

Consulting

## Stage 2 Road Safety Audit

### Stretford Public Realm Improvements – Phase 1

CO00201045

June 2017

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## Document Control Sheet

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## Appendix A - Problem Location Plans

## **1 Introduction**

### **1.1 Request for Road Safety Audit**

This report results from a Stage 2 Road Safety Audit carried out on the Stretford Public Realm Improvements (Phase 1) at the junction of Chester Road, Kingsway and Edge Lane, Manchester at the request of the Project Sponsor, Trafford Council.

The Audit was carried out by experienced Road Safety Engineers approved by the Project Sponsor who have not been involved with the design process.

It is confirmed that this is a Stage 2 Road Safety Audit and was undertaken upon completion of the detailed design works. It is also confirmed that the Audit was carried out in accordance with the Departmental Standard HD19/15 and in accordance with the Trafford Council Road Safety Audit policy and procedure.

The comments and suggestions for road safety improvements made in this report are aimed to address matters that might have an adverse effect on road safety in the context of the chosen design. To clearly explain a safety problem or a recommendation to resolve a problem, the Audit Team may, on occasion, refer to a Design Standard. In addition the Audit Team may provide an illustrative sketch to clarify a recommendation particularly in the event of a complex recommendation. Such sketch illustrations do not represent any design solution.

No attempt has been made to comment on the appropriateness of the design or undertake a technical / design standards check. Consequently the Audit Team accept no responsibility for the design or construction of the scheme. Any absence of comment should not be taken as an indication of design compliance.

All of the issues raised in the report are considered to be required for action. The comments contained in the report are based on safety related concerns and as such the Design Engineer will need to consider carefully how to respond to each of the issues contained in the report, and that the Designer's response to the Audit is kept on file for future reference.

## 1.2 Audit Information

The Audit Team comprised:

<b>Alison Cockayne</b>	<b>Audit Team Leader for this Audit</b>
BSc (Hons)	Senior Civil Engineer, Amey.
<b>James Leeming</b>	<b>Audit Team Member for this Audit</b>
IEng, MCIHT, MSoRSA	Principal Project Manager, Amey.

James Leeming holds a Road Safety Certificate of Competence meeting the requirements of the European Directive 2008/96 EC and HD19/15.

The site was visited by the Audit Team on Tuesday 13<sup>th</sup> December 2016 between the hours of 10:30am and 12:30pm. The weather conditions at the time of the site visit were poor with heavy rain, mist and fog patches. The road surface was wet with ponding in places as a result of the heavy rain. Pedestrian levels were moderate and traffic volumes were moderate to high.

During the Audit, digital photographs of the site were taken for orientation to assist the Audit Team. These photographs will be kept on file for future reference. Any photographs used in this report will be referred to and cross referenced.

Any problems identified are referenced to the detailed design drawings and the locations have been indicated on extracts of the plans supplied with the Road Safety Audit Brief.

## 1.3 Scheme & Site Description

The scheme submitted to this Stage 2 Road Safety Audit is phase 1 of the Stretford Public Realm Scheme which includes the major improvements at the junction of the A56 Chester Road, A5145 Edge Lane and Kingsway.

The A56 Chester Road runs south west to north east and is a dual carriageway with a 40mph speed limit. The A5415 - Kingsway / Edge Lane runs east to west and is also a dual carriageway with a 30mph speed limit. All the roads are lit and subject to parking restrictions. They are heavily trafficked and are bus routes. The existing junction is controlled by signals with underpasses for pedestrians. Pedestrian movements are high due to the proximity of Stretford Shopping Mall; the Metrolink Station; various other shops & businesses; Stretford Grammar School and local bus stops.

The proposal is to provide at-grade crossings with new phasing for the signals; remove three of the four underpasses and generally improve the area for cyclists and pedestrians with new landscaping and footway surfacing.

#### **1.4 Design Changes / Departures from Standard or Clarifications**

The Audit Team have not been made aware of any design changes from the original submitted drawings. No departures from standard have been notified to the Audit Team.

It was clarified that the following links and junctions are outside the scope of this audit and will be subject to further independent audits;

- **A56 Chester Road junction with A5181 Barton Road – New Traffic Signal Junction.**
- **A5181 Barton Road; north of Urmston Lane – Traffic Signal Junction with pedestrian facilities.**
- **A5415 Kingsway – conversion of dual carriageway to two way single carriageway.**
- **All other phases highlighted as part of the Stretford Public Realm Improvements.**

#### **1.5 Audit Management**

The Management of the Audit shall be in accordance with the One Trafford policy and procedure and any unresolved issues shall be dealt with in accordance with that policy and procedure.

The Road Safety Audit comprised an examination of the documents provided and these are listed in the Annex. The documents consisted of a complete set of the draft tender drawings, a summary of the general details of the scheme including a copy of the Stage 1 Road Safety Audit Report dated 11<sup>th</sup> August 2015. It is unclear whether the problems identified at stage 1 have been answered so will be considered as part of this stage 2 audit. It will be referenced and examined in the context of the scheme under Section 2.

A draft report will be submitted to the Project Sponsor for checking, consideration and approval. The Project Sponsor is responsible for agreeing with the Audit Team, the content of the final version of the report.

Any Road Safety related and maintenance issues which the Terms of Reference exclude from this report but which the Audit Team wishes to draw the attention of the Project Sponsor will be documented in the covering letter to this report.

## 1.6 Submitted Drawings

This Road Safety Audit was undertaken on the scheme detailed in the following documentation:

**Table 1 – Drawings Submitted**

Drawing No.	Revision	Title
CO00201045_P1_100_001		General Arrangement
CO00201045_P1_100_002		Typical Sections
CO00201045_P1_100_003		Long Sections
CO00201045_P1_100_004		Setting Out Information
CO00201045_P1_100_005		MCS1 Sections 1 of 3
CO00201045_P1_100_006		MCS1 Sections 2 of 3
CO00201045_P1_100_007		MCS1 Sections 3 of 3
CO00201045_P1_100_008		MCS2 Sections 1 of 3
CO00201045_P1_100_009		MCS2 Sections 2 of 3
CO00201045_P1_100_010		MCS2 Sections 3 of 3
CO00201045_P1_100_011		Proposed Site management Plan
CO00201045_P1_200_001		Site Clearance (General)
CO00201045_P1_200_002		Site Clearance (Subways)
CO00201045_P1_400_001		Fencing
CO00201045_P1_500_001		Drainage
CO00201045_P1_600_001		Earthworks
CO00201045_P1_700_001		Pavements
CO00201045_P1_1100_001		Kerbs & Footways
CO00201045_P1_1200_001		Road Markings
CO00201045_P1_1200_002		Traffic Signs
CO00201045_P1_1200_003		Traffic Sign Schedule
CO00201045_P1_1300_001 (1 of 2)	PO1.6	Street Lighting 1 of 2
CO00201045_P1_1300_001 (2 of 2)	PO1.6	Street Lighting 2 of 2
CO00201045_P1_1400_001		Ducts & Chambers
CO00201045_P1_1700_001		Subway Infill & Removals
CO00201045_P1_MISC_001		Topographical Survey

### **1.7 Additional Supporting Information**

Traffic / pedestrian survey information and collision data was provided at stage 1; no additional or updated supporting information has been submitted for review at this stage.

The collision data provided at stage 1 covered the whole scheme area and was from the period; 30<sup>th</sup> September 2009 to 31<sup>st</sup> August 2014 (5 years). There were 71 collisions in total; 8 serious and 63 slight. A high proportion of the injury collisions occurred at the junction of the A56 Chester Road / A5145 Edge Lane / Kingsway, although none involved pedestrians.



## **2 Matters Raised at Previous Road Safety Audits**

A previous Road Safety stage 1 Audit was carried out by Road Safety Initiatives LLP in August 2015 at the request of the project sponsor. The stage 1 audit covered the wider scheme and included all the stages of the public realm Improvements. It is unclear whether any of the problems identified have been answered so those that relate to the Chester Road / Edge Lane junction that remain a problem will be considered as part of this stage 2 audit.

### 3 Matters Raised at this Stage 2 Road Safety Audit

#### GENERAL

##### 3.1 Problem 1

**Location:** Chester Road / Edge Lane on approaches to junction.

**Summary:** Poor road surface may lead to skidding / shunt type collisions.

**Detail:** Drawing No: CO00201045-P1-700-01 indicates that high friction surfacing is being laid on all approaches to the signals on the existing road surface. Whilst on site the Audit Team noted that there was significant rutting in the wheel tracks particularly on Chester Road (highlighted more so in the heavy rain, as seen in the images below). Although the high-friction surfacing will provide a high level of skid resistance, if the rutting remains and it is inclement weather, rain may freeze which could cause vehicles to skid, increasing the potential for shunts on the approach to the signals.



**Chester Road looking north-east**



**Edge Lane looking north-west**



**Chester Road looking south-west**

There is also some cracking and fatting in the carriageway.

**Recommendation:** The road should either be resurfaced or repaired where necessary to provide an even surface for the new high friction surfacing.

Design Team Response (1): Resurfacing was proposed for all approaches at preliminary design and was followed through to detailed design. During the early stages of detailed design a cost estimate revealed significant scheme budget constraints resulting in a value engineering exercise. Resurfacing was omitted from the design due to the overall condition being satisfactory.

The design team liaised with Trafford's Highway Maintenance team to understand when the approaches to this junction were scheduled for resurfacing works (in an attempt to request for potential resurfacing to be brought forward to tie in with the construction of this scheme). The consultation with Trafford's Highway Maintenance team concluded that Edge Lane was scheduled for resurfacing along a section offset approximately 60m from the junction. There are no plans to resurface the remaining arms on the approach to this junction due to recent carriageway condition surveys concluding that the overall condition of the surface was satisfactory.

Resurfacing on the approaches to this junction will be reviewed and potentially funded during future phases of the Stretford Public Realm Improvement scheme.

The speed limit of Chester Road is being reduced from 40mph to 30mph as part of the scheme which will reduce approach speeds to the junction. Installation of high friction surfacing and a reduction in approach speed will significantly reduce the risk of vehicles skidding. Chester Road is on the key route network and during freezing conditions, sufficient gritting cycles are expected to be implemented to reduce the risk of carriageway surface ice forming.

Road Safety Audit Team Response (1):

### 3.2 Problem 2

**Location:** Chester Road adjacent Council Owned Car Park

**Summary:** Gradient of slope and lack of barrier / edge detail between footway may lead to pedestrian slips, trips and falls.

**Detail:** The existing embankment between the footway and car park is being reconstructed with a 1 in 3 gradient. Drawing No; CO00201045-P1-600-01 indicates that the contractor will be designing this element of the work however there are no details of any delineation between the footway and edge of the embankment. Pedestrians especially partially sighted or wheelchair users could misjudge the edge and slip or fall down into the car park.

**Recommendation:** It is recommended that the edge is delineated with a kerb and /or some form of planting as is the current situation, or a low fence.

Design Team Response (1): Drawing number CO00201045\_P1\_1100\_001 – Kerbs and Footways, which was submitted to the Road Safety Audit team shows that a square topped edging kerb is to be installed at the back of footway to offer clear delineation between the new back of footway and proposed new embankment.

The embankment is to tie into land which is currently a car park, however the future of this land is understood to be subject to significant development. Due to this knowledge, the planting of tree's and shrubs were dismissed.

The Designer accepts that a fenced system would be of benefit to pedestrians. Timber fencing to an approximate height of 300mm above footway surface level is to be provided.

Road Safety Audit Team Response (1):

### 3.3 Problem 3

**Location:** Access off Kingsway at side of Shopping Mall.

**Summary:** Risk of vehicle / pedestrian conflict.

**Detail:** There is a footpath / access leading to the shopping mall with a tessellated concrete surface at the side. The Audit Team noted that cars park on the surface and can currently access the area through the gap in the pedestrian guard rail. Although Drawing No: CO00201045/P1/1100/001 shows a full height kerb and new pedestrianised footway if vehicles continue to access the area there will be an increased risk of pedestrian / vehicle conflict.

**Recommendation:** Ensure the area cannot be accessed by vehicles by means of a bollard if necessary.

**Design Team Response (1):** This access has been considered closed to vehicles with the proposed provision of a standard raised kerb (which replaces the current dropped kerb). This location offers access to King Street and the entrance to Stretford Mall for emergency vehicles when required. Comments to be shared with Trafford Borough Council to communicate with building occupiers to advise on no parking. Following the works we will monitor the situation and if parking still is an issue we will look towards a TRO for the area with appropriate signage to enable enforcement.

Road Safety Audit Team Response (1):

### 3.4 Problem 4

**Location:** Chester Road / Kingsway adjacent subway.

**Summary:** The lack of containment at the at-grade crossing may result in an errant vehicle losing control and colliding with the parapet of the subway.

**Detail:** Drawing No: CO00201045/P1/1100/001 shows trief / containment kerbs around the junction where the subway is to be maintained except at the point of the at-grade crossing where there will be standard dropped kerbs. It is not clear if any work is proposed or needed to protect or strengthen the existing parapet to prevent an errant vehicle running through it and ending up down the subway.

**Recommendation:** Ensure there is adequate protection to prevent incursion by an errant vehicle at this point.

Design Team Response (1): The route in which a travelling vehicle would have to take to access the dropped crossing is unnatural and against the alignment of the junction and is therefore considered extremely unlikely to occur. The alignment of this junction is not expected to cause vehicles to be at risk of mounting the footway via the proposed dropped crossings and colliding with the existing parapet.

Road Safety Audit Team Response (1):

## JUNCTIONS

### 3.5 Problem 5

**Location:** A56 Chester Road junction with A5145 Kingsway / Edge Lane.

**Summary:** Potential for right turning collisions. *(This problem was raised at stage 1)*

**Detail:** No details of the signal phasing has been provided and if there is no allowance for a right turn phase from Kingsway or Edge Lane then this may lead to conflicts within the junction as drivers would have to seek gaps in the oncoming traffic which is particularly unsafe for cyclists.

**Recommendation:** Ensure the signal phasing allows sufficient time for right turning traffic from Kingsway and Edge Lane.

Design Team Response (TfGM)(1): The staging and phasing arrangements were included in the traffic signal design layout supplied by TfGM. The staging was agreed with Trafford Highways following the modelling of the junction. This was carried out by TfGM on behalf of Trafford and showed no requirement for a right turn arrow from either Kingsway or Edge Lane. There are many other junctions with opposing right turning vehicles without a green arrow.

Road Safety Audit Team Response (1):

### 3.6 Problem 6

**Location:** A56 Chester Road on left turn Splitter Island.

**Summary:** Potential for pedestrian read through resulting in vehicle / pedestrian collisions.

**Detail:** It is common for pedestrians to misread the nearside push button units on splitter islands if the signal poles are not orientated very well or they are close together. Without any signal phasing details it is not clear how the pedestrian phase will operate, however when Kingsway is given a green man pedestrians waiting to cross Chester Road may misread the signal and start to cross resulting in pedestrian / vehicle conflicts.

**Recommendation:** Provide narrow field of vision push button units.

Design Team Response (TfGM)(1): The staging and phasing arrangements were included in the traffic signal design layout supplied by TfGM. The pedestrian phase (phase R) will appear, if demanded, during both stages 1 and 2. Narrow field of vision units (NFOV's) have been included for all crossing points where it is felt there could be confusion for pedestrians.

[Road Safety Audit Team Response \(1\):](#)

### 3.7 Problem 7

**Location:** A56 Chester Road / A5145 Kingsway / Edge Lane.

**Summary:** Potential for collisions within the junction due to signals not being visible.

**Detail:** This is a busy multi-lane junction with 4 lanes on each approach on Chester Road. This is increasing to 5 lanes on the north-east bound approach. Without specific signal details it is unclear what type of signal will be installed. The Audit Team are concerned that if tall poles or mast arms are not used there is the potential for the signals to be missed if there is queuing traffic resulting in vehicle collisions within the junction.

There is also the issue of winter sun when heading in an easterly or westerly direction.

**Recommendation:** Provide tall poles or mast arms.

**Design Team Response (TfGM)(1):** The signal details for all approaches were included in the traffic signal design layout supplied by TfGM. The NE bound approach is a 3 ahead and 2 separate right turn lane approach and will be signalised accordingly. There are to be 3 ahead signals for motorists to observe going straight on, 3 right turn signals into Edge Lane and 2 left turn signals into Kingsway complete with illuminated TRO's where applicable. The signal heads will be LED and are much clearer and brighter than the older halogen signals. The junction will be fitted with a solar cell which will regulate the brightness of the signals dependent on the conditions.

[Road Safety Audit Team Response \(1\):](#)

### 3.8 Problem 8

**Location:** A56 Chester Road / A5145 Kingsway / Edge Lane.

**Summary:** Risk of pedestrian / vehicle conflict due to overall width of crossings and narrow islands.

**Detail:** The Audit Team are concerned about the overall width of the crossings especially on Chester Road and the time it will take to cross. The road is well over 15 metres and guidance suggests that if that is the case staggered crossings should be considered and approval is needed. Also, the central islands are approximately 2 metres wide which is insufficient to safely accommodate the anticipated number of pedestrian flows expected. It may also lead to damage to the signal assets in this locality if there is not sufficient clearance.

**Recommendation:** Ensure that adequate width is provided, for pedestrians to wait in the island or the signals are designed in such a way to reduce the risk of pedestrians waiting on this narrow area.

Design Team Response (TfGM)(1): The crossings over Chester Road are to be 1 phase and the green time for the pedestrians will be calculated such that this can be achieved in 1 movement. This should mean that on the majority of occasions, most of the pedestrians will be able to cross the whole distance. The splitter islands are included to provide a physical separation between the ahead and right turning vehicles and act as a refuge for any pedestrians who start to cross on the change from green man to red man and cannot manage to complete the crossing in 1 movement. To provide a staggered crossing in these locations would require the removal of a traffic lane on each approach.

Road Safety Audit Team Response (1):

### 3.9 Problem 9

**Location:** Chester Road in both directions approaching signals.

**Summary:** Potential for vehicle / pedestrian collisions due to position of stop line and pedestrian read through.

**Detail:** Without any phasing detail it is assumed that the main road traffic will be held on red whilst the right turn traffic will run. Pedestrians waiting in the central reservation may look at the far side and think that all the lanes have been held on red and start to cross with a risk that they will step out into the path of right turning vehicles.

**Recommendation:** Stagger the Stop line for the right turn lane to allow more time for traffic / pedestrians to react.

Design Team Response (TfGM)(1): The staging and phasing arrangements were included in the traffic signal design layout supplied by TfGM. The assumption that the right turning movements on each of the Chester Road approaches will be independent of the ahead traffic is incorrect. The right turn movements will only appear with the ahead traffic.

Road Safety Audit Team Response (1):

### 3.10 Problem 10

**Location:** Kingsway at junction with Chester Road.

**Summary:** Potential for head on collisions from right turning traffic.

**Detail:** Drawing NO: CO00201045-P1-1200-01 shows right turn pockets in the centre of the junction with right turn arrows. The lining for the right turn from Edge Lane in particular leads drivers between the island and central reservation which creates the right turn lane from Chester Road to Kingsway. Although Drawing No: CO00201045-1300-01 indicates a bollard it is not clear if this will have a keep left sign on it.

**Recommendation:** Ensure the bollard has a keep left sign and provide no entry signs on the signal heads. Guidance line markings may also be beneficial.



Design Team Response (TfGM)(1): No entry signs cannot be installed on the traffic signal heads as these will not be a Greater Manchester Combined Authority (GMCA) asset. Under the terms of the TfGM agreed contract, the mixing of equipment on traffic signal poles is not permitted. Right Turn bollards are proposed as part of this scheme.

Road Safety Audit Team Response (1):

## NON MOTORISED USER PROVISION

### 3.11 Problem 11

**Location:** Chester Road (Northbound approach to junction)

**Summary:** Risk of vehicle / cyclist collisions due to width of cycle lane and kerb alignment.

**Detail:** Drawing No: CO00201045-P1-1200-01 shows the cycle lane at 1.3 metres wide which is substandard especially on such a busy road. It does increase to 1.6 metres but it is unclear over what distance it remains at 1.3 metres. There is an existing conflict area at the end of the bus lane after the access under the building where buses and vehicles merge. The cycle lane at this point is only 1.3 metres wide and due to the kerb alignment this makes them very vulnerable.

**Recommendation:** It is recommended that the cycle lanes should be a minimum 1.5 metres wide as per TSRGD.

Design Team Response (1): Existing cycle lanes are 0.85m at this location and all proposed cycle lanes have been designed to best accommodate widths of 1.5m (as recommended by Greater Manchester Cycling Design Guidance) throughout the approaches and exits of the junction. The area in which the 1.3m measurement was made is on the boundary of the scope of works and therefore the lane marking alignment is in transition of tying into existing road markings (cycle lane of 0.85m width). A review will be undertaken to attempt to maintain cycle lane widths of 1.5m along this stretch of road through the conflict area.

Future public realm improvement phases will review this section of road for cycle facility improvements.

Road Safety Audit Team Response (1):

### 3.12 Problem 12

**Location:** Throughout the junction; A56 Chester Road / A5145 Kingsway / Edge Lane.

**Summary:** Potential for increased pedestrian injury collisions. *(This problem was raised at stage 1)*

**Detail:** Currently pedestrians and traffic are kept apart at the signal controlled junction by means of the existing subways. The proposal is to provide at grade signalised crossings on all four arms of the junction and remove three of the four subways and significant lengths of pedestrian guard rail. This will bring them closer to high volumes of traffic on wide multi-lane carriageways.



Pedestrians will also have to wait for three or four 'green-man' phases to cross any of the four arms of the junction which may lead to them crossing without waiting for the green man if they see gaps in the traffic.

There is also the risk that pedestrians may choose to cross away from the signals if there is no guard rail. Drawing No; CO00201045-P1-400-01 shows guard rail on the south west side of the junction outside the shopping mall but not on the south east side where pedestrians may cross from the car park. If there is a queue of traffic they may not be able to see that there is guard rail and become stranded in the carriageway.

From the information provided at the stage 1 audit it is noted that there were no pedestrian collisions at this junction.

**Recommendation:** The Road Safety Audit Team recognises that subways are unattractive and that at-grade crossings are more accessible however further measures are needed to minimise the potential for injury related pedestrian / vehicle collisions.

- Review the areas where pedestrians may choose to cross (example; from the car park to the shopping mall) without any deterrent and provide measures to prevent it.
- Channel pedestrians to the formal crossing points by means of guard rail and pens so that they are fully aware they are using separate phases at each crossing.
- Ensure the area within each refuge is sufficient to hold the predicted number of pedestrians so that they do not overspill into the carriageway.
- Ensure visibility is maintained at all crossing points taking account of existing street furniture.

#### Design Team Response (1):

Pedestrian guardrail is proposed within pedestrian traffic islands and at staggered pedestrian crossing points. Guardrail is also proposed on both the north western and north eastern radii due to the installation of containment kerb which will create a significant height difference between footway and carriageway surface levels. The south western corner of the junction has architectural fencing proposed along the proposed lawn boundaries.

The main location in which guard rail has not been proposed is the south eastern corner. The design brief was clear to remove significant levels of guard rail and only install it where safety concerns arise.

Pedestrians will be drawn to the proposed crossings due to guard rail being present within the central sections of the junction such as triangular islands and staggered crossing points.

Client input: Whilst public consultation has demonstrated broad support for the closure of the subways and their replacement with surface level crossings, the Council recognises there are a range of views. Therefore the existing subway between the Essoldo and Stretford Public Hall is being retained to provide a choice of crossing method. Surface level pedestrian crossings will be introduced on all four arms of the junction to enable all possible routes, for example from the North West corner to the South East corner to be undertaken without the need to use the retained subway.

As part of the design works the Council has completed a pedestrian journey time assessment for the new surface level crossing points on a worse-case scenario basis compared to the subways. This demonstrates that the use of new traffic signals technology will ensure that the at-grade crossings operate efficiently for pedestrian movements. The full assessment of crossing times using the existing subways compared to the proposed at-grade crossings demonstrates that for all 12 potential movements there are only two instances at peak time where using the subways would be marginally quicker by a few seconds. Furthermore it is important to note that the at-grade crossing times in this assessment represent a worst case scenario at peak times.

We also understand that the amount of street clutter and furniture / signage is being rationalised in this phase and as such better visibility across the areas of the junction.

Road Safety Audit Team Response (1):

### **3.13 Problem 13**

**Location:** Throughout the junction; A56 Chester Road / A5145 Kingsway / Edge Lane.

**Summary:** Potential for increased cyclist injury collisions. *(This problem was raised at stage 1)*

**Detail:** There are no specific off road facilities for cyclists; they are to remain using the carriageway by means of cycle lanes and advance cycle reservoirs at the signals. Cyclists can be vulnerable especially when left turning traffic crosses the path of cyclists going ahead using on carriageway cycle lanes and when they are turning right. This is a busy wide junction with a high volume of traffic and the posted speed limit on Chester Road is 40mph. It is not clear from the information if there will be an early start in the signal phasing for cyclists.

**Recommendation:** Review the facilities for cyclists and make the footways shared use wherever possible with consideration to upgrade the crossings to Toucans if the number of cyclists warrants it. Include early starts in the signal phasing.

Design Team Response (TfGM)(1): Shared footways would involve a major re-construction of the existing footways complete with widening to meet the minimum requirements. At no point during the design of this junction have Trafford Highways requested the provision of toucan facilities. To include toucan crossings would involve a complete re-design in co-ordination with Trafford Highways. In Greater Manchester, early starts for cyclists cannot be included where there are opposing right turn vehicles as it is considered unsafe. In addition, each traffic movement at this site would have to have its own stage and this will be detrimental to capacity.

Designer: Early start phasing for cyclists were considered during preliminary and detailed design but deemed unsuitable for a junction of this size by TfGM as discussed above.

The current speed limit is being reduced from 40mph to 30mph as part of this scheme which is expected to improve the safety of cyclists using Chester Road. Geometric constraints restrict the provision of shared use.

Road Safety Audit Team Response (1):

### 3.14 Problem 14

**Location:** Access Road off Edge Lane (Eastbound)

**Summary:** Risk of pedestrian / cyclist / vehicle conflict at access road due to lack of delineation.

**Detail:** Drawing No: CO00201045/P1/1100/001 shows new footway construction and kerbing across the junction for the small access road off Edge Lane. Although this is only an access to the parking at the rear of the first few properties, it is assumed that this will still be needed and cars coming round the corner from Chester Road have to make a quick turn to avoid being shunted from behind. There is no proposed delineation between the footway and carriageway and pedestrians maybe unaware of the road. At present there is some tactile paving but there are no details to show that this will be installed as part of this scheme. Cyclists also use this footpath and there are no details for any give way lining as there is at present.

**Recommendation:** Provide some delineation between the footway and access road and tactile paving / give way lining for cyclists.

Design Team Response (1): The access leads to a piece of land with an area of 247m<sup>2</sup> (19m x 13m). This land is occupied by no more than six vehicles at a time. The access is not considered to conflict with pedestrians frequently. Due to low volumes of traffic, this road has been downgraded from a road to a vehicle access which has a ramped entrance (to provide continuity of footway level) which will cause vehicles to slow down. Vehicles turning left from Chester Road (south bound) will be undertaking their manoeuvre slowly due to the severity of the left turn. Visibility on the approach is good and therefore the risk of conflict with pedestrians is deemed to be low.

Road Safety Audit Team Response (1):

### 3.15 Problem 15

**Location:** Pedestrian route from Kingsway to Chester Road.

**Summary:** Risk of pedestrian trips and falls due to indirect route to crossing.

**Detail:** Drawing No: CO00201045/P1/1100/001 shows the new pedestrian and landscaped area outside the shopping mall which is acceptable for pedestrians taking a direct route from the shops across Chester Road or heading north or south-west. However pedestrians coming from Kingsway heading towards Edge Lane have an indirect route around the landscaping to get to the new crossing facility. There is a risk that they may choose the desire line which is across the landscaped area resulting in trips and falls if the area becomes wet or is uneven and become a future maintenance liability.

**Recommendation:** Provide a more direct route for pedestrians across this area.

**Design Team Response (1):** it is accepted that a desire line for pedestrians travelling from Kingsway to the southern arm of Chester Road is not reflected within the landscape design. The landscaping element of the scheme is a major feature and has been designed with the attempt to remove the existing 1960's, heavily engineered character of the area. The scheme intends to provide a pleasant public realm environment for the local residents and visitors to the area. The existing route to cross Chester Road (southern arm) consists of a none DDA compliant ramped access to the southern subway which will take a pedestrian longer to undertake their journey doing the same route when compared to the new proposed route they would have to undertake. Clear delineation has been proposed between footway and grassed lawn areas so that any pedestrians opting to undertake a short cut would be doing so at their own risk and are deemed not to be exposed to concealed tripping hazards.

**Road Safety Audit Team Response (1):**

### 3.16 Problem 16

**Location:** Chester Road – South-west side crossing west to east.

**Summary:** Risk of Pedestrian / vehicle conflict during works.

**Detail:** Drawing No: CO00201045\_P1\_100\_011 shows a temporary pedestrian route at the rear of the car park along and out of Newton Street. This is acceptable for pedestrians heading from Edge Lane to Chester Road in a south-westerly direction but does not take account of pedestrians crossing Chester Road from the shopping mall heading towards Edge Lane whilst the subway is being filled in. Pedestrians will either have to walk a very long way round or risk crossing a very busy road without any pedestrian facilities.

**Recommendation:** Ensure a suitable crossing is provided whilst construction is underway and adequate signing is in place to ensure pedestrians are aware that the footway is closed on the opposite side.

**Design Team Response (1):** It is anticipated that pedestrian journeys are going to be significantly disrupted in terms of distance to cross the roads safely.

Safety is critical and the drawing CO00201045-P1-100-011 Shows suggested alternative routes for pedestrians by passing the construction works on the south eastern corner due to this footway being removed to accommodate widening works.

Pedestrians can bypass works on the other corners via the mall and the northern subway. Pedestrians intending to cross from the mall can cross at the existing crossing in Kingsway then use the northern subway which will be operational during the construction works.

This junction is one of the busiest in Manchester and temporary crossings are not permitted as it would be rejected by TfGM on the grounds of significant impact to traffic on the key route network resulting in severe congestion.

The Contractor will provide barriers and appropriate signage for pedestrians and cyclists to reduce the risk of pedestrians crossing the road within the vicinity of the construction works.

Road Safety Audit Team Response (1):

## **SIGNING & LINING**

### **3.17 Problem 17**

**Location:** Chester Road / Edge Lane

**Summary:** Risk of pedestrian / cyclist conflicts due to inconsistent signing / lining.

**Detail:** Drawing No: CO00201045-P1-1200-002 shows two new shared use footway signs at the junction; however there is a general lack of signing to indicate the limits of the shared use footways and to warn pedestrians of oncoming cyclists. There is an existing transition from the cycle lane on Edge Lane to the footway prior to the pedestrian crossing indicated only by a cycle symbol on the ground. There is no warning for pedestrians particularly those walking in a westerly direction towards Chester Road.

It is also not clear to cyclists that they can use the footway on Edge Lane between the access road at the junction with Chester Road and the transition referred to in the previous paragraph.

There are signs on Radnor Street (off Chester Road) warning of the shared use footway but no signs on Chester Road itself at this point which is confusing for cyclists and a hazard for pedestrians.

**Recommendation:** Review the existing shared use footway signs and lining to ensure the route is consistent and there is adequate warning to all users.

**Design Team Response (1):** The extent of the existing shared use facility exceeds the scheme boundary. Consultation with One Trafford (Trafford Councils Highway Authority) requested for this shared use provision to be maintained.

The scheme is not providing additional signage for the existing shared use facility. This scheme is only replacing signs in poor condition.

Road Safety Audit Team Response (1):

### 3.18 Problem 18

**Location:** Chester Road on both approaches to signals.

**Summary:** Risk of pedestrian / vehicle collisions due to approach speed of traffic and lack of warning for new at grade crossings.

**Detail:** The speed limit on Chester Road is 40mph and the road is virtually straight through the junction. There is obviously an existing problem with red light violation and it is assumed (without speed count data) that vehicles will be approaching the junction above 30mph. If they are unaware of the crossings and approach without due care and attention there is a risk they may overshoot the stop line and collide with pedestrians crossing the road.

**Recommendation:** Lower the speed limit to 30mph throughout the junction and erect warning signs for the new at-grade crossings.

**Design Team Response (1):** The speed limit of Chester Road is being reduced from 40mph to 30mph and this will be in place prior to the new traffic signalised junction being operational. The alignment of the junction provides adequate visibility to all traffic signal heads from each approach. High friction surfacing is being provided on all approaches beyond the stop line and up to the first row of pedestrian crossing studs.

The existing red light safety camera for the northbound approach of Chester Road is to be maintained to deter vehicles from going through the junction when the signals are on red and when the pedestrian phases are operational.

This safety camera has also recently been upgraded to a "speed on green" camera which enforces the speed limit of the road. This camera is scheduled to be recalibrated to match the latest speed limit.

An 85<sup>th</sup> percentile speed survey was undertaken and the results indicated good compliance with the existing 40mph speed limit. It is the intention to undertake an additional speed assessment following the implementation of the new 30mph zone which starts at the M60 junction (south this project) and extends to the existing 30mph zone (north of this project).

Once the scheme is completed, further assessments for speed limit compliance are to be undertaken and suitable deterrents employed to enforce the 30mph zone if the results identify a concern for speed limit discipline.

**Road Safety Audit Team Response (1):**

## 4 Audit Team Statement

We certify that this audit has been carried out in accordance with HD19/15 and the LCC policy/procedure.

**AUDIT TEAM LEADER**

**Alison Cockayne**

**BSc (Hons)**

***Senior Civil Engineer / Safety Team Leader***

Amey Consulting  
Distington House  
26 Atlas Way  
Sheffield  
S4 7QQ

**Signed:**



**Date:** 06/01/17

**AUDIT TEAM MEMBER**

**James D Leeming**

**IEng, MCIHT, MSoRSA**

***Principal Project Manager / Safety Team Member***

Amey Consulting  
Distington House  
26 Atlas Way  
Sheffield  
S4 7QQ

**Signed:**

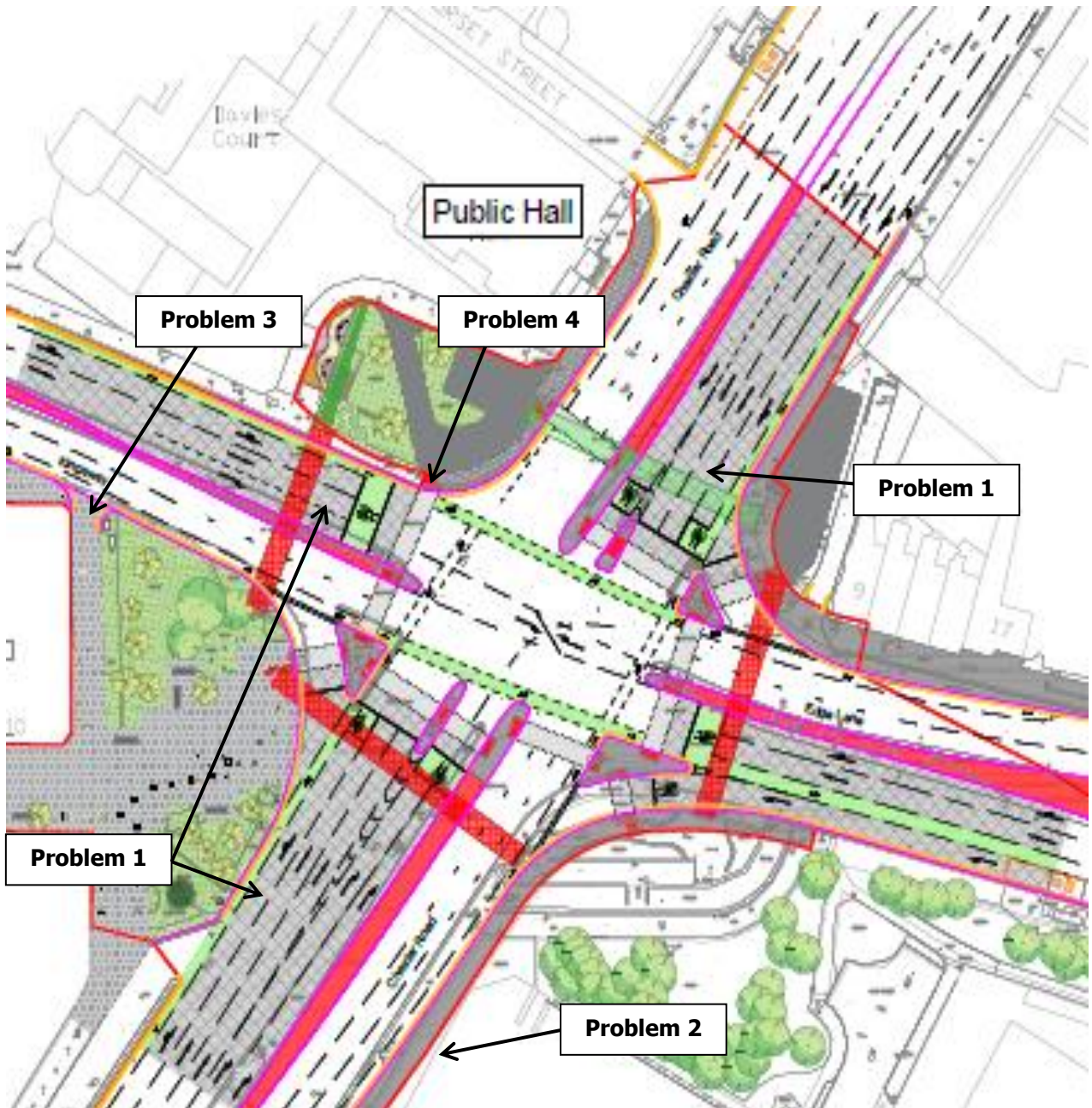


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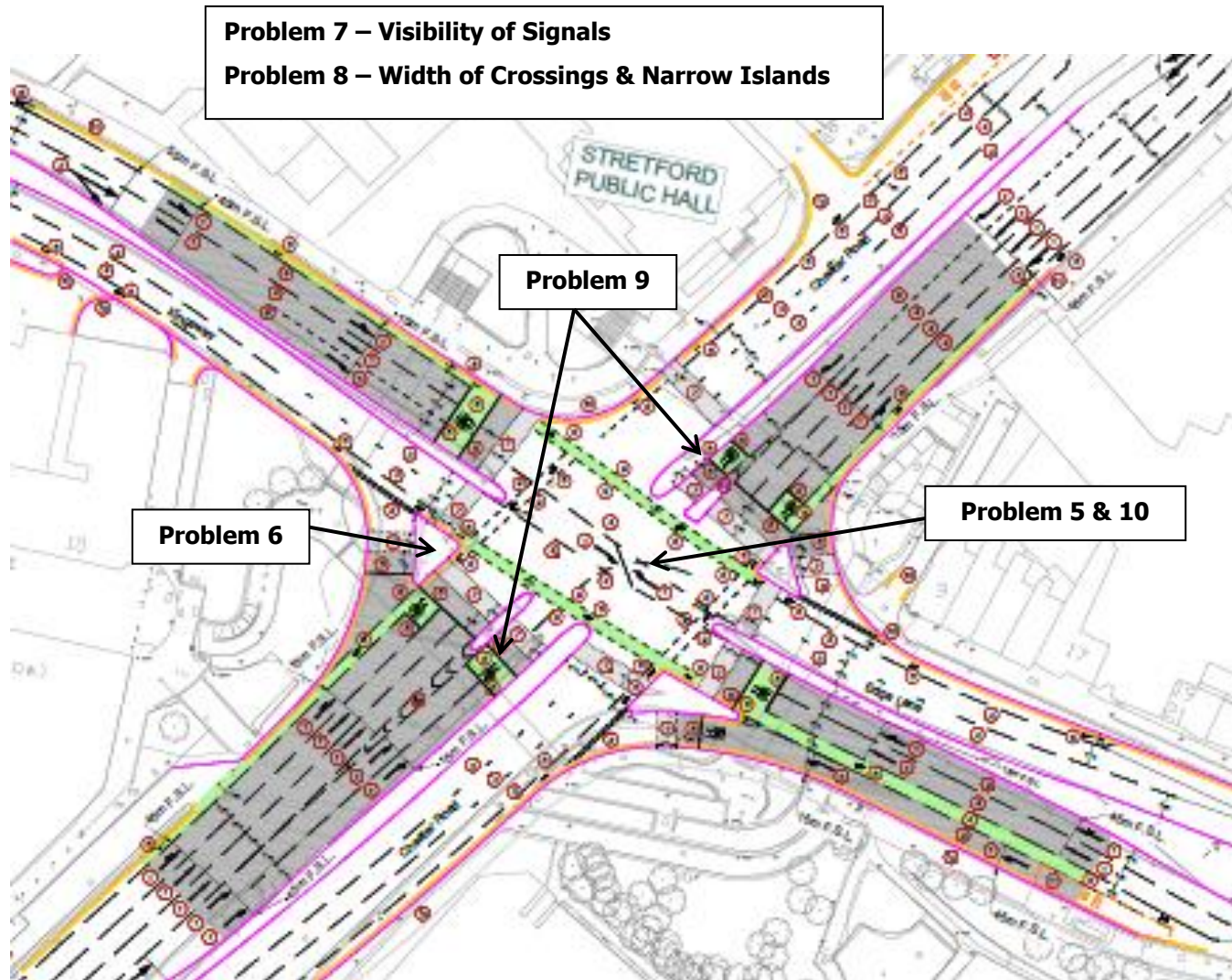
## Appendix A - Problem Location Plans

### General

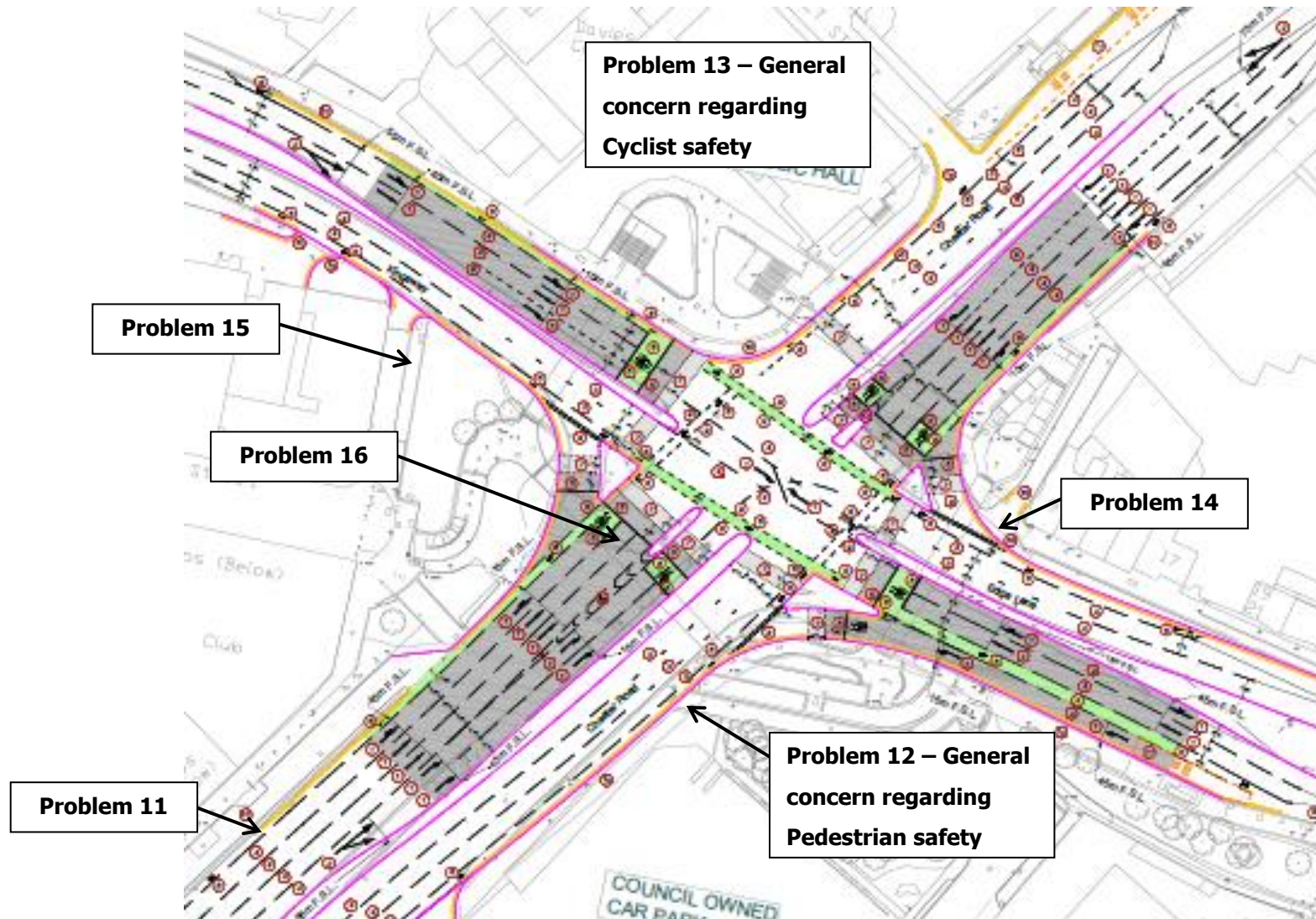




## Junctions



## Non-Motorised User Provision





## Signing & Lining

