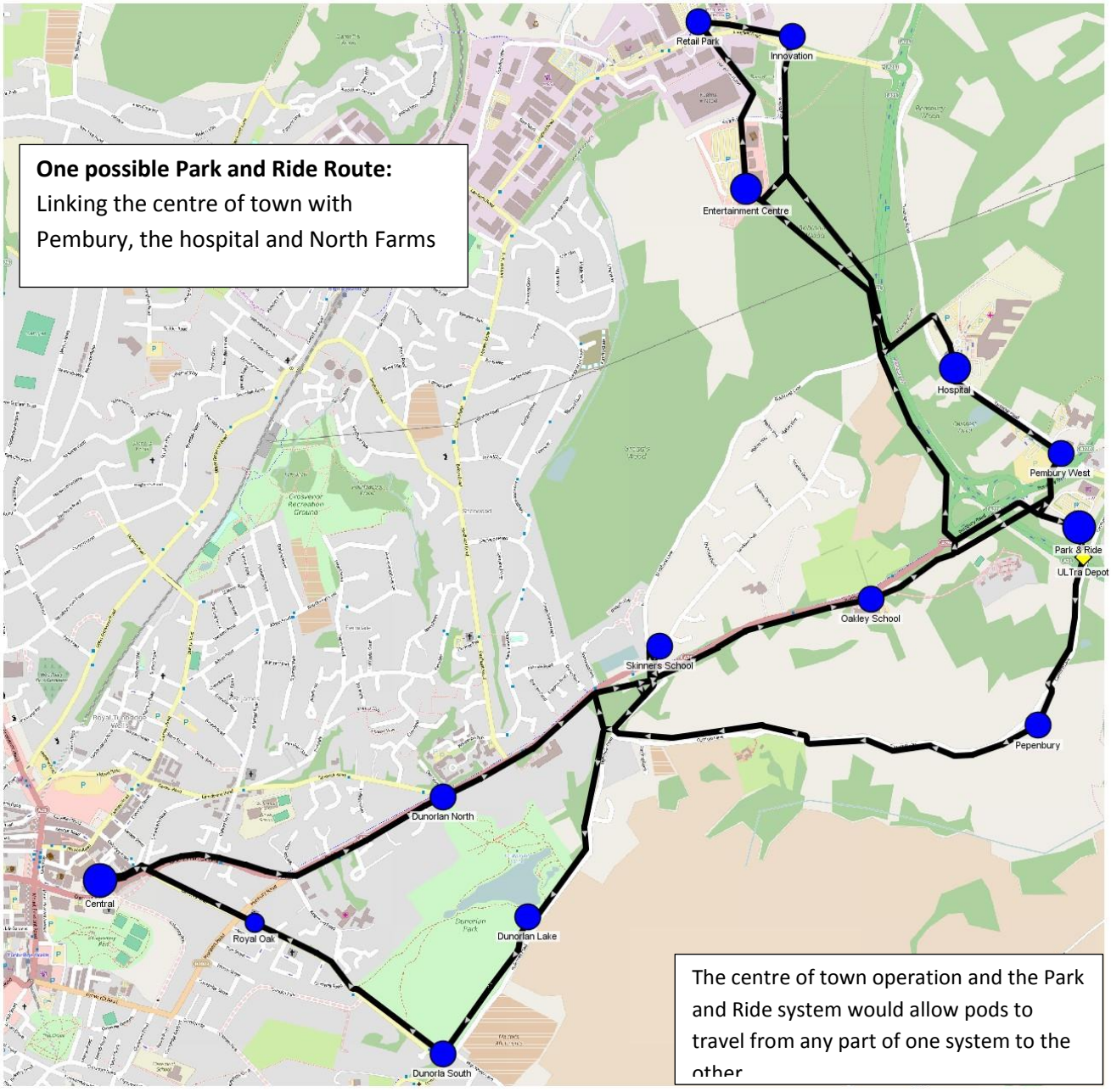


cars. Pedestrians will be able to call a pod and designate a destination, either in the pedestrian area or along the Park and Ride route. For the latter, the pod will proceed from the pedestrian area to the segregated pathway and continue on at 25 mph to the passengers' final destination.

2. Park and Ride

The initial route is likely to be to/from the centre of Tunbridge Wells to Pembury and on to the hospital and North Farms. This route may be used as a Park and Ride system utilising the ground already set aside (but un-used) for a more traditional bus park and ride system. Experience in Heathrow demonstrates that such a system can be highly popular. User have minimal waiting times (average 4 seconds in Heathrow). The pods go direct to their final destination in Tunbridge Wells in an anticipated and consistent under 10 minutes.

Final routes are still to be determined, however it is possible that the outward journey may be along the side of the Pembury Road or raised to tree canopy level to avoid possible interaction with other vehicles or pedestrians and cyclists. At canopy level the pods will operate noiselessly, largely hidden by the trees.



The inward journey may be via the fields along Cornford Lane to Dunorlan Park at ground level hidden by hedges. Separating the inward and outward routes will have the added advantages of reducing the visual impact of the dedicated routes and increasing the areas served by the pods – for instance including school grounds, Pepenbury (home for people with disabilities), the offices at Hawkenbury, the park and elsewhere.

The journey to or from Pembury to/from the town centre will take less than 10 minutes.

3. Future Park and Ride Routes

Other Park and Ride locations in or on the way to Southborough, Rustall, Frant and Eridge should be possible. These routes may follow existing road, travel through school grounds or take entirely new routes. The routes may also be built above cycle paths, possibly providing additional cycle path routes for cyclists.

4. Other routes

Hopefully as more people transfer to the use of pods, fewer cars will be needed thus reducing congestion along the main roads in Tunbridge Wells as well as reducing the number of parked cars. Many residents may elect to join car clubs (such as the existing Co-Wheels club in Tunbridge Wells). This could allow a greater selection of cars will be available for occasional use by residents.

Pathways may be directed through school grounds; non-stop except for those carrying school pupils.

Hopefully by eventually reducing the number for parked cars, pods may also be able to use some of the existing residential roads.

E. Financing the System

Any infrastructure e.g. the construction of new lightweight pathways is likely to require government finance. However, these pathways will cost considerably less than the existing roads to build and maintain. The local highways authority may charge a toll (say £1) on each pod for the use of a dedicated route in or out of town. This will pay for the capital and maintenance costs.

The pods may be owned by the existing bus and/or taxi companies or other companies. Each pod would be required to conform to specific size and operational specifications. These pods will effectively operate like a 'driverless UBER' service.

The operation of the system could be organised by an operating company to ensure the pods operate as a public service in the town.

F. Cost to passengers

Initial estimates suggest the costing will be no higher than the current cost of buses to individual passengers with discounts being given to pods carrying more than one person. All payment would be made using the equivalent of an Oyster Card and normal bankers card / mobile phone App.

IV. Comparisons

It is clear that further growth in the number of cars owned by residents and car journeys will add increasingly to our existing congested main arterial and residential roads. To ease congestion, we need to find ways of encouraging some travellers to use other modes of transport. Hence, we need to find ways to ensure other means of transport are attractive to many existing and future car users. The aim is not 'covert' all car users but to encourage some to other forms of transport for at least some of their car journeys.

To best understand what could attracts people to other forms of transport a comparison of Cars to Buses and Self-Driving Pods is useful.

	Cars	Buses	Pods
Speed	Dependant on congestion	Dependant on congestion and number of stops	Consistent 25mph on segregated routes. Highly predictable timing
Pick up and destinations	Dependant on parking, normally as close as possible but finding a parking spot can also take some time, fuel, a parking charge and a distance to walk to and from one's desired destination	Only designated routes	Initially the shopping area, park and ride points or along the routes in and out of town
Comfort and travelling 'group'	Determined by vehicle owner	Passengers seats, travelling with others	Individual or family sized groups travel together
Waiting time	None – other than obtaining or depositing the car at a suitable parking point	Dependent on timetables and bus punctuality	Minimal
Pollution	Heavy noise and vehicle pollution	Heavy noise and vehicle pollution. Many empty seats being moved to accommodate non-peak hours	No noise or local pollution. Often hidden behind hedges or in the tree canopy thus reducing visual impact
Costs	Capital and operating costs paid direct by owner. Roads paid from taxes.	Cost of tickets, season tickets – as used	Cost per journey, season tickets – as used
Accessibility	As per car purchased with special adaptations	Generally, more accessible but limited times	Fully accessible. Children, those with disabilities and the elderly may travel without the need for a driver
Period of operation	Owner determined	Limited availability	24/7 availability
Parking	Frequently a problem, either at the start or destination	None	None
Long Distance	As required	Few long-distance routes. Where these are available they take substantial more time than a car	Possible Car Club cars available at the edge or Tunbridge wells. Pods primarily used for in and around town travel

	Cars	Buses	Pods
Infrastructure	Existing roads, maintained by government (central and Kent County Council)	Existing roads and bus lanes maintained by government (central and Kent County Council)	Existing pedestrian areas, segregated, light weigh, narrow pathways – built by KCC and potentially financed by tolls
The Future	We need to reduce our dependence on cars for a wide range of reasons, particularly the congestion and pollution they caus.	Buses provide a valuable 'mass-transport' system. However, they are costly to operate, add to pollution and congestion	This could be a substantial way of increasing public transport in an attractive form, taking traffic from existing roads, reducing their impact of residents and the town

Conclusion

We have the possibility of introducing new technology as a public transport system which has many benefits, offering personalised space to travellers. Such a system can reduce the stain on existing transport infrastructure used by both cars and buses. It will not replace existing cars or buses but could be the start of a major change to our modes of transport choice and substantially ease our congestion problems.