

Technical Note

Project: Virginia Water

Subject: Walking and Cycling Review

Client:	Virginia Water Neighbourhood Plan Group	Version:	A
Project No:	05567	Author:	RW / LB
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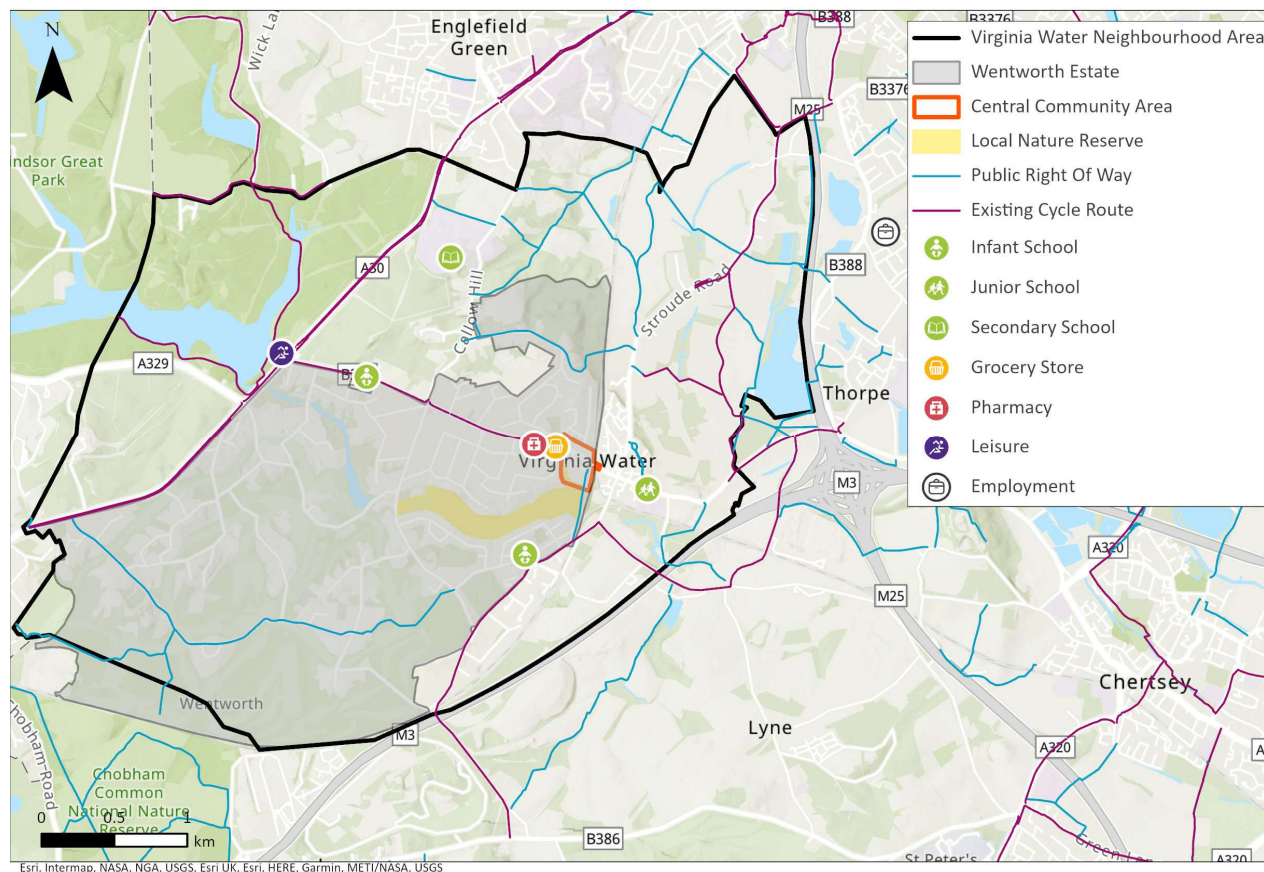
I Introduction

- 1.1.1 PJA has been commissioned by Virginia Water Neighbourhood Plan CIC to review the existing walking and cycling infrastructure, and make recommendations to improve the network. Consideration has also been given to the proposed local plan development sites (Longcross Garden Village, Virginia Water North and South) to determine whether any additional infrastructure would be required to accommodate these proposals.
- 1.1.2 This note identifies key walking and cycling desire lines within Virginia Water and provides a menu of recommendations to enhance journeys by foot and by cycle within the local area. The identified routes will have the potential to accommodate short journeys which may otherwise be undertaken by car.

2 Review of the existing network

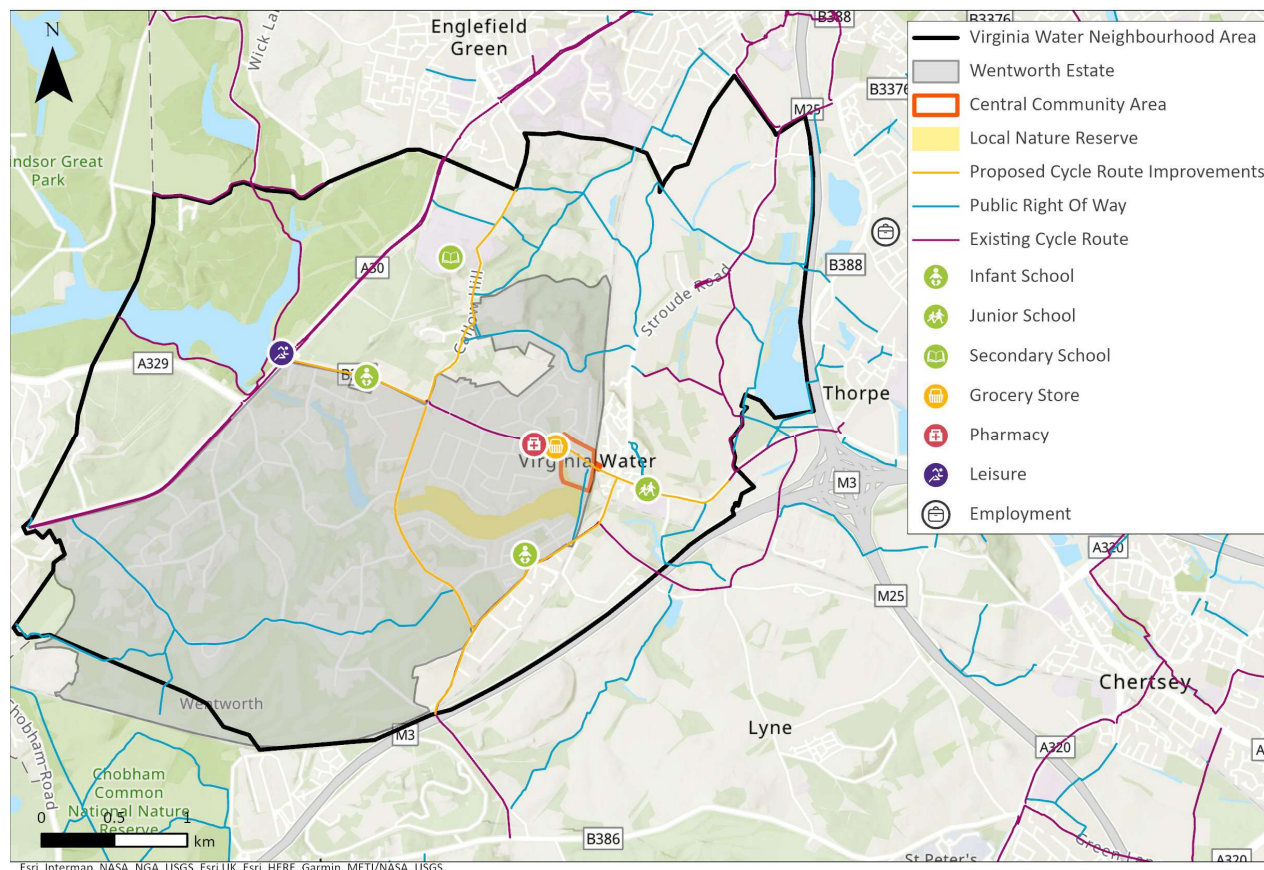
- 2.1.1 A desktop review has been undertaken to establish the existing network of walking and cycling infrastructure. This review was supplemented with information regarding the existing cycle network from Runnymede Borough Council. Figure 1 shows the existing walking and cycling infrastructure within proximity to Virginia Water.

Figure 1: Existing Walking and Cycling Network



- 2.1.2 Desire lines between the identified facilities (including schools) and the residential areas have been identified, and subsequently mapped. Links to nearby employment areas; namely Thorpe Industrial Estate and Royal Holloway University were also included.
- 2.1.3 Figure 2 highlights where there are gaps in existing infrastructure. These have been identified as required to accommodate these movements, particularly those trips that would be within 5km.

Figure 2: Gaps in Existing Infrastructure



2.1.4 The review indicated gaps in the following locations

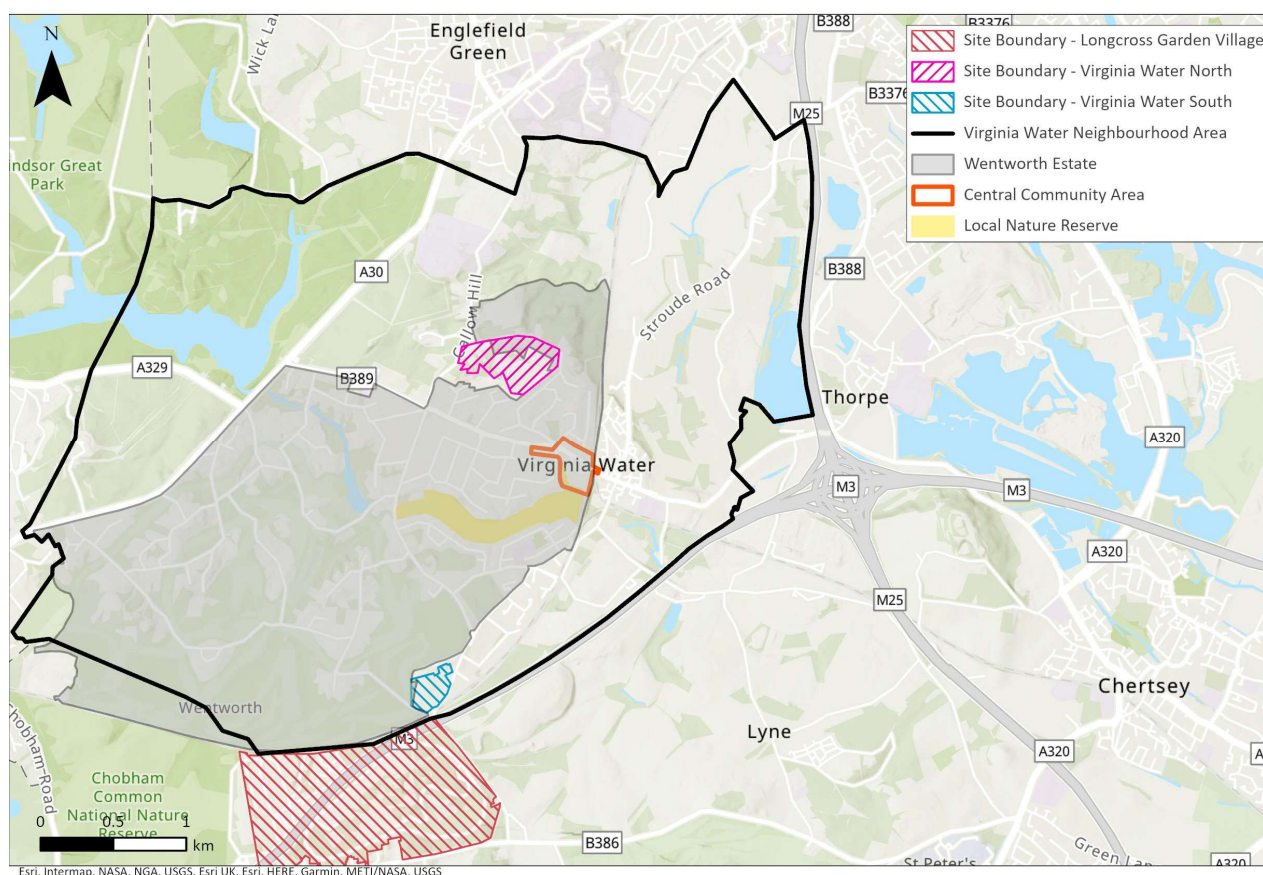
- **Trumps Green Road:** Unlit road which is subject to a 40mph speed limit. Two sided footpath provided for most of the route.
- **Wellington Avenue:** Relatively unlit road subject to a 40mph speed limit. Narrow footpath provided only on one side of the carriageway. This route is classed as a 'recommended cycling route' according to Surrey County Council.
- **Callow Hill:** Unlit road which is subject to a 40mph speed limit. Narrow footpath provided only on the western side of the carriageway.
- **Christchurch Road / Sandhills Lane, east of Virginia Water's Central Community Area:** Well-lit road subject to a 30mph speed limit.
- **Christchurch Road West** – Well-lit road subject to a 40mph speed limit.

2.1.5 The corridors as indicated above will be reviewed to determine if there are any improvements which could be made to the existing cycle routes, and measures which could be delivered to fill the gaps in infrastructure.

3 Considerations to Local Plan Sites

- 3.1.1 Consideration has been given to the local plan sites and any requirement to provide walking and cycling infrastructure to mitigate against their impacts. The emerging sites are shown on **Figure 3**.

Figure 3: Local Plan sites allocated for development



3.2 Longcross Garden Village

- 3.2.1 Longcross Garden Village is located to the south of Virginia Water Neighbourhood Plan Area. A review of the Longcross Garden Village Infrastructure and Viability Assessment was undertaken to understand any potential impacts of the development.
- 3.2.2 Virginia Water Train Station is located approximately 4.2km from the site which can be accessed via Kitsmead Lane and Trumps Green Road and is considered a suitable distance to be undertaken by bike. Whilst Longcross Garden Village is in close proximity to Longcross Train Station, the train line splits to the east of Virginia Water. Therefore, additional services are

provided at Virginia Water Train Station and as such, residents of Longcross may travel to Virginia Water to access a wider range of travel options.

3.2.3 The adopted 2030 Local Plan states that developments must optimise connectivity within the site by walking/cycling improvements to the local road network to mitigate significant improvements, including segregated cycling and walking links within the garden village. No reference is made regarding a direct walking/cycling improvement to Virginia Water, however it is considered that this connection is important to offset potential vehicle impacts of the development and to accommodate movements to Virginia Water local centre.

3.2.4 The desire lines and associated routes from Longcross Garden Village development to Virginia Water are shown in Figure 4 and Figure 5 respectively.

Figure 4: Desire Lines from Longcross Garden Village to Virginia Water (as the crow flies)

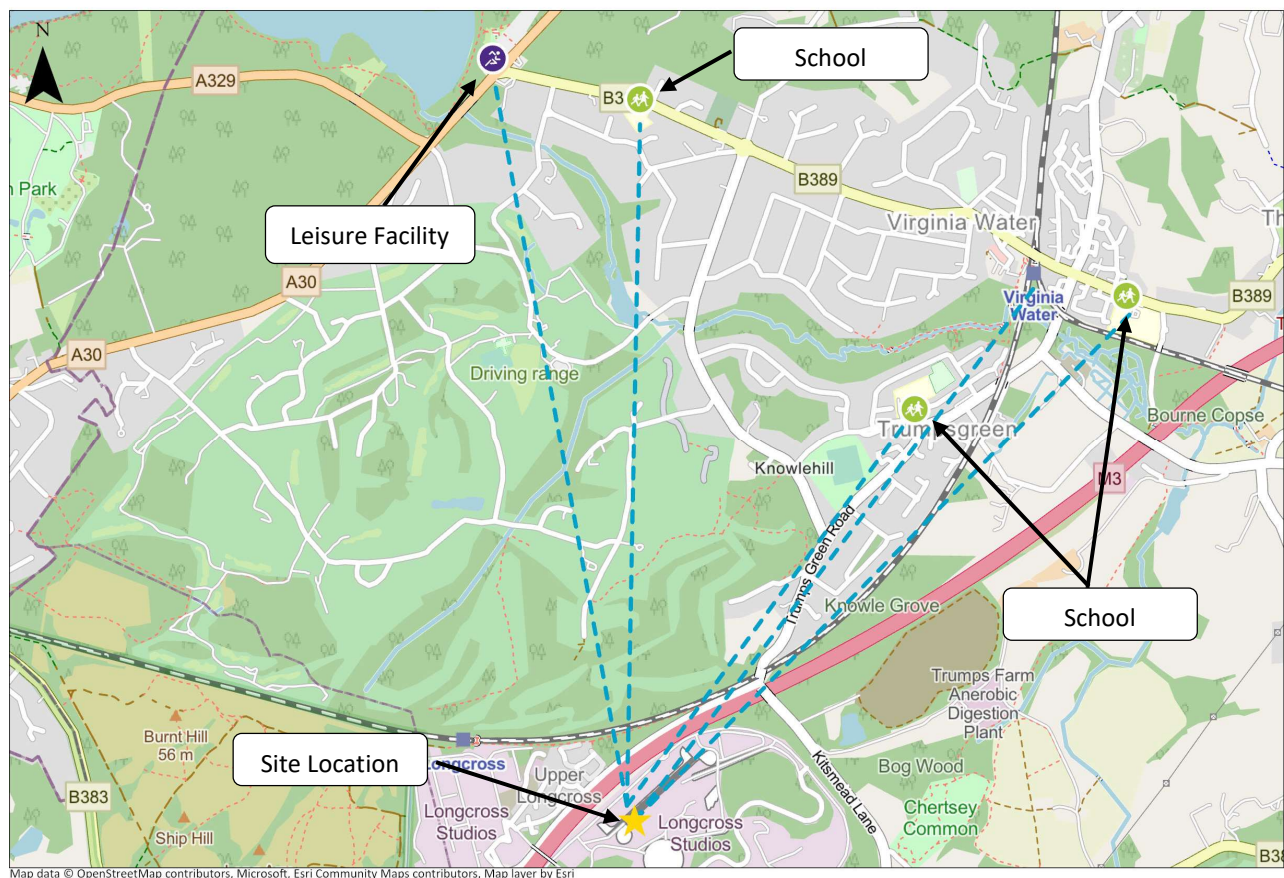
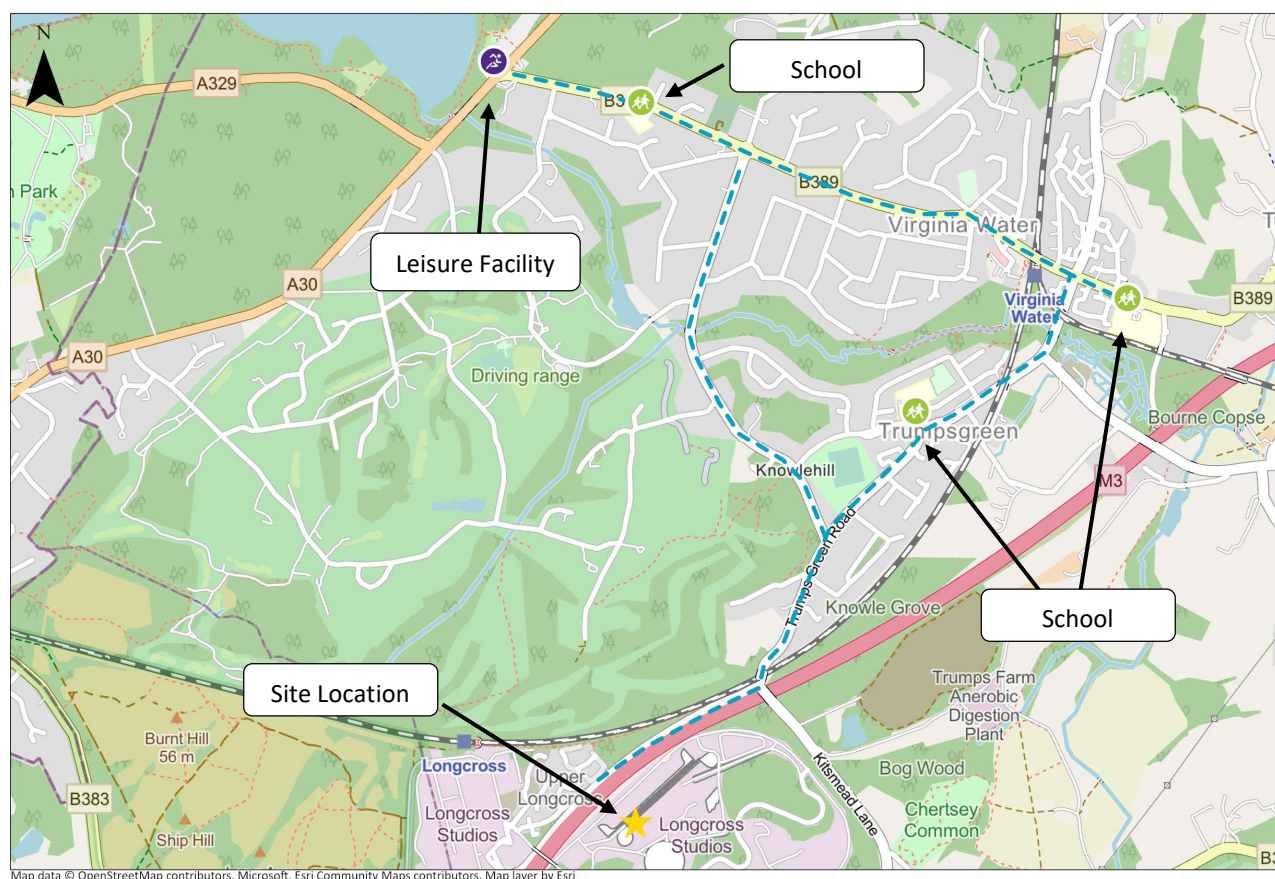


Figure 5: Existing routes from Longcross Garden Village to Virginia Water



3.2.5 Given that these links are within the typical 5km cycle distance, it is recommended that these are reviewed to determine if any improvements can be made to encourage travel along these routes by bike.

3.2.6 Furthermore, the transport modelling exercise within the Longcross Garden Village Infrastructure and Viability Assessment document indicated that the development was anticipated to have vehicle impacts at the following locations within Virginia Water (these can be identified at **Figure 6**):

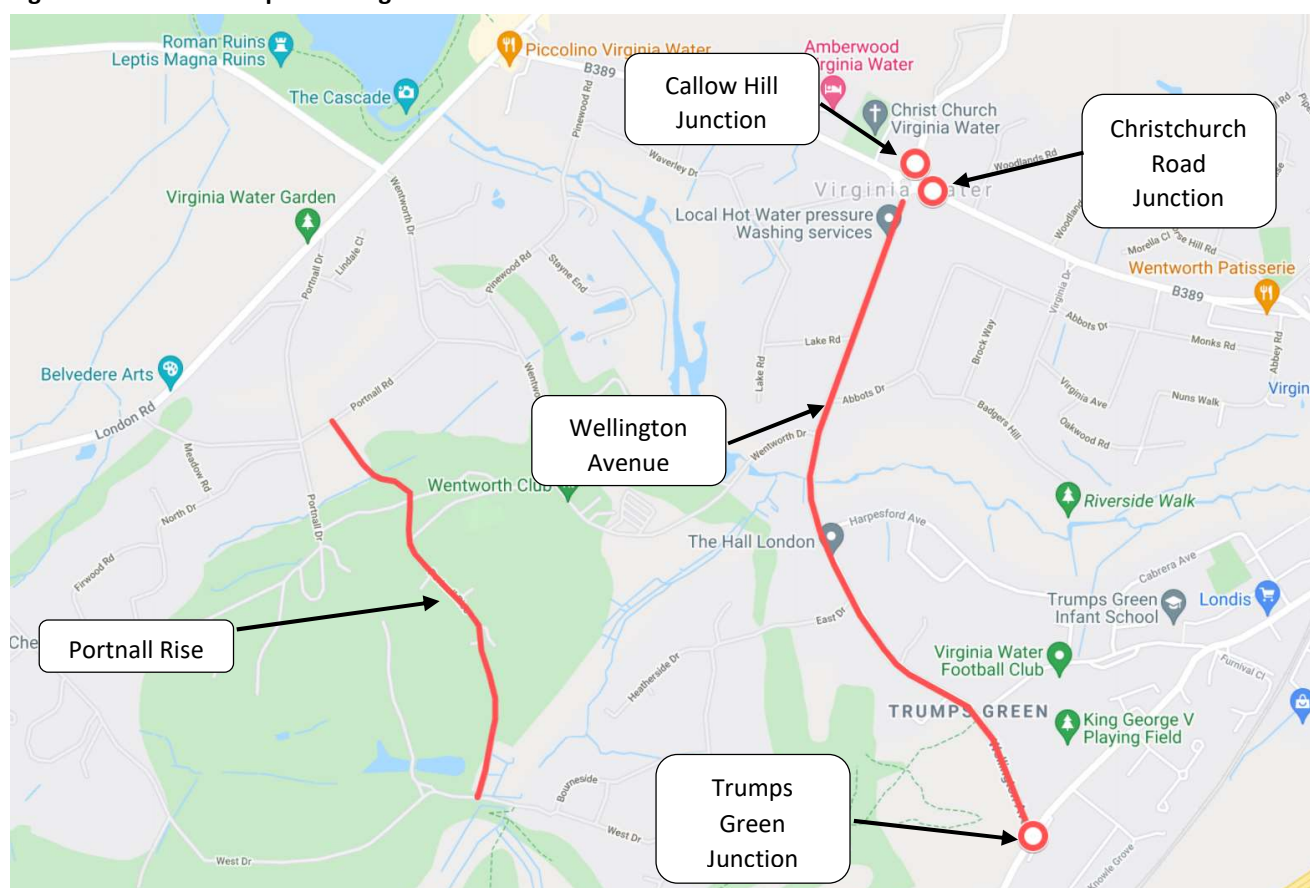
Links

- Portnall Rise
- Wellington Avenue

Junctions

- B389 Christchurch Road westbound approach to junction with Callow Hill and Wellington Avenue.
- Callow Hill southbound approach to junction with B389 Christchurch Road and Wellington Avenue.
- Trumps Green Road junction with Wellington Avenue.

Figure 6: Network Hotspots in Virginia Water



3.2.7 Improvements to cycle infrastructure on Wellington Road would have the potential to influence those short car journeys from the development, into Virginia Water, therefore having the potential to offset some of the vehicle impacts.

3.3 Virginia Water North

- 3.3.1 There is currently no transport assessment publicly available for the allocated site at Virginia Water North. The site is located to the north of Virginia Water and is formed from three parcels of land at Gorse Hill House, Kenwolde and Merlewood.
- 3.3.2 Virginia Water Train Station is accessible from the proposed site via two route options. The first route runs south along Callow Hill to connect with the off road pedestrian/cycle link on Christchurch Road which provides access to the train station to the east. The total distance from the site to the station is approximately 1.8km.
- 3.3.3 Callow Hill is an unlit road with an approximate 2.5m carriageway width and is subject to a 40mph speed limit. According to crashmap.co.uk, 7 incidents (3 severe and 4 slight) were recorded along Callow Hill between 12/11/2016 and 31/12/2020 however none of these incidents involved a pedal cyclist or a pedestrian.
- 3.3.4 The off-road shared pedestrian and cycle link on Christchurch Road runs west to east and is approximately 2.5m in width. The link connects the A30 London Road and ends at Station Approach, totalling approximately 1.8km of off road cycle connections. The road is also subject to a 40mph speed limit.
- 3.3.5 An alternative route of approximately 1.9km is provided via a Public Right of Way which bounds the site to the north. The public right of way route follows Hollow Lane east before merging into an overgrown, unsurfaced Bridleway with minimal natural surveillance. The route continues east across the Southern Western railway line via a level crossing and follows Stroude Road south to connect with Christchurch Road serving the train station. Stroude Road is subject to a 40mph speed limit and narrow footpaths. Given that this connection is located outside of the highway boundary, there is no opportunity to upgrade this route and has therefore been discounted from this review.
- 3.3.6 Guidance provided by the Institute of Highways and Transportation (IHT) in their publication 'Guidelines for Providing for Journeys on Foot' (2000) suggest that in terms of commuting, walking to school and recreation journeys; walking distances of up to 2,000 can be considered as a preferred maximum, with desirable and acceptable distances being 400m and 1,000m respectively. Therefore, the distance to the train station from the site access is considered to be within the preferred maximum for commuter journeys, but falls outside the scope of the preferred maximum distance for non-commuter journeys.

- 3.3.7 The site is in proximity to the leisure destination of Virginia Water Lake situated to the east of Virginia Water central community area. Situated within this area are a number of eating/drinking facilities and a car park for visitors to walk/cycle around the lake.
- 3.3.8 There are two route options to access these leisure facilities from the site. The first route follows Callow Hill north, joining an unsurfaced public right of way footpath west through a series of fields before following the A30 London Road off road shared pedestrian/cycle link south. This route is approximately 2.8km in length.
- 3.3.9 An alternative route follows Callow Hill south, connecting to the B389 Christchurch Road shared pedestrian and cycle link west to the leisure facilities. This route is approximately 1.6km in length.
- 3.3.10 In regard to transport, according to the adopted 2030 Local Plan, the development must 'explore opportunities for the site to link with or contribute to the Christchurch Road off road cycle route to Virginia Water rail station' and to improve pedestrian access to public transport links.
- 3.3.11 The desire lines and associated routes as indicated in **Figure 7 and 8 respectively** are identified as being pertinent to accommodate cycle trips between the allocated development and Virginia Water community centre.

Figure 7: Desire Lines from Virginia Water North to Virginia Water (as the crow flies)

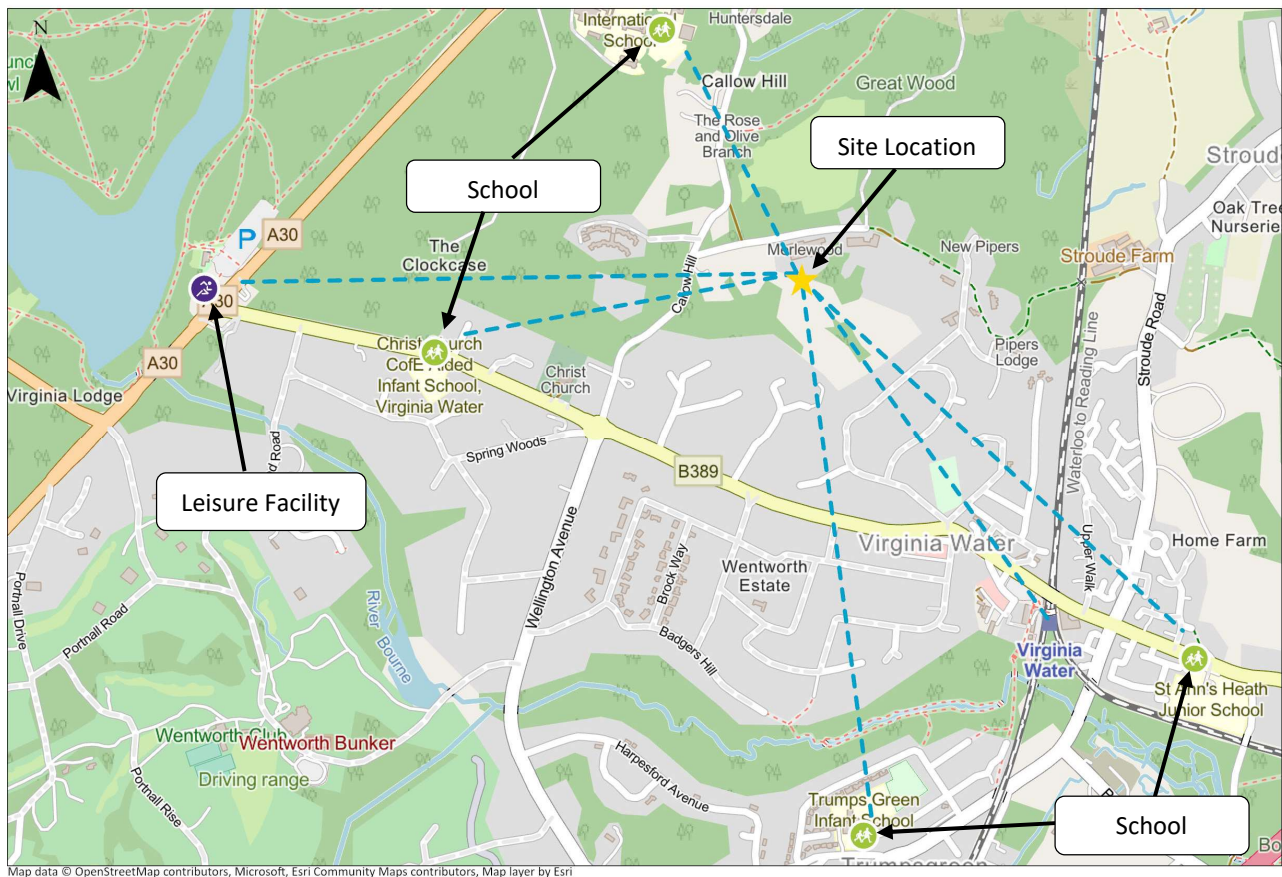
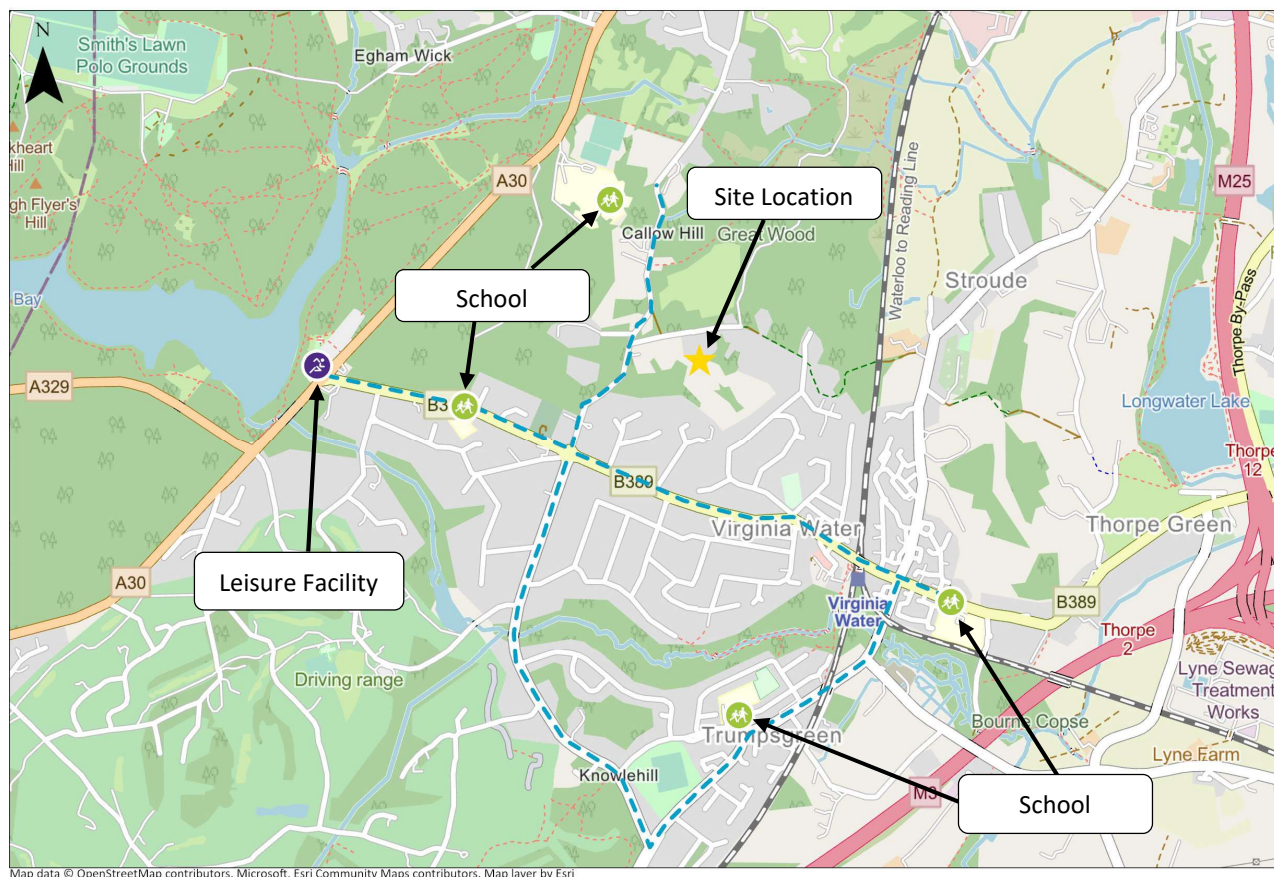


Figure 8: Routes from Virginia Water North to Virginia Water



3.4 Virginia Water South

- 3.4.1 There is currently no transport assessment publicly available for the allocated site at Virginia Water South. The site is anticipated to deliver a minimum of 140 additional dwellings and is located to the north of the Longcross Garden Village development.
- 3.4.2 Desire lines and associated routes for the Virginia Water South development match those as identified for the Longcross Garden Village development, and are indicated at **Figure 9 and 10** below.

Figure 9: Desire lines for Virginia Water South to Virginia Water (as the crow flies)

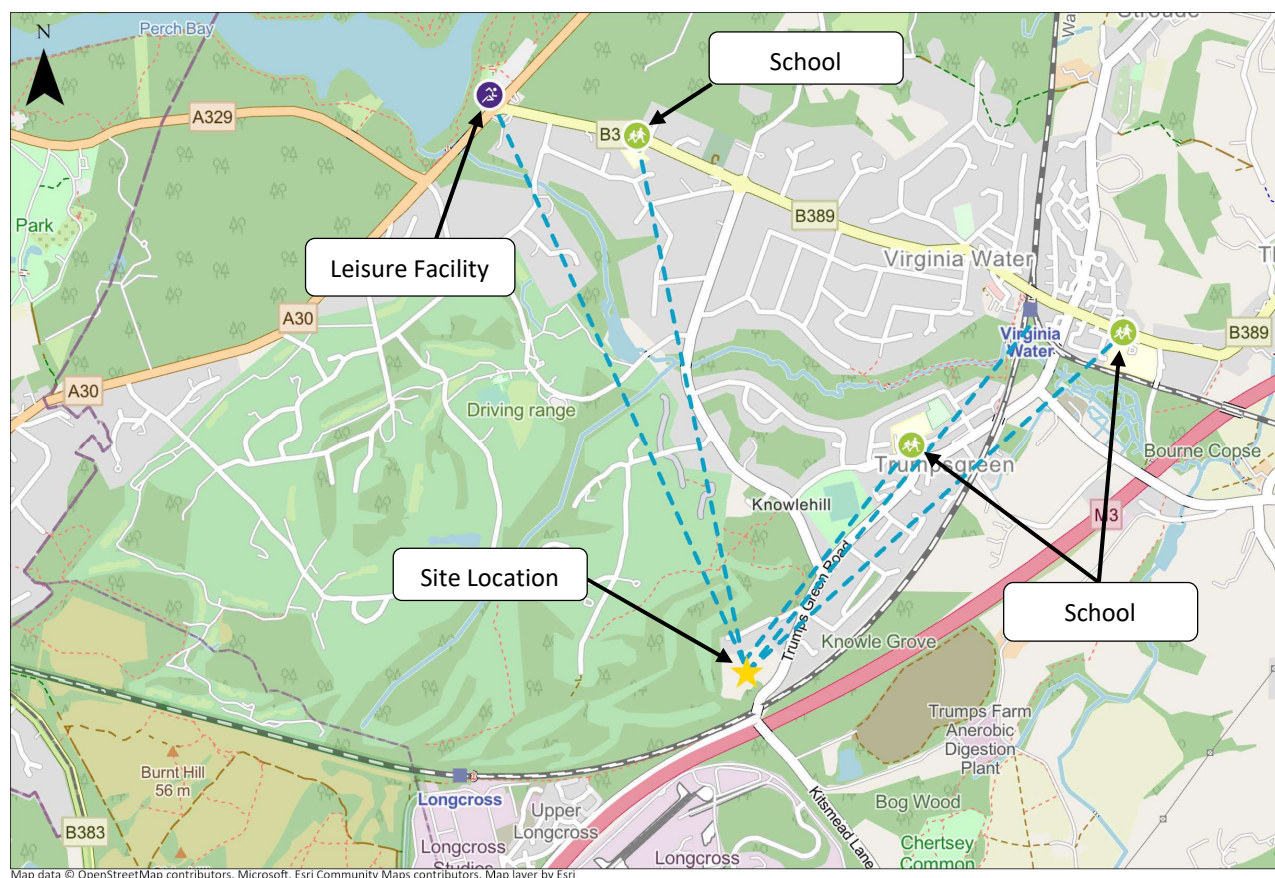
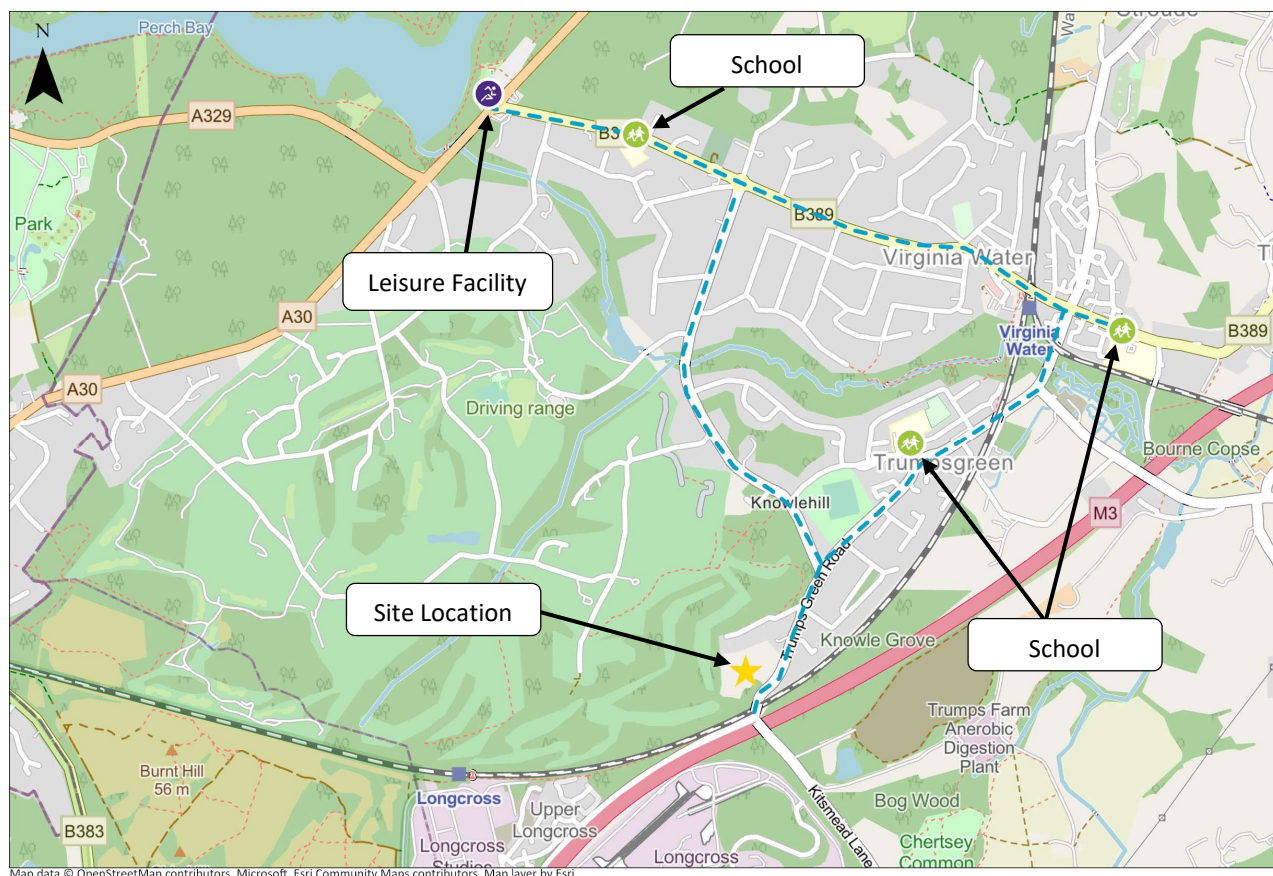


Figure 10: Routes for Virginia Water South to Virginia Water



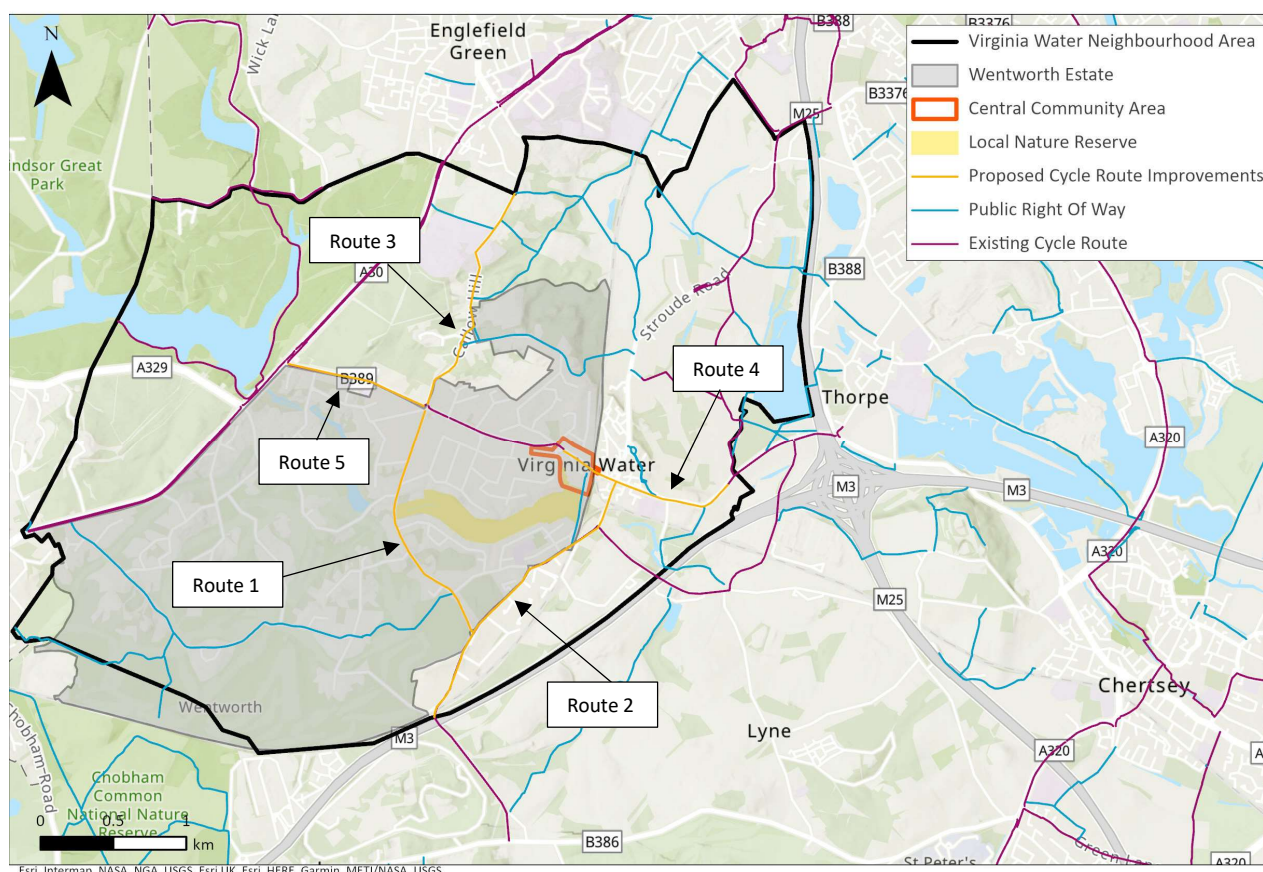
4 Proposed Strategy

- 4.1.1 A review has been undertaken of the existing infrastructure and local roads along the routes as identified above. A series of suggested improvements have been identified along these routes to improve the walking and cycling network within Virginia Water.
- 4.1.2 LTN 1/20 Cycle Infrastructure Design guidance suggest that roads with speed limits of 40mph would require fully kerb cycle tracks to provide infrastructure that would be suitable for all users. It is pertinent to note that most of the local roads within Virginia Water experience frontage activity, are rural in nature, are constrained in width and experience mature trees along the verge. Given these constraints, it is proposed that vehicle speeds and volumes are instead reduced along these routes, to provide a better environment for walking and cycling. Measures along these routes have therefore been based on the key design principles set out in 'Traffic in

Villages: Safety and Civility for Rural Roads' (2011) which builds on Manual for Streets and Manual for Streets 2.

4.1.3 A summary of the key routes to be reviewed is provided in **Figure 11**.

Figure 11: Summary of proposed cycling routes



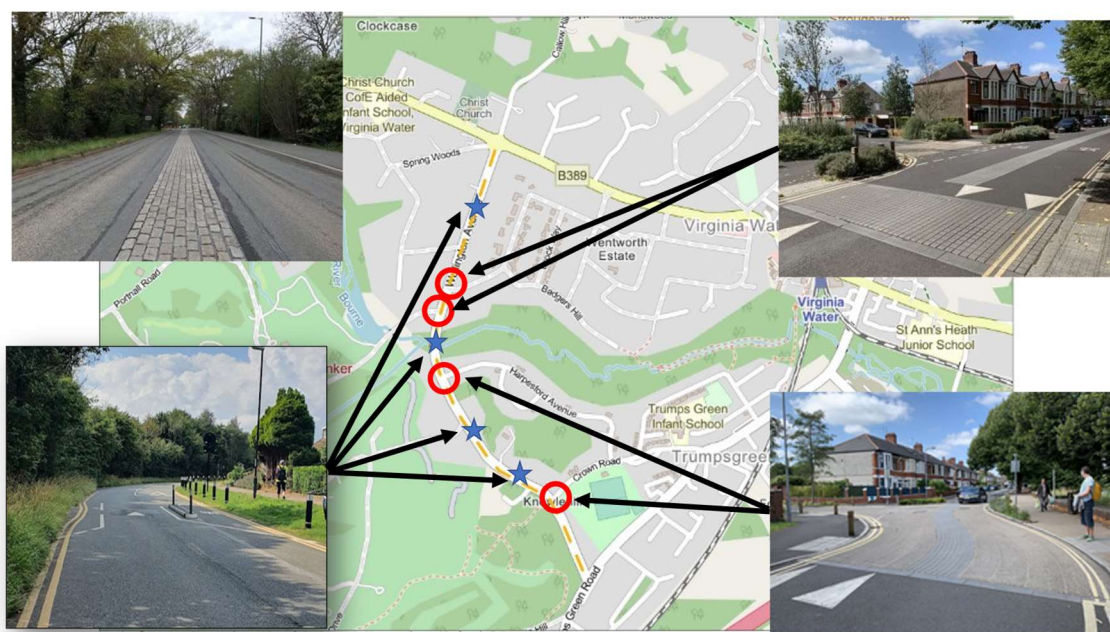
4.2 Route 1: Wellington Avenue

4.2.1 Wellington Avenue is classified as a local route, recommended suitable for cycling according to the Runnymede Borough Cycle Routes map (data source provided by Surrey County Council). This road is subject to a 40mph speed limit.

4.2.2 According to LTN 1/20 cycle infrastructure guidance, Figure 4.1 states that cyclists must be protected by a fully kerbed cycle track where a 40mph speed limit is in place. However, due to the constraints on widening the footway along Wellington Avenue, most notably the mature trees which line the eastern and western sides of the carriageway, it is proposed that measures should be implemented that reduce the speed of motor vehicles.

- 4.2.3 It is recommended that traffic calming measures are implemented along Wellington Avenue, such as the visual narrowing technique of implementing a central median strip along the full route. This will provide the perception that the road is narrow, slowing vehicle speeds down.
- 4.2.4 Priority cycle bypasses could also be provided along Wellington Avenue. This will force motor vehicles to give way to each other whilst providing accessibility for cyclists to bypass this, leading to a reduction in vehicular speeds whilst simultaneously providing a quicker route for cyclists.
- 4.2.5 It is suggested that interventions will be targeted at key junctions along Wellington Avenue, in particular with Crown Road and Harpensford Avenue. It is recommended that these junctions are improved to provide raised tables, tighter radii to reduce the crossing distance for pedestrians and slow turning motor vehicles.
- 4.2.6 A summary of these recommended interventions are shown at Figure 12.

Figure 12: Recommend Interventions along Wellington Avenue



4.2.7

4.3 Route 2: Trumps Green Road

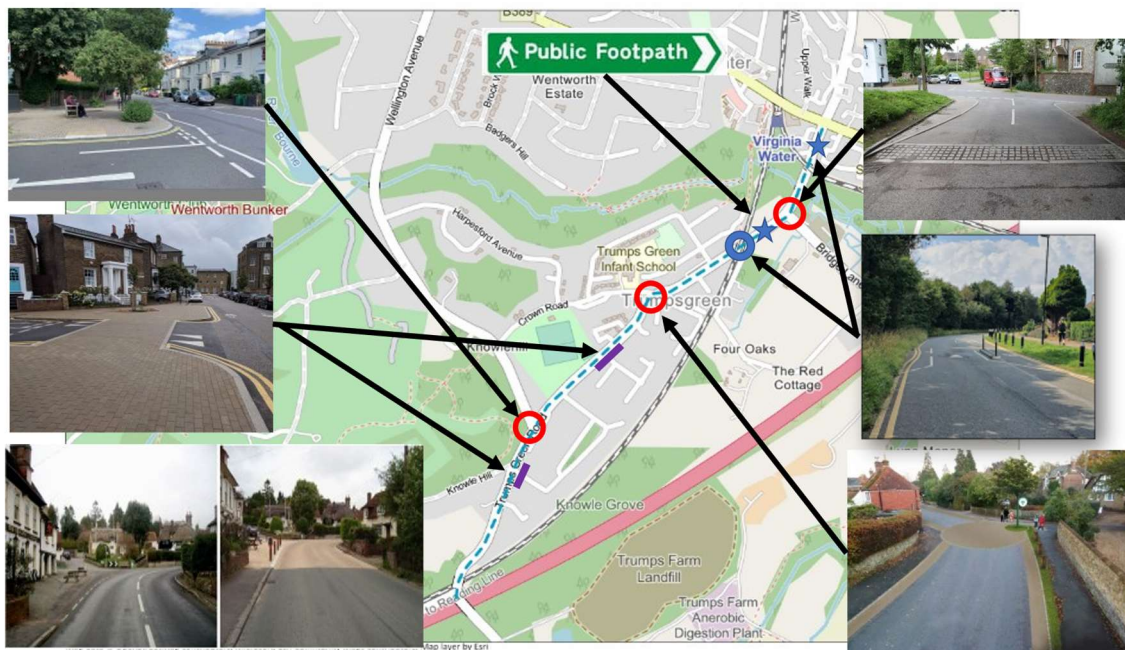
- 4.3.1 Trumps Green Road provides a key connection between both Local Plan Allocation Sites of Longcross Garden Village and Virginia Water South and existing communities of Trumps Green and Virginia Water.
- 4.3.2 According to the Surrey Cycleway, issued by Surrey County Council, Trumps Green Road is classed as a route along the Surrey cycleway. However, Trumps Green Road is subject to 40mph

which, according to LTN 1/20 cycle infrastructure guidance, is not suitable for on road cycling for most people. Trumps Green Road is also witness to several collisions involving pedal cyclists. According to crashmap.co.uk, a serious incident involving a pedal cycle occurred in 2015 and one slight incident occurred in 2016.

- 4.3.3 A similar issue to Route 1 along Wellington Avenue persists with Trumps Green Road, with the majority of the road being used frequently for frontage activity. Where frontage activity is not being utilised, the already narrow carriageways and footpaths coupled with mature trees lining the road result in a segregated cycle lane not being deliverable for this area.
- 4.3.4 Therefore, it is proposed to reduce vehicular speeds down through traffic calming features and through the removal of the central line. According to the TfL paper 'Psychological' traffic calming report (2009), removing the white lines creates a sense of ambiguity as drivers no longer feel they have their own lane, lending to drivers being more attentive and more cautious. This technique has been utilised in Starson in Norfolk and has subsequently been used in a number of villages in Wiltshire.
- 4.3.5 A critical junction identified on this route is the Crown Road/Trumps Green Road priority junction due to its proximity with Trumps Green Infant School. Options for this junction could include; an informal crossing, raised table, surface treatment, tightening radii to slow turning motor vehicles or introducing a roundel on this junction.
- 4.3.6 Pedestrian prioritisation through continuous footways could be implemented across small cul de sac entrances such as the junctions with Knowle Hill and Tithe Meadows. Continuous footways encourage drivers to turn into side roads with caution and reinforces the notion that drivers should give way to pedestrians crossing vehicles are turning into side roads. The University of the West of England, Bristol undertook research into the effectiveness of continuous crossings at side roads and concluded that 91.3% of the studied interactions, the road user crossing the side road either did take priority, or could have taken priority.
- 4.3.7 It is recommended that the bypass implemented at the Railway Bridge should be improved to accommodate a cycle bypass. This section of road is already subject to a give way instruction to motor vehicles and providing priority to cyclists would be beneficial to encourage others to cycle.
- 4.3.8 To the north of Trumps Green Road, Station Path is a public right of way which is positioned parallel to Trumps Green Road and provides access to Virginia Water Train Station and Virginia Water Central Community Area. It is recommended that the legibility of this route is improved to make pedestrians and cyclists aware of this important link.

4.3.9 These recommended interventions are shown at Figure 13.

Figure 13: Trumps Green recommended interventions



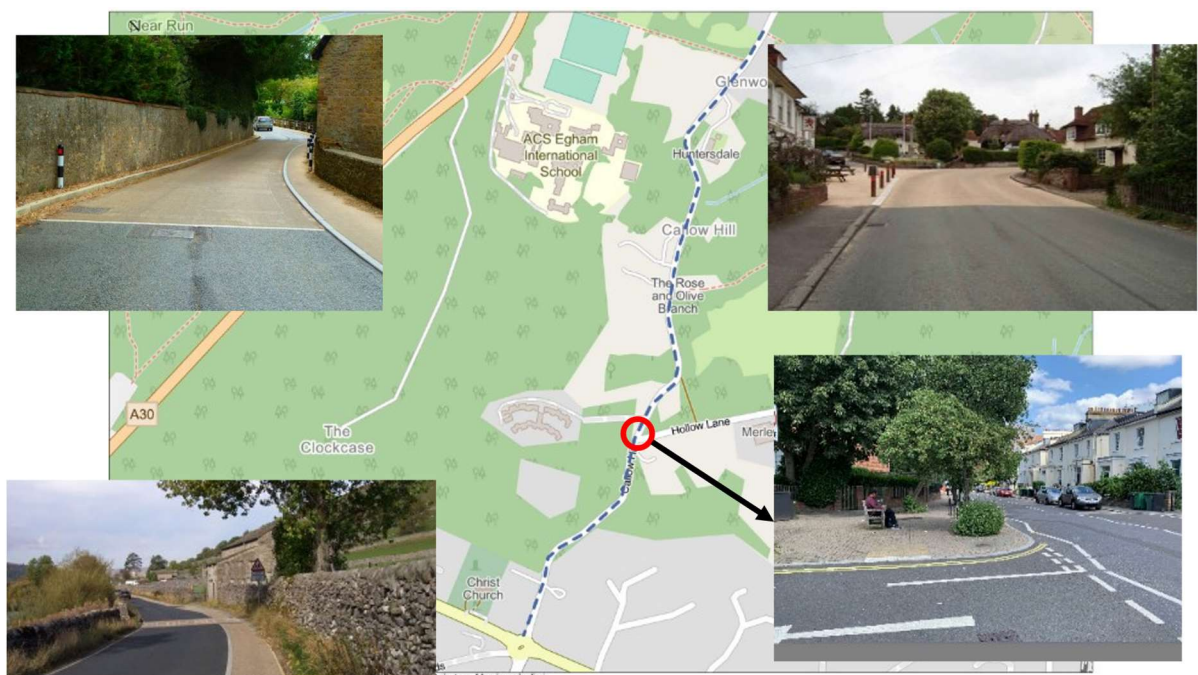
4.4 Route 3: Callow Hill

- 4.4.1 Callow Hill is an unlit rural connection road between Prune Hill and Christchurch road, subject to a 40mph speed limit. The road is characterised by a narrow footway which in some instances is unsuitable for pushchairs and wheelchairs. However due to the mature trees and shrubbery lining the road, this constrains the ability for widening this verge. Callow Hill also has high levels of frontage activity.
- 4.4.2 Due to the constraints outlined above, it is proposed that traffic calming measures should be implemented along Callow Hill, reducing the perceived width of the carriageway through the removal of the centre line marking. This would build on similar measures identified along Wellington Avenue and Trumps Green Road, providing coherency throughout these roads. Trials of removing the white lining have been conducted, most notably by Wiltshire County Council in 2003 which found that not reinstating the central markings led to a reduction in injury collisions and traffic speeds.
- 4.4.3 It is also recommended to create a tighter radii on the priority junction of Callow Hill and Hollow Lane. This junction provides access to Merlewood Care Home and provides frontage access to some residential developments. The long straight nature of Hollow Lane encourages higher speeds, with the wide junction with Callow Hill fostering this continuation of higher speeds.

4.4.4 To the east of Hollow Lane, a public right of way bridleway provides a leisure connection across the Railway track to Stroude Road. However, the current footpath sign situated on Callow Hill is outdated and in need of repair. Clear definition and careful design of the road context along Callow Hill is therefore fundamental.

4.4.5 The recommended interventions are shown at **Figure 14**.

Figure 14: Callow Hill recommended interventions



4.4.6

4.5 Route 4: Christchurch Road / Sandhills Lane

4.5.1 Christchurch Road forms a signalised crossroad junction with Sandhills Lane and Trumps Green Road and is subject to a 30mph speed limit. This route provides a connection to the employment generator of Thorpe, with Thorpe Industrial Estate positioned to the north of the village. The route also provides access to St Anns Heath Junction School.

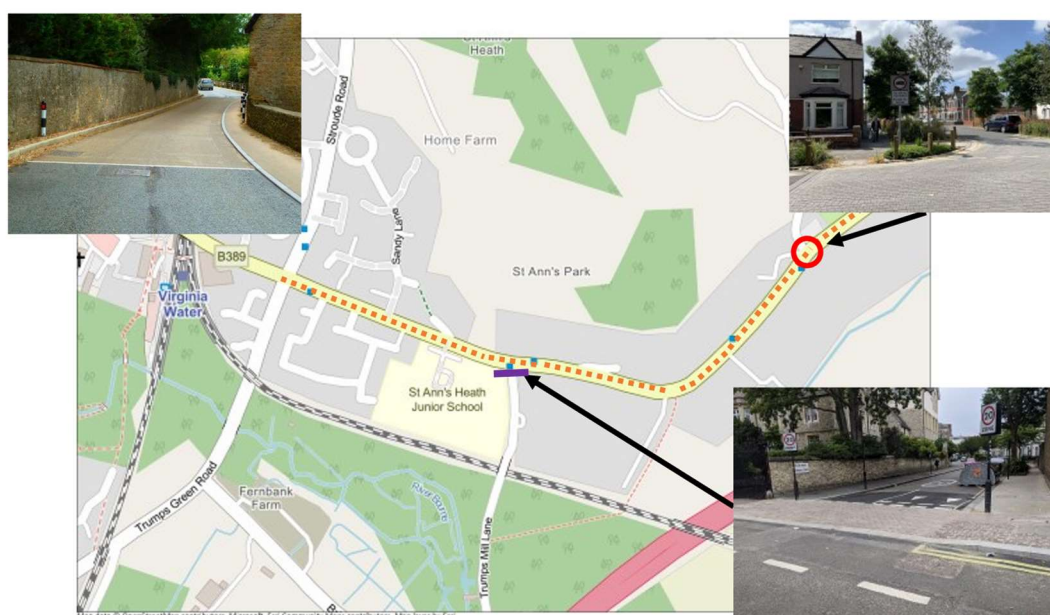
4.5.2 According to LTN 1/20, highways which are subject to 30mph with motor traffic flows of above 4000 passenger car unit (PCU) in a 24 hour flow should be at least lightly segregated from traffic to provide a provision that is suitable for most people. Therefore, as it is acknowledged that this corridor is already constrained, with a relatively wide footpath being provided on either side of the road, it is suggested that the continuation of the shared pedestrian and cycling facility is investigated. The existing connection is located along the B389, between the A30 and Station

Avenue, which results in cyclists being forced onto the busy carriageway within Virginia Water town centre.

4.5.3 Continuous footway may also be implemented at Trumps Mill Lane to provide pedestrians with priority towards St Ann's Health Junior School.

4.5.4 The recommended interventions are shown at Figure 15.

Figure 15: Christchurch Road / Sandhills Lane recommend interventions

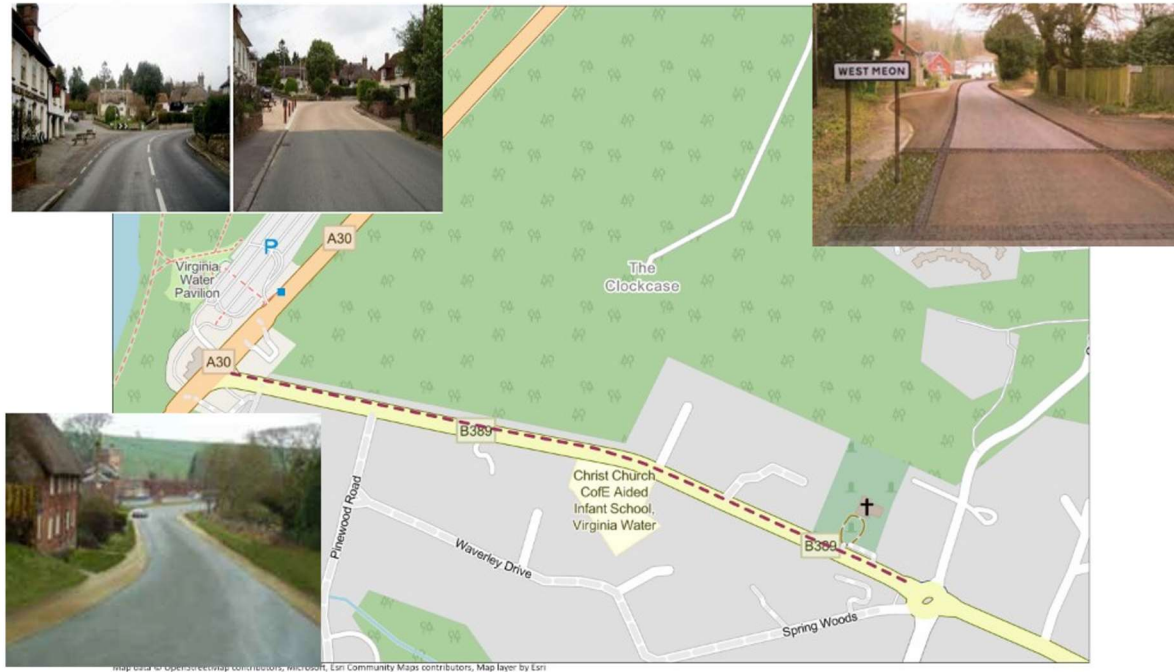


4.6 Route 5: B389 Christchurch Road West of Callow Hill

4.6.1 Christchurch Road is a busy connection route between the A30 London Road and Virginia Water's central community area. The route is subject to a 40mph speed limit. According to LTN 1/20 guidance, any motor traffic flows where speed limits are 40mph must ensure a fully kerbed cycle track is provided to ensure cycling is suitable for most people. Given the constraints of the road, it is acknowledged that such provision is not viable. Therefore, it is suggested that an investigation should be undertaken to upgrade the existing shared pedestrian and cycle path. Improvements could include reducing the speed of the road or improving the width of the shared facility. Whilst the shared path is beneficial to cyclists as it removes them from the busy carriageway, this results in the potential for conflict with pedestrians.

4.6.2 The removal of white central markings along the carriageway may also work to reduce vehicle speeds, in line with similar proposals outlined throughout the recommendations.

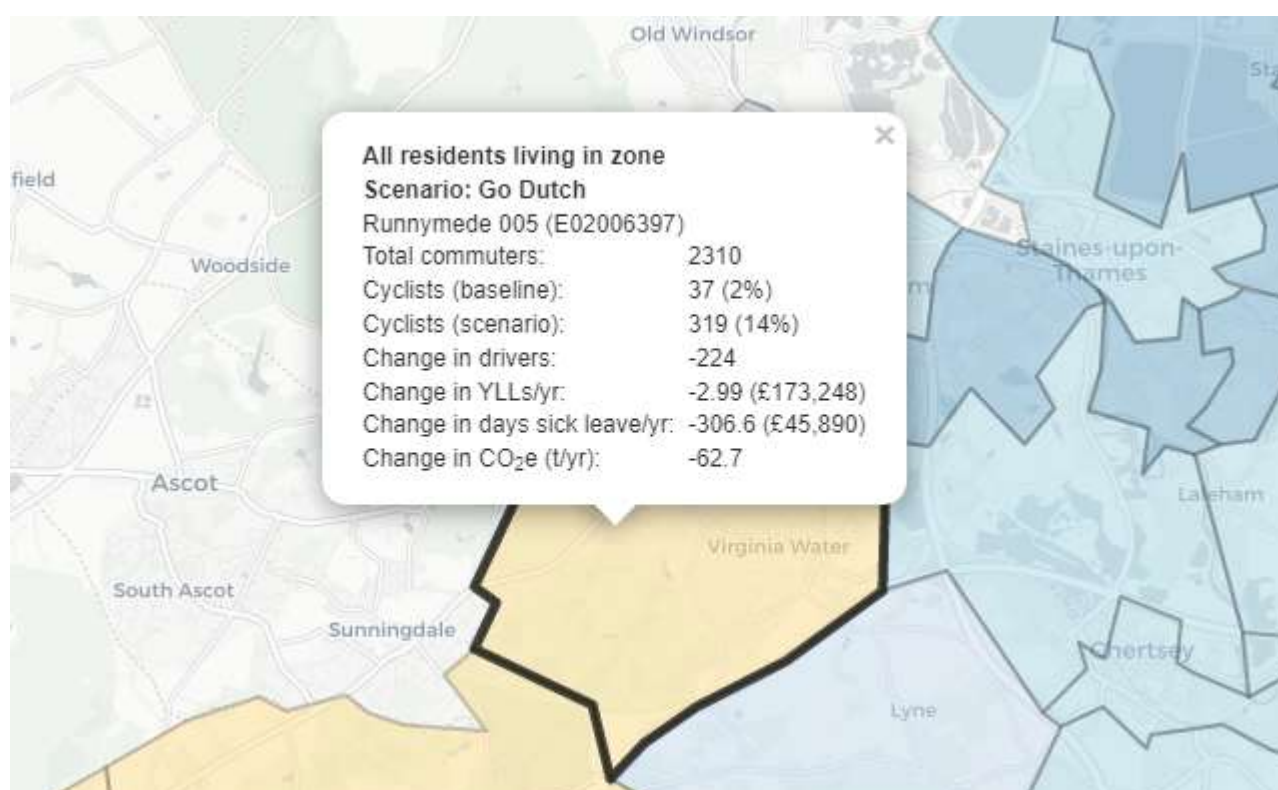
Figure 16: Christchurch Road West of Callow Hill proposed recommendations



5 Propensity to cycle Tool

- 5.1.1 The Propensity to Cycle Tool (PCT) helps to provide an evidence base for planning for cycling and provides an online tool to explore cycling propensity at different geographical scales.
- 5.1.2 When reviewing the Middle Super Output Area for Runnymede 005 (the area including Virginia Water) the census data indicates that there is a current 2% mode split of residents currently commuting to work by cycle. Should the local infrastructure be brought up to the 'Go Dutch' standards (LTN 1/20 equivalent) then it is anticipated that a 14% mode share of people commuting to work by cycle could be realised.
- 5.1.3 It is therefore considered that proposed improvements to the cycle network within this area, would go some way to enabling active travel.

Figure 17: Propensity to Cycle Tool – Runnymede 005 Middle Layer Super Output Area



6 Summary

- 6.1.1 This note has provided a review of the existing walking and cycling infrastructure and identified gaps to be improved to provide an better network. By providing a high quality environment for walking and cycling, there is the potential to influence short journeys currently being undertaken by car.
- 6.1.2 This note has also taken the emerging allocations into consideration, and proposed a set of measures that may offset some of the development impacts, and encourage journeys into Virginia water to be undertaken by bike.
- 6.1.3 A menu of interventions has been summarised at Table 1 below:

Table 1: Proposed interventions along the priority corridors

Route No.	Summary	Precedent Imagery
1	Traffic calming measures to reduce vehicle speeds through visual narrowing. Measures may involve implementing a central median strip along the full route.	

Route No.	Summary	Precedent Imagery
1	Priority feature with cycle by pass to slow vehicle speeds whilst still providing priority to cyclists.	 A photograph of a road with a cycle lane on the right side, marked with a white arrow and a green sign. A pedestrian is walking on the sidewalk to the right. The road is lined with trees and a black traffic light is visible in the distance.
	Raised table / tighten of junction radii to slow vehicles turning in and out of junction, and reducing the chance for left hook conflicts with cyclists.	 A photograph of a road junction with a raised table and a pedestrian crossing. A person is sitting on a bench on the sidewalk. The road is lined with trees and a black traffic light is visible in the distance.

Route No.	Summary	Precedent Imagery
2	Traffic calming measures to reduce vehicle speeds through visual narrowing. Measures may involve removing the central markings.	
	Provision of an uninterrupted footway that extends across the side road	
	Priority feature with cycle by pass to slow vehicle speeds whilst still providing priority to cyclists.	

Route No.	Summary	Precedent Imagery
2	Installation of better signage to the public right of way situated parallel to the route.	
3	Raised table / tighten of junction radii to slow vehicles turning in and out of junction, and reducing the chance for left hook conflicts with cyclists.	
	Traffic calming measures to reduce vehicle speeds such as removing the white lining on the road.	
	Installation of better signage to the public right of way situated along Hollow Lane	

Route No.	Summary	Precedent Imagery
4	Extension of the shared pedestrian and cycle path, providing connections to a key employment generator and school	
	Provision of an uninterrupted footway that extends across the side road	
	Traffic calming measures to reduce vehicle speeds through visual narrowing. Measures may involve removing the centre lining.	

Route No.	Summary	Precedent Imagery
	Extension of the shared pedestrian and cycle path, providing connections to a key employment generator and school	
5	Traffic calming measures to reduce vehicle speeds through visual narrowing. Measures may involve removing the centre lining.	