Annex B

Cycling Level of Service Assessment (CLoS) based on LTN 1/20	
Project Number	-
Scheme	Badger Hill Primary School
Location	York
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AECOM

Cycling Level of Service (CLOS)

Key Requirement	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Existing - Sussex Rd / Crossways		Option 1 - Sussex Rd / Crossways		Option 2 - Sussex Rd / Crossways		Option 3 - Sussex Rd / Crossways		Option 4 - Sussex Rd / Crossways	
								Existing		Option 1		Option 2		Option 3		Option 4	
								Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Coherence	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network.	**1. Ability to join/leave route safely and easily** considering left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0	Unsafe connection to Field Lane	0	Unsafe connection to Field Lane	0	Unsafe connection to Field Lane	0	Unsafe connection to Field Lane	2	Proposed dedicated Parallel Crossing of Field Lane,
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed - cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements.	**2.Provision for cyclists throughout the whole length of the route**		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey.	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions.	Cyclists are provided with a continuous route, including through junctions	0	No signage or links to onward connections.	1	Additional signange proposed	1	Additional signange proposed	1	Additional signange proposed	1	Additional signange proposed
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m.	**3.Density of routes based on mesh width** i.e. distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 - 1000m	Route contributes to a network density mesh width <250m	0	Route does not form part of the official cycle network	0	Not recommnded that route forms part of the cycle network without improvements to Field Lane crossing.	0	Not recommnded that route forms part of the cycle network without improvements to Field Lane crossing.	0	Not recommnded that route forms part of the cycle network without improvements to Field Lane crossing.	1	Route proposed to form part of the cycle network
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as the-crow-flies' distance as possible.	**4.Deviation of route** Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	1	Route is not direct, but is the shortest on-road connection between Field Lane and Hull Road through Badger Hill.	1	Route is not direct, but is the shortest on-road connection between Field Lane and Hull Road through Badger Hill.	1	Route is not direct, but is the shortest on-road connection between Field Lane and Hull Road through Badger Hill.	1	Route is not direct, but is the shortest on-road connection between Field Lane and Hull Road through Badger Hill.	1	Route is not direct, but is the shortest on-road connection between Field Lane and Hull Road through Badger Hill.
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc.	**5.Stopping and give way frequency**		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km	2	Cyclists only have to giveway at the Field Lane and Yarburgh Way junctions.	2	Cyclists only have to giveway at the Field Lane and Yarburgh Way junctions.	2	Cyclists only have to giveway at the Field Lane and Yarburgh Way junctions.	2	Cyclists only have to giveway at the Field Lane and Yarburgh Way junctions.	2	Cyclists only have to giveway at the Field Lane and Yarburgh Way junctions.
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc.	**6.Delay at junctions**		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (e.g. bypass at signals)	1	Cyclists on-street with traffic.	1	Cyclists on-street with traffic.	1	Cyclists on-street with traffic.	1	Cyclists on-street with traffic.	1	Cyclists on-street with traffic.
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	**7.Ability to maintain own speed on links**		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed.	1	Cyclist on-street in low trafficked street - Likely to be able to overtake.	1	Cyclist on-street in low trafficked street - Likely to be able to overtake.	1	Cyclist on-street in low trafficked street - Likely to be able to overtake.	1	Cyclist on-street in low trafficked street - Likely to be able to overtake.	1	Cyclist on-street in low trafficked street - Likely to be able to overtake.
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent.	**8.Gradient**		Route includes sections steeper than the gradients recommended in Figure 4.4	There are no sections of route steeper than the gradients recommended in Figure 4.4	There are no sections of route which steeper than 2%	2	No significant gradients	2	No significant gradients	2	No significant gradients	2	No significant gradients	2	No significant gradients
Safety	Reduce/remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions.	**9.Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction**	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0	85th percentile speed assumed >30mph, but posted speed limit 40mph at Field Lane Junction	0	85th percentile speed assumed >30mph, but posted speed limit 40mph at Field Lane Junction	0	85th percentile speed assumed >30mph, but posted speed limit 40mph at Field Lane Junction	0	85th percentile speed assumed >30mph, but posted speed limit 40mph at Field Lane Junction	2	N/A Due to proposed signalised crossing of Field Lane
			10.Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2	85th percentile speed assumed <20mph. Residential Street.	2	85th percentile speed assumed <20mph. Residential Street.	2	85th percentile speed assumed <20mph. Residential Street.	2	85th percentile speed assumed <20mph. Residential Street.	2	85th percentile speed assumed <20mph. Residential Street.
	Avoid high motor traffic volumes where cyclists are sharing the carriageway.	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions.	**11.Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour**	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5%HGV	2500-5000 and <2% HGV	0-2500 AADT	2	Traffic flows on Sussex Road - 275 two-way and Crossways 578 two-way	2	Traffic flows on Sussex Road - 275 two-way and Crossways 578 two-way	2	Traffic flows on Sussex Road - 275 two-way and Crossways 578 two-way	2	Traffic flows on Sussex Road - 275 two-way and Crossways 578 two-way	2	Traffic flows on Sussex Road - 275 two-way and Crossways 578 two-way
	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Table 6.2. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist.	**12.Segregation to reduce risk of collision alongside or from behind**	Cyclists sharing carriageway - nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide.	Cyclists in cycle lanes at least 1.8m wide on carriageway; 85th percentile motor traffic speed max 30mph.	Cyclists on route away from motor traffic (off road provision) or in off-carriageway cycle track. Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph.	0	Cyclists within traffic lane 3.2 -3.9m; however, quiet route.	0	Cyclists within traffic lane 3.2 -3.9m; however, quiet route.	0	Cyclists within traffic lane 3.2 -3.9m; however, quiet route.	0	Cyclists within traffic lane 3.2 -3.9m; however, quiet route.	0	Cyclists within traffic lane 3.2 -3.9m; however, quiet route.
		A high proportion of collisions involving cyclists occur at junctions. Junctions there-fore need particular attention to reduce the risk of collision. Junction treatments include: - Minor/side roads : cyclist priority and/or speed reduction across side roads - Major roads : separation of cyclists from motor traffic through junctions.	**13.Conflicting movements at junctions**		Side road junctions frequent and/or untreated. Major junctions, conflicting cycle/motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/motor traffic movements separated.	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/motor traffic streams separated.	0	Many side road junctions, mainly leading to residential areas - Untreated.	0	Many side road junctions, mainly leading to residential areas - Untreated.	0	Many side road junctions, mainly leading to residential areas - Untreated.	0	Many side road junctions, mainly leading to residential areas - Untreated.	0	Many side road junctions, mainly leading to residential areas - Untreated.
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make.	**14.Legible road markings and road layout**		Faded, old, unclear, complex road markings/unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	No centreline markings on either road throughout. No cycle markings / infrastructure provided.	2	Improved markings strategy	2	Improved markings strategy	2	Improved markings strategy	2	Improved markings strategy
	Consider and reduce risk from kerbside activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door.	**15.Conflict with kerbside activity**	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/loading	Significant conflict with kerbside activity (e.g. nearside cycle lane <2m (including buffer) wide alongside kerbside parking)	Some conflict with kerbside activity - e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer.	No/very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m.	1	Sections of unrestricted parking along residential roads. Cyclists in the carriageway able to manoeuvre around within the lane.	1	Sections of unrestricted parking along residential roads. Cyclists in the carriageway able to manoeuvre around within the lane.	1	Sections of unrestricted parking along residential roads. Cyclists in the carriageway able to manoeuvre around within the lane.	1	Sections of unrestricted parking along residential roads. Cyclists in the carriageway able to manoeuvre around within the lane.	1	Sections of unrestricted parking along residential roads. Cyclists in the carriageway able to manoeuvre around within the lane.
	Reduce severity of collisions where they do occur	Wherever possible routes should include "evasion room" (such as grass verges) and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur.	**16.Evasion room and unnecessary hazards**		Cyclists at risk of being trapped by physical hazards along more than half of the route.	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.	1	Unrestricted parking along both of these residential roads. However, cyclists can use full width of the lane to evade.	1	Unrestricted parking along both of these residential roads. However, cyclists can use full width of the lane to evade.	1	Unrestricted parking along both of these residential roads. However, cyclists can use full width of the lane to evade.	1	Unrestricted parking along both of these residential roads. However, cyclists can use full width of the lane to evade.	1	Unrestricted parking along both of these residential roads. However, cyclists can use full width of the lane to evade.
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/sunken covers/gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	**17.Major and minor defects**		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1	Occasional defects in surfacing, particularly at raised table outside of Badger Hill Primary School	1	Occasional defects in surfacing, particularly at raised table outside of Badger Hill Primary School	2	Improvement to microsurfacing around the Badger Hill Primary junction	2	Improvement to microsurfacing around the Badger Hill Primary junction	2	Improvement to microsurfacing around the Badger Hill Primary junction
		Pavement or carriageway construction providing smooth and level surface	**18.Surface type**		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints.	Machine laid smooth and non-slip surface - e.g. Thin Surfacing, or firm and closely jointed blocks undisturbed by turning heavy vehicles.	1	Concrete pavers with frequent joints	1	Concrete pavers with frequent joints	1	Concrete pavers with frequent joints	1	Concrete pavers with frequent joints	1	Concrete pavers with frequent joints
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	**19.Desirable minimum widths according to volume of cyclists and route type** (where cyclists are separated from motor vehicles).		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	1	Cyclists are in the carriageway with general traffic; however, quiet street.	1	Cyclists are in the carriageway with general traffic; however, quiet street.	1	Cyclists are in the carriageway with general traffic; however, quiet street.	1	Cyclists are in the carriageway with general traffic; however, quiet street.	1	Cyclists are in the carriageway with general traffic; however, quiet street.
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	**20.Signing**		Route signing is poor with signs missing at key decision points.	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	No cycle signage within this section	2	Improvement to signage proposed	2	Improvement to signage proposed	2	Improvement to signage proposed	2	Improvement to signage proposed
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used.	**21.Lighting**		Most or all of route is unlit	Short and infrequent unlit/poorly lit sections	Route is lit to highway standards throughout	2	Route is well lit, with LED lighting at regular intervals.	2	Route is well lit, with LED lighting at regular intervals.	2	Route is well lit, with LED lighting at regular intervals.	2	Route is well lit, with LED lighting at regular intervals.	2	Route is well lit, with LED lighting at regular intervals.
			22.Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length	2	Route follows residential roads with properties overlooking frontages.	2	Route follows residential roads with properties overlooking frontages.	2	Route follows residential roads with properties overlooking frontages.	2	Route follows residential roads with properties overlooking frontages.	2	Route follows residential roads with properties overlooking frontages.
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well-used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths.	**23.Impact on pedestrians** Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 4.7)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below.	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above.	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1	Route on-street, no impact to pedestrians.	1	Route on-street, no impact to pedestrians.	1	Route on-street, no impact to pedestrians.	1	Route on-street, no impact to pedestrians.	1	Route on-street, no impact to pedestrians.
	Minimise street clutter	Signing required to support scheme layout	**24.Street Clutter** Signs are informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	2	Street clutter does not cause an issue.	2	Street clutter does not cause an issue.	2	Street clutter does not cause an issue.	2	Street clutter does not cause an issue.	2	Street clutter does not cause an issue.
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on street	**25. Cycle parking** Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate provision in insecure none overlooked areas	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	2	Not relevant within particular section.	2	Not relevant within particular section.	2	Not relevant within particular section.	2	Not relevant within particular section.	2	Not relevant within particular section.
							Audit Score	**26**	**0**	**30**	**0**	**31**	**0**	**31**	**0**	**36**	**0**
							Max possible score	50		50		50		50		50	
							Audit % score	52%		60%		62%		62%		72%	
							Pass/Fail (70% threshold)	**Fail**		**Fail**		**Fail**		**Fail**		**Pass**	
							Any Critical Fails? (Y/N)	Yes		Yes		Yes		Yes		No	
							Number of Critical Fails	1		1		1		1		0	

Criteria	Max Score	Sub-criteria Existing	% score Existing	Sub-criteria Existing	% score Existing	Sub-criteria Existing	% score Existing	Sub-criteria Existing	% score Existing	Sub-criteria Existing	% score Existing
Coherence	6	0	0%	1	17%	1	17%	1	17%	4	67%
Directness	10	7	70%	7	70%	7	70%	7	70%	7	70%
Safety	16	**7**	44%	**8**	50%	**8**	50%	**8**	50%	**10**	63%
Comfort	8	3	38%	5	63%	6	75%	6	75%	6	75%
Attractiveness	10	9	90%	9	90%	9	90%	9	90%	9	90%
	50										