



**EDINBURGH TRAM YORK PLACE TO NEWHAVEN  
STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT**

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**STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT**

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## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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### 1 INTRODUCTION

This Road Safety Audit Response Report relates to the Stage 3 Road Safety Audit Report for the Trams Extension York Place to Newhaven, Edinburgh. The Stage 3 Road Safety Audit Brief comprised of a set of scheme drawings assembled by Sacyr Farrans Neopul on behalf of the Overseeing Organisation (the City of Edinburgh Council) for examination.

Departures and responses of previous audits were also provided to the auditors.

The Road Safety Audit Report was prepared by Aecom and issued to SFN. The stage 3 RSA raised possible problems relevant to the stage 3 Road Safety Audit Brief and Supporting Information and any residual problems identified in previous RSA stages that the Auditor felt has not been addressed in the construction.

SFN have carefully considered the problems and recommendations in the Stage 3 Road Safety Audit Report. This Road Safety Audit Response Report includes all of the problems and recommendations raised by the Road Safety Audit Team, in addition to the SFN response to these issues.

STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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2 NOT USED

## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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### 3 ITEMS OUTSTANDING FROM PREVIOUS AUDITS

#### 3.1.1 Scheme Extents

##### Summary

Excess surface water increases the risk of vehicles skidding, particularly during periods of cold / freezing weather

##### Description

During the site investigation, areas of standing water were observed on the carriageway. Excess surface water increases the risk of vehicles skidding, resulting in loss-of-control collisions and personal injury. This is particularly pertinent during periods of cold / freezing weather when standing water could form ice.

##### Recommendation

It is recommended that drainage is appropriate throughout the scheme extents.

##### Stage 2 Comment

Standing water was observed at various locations during the site investigation where no drainage improvements appear to be proposed as part of the scheme. This included Lindsay Road at Great Michael Rise, Lindsay Road at Annfield, and at Melrose Drive at the access to Chancelot Mill. It is recommended that drainage is appropriate throughout the scheme extents.

##### Stage 2 Designers Response

Please refer to drawing ETYN-SEF-XXX-14-DR-0001 and 0002 which details the new drainage along Lindsay Road including increased gully spacing and kerb drain units in areas where the longitudinal gradient is below the minimum. The access to Chancelot Mill and Melrose Drive are out with the defined extents of the permanent works.

##### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. Standing water was observed along much of the route during the site investigation.

##### Interim Stage 3 SFN Response

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

##### Stage 3 Comment

It is recommended that drainage is appropriate throughout the scheme extents. The Audit Team are concerned that this is still an issue and retain this recommendation to ensure that drainage is appropriate throughout the scheme extents.

##### SFN Response

NCRs/Defects have been raised and SFN will deal with the ones out of the design tolerances (OT bus car park ch 17490, OT red car park ped crossing ch 17830, Rennie's Isle footpath corner with India Visa Centre ch 17090, ped crossing casino Forth Ports, 165 Leith walk, ped crossing North Side Jane street (Mother Superior Pub), ped crossing Duke Street in front of Leith Surgery, ped crossing south side of Balfour tramstop, ped crossing south west side of OT, Queen Charlotte ped crossing at the south west corner).

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### 3.1.3 Scheme Extents

#### Summary

Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle.

#### Description

There is concern that the introduction of tram lines throughout the scheme could lead to problems for cyclists at the various junctions and accesses on these roads. The proposals do not include any new infrastructure for cyclists turning across the cycle tracks, other than the two stage right turn infrastructure at the junction of Constitution Street and Queen Charlotte Street.

“Guidance on Tramways - Railway Safety Publication 2” by the Office of Rail Regulation (2006) states that crossing angles should be “as far as possible, at right angles to the tracks” and “Where the achieved crossing angle is less than 60°, consideration should be given to alternative crossing layouts and other measures that mitigate the risks faced by cyclists”.

On the City of Edinburgh Council’s ‘Tram Safety’ web page, under the “Advice for Cyclists” section it is advised to “Cross the tracks close to a right angle. This won’t always be possible, but by crossing as close to a right angle as you can you’ll avoid slipping on the tracks.”

At many of the junctions along the route, the angle at the intersection between the tram tracks and the general traffic lanes, or the crossing angle that a vehicle would take across the tram tracks, would be 45° or less. An example is shown in the figure above.

Without the provision of any measures at junctions and accesses along the route, there is a risk that cyclists could cross the tram tracks at acute angles, resulting in them slipping on the tram tracks and falling, or getting their wheel(s) stuck and falling. If a cyclist was to fall from their bicycle, there is a risk that they could be struck by a passing vehicle.

#### Recommendation

It is recommended that appropriate measures are provided for turning cyclists, so that:

- the angle that cyclists cross the tram tracks is 90°, or close to 90°; and
- the risk of cyclists slipping or getting their wheel(s) stuck in the tram tracks is minimised.

#### Stage 2 Comment

There are several locations between Ocean Terminal and Newhaven where cyclists would have to cross the tram tracks at an angle less than 90 degrees. This includes at the Toucan crossing north of the new junction between Melrose Drive and Lindsay Road and at each of the junctions within this section of the scheme.

It is recommended that appropriate measures are provided for turning cyclists, so that:

- the angle that cyclists cross the tram tracks is 90°, or close to 90°; and
- the risk of cyclists slipping or getting their wheel(s) stuck in the tram tracks is minimised.

#### Stage 2 Designers Response

The angle of cycle crossing tram tracks should be measured relevant to the rail. The crossing example referred to in this stage 2 RSA when measured relevant to the rail is 60 deg therefore compliant with Guidance on Tramways - Railway Safety Publication 2” by the Office of Rail Regulation (2006).

Throughout the scheme extents the design team have assessed the cycle crossings and confirm at no point do the cycle ways or cycle lanes, where provided, cross at an angle below 60 deg as per Figure 1.

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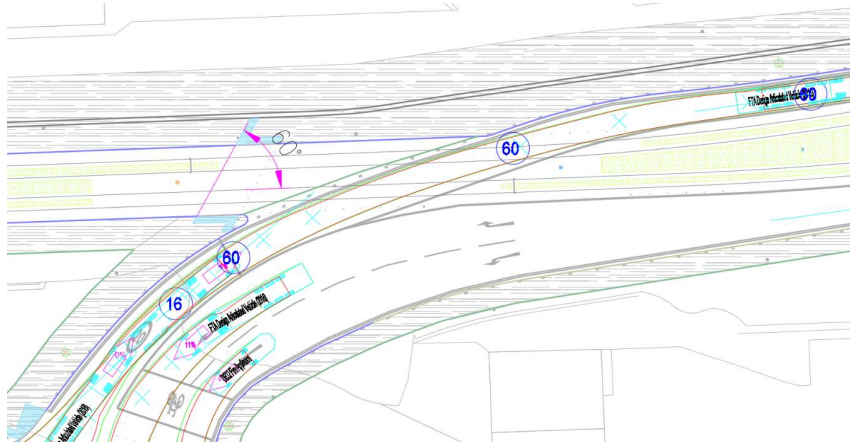


Figure 1 - Cycle Crossing at Newhaven

**Interim Stage 3 Comment**

The Audit Team retain their belief that this is an issue. Standing water was observed along much of the route during the site investigation. The Audit Team retain their belief that this is an issue. There are several locations between Ocean Terminal and Newhaven where cyclists would have to cross the tram tracks at an angle less than 90 degrees. This includes at the Toucan crossing north of the new junction between Melrose Drive and Lindsay Road and at each of the junctions within this section of the scheme.

It is recommended that appropriate measures are provided for turning cyclists, so that:

- the angle that cyclists cross the tram tracks is 90°, or close to 90°; and
- the risk of cyclists slipping or getting their wheel(s) stuck in the tram tracks is minimised.

**Interim Stage 3 SFN Response**

Throughout the scheme extents SFN have assessed the cycle crossings and confirm at no point do the cycle ways or cycle lanes, where provided, cross at an angle below 60 degrees.

**Stage 3 Comment**

The Audit Team note the Designer’s response comments, however there are still locations where cyclists can choose to travel and where there is a risk that they could cross the tram tracks at a very shallow angle and lose control as a result of a wheel entering the tram track. The above photo shows an example of this on Melrose Drive. The Audit Team retains the above recommendations.

**SFN Response**

Throughout the scheme extents SFN have assessed the cycle crossings and confirm at no point do the cycle ways or cycle lanes, where provided, cross at an angle below 60 degrees. Moreover in the mentioned picture cyclist are directed from the footpath to the road and there is a continuous line between the road and the track so cyclists are not allowed to cross the tracks.

**3.1.4 Ocean Drive and Constitution Street**

**Summary**

Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle.

**Description**

There is concern that the introduction of tram lines throughout the scheme could lead to problems for cyclists, particularly at locations where a single lane is provided for general traffic and the trams.



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Such locations include Ocean Drive, Ocean Way and Constitution Street. Cyclists travelling parallel to the tram tracks may have to cross the tracks in order to overtake a vehicle stopped along the kerb line or to bypass an obstacle such as a pedestrian, gully or pothole, and they may do so suddenly and at an acute angle.

Carrying out such manoeuvres could result in cyclists slipping on the tram tracks and falling or getting their wheel(s) stuck and falling. If a cyclist was to fall from their bicycle, there is a risk that they could be struck by a passing vehicle.

### **Recommendation**

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

### **Stage 2 Comment**

On Ocean Drive, cyclists would have to cycle in the same lane as the tram lines. It is unclear to the Audit Team if an alternative route is provided.

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

### **Stage 2 Designers Response**

No provision for cyclists are required at Ocean Drive. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting Leith with NCN75, as part of the Leith Connections scheme.

### **Interim Stage 3 Comment**

The Audit Team retain their belief that this is an issue. On Ocean Drive, cyclists would have to cycle in the same lane as the tram lines. Whilst it is acknowledged that an alternative route is to be provided, cyclists will still travel on these streets both before the implementation of the alternative route and also afterwards. On-road cycling is catered for on these streets through the provision of advanced stop lines.

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks.

### **Interim Stage 3 SFN Response**

No provision for cyclists are required at Ocean Drive as per contract scope. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting Leith with NCN75, as part of the Leith Connections scheme.

### **Stage 3 Comment**

Until such time as an alternative route is provided and signed for cyclists, the Audit Team retain their recommendations as above.

### **SFN Response**

No provision for cyclists are required at Ocean Drive as per contract scope. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting Leith with NCN75, as part of the Leith Connections scheme.

## **3.1.5 Scheme Extents**

### **Summary**

Risk of collisions occurring between vehicles and pedestrians due to long crossing lengths.

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### Description

There are several locations within the extents of the scheme where long crossings widths are provided. In some cases, no pedestrian refuges are proposed, and in others the refuges do not appear wide enough for a pedestrian to safely wait in the centre of the road. An example is shown in the figure above. There is a risk that the long crossing length and the lack of a suitable refuge could lead to an increased risk of collisions between vehicles and pedestrians, particularly those with visual or mobility impairments.

### Recommendation

It is recommended that crossing lengths are minimised, refuges are provided where appropriate, and that pedestrians are given an appropriate length of time to cross.

### Stage 2 Comment

Several of the crossings within the extents of the scheme appear to be long, including across Melrose Drive at Lindsay Road, on Melrose Drive at the access to the Cruise Terminal parking and across the car park access on Ocean Drive.

It is recommended that crossing lengths are minimised, refuges are provided where appropriate, and that pedestrians are given an appropriate length of time to cross.

### Stage 2 Designers Response

The traffic signal design is based on the junction layouts and therefore the time provided by the signal controller is sufficient. The approach adopted for the layout of signalised junctions is in accordance with the Edinburgh Street Design Guide G4 Crossings - Signalised Crossings. In each case the intention is to avoid staggered crossings as single stage is preferred. While the guidance indicates that wider single-phase crossings > 15m are often acceptable at signalised junctions. Linsig data can be provided to support the junction phasing and provide the appropriate crossing time information.

### Interim Stage 3 Comment

At the junction of Ocean Drive, Victoria Quay and Melrose Drive, the Audit Team observed that the green man time was very short for some movements. The Audit Team have concerns that this could lead to pedestrians becoming stranded on the central refuges where no push buttons are provided. This could lead to pedestrians crossing when not safe to do so, resulting in them being struck and injured by vehicles.

### Interim Stage 3 SFN Response

Signals have been handed over to CEC. Any timing adjustment should be through them.

### Stage 3 Comment

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

### SFN Response

The crossing timings have been adjusted to ensure that pedestrian are beyond the half way point of the crossing before the green man goes out. This is then followed by a further 3 second blackout before the red man appears.

The following intergreen is calculated accordingly to ensure that anyone leaving the kerb at the last second of the green man would still have enough time to complete the entire crossing movement safely.

CEC are continuing to monitor these crossings and further adjustments will be made if deemed necessary.

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### 3.1.6 Lindsay Road

#### Summary

Risk of pedestrians stepping onto the carriageway to bypass the bus shelter and people waiting at the bus stop and being struck by a passing vehicle.

#### Description

On Lindsay Road, north of No. 14 Annfield, a bus shelter is provided at the bottom of a flight of steps, as shown in the photograph above. This shelter acts as a pinch point on the footway. The proposals appear to include the removal of the footway on the north side of Lindsay Road, although it does appear that a footway will be provided to the north of the tram lines.

The pinch point caused by the location of the bus shelter could lead to pedestrians having to step onto the carriageway at busy periods. This could lead to them being struck by a passing vehicle and sustaining a personal injury. This issue could be exacerbated by the introduction of the tram stop and the closure of the footway on the north side of the carriageway, as this could lead to more pedestrians walking on the southern footway on Lindsay Road.

#### Recommendation

It is recommended that measures are implemented to remove this pinch point, such as relocation of the shelter, provision of a shelter with a smaller cross-sectional area, provision of a cantilever shelter, or widening of the footway.

#### Stage 2 Comment

Whilst it is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme, the Audit Team retain their belief that there is a risk of pedestrians being struck by passing vehicles, particularly given that pedestrian volumes are likely to increase in this area due to the introduction of the tram stop.

#### Stage 2 Designers Response

No response from designers at stage 2.

#### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue and that there is a risk of pedestrians being struck by passing vehicles. Particularly given that pedestrian volumes are likely to increase in this area due to the introduction of the tramstop.

#### Interim Stage 3 SFN Response

Out of the scope.

#### Stage 3 Comment

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

#### SFN Response

Out of the scope.

### 3.1.7 Lindsay Road at Annfield

#### Summary

Risk of pedestrians tripping and falling and sustaining a personal injury.

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### Description

To the east of the bus stop and the wall on the south side of Lindsay Road there is a level difference where the footway on Annfield meets the footway on Lindsay Road, as shown in the photograph above. There is a risk that pedestrians, particularly those with visual impairments, could trip and fall due to the level difference, and sustain a personal injury.

### Recommendation

It is recommended that appropriate tactile paving is provided along the length of the section of footway where there is a level difference, in order to warn pedestrians of the difference in levels.

### Stage 2 Comment

It is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme. However, the Audit Team retain their belief that there is a risk of pedestrians tripping or falling due to the level difference, and that the increased volume of pedestrians that could be expected in this area due to the introduction of the tram stop could lead to a pedestrian sustaining an injury.

### Stage 2 Designers Response

Out with the limits of this project. Should the MDU require to extend the works to include additional works this will require to be instructed.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme. However, the Audit Team retain their belief that there is a risk of pedestrians tripping or falling due to the level difference, and that the increased volume of pedestrians that could be expected in this area due to the introduction of the tram stop could lead to a pedestrian sustaining an injury.

### Interim Stage 3 SFN Response

Out of the scope.

### Stage 3 Comment

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

### SFN Response

Out of the scope.

## 3.1.8 Junction of Lindsay Road and Hawthornvale

### Summary

Risk of crossing pedestrians being struck by vehicles.

### Description

On Hawthornvale at its junction with Lindsay Road, several issues were noted with the uncontrolled crossing layout:

- the tactile paving does not extend across the full width of the dropped kerbs on the west side of the road;
- the colour of the tactile paving is not consistent on each side of the road; and
- the crossing is not on the desire line for pedestrians.

Under the current arrangement, there is a risk that visually impaired pedestrians could be confused by the layout of the uncontrolled crossing or could have problems identifying the existence or

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location of the crossing. This could lead to them inadvertently entering the carriageway when it is not safe to do so, being struck by a passing vehicle and sustaining a personal injury.

### Recommendation

The following measures are recommended:

- An appropriate upstand is provided to the kerbs out-with the extents of the crossing;
- The colour of the tactile paving is contrasting, and is consistent on both sides of the road;
- The crossing is on the desire line for pedestrians.

### Stage 2 Comment

During the site investigation it was observed that these issues were still present on site. Whilst it is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme, the Audit Team retain their belief that the arrangement poses a risk to pedestrians, particularly those with visual impairments.

### Stage 2 Designers Response

Out with the limits of this project. Should the MDU require to extend the works to include additional works this will require to be instructed.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. During the site investigation it was observed that these issues were still present on site. Whilst it is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme, the Audit Team retain their belief that the arrangement poses a risk to pedestrians, particularly those with visual impairments.

### Interim Stage 3 SFN Response

Out of the scope.

### Stage 3 Comment

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

### SFN Response

Out of the scope.

## 3.1.14 Ocean Terminal Car Park Exit, Melrose Drive

### Summary

Risk of side swipe collisions between vehicles exiting the car park, sustaining personal injuries.

### Description

During the site investigation it was observed that at the car park exit to Ocean Terminal two lanes exit from the car park, however, they merge into a single lane at the junction to Melrose Drive. There is a risk of side swipe collisions between motorised vehicles exiting the car park, sustaining personal injuries.

### Recommendation

It is recommended that the exit to the car park be reduced to a single lane.

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### Stage 2 Designers Response

This is out with the extents of the works. Any additional works will require to be instructed by the employer.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. During the site investigation it was observed that at the car park exit to Ocean Terminal two lanes exit from the car park, however, they merge into a single lane at the junction to Melrose Drive. There is a risk of side swipe collisions between motorised vehicles exiting the car park, sustaining personal injuries.

It is recommended that the exit to the car park be reduced to a single lane.

### Interim Stage 3 SFN Response

Out of the scope.

### Stage 3 Comment

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

### SFN Response

Out of the scope.

### 3.1.15 South side of Lindsay Road (east) on approach to junction with Sandpiper Drive

#### Summary

Risk of a visually impaired pedestrian becoming stuck on the carriageway and being struck and injured by a passing vehicle, due to existing tactile paving and dropped kerb not being removed.

#### Description

During the site investigation it was noted that there are the remnants of an uncontrolled crossing point on the south side of Lindsay Road, east of its junction with Sandpiper Drive. The crossing infrastructure appears to have been removed on the north side of the road, but tactile paving and dropped kerbs remain on the south side.

From the plans provided to the Audit Team it is unclear if this arrangement is to be removed. If the arrangement is not removed, there is a risk of visually impaired pedestrians attempting to cross at this location, becoming stuck on the carriageway and being struck and injured by passing vehicles.

#### Recommendation

It is recommended that the dropped kerbs and tactile paving at this location are removed.

### Stage 2 Designers Response

Works to the westbound kerb and footway are outside the extent of the permanent works. Removal of the dropped kerb and tactile paving would require to be instructed by the employer.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. During the site investigation it was noted that there are the remnants of an uncontrolled crossing point on the south side of Lindsay Road, east of its junction with Sandpiper Drive. If the arrangement is not removed, there is a risk of visually impaired pedestrians attempting to cross at this location, becoming stuck on the carriageway and being struck and injured by passing vehicles.

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It is recommended that the dropped kerbs and tactile paving at this location are removed.

### **Interim Stage 3 SFN Response**

Out of the scope.

### **Stage 3 Comment**

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

### **SFN Response**

Out of the scope.

### **3.1.16 North-west side of Ocean Drive, adjacent to outside Ocean Terminal car parking facility**

#### **Summary**

Risk of pedestrians tripping and falling when attempting to transition between the footway and carriageway, resulting in them sustaining a personal injury, due to lack of pedestrian crossing facility and abrupt end of footway.

#### **Description**

As shown in the image above, the proposed footway on the north-west side of Ocean Drive does not lead anywhere. No crossing facility appears to be provided at the access to the Ocean Terminal outside car parking facility and no further pedestrian infrastructure appears to be proposed. There is a risk that a pedestrian could attempt to cross at this location and could trip and fall whilst attempting to transition between the carriageway and footway.

#### **Recommendation**

It is recommended that suitable infrastructure is provided to allow pedestrians to continue their journey, such as an appropriate crossing point.

#### **Stage 2 Designers Response**

This is out with the extents of the works. Any additional works will require to be instructed by the employer.

#### **Interim Stage 3 Comment**

The Audit Team retain their belief that this is an issue. The proposed footway on the north-west side of Ocean Drive does not lead anywhere. No crossing facility has been provided at the access to the Ocean Terminal outside car parking facility and no further pedestrian infrastructure appears to be proposed.

There is a risk that a pedestrian could attempt to cross at this location and could trip and fall whilst attempting to transition between the carriageway and footway.

It is recommended that suitable infrastructure is provided to allow pedestrians to continue their journey, such as an appropriate crossing point.

#### **Interim Stage 3 SFN Response**

Out of the scope.

#### **Stage 3 Comment**

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

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### SFN Response

Out of the scope.

### 3.1.17 Scheme Extents

#### Summary

Risk of pedestrians or cyclists colliding with street furniture, resulting in personal injury.

#### Description

New traffic signs, street lighting columns and other street furniture are proposed throughout the project extents. Due to the apparent lack of colour contrasting banding on the traffic signal posts, traffic signposts, pedestrian guardrail, street furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these, resulting in personal injury.

#### Recommendation

It is recommended that suitable contrast banding is applied to all street furniture.

#### Stage 2 Designers Response

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

#### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. New traffic signs, street lighting columns and other street furniture have been installed throughout the project extents. Due to the lack of colour contrasting banding on the traffic signal posts, traffic signposts, pedestrian guardrail, street furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these resulting in personal injury. It is recommended that suitable contrast banding is applied to all street furniture.

#### Interim Stage 3 SFN Response

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

#### Stage 3 Comment

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

### SFN Response

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

### 3.1.18 Sandpiper Drive southbound at junction with Lindsay Road

#### Summary

Risk of vehicles crossing the stop line when it is not safe to do so and striking and injuring crossing pedestrians or striking passing vehicles, due to stop lines on Sandpiper Drive southbound not being visible.

#### Description



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During the site investigation it was observed that the existing stop lines on Sandpiper Drive are very worn, as shown in the photograph above. From the plans provided to the Audit Team, it does not appear that these are to be refreshed / renewed.

There is a risk that the driver / rider of a vehicle approaching the junction may not appreciate the need to stop or where to stop. This could lead to them proceeding across the stop line when on a red signal and colliding with a crossing pedestrian or a passing vehicle on Lindsay Road.

### Recommendation

It is recommended that the stop lines are suitable refreshed/renewed.

### Stage 2 Designers Response

This is out with the extents of the works. Any additional works will require to be instructed by the employer.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. During the site investigation it was observed that the existing stop lines on Sandpiper Drive are very worn.

There is a risk that the driver / rider of a vehicle approaching the junction may not appreciate the need to stop or where to stop. This could lead to them proceeding across the stop line when on a red signal and colliding with a crossing pedestrian or a passing vehicle on Lindsay Road.

It is recommended that the stop lines are suitably refreshed / renewed.

### Interim Stage 3 SFN Response

Out of the scope.

### Stage 3 Comment

Whilst the designer suggests that this location is out-with the scope of the scheme, it is still part of the public road network adjacent to the works and is still a risk to the traveling public. The Audit Team are still concerned that this is an issue and retain the previous recommendation.

### SFN Response

Out of the scope.

## 3.1.19 Ocean Drive north-eastbound, north-east of junction with Victoria Quay and Melrose Drive

### Summary

Risk of vehicles undertaking a sudden lane change upon inadvertently entering tram lane, resulting in side-swipe collisions occurring.

### Description

A dedicated lane for trams is provided in the offside lane on Ocean Drive at this location. The Audit Team are concerned that vehicles turning onto Ocean Drive from Victoria Quay or Ocean Drive (west) could inadvertently enter the tram lane due to the alignment of the longitudinal line to Diag. 1012.1 (TSRGD 2016), the position of the tram lane sign and the fact that the tram lane will look like a traffic lane at this point (i.e. it will not be surfaced with Grasscrete).

The drivers / riders of vehicles turning onto Ocean Drive, particularly those from Victoria Quay, could inadvertently enter the tram lane and make a lane change upon realising that they are in the wrong lane, leading to side-swipe collisions occurring with vehicles in the nearside lane.

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**Recommendation**

It is recommended that the design is appropriately amended so that it is clear to the drivers / riders of approaching vehicles which lanes they can travel in and which they cannot.

**Stage 2 Designers Response**

The provision of road markings through the junction will assist to guide vehicles from Victoria Quay into the correct lane. 'Tram Only' road markings have also been provided to make drivers aware of the lane arrangement.

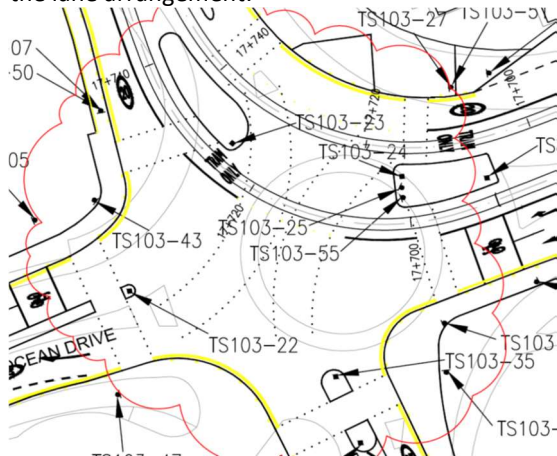


Figure 2 - Ocean Drive Road Markings

**Interim Stage 3 Comment**

The Audit Team retain their belief that this is an issue. The drivers / riders of vehicles turning onto Ocean Drive, particularly those from Victoria Quay, could inadvertently enter the tram lane and make a lane change upon realising that they are in the wrong lane, leading to side-swipe collisions occurring with vehicles in the nearside lane. It should be noted that during the site investigation the road markings through the junction had not been provided.

It is recommended that the design is appropriately amended so that is clear to the drivers / riders of approaching vehicles which lanes they can travel in and which they cannot.

**Interim Stage 3 SFN Response**

Road markings as per the design drawings will be fully implemented.

**Stage 3 Comment**

The Audit Team retain their belief that this is an issue. It is recommended that measures are implemented to guide drivers safely through this junction. During the site investigation associated it with the Final Stage 3 Road Safety Audit it was observed that the road markings had not been laid.

**SFN Response**

Road markings as per the design drawings have been laid except tram only markings that will be laid soon.

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### 3.2.1 Ocean Way and Constitution Street

#### Summary

Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle to overtake or bypass obstacles.

#### Description

There is concern that the introduction of tram lines throughout the scheme could lead to problems for cyclists, particularly at locations where a single lane is provided for general traffic and the trams. Such locations include Ocean Drive, Ocean Way, and Constitution Street. Cyclists travelling parallel to the tram tracks may have to cross the tracks in order to overtake a vehicle stopped along the kerb line or to bypass an obstacle such as a pedestrian, gully, or pothole, and they may do so suddenly and at an acute angle. Carrying out such manoeuvres could result in cyclists slipping on the tram tracks and falling or getting their wheel(s) stuck and falling. If a cyclist was to fall from their bicycle, there is a risk that they could be struck by a passing vehicle.

#### Recommendation

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

#### Stage 2 Comment

Between Coatfield Lane and Ocean Terminal, there are several locations where a single lane is provided for general traffic and the trams. It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

#### Stage 2 Designers Response

No provision for cyclists along Ocean Drive, Ocean Way and Constitution Street. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting the Foot of the Walk with NCN75 and Ocean terminal, as part of the Leith Connections scheme. It is proposed to complete the Leith Connections Scheme prior to the new tram system being operational.

#### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. Between Coatfield Lane and Ocean Terminal, there are several locations where a single lane is provided for general traffic and the trams. Whilst it is acknowledged that an alternative route is to be provided, cyclists will still travel on these streets both before the implementation of the alternative route and also afterwards.

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks.

#### Interim Stage 3 SFN Response

No provision for cyclists along Ocean Drive, Ocean Way and Constitution Street. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting the Foot of the Walk with NCN75 and Ocean terminal, as part of the Leith Connections scheme.

#### Stage 3 Comment

Until such time as an alternative route has been provided and appropriately signed for cyclists, the Audit Team retain their concerns that there is a risk to cyclists who may choose to use this route. As per problem and recommendation 3.1.4, it is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks.

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### **SFN Response**

No provision for cyclists along Ocean Drive, Ocean Way and Constitution Street. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting the Foot of the Walk with NCN75 and Ocean terminal, as part of the Leith Connections scheme.

### **3.2.2 Scheme Extents**

#### **Summary**

Risk of cyclists colliding with pedestrians whilst attempting to transition between the carriageway on a stopped-up street and the cycle infrastructure or the mainline carriageway, due to no infrastructure being provided to facilitate this transition. Secondary risk of vehicles attempting to defy the 'no through road' restriction and colliding with pedestrians or cyclists whilst doing so.

#### **Description**

There are several locations throughout the scheme extents where the proposals include the stopping up of side roads, with 'no through road except cycles' signage (Diagram 816, TSRGD 2016) being proposed.

From the plans provided it is unclear as to how cyclists are to transition between the carriageways on stopped up streets and the cycle infrastructure or the mainline carriageway. If no infrastructure is provided to facilitate these transitions, there is a risk that cyclists may attempt to cycle on footways and could strike pedestrians whilst doing so.

There is a secondary risk that vehicles may attempt to defy these 'no through road' restrictions and could collide with pedestrians or cyclists whilst driving across the footways.

#### **Recommendation**

It is recommended that appropriate measures are provided to make the transition between the stopped up streets and the adjacent carriageways, and that measures are provided to prevent vehicles from blocking the accesses or attempting to drive over the footways.

#### **Stage 2 Comment**

There are two locations on Leith Walk where access between Leith Walk and minor roads is proposed to be blocked off. This includes at Iona Street and Montgomery Street. Traffic signage to Diag. 619 (TSRGD 2016) is proposed. It is unclear if cycle access is to be permitted.

If cyclists are to be permitted to transition to / from Leith Walk and these side roads, it is recommended that appropriate measures are provided to enable cyclists to transition between the closed streets and the adjacent cycleways / carriageways. If cyclists are prohibited from undertaking these manoeuvres, it is recommended that alternative routes are signed.

#### **Stage 2 Designers Response**

Consideration was given to providing a cycle link between the stopped-up street at Iona Street and Montgomery Street and the Leith Walk cycleway or crossing points. A similar example in Edinburgh would be at the junction with Rankeillor Street / Clerk Street.

However, the arrangement at Rankeillor Street is part of the National Cycle Network route 1 providing a direct link from an on-road cycleway to a Toucan crossing at Clerk Street linking NCN1 with the Edinburgh City Centre.

At Iona Street and Montgomery Street there is no provision for cyclists and therefore no through road or direct link to a Toucan crossing it is also not a primary cycle route and therefore no additional cycle provision is considered necessary in these locations

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### **Interim Stage 3 Comment**

The Audit Team retain their belief that this is an issue. The prohibition of motorised vehicles does not apply to pedal cyclists and so cyclists are likely to attempt to transition between Iona Street / Montgomery Street and Leith Walk. It is recommended that appropriate measures are provided to enable them to transition safely.

### **Interim Stage 3 SFN Response**

Same as above

### **Stage 3 Comment**

The Audit Team are still concerned that cyclists will continue to use these and will therefore risk falling, if a safe transition is not provided. It is recommended that appropriate measures are provided to enable them to transition safely, and that appropriate signage is provided.

### **SFN Response**

Consideration was given to providing a cycle link between the stopped-up street at Iona Street and Montgomery Street and the Leith Walk cycleway or crossing points. A similar example in Edinburgh would be at the junction with Rankeillor Street / Clerk Street. However, the arrangement at Rankeillor Street is part of the National Cycle Network route 1 providing a direct link from an on-road cycleway to a Toucan crossing at Clerk Street linking NCN1 with the Edinburgh City Centre. At Iona Street and Montgomery Street there is no provision for cyclists and therefore no through road or direct link to a Toucan crossing it is also not a primary cycle route and therefore no additional cycle provision is considered necessary in these locations.

## **3.2.4 North side of Ocean Drive, west of junction with Tower Place**

### **Summary**

Risk of pedestrians slipping or tripping and sustaining a personal injury.

### **Description**

A pedestrian crossing is proposed across Ocean Drive, approximately 50 metres west of the junction of Ocean Drive and Tower Place. At the proposed crossing location, there is not currently a footway on the north side of the road. An area of hard standing exists to the rear of the grass verge, although there is a level difference between this area and the verge. A post and chain fence acts as a barrier between these two areas.

The proposals include the provision of a footway at this point, but it is unclear from the plans provided as to whether any measures are to be provided to prevent pedestrians from tripping and falling from the footway onto the hard standing.

If no measures are provided, there is a risk that pedestrians could sustain personal injuries through tripping and falling from the footway onto the hard standing.

### **Recommendation**

It is recommended that appropriate measures are provided to prevent pedestrians tripping or falling from the new footway onto the existing hard standing.

### **Stage 2 Comment**

The Audit Team have concerns that the level difference could result in pedestrians sustaining personal injuries through tripping and falling from the footway onto the hard standing.

It is recommended that appropriate measures are provided to prevent pedestrians tripping or falling from the new footway onto the existing hard standing.

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### Stage 2 Designers Response

The detailed design includes a 2m wide footway replacing the existing verge between the access to the Fingal delivery depot and the Forth Ports Dock Access Road. The level difference between the rear of the footway and the existing hardstanding area has been addressed by altering the fall of the footway.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. The Audit Team have concerns that the level difference could result in pedestrians sustaining personal injuries through tripping and falling from the footway onto the hard standing.

It is recommended that appropriate measures are provided to prevent pedestrians tripping or falling from the new footway onto the existing hard standing.

### Interim Stage 3 SFN Response

The detailed design includes a 2m wide footway replacing the existing verge between the access to the Fingal delivery depot and the Forth Ports Dock Access Road. The level difference between the rear of the footway and the existing hardstanding area has been addressed by altering the fall of the footway.

### Stage 3 Comment

The Audit Team retain their belief that this is an issue. The Audit Team have concerns that the level difference could result in pedestrians sustaining personal injuries through tripping and falling from the footway onto the hard standing.

### SFN Response

Existing bollards with chains between them have been retained.

## 3.2.5 Leith Walk – various locations

### Summary

Risk of vehicles colliding with kerb lines at the commencement of segregated cycleways due to these being inconspicuous, resulting in injuries to vehicle occupants / riders.

### Description

Segregated cycleways are proposed on both sides of Leith Walk. The segregation starts and ends at various locations along the street, such as at the northern and southern extents of Leith Walk and at several of the junctions.

The Audit Team are concerned that the commencement of the segregation strips that run alongside the segregated cycleways may not be conspicuous to the drivers / riders of approaching vehicles. This could lead to vehicles colliding with a segregation strip, resulting in vehicles losing control and vehicle occupant(s) / rider(s) sustaining personal injuries.

### Recommendation

It is recommended that suitable measures are provided to highlight the presence of the kerb lines, such as appropriately reflective bollards.

### Stage 2 Designers Response

The design of the segregated cycleway and associated on street cycleway road markings throughout has been developed in accordance with the Edinburgh Street Design Guide.

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The transition between on street and segregated cycleway has been developed in a consistent manner throughout. The on-street cycle lane marking clearly direct cyclists to the segregated cycleway.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. The Audit Team are concerned that the commencement of the segregation strips that run alongside the segregated cycleways may not be conspicuous to the drivers / riders of approaching vehicles. This could lead to vehicles colliding with a segregation strip, resulting in vehicles losing control and vehicle occupant(s) / rider(s) sustaining personal injuries.

It is recommended that suitable measures are provided to highlight the presence of the kerb lines, such as appropriately reflective bollards.

### Interim Stage 3 SFN Response

The design of the segregated cycleway and associated on street cycleway road markings throughout has been developed in accordance with the Edinburgh Street Design Guide.

The transition between on street and segregated cycleway has been developed in a consistent manner throughout. The on-street cycle lane marking clearly direct cyclists to the segregated cycleway.

### Stage 3 Comment

The Audit Team retain their belief that this is still an issue and retain their recommendation.

### SFN Response

The design of the segregated cycleway and associated on street cycleway road markings throughout has been developed in accordance with the Edinburgh Street Design Guide. The transition between on street and segregated cycleway has been developed in a consistent manner throughout. The on-street cycle lane marking clearly direct cyclists to the segregated cycleway.

## 3.2.6 Scheme extents

### Summary

Risk of non-motorised users tripping and falling on ironwork protruding from footway surface, resulting in them sustaining personal injuries. Risk of vehicles losing control when travelling over ironwork protruding from the carriageway surface, resulting in them striking other vehicles or street furniture.

### Description

The scheme includes areas of new pavement and footway construction. At many of these locations existing ironwork is present. In the plans provided to the Audit Team it is unclear if the ironwork will be raised / lowered to be flush with the adjacent surface.

If the existing ironwork is not appropriately raised / lowered or relocated, there is a risk that non-motorised users could trip and fall on ironwork protruding from the footway surface, resulting in them sustaining personal injuries. There is also a risk of vehicles losing control when travelling over ironwork protruding from the carriageway surface, resulting in them striking other vehicles or street furniture.

### Recommendation

It is recommended that all ironwork is flush with the surrounding surface on which it is located.



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### Stage 2 Designers Response

All existing ironwork will be amended to be flush with the finished road and footway surface in accordance with specification.

### Interim Stage 3 Comment

The Audit Team retain their belief that there are still a number of sites where this is still an issue and, as there are still areas under construction, this problem has been retained until the final road safety audit can be carried out.

### Interim Stage 3 SFN Response

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

### Stage 3 Comment

As it did not appear that all of this work has been carried out, this recommendation is retained until such time as the work has been completed.

### SFN Response

Not in SFN scope. The frames were set to the correct level. The defect identified in the picture is a deformation of the lid.

## 3.2.7 Constitution Street at junction with Laurie Street; and Leith Walk at junctions with Union Street, Jameson Place, Smith's Place, and Tram Depot DR 2

### Summary

Risk of vehicles skidding and losing control due to surface water pooling on carriageway at interfaces between ramps and existing carriageway.

### Description

The proposals include the provision of raised junction entries and continuous footways at numerous locations throughout the extents of the scheme, including at locations of existing raised junction entries and new locations.

In the plans provided to the Audit Team it appears that there are several locations where there is a risk that water could pool at the interface between the ramp at a raised junction entry / continuous footway and the carriageway. No new gullies appear to be proposed at these locations. Locations where this appears to be an issue include Laurie Street, Union Street, Jameson Place, Smith's Place, and Tram Depot DR 2.

If water was to pool at these locations, there is a risk of vehicles skidding and losing control, resulting in vehicle occupants / riders sustaining personal injuries. This risk is heightened during periods of cold / freezing weather when the water could freeze and form ice.

### Recommendation

It is recommended that appropriate drainage infrastructure is provided at these locations.

### Stage 2 Designers Response

The finished surface model including the locations of raised tables and continuous footways is contoured to determine surface water flow paths and identify low points to ensure the permanent drainage gullies are located appropriately.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. There are several locations observed during the site investigation where surface water pools at the interface between the ramp at a raised junction entry / continuous footway and the carriageway. No new gullies appear to be proposed at



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these locations. Locations where this appears to be an issue include Laurie Street, Union Street, Jameson Place, Smith's Place, and Tram Depot DR 2.

It is recommended that appropriate drainage infrastructure is provided at these locations.

### Interim Stage 3 SFN Response

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

### Stage 3 Comment

As it did not appear that this work has been completed, this recommendation is retained until such time as the work has been completed.

### SFN Response

NCRs/Defects have been raised and SFN will deal with the ones out of the design tolerances (OT bus car park ch 17490, OT red car park ped crossing ch 17830, Rennie's Isle footpath corner with India Visa Centre ch 17090, ped crossing casino Forth Ports, 165 Leith walk, ped crossing North Side Jane street (Mother Superior Pub), ped crossing Duke Street in front of Leith Surgery, ped crossing south side of Balfour tramstop, ped crossing south west side of OT, Queen Charlotte ped crossing at the south west corner).

### 3.2.8 Orchardfield Lane at Junction with Leith Walk; Access south of Stead's Place on Leith Walk; and Access between Casselbank Street and Jane Street at junction with Leith Walk

#### Summary

Risk of vehicles emerging from side road / access when it is not safe to do so due to visibility being obscured at proposed locations of give way markings, leading to side impact collisions with vehicles on Leith Walk or emerging vehicles striking and injuring non-motorised users.

#### Description

The proposals at Orchardfield Lane, the access north of Stead's Place and the access between Casselbank Street and Jane Street at their junctions with Leith Walk include the provision of give way lines set back significantly from the junction.

The Audit Team have concerns that vehicles giving way at these locations will not have sufficient visibility to the carriageway on Leith Walk northbound, nor to non-motorised users approaching the junction / access from both directions on Leith Walk.

There is a risk of vehicles emerging at these locations when it is not safe to do so due to visibility being obscured where vehicles are instructed to give way. This could lead to side-impact collisions with vehicles on Leith Walk or emerging vehicles striking and injuring non-motorised users.

#### Recommendation

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping. It is recommended that the give way markings and signage at these locations are appropriately relocated to locations where there is appropriate visibility.

#### Stage 2 Designers Response

Throughout the ETYN scheme there are several existing private accesses to the rear of the public footways. As indicated above at each private access the available visibility offered to vehicles utilising these private accesses is limited. Several discussions have been held with the promotor to develop possible solutions to advise road users of the presence of the hazard. These include additional signage, road markings and traffic mirrors. Due to the private nature of these accesses, it would not be possible to introduce signs and road markings outside the adopted limits of the public road. It was also considered that introducing additional signage and traffic mirrors on the public

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footpath side would add to the issue of signage clutter and present a significant maintenance burden.

The accesses listed above provide for minor commercial business with limited use. It is considered due to the raised continuous footway and associated ramps and give way markings combined with infrequent use and likely speed of the vehicles that the risk of a RTA is considered low.

### **Interim Stage 3 Comment**

The Audit Team retain their belief that this is an issue.

It is recommended that the give way markings and signage at these locations are appropriately relocated to locations where there is appropriate visibility.

### **Interim Stage 3 SFN Response**

Excess surface water on the carriageway could lead to loss of control collisions resulting in vehicles colliding with other vehicles, street furniture or other road users. Excess surface water on the footway could lead to pedestrians slipping and falling, resulting in them sustaining personal injuries.

### **Stage 3 Comment**

The Audit Team retain their belief that this is an issue at a number of side road access junctions. The Audit Team also note the previous designer's response and that there would be limited traffic exiting junctions, however the risk remains and in particular to cyclists who could be traveling at speed on Leith Walk and could collide with an emerging vehicle.

### **SFN Response**

Throughout the ETYN scheme there are several existing private accesses to the rear of the public footways. As indicated above at each private access the available visibility offered to vehicles utilising these private accesses is limited. Several discussions have been held with the promotor to develop possible solutions to advise road users of the presence of the hazard. These include additional signage, road markings and traffic mirrors. Due to the private nature of these accesses, it would not be possible to introduce signs and road markings outside the adopted limits of the public road. It was also considered that introducing additional signage and traffic mirrors on the public footpath side would add to the issue of signage clutter and present a significant maintenance burden. The accesses listed above provide for minor commercial business with limited use. It is considered due to the raised continuous footway and associated ramps and give way markings combined with infrequent use and likely speed of the vehicles that the risk of a RTA is considered low.

## **3.2.9 Leith Walk at junction with Jameson Place**

### **Summary**

Risk of vehicles striking and injuring crossing pedestrians due to proximity of signalised junction to side road junction.

### **Description**

A signalised junction is proposed at the junction of Leith Walk and Balfour Street, immediately downstream from Jameson Place at its junction with Leith Walk. There is concern that the drivers / riders of vehicles on Jameson Place may be unaware of the position of the signalised junction when emerging from Jameson Place. It is likely that they will be looking towards oncoming traffic to the right for an appropriate gap to emerge into. The short distance between the side road junction between Jameson Place and Leith Walk and the signalised junction of Leith Walk and Balfour Street means they are unlikely to have sufficient time to observe and respond to a red-light signal at the

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signalised junction. This increases the risk of vehicles colliding with non-motorised or a turning vehicle.

This issue is exacerbated as the attention of left turning drivers / riders is generally focused to the right where opposing traffic is coming from, meaning a driver / rider has no obvious need to look left to the crossing. Furthermore, the position of the signal head means that it is unlikely that drivers / riders stopped at the traverse stop road marking will be able to see the signal head.

### Recommendation

It is recommended that appropriate measures are provided to warn drivers / riders of the location of the signalised junction on Leith Walk.

### Stage 2 Designers Response

Vehicles exiting from both Jameson Place are required to stop on the side road in advance of the continuous footway raised table. Vehicles can only turn left from the side road at the point of the stop line drivers/riders will have full visibility of the continuous footway and the signalised junction. It is anticipated that the vehicle speed will be low when crossing the continuous footway providing adequate time to assess the road conditions.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that appropriate measures are provided to warn drivers / riders of the location of the signalised junction on Leith Walk.

### Interim Stage 3 SFN Response

Same as above.

### Stage 3 Comment

The Audit Team retain their belief that this is an issue. It was observed on site that drivers / riders tend to be focused on the pedestrian and cycle activity before crossing the continuous footway, they then require to look right to ensure a gap in the vehicular traffic before emerging onto Leith Walk. This can result in drivers / riders failing to observe the traffic signals for the pedestrian crossing. There is also an issue as the Tram Lane sign further obscures the traffic signal head at this location as can be seen in the above photo. The previous recommendation is retained.

### SFN Response

Vehicles exiting from both Jameson Place are required to stop on the side road in advance of the continuous footway raised table. Vehicles can only turn left from the side road at the point of the stop line drivers/riders will have full visibility of the continuous footway and the signalised junction. It is anticipated that the vehicle speed will be low when crossing the continuous footway providing adequate time to assess the road conditions. Moreover the mentioned signal obscured by a sign is for drivers on the main road.

## 3.2.11 Leith Walk at junction with Lorne Street

### Summary

Risk of visually impaired pedestrians entering the carriageway when it is not safe to do so and being struck and injured by passing vehicles, due to confusing environment and tactile paving provision.

### Description

A pedestrian crossing is proposed across Leith Walk north of its junction with Lorne Street. The proposed tactile paving arrangements at the crossing do not include a stem. If a stem is not provided, visually impaired pedestrians may mistake the crossing for an uncontrolled crossing rather

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than a controlled crossing. This could result in them crossing when it is not safe to do so and lead to them being struck and injured by passing vehicles.

### Recommendation

It is recommended that appropriate measures are provided to inform visually impaired pedestrians of the presence of the controlled crossing and to guide these users to the crossing.

### Stage 2 Designers Response

The design will be amended to include a tactile tail beyond the outside of the cycleway as advised by CEC.

### Interim Stage 3 Comment

Though the recommendation raised in the Road Safety Audit Stage 2 has been actioned, the provision of tactile paving is confusing to vulnerable road users, especially those that are visually impaired. There is a risk that visually impaired road users could be disorientated by the confusing layout of the tactile paving and either step onto the cycle way or inadvertently step out on to the carriageway and be struck by passing cyclists or motorised road users.

It is recommended that tactile paving arrangements are amended to inform visually impaired pedestrians of the presence of the controlled crossing and to guide these users to the crossing.

### Interim Stage 3 SFN Response

Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didnt agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise.

### Stage 3 Comment

It is recommended that tactile paving arrangements are amended to inform visually impaired pedestrians of the presence of the controlled crossing and to guide these users to the crossing.

### SFN Response

Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didnt agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise.

## 3.2.12 Leith Walk at junctions with Lorne Street, Jameson Place and Dalmeny Street

### Summary

Risk of pedestrians being struck and injured by passing vehicles when crossing due to drivers / riders failing to give way to crossing pedestrians. Secondary risk of rear-end shunts due to vehicles waiting for extended periods on Leith Walk whilst waiting for non-motorised users to cross the side road.

### Description

Continuous footways are proposed on Leith Walk at several of its junctions with side roads. The Audit Team have concerns regarding the introduction of continuous footways at these locations. It is noted that the use of continuous footways is a Council policy, however, there is concern that the application at these locations could result in collisions between different road users, due to the following factors:

- From the plans provided to the Audit Team, it appears that no information is proposed to indicate to a driver / rider they must give way to pedestrians at these locations; and

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- This feature is uncommon to the wider neighbourhood and is not consistently provided along the street. Drivers / Riders may not be expecting to give way to pedestrians as it's something they do not need to do at other nearby junctions.

Furthermore, during the site investigation it was observed that there may be significant traffic demands during certain times of the day, including before and after school and at peak periods. It is understood that the volume of non-motorised users in the area is significant, and drivers / riders may need to wait a considerable amount of time before being clear to cross the footway and cycleway, which may increase the risk of driver frustration and them proceeding across the paths of non-motorised users.

There is also the risk of rear-end shunt collisions on Leith Walk if vehicles attempting to enter one of the side roads have to wait for longer periods to allow for non-motorised users crossing the side road.

### **Recommendation**

It is recommended that suitable advanced signage is provided to warn drivers / riders of the new layout and the requirement to give way to non-motorised users.

### **Stage 2 Designers Response**

City of Edinburgh Council policy is to provide priority to cyclists and pedestrians establishing key non-motorised routes throughout the City. The adoption of continuous footway surfaces across minor junctions is appropriate with high/medium pedestrian movements and low side road vehicle flows. While there may be greater volume of traffic during peak times this does not change Council policy in terms of priority to pedestrians and cyclists.

The auditor has raised concerns of possible Road Traffic Accidents (RTA) on Leith Walk as a result of turning vehicles requiring giving way to pedestrians and cyclists on the continuous footways. The speed limit in Edinburgh and particularly Leith Walk is reduced to 20mph.

The proposed road markings agreed with the overseeing organisation is to position the Stop line and stop sign prior to the raised table on the side road.

### **Interim Stage 3 Comment**

The Audit Team retain their belief that this is an issue. It is recommended that suitable advanced signage is provided to warn drivers / riders of the new layout and the requirement to give way to non-motorised users.

### **Interim Stage 3 SFN Response**

CEC policy is to provide priority to cyclists and pedestrians establishing key non-motorised routes throughout the City. The adoption of continuous footway surfaces across minor junctions is appropriate with high/medium pedestrian movements and low side road vehicle flows. While there may be greater volume of traffic during peak times this does not change Council policy in terms of priority to pedestrians and cyclists.

The auditor has raised concerns of possible Road Traffic Accidents (RTA) on Leith Walk as a result of turning vehicles requiring giving way to pedestrians and cyclists on the continuous footways. The speed limit in Edinburgh and particularly Leith Walk is reduced to 20mph. The proposed road markings agreed with the overseeing organisation is to position the Stop line and stop sign prior to the raised table on the side road.

Additionally tactiles across Leith walk and the side road have been provided in Jane, Lorne and Dalmeny as per PMI-1611.

### **Stage 3 Comment**

The Audit Team note the Designer's Response to this comment; however, are still of the view that there is a collision risk, particularly at the busier junctions such as Dalmeny Street.

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Police Scotland have also provided comment on Dalmeny Street:

“Sightlines at the stop line on Dalmeny Street are poor, particularly to the right where I spoke with several drivers who were also in agreement. Due to the restricted visibility at the stop line, vehicles were stopping on the continuous footway. I would prefer if the stop line was moved closer towards the junction.

I was also concerned about the lack of signage and markings warning drivers of the presence of and/or need to give way to pedestrians and cyclists. The delivery of this would help clarify the intended operation and the continuous footway in that drivers should give-way to pedestrians and cyclists at this location. A number of drivers were observed as not doing this and mounting the footway/cycleway.

I would also favour the installation of a zebra crossing at this location, in order to clarify road user priority and highlight the presence of pedestrians and cyclists at this location. If this is not possible, the delivery of coloured surfacing or similar would assist in guiding pedestrians and cyclists and warn drivers of potential hazards.

### SFN Response

CEC policy is to provide priority to cyclists and pedestrians establishing key non-motorised routes throughout the City. The adoption of continuous footway surfaces across minor junctions is appropriate with high/medium pedestrian movements and low side road vehicle flows. While there may be greater volume of traffic during peak times this does not change Council policy in terms of priority to pedestrians and cyclists.

The auditor has raised concerns of possible Road Traffic Accidents (RTA) on Leith Walk as a result of turning vehicles requiring giving way to pedestrians and cyclists on the continuous footways. The speed limit in Edinburgh and particularly Leith Walk is reduced to 20mph. The proposed road markings agreed with the overseeing organisation is to position the Stop line and stop sign prior to the raised table on the side road.

Additionally tactiles across Leith walk and the side road have been provided in Jane, Lorne and Dalmeny as per PMI-1611. RA to have a think.

### 3.2.14 Leith Walk

#### Summary

Risk of pedestrians encroaching into cycleways and being struck and injured by cyclists due to unclear delineation of cycleways.

#### Description

The proposals on Leith Walk include several locations where the cycleways appear to ramp up to footway level to enable pedestrians to cross them.

In the plans provided to the Audit Team it is unclear as to whether any measures are proposed to delineate the cycleway and footway and warn visually impaired pedestrians of the interface between the cycleway and footway.

If no such measures are provided, there is a risk of pedestrians inadvertently encroaching into cycleways and being struck and injured by cyclists.

#### Recommendation

It is recommended that appropriate measures are provided to delineate the transition between the footway and cycleway where they are flush.

#### Stage 2 Designers Response

The segregated cycleway has been designed in accordance with the City of Edinburgh Council Edinburgh Street Design guide Part C – Detailed Design Manual C4 – Segregated Cycle Track: Hard Segregation. The Cycleway design is an option 1 with intermediate level difference between the footway and the cycleway.

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Where the footway and cycleway are at the same level a tactile separation strip is provided between the footway and the cycleway. At pedestrian crossings of the cycleway tactile paving is provided and markings to encourage the cyclists to give way to pedestrians.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that appropriate measures are provided to delineate the transition between the footway and cycleway where they are flush.

### Interim Stage 3 SFN Response

Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didn't agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise.

### Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that appropriate measures are provided to delineate the transition between the footway and cycleway where they are flush.

### SFN Response

Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didn't agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise.

## 3.2.15 Leith Walk

### Summary

Risk of cyclists losing control due to geometry of cycleway, resulting in them falling and sustaining personal injuries.

### Description

The proposed layout of the cycleways on Leith Walk appear to include many tapers on which radii do not appear to be proposed. The Audit Team have concerns that users on different types of bicycles (such as a cargo bike, recumbent bike or tandem) may have difficulties using the cycleways due to these changes in horizontal alignment. This could result in users losing control, and colliding with a kerb and falling, resulting in them sustaining personal injuries.

### Recommendation

It is recommended that any tapers in the cycleway are of an appropriate length and that appropriate radii are provided to enable all users to use the cycleway.

### Stage 2 Designers Response

The design of the cycleway is in accordance with ESDG Part C – Detailed Design Manual and C4 – Segregated Cycle Tracks: Hard Segregation. Any change in direction has a minimum 1:3 tapers.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that any tapers in the cycleway are of an appropriate length and that appropriate radii are provided to enable all users to use the cycleway.



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### Interim Stage 3 SFN Response

The design of the cycleway was in accordance with ESDG Part C – Detailed Design Manual and C4 – Segregated Cycle Tracks: Hard Segregation. Any change in direction had a minimum 1:3 tapers.

During the construction SFN came across with several instances where proposed kerbs and/or cycleways were clashing with existing utilities so we had to construct deviating slightly from the design.

### Stage 3 Comment

It was noted during the final Stage 3 site visit that there was construction on-going at a number of locations on the west side of Leith Walk to remove the sharp tapers. However, the Audit Team retain this recommendation until such time as all locations where there are sharp tapers have been remedied.

### SFN Response

The design of the cycleway was in accordance with ESDG Part C – Detailed Design Manual and C4 – Segregated Cycle Tracks: Hard Segregation. Any change in direction had a minimum 1:3 tapers. During the construction SFN came across with several instances where proposed kerbs and/or cycleways were clashing with existing utilities so we had to construct deviating slightly from the design. Cycleways have been amended recently in 3 locations: Annandale North, South Pilrig and Leith Depot.

## 3.2.16 Western footway on Leith Walk, between Shrubhill Walk and Middlefield

### Summary

Risk of pedestrians stepping onto the cycleway and being struck and injured by passing cyclists due to restricted footway width.

### Description

In the plans provided to the Audit Team it is unclear what footway width is to be provided on the western footway on Leith Walk between Shrubhill Walk and Middlefield. As shown in the image on the left above, the drawings appear to show the footway being narrowed.

If the footway was to be narrowed at this location, there is a risk of pedestrians encroaching onto the cycleway to bypass other pedestrians. This could lead to them being struck and injured by passing cyclists.

### Recommendation

It is recommended that the footway is appropriately wide for the anticipated number of users.

### Stage 2 Designers Response

The proposed footway width between Shrubhill Walk and Middlefield is designed to comply with the requirements of the Edinburgh Street Design Guidance P3 - Footways.

The design has been amended to ensure an absolute minimum footway at the pinch points is no less than 1.5m

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that the footway is appropriately wide for the anticipated number of users.



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### Interim Stage 3 SFN Response

The proposed footway width between Shrubhill Walk and Middlefield is designed to comply with the requirements of the Edinburgh Street Design Guidance P3 - Footways. Absolute minimum footway at the pinch points is no less than 1.5m

### Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that the footway is appropriately wide for the anticipated number of users.

### SFN Response

The proposed footway width between Shrubhill Walk and Middlefield is designed to comply with the requirements of the Edinburgh Street Design Guidance P3 - Footways. Absolute minimum footway at the pinch points is no less than 1.5m.

## 3.2.19 Scheme extents

### Summary

Risk of vehicles emerging from side roads / accesses when it is not safe to do so due to the position of the stop signs, leading to them striking and injuring non-motorised users or striking other vehicles.

### Description

The proposals include stop signs on many of the side roads within the extents of the scheme. These are set back significantly from the junction, as shown in the example in the image above on the left (at the access to the private NHS car park on Leith Walk and accesses to 165 Leith Walk).

The Audit Team have concerns regarding the position of many of the traverse stop line road markings (to Diag. 1002.1, TSRGD 2016) and stop signage (to Diag. 601.1, TSRGD 2016) within the extents of the scheme. Vehicles stopping at such a distance from the carriageway are unlikely to have sufficient visibility to approaching vehicles on the carriageway, cyclists on the cycleway or pedestrians on the footway. During site investigation it was observed that at many of the proposed stop locations visibility would be restricted by the surrounding built environment. An example is shown in the photograph above on the right (also at the access to the private NHS car park on Leith Walk).

If drivers / riders do not have sufficient visibility at the proposed stop lines, there is a risk that they could strike and injure a non-motorised user when emerging or that they could collide with a passing vehicle.

### Recommendation

It is recommended that the existing arrangements at the side roads and accesses are appropriately amended so as to provide appropriate visibility where vehicles have to stop.

### Stage 2 Designers Response

Extensive discussions have been held with the Client in terms of appropriate layouts for the continuous footways and in particular the road markings and traffic signage. The design of the continuous footways is in accordance with Edinburgh Street Design Guidance (ESDG) G7 - Priority Junctions: Continuous Footways and C4 – Segregated Cycle Tracks Hard Segregation Option 1 page 26 Continuous cycle Track Without deviation. In each example shown in the ESDG the approaching vehicle from the side road is required to give way to pedestrians at the mainline channel. TSRGD indicates that due to the introduction of the tram system approaching vehicles are required to stop at the channel. However due to the introduction of the continuous footway it was instructed by the Client that the stop line should be prior to the continuous footway on the side road to prevent

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vehicles encroaching on the continuous footway. At this point the stationary vehicle will have visibility of the footway allowing the vehicle to approach at caution.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that the existing arrangements at the side roads and accesses are appropriately amended so as to provide appropriate visibility where vehicles have to stop.

### Interim Stage 3 SFN Response

Same as above.

### Stage 3 Comment

The Audit Team retain their belief that this is an issue at a number of junctions where the visibility for emerging traffic is extremely limited.

### SFN Response

Extensive discussions have been held with the Client in terms of appropriate layouts for the continuous footways and in particular the road markings and traffic signage. The design of the continuous footways is in accordance with Edinburgh Street Design Guidance (ESDG) G7 - Priority Junctions: Continuous Footways and C4 – Segregated Cycle Tracks Hard Segregation Option 1 page 26 Continuous cycle Track Without deviation. In each example shown in the ESDG the approaching vehicle from the side road is required to give way to pedestrians at the mainline channel. TSRGD indicates that due to the introduction of the tram system approaching vehicles are required to stop at the channel. However due to the introduction of the continuous footway it was instructed by the Client that the stop line should be prior to the continuous footway on the side road to prevent vehicles encroaching on the continuous footway. At this point the stationary vehicle will have visibility of the footway allowing the vehicle to approach at caution.

## 3.2.22 Scheme extents

### Summary

Risk of pedestrians or cyclists colliding with street furniture, resulting in personal injury.

### Description

New traffic signs, street lighting columns and other street furniture are proposed throughout the project extents. Due to the apparent lack of colour contrasting banding on the traffic signal posts, traffic sign posts, pedestrian guardrail, street furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these, resulting in personal injury.

### Recommendation

It is recommended that suitable contrast banding is applied to all street furniture.

### Stage 2 Designers Response

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. New traffic signs, street lighting columns and other street furniture have been installed throughout the project extents. Due to the lack of colour contrasting banding on the traffic signal posts, traffic signposts, pedestrian guardrail, street

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furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these resulting in personal injury.

It is recommended that suitable contrast banding is applied to all street furniture.

### Interim Stage 3 SFN Response

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

### Stage 3 Comment

The Audit Team note the ESDG in relation to the provision of contrast banding, however there is still an inherent risk to visually impaired users who may collide with street furniture resulting in personal injury. It is recommended that suitable contrast banding is applied to all street furniture.

### SFN Response

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

## 3.2.23 Maritime Lane

### Summary

Risk of vehicles proceeding contrary to direction of traffic flows on one-way streets, resulting in head on collisions, due to provision of road markings.

### Description

In the plans provided to the Audit Team it appears that road hump triangle markings (to Diag. 1062, TSRGD 2016) are proposed on both sides of the raised crossings on Maritime Lane at its junction with Constitution Street. Maritime Lane is one-way on both sides of Constitution Street and vehicles cannot turn into Maritime Lane from Constitution Street.

Providing markings to Diag. 1062 (TSRGD 2016) on the ramps on the Constitution Street side of the raised crossings could lead to drivers / riders mistakenly thinking that they are permitted to turn into Maritime Lane from Constitution Street. This could result in vehicles proceeding along Maritime Lane contrary to the direction of the traffic flow, which could result in head-on collisions occurring.

### Recommendation

It is recommended that the proposed markings to Diag. 1062 (TSRGD 2016) are removed from the ramps on the major road side of the raised crossings on Maritime Lane.

### Stage 2 Designers Response

The design has been amended to remove the two-lane approach and bifurcation arrows on the approach to Constitution Street avoiding any confusion that road users may have in terms of direction.

### Interim Stage 3 Comment

The Audit Team retain their belief that this is an issue. It is recommended that the proposed markings to Diag. 1062 (TSRGD 2016) are removed from the ramps on the major road side of the raised crossings on Maritime Lane.

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### Interim Stage 3 SFN Response

Agreed.

### Stage 3 Comment

During the Stage 3 Audit final site visit it was noted that this work has not been carried out. The Audit Team retain their recommendation that the proposed markings to Diag. 1062 (TSRGD 2016) are removed from the ramps on the major road side of the raised crossings on Maritime Lane.

### SFN Response

Agreed.

### 3.3.1 Ocean Drive, Ocean Way, Lindsay Road, Constitution Street, Coatfield Lane, Queen Charlotte Street, Baltic Street, Geissler Drive, Access to Ocean terminal and Whisky Quay, Leith Walk

#### Summary

Excess surface water on the carriageway could lead to loss of control collisions resulting in vehicles colliding with other vehicles, street furniture of other road users. Excess surface water on the footway could lead to pedestrians slipping and falling, resulting in them sustaining personal injuries.

#### Description

It was noted on site during the interim stage 3 site visits that there were locations where large areas of surface water was ponding on newly surfaced carriageway and footways. Excess surface water on the carriageway could result in vehicles losing control or swerving to avoid the surface water and colliding with other road users or street furniture leading to injury to vehicle occupants, pedestrians, or cyclists. Excess surface water on the footway could result in pedestrians slipping and falling, resulting in them sustaining personal injuries.

#### Interim Stage 3 Recommendation

It is recommended that the carriageway and footways are suitably profiled and adequate drainage is provided to prevent surface water gathering.

#### Interim Stage 3 SFN Response

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

#### Stage 3 Comment

As no mitigation measures appear to have been actioned, the Audit Team have retained this recommendation.

#### SFN Response

NCRs/Defects have been raised and SFN will deal with the ones out of the design tolerances (OT bus car park ch 17490, OT red car park ped crossing ch 17830, Rennie's Isle footpath corner with India Visa Centre ch 17090, ped crossing casino Forth Ports, 165 Leith walk, ped crossing North Side Jane street (Mother Superior Pub), ped crossing Duke Street in front of Leith Surgery, ped crossing south side of Balfour tramstop, ped crossing south west side of OT, Queen Charlotte ped crossing at the south west corner).

### 3.3.2 Top of Leith Walk at start of the Picardy Gyrotory system

#### Summary

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Risk of conflict between south-westbound general traffic and a tram, pedestrian, or other vehicles as a result of entering the Tram only lane.

### Description

There is a risk that south-westbound traffic heading up Leith Walk towards the Picardy Gyrotory could enter the tram lane and continue into the tram stop then conflict with other vehicles or road users at the junction beyond the stop. This risk is increased during the hours of darkness or wet conditions when the visibility of the road markings is reduced. The road markings on the tram line do not tend to stand out due to the concrete surface and drivers / riders could fail to observe the "Tram Only" road markings. This is evident in the photograph. It was noted that there are "Tram only" signs located in advance of all the tram only lanes, however, due to their size and relative position in the nearside footways, they are not always obvious to general vehicle drivers. During the interim Stage 3 site visits, there were several occasions where the Audit Team witnessed vehicles driving in the tram only lane, including a taxi driver who travelled up the lane towards the Picardy Stop and only swerved at the last moment to avoid entering the tram stop.

### Interim Stage 3 Recommendation

It is recommended that additional measures are provided to reinforce the Tram only restriction at this location.

### Interim Stage 3 SFN Response

Agreed. Diagram 616 (S3-2-10) No entry except trams to be installed. 2 signs to be installed following Haymarket tramstop approach.

### Stage 3 Comment

As the agreed mitigation measures have still to be actioned, the Audit Team have retained this recommendation. The above photograph was taken during the night-time site visit on 5 September and appears to show two new traffic signposts which could accommodate two new no entry signs.

### SFN Response

Agreed. Diagram 616 (S3-2-10) No entry except trams to be installed. 2 signs to be installed following Haymarket tramstop approach.

### 3.3.3 Gayfield Square at entry from Leith Walk

#### Summary

Risk of vehicles losing control on ramps due to gradient, resulting in potential collision with other road users or riders of powered two wheelers becoming unseated and falling from their bikes.

#### Description

During the site investigation it was noted that the ramp at the entry to Gayfield Square (to the rear of the footway) appears to be steep. The Audit Team have concerns that a vehicle could lose control while travelling down the ramp due to the gradient. This could result in them striking another vehicle or an item of street furniture.

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### **Interim Stage 3 Recommendation**

It is recommended that the ramp gradient is appropriate for use by all vehicles.

### **Interim Stage 3 SFN Response**

Gradient will be checked and amended if not compliant.

### **Stage 3 Comment**

As the Audit Team believe that this problem still exists, this recommendation has been retained.

### **SFN Team Response**

Gradient cannot be reduced as a consequence of the utility cover.

## **3.3.4 Gayfield Square at Leith Walk**

### **Summary**

Risk of cyclists becoming unseated due to statutory undertaker covers provided in cycleway not being flush with surrounding surface.

### **Description**

As shown in the photograph above, statutory undertaker covers are provided in the cycleway to the south of the exit of Gayfield Square at Leith Walk. These statutory undertaker covers are not flush with the surrounding surface of the cycleway.

There is a risk that a cyclist travelling over these statutory undertaker covers could become unseated, resulting in them falling from their bicycle and sustaining a personal injury.

### **Interim Stage 3 Recommendation**

It is recommended that the statutory undertaker covers are flush with the surrounding surface.

### **Interim Stage 3 SFN Response**

NCR's / Defects have been raised and SFN will deal with them if they are out of the design tolerances.

### **Stage 3 Comment**

As no mitigation measures appear to have been actioned, the Audit Team have retained this. As this problem still exists, the Audit Team have retained this recommendation.

### **SFN Team Response**

CEC will take care of them. Not in SFN scope.

## **3.3.5 West side of Leith Walk, north of McDonald Road**

### **Summary**

Risk of utility cover failing as a result of vehicle loading, leading to a void forming that pedestrians could trip on and sustain personal injuries.

### **Description**

The utility cover that is provided at the private access on the west side of Leith Walk, north of McDonald Road, is not suitable for loading by vehicles. If loaded by vehicles, there is a risk that it could fail, and a void could form. Pedestrians could trip on the void and sustain personal injuries.

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### Interim Stage 3 Recommendation

It is recommended that a utility cover that is suitable for vehicle loading is provided at this location.

### Interim Stage 3 SFN Response

Out of scope.

### Stage 3 Comment

As this problem still exists, the Audit Team have retained this recommendation.

### SFN Response

Out of the scope.

### 3.3.6 Picardy Place tram stop

#### Summary

Risk of pedestrians crossing when not safe to do so due to "see through", resulting in them being struck and injured by passing vehicles.

#### Description

The Audit Team have concerns regarding the risk of see through at Picardy Place tram stop. As shown in the photograph above, a pedestrian crossing between the tram stop and the traffic island to the south can see the pedestrian aspects for both crossings. Whilst these crossings do both get a green aspect during one stage, in another stage the crossing across the eastbound tramline displays a green man whilst that across the westbound tramline is shown a red man.

There is a risk that a pedestrian crossing from north to south may see the green man intended for the crossing of the eastbound tram line and may start to cross the westbound tram line when it is not safe to do so. This could result in them being struck and injured by a passing tram.

#### Interim Stage 3 Recommendation

It is recommended that appropriate measures are provided to reduce the risk of see through.

#### Interim Stage 3 SFN Response

Louvres have been added on the green man.

#### Stage 3 Comment

It was noted on site that louvres have been added to the green man signals on the north side of the crossing however there is still an issue with see-through from the crossing point on the Omni Centre side. It is recommended that a further louvre is fixed to resolve this.

#### SFN Response

SFN dont agree that this is an issue

### 3.3.7 Ocean Drive at Ocean Way

#### Summary

Risk of a southbound vehicle losing control and either mounting footway or colliding with other vehicles or tram.

#### Description

Vehicles heading east on Ocean Drive and intending to turn right to head southwards require to merge from the nearside traffic lane into the tram track. This involves a turn of almost 90 degrees,

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whilst having to merge suddenly into the tram track lane. This sudden change of direction could result in drivers mounting the footway and conflicting with pedestrians or sudden braking or change of direction resulting in potential collisions with other vehicles or a tram. The sketch above shows circled the point where general traffic require to merge into the tram lane.

### **Interim Stage 3 Recommendation**

It is recommended that advance guidance signing, or markings are provided to eastbound drivers intending to follow the road southwards.

### **Interim Stage 3 SFN Response**

Tram and road vehicles are on different signal stages.

### **Stage 3 Comment**

It is noted that the tram runs on a different stage to general traffic, however there is still a risk of a vehicle losing control and / or mounting the footway which could result in conflict with pedestrians. The Audit Team retain their belief that this is an issue and recommend that advance guidance signage or markings are provided to eastbound drivers / riders intending to follow the road southwards.

### **SFN Response**

Tram and road vehicles are on different signal stages.

## **3.3.8 Leith Walk, between Jane Street and Manderston Street**

### **Summary**

Risk of vehicles striking kerb lines due to inconsistent alignment, leading to vehicle occupants sustaining personal injuries.

### **Description**

During the site investigation it was noted that the kerb line on Leith Walk is not consistent on the approach to Manderston Street. This is shown in the photograph above. There is a risk of vehicles striking the kerb line due to the inconsistency of the alignment and sudden changes of direction, leading to the occupants / riders of the vehicles sustaining personal injuries.

### **Interim Stage 3 Recommendation**

It is recommended that the kerb line avoids any sudden changes in direction and that vertical features are provided to highlight any changes in kerb line alignment.

### **Interim Stage 3 SFN Response**

The sudden change of direction of that kerb was due to existing utilities.

### **Stage 3 Comment**

The Audit Team note the designer's response, however there is still the risk of a vehicle over running the kerb and losing control or colliding into other road users or street furniture resulting in potential injury. It is recommended that a vertical feature or features are erected to guide drivers / riders away from the kerb line.

### **SFN Response**

The sudden change in direction of that kerb was due to existing utilities.



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### 3.3.9 Leith Walk

#### Summary

Risk of vehicles cutting across footways / cycleways and striking non-motorised users or street furniture due to lack of guidance of path through junctions.

#### Description

Continuous footways are provided at many of the junctions of Leith Walk and its side roads. Many of the footways at these continuous footways are wide and vehicles crossing the continuous footway have to cross the footway itself as well as the cycle track.

The street environment at many of these locations do not provide drivers / riders information on the alignment to take through the junction. The Audit Team have concerns that some drivers / riders may not be able to perceive the correct path across the footway to the ramp on the other side, particularly where they are expected to transition onto Leith Walk. This could lead to them cutting corners and driving / riding across the footway and cycleway, out with the extents of the continuous footway. This could lead to them colliding with unsuspecting pedestrians or street furniture or joining Leith Walk out-with the smooth transition which could lead to loss of control or bike riders becoming unseated.

During the site visits, the Audit Team witnessed a number of vehicles entering Leith Walk from side roads and having to “bump” down onto Leith Walk as they had failed to follow the direct route using the ramps provided to allow the correct transition.

#### Interim Stage 3 Recommendation

It is recommended that appropriate measures are provided to guide vehicles across the continuous footway to the ramp opposite.

#### Interim Stage 3 SFN Response

To be discussed with City of Edinburgh Council.

#### Stage 3 Comment

The Audit Team observed numerous instances of vehicles cutting the corners at some junctions and there is evidence of damage to the surface / slabs which supports this problem. From the Audit Team’s perspective, the previous recommendation still stands.

#### SFN Response

SFN position is that there is nothing we can do to improve the driver behaviour without compromising the intention of the continuous footway (full priority for pedestrians).

### 3.3.10 Finglas delivery access, Ocean Drive & Tower Place substation access Ocean Drive

#### Summary

Risk of rear end shunts or side impact collisions between motorised vehicles due to constrained forward visibility to access.

#### Description

Two accesses are provided on the north side of Ocean Drive to the east of the Water of Leith. These accesses are provided on the inside of a bend, with a parapet being provided on the north side of the road.

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The Audit Team have concerns that the driver / rider of a vehicle travelling eastbound on Ocean Drive may have insufficient forward visibility to vehicles accessing or emerging from these accesses. This could lead to rear-end shunt or side-impact collisions.

It is noted that there is insufficient space at the delivery access to Fingals to allow a vehicle to wait off the carriageway, which exacerbates this issue.

### **Interim Stage 3 Recommendation**

It is recommended that appropriate forward visibility is provided to these accesses.

### **Interim Stage 3 SFN Response**

To be discussed with the City of Edinburgh Council.

### **Stage 3 Comment**

The Audit Team believe that this is still an issue, and the recommendation still stands.

### **SFN Team Response**

Infrequent use and private land, CEC to discuss with landowner.

## **3.3.11 Junction of Rennie's Isle and Ocean Drive**

### **Summary**

Risk of vehicles emerging from Rennie's Isle when not safe to do so and being struck by vehicles on Ocean Drive due to visibility being constrained by guardrail.

### **Description**

Guardrail is provided at the junction of Rennie's Isle and Ocean Drive, as shown in the photograph above. The Audit Team have concerns that the guardrail could obscure the visibility of drivers / riders turning from Rennie's Isle onto Ocean Drive. This could lead to vehicles emerging when it is not safe to do so and being struck by other vehicles.

### **Interim Stage 3 Recommendation**

It is recommended that high-visibility guardrail is provided.

### **Interim Stage 3 SFN Response**

A car stopped at the stop line can see cars above and through the railing.

### **Stage 3 Comment**

During the final Stage 3 site visit, the Audit Team stopped a car at the stop line and observed this view of an approaching vehicle. It is noted that the top of the car can just be seen, however this was a high sided car. The Audit Team are concerned that a smaller or lower car would not be visible and there is therefore still a risk of a conflict if a vehicle pulls out into the path of a vehicle. The Audit Team retain their recommendation to replace the guardrail with high visibility guardrail or consider the removal of the barrier.

### **SFN Team Response**

A car stopped at the stop line can see cars above and through the railing.

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### 3.3.12 2No. private accesses on west side of Constitution Street north of Queen Charlotte Street

#### Summary

Risk of vehicles emerging from private accesses when not safe to do so and being struck by vehicles on Constitution Street due to visibility being constrained by parked vehicles.

#### Description

Two vehicle accesses are provided on the west side of Constitution Street, north of Queen Charlotte Street. Parking is provided on either side of these accesses.

The Audit Team have concerns that parked vehicles may obscure visibility for the drivers / riders of vehicles exiting from the private accesses. This could lead to collisions occurring between vehicles, or between vehicles and a tram.

#### Interim Stage 3 Recommendation

It is recommended that appropriate measures are provided so as to provide an unimpeded visibility splay for vehicles exiting from the private accesses.

#### Interim Stage 3 SFN Response

During OM3A a van was parked at the loading bay in front of 80 constitution street. Driver stopped 3,9 m away from the kerb to have visibility of the tram coming from the inbound track. Later on car driver stopped 2,4 m away from the kerb confirming he didn't have visibility of the tram (ESDG Factsheet G6 show 2,4 m as the desirable distance). Tram driver confirmed he could see the car in both situations and he that he also could apply the emergency brake on time.

#### Stage 3 Comment

The Audit Team note the designer's response which is in relation to a possible conflict with a tram, however there is still a risk that a vehicle (such as a car or bicycle) could be travelling closer to the kerbside and conflict with a vehicle exiting the access. The Audit Team retain their belief that this is a problem and recommend that appropriate measures are provided so as to provide an unimpeded visibility splay for vehicles exiting from the private accesses.

#### SFN Response

During OM3A a van was parked at the loading bay in front of 80 constitution street. Driver stopped 3,9 m away from the kerb to have visibility of the tram coming from the inbound track. Later on car driver stopped 2,4 m away from the kerb confirming he didn't have visibility of the tram (ESDG Factsheet G6 show 2,4 m as the desirable distance). Tram driver confirmed he could see the car in both situations and he that he also could apply the emergency break on time.

### 3.3.13 Gayfield Square exit onto Leith Walk

#### Summary

Risk of vehicles emerging from Gayfield Square when not safe to do so and striking and injuring non-motorised users, due to tree obscuring visibility.

Secondary risk of vehicles emerging from Gayfield Square when not safe to do so and being struck by northbound vehicles on Leith Walk, also due to tree obscuring visibility.

#### Description

As shown in the photograph above, a tree is located to the south of the exit from Gayfield Square at its junction with Leith Walk. The Audit Team have concerns that the tree could obscure visibility for the drivers / riders of vehicles emerging from Gayfield Square.

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If visibility was to be obscured, there is a risk that vehicles could emerge when it is not safe to do so and could strike and injure crossing non-motorised users. There is also a risk that vehicles could emerge onto Leith Walk into the path of northbound vehicles.

### Interim Stage 3 Recommendation

It is recommended that visibility is maximised.

### Interim Stage 3 SFN Response

A car stopped at the stop line may not have enough visibility to enter the road but he will need to go across the footway slowly and at that moment he will have enough visibility.

### Stage 3 Comment

The Audit Team note the designer's response, however, are still concerned that the visibility for emerging vehicles is severely limited to the footway and cycleway. There is still a risk that a vehicle could pull out into the path of a cyclist resulting in a serious injury to the cyclist. From the Audit Team's perspective, the previous recommendation still stands.

### SFN Response

A car stopped at the stop line may not have enough visibility to enter the road but he will need to go across the footway slowly and at that moment he will have enough visibility.

## 3.3.14 Leith Walk

### Summary

Risk of visually impaired pedestrians becoming confused

### Description

There are several junctions on Leith Walk where signalised crossings interact with cycle tracks. At these points, the designer has attempted to introduce tactile paving which warns of:

1. the edge of flush cycle path;
2. the transition from footway to shared use footway;
3. uncontrolled crossing over cycle path;
4. stem leading to controlled crossing point over carriageway; and
5. uncontrolled crossing point over carriageway.

The mixture of these types and colour of tactile paving as well as the white zebra road markings which are used to indicate a crossing over the cycle route provide a very confusing layout and message to non-motorised users, in particular to the blind or partially sighted users.

It is noted that cycle speeds can be high given the gradient of Leith Walk, therefore there is a higher risk of more severe severity of injuries in the event of a collision between a cyclist and a pedestrian.

### Interim Stage 3 Recommendation

It is recommended that a simpler layout is provided at these locations which can be easier to understand and reduces the risk of conflict between vulnerable users.

Additionally, it is recommended that City of Edinburgh Council carry out a review of the guidance for the use of tactile paving in discussion with visually impaired user groups in order to simplify the use of tactile paving at these types of layouts.

### Interim Stage 3 SFN Response

Layouts have been agreed with CEC through the road works working group and recorded through TQ's in CEMAR.

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### Stage 3 Comment

The Audit Team note the designer's response, however, are still concerned that there are a number of junctions where the layouts are very confusing. This applies to both those with good vision and visually impaired users. Police Scotland commented on the layouts after the Interim Road Safety Audit to suggest that they were rather confusing. The Audit Team therefore retain their belief that this is a problem and the recommendation from the Interim Stage 3 Road Safety Audit.

### SFN Response

Layouts have been agreed with CEC through the road works working group and recorded through TQs in CEMAR

### 3.3.15 Scheme extents

#### Summary

Risk of visually impaired pedestrian becoming stuck on the carriageway, and being struck and injured by passing vehicles, due to tactile paving not aligning on opposing sides of crossing points.

#### Description

At many locations throughout the extents of the scheme tactile paving has been provided that does not align on either side of crossing points, both controlled and uncontrolled. Affected streets include:

- the A901;
- Lindsay Road;
- Melrose Drive
- Ocean Drive;
- Stevedore Place;
- the junction of Constitution Street and Queen Charlotte Street;
- the junction of Constitution Street and Coatfield Lane;
- the junction of Constitution Street, Leith Walk and Duke Street;
- Bernard Street at its junction with Constitution Street;
- Tower Place;
- York Place at junction with Leith Walk; and
- Leith Walk.

If the tactile paving does not align at a crossing point, a visually impaired pedestrian could attempt to cross, be unable to locate the dropped kerb and tactile paving opposite and become stuck on the carriageway. This could lead to them being struck and injured by a passing vehicle.

#### Interim Stage 3 Recommendation

It is recommended that the dropped kerbs and tactile paving align on opposing sides of crossing points.

#### Interim Stage 3 SFN Response

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

#### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

#### SFN Team Response

Studs in the road guide visually impaired pedestrians.

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### 3.3.16 Scheme extents

#### Summary

Risk of visually impaired pedestrians being unable to locate crossing points due to chamber covers being positioned within tactile paving, leading to them attempting to cross at unsafe locations and being struck and injured by passing vehicles whilst doing so.

#### Description

During the site investigation it was observed that chamber covers have been provided within areas of tactile paving at several locations, including:

- the junction of Ocean Drive, Melrose Drive and Victoria Quay;
- Ocean Drive at its junction with the access to Ocean Terminal and Whisky Quay;
- Leith Walk south of junction with Duke Street;
- Leith Walk opposite Kirk Street; and
- Leith Walk south of junction with Dalmeny Street.

The presence of chamber covers within areas of tactile paving could lead to visually impaired pedestrians being unable to locate controlled crossing points, particularly if their stride was to lead them to stand on the cover itself. If a visually impaired pedestrian was unable to locate a crossing point, there is a risk that they could attempt to cross the road at an unsafe location and be struck and injured by a passing vehicle whilst doing so.

#### Interim Stage 3 Recommendation

It is recommended that recess chamber covers are provided with a tactile paving infill or that the chambers are appropriately relocated.

#### Interim Stage 3 SFN Response

Due to existing utilities, some of the TS and SL chambers had to be relocated clashing with tactiles. In these instances recessed covers have been installed. Note that there were many existing chambers along the route clashing with proposed tactiles. In these cases SFN recommends CEC to replace them by recessed covers.

#### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

#### SFN Response

Due to existing utilities, some of the TS and SL chambers had to be relocated clashing with tactiles. In these instances recessed covers have been installed. Note that there were many existing chambers along the route clashing with proposed tactiles. In these cases SFN recommends CEC to replace them by recessed covers.

### 3.3.17 Scheme extents (junction of Lindsay Road and A901, Leith Walk)

#### Summary

Risk of pedestrians tripping on kerb and sustaining personal injuries due to tactile paving being positioned on a transition kerb.

#### Description

Tactile paving was observed positioned on a transition kerb at various locations throughout the extents of the scheme, including:

- Junction of Lindsay Road and A901;
- Leith Walk central refuge north of Stead's Place;
- West side of Leith Walk at junction with Great Junction Street;

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- East side of Leith walk at junction with Manderston Street; and
- Leith Walk central island and east side between Jane Street and Stead's Place.

There is a risk that a visually impaired pedestrian could follow the alignment of the crossing and could trip and fall whilst transitioning between the footway and carriageway due to the upstand of the transition kerb, which could result in them sustaining personal injuries.

### Interim Stage 3 Recommendation

It is recommended that the uncontrolled crossings are appropriately amended so that the tactile paving is positioned adjacent to dropped kerbs with a maximum upstand of 6mm.

### Interim Stage 3 SFN Response

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

### SFN Response

NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.

## 3.3.18 North-east side of junction of Ocean Drive, Melrose Drive and Victoria Quay

### Summary

Risk of visually impaired pedestrians being unable to locate controlled crossing point, leading to them attempting to cross at unsafe locations and being struck and injured by passing vehicles whilst doing so.

### Description

On the north-east side of the junction of Ocean Drive, Melrose Drive and Victoria Quay, the tactile paving does not extend to the rear of the footway. There is a risk that a visually impaired pedestrian would not be able to locate the crossing, which could result in them attempting to cross at an unsafe location and being struck and injured by a passing vehicle whilst doing so.

### Interim Stage 3 Recommendation

It is recommended that the tactile paving stem extends to the rear of the footway.

### Interim Stage 3 SFN Response

As per ESDG factsheet M4 max tail length is normally 4800 mm.

Variation A - If the gap between the tail end and the rear of the footway is <1000mm, run the tactile paving to the building line.

Variation B - If the footway width is <6000mm, run the tactile paving to the building line.

None of these cases are applicable here.

### Stage 3 Comment

The Audit Team note the designer's response, however, even though this may comply with design standards, there is still a risk that a visually impaired pedestrian could miss the controlled crossing and cross the road where it is not safe to do so. The Audit Team therefore retain this recommendation.

### SFN Response

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As per ESDG factsheet M4 max tail length is normally 4800 mm.

Variation A - If the gap between the tail end and the rear of the footway is <1000mm, run the tactile paving to the building line.

Variation B - If the footway width is <6000mm, run the tactile paving to the building line.

None of these cases are applicable here.

### **3.3.19 Ocean Drive, Melrose Drive and Lindsay Road**

#### **Summary**

Risk of visually impaired pedestrians misinterpreting tactile paving due to tactiles being positioned on radii, leading to visually impaired pedestrians attempting to cross, becoming stuck on the carriageway, and being struck and injured by passing vehicles.

#### **Description**

At several locations throughout the extents of the scheme tactile paving has been positioned on kerb radii. There is a risk that such tactile paving could be misinterpreted by visually impaired pedestrians. An example, from the junction of Tower Place and Ocean Drive shows how the tactile paving could be misinterpreted, with the green arrow showing the intended crossing direction and the red arrow showing how the crossing could be interpreted.

Affected locations include:

- Lindsay Road at Great Michael Rise
- Ocean Drive at its junction with Tower Place; and
- Melrose Drive at Mill access.

If a visually impaired pedestrian was to misinterpret the direction of a crossing, they could attempt to cross, become stuck on the carriageway, and be struck and injured by a passing vehicle.

#### **Interim Stage 3 Recommendation**

It is recommended that the affected tactile paving and accompanying dropped kerbs be relocated so as to clarify the intended crossing directions.

#### **Interim Stage 3 SFN Response**

Agreed.

#### **Stage 3 Comment**

The Audit Team note the designer's response, however, as this is still to be actioned at the above locations, they retain the previous recommendation.

#### **SFN Response**

Agreed.

### **3.3.20 Ocean Drive opposite Ocean Terminal shopping centre**

#### **Summary**

Risk of injury to pedestrians as a result of sunken tree planting in footway.

#### **Description**

There are a number of new trees which have been planted along the southern side footway opposite the Ocean Terminal shopping centre, as can be seen in the photograph.

There is a risk that a visually impaired pedestrian could trip over the uneven footway surface where the tree base is and fall, resulting in personal injury.



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### Interim Stage 3 Recommendation

It is recommended that the surface is flush with the footway or a suitable pedestrian friendly grid is provided at the tree bases.

### Interim Stage 3 SFN Response

Grid will be installed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

### SFN Response

Tree pit will be filled with top soil

### 3.3.21 North side of Lindsay Road at junction with Melrose Drive; Ocean Way north of Tower Street; junction of Maritime Lane and Constitution Street & Ocean Drive at junction with Stevedore Place West.

#### Summary

Risk of visually impaired pedestrians inadvertently stepping onto the carriageway due to footway being flush with carriageway, leading to them being struck and injured by passing vehicles.

#### Description

Several locations were observed where the footway is flush with the adjacent carriageway out with designated crossing points. This included at the following locations:

- North side of Lindsay Road at its junction with Melrose Drive;
- Ocean Way, north of Tower Street;
- junction of Maritime Lane and Constitution Street; and
- Ocean Drive at its junction with Stevedore Place (west).

There is a risk that visually impaired pedestrians could inadvertently enter the carriageway at these locations, due to the footway and carriageway being flush and no measures being provided to delineate the footway and carriageway. This could lead to users being struck and injured by passing vehicles whilst on the carriageway.

### Interim Stage 3 Recommendation

It is recommended that appropriate measures are provided to delineate the footways and carriageways out with crossing points.

### Interim Stage 3 SFN Response

The mentioned locations are corners where there are 2 crossing points in perpendicular directions. The kerb has been laid flush along the corner for constructability purposes. Since there arent tactiles visually impaired pedestrians will not detect there is a ped crossing.

### Stage 3 Comment

The Audit Team note the designer's response, however they consider that this is still a risk. Where the footway and carriageway are flush visually impaired users could walk onto the road outwith the crossing points. The Audit Team therefore retain the previous recommendation.

### SFN Response

The mentioned locations are corners where there are 2 crossing points in perpendicular directions. The kerb has been laid flush along the corner for constructability purposes. Since there arent tactiles visually impaired pedestrians will not detect there is a ped crossing.

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### 3.3.22 Scheme extents (Lindsay Road, Ocean Drive, Constitution Street, Leith Walk, Great Junction Street)

#### Summary

Risk of pedestrians tripping on kerb upstands and sustaining personal injuries.

#### Description

Throughout the extents of the scheme several dropped kerbs were observed that had upstands greater than 6mm. This included the following locations:

- West side of crossing of Lindsay Road at junction with A901;
- West side of Ocean Drive at junction with Melrose Drive and Victoria Quay;
- Ocean Drive at its junction with the access to Ocean Terminal and Whisky Quay;
- Ocean Drive at Stevedore Place (east);
- Constitution Street at its junction with Queen Charlotte Street;
- Ocean Drive at its junction with Rennie's Isle;
- Leith Walk at junction with Annandale Street;
- Leith Walk at junction with McDonald Road;
- West side of Leith Walk at Dalmeny Street;
- Leith Walk central refuge north of Steads Place;
- Great Junction Street at its junction with Leith Walk;
- Leith Walk central island south of Jane Street;
- Leith Walk central island between Jane Street and Stead's Place;
- Leith Walk central island opposite Stead's Place; and
- East side of Leith Walk, south of Iona Street.

Dropped kerbs with upstands greater than 6mm pose a trip hazard to pedestrians, which could result in users tripping and falling and sustaining personal injuries.

#### Interim Stage 3 Recommendation

It is recommended that dropped kerbs have an upstand of between 0mm and 6mm.

#### Interim Stage 3 SFN Response

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

#### Stage 3 Comment

The Audit Team note the designer's response, however, as several locations were observed throughout the scheme extents where these had not been remedied, they retain the previous recommendation.

#### SFN Response

NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.

### 3.3.23 Scheme extents (Melrose Drive, Ocean Drive, Constitution Street at junction with Queen Charlotte Street; Constitution Street; Baltic Street at junction with Constitution Street; York Place; Picardy Place & Leith Walk)

#### Summary

Risk of pedestrians tripping on uneven footway surfaces and sustaining personal injuries.

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### Description

Several trip hazards were observed on footways throughout the extents of the scheme. This included sections of footway being unfinished and covers not being flush with the surrounding footway surfaces. Affected locations included:

- the south side of Melrose Drive on approach to its junction with the A901;
- the western footway at Ocean Terminal;
- Constitution Street at its junction with Queen Charlotte Street;
- the west side of Constitution Street, south of Queen Charlotte Street;
- Baltic Street at its junction with Constitution Street;
- the south side of Ocean Drive, west of Rennie's Isle;
- North side of York Place;
- Picardy Place island;
- West side of Leith Walk at Gayfield Square;
- West side of Leith Walk at Pilrig Street;
- East side of Leith walk north of Crown Place;
- East side of Leith Walk north of Lorne Street; and
- East side of Leith Walk north of Iona Street.

Pedestrians could trip on these trip hazards and sustain personal injuries.

### Interim Stage 3 Recommendation

It is recommended that uneven footway surfaces are appropriately repaired and that any existing covers that are not flush with the surrounding footways are made good.

### Interim Stage 3 SFN Response

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

### Stage 3 Comment

The Audit Team note the designer's response, however, as several instances of uneven footway surfaces were observed throughout the scheme extents, they retain the previous recommendation.

### SFN Response

NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.

## 3.3.24 Pedestrian crossing outside Ocean Terminal

### Summary

Risk of pedestrians slipping / tripping and falling due to presence of grasscrete within extents of crossing points, resulting in them sustaining personal injuries.

### Description

As shown in the photograph above, grasscrete is provided with the crossing extents at the southern crossing of Ocean Drive northbound at Ocean Terminal.

There is a risk that this surfacing could cause a user to slip / trip and fall, resulting in them sustaining a personal injury.

### Interim Stage 3 Recommendation

It is recommended that grasscrete is removed from the extents of the crossing point and that an appropriate pavement surface is provided.

### Interim Stage 3 SFN Response

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Agreed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation. See photograph above showing the grasscrete within the extents of the crossing.

### SFN Response

Agreed.

### 3.3.25 West side of Ocean Drive at Ocean Terminal

#### Summary

Risk of non-motorised users colliding and sustaining personal injuries due to restricted footway width.

#### Description

As shown in the image above, the footway next to the bus stop on the north-west side of Ocean Drive at Ocean Terminal is constrained by the bus stop, feeder pillar, and the adjacent wall. There is a risk that non-motorised users could collide at this location, resulting in personal injury.

#### Interim Stage 3 Recommendation

It is recommended that the feeder pillar is relocated to maximise the effective width.

#### Interim Stage 3 SFN Response

Bus shelters, bus trackers and feeders are out of SFN scope.

#### Stage 3 Comment

The Audit Team note the designer's response, however they retain their belief that this is a problem and recommend that the feeder pillar is relocated to maximise the effective width.

#### SFN Response

Bus shelters, bus trackers and feeders are out of SFN scope.

### 3.3.26 Access to Ocean terminal and Whisky Quay, adjacent to car park

#### Summary

Risk of pedestrians stepping onto carriageway and being struck and injured by passing vehicles due to narrow footway width.

#### Description

As shown in the image above, the footway on the north side of the access to Ocean Terminal and Whisky Quay (adjacent to the surface level car park) was observed to be narrow.

There is a risk that the narrow footway width could lead to pedestrians stepping onto the carriageway to bypass an encumbered pedestrian or a pedestrian using a mobility aid, which could result in them being struck and injured by passing vehicles.

#### Interim Stage 3 Recommendation

It is recommended that the footway is at least 1.5 metres wide, in line with Inclusive Mobility.

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### Interim Stage 3 SFN Response

Out of the scope.

### Stage 3 Comment

The Audit Team note the designer's response, however they retain their belief that this is an issue and therefore recommend that the footway is at least 1.5 metres wide, in line with Inclusive Mobility.

### SFN Response

Out of the scope.

### 3.3.27 Leith Walk at Stead's Place, south of Dalmeny Street, north of London Road, north of MacDonald Road and York Place

#### Summary

Risk of visually impaired pedestrians becoming confused or disorientated due to road studs not continuing across the full width of crossings, resulting in them being trapped on the carriageway and struck and injured by passing vehicles.

#### Description

At several locations within the extents of the scheme it was observed that the road studs at crossing points do not extend across the full width of the crossing. This included on the following streets:

- Leith Walk at locations listed above.

If the road studs do not extend across the full width of the crossing point, there is a risk that visually impaired pedestrians could become confused or disorientated, leading to them becoming trapped on the carriageway and potentially struck and injured by passing vehicles.

#### Interim Stage 3 Recommendation

It is recommended that the road studs extend across the full width of the crossing points.

#### Interim Stage 3 SFN Response

Agreed.

#### Stage 3 Comment

The Audit Team note the designer's response and that there have been studs installed at locations on Ocean Drive, however there are still crossings on Leith Walk where the studs do not extend across the full width of the crossings. It is recommended that road studs extend across the full width of all crossing points.

#### SFN Response

SFN will install the ones that have not been installed before but is for CEC to maintain them.

### 3.3.28 Ocean Drive at junction with Stevedore Place (east); Ocean Way at junction with Bernard Street and Baltic Street; Crossing across York Place at Picardy Gyratory; East side of Leith Walk, south of Jane Street; Courtesy crossing across cycleway, south of Lorne Street & East side of Leith Walk at junction with Albert Street

#### Summary

Risk of pedestrians tripping and falling due to presence of gullies within extents of crossing points, resulting in them sustaining personal injuries.

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### Description

Gullies are provided within the extents of crossings at several locations, including:

- Ocean Drive at its junction with Stevedore Place (east);
- Ocean Way at its junction with Bernard Street and Baltic Street;
- Crossing across York Place at Picardy Gyratory;
- East side of Leith Walk, south of Jane Street;
- Courtesy crossing across cycleway, south of Lorne Street

These gullies could pose a trip hazard to pedestrians, particularly those wearing a shoe with a heel. Pedestrians tripping could fall and sustain personal injuries.

### Interim Stage 3 Recommendation

It is recommended that the gullies are relocated so as to be out with the extents of the crossings.

### Interim Stage 3 SFN Response

In several locations gullies had to be placed deviating from the design due to existing utilities. They can't be relocated.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still an issue at several locations (including Leith Walk, south of junction with Manderston Street; Leith Walk, north of Albert Street; Picardy Place gyratory; and crossing of Bernard Street at junction with Constitution Street; and at crossing of Constitution Street, north of Bernard Street), it is recommended that either the gullies are relocated or that suitable pedestrian friendly covers are used.

### SFN Response

In several locations gullies had to be placed deviating from the design due to existing utilities. They can't be relocated. Ped. Friendly cover will be installed at Stevedore. The mentioned cover in Lorne is a pedestrian friendly one. The rest of the mentioned covers are on the side of the mentioned pedestrian crossings.

## 3.3.29 West side of Constitution Street, north of Bernard Street & West side of Constitution Street, north of Coatfield Lane

### Summary

Risk of pedestrians tripping at vehicle crossovers due to surface not being flush with adjacent footways, resulting in the pedestrians sustaining personal injuries.

### Description

At several locations the surface of vehicle crossovers are not flush with those of the adjacent footways. This includes at the following locations:

- West side of Constitution Street, north of Bernard Street; and
- West side of Constitution Street, north of Coatfield Lane.

There is a risk that pedestrians could trip when transitioning between the footways and vehicle crossovers at these locations, which could result in them sustaining personal injuries.

### Interim Stage 3 Recommendation

It is recommended that the surface of the vehicle crossovers are flush with that of the adjacent footways.

### Interim Stage 3 SFN Response

The kerb is flush across the pedestrian path.

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### Stage 3 Comment

The Audit Team note the designer's response, however, as can be seen in the above photograph, there is still a short section of kerb which has an upstand which is not suitable for a pedestrian crossing point. The Audit Team retain this recommendation.

### SFN Response

The kerb is flush across the peds path.

### 3.3.30 Ocean Drive at junction with Tower Place

#### Summary

Risk of crossing pedestrians tripping on cover and sustaining personal injuries due to covers not being flush with surrounding carriageway.

#### Description

A cover is provided within the extents of the crossing of Tower Place at its junction with Ocean Drive that is not flush with the surrounding carriageway. This is shown in the photograph above.

There is a risk that a pedestrian could trip on the cover when crossing, resulting in them sustaining a personal injury.

#### Interim Stage 3 Recommendation

It is recommended that cover is appropriately lifted and re-set so as to be flush with the surrounding carriageway.

#### Interim Stage 3 SFN Response

Statutory undertaker to replace the cover correctly.

#### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

#### SFN Response

Statutory undertaker to place the cover correctly.

### 3.3.31 Scheme extents

#### Summary

Risk of pedestrians being struck and injured by vehicles whilst crossing due to inadequate green man times and long crossing lengths.

#### Description

There are a number of locations throughout the scheme extents where pedestrians are expected to cross the full carriageway width in one movement even where there is a central island. The widths are often above the suggested width for a staggered crossing. The green man display is generally short which does not provide the confidence to some pedestrians to continue crossing over the full width and often some chose to stop on the central island. These locations do not have push buttons to allow users on the island to call the green man phase which can result in users being trapped in the middle of the crossing and taking risks to cross without a green man.

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### Interim Stage 3 Recommendation

it is recommended that either a push button facility is provided on the central island or that the green man display is extended to allow all users to cross to at least beyond the central island.

### Interim Stage 3 SFN Response

Signals have been handed over to CEC. Any timing adjustment should be through them. Installation of additional push buttons are not feasible.

### Stage 3 Comment

The Audit Team note the designer's response, however, as it did not appear that this had been remedied following the Interim Stage 3 Road Safety Audit, they retain the previous recommendation.

### SFN Response

Signals have been handed over to CEC. Any timing adjustment should be through them. Installation of additional push buttons are not feasible.

### 3.3.32 South side of tracks, east of Newhaven tram stop

#### Summary

Risk of a pedestrian crossing in conflict with a westbound tram resulting in potential injury to pedestrian.

#### Description

A pedestrian crossing point is provided across the tram tracks to the east of Newhaven tram stop. As shown in the photograph above, visibility on the south side of the crossing point is constrained to the right due to the level difference between the crossing point and guardrail to the right. This could result in there being inappropriate intervisibility between pedestrians waiting to cross and the drivers of approaching westbound trams. This could result in pedestrians crossing when it is not safe to do so and being struck and injured by approaching trams.

#### Interim Stage 3 Recommendation

It is recommended that the visibility to and from the crossing point is appropriate.

#### Interim Stage 3 SFN Response

During OM3A visibility from both driver and pedestrians' point of view was checked. Visibility was confirmed along 40 m. A mirror was installed between the 2 tracks to improve even more the visibility after been request by ET. After the installation ET reported that the mirror does not provide enough conspicuity. The dimensions of the mirror are restricted by the DKE. SFN position is that visibility is compliant and there isn't any mitigation required considering the low speed of the trams at that point (max 5 km/h).

#### Stage 3 Comment

The Audit Team note the designer's response, however they still consider that this is a risk. Even a tram travelling at 5 kph could collide with and injure a pedestrian. It is recommended that measures are taken to improve the visibility splay.

#### SFN Response

During OM3A visibility from both driver and pedestrians point of view was checked. Visibility was confirmed along 40 m. A mirror was installed between the 2 tracks to improve even more the visibility after been request by ET. After the installation ET reported that the mirror does not provide enough conspicuity. The dimensions of the mirror are restricted by the DKE. SFN position is that



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visibility is compliant and there isn't any mitigation required considering the low speed of the trams at that point (max 5 km/h).

### 3.3.33 Picardy Place Gyrotory, at link to Broughton Street

#### Summary

Risk of cyclists losing control whilst attempting to follow cycle lane due to geometry of lane, leading to them sustaining personal injuries.

#### Description

It is unclear if the geometry of the cycle lane that links Picardy Gyrotory and Broughton Street is suitable for use by all types of bicycles. If cyclists cannot follow the cycle lane and cross the cycle lane at a safe angle, there is a risk that cyclists could slip on the tram tracks and fall and sustain a personal injury.

#### Interim Stage 3 Recommendation

It is recommended that the geometry of the cycle lane is appropriate for use by all bicycle types.

#### Interim Stage 3 SFN Response

The geometry of the cycle lane is appropriate for any kind of bicycle. The minimum radius is 4 metres.

#### Stage 3 Comment

The Audit Team note the designer's response; however, they still consider that this is a risk. During the site visit, cyclists were observed to be cutting directly over the tram tracks outwith the cycle lane. There is also a risk that a driver / rider may not anticipate a cyclist making such a sharp manoeuvre and could collide into the cyclist. Drivers were observed to be using both lanes from the gyrotory to head down Broughton Street; this could result in a vehicle potentially undertaking a cyclist who may suddenly swerve into the left lane and collide with a vehicle if they are following the cycle lane markings. This has been raised as a new problem in Section 4.

It is recommended that this layout is amended to provide a smoother alignment.

#### SFN Response

The geometry of the cycle lane is appropriate for any kind of bicycle. The minimum radius is 4 meters.

### 3.3.34 Bus stop on west side of Leith Walk at Gayfield Square

#### Summary

Risk of visually impaired pedestrians colliding with street furniture, due to position of bus stop with respect to uncontrolled crossing, resulting in them sustaining personal injuries.

#### Description

As shown in the photograph above, a bus stop is provided within tactile paving associated with an uncontrolled crossing at this location. There is a risk that a visually impaired pedestrian crossing from west to east could collide with the bus shelter and sustain a personal injury, due to the shelter being located within the crossing extents.

#### Interim Stage 3 Recommendation

It is recommended that the extents of the uncontrolled crossing are kept clear of street furniture.

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### Interim Stage 3 SFN Response

The bus stop shelter was not installed by SFN. It was installed after the footpath was finished.

### Stage 3 Comment

The Audit Team note the designer's response, however, they still consider that this is a risk and recommend that the uncontrolled crossing is relocated to avoid the bus shelter.

### SFN Response

The bus shelter has not been installed by SFN. It was installed after the footpath was finished.

### 3.3.35 Leith Walk

#### Summary

Risk of visually impaired pedestrians inadvertently entering cycleway due to absence of corduroy paving, resulting in them being struck and injured by cyclists.

#### Description

There are several bus stops on Leith Walk where corduroy paving is not provided beyond the uncontrolled crossing across the cycleway. An example is shown in the figure above.

There is a risk that a visually impaired pedestrian could miss the crossing point, which could lead to them continuing to walk along the bus stop waiting area. As the bus stop waiting area and cycleway are flush at these locations, there is a risk that the visually impaired pedestrian could continue walking into the cycle lane (due to the absence of measures to inform them of its presence) and lead to them being struck and injured by cyclists.

#### Interim Stage 3 Recommendation

It is recommended that appropriate measures are provided to delineate the bus stop waiting area and cycleway along the full extents of the bus stop waiting area.

#### Interim Stage 3 SFN Response

The example provided is not a bus stop. Corduroy at the bus stop locations laid as per the design drawings.

#### Stage 3 Comment

As shown in the above photograph (taken between Gayfield Square and Annandale Street), this was observed to still be an issue during the Stage 3 final site visit. No corduroy paving is provided along the offside of the cycleway to the north of the bus stop at this location. The Audit Team therefore retain the above recommendation.

#### SFN Response

Agreed, corduroy is missing.

### 3.3.36 Annandale Street at junction with Leith Walk

#### Summary

Risk of cyclists failing to give way and emerging into the path of vehicles, resulting in them being struck and injured, due to absence of give way markings.

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### Description

As shown in the photograph above, no give way markings are provided in the cycle transition between Leith Walk and Annandale Street. There is a risk that a cyclist could mistakenly believe that they have right of way and could proceed onto Annandale Street into the path of a vehicle.

### Interim Stage 3 Recommendation

It is recommended that appropriate give way markings are provided.

### Interim Stage 3 SFN Response

Agreed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

### SFN Response

Agreed.

## 3.3.37 Leith Walk

### Summary

Risk of visually impaired pedestrians inadvertently entering cycleway and being struck and injured by cyclists due to minimal segregation being provided.

### Description

During the site investigation locations were observed where no segregation, or minimal segregation, is provided on Leith Walk.

An example, where no segregation is provided, is shown in the photograph above. Many other locations were observed where the level difference between the footway and adjacent carriageway was 25mm or less.

The lack of, or limited, segregation could lead to visually impaired pedestrians inadvertently entering the cycleway, which could result in them being struck or injured by cyclists.

### Interim Stage 3 Recommendation

It is recommended that appropriate segregation is provided that is detectable by a user with visual impairments.

### Interim Stage 3 SFN Response

Agreed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

### SFN Response

Agreed.

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### 3.3.38 West side of Leith Walk

#### Summary

Risk of pedestrians tripping and falling on segregation associated with previous arrangement, resulting in them sustaining personal injuries.

#### Description

During the site investigation it was observed that the entire length of the raised white line segregation associated with the temporary segregated footway arrangement on Leith Walk has not been removed. The Audit Team have concerns that pedestrians could trip on the raised white line segregation and sustain personal injuries.

#### Interim Stage 3 Recommendation

It is recommended that the existing raised white line segregation is removed.

#### Interim Stage 3 SFN Response

The mentioned raised white line was not laid by SFN. CEC should remove it.

#### Stage 3 Comment

As this is still to be actioned, the Audit Team retain the previous recommendation.

#### SFN Response

The mentioned raised white line was not laid by SFN. CEC should remove it.

### 3.3.39 Leith Walk at junctions with McDonald Road and Pilrig Street

#### Summary

Risk of cyclists waiting on carriageway due to lack of storage space, leading to them being struck and injured by vehicles.

#### Description

Risk of cyclists waiting on carriageway due to lack of storage space, leading to them being struck and injured by vehicles.

#### Interim Stage 3 Recommendation

It is recommended that the anticipated future peak volume of cyclists using these links is assessed against the anticipated future peak volume of cyclists using Leith Walk and that the number of conflicts and likely wait time is assessed to ensure that the storage space is sufficient.

#### Interim Stage 3 SFN Response

Storage space will be enlarged by moving the double discontinuous line opposite to the road.

#### Stage 3 Comment

This was still observed to be an issue during the site investigation associated with the final Stage 3 Road Safety Audit. As such, the Audit Team recommend that the anticipated future peak volume of cyclists using these links is assessed against the anticipated future peak volume of cyclists using Leith Walk and that the number of conflicts and likely wait time is assessed to ensure that the storage space is sufficient.

#### SFN Response

Storage space will be enlarge by moving the double discontinuous line opposite to the road.

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### 3.3.40 Leith Walk

#### Summary

Risk of cyclists becoming unseated due to uneven surfacing.

Secondary risk of cyclists taking evasive action to avoid uneven surface, resulting in them losing control or striking and injuring pedestrians.

#### Description

During the site investigation many locations were observed on Leith Walk where the surface of the cycleway was uneven. This included at the following locations:

- West side, north of McDonald Road;
- West side, north of Pilrig Street;
- West side, opposite Dalmeny Street;
- East side, north of Crown Place;
- East side, opposite Casselbank Street (2 no.);
- East side, south of Jameson Place;
- East side, north of Iona Street;
- East side, south of Pilrig Street; and
- East side, between Pilrig Street and Albert Street.

There is a risk that the uneven surfacing could lead to cyclists becoming unseated. There is a secondary risk of cyclists taking evasive action to avoid patches of uneven surfacing, potentially resulting in them losing control or striking and injuring pedestrians.

#### Interim Stage 3 Recommendation

It is recommended that the surface of the cycleway is made good.

#### Interim Stage 3 SFN Response

The mentioned locations are old street lighting locations that were removed after the cycleway construction. The surface will be repaired. .

#### Stage 3 Comment

The Audit Team note the designer's response, however, as the surface of the cycleway was still observed to be uneven in places, they retain the previous recommendation. The above photo is an example of the damaged surface just north of Middlefield.

#### SFN Response

The mentioned locations are old street lighting locations that were removed after the cycleway construction. The surface will be repaired.

### 3.3.41 Leith Walk, west side between Middlefield and Pilrig Street and west side north of Stead's Place

#### Summary

Risk of pedestrians stepping onto the cycleway to pass encumbered pedestrians or users using mobility aids due to restricted footway width, resulting in them being struck and injured by cyclists.

#### Description

Two locations were observed on Leith Walk where the footway appeared to be narrow for the likely volume of pedestrians. These locations were as follows:

- West side between Middlefield and Pilrig Street; and
- West side north of Stead's Place.

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Where footways are insufficiently wide for the likely volume of pedestrians, there is a risk that pedestrians may step onto the cycleway to bypass another pedestrian, particularly one pushing a pram, pulling a suitcase, or using a mobility aid. This could result in them being struck and injured by a cyclist, resulting in personal injury.

### Interim Stage 3 Recommendation

It is recommended that the footway width is appropriate for the anticipated footfall.

### Interim Stage 3 SFN Response

Minimum footway width is 1.5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.

### Stage 3 Comment

The Audit Team note the designer's response, however, this is still an issue at several locations on Leith Walk.

It was also noted that there are several additional locations where street furniture has been placed on the footway by businesses, which further restricts the footway width. The list below are further examples of where the footway width is compromised:

- Café Bellina just south of Montgomery Street – tables and chairs restricting footway width;
- Grocery shop just south of Albert Street – food displays restricting footway width;
- North of Pilrig Street west side – narrow footway
- Near foot of Leith Walk east side – narrow footway; and
- Near foot of Leith Walk west side – narrow footway.

The Audit Team retain the previous recommendation to ensure that the footway width is appropriate.

### SFN Response

Minimum footway width is 1,5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.

## 3.3.42 Outside Pilrig St. Paul's Church at junction of Leith Walk and Pilrig Street

### Summary

Risk of pedestrians stepping onto the cycleway to pass encumbered pedestrians or users using mobility aids due to restricted effective footway width, resulting in them being struck and injured by cyclists.

### Description

As shown in the photograph above, the effective footway width at Pilrig St. Paul's Church is restricted.

There is a risk that the restricted footway width could lead to pedestrians stepping onto the cycleway to bypass another pedestrian, particularly one pushing a pram, pulling a suitcase, or using a mobility aid. This could result in them being struck and injured by a cyclist.

### Interim Stage 3 Recommendation

It is recommended that the effective footway width is maximised.

### Interim Stage 3 SFN Response

Minimum footway width is 1.5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.

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### Stage 3 Comment

The Audit Team retain their belief that this is a problem that could lead to conflicts between pedestrians and cyclists. As such, the previous recommendation is retained.

### SFN Response

Minimum footway width is 1,5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.

### 3.3.43 Leith Walk

#### Summary

Risk of pedestrians crossing when not safe to do so due to pushbuttons not functioning, resulting in them being struck and injured by passing vehicles.

#### Description

During the site investigation it was observed that several of the push button units were not functioning. An example (from Pilrig Street) is shown in the photograph above.

If push buttons are not functioning, there is a risk that pedestrians could cross when it is not safe to do so, resulting in them being struck and injured by passing vehicles.

#### Interim Stage 3 Recommendation

It is recommended that the push buttons are appropriately repaired.

#### Interim Stage 3 SFN Response

All the junctions have been fully commissioned and handed over to CEC. CEC is now in charge of the maintenance.

#### Stage 3 Comment

The Audit Team note the designer's response, however, they noted that there is a faulty push button at the junction of Ocean Drive with Whiskey Quay / Ocean Terminal car park access. During the site visit it was also noted that a number of push buttons had been vandalised by spray paint – this issue has been raised as a new problem in Section 4.

#### SFN Response

All the junctions have been fully commissioned and handed over to CEC. CEC is now in charge of the maintenance.

### 3.3.44 Leith Walk in northbound cycleway near to foot of the Walk

#### Summary

Risk of a cyclist colliding with the Overhead Line Electrification posts which are located on the edge of the new cycle lane, resulting in a cyclist falling and sustaining personal injury.

#### Description

Near to the foot of the walk there are a number of Overhead Line Electrification (OLE) posts which are located immediately at the edge of the cycle lane. There is a risk that a northbound cyclist could clip the pole resulting in them falling and sustaining injury. This risk is heightened during the hours of darkness or periods of reduced visibility.

#### Interim Stage 3 Recommendation

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It is recommended that measures are implemented to guide cyclists away from these hazards and that appropriate measures are provided to make the hazards conspicuous.

### Interim Stage 3 SFN Response

Its SFN position that the poles are conspicuous enough. Also we would like to raise that the poles had to be relocated due to existing utilities and the proposed cycleway re-aligned slightly..

### Stage 3 Comment

The Audit Team note the designer's response, however, they retain their belief that this is still a risk to cyclists and therefore retain the previous recommendation. The Audit Team also refer to the problems around contrast banding (problem refs. 3.1.17 and 3.2.22) and would strongly recommend that it is applied to this pole.

### SFN Response

Its SFN position that the poles are conspicuous enough. Also we would like to raise that the poles had to be relocated due to existing utilities and the proposed cycleway re-aligned slightly.

### 3.3.45 South side of Ocean Drive at signalised crossing to Port of Leith tramstop

#### Summary

Risk of pedestrians stepping onto the carriageway to signal pole due to restricted effective footway width, resulting in them being struck and injured by vehicles.

#### Description

As shown in the photograph above, the effective footway width on the south side of Ocean Drive is restricted by a traffic signal pole associated with the controlled crossing to the Port of Leith tram stop. The restricted effective footway width could lead to pedestrians stepping onto the carriageway to bypass the signal pole, which could result in them being struck and injured by vehicles whilst doing so.

#### Interim Stage 3 Recommendation

It is recommended that the effective width of the footway is maximised.

#### Interim Stage 3 SFN Response

The width of the footway is compliant with the minimum 1.5 m as per the ESDG. Please note that signal poles had to be relocated due to existing utilities.

#### Stage 3 Comment

The Audit Team note the designer's response, however, there is less than 1.5 metres clearance within the surfaced footway at this location. They retain their belief this is still a risk to pedestrians and therefore retain the previous recommendation.

#### SFN Response

The width of the footway is compliant with the minimum 1,5 m as per the ESDG. Please note that signal poles had to be relocated due to existing utilities.

### 3.3.46 Footway at junction of London Road and Elm Row

#### Summary

Risk of a pedestrian tripping on the segregated cycleway as a result of it being on the direct desire line between the crossing point and London Road.



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### Description

Pedestrians crossing over London Road at the crossing point to head northwards are expected to continue northwards to cross the segregated cycleway at the mini zebra / courtesy crossing facility. However, pedestrians could turn right directly from the crossing point to head towards London Road and thereafter require crossing the segregated cycleway which cuts across the footway, and which is at a lower level. This could result in conflict between pedestrians and cyclists or pedestrians tripping on the kerbs on either side of the cycleway.

### Interim Stage 3 Recommendation

It is recommended that measures are provided to guide pedestrians to cross the cycle lane before heading towards London Road or that the area of footway is removed/landscaped to deter pedestrian use.

### Interim Stage 3 SFN Response

There is a cycleway ped crossing point right in front of the road crossing.

### Stage 3 Comment

The desire line for London Road takes pedestrians over the cycleway at a point where there is no crossing facility. The Audit Team retain the above recommendation or would recommend that a further crossing point over the cycleway is provided on the desire line.

### SFN Response

There is a cycleway ped crossing point right in front of the road crossing.

## 3.3.47 Crown Place at junction with Lieth Walk

### Summary

Risk of pedestrians stepping onto carriageway into path of oncoming vehicles due to intervisibility being constrained by column.

### Description

As shown in the photograph above, a wall with a column on the end is provided between Crown Place and the entry to Tesco. The Audit Team have concerns that the column could restrict intervisibility between pedestrians waiting to cross and the drivers / riders of approaching vehicles. This could result in a pedestrian, particularly a child or someone smaller in stature, stepping out from behind the column and into the path of an oncoming vehicle.

### Interim Stage 3 Recommendation

It is recommended that the height of the existing column is reduced to improve intervisibility.

### Interim Stage 3 SFN Response

Out of the scope.

### Stage 3 Comment

The Audit Team retain their belief that this is a problem and therefore retain the previous recommendation.

### SFN Response

Out of the scope.

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### 3.3.48 East side of Leith Walk, opposite Pilrig Street

#### Summary

Risk of cyclists becoming unseated whilst attempting to transition between carriageway and cycleway due to kerb upstand.

#### Description

As shown in the photograph above, the dropped kerb at the cycle transition at this location has an upstand greater than 6mm. There is a risk that a cyclist attempting to transition from the carriageway onto the cycleway could fall due to the upstand, resulting in them sustaining a personal injury.

#### Interim Stage 3 Recommendation

It is recommended that the dropped kerb is appropriate for cyclists to transition.

#### Interim Stage 3 SFN Response

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

#### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

#### SFN Response

NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.

### 3.3.51 Constitution Street northbound at The Shore tram stop

#### Summary

Risk of vehicles failing to stop at crossing point due to the stop line being worn, leading to them proceeding into the crossing on a red signal and striking and injuring crossing pedestrians.

#### Description

During the site investigation it was noted that the stop line at The Shore tram stop was extremely worn. This is illustrated in the photograph above.

There is a risk that the condition of the stop line could mean that it is not visible to the drivers / riders of approaching vehicles. This could lead to them failing to stop at the crossing and striking and injuring crossing pedestrians. .

#### Interim Stage 3 Recommendation

It is recommended that the stop line is refreshed.

#### Interim Stage 3 SFN Response

Agreed.

#### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

#### SFN Response

The stopline was wrongly laid that's why it was removed.

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### 3.3.52 Scheme extents

#### Summary

Risk of vehicles entering the tram track area and colliding with trams or failing to follow road markings resulting in confusion and late lane changes or manoeuvres, due to the conspicuity of road markings laid on concrete.

#### Description

Road markings laid on concrete can be difficult to see during certain conditions such as bright daylight or when the surface is wet. This can result in drivers / riders failing to observe the road markings and could lead to them inadvertently entering the tram line or failing to observe directions. This could result in collisions between vehicles and trams or side-swipe collisions as a result of vehicles making late lane changes.

There is a secondary issue in that the road markings tend to wear off concrete surfaces quicker than traditional tarmac road surfaces unless a tack coat is applied to the concrete. Such a tack coat does not seem to have been provided. This could lead to road markings deteriorating rapidly, which could also result in vehicles inadvertently entering the tram line or failing to observe directions.

#### Interim Stage 3 Recommendation

It is recommended that all road markings on the concrete surface are made clearly visible and that a tack coat is provided below the road markings where they are laid on a concrete surface.

#### Interim Stage 3 SFN Response

To be discussed with City of Edinburgh Council.

#### Stage 3 Comment

As this is still to be actioned, the Audit Team retain the previous recommendation.

#### SFN Response

It requires maintenance, lining has been installed as per guidance. SFN dont agree that lines are difficult to see.

### 3.3.53 Access to Ocean Terminal car park

#### Summary

Risk of drivers / riders not observing raised table and losing control on ramp, resulting in vehicle striking a non-motorised user or piece of street furniture, due to absence of road markings on ramps.

#### Description

A raised pedestrian crossing is provided across the vehicular access to the Ocean Terminal Red Car Park. As shown in the photograph above, no markings to Diag. 1062 (TSRGD 2016) are provided on the ramp on the approach to the crossing. As a result, the drivers / riders of approaching vehicles may not be aware of the raised crossing ahead, which could lead to them approaching the ramp at inappropriate speed, losing control, and striking a pedestrian or item of street furniture.

#### Interim Stage 3 Recommendation

It is recommended that appropriate markings to Diag. 1062 (TSRGD 2016) are provided on the ramp on the approach to the raised crossing.

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### Interim Stage 3 SFN Response

Agreed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

### SFN Response

Agreed.

### 3.3.55 Access to Ocean Terminal and Whisky Quay adjacent to car park; Coatfield Lane at junction with Constitution Street

#### Summary

Risk of pedestrians striking signs mounted at inappropriate heights, resulting in personal injuries.

#### Description

During the site investigation it was observed that two signs were mounted at inappropriate heights for the positions above footways. These signs were located on the north side of the access to Ocean Terminal and Whisky Quay (adjacent to the surface car park) and on the south side of Coatfield Lane at its junction with Constitution Street.

There is a risk that pedestrians could strike these sign faces and sustain personal injuries.

#### Interim Stage 3 Recommendation

It is recommended that the signs are mounted at appropriate heights for their positions above footways.

#### Interim Stage 3 SFN Response

Out of the scope.

#### Stage 3 Comment

As the Audit Team still consider this to be a risk to pedestrians, they retain their previous recommendation.

#### SFN Response

Out of the scope.

### 3.3.56 Ocean Drive; Leith Walk; On splitter island at Picardy Gyratory; & McDonald Road

#### Summary

Risk of vehicles striking islands or segregation strips, resulting in vehicle occupants / riders sustaining personal injuries, due to absence of vertical features to highlight islands / segregation strips.

#### Description

Bollards were observed to be missing at several locations throughout the extents of the scheme. This included:

- Ocean Drive at junction with Geissler Drive;
- Leith Walk, south of junction with Duke Street / Constitution Street / Great Junction Street;
- Leith Walk, south of Jane Street;

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- On splitter island at Picardy Gyrotory;
- Leith Walk northbound at Gayfield Square;
- Leith Walk northbound at junction with Great Junction Street;
- Leith Walk southbound south of junction with Manderston Street;
- McDonald Road eastbound at cycle transition.

If appropriate bollards are not provided, there is a risk that the island / segregation strip may not be conspicuous to an approaching driver / rider, particularly during the hours of darkness or periods of reduced visibility. This could lead to vehicles striking the islands / segregation strips and the occupants / riders of the vehicles sustaining personal injuries.

### Interim Stage 3 Recommendation

It is recommended that appropriate vertical features are provided to highlight the presence of the islands / segregation strips.

### Interim Stage 3 SFN Response

All the bollards have now been installed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as there are still several locations where bollards have not been provided, they retain the previous recommendation.

### SFN Response

All the bollards were installed. CEC is in charge of replacing them in case they are vandalised or damaged.

## 3.3.58 Ocean Way at junction with Tower Place

### Summary

Risk of visually impaired pedestrians striking sign pole and sustaining a personal injury due to position of sign pole with respect to tactile paving.

### Description

As shown in the photograph above, a sign post is located to the rear of tactile paving on the east side of Ocean Way at its junction with Tower Place.

There is a risk that a visually impaired pedestrian crossing at this location could follow the tactile paving and collide with the sign post, resulting in personal injury.

### Interim Stage 3 Recommendation

It is recommended that the sign post is relocated to minimise the risk of visually impaired pedestrians colliding with it.

### Interim Stage 3 SFN Response

Tactiles will be amended. Utilities prevented us to install the signal pole as per the design drawings.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation. It should be noted that this is not a signal pole.

It is also noted that the crossing point at this corner could be misinterpreted by visually impaired pedestrians who could confuse the tactile paving on the radius and mistakenly cross over Ocean Way rather than Tower Place. In order to address this matter, it is recommended that the tactile

## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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paving layout is amended, which could both alleviate the issue of visually impaired pedestrians colliding with the signpost and the tactile paving being misinterpreted.

### **SFN Response**

Tactile will be amended. Utilities prevented us to install the sign pole as per the design drawing.

### **3.3.61 Leith Walk northbound at junction with Brunswick Road and McDonald Road**

#### **Summary**

Risk of vehicles undertaking unsafe manoeuvres, and striking other vehicles whilst doing so, due to signage being obscured by signal heads.

#### **Description**

A prohibition of U-turn sign is provided on the central island on Leith Walk northbound at its junction with Brunswick Road and McDonald Road. As shown in the image above, the sign is obscured by the signal head. This could lead drivers / riders believing that they can undertake U-turn manoeuvres at this junction, which could result in them attempting such manoeuvres and colliding with other vehicles whilst doing so.

#### **Interim Stage 3 Recommendation**

It is recommended that the sign is appropriately relocated so as to be visible to approaching drivers / riders.

#### **Interim Stage 3 SFN Response**

No U-turn sign will be relocated on the signal pole at the D island.

#### **Stage 3 Comment**

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

#### **SFN Response**

No U-turn sign will be relocated on the signal pole at the D island.

### **3.3.62 Leith Walk**

#### **Summary**

Risk of vehicles colliding with other vehicles, street furniture, or crossing non-motorised users, due to inadequate illumination.

#### **Description**

During the site investigation it was observed that several lighting columns on Leith Walk were not functioning. There is a risk that this could lead to there being inadequate illumination, which could result in vehicles colliding with other vehicles, street furniture or crossing non-motorised users.

#### **Interim Stage 3 Recommendation**

It is recommended that the lighting columns are appropriately repaired.

#### **Interim Stage 3 SFN Response**

Street lighting works along Leith Walk were not complete at the time that this RSA was carried out. Complete now.

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### **Stage 3 Comment**

The Audit Team note the designer's response, however, during the night-time site visit it was noted that there were several lighting columns that were not functioning.

It is recommended that a review of street lighting during darkness hours is carried out.

### **SFN Response**

Street lighting testing certificates will be issued to CEC as part of the evidence file. These test certificates demonstrate that the installation is satisfactory. CEC is in charge of the SL maintenance.

### **3.3.63 York Place eastbound on approach to Leith Walk**

#### **Summary**

Risk of vehicles proceeding through red light due to primary signal head being obscured by sign face, resulting in vehicles striking trams or other vehicles.

#### **Description**

During the site investigation it was observed that two post had been mounted immediately in front of a primary signal head on York Place at Picardy Place Gyrotory. This is shown in the photograph above.

There is a high likelihood that a sign mounted at this location would obscure visibility to the signal head. This could result in vehicles proceeding through a red light, resulting in the vehicles striking trams or other vehicles.

#### **Interim Stage 3 Recommendation**

It is recommended that the posts (and accompanying sign) are appropriately relocated to a position where forward visibility to the traffic signals will not be obscured.

#### **Interim Stage 3 SFN Response**

That sign had a very similar situation before the island works. It had to be relocated because it clashed with the proposed ped crossing. Taking into account the directional road markings to Leith, Portobello, Old Town, A900, A1, A7 and A68, SFN propose to remove the mentioned sign.

#### **Stage 3 Comment**

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation to remove the signposts.

#### **SFN Response**

That sign had a very similar situation before the island works. It had to be relocated because it clashed with the proposed ped crossing. Taking into account the directional road markings to Leith, Portobello, Old Town, A900, A1, A7 and A68, SFN propose to remove the mentioned sign.

### **3.3.64 York Place east bound on approach to Leith Walk**

#### **Summary**

Risk of rear end shunts due to sudden braking at random stop line on York Place.

#### **Description**

As shown in the photograph above, a random stop line is provided on York Place at its junction with Leith Walk. There is a risk that a driver / rider may be confused by the position of this stop line and brake suddenly. This could result in a rear-end shunt collision.

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### Interim Stage 3 Recommendation

It is recommended that the stop line is removed.

### Interim Stage 3 SFN Response

Agreed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

### SFN Response

Agreed.

## 3.3.65 McDonald Road eastbound in cycle transition

### Summary

Risk of cyclists being unaware of presence of ramp, leading to them becoming unseated or losing control.

### Description

No road marking to Diag. 1062 (TSRGD 2016) is provided in the cycle transition on McDonald Road eastbound. There is a risk that this could lead to cyclists being unaware of the presence of the ramp and could lead to them being unseated or losing control when hitting the bottom of the ramp.

### Interim Stage 3 Recommendation

It is recommended that an appropriate road marking to Diag. 1062 (TSRGD 2016) is provided at this location.

### Interim Stage 3 SFN Response

Agreed.

### Stage 3 Comment

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

### SFN Response

Agreed.

## 3.3.67 Leith Walk

### Summary

Risk of vehicles undertaking sudden manoeuvres due to being unaware of start of tram lane, resulting in side swipe or rear end shunt type collisions.

### Description

There are several locations on Leith Walk where the offside lane becomes tram only and general traffic in the offside lane has to merge back into the nearside lane. At each of these locations, no tapered road marking is provided to guide vehicles back into the nearside lane. Such markings have been used elsewhere on the tram network within Edinburgh, typically eastbound at Shandwick Place prior to the tram stop.



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The Audit Team believe that such markings would enhance the conspicuity of the tram only sections and provide warning to drivers / riders of the need to merge into the nearside lane. Without such markings, the presence of the tram only sections ahead may not be clear, which could lead to drivers / riders undertaking late lane changes to sudden manoeuvres, leading to side-swipe or rear-end shunt type collisions.

### Interim Stage 3 Recommendation

It is recommended that tapered tram lane road markings are provided at these locations.

### Interim Stage 3 SFN Response

To be discussed with City of Edinburgh Council.

### Stage 3 Comment

As this has not been actioned, the Audit Team retain the previous recommendation.

### SFN Response

Taper white line as in Shandwick/stevedore to be implemented

## 3.3.68 Scheme extents

### Summary

Risk of general traffic entering tram only lanes, resulting in conflict with trams or vehicles making sudden lane changes and colliding with other vehicles.

### Description

It is noted that tram lane signs have been erected throughout the scheme along with the tram lane marking. These signs are relatively small and could easily be missed by drivers / riders, particularly where they are mounted to the rear of the footway on Leith Walk. If drivers / riders fail to observe the tram lane sign, they could inadvertently enter the tram lane and conflict with trams. There are specific locations where this could be a significant issue such as at the bottom of Leith Walk (as shown in the above photograph) where the tram only lane leads to Constitution Steet or at the top of Leith Walk where the tram lane leads to the Picardy Tram stop. The "Tram only" lane signs also are located at the commencement of the restricted lane, which means that drivers have little advance warning to allow them to move over out of the tram lane.

During the site visit, several vehicles were observed driving in the tram only lanes, whether intentionally or because the drivers were unaware of the restrictions. This could result in drivers / riders making sudden lane changes when they realise that they are not permitted in these lanes. At the top of Leith Walk for example, a vehicle could inadvertently enter the Picardy Tram stop resulting in conflict with other road users, including pedestrians.

### Interim Stage 3 Recommendation

It is recommended that there are sufficient tram lane signs and markings to inform drivers / riders of the restrictions and that these are sited where they can be easily seen by drivers / riders.

### Interim Stage 3 SFN Response

Note that at the time of the RSA was carried out road markings were not fully implemented. Now TRAM ONLY road markings have been implemented as per the design drawings. The dimensions of the road marking signs are compliant taking into account the maximum speed permitted (20 mph). Please also note proposal for 4.5.17.

### Stage 3 Comment

The Audit Team believe that this is still a problem.

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The Audit Team have particular concern around the start of the Tram only lane at the foot of Leith Walk, as general traffic will have driven for some distance on the tram lane before having to suddenly merge into the left lane. The carriageway surface is also conducive to making drivers think that they can continue straight in the offside lane.

As can be viewed in the above photograph – the “Tram Only” lane signs are not conspicuous and could easily be missed by vehicle drivers / riders.

### **SFN Response**

Note that at the time of the RSA was carried out road markings were not fully implemented. Now TRAM ONLY road markings have been implemented as per the design drawings. The dimensions of the road marking signs are compliant taking into account the maximum speed permitted (20 mph). Please also note proposal for 4.5.17.

### **3.3.70 Iona Street at junction with Leith Walk**

#### **Summary**

Risk of vehicles proceeding across through prohibition of motor traffic restriction, leading to them striking and injuring non-motorised users, due to conflicting signage.

#### **Description**

A prohibition of motorised traffic is in place at the junction of Iona Street and Leith Walk. As shown in the photograph above, in addition to the sign to Diag. 619 (TSRGD 2016) showing the prohibition of motor vehicles, a no right turn sign (Diag. 612, TSRGD 2016) is also provided. This paints a confusing message for the drivers / riders of approaching vehicles. There is a risk that this could lead drivers / riders to believe that they can turn left onto Leith Walk from Iona Street, which could lead to them striking and injuring non-motorised users whilst doing so.

#### **Interim Stage 3 Recommendation**

It is recommended that the no right turn sign (Diag. 612, TSRGD 2016) is removed.

#### **Interim Stage 3 SFN Response**

Agreed.

#### **Stage 3 Comment**

The Audit Team note the designer’s response, however, as this is still to be actioned, they retain the previous recommendation.

#### **SFN Response**

Agreed.

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### 4 ITEMS RAISED IN THE STAGE 3 ROAD SAFETY AUDIT

#### 4.1 General

##### 4.1.1 East side of Leith Walk at access south of Manderston Street

###### Summary

Risk of vehicles driving on footway or cycleway and striking and injuring non-motorised users or emerging from access and colliding with southbound vehicles on Leith Walk due to position of parked vehicles.

###### Description

As shown in the photograph above, no gap is provided in the parking bay on the east side of Leith Walk, south of Manderston Street, to enable vehicles to transition between Leith Walk and Manderston Street.

It was noted during the site visit that this access lane is heavily used by motorcycles (primarily for deliveries from the adjacent restaurant). If parking obstructed this access, there is a risk that vehicles could be driven on the footway to find a suitable access to Leith Walk, and this could result in conflict with pedestrians or cyclists. There is also the risk that a vehicle could attempt to enter Leith Walk between parked vehicles and be struck by a vehicle on Leith Walk due to the restricted visibility.

###### Recommendation

It is recommended that a suitable gap is provided in the parking bay to enable vehicles to safely access and egress from the access.

###### SFN Response

Laybys as per CEC TRO drawings.

##### 4.1.2 West side of Leith Walk, south of Casselbank Street

###### Summary

Risk of collisions between vehicles and other road users due to visibility being obscured at junction by parked vehicles.

###### Description

As shown in the photograph above, a parking bay is located to the south of Casselbank Street. The Audit Team have concerns that a vehicle parked in the parking bay could restrict intervisibility between crossing non-motorised users and vehicles turning into Casselbank Street.

If visibility was to be restricted, there is a risk that a turning vehicle may not be aware of non-motorised users crossing, leading to them striking and injuring them.

###### Recommendation

It is recommended that visibility at the junction is maximised.

###### SFN Response

Parking bays are located as per the CEC TRO drawings. The mentioned restricted visibility was shown in the DD+ Alignment that was accepted via DS-452. The only solution would be to removed the mentioned parking bay that will require a change in the TRO drawing.

## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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### 4.1.3 West side of Leith Walk, north of Pilrig Street

#### Summary

Risk of cyclists striking and injuring pedestrians due to intervisibility being obscured by bus stop flag and litter bin.

#### Description

At the floating bus stop north of Pilrig Street, it was noted that intervisibility between cyclists and pedestrians transitioning from the bus stop island to the footway could be obscured by the bus stop flag and a bin. This could result in approaching cyclists being unaware of pedestrians about to step onto the cycleway, which could lead to a cyclist striking and injuring a pedestrian.

This issue could be exacerbated by the lack of measures to encourage cyclists to slow and give way at points where pedestrians will be transitioning between the footway and the bus stop island.

#### Recommendation

It is recommended that visibility is maximised and / or that suitable measures are provided to warn cyclists of the possible presence of crossing pedestrians.

#### SFN Response

Both bus stop flag and bin have not been installed by SFN but by CEC. Note that was not a bin location in SFN IFC drawings.

### 4.1.4 West side of Leith Walk, south of Pilrig Street

#### Summary

Risk of cyclists striking planter, causing them to fall from their bicycle and sustain a personal injury.

#### Description

As shown in the photographs above, two planters are provided adjacent to the cycleway on the northbound approach to Pilrig Street. A limited offset is provided between the cycleway and the planters.

The Audit Team have concerns that a cyclist could clip one of the planters with their handlebars, leading to them fall from their bicycle and sustain personal injuries.

#### Recommendation

It is recommended that the planters are relocated to provide suitable clearance to the cycleway.

#### SFN Response

Planter location instructed via PMI-1588. Note these were not planter locations in SFN IFC drawings.

### 4.1.5 Leith Walk

#### Summary

Risk of vehicles striking and injuring cyclists or crossing pedestrians due to indiscriminate loading on Leith Walk.

#### Description

During the site investigation several vehicles were observed loading on the footway or cycleway. Examples are shown in the photographs above.

There is a risk that a vehicle could strike and injure a non-motorised user when mounting a footway or the cycleway or that a door could be opened that could strike a passing cyclist.

## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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There is also a risk that a loading vehicle could obscure visibility to traffic signals, which could lead to approaching drivers / riders to miss a red signal and proceed into a controlled crossing point and strike and injure crossing non-motorised users.

### **Recommendation**

It is recommended that suitable facilities are provided for loading, that suitable kerbside restrictions are provided, and that kerbside restrictions are enforced.

### **SFN Response**

TRO enforcement by authorities

#### **4.1.6 East side of Leith Walk, north of Annandale Street**

##### **Summary**

Risk of pedestrians tripping and falling on damaged chamber cover or plastic cover, resulting in them sustaining personal injuries.

##### **Description**

During the site investigation it was noted that a chamber cover on the east side of Leith Walk, north of Annandale Street, was damaged and has been covered by a plastic cover (which itself had been damaged).

There is a risk that a pedestrian could trip on the damaged chamber cover or damaged plastic cover, leading to them falling and sustaining personal injuries.

##### **Recommendation**

It is recommended that the chamber cover is appropriately repaired / replaced.

##### **SFN Team Response**

Not in SFN scope.

#### **4.1.7 Blenheim Place, on approach to London Road**

##### **Summary**

Risk of bicycles or powered two wheelers losing control on uneven carriageway surface, resulting in riders becoming unseated and sustaining personal injuries.

##### **Description**

During the site investigation two locations were observed where the carriageway surfacing was in poor condition: Blenheim Place, on approach to London Road; and the west side of Picardy Place gyratory. If a vehicle was to travel over these damaged areas of carriageway, there is a risk that they could lose control. This is a particular risk for bicycles or powered two wheelers, as riders could become unseated and sustain personal injuries.

##### **Recommendation**

It is recommended that the carriageway surface is appropriately repaired at these locations.

##### **SFN Team Response**

Blenheim place corrected. Picardy place not in SFN scope since St James Project opened that track.

## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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### 4.2 Local Alignment

No problems identified at this Stage 2 Road Safety Audit.

### 4.3 Junctions

#### 4.3.1 South side of Ocean Drive at south-western crossing at Ocean Terminal; South side of Annandale Street at junction with Leith Walk; Melrose Drive at Mill access

##### Summary

Risk of non-motorised users crossing when not safe to do so due to pedestrian units / low level cycle signals being obscured by vandalism, resulting in them being struck and injured by passing vehicles.

##### Description

During the site investigation it was noted that there were several pedestrian units or low level cycle aspects that had been vandalised. There is a risk that this could lead a non-motorised user to mistakenly believe that it is safe to cross when crossing vehicular traffic is not stopped. This could lead to vehicles striking and injuring crossing non-motorised users.

##### Recommendation

It is recommended that the pedestrian units and low level cycle symbols are appropriately cleaned or replaced.

##### SFN Team Response

CEC Maintenance.

#### 4.3.2 South side of Ocean Drive at south-western crossing at Ocean Terminal

##### Summary

Risk of vehicles proceeding across the stop line when not safe to do so and striking and injuring crossing pedestrians, due to secondary signal head not functioning.

##### Description

During the site investigation it was noted that a secondary signal head out was not functioning on Ocean Drive. This is shown in the photograph above.

If one or more of the other signal heads at this location were to fail, there is a risk that the driver / rider of an approaching vehicle may not be able to see a red signal, which could lead to them proceeding across the stop line during the pedestrian stage and strike and injure a crossing pedestrian.

##### Recommendation

It is recommended that the secondary signal head is appropriately repaired.

##### SFN Team Response

CEC Maintenance.

## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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### 4.3.3 Whiskey Quay / Ocean Terminal car park access road at junction with Ocean Drive

#### Summary

Risk of vehicles proceeding across the stop line when not safe to do so and striking and injuring crossing pedestrians, due to orientation of secondary signal head.

#### Description

During the site investigation it was noted that a secondary signal head out was not visible to approaching drivers / riders at this location due to its orientation. This is shown in the photograph above.

If the primary head was to fail, there is a risk that the driver / rider of an approaching vehicle may not be able to see a red signal, which could lead to them proceeding across the stop line when not safe to do so and colliding with another vehicle or a crossing pedestrian.

#### Recommendation

It is recommended that the secondary signal head is reorientated to be visible to approaching drivers / riders.

#### SFN Team Response

CEC Maintenance.

### 4.3.4 Laurie Street at junction with Constitution Street

#### Summary

Risk of collisions between vehicles emerging from Laurie Street and crossing pedestrians or passing trams due to vehicles parking at junction with Constitution Street.

#### Description

During the site investigation a vehicle was observed parked across the crossing across Laurie Street at its junction with Constitution Street. This is shown in the photograph above.  
A vehicle parked at this location would obscure intervisibility between approaching vehicles and crossing pedestrians, as well as between approaching vehicles and tram drivers. This could lead to westbound vehicles on Laurie Street striking and injuring crossing pedestrians, or westbound vehicles pulling out from Laurie Street into the path of a tram. .

#### Recommendation

It is recommended that appropriate kerbside restrictions are provided to provide appropriate visibility at the crossing and junction.

#### SFN Team Response

CEC maintenance

### 4.3.5 Dalmeny Street at junction with Leith Walk

#### Summary

Risk of vehicles turning onto Leith Walk from Dalmeny Street and striking and injuring crossing pedestrians due to position of crossing, visibility of signal heads, and constrained visibility on approach.

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### **Description**

A layby is provided on the south side of Dalmeny Street at its junction with Leith Walk. As shown in the photograph above, a large vehicle was parked in this loading bay, which obstructed forward visibility to the crossing downstream of Dalmeny Street.

The crossing is provided a short distance downstream of Dalmeny Street and at the stop line on Dalmeny Street the signal heads are not visible.

The driver / rider of a vehicle approaching Leith Walk would not have good forward visibility to the signal heads on approach when a vehicle is parked in the loading bay, and when stopped at the stop line they are likely to be focused on non-motorised users crossing and looking for a gap in southbound traffic to emerge into. All of the above could lead to a driver / rider being unaware of the traffic signals

### **Recommendation**

It is recommended that:

- Visibility to the crossing is maximised on the approach from Dalmeny Street.
- The position of the stop line on Dalmeny Street is relocated to provide appropriate visibility to the traffic signals downstream.
- Appropriate measures are provided to warn approaching drivers / riders of the location of the crossing.

Reference is also made to the previous Problem 3.2.12 above and to Police Scotland's comments which are contained in that problem.

### **SFN Team Response**

The truck is wrongly parked invading the carriageway.

Parking bay is located as per CEC TRO drawings. The only solution would be to remove the parking bay.

## **4.3.6 Dalmeny Street at unction with Leith Walk**

### **Summary**

Risk of vehicles losing control when turning due to overrunning kerb line, resulting in vehicle occupants / riders sustaining personal injuries.

### **Description**

It was observed during the site visit that exiting vehicles were often cutting the corner at the junction of Dalmeny Street and Leith Walk and over running the footway. The above photograph shows the area where the footway slabs have been damaged by vehicle overrun.

There is a risk that this could result in a vehicle losing control and colliding with another vehicle on Leith Walk or colliding with a cyclist or a pedestrian.

### **Recommendation**

It is recommended that appropriate measures are provided to guide vehicles to the ramp down to Leith Walk.

### **SFN Team Response**

Driver behaviour

## **4.3.7 Brunswick Street junction with Leith Walk**

### **Summary**

Risk of vehicles striking planters and vehicle occupants / riders sustaining personal injuries.



## **STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT**

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Secondary risk of vehicles undertaking unsafe manoeuvres upon finding there to be no access onto Leith Walk, resulting in them colliding with other road users or street furniture.

### **Description**

During the site investigation access between Brunswick Street and Leith Walk had been closed by planters, as shown in the photographs above. It is understood that this is a temporary arrangement and that a more permanent arrangement is being considered.

Whilst the temporary arrangement is in place, the Audit Team have concerns that a vehicle could fail to observe the planters, particularly during the hours of darkness or periods of reduced visibility, which could lead them to collide with one of the planters.

It was noted that no advanced signage had been provided to warn the drivers / riders of approaching vehicles on Brunswick Street that it had been closed at Leith Walk. This could lead to vehicles attempting turning manoeuvres at the closure, which could lead to them overrunning the footway and potentially colliding with pedestrians or street furniture.

### **Recommendation**

It is recommended that:

- Appropriate measures are provided on the planters to improve their conspicuity during the hours of darkness or periods of reduced visibility; and
- Appropriate signage is provided on Brunswick Street to inform approaching drivers / riders that there is no access onto Leith Walk.

### **SFN Team Response**

SFN was instructed via PMI-1574 to place the mentioned planter to stop traffic on Brunswick Street temporarily. Within the same instruction SFN was asked to remove any temporary signs.

## **4.3.8 Pedestrian crossing across Leith Walk northbound, south of McDonald Road**

### **Summary**

Risk of vehicles proceeding across stop line when not safe to do so, and striking and injuring crossing pedestrians whilst doing so, due to “see-through” to traffic signals downstream.

### **Description**

As shown in the photograph above, it is possible to see the traffic signals at the junction of Leith Walk, McDonald Road, and Brunswick Road from the upstream crossing.

When the crossing is on red, drivers / riders may see the green signal at the downstream junction and think that they can proceed across the stop line. This could lead to them striking and injuring crossing pedestrians.

### **Recommendation**

It is recommended that appropriate measures are provided to reduce the risk of see-through to the junction downstream from the signalised crossing.

### **SFN Team Response**

There are 40 meter between both stop lines. SFN disagree this is a problem.

## **4.3.9 Annandale Street at junction with Leith Walk**

### **Summary**

Risk of vehicles proceeding across stop line when not safe to do so and colliding with crossing non-motorised users or other vehicles, due to visibility to signal head being obscured by parked vehicles.

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### Description

As shown in the photograph above, a van was parked on the north side of Annandale Street at its junction with Leith Walk. There are no kerbside restrictions at this location and the van blocked the entry to the cycleway and obscured visibility to the primary signal head.

If the secondary head was to be obscured by a queue of traffic, or were it to fail, and the primary signal head was to be obscured by a parked vehicle, there is a risk that the driver / rider of an approaching vehicle could fail to stop and could collide with a crossing non-motorised user or another vehicle.

### Recommendation

It is recommended that appropriate measures are provided to enhance the visibility of the signal heads.

### SFN Team Response

Double yellow lines will be added as per Road Marking drawings.

#### 4.3.10 Junction of Union Street and Leith Walk

##### Summary

Risk of vehicles striking and injuring crossing pedestrians or cyclists due to intervisibility being obscured by parked vehicles.

##### Description

No kerbside restrictions are provided on Leith Walk at its junction with Union Street. During the site investigation a vehicle was observed parked at the junction, obstructing intervisibility between the drivers / riders of approaching left turning vehicles and crossing non-motorised users. This could lead to vehicles turning into Union Street, failing to give way to crossing non-motorised users, and striking and injuring them.

##### Recommendation

It is recommended that appropriate measures are provided to improve intervisibility at the junction.

##### SFN Team Response

Out of the scope.

#### 4.3.11 Junction of Constitution Street, Duke Street, Great Junction Street and Leith Walk

##### Summary

Risk of vehicles being struck by trams due to queuing across tram lines.

##### Description

During the site visit it was observed that there were eastbound vehicles on Duke Street queuing back across the junction with Constitution Street. This resulted in the tram lane being obstructed, which could result in a conflict between the tram and other vehicles. The Audit Team were informed by a tram driver that this was a regular occurrence which resulted in the tram being held up.

##### Recommendation

It is recommended that appropriate measures are provided to discourage vehicles from queuing across the junction and obstructing the tram lines.

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### SFN Team Response

The only solution would be to lay a yellow box across the junction but that was discussed and disregarded during the design phase by CEC. This potential solution would require a TRO update and a change in the scope.

### 4.4 Non-Motorised Users

#### 4.4.1 Melrose Drive at cruise terminal egress; crossing of Blenheim Place at junction with London Road

##### Summary

Risk of visually impaired pedestrians inadvertently stepping onto the carriageway and being struck and injured by passing vehicles due to tactile paving being insufficiently deep.

##### Description

Tactile paving has been provided on Melrose Drive at the cruise terminal egress and on Blenheim Place at its junction with London Road. The tactile paving that has been provided is insufficiently deep and could be missed by a visually impaired pedestrian crossing at these locations. There is a risk that visually impaired pedestrians could inadvertently step out on the carriageway if they miss the tactile paving at these locations, which could result in them being struck and injured by vehicles.

##### Recommendation

It is recommended that the tactile paving layouts are amended to reduce the risk of pedestrians missing the tactile paving.

##### SFN Team Response

Agreed.

#### 4.4.2 Melrose Drive at mill access

##### Summary

Risk of visually impaired pedestrians becoming stuck on the carriageway and being struck and injured by vehicles due to lack of delineation between carriageway and shared use footway.

##### Description

At the access to ADM milling and Aggregate Industries on Melrose Drive, the footway ends to the rear of Melrose Drive and transitions into an area that is flush to the carriageway and separated from the carriageway by white lining.

The Audit Team have concerns that a visually impaired pedestrian could walk down into this area and become stuck on the carriageway to the absence of a level difference or other measures to delineate the footway and carriageway. This could lead to them being struck and injured by passing vehicles.

##### Recommendation

It is recommended that appropriate measures are provided to delineate the footway and carriageway at this location.

##### SFN Team Response

Not in SFN scope. Adoption line. Private land CEC to discuss with landowner.

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### 4.4.3 Junction of Hudson Gate and Ocean Drive, Constitution Street at Bernard Street; East side of Leith Walk, south of Brunswick Street. West side of Blenheim Place, at junction with London road; East side of island on northbound carriageway at Picardy Place

#### Summary

Risk of users in mobility chairs overturning and sustaining personal injuries due to gradients of crossing points.

#### Description

At several locations throughout the extents of the scheme gradients at crossing points were observed that would appear to pose a risk of overturning for users in mobility chairs.

If a gradient was too great, a user in a mobility chair could overturn, resulting in them sustaining personal injuries.

#### Recommendation

It is recommended that the gradients at crossing points are suitable for all users.

#### SFN Team Response

Note that design is constrained by the existing topography e.g. door frontages. Measure ramps, derogation. G4 crossings 1:12. 1:5 in continuous footways

### 4.4.4 Constitution Place at junction with Ocean Way

#### Summary

Risk of visually impaired pedestrians inadvertently stepping onto the carriageway and being struck and injured by passing vehicles due to absence of tactile paving.

#### Description

As shown in the photograph above, no tactile paving is provided on Constitution Place at its junction with Ocean Way. This could lead to a visually impaired pedestrian being unaware that they are stepping onto the carriageway, which could result in them being struck and injured by an approaching / turning vehicle.

#### Recommendation

It is recommended that appropriate tactile paving is provided.

#### SFN Team Response

Agreed.

### 4.4.5 Duke Street at junction with Leith Walk, Great Junction Street, and Constitution Street

#### Summary

Risk of visually impaired pedestrians being unable to locate crossing due to confusing tactile paving layout, resulting in them crossing at unsafe locations and being struck and injured whilst doing so.

#### Description

On the north side of the crossing of Duke Street at its junction with Leith Walk and Constitution Street, measures are provided to aid a visually impaired pedestrian in locating the controlled crossing. No tactile paving is provided to the rear of the cycleway, meaning that a visually impaired

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pedestrian approaching from the east or west may find it difficult to locate the crossing. This could lead to them crossing at unsafe locations and being struck and injured whilst doing so.

### **Recommendation**

It is recommended that the tactile paving layout is amended to enable it to be detected by a visually impaired pedestrian approaching from the east or west.

### **SFN Team Response**

Corduroy and tramline paving laid as agreed with CEC.

#### **4.4.6 East side of Leith Walk, between Crown Street and Duke Street**

##### **Summary**

Risk of visually impaired pedestrians being unable to locate crossing points to floating bus stop, leading to them crossing at unsafe locations and being struck and injured by cyclists.

##### **Description**

As shown in the photograph above, only one row of tactile paving is provided between the footway and cycleway at the floating bus stop at this location. The tactile paving does not extend beyond the corduroy paving that runs alongside the cycleway.

Given the depth of tactile paving provided, this could lead to visually impaired pedestrians being unable to detect it. This could lead to visually impaired pedestrians stepping into the cycleway out with the dedicated crossing points and potentially into the path of an oncoming cyclist. .

##### **Recommendation**

It is recommended that the depth of the tactile paving is increased.

##### **SFN Team Response**

Agreed.

#### **4.4.7 West side of Leith Walk, opposite Manderston Street**

##### **Summary**

Risk of cyclists crossing when not safe to do so and being struck and injured by vehicles due to lack of clarity regarding the requirement to stop.

##### **Description**

As shown in the photograph above, a give way line is provided within the cycle crossing from the west side of Leith Walk at Manderston Street. This could lead a cyclist to believe that they do not need to obey the traffic signals and could cross and strike a crossing pedestrian or be struck by a vehicle on Leith Walk.

##### **Recommendation**

It is recommended that the existing give way line is replaced by a stop line (to Diag. 1001, TSRGD 2016).

##### **SFN Team Response**

Agreed.

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### 4.4.8 East side of Leith Walk, around Inchkeith House / 165 Leith Walk

#### Summary

Risk of pedestrians tripping or cyclists losing control, due to carriageway / footway surfacing.

#### Description

As shown in the photographs above, the existing carriageway and footway surfacing in this location were observed to be in poor condition. There is a risk that this could lead pedestrians to trip and fall or cyclists to lose control and fall. This could result in non-motorised users sustaining personal injuries.

#### Recommendation

It is recommended that the carriageway and footway surfaces are made good.

#### SFN Team Response

Agreed.

### 4.4.9 West side of Leith Walk, at junction with Balfour Street

#### Summary

Risk of cyclists proceeding across stop line when vehicle aspect is on green and being struck and injured by left turning vehicles.

#### Description

During the site investigation it was observed that several cyclists passed through the Leith Walk / Balfour Street junction at this location when the cycle aspect was on red and the vehicle aspect was on green. These cyclists were observed to be looking at the traffic signal head rather than the low level cycle signal.

Cyclists crossing the stop line during the traffic stage are at risk of being left-hooked by left-turning vehicles, who may not be expecting cyclists to re-join the carriageway at this location.

#### Recommendation

It is recommended that the position of the low-level cycle signal is amended so as to be clear to approaching cyclists that it is this traffic signal that they should comply with.

#### SFN Team Response

CEC traffic enforcement.

### 4.4.10 East side of Leith Walk, south of Pilrig Street; East side of Leith Walk, south of Albert Street

#### Summary

Risk of crossing pedestrians stepping into the path of oncoming vehicles due to intervisibility at crossing being obscured by parked vehicles.

#### Description

Parking bays are provided immediately upstream of two uncontrolled crossings across Leith Walk: on the west side, south of Pilrig Street, and on the east side, south of Albert Street.

Vehicles parked in the bay adjacent to these crossings would likely obstruct intervisibility between the drivers / riders of approaching vehicles and pedestrians stepping onto the carriageway. This could result in vehicles striking and injuring crossing pedestrians.

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### Recommendation

It is recommended that the extents of the parking bays are reduced to provide appropriate visibility at the crossings.

### SFN Response

Parking bays are located as per the CEC TRO drawings. The proposed solution will require a change in the TRO drawing and a change in the scope.

#### 4.4.11 North side of Pilrig Street at junction with Leith Walk

##### Summary

Risk of cyclists colliding due to unclear priority.

##### Description

As shown in the photograph above, limited road markings are provided to indicate which cycle movement has priority at this location. It is assumed that the eastbound movement on Pilrig Street is to give way to the northbound movement on Leith Walk, but only one row of markings to Diag. 1003 (TSRGD, 2016) are provided, and these could be missed by cyclists due to being immediately adjacent to the ladder paving.

There is a risk that there could be confusion between cyclists as to which movement has priority, which could lead to cyclists colliding and sustaining personal injuries.

##### Recommendation

It is recommended that appropriate measures are provided to clarify which movements have priority.

##### Design Team Response

The junction arrangement has been discussed with the Client in terms of layout and road markings. City of Edinburgh Council have stated that they are content to retain the junction in its current form.

#### 4.4.12 Brunswick Road at junction with Leith Walk

##### Summary

Risk of pedestrians slipping on chamber cover resulting in them falling and sustaining personal injuries.

##### Description

During the site investigation it was noted that there is a chamber cover that has a low skid / slip resistance on Brunswick Road at the junction with Leith Walk. This cover is within the crossing extents.

There is a risk that a pedestrian could slip on the chamber cover and fall, resulting in them sustaining personal injuries.

##### Recommendation

It is recommended that the cover is replaced or that appropriate measures are provided to reduce the risk of pedestrians slipping on the cover.

##### SFN Response

Not in SFN scope.

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### 4.4.13 Elm Row

#### Summary

Risk of pedestrians being struck and injured by cyclists or motorised vehicles due to lack of delineation between carriageway, footway, and cycleway.

#### Description

The footway and carriageway at Elm Row are all flush, and, beyond different surfacing, no measures are provided to delineate them. The Audit Team have concerns that this could lead to confusion for pedestrians, who could inadvertently enter the carriageway and be struck and injured by motorised vehicles.

It should also be noted that there are parts of Elm Row where no delineation is provided between the cycleways and the adjacent footways, and there is a risk of conflict between pedestrians and cyclists at these points.

There is also a risk that cyclists joining the southbound cycleway from Montgomery Street could cut across the footway and potentially strike and injure pedestrians whilst doing so. No formal link appears to be proposed between Montgomery Street and the cycleways on Leith Walk, although it should be noted that Montgomery Street was closed and not complete at the time of the site investigation.

#### Recommendation

It is recommended that appropriate measures are provided to delineate the footways from the carriageway and cycleway.

#### SFN Response

The full CEC design approach of Elm Row was to provide a "subtle delineation" between footpath and carriageway. The proposed measure would require a change in the scope.

### 4.4.14 West side of Leith Walk, at junction with Annandale Street

#### Summary

Risk of cyclists cutting corner of cycleway and striking and injuring pedestrians whilst doing so.

#### Description

A very tight radius is provided in the cycleway on the west side of Leith Walk at the junction with Annandale Street. The radius is between the southbound cycleway and the cycleway on the south side of Annandale Street, and is shown in the photograph above circled in yellow.

There is a risk that the tight radius could lead to cyclists cutting this corner which could result in them striking and injuring pedestrians whilst doing so.

#### Recommendation

It is recommended that an appropriate radius is provided in the cycleway at this location.

#### SFN Response

The junction arrangement has been discussed with the Client in terms of layout and road markings. City of Edinburgh Council have stated that they are content to retain the junction in its current form. Moreover cyclists are to slow down when approaching to the junction and they have a zebra crossing right before the bend.



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### 4.4.15 Elm Row

#### Summary

Risk of cyclists striking overhanging vegetation and being unseated, resulting in personal injury.

Secondary risk of cyclists encroaching onto footways to avoid overhanging vegetation and striking and injuring pedestrians whilst doing so.

#### Description

As shown in the photograph above, vegetation was observed to be overhanging the cycleways on Elm Row during the site investigations. It should be noted that during the site investigations these cycleways were not yet open.

If the cycleways are opened and the vegetation is not appropriately trimmed / cut back, there is a risk of cyclists striking overhanging vegetation and being unseated, resulting in personal injury. There is also a risk of cyclists encroaching onto footways to avoid overhanging vegetation and striking and injuring pedestrians whilst doing so.

#### Recommendation

It is recommended that the vegetation is appropriately trimmed / cut back.

#### SFN Response

Soft landscaping is not completed yet. It will be completed by the end of November 2023.

### 4.4.16 Elm Row, at parking area

#### Summary

Risk of parked or loading vehicles overhanging or unloading items into cycleway, leading to cyclists striking them and sustaining personal injuries.

#### Description

At the southbound cycleway on Elm Row, no measures are provided between the parking area and the cycleway to prevent vehicles from overhanging the cycleway or loading within the cycleway. There is a risk that this could lead to vehicles striking cyclists when reversing into a space, cyclists striking vehicles overhanging the cycleway, or cyclists striking objects or pedestrians whilst materials are being loaded or unloaded.

#### Recommendation

It is recommended that appropriate measures are provided to reduce the risk of parked or loading vehicles overhanging or unloading items into cycleway.

#### SFN Response

Bollards have been installed.

### 4.4.17 London Road, east of junction with Leith Walk

#### Summary

Risk of cyclists losing control when undertaking sharp turning manoeuvres, resulting in them falling and sustaining personal injuries.

#### Description

As shown in the photographs above, it was noted during the site investigation that the changes of direction in the cycle transitions between the cycleways and London Road are very angular and little

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to no radius is provided. There is a risk that a cyclist using a bicycle with a large turning radius may not be able to make these turning manoeuvres. This could lead to them losing control and falling whilst attempting to do so, which could result in them sustaining personal injuries.

### Recommendation

It is recommended that appropriate radii are provided in the cycleways that are suitable for use by all types of bicycles.

### SFN Response

Constructed cycleway is wider than design requirements.

#### 4.4.18 East side of Leith Walk, north-east of Picardy Place gyratory

##### Summary

Risk of cyclists attempting to cross, finding there is no facility opposite, and continuing into pedestrian crossing or footway and striking and injuring a pedestrian whilst doing so.

##### Description

During the site investigation it was noted that a cycle crossing across Leith Walk, north-east of Picardy Place gyratory, did not link to infrastructure on the west side of Leith Walk. There is a risk that a cyclist could attempt to cross at this location, find there is no facility opposite, and continue into the pedestrian crossing and into conflict with crossing pedestrians or mounting the footway and striking and injuring a pedestrian whilst doing so.

##### Recommendation

It is recommended that the cycle crossing is removed.

##### SFN Response

The mentioned cycle crossing has been infilled with paving slabs.

#### 4.4.19 Leith Walk at entry to Gayfield Square

##### Summary

Risk of pedestrians tripping on metal plate, resulting in them sustaining personal injuries.

##### Description

As show in the photograph above, a metal plate is located on the west side of Leith Walk at the entry to Gayfield Square. This metal plate has an upstand and is a trip hazard for pedestrians. A pedestrian could trip on the metal plate, fall to the ground, and sustain a personal injury.

The Audit Team appreciate that this metal plate is likely covering an area of uneven surfacing and will be a temporary feature.

##### Recommendation

It is recommended that the metal plate is removed and that the surfacing underneath is made good.

##### SFN Response

CEC will take care of them. Not in SFN scope.

#### 4.4.20 West side of Picardy Place gyratory

##### Summary

Risk of vehicle striking and injuring a cyclist due to alignment of advisory cycle lane.

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### Description

On the west side of Picardy Place gyratory, the advisory cycle lane has an S-shape. This takes cyclists from the offside of the ahead lane to the nearside of Broughton Street.

The Audit Team have concerns that the alignment of the cycle lane could lead to cyclists coming into conflict with vehicles behind them, as following the alignment of the cycle lane may bring them across the path of a vehicle following behind them. If the driver / rider was unaware of the cycle lane, they could expect the cyclist to turn right and collide with them as they cross in front of the vehicle.

### Recommendation

Notwithstanding the recommendation in 3.3.33 above; it is recommended that the arrangement is appropriately amended to reduce the risk of a cyclist being struck by a following vehicle.

### SFN Response

Layout agreed with CEC.

## 4.4.21 Montgomery Street at Elm Row

### Summary

Risk of cyclists striking and injuring pedestrians due to route not being continuous.

Secondary risk of cyclists merging onto carriageway when not safe to do so and being struck and injured by vehicles, due to route not being continuous.

### Description

The new section of cycleway on Elm Row is not currently open to the public. A cyclist travelling southbound would either have to transition onto the carriageway or continue across the footway on Elm Row. If they were to merge onto the carriageway and into traffic, there is a risk that they could be struck and injured by a passing vehicle whilst doing so. If they were to cut across a footway, there is a risk that they could strike and injure a pedestrian whilst doing so.

### Recommendation

It is recommended that suitable infrastructure is provided to enable cyclists to continue southbound whilst the section of cycleway on Elm Row is closed.

### SFN Response

This section is now open.

## 4.5 Road Signs, Carriageway Markings and Lighting

### 4.5.1 Substation access on south side of Melrose Drive

#### Summary

Risk of vehicles turning right across tram tracks and being struck by trams whilst doing so, due to absence of signage or road markings to inform users to turn left.

#### Description

As shown in the photograph above, no road markings are provided at the substation access on the south side of Melrose Drive. A left turn arrow (to Diag. 1038, TSRGD 2016) was proposed in the design drawings, however this has not been laid.

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If no such marking is provided, there is a risk that a vehicle could turn right across the tram tracks and be struck by a tram whilst doing so.

### Recommendation

It is recommended that appropriate road markings and / or signage are provided to inform users of the need to turn left.

### SFN Response

Agreed.

## 4.5.2 Crown Place, at junction with Leith Walk

### Summary

Risk of vehicles failing to stop due to absence of stop line, resulting in them striking crossing non-motorised users or emerging into the path of oncoming vehicles.

### Description

During the site investigation it was noted that no stop line is provided next to the STOP road markings on Crown Place. The stop line is provided at the junction with Leith Walk. This could lead to drivers / riders being unclear as to where they should stop and a risk that they could fail to give way to crossing cyclists, which could result in them striking and injuring cyclists. There is also a risk that vehicles which fail to stop at the junction could collide with a passing tram. It is noted that the "Stop" marking is required by the Tram guidance.

It should be noted that if they stop where the markings and signage is provided, they are unlikely to have appropriate visibility (see problem ref 3.2.19).

### Recommendation

It is recommended that an appropriate road marking is provided to Diag. 1002.1 (TSRGD, 2016).

### SFN Response

Agreed.

## 4.5.3 West side of Leith Walk, south of Casselbank Street

### Summary

Risk of vehicles undertaking late lane changes to avoid entering tram lane resulting in side-swipe collisions, due to start of tram lane sign being obscured by parked vehicles.

### Description

As shown in the photograph above, the start of tram lane sign on Leith Walk northbound can be obscured by vehicles parked in the layby. This could lead to drivers / riders being unaware of the start of the tram lane, resulting in them undertaking late lane changes and side-swipe collisions occurring.

### Recommendation

It is recommended that appropriate forward visibility is provided to the start of tram lane sign.

### SFN Response

The only solution would be to remove the parking space there but parking spaces have been located as per CEC TRO drawings. Its for CEC to decide whether they prefer to remove the parking space to

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provide more forward visibility or to keep it. SFN will move the sign to the central OLE pole. Please note that additional road markings will be implemented as per item 4.5.17.

### 4.5.4 Jameson Place, at junction with Leith Walk

#### Summary

Risk of vehicles failing to stop at stop line due to signal head being obscured by sign face, resulting in them striking and injuring crossing non-motorised users or colliding with other vehicles.

#### Description

As shown in the photograph above, a vehicle approaching Leith Walk from Jameson Place is unlikely to have visibility to the primary signal head at the junction with Balfour Street due to the position of the start of tram lane sign. If the secondary signal head was not functioning, there is a risk a driver could be unaware that the traffic signals are on red, and they could proceed across the stop line and strike a crossing non-motorised user or another vehicle.

#### Recommendation

It is recommended that the traffic sign face is repositioned so that appropriate visibility to the signal heads is provided.

#### SFN Response

The sign is not in the correct position. But if we place it as per the design is going to be obscured by the signal. Utilities. Sign to be move to the central OLE.

### 4.5.5 Leith Walk at Orcharfield Lane

#### Summary

Risk of vehicles on southbound carriageway crossing central reserve and colliding with a tram or a northbound vehicle, due to signage of car park on west side of road.

#### Description

During the site investigation it was noted that signage had been added for a car park on the west side of Leith Walk, accessed via Orchardfield Lane. The signage had been added on both the northbound and southbound approaches.

There is a risk that a vehicle travelling southbound could cross the central reserve in an attempt to access the car park and could collide with a tram or a northbound vehicle whilst doing so.

#### Recommendation

It is recommended that the signage facing southbound vehicles is removed.

#### SFN Response

The mentioned signs have not been installed by SFN

### 4.5.6 Leith Walk – various sites

#### Summary

Risk of cyclists failing to slow and / or give way to crossing pedestrians, resulting in them striking and injuring crossing pedestrians, due to absence of mini zebra road markings.

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### Description

During the site investigation it was noted that many of the mini zebra crossing road markings have not been laid. These provide pedestrian priority at crossing points and alert cyclists of the need to slow down and give way to pedestrians.

If these road markings are not provided, there is a risk of cyclists failing to slow and give way to crossing pedestrians, which could result in collisions, as well as an increased severity of collision if a collision was to occur.

### Recommendation

It is recommended that appropriate measures are provided to encourage cyclists to slow and give way to crossing pedestrians.

### SFN Response

Agreed.

#### 4.5.7 Annandale Street eastbound, on approach to junction with Leith Walk

##### Summary

Risk of vehicles braking sharply due to provision of road markings, resulting in rear-end shunt collisions.

##### Description

As shown in the photograph above, there are series of random traverse road markings on Annandale Street on the approach to Leith Walk. There is a risk that a driver / rider could mistakenly believe that one of the traverse road markings upstream of the stop line is the stop line, which could lead to them braking sharply and could result in rear-end shunt collisions.

##### Recommendation

It is recommended that the transverse lines on the approach to the signalised junction are removed.

##### SFN Response

Agreed.

#### 4.5.8 Blenheim Place at junction with London Road

##### Summary

Risk of westbound vehicles colliding with kerb and losing control, or mounting footway and striking and injuring pedestrians, due to confusing provision of road markings.

##### Description

During the site investigation it was noted that the road markings on Blenheim Place had not been implemented as per the design. As shown in the photo above, the road markings appear to relate to the previous arrangement and could lead a westbound vehicle into the kerb line. This could lead to the vehicle losing control or mounting the footway and striking and injuring a pedestrian.

##### Recommendation

It is recommended that the road markings are amended to make it clear that the road is two-way and not to direct drivers / riders into the kerb line.

##### SFN Response

Agreed.

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### 4.5.9 Leith Walk northbound, south of junction with Union Street

#### Summary

Risk of vehicles making sharp lane changes resulting in side-swipe collisions, due to restricted visibility to tram lane sign.

#### Description

As shown in the photograph above, during the site investigation it was observed that the tram lane sign at this location had been turned. Additionally, it is positioned at a location where visibility to it could be obscured by a large vehicle loading or in a parked position.

There is a risk that the restricted visibility to the sign could lead to vehicles being unaware of the tram lane restrictions, beginning to change lane and then making a sudden manoeuvre upon realising that the adjacent lane is tram only. This could result in side-swipe collisions.

#### Recommendation

It is recommended that the sign is repositioned to maximise visibility to the sign and that it is orientated to be visible to oncoming traffic.

#### SFN Response

Layby as per CEC TRO drawings. Sign to be reoriented by CEC.

### 4.5.10 York Place eastbound, west of junction with Broughton Street

#### Summary

Risk of vehicles making sharp lane changes resulting in side-swipe collisions, due to absence of signage of bus lane.

#### Description

No signage was observed of the bus lane on York Place eastbound during the site investigation. The Audit Team are concerned that drivers / riders could undertake sudden manoeuvres upon realising that they are about to enter a bus lane, which could lead to side-swipe collisions.

#### Recommendation

It is recommended that appropriate signage to Diags. 958 and 959B (TSRGD, 2016) are provided.

#### SFN Response

Not in CEC TRO drawings

### 4.5.11 Access to 165 Leith Walk at junction with Leith Walk

#### Summary

Risk of vehicles failing to stop at stop line, resulting in them emerging onto Leith Walk and being struck by passing vehicles, due to road markings being worn.

#### Description

As shown in the photograph above, both the left turn arrow and stop line are very worn at this location. There is a risk that a driver / rider could fail to stop at this location due to the condition of the stop line. This could lead to them emerging onto Leith Walk when it is not safe to do so and colliding with another vehicle.

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### **Recommendation**

It is recommended that the road markings are appropriately refreshed.

### **SFN Response**

Road markings have not been laid. They will be implemented.

#### **4.5.12 York Place westbound, west of Picardy Place**

##### **Summary**

Risk of vehicles making sudden manoeuvres resulting in side-swipe collisions, due to worn road markings.

##### **Description**

As shown in the photograph above, the deflection arrow at this location was very worn. There is a risk that the driver / rider of an approaching vehicle could fail to observe the deflection arrow, due to its condition, and make a sudden manoeuvre upon realising that they are about to enter the tram only lane. This could result in side-swipe collisions.

##### **Recommendation**

It is recommended that the road marking is appropriately refreshed.

##### **SFN Response**

CEC is in charge of the maintenance.

#### **4.5.13 Leith Walk northbound on approach to junction with London Road**

##### **Summary**

Risk of vehicles attempting to turn right from nearside lane on Leith Walk, resulting in side-swipe collisions, due to road markings not having been ineffectively removed.

##### **Description**

During the site investigation it was noted that it appeared that the right turn arrows in the nearside lane had been attempted to be removed at this location. However, they were still visible, as shown in the photograph above.

There is a risk that a driver / rider could believe that they can turn right from the nearside lane at this location, which would lead to them having to merge at the entry to London Road and could lead to a side-swipe collision.

##### **Recommendation**

It is recommended that the road markings are amended to clarify that the nearside lane is ahead only.

##### **SFN Response**

The road marking laid is correct.

#### **4.5.14 York Place eastbound at junction with Broughton Street**

##### **Summary**

Risk of side swipe collisions due to vehicles merging due to the presence of bus lane.



## STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT

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Secondary risk of vehicles braking sharply when trying to merge, leading to rear-end shunt collisions, due to the presence of bus lane.

### Description

A bus lane is provided in the nearside lane on York Place eastbound. Whilst the bus lane terminates upstream of the Picardy Place gyratory, limited storage is provided. At the junction, the nearside lane is for northbound and eastbound traffic, while the offside lane is for southbound traffic.

A significant proportion of the traffic is likely to wish to be in the nearside lane at the junction, meaning that vehicles will have to merge into the nearside lane from the offside lane at, or on the immediate approach to, the junction. There is a risk of side swipe collisions when vehicles are merging, while there is a risk that a vehicle may brake suddenly when trying to merge, which could lead to rear-end shunt collisions.

### Recommendation

Without prejudice to problem 4.5.11, it is recommended that either:

- The bus lane is removed or terminates further in advance of the traffic signals; or
- Improved signage is provided to inform drivers / riders of the requirement to merge.

### SFN Response

Not in SFN scope

## 4.5.15 Leith Walk at junction with Balfour Street

### Summary

Risk of head-on collisions or side swipe collisions between vehicles entering Balfour Street and exiting vehicles due to the lane configuration and cycle lane markings.

### Description

As can be seen in the above photograph, the cycle lane from Leith Walk extends for a short distance into Balfour Street. This cycle lane marking effectively pushes general vehicles intending to turn left into Balfour Street out towards the centre of the road. This arrangement places vehicles into direct conflict with any vehicles exiting the side road or waiting at the stop line. This could result in a head-on or side swipe collision.

### Recommendation

It is recommended that the road markings are amended to ensure there is adequate effective carriageway width to reduce the potential for vehicle to vehicle conflict.

### SFN Response

The junction arrangement has been discussed with the Client in terms of layout and road markings. City of Edinburgh Council have stated that they are content to retain the junction in its current form.

STAGE 3 Road Safety Audit – Designers Response

5 ROAD SAFETY AUDIT DECISION LOG

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.1 Tram Extension – Stage 2 Road Safety Audit (Ocean Terminal to Newhaven)					
3.1.1	Excess surface water increases the risk of vehicles skidding, particularly during periods of cold / freezing weather	It is recommended that drainage is appropriate throughout the scheme extents. The Audit Team retain their belief that this is an issue. Standing water was observed along much of the route during the site investigation.	NCRs/Defects have been raised and SFN will deal with the ones out of the design tolerances (OT bus car park ch 17490, OT red car park ped crossing ch 17830, Rennie's Isle footpath corner with India Visa Centre ch 17090, ped crossing casino Forth Ports, 165 Leith walk, ped crossing North Side Jane street (Mother Superior Pub), ped crossing Duke Street in front of Leith Surgery, ped crossing south side of Balfour tramstop, ped crossing south west side of OT, Queen Charlotte ped crossing at the south west corner)	Agreed works to be undertaken by SFN	Remedials will be carried out in the locations listed in the response
3.1.3	Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle.	It is recommended that appropriate measures are provided for turning cyclists, so that: • the angle that cyclists cross the tram tracks is 90°, or close to 90°; and • the risk of cyclists slipping or getting their wheel(s) stuck in the tram tracks is minimised.	Throughout the scheme extents SFN have assessed the cycle crossings and confirm at no point do the cycle ways or cycle lanes, where provided, cross at an angle below 60 degrees. Moreover in the mentioned picture cyclist are directed from the footpath to the road and there is a continuous line between the road and the track so cyclist are not allowed to cross the tracks.	Agreed	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.1.4	Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle	It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.	No provision for cyclists are required at Ocean Drive as per contract scope. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting Leith with NCN75, as part of the Leith Connections scheme.	Leith Connections is to be the link between Ocean Terminal and FoTW and works are to be undertaken at a later date with interim measures put in place.	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.1.5	Risk of collisions occurring between vehicles and pedestrians due to long crossing lengths.	It is recommended that crossing lengths are minimised, refuges are provided where appropriate, and that pedestrians are given an appropriate length of time to cross.	The crossing timings have been adjusted to ensure that pedestrian are beyond the half way point of the crossing before the green man goes out. This is then followed by a further 3 second blackout before the red man appears. The following intergreen is calculated accordingly to ensure that anyone leaving the kerb at the last second of the green man would still have enough time to complete the entire crossing movement safely. CEC are continuing to monitor these crossings and further adjustments will be made if deemed necessary.	CEC are continuing to monitor these crossings and further adjustments will be made if deemed necessary.	No action
3.1.6	Risk of pedestrians stepping onto the carriageway to bypass the bus shelter and people waiting at the bus stop and being struck by a passing vehicle	It is recommended that measures are implemented to remove this pinch point, such as relocation of the shelter, provision of a shelter with a smaller cross-sectional area, provision of a cantilever shelter, or widening of the footway.	Out of the scope.	CEC to monitor	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.1.7	Risk of pedestrians tripping and falling and sustaining a personal injury.	It is recommended that appropriate tactile paving is provided along the length of the section of footway where there is a level difference, in order to warn pedestrians of the difference in levels.	Out of the scope.	CEC to monitor	No action
3.1.8	Risk of crossing pedestrians being struck by vehicles.	The following measures are recommended: <ul style="list-style-type: none"> <li>• An appropriate upstand is provided to the kerbs out-with the extents of the crossing;</li> <li>• The colour of the tactile paving is contrasting, and is consistent on both sides of the road;</li> <li>• The crossing is on the desire line for pedestrians.</li> </ul>	Out of the scope.	CEC to monitor and investigate possible mitigation if necessary	No action
3.1.14	Risk of side swipe collisions between motorised vehicles exiting the car park, sustaining personal injuries.	It is recommended that the exit to the car park be reduced to a single lane.	Out of the scope.	CEC to liaise with land owner	No action
3.1.15	Risk of a visually impaired pedestrian becoming stuck on the carriageway and being struck and injured by a passing vehicle, due to existing tactile paving and dropped kerb not being removed.	It is recommended that the dropped kerbs and tactile paving at this location are removed.	Out of the scope.	CEC to monitor and investigate possible mitigation if necessary	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.1.16	Risk of pedestrians tripping and falling when attempting to transition between the footway and carriageway, resulting in them sustaining a personal injury, due to lack of pedestrian crossing facility and abrupt end of footway.	It is recommended that suitable infrastructure is provided to allow pedestrians to continue their journey, such as an appropriate crossing point.	Out of the scope.	CEC to monitor and investigate possible mitigation if necessary	No action
3.1.17	Risk of pedestrians or cyclists colliding with street furniture resulting in personal injury.	It is recommended that suitable contrast banding is applied to all street furniture.	All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.	CEC to monitor	No action
3.1.18	Risk of vehicles crossing the stop line when it is not safe to do so and striking and injuring crossing pedestrians or striking passing vehicles, due to stop lines on Sandpiper Drive southbound not being visible.	It is recommended that the stop lines are suitably refreshed / renewed.	Out of the scope.	CEC to undertake	CEC to undertake
3.1.19	Risk of vehicles undertaking a sudden lane change upon inadvertently entering tram lane, resulting in side-swipe collisions occurring.	It is recommended that the design is appropriately amended so that is clear to the drivers / riders of approaching vehicles which lanes they can travel in and which they cannot.	Road markings as per the design drawings have been laid except tram only markings that will be laid soon.	SFN to undertake outstanding works	Missing "Tram only" markings have been laid
3.2 Tram Extension – Stage 2 Road Safety Audit (York Place to Ocean Terminal)					

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2.1	Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle to overtake or bypass obstacles.	It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks.	No provision for cyclists along Ocean Drive, Ocean Way and Constitution Street. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting the Foot of the Walk with NCN75 and Ocean terminal, as part of the Leith Connections scheme.	Leith Connections is to be the link between Ocean Terminal and FoTW and works are to be undertaken at a later date with interim measures put in place.	No action
3.2.2	Risk of cyclists colliding with pedestrians whilst attempting to transition between the carriageway on a stopped-up street and the cycle infrastructure or the mainline carriageway, due to no infrastructure being provided to facilitate this transition. Secondary risk of vehicles attempting to defy the 'no through road' restriction and colliding with pedestrians or cyclists whilst doing so.	It is recommended that appropriate measures are provided to enable them to transition safely.	Consideration was given to providing a cycle link between the stopped-up street at Ion Street and Montgomery Street and the Leith Walk cycleway or crossing points. A similar example in Edinburgh would be at the junction with Rankeillor Street / Clerk Street. However, the arrangement at Rankeillor Street is part of the National Cycle Network route 1 providing a direct link from an on-road cycleway to a Toucan crossing at Clerk Street linking NCN1 with the Edinburgh City Centre. At Iona Street and Montgomery Street there is no provision for cyclists and therefore no through road or direct link to a Toucan crossing it is also not a primary cycle route and therefore no additional cycle provision is considered necessary in these locations	CEC to monitor and implement if necessary	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2.4	Risk of pedestrians slipping or tripping and sustaining a personal injury.	It is recommended that appropriate measures are provided to prevent pedestrians tripping or falling from the new footway onto the existing hard standing.	Existing bollards with chains between them have been retained.	Agreed	No action
3.2.5	Risk of vehicles colliding with kerb lines at the commencement of segregated cycleways due to these being inconspicuous, resulting in injuries to vehicle occupants / riders.	It is recommended that suitable measures are provided to highlight the presence of the kerb lines, such as appropriately reflective bollards	The design of the segregated cycleway and associated on street cycleway road markings throughout has been developed in accordance with the Edinburgh Street Design Guide. The transition between on street and segregated cycleway has been developed in a consistent manner throughout. The on-street cycle lane marking clearly direct cyclists to the segregated cycleway.	CEC to monitor	No action
3.2.6	Risk of non-motorised users tripping and falling on ironwork protruding from footway surface, resulting in them sustaining personal injuries. Risk of vehicles losing control when travelling over ironwork protruding from the carriageway surface, resulting in them striking other vehicles or street furniture.	It is recommended that all ironwork is flush with the surrounding surface on which it is located.	Not in SFN scope. The frames were set to the correct level. The defect identified in the picture is a deformation of the lid.	CEC to monitor	No action



**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2.7	Risk of vehicles skidding and losing control due to surface water pooling on carriageway at interfaces between ramps and existing carriageway.	It is recommended that appropriate drainage infrastructure is provided at these locations.	NCRs/Defects have been raised and SFN will deal with the ones out of the design tollerances (OT bus car park ch 17490, OT red car park ped crossing ch 17830, Rennies Isle footpath corner with India Visa Centre ch 17090, ped crossing casino Forth Ports, 165 Leith walk, ped crossing North Side Jane street (Mother Superior Pub), ped crossing Duke Street in front of Leith Surgery, ped crossing south side of Balfour tramstop, ped crossing south west side of OT, Queen Charlotte ped crossing at the south west corner)	SFN to carry out works	Remedials will be carried out in the locations listed in the response

STAGE 3 Road Safety Audit – Designers Response

<p>3.2.8</p>	<p>Risk of vehicles emerging from side road / access when it is not safe to do so due to visibility being obscured at proposed locations of give way markings, leading to side impact collisions with vehicles on Leith Walk or emerging vehicles striking and injuring non-motorised users.</p>	<p>It is recommended that the give way markings and signage at these locations are appropriately relocated to locations where there is appropriate visibility.</p>	<p>Throughout the ETYN scheme there are several existing private accesses to the rear of the public footways. As indicated above at each private access the available visibility offered to vehicles utilising these private accesses is limited. Several discussions have been held with the promotor to develop possible solutions to advise road users of the presence of the hazard. These include additional signage, road markings and traffic mirrors. Due to the private nature of these accesses, it would not be possible to introduce signs and road markings outside the adopted limits of the public road. It was also considered that introducing additional signage and traffic mirrors on the public footpath side would add to the issue of signage clutter and present a significant maintenance burden. The accesses listed above provide for minor commercial business with limited use. It is considered due to the raised continuous footway and associated ramps and give way markings combined with infrequent use and likely speed of the vehicles that the risk of a RTA is considered low.</p>	<p>Agreed</p>	<p>No action</p>
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**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2.9	Risk of vehicles striking and injuring crossing pedestrians due to proximity of signalised junction to side road junction.	It is recommended that appropriate measures are provided to warn drivers / riders of the location of the signalised junction on Leith Walk.	Vehicles exiting from both Jameson Place are required to stop on the side road in advance of the continuous footway raised table. Vehicles can only turn left from the side road at the point of the stop line drivers/riders will have full visibility of the continuous footway and the signalised junction. It is anticipated that the vehicle speed will be low when crossing the continuous footway providing adequate time to assess the road conditions. Moreover the mentioned signal obscured by a sign is for drivers on the main road.	Agreed	No action
3.2.11	Risk of visually impaired pedestrians entering the carriageway when it is not safe to do so and being struck and injured by passing vehicles, due to confusing environment and tactile paving provision.	It is recommended that tactile paving arrangements are amended to inform visually impaired pedestrians of the presence of the controlled crossing and to guide these users to the crossing.	Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didn't agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise.	CEC to install additional tactile paving as per RSA	CEC to install additional tactile paving as per RSA

STAGE 3 Road Safety Audit – Designers Response

<p>3.2.12</p>	<p>Risk of pedestrians being struck and injured by passing vehicles when crossing due to drivers / riders failing to give way to crossing pedestrians. Secondary risk of rear-end shunts due to vehicles waiting for extended periods on Leith Walk whilst waiting for non-motorised users to cross the side road</p>	<p>It is recommended that suitable advanced signage is provided to warn drivers / riders of the new layout and the requirement to give way to non-motorised users.</p>	<p>CEC policy is to provide priority to cyclists and pedestrians establishing key non-motorised routes throughout the City. The adoption of continuous footway surfaces across minor junctions is appropriate with high/medium pedestrian movements and low side road vehicle flows. While there may be greater volume of traffic during peak times this does not change Council policy in terms of priority to pedestrians and cyclists. The auditor has raised concerns of possible Road Traffic Accidents (RTA) on Leith Walk as a result of turning vehicles requiring giving way to pedestrians and cyclists on the continuous footways. The speed limit in Edinburgh and particularly Leith Walk is reduced to 20mph. The proposed road markings agreed with the overseeing organisation is to position the Stop line and stop sign prior to the raised table on the side road. Additionally tactiles across Leith walk and the side road have been provided in Jane, Lorne and Dalmeny as per PMI-1611.</p>	<p>CEC to monitor</p>	<p>No action</p>
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**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2.14	Risk of pedestrians encroaching into cycleways and being struck and injured by cyclists due to unclear delineation of cycleways.	It is recommended that appropriate measures are provided to delineate the transition between the footway and cycleway where they are flush.	Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didnt agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise.	CEC to monitor	No action
3.2.15	Risk of cyclists losing control due to geometry of cycleway, resulting in them falling and sustaining personal injuries.	It is recommended that any tapers in the cycleway are of an appropriate length and that appropriate radii are provided to enable all users to use the cycleway.	The design of the cycleway was in accordance with ESDG Part C – Detailed Design Manual and C4 – Segregated Cycle Tracks: Hard Segregation. Any change in direction had a minimum 1:3 tapers. During the construction SFN came across with several instances where proposed kerbs and/or cycleways were clashing with existing utilities so we had to construct deviating slightly from the design. Cycleways have been amended recently in 3 locations: Annandale North, South Pilrig and Leith Depot.	Amendments have been made to a number of tapers along the west route and CEC to monitor going forward	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2.16	Risk of pedestrians stepping onto the cycleway and being struck and injured by passing cyclists due to restricted footway width.	It is recommended that the footway is appropriately wide for the anticipated number of users.	The proposed footway width between Shrubhill Walk and Middlefield is designed to comply with the requirements of the Edinburgh Street Design Guidance P3 - Footways. Absolute minimum footway at the pinch points is no less than 1.5m	Installed as per design and ESDG, CEC to monitor	No action

STAGE 3 Road Safety Audit – Designers Response

3.2.19	Risk of vehicles emerging from side roads / accesses when it is not safe to do so due to the position of the stop signs, leading to them striking and injuring non-motorised users or striking other vehicles	It is recommended that the existing arrangements at the side roads and accesses are appropriately amended so as to provide appropriate visibility where vehicles have to stop.	Extensive discussions have been held with the Client in terms of appropriate layouts for the continuous footways and in particular the road markings and traffic signage. The design of the continuous footways is in accordance with Edinburgh Street Design Guidance (ESDG) G7 - Priority Junctions: Continuous Footways and C4 – Segregated Cycle Tracks Hard Segregation Option 1 page 26 Continuous cycle Track Without deviation. In each example shown in the ESDG the approaching vehicle from the side road is required to give way to pedestrians at the mainline channel. TSRGD indicates that due to the introduction of the tram system approaching vehicles are required to stop at the channel. However due to the introduction of the continuous footway it was instructed by the Client that the stop line should be prior to the continuous footway on the side road to prevent vehicles encroaching on the continuous footway. At this point the stationary vehicle will have visibility of the footway allowing the vehicle to approach at caution.	Agreed	No action
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**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2.22	Risk of pedestrians or cyclists colliding with street furniture, resulting in personal injury.	It is recommended that suitable contrast banding is applied to all street furniture.	All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.	Agreed	No action
3.2.23	Risk of vehicles proceeding contrary to direction of traffic flows on one-way streets, resulting in head on collisions, due to provision of road markings.	It is recommended that the proposed markings to Diag. 1062 (TSRGD 2016) are removed from the ramps on the major road side of the raised crossings on Maritime Lane.	Agreed	SFN to undertake works	Agreed
<b>4. Items Resulting from the Interim Stage 3 Road Safety Audit</b>					
<b>4.1 General</b>					
3.3.1	Excess surface water on the carriageway could lead to loss of control collisions resulting in vehicles colliding with other vehicles, street furniture of other road users. Excess surface water on the footway could lead to pedestrians slipping and falling, resulting in them sustaining personal injuries.	It is recommended that the carriageway and footways are suitably profiled and adequate drainage is provided to prevent surface water gathering.	NCRs/Defects have been raised and SFN will deal with the ones out of the design tolerances (OT bus car park ch 17490, OT red car park ped crossing ch 17830, Rennie's Isle footpath corner with India Visa Centre ch 17090, ped crossing casino Forth Ports, 165 Leith walk, ped crossing North Side Jane street (Mother Superior Pub), ped crossing Duke Street in front of Leith Surgery, ped crossing south side of Balfour tramstop, ped crossing south west side of OT, Queen Charlotte ped crossing at the south west corner)	SFN to undertake works on any NCR's outwith acceptable tolerance	Remedial works to be undertaken on any NCR's outwith acceptable tolerance



**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.2	Risk of conflict between south-westbound general traffic and a tram, pedestrian, or other vehicles as a result of entering the Tram only lane.	It is recommended that additional measures are provided to reinforce the Tram only restriction at this location.	Agreed.	SFN to undertake works	Diagram 616 (S3-2-10) No entry except trams to be installed. 2 signs to be installed following Haymarket tramstop approach.
3.3.3	Risk of vehicles losing control on ramps due to gradient, resulting in potential collision with other road users or riders of powered two wheelers becoming unseated and falling from their bikes.	It is recommended that the ramp gradient is appropriate for use by all vehicles.	Gradient can not be reduced as a consequence of the utility cover.	Agreed	No action
3.3.4	Risk of cyclists becoming unseated due to statutory undertaker covers provided in cycleway not being flush with surrounding surface.	It is recommended that the statutory undertaker covers are flush with the surrounding surface.	CEC will take care of them. Not in SFN scope.	CEC to liaise with Utility Contractor	No action
3.3.5	Risk of utility cover failing as a result of vehicle loading, leading to a void forming that pedestrians could trip on and sustain personal injuries.	It is recommended that a utility cover that is suitable for vehicle loading is provided at this location.	Out of the scope.	CEC to liaise with Utility Contractor	No action
3.3.6	Risk of pedestrians crossing when not safe to do so due to "see through", resulting in them being struck and injured by passing vehicles.	It is recommended that appropriate measures are provided to reduce the risk of see through.	SFN dont agree that this is an issue	CEC to monitor	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.7	Risk of a southbound vehicle losing control and either mounting footway or colliding with other vehicles or tram.	It is recommended that advance guidance signing, or markings are provided to eastbound drivers intending to follow the road southwards.	Tram and road vehicles are on different signal stages.	No action	No action
3.3.8	Risk of vehicles striking kerb lines due to inconsistent alignment, leading to vehicle occupants sustaining personal injuries.	It is recommended that the kerb line avoids any sudden changes in direction and that vertical features are provided to highlight any changes in kerb line alignment.	The sudden change in direction of that kerb was due to existing utilities.	CEC to monitor	No action
3.3.9	Risk of vehicles cutting across footways / cycleways and striking non-motorised users or street furniture due to lack of guidance of path through junctions	It is recommended that appropriate measures are provided to guide vehicles across the continuous footway to the ramp opposite.	SFN position is that there is nothing we can do to improve the driver behaviour without compromising the intention of the continuous footway (full priority for pedestrians).	Continuous footways installed as per ESDG and further tactile paving implemented, no further action	No action
3.3.10	Risk of rear end shunts or side impact collisions between motorised vehicles due to constrained forward visibility to access.	It is recommended that appropriate forward visibility is provided to these accesses.	Infrequent use and private land, CEC to discuss with land owner.	CEC to liaise with landowner	No action
3.3.11	Risk of vehicles emerging from Rennie's Isle when not safe to do so and being struck by vehicles on Ocean Drive due to visibility being constrained by guardrail.	It is recommended that high-visibility guardrail is provided	A car stopped at the stop line can see cars above and through the railing.	No action	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.12	Risk of vehicles emerging from private accesses when not safe to do so and being struck by vehicles on Constitution Street due to visibility being constrained by parked vehicles	It is recommended that appropriate measures are provided so as to provide an unimpeded visibility splay for vehicles exiting from the private accesses	<p>During OM3A a van was parked at the loading bay in front of 80 constitution street. Driver stopped 3,9 m away from the kerb to have visibility of the tram coming from the inbound track. Later on car driver stopped 2,4 m away from the kerb confirming he didn't have visibility of the tram (ESDG Factsheet G6 show 2,4 m as the desirable distance). Tram driver confirmed he could see the car in both situations and he that he also could apply the emergency break on time.</p> <p>Measures were boradly discussed during the design process, installation of mirrors was disregarded and stop lines were accepted.</p>	No action	No action
3.3.13	Risk of vehicles emerging from Gayfield Square when not safe to do so and striking and injuring non-motorised users, due to tree obscuring visibility. Secondary risk of vehicles emerging from Gayfield Square when not safe to do so and being struck by northbound vehicles on Leith Walk, also due to tree obscuring visibility	It is recommended that visibility is maximised	A car stopped at the stopline may not have enough visibility to enter the road but he will need to go across the footway slowly and at that moment he will have enough visibility.	No action	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.14	Risk of visually impaired pedestrians becoming confused	It is recommended that a simpler layout is provided at these locations which can be easier to understand and reduces the risk of conflict between vulnerable users. Additionally, it is recommended that City of Edinburgh Council carry out a review of the guidance for the use of tactile paving in discussion with visually impaired user groups in order to simplify the use of tactile paving at these types of layouts.	Layouts have been agreed with CEC through the road works working group and recorded through TQs in CEMAR	Installed as per ESDG, no action	No action
3.3.15	Risk of visually impaired pedestrian becoming stuck on the carriageway, and being struck and injured by passing vehicles, due to tactile paving not aligning on opposing sides of crossing points.	It is recommended that the dropped kerbs and tactile paving align on opposing sides of crossing points.	Studs in the road guide visually impaired pedestrians.	Studs provided as per guidance, no further action	No action
3.3.16	Risk of visually impaired pedestrians being unable to locate crossing points due to chamber covers being positioned within tactile paving, leading to them attempting to cross at unsafe locations and being struck and injured by passing vehicles whilst doing so.	It is recommended that recess chamber covers are provided with a tactile paving infill or that the chambers are appropriately relocated.	Due to existing utilities, some of the TS and SL chambers had to be relocated clashing with tactiles. In these instances recessed covers have been installed. Note that there were many existing chambers along the route clashing with proposed tactiles. In these cases SFN recommends CEC to replace them by recessed covers.	CEC to liaise with Utility Contractor	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.17	Risk of pedestrians tripping on kerb and sustaining personal injuries due to tactile paving being positioned on a transition kerb.	It is recommended that the uncontrolled crossings are appropriately amended so that the tactile paving is positioned adjacent to dropped kerbs with a maximum upstand of 6mm	NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.	SFN to undertake works if outwith tolerance	Remedial works to be undertaken on any NCR's outwith acceptable tolerance
3.3.18	Risk of visually impaired pedestrians being unable to locate controlled crossing point, leading to them attempting to cross at unsafe locations and being struck and injured by passing vehicles whilst doing so.	It is recommended that the tactile paving stem extends to the rear of the footway	As per ESDG factsheet M4 max tail length is normally 4800 mm. Variation A - If the gap between the tail end and the rear of the footway is <1000mm,run the tactile paving to the building line. Variation B - If the footway width is <6000mm ,run the tactile paving to the building line. None of these cases are applicable here.	CEC to monitor	No action
3.3.19	Risk of visually impaired pedestrians misinterpreting tactile paving due to tactiles being positioned on radii, leading to visually impaired pedestrians attempting to cross, becoming stuck on the carriageway, and being struck and injured by passing vehicles.	It is recommended that the affected tactile paving and accompanying dropped kerbs be relocated so as to clarify the intended crossing directions.	Agreed	SFN to undertake works	Agreed
3.3.20	Risk of injury to pedestrians as a result of sunken tree planting in footway.	It is recommended that the surface is flush with the footway or a suitable pedestrian friendly grid is provided at the tree bases.	Tree pit will be filled with top soil	SFN to undertake works	Tree pit will be filled with top soil

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.21	Risk of visually impaired pedestrians inadvertently stepping onto the carriageway due to footway being flush with carriageway, leading to them being struck and injured by passing vehicles.	It is recommended that appropriate measures are provided to delineate the footways and carriageways out with crossing points.	The mentioned locations are corners where there are 2 crossing points in perpendicular directions. The kerb has been laid flush along the corner for constructability purposes. Since there arent tactiles visually impaired pedestrians will not detect there is a ped crossing.	No action	No action
3.3.22	Throughout the extents of the scheme several dropped kerbs were observed that had upstands greater than 6mm. Risk of pedestrians tripping on kerb upstands and sustaining personal injuries.	It is recommended that dropped kerbs have an upstand of between 0mm and 6mm.	NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.	SFN to undertake works if outwith tolerance	Remedial works to be undertaken on any NCR's outwith acceptable tolerance
3.3.23	Several trip hazards were observed on footways throughout the extents of the scheme. This included sections of footway being unfinished and covers not being flush with the surrounding footway surfaces. Risk of pedestrians tripping on uneven footway surfaces and sustaining personal injuries.	It is recommended that uneven footway surfaces are appropriately repaired and that any existing covers that are not flush with the surrounding footways are made good.	NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.	SFN to undertake works if outwith tolerance	Remedial works to be undertaken on any NCR's outwith acceptable tolerance

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.24	Grasscrete is provided with the crossing extents at the southern crossing of Ocean Drive northbound at Ocean Terminal. Risk of pedestrians slipping / tripping and falling due to presence of grasscrete within extents of crossing points, resulting in them sustaining personal injuries.	It is recommended that grasscrete is removed from the extents of the crossing point and that an appropriate pavement surface is provided.	Agreed	SFN to undertake works	Remedial Works to be carried out as per RSA recommendation
3.3.25	Risk of non-motorised users colliding and sustaining personal injuries due to restricted footway width.	It is recommended that the feeder pillar is relocated to maximise the effective width.	Bus shelters, bus trackers and feeders are out of SFN scope.	CEC to monitor	No action
3.3.26	Risk of pedestrians stepping onto carriageway and being struck and injured by passing vehicles due to narrow footway width.	It is recommended that the footway is at least 1.5 metres wide, in line with Inclusive Mobility.	Out of the scope.	CEC to monitor and liaise with landowner	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.27	At several locations within the extents of the scheme it was observed that the road studs at crossing points do not extend across the full width of the crossing. Risk of visually impaired pedestrians becoming confused or disorientated due to road studs not continuing across the full width of crossings, resulting in them being trapped on the carriageway and struck and injured by passing vehicles.	It is recommended that the road studs extend across the full width of the crossing points.	SFN will install the ones that have not been installed before but is for CEC to maintain them.	SFN to undertake works	SFN will install the ones that have not been installed before but is for CEC to maintain them.
3.3.28	Gullies are provided within the extents of crossings at several locations. Risk of pedestrians tripping and falling due to presence of gullies within extents of crossing points, resulting in them sustaining personal injuries.	It is recommended that the gullies are relocated so as to be out with the extents of the crossings.	In several locations gullies had to be placed deviating from the design due to existing utilities. They can't be relocated. The mentioned cover in Lorne is a pedestrian friendly one. The rest of the mentioned covers are on the side of the mentioned pedestrian crossings.	No action	No action



**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.29	Risk of pedestrians tripping at vehicle crossovers due to surface not being flush with adjacent footways, resulting in the pedestrians sustaining personal injuries.	It is recommended that the surface of the vehicle crossovers are flush with that of the adjacent footways.	The kerb is flush across the peds path.	No action	No action
3.3.30	A cover is provided within the extents of the crossing of Tower Place at its junction with Ocean Drive that is not flush with the surrounding carriageway. Risk of crossing pedestrians tripping on cover and sustaining personal injuries due to covers not being flush with surrounding carriageway.	It is recommended that cover is appropriately lifted and re-set so as to be flush with the surrounding carriageway.	Statutory undertaker to place the cover correctly.	CEC to liaise with Utility Contractor	No action
3.3.31	Risk of pedestrians being struck and injured by vehicles whilst crossing due to inadequate green man times and long crossing lengths.	it is recommended that either a push button facility is provided on the central island or that the green man display is extended to allow all users to cross to at least beyond the central island.	Signals have been handed over to CEC. Any timing adjustment should be through them. Installation of additional push buttons are not feasible.	CEC to monitor	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.32	Risk of a pedestrian crossing in conflict with a westbound tram resulting in potential injury to pedestrian.	It is recommended that the visibility to and from the crossing point is appropriate.	During OM3A visibility from both driver and pedestrians point of view was checked. Visibility was confirmed along 40 m. A mirror was installed between the 2 tracks to improve even more the visibility after been request by ET. After the installation ET reported that the mirror does not provide enough conspicuity. The dimensions of the mirror are restricted by the DKE. SFN position is that visibility is compliant and there isnt any mitigation required considering the low speed of the trams at that point (max 5 km/h).	CEC to monitor and liaise with operator on any necessary mitigations	No action
3.3.33	Risk of cyclists losing control whilst attempting to follow cycle lane due to geometry of lane, leading to them sustaining personal injuries.	It is recommended that the geometry of the cycle lane is appropriate for use by all bicycle types.	The geometry of the cycle lane is appropriate for any kind of bicycle. The minimun radius is 4 meters.	Installed as per ESDG, no action	No action
3.3.34	Risk of visually impaired pedestrians colliding with street furniture, due to position of bus stop with respect to uncontrolled crossing, resulting in them sustaining personal injuries.	It is recommended that the extents of the uncontrolled crossing are kept clear of street furniture.	The bus shelter has not been installed by SFN. It was installed after the footpath was finished.	CEC to liaise with Public Transport and JCD	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.35	There are several bus stops on Leith Walk where corduroy paving is not provided beyond the uncontrolled crossing across the cycleway. Risk of visually impaired pedestrians inadvertently entering cycleway due to absence of corduroy paving, resulting in them being struck and injured by cyclists.	It is recommended that appropriate measures are provided to delineate the bus stop waiting area and cycleway along the full extents of the bus stop waiting area.	Agreed, corduroy is missing	SFN to undertake works	Correct paving to be laid as per RSA
3.3.36	Risk of cyclists failing to give way and emerging into the path of vehicles, resulting in them being struck and injured, due to absence of give way markings.	It is recommended that appropriate give way markings are provided.	Agreed	SFN to undertake works	Lining to be undertaken as per RSA
3.3.37	During the site investigation locations were observed where no segregation, or minimal segregation, is provided on Leith Walk. Risk of visually impaired pedestrians inadvertently entering cycleway and being struck and injured by cyclists due to minimal segregation being provided.	It is recommended that appropriate segregation is provided that is detectable by a user with visual impairments.	Agreed	SFN to undertake works	Remedial works to be undertaken

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.38	During the site investigation it was observed that the entire length of the raised white line segregation associated with the temporary segregated footway arrangement on Leith Walk has not been removed. Risk of pedestrians tripping and falling on segregation associated with previous arrangement, resulting in them sustaining personal injuries.	It is recommended that the existing raised white line segregation is removed.	The mentioned raised white line was not laid by SFN. CEC should remove it.	CEC to investigate removal	No action
3.3.39	Limited storage space is provided for cyclists at several locations where on-road cyclists join the segregated cycleway. At these locations the on-road cyclists have to give way to cyclists already on the cycleway. Risk of cyclists waiting on carriageway due to lack of storage space, leading to them being struck and injured by vehicles.	It is recommended that the anticipated future peak volume of cyclists using these links is assessed against the anticipated future peak volume of cyclists using Leith Walk and that the number of conflicts and likely wait time is assessed to ensure that the storage space is sufficient.	Storage space will be enlarge by moving the double discontinuous line oposite to the road.	SFN to undertake works	Storage space will be enlarge by moving the double discontinuous line opposite to the road.

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.40	During the site investigation many locations were observed on Leith Walk where the surface of the cycleway was uneven. Risk of cyclists becoming unseated due to uneven surfacing. Secondary risk of cyclists taking evasive action to avoid uneven surface, resulting in them losing control or striking and injuring pedestrians.	It is recommended that the surface of the cycleway is made good.	The mentioned locations are old street lighting locations that were removed after the cycleway construction. The surface was repaired.	SFN to undertake works	Remedial works to be undertaken
3.3.41	Risk of pedestrians stepping onto the cycleway to pass encumbered pedestrians or users using mobility aids due to restricted footway width, resulting in them being struck and injured by cyclists.	It is recommended that the footway width is appropriate for the anticipated footfall.	Minimum footway width is 1,5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.	Installed as per ESDG, no action	No action
3.3.42	Risk of pedestrians stepping onto the cycleway to pass encumbered pedestrians or users using mobility aids due to restricted effective footway width, resulting in them being struck and injured by cyclists.	It is recommended that the effective footway width is maximised.	Minimum footway width is 1,5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.	Installed as per ESDG, no action	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.43	During the site investigation it was observed that several of the push button units were not functioning. An example (from Pilrig Street) is shown in the photograph above. Risk of pedestrians crossing when not safe to do so due to pushbuttons not functioning, resulting in them being struck and injured by passing vehicles.	It is recommended that the push buttons are appropriately repaired.	All the junctions have been fully commissioned and handed over to CEC. CEC is now in charge of the maintenance.	CEC to monitor	No action
3.3.44	Near to the foot of the walk there are a number of Overhead Line Electrification (OLE) posts which are located immediately at the edge of the cycle lane. Risk of a cyclist colliding with the Overhead Line Electrification posts which are located on the edge of the new cycle lane, resulting in a cyclist falling and sustaining personal injury.	It is recommended that measures are implemented to guide cyclists away from these hazards and that appropriate measures are provided to make the hazards conspicuous.	Its SFN position that the poles are conspicuous enough. Also we would like to raise that the poles had to be relocated due to existing utilities and the proposed cycleway re-aligned slightly.	CEC to monitor and implement measures if necessary	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.45	The effective footway width on the south side of Ocean Drive is restricted by a traffic signal pole associated with the controlled crossing to the Port of Leith tram stop. Risk of pedestrians stepping onto the carriageway to signal pole due to restricted effective footway width, resulting in them being struck and injured by vehicles.	It is recommended that the effective width of the footway is maximised.	The width of the footway is compliant with the minimum 1,5 m as per the ESDG. Please note that signal poles had to be relocated due to existing utilities.	Installed as per design, no action	No action
3.3.46	Risk of a pedestrian tripping on the segregated cycleway as a result of it being on the direct desire line between the crossing point and London Road.	It is recommended that measures are provided to guide pedestrians to cross the cycle lane before heading towards London Road or that the area of footway is removed/landscaped to deter pedestrian use.	There is a cycleway ped crossing point right in front of the road crossing.	CEC to monitor, further works to be carried out to Elm Row cycleway	No action
3.3.47	Risk of pedestrians stepping onto carriageway into path of oncoming vehicles due to intervisibility being constrained by column.	It is recommended that the height of the existing column is reduced to improve intervisibility.	Out of the scope.	CEC to monitor	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.48	Risk of cyclists becoming unseated whilst attempting to transition between carriageway and cycleway due to kerb upstand.	It is recommended that the dropped kerb is appropriate for cyclists to transition.	NCRs/Defects have been raised and SFN have dealt with them if they were out of the design tolerances.	SFN to undertake Works if outwith tolerance	Remedial works to be undertaken on any NCR's outwith acceptable tolerance
3.3.51	During the site investigation it was noted that the stop line at The Shore tram stop was extremely worn. This is illustrated in the photograph above. Risk of vehicles failing to stop at crossing point due to the stop line being worn, leading to them proceeding into the crossing on a red signal and striking and injuring crossing pedestrians.	It is recommended that the stop line is refreshed	The stopline was wrongly laid thats why it was removed.	SFN to undertake Works	Remedial works to be undertaken
3.3.52	Risk of vehicles entering the tram track area and colliding with trams or failing to follow road markings resulting in confusion and late lane changes or manoeuvres, due to conspicuity of road markings laid on concrete.	It is recommended that all road markings on the concrete surface are made clearly visible and that a tack coat is provided below the road markings where they are laid on a concrete surface.	It requires maintenance, lining has been installed as per guidance. SFN dont agree that lines are difficult to see.	CEC to monitor	No action



**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.53	A raised pedestrian crossing is provided across the vehicular access to the Ocean Terminal Red Car Park. No markings to Diag. 1062 (TSRGD 2016) are provided on the ramp on the approach to the crossing. Risk of drivers / riders not observing raised table and losing control on ramp, resulting in vehicle striking a non-motorised user or piece of street furniture, due to absence of road markings on ramps.	It is recommended that appropriate markings to Diag. 1062 (TSRGD 2016) are provided on the ramp on the approach to the raised crossing.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
3.3.55	Risk of pedestrians striking signs mounted at inappropriate heights, resulting in personal injuries.	It is recommended that the signs are mounted at appropriate heights for their positions above footways.	Out of the scope.	CEC to monitor	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.56	Bollards were observed to be missing at several locations throughout the extents of the scheme. Risk of vehicles striking islands or segregation strips, resulting in vehicle occupants / riders sustaining personal injuries, due to absence of vertical features to highlight islands / segregation strips.	It is recommended that appropriate vertical features are provided to highlight the presence of the islands / segregation strips.	All the bollards were installed. CEC is in charge of replacing them in case they are vandalised or damaged.	CEC to monitor and replace if necessary	No action
3.3.58	Risk of visually impaired pedestrians striking sign pole and sustaining a personal injury due to position of sign pole with respect to tactile paving.	It is recommended that the sign post is relocated to minimise the risk of visually impaired pedestrians colliding with it.	Tactile will be amended. Utilities prevented us to install the sign pole as per the design drawing.	SFN to undertake Works	Tactile will be amended.
3.3.61	Risk of vehicles undertaking unsafe manoeuvres, and striking other vehicles whilst doing so, due to signage being obscured by signal heads.	It is recommended that the sign is appropriately relocated so as to be visible to approaching drivers / riders.	No U-turn sign will be relocated on the signal pole at the D island.	SFN to undertake Works	No U-turn sign will be relocated on the signal pole at the D island.

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.62	During the site investigation it was observed that several lighting columns on Leith Walk were not functioning. Risk of vehicles colliding with other vehicles, street furniture, or crossing non-motorised users, due to inadequate illumination.	It is recommended that the lighting columns are appropriately repaired.	Street lighting testing certificates will be issued to CEC as part of the evidence file. These test certificates demonstrate that the installation is satisfactory. CEC is in charge of the SL maintenance.	CEC to monitor and maintain	No action
3.3.63	During the site investigation it was observed that two post had been mounted immediately in front of a primary signal head on York Place at Picardy Place Gyrotory. Risk of vehicles proceeding through red light due to primary signal head being obscured by sign face, resulting in vehicles striking trams or other vehicles.	It is recommended that the posts (and accompanying sign are appropriately relocated to a position where forward visibility to the traffic signals will not be obscured.	That sign had a very similar situation before the island works. It had to be relocated because it clashed with the proposed ped crossing. Taking into account the directional road markings to Leith, Portobello, Old Town, A900, A1, A7 and A68, SFN propose to remove the mentioned sign.	SFN to undertake Works	Sign now removed
3.3.64	Risk of rear end shunts due to sudden braking at random stop line on York Place.	It is recommended that the stop line is removed	Agreed	SFN to undertake Works	Works to be undertaken as per RSA

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.65	No road marking to Diag. 1062 (TSRGD 2016) is provided in the cycle transition on McDonald Road eastbound. There is a risk that this could lead to cyclists being unaware of the presence of the ramp and could lead to them being unseated or losing control when hitting the bottom of the ramp.	It is recommended that an appropriate road marking to Diag. 1062 (TSRGD 2016) is provided at this location.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
3.3.67	Risk of vehicles undertaking sudden manoeuvres due to being unaware of start of tram lane, resulting in side swipe or rear end shunt type collisions.	It is recommended that tapered tram lane road markings are provided at these locations.	Taper white line as in Shandwick/stevedore to be implemented	SFN to undertake Works	Taper white line as in Shandwick/stevedore to be implemented
3.3.68	Risk of general traffic entering tram only lanes, resulting in conflict with trams or vehicles making sudden lane changes and colliding with other vehicles.	It is recommended that there are sufficient tram lane signs and markings to inform drivers / riders of the restrictions and that these are sited where they can be easily seen by drivers / riders.	Note that at the time of the RSA was carried out road markings were not fully implemented. Now TRAM ONLY road markings have been implemented as per the design drawings. The dimensions of the road marking signs are compliant taking into account the maximum speed permitted (20 mph). Please also note proposal for 4.5.17.	Works now undertaken	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3.70	A prohibition of motorised traffic is in place at the junction of Iona Street and Leith Walk. Risk of vehicles proceeding across through prohibition of motor traffic restriction, leading to them striking and injuring non-motorised users, due to conflicting signage.	It is recommended that the no right turn sign (Diag. 612, TSRGD 2016) is removed.	Agreed.	SFN to undertake Works	Works to be undertaken as per RSA
4. Items Resulting from the Stage 3 Road Safety Audit					
4.1 General					

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.1.1	As shown in the photograph above, no gap is provided in the parking bay on the east side of Leith Walk, south of Manderston Street, to enable vehicles to transition between Leith Walk and Manderston Street. It was noted during the site visit that this access lane is heavily used by motorcycles (primarily for deliveries from the adjacent restaurant). If parking obstructed this access, there is a risk that vehicles could be driven on the footway to find a suitable access to Leith Walk, and this could result in conflict with pedestrians or cyclists. There is also the risk that a vehicle could attempt to enter Leith Walk between parked vehicles and be struck by a vehicle on Leith Walk due to the restricted visibility.	It is recommended that a suitable gap is provided in the parking bay to enable vehicles to safely access and egress from the access.	Laybays as per CEC TRO drawings.	CEC to monitor and action as necessary	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.1.2	As shown in the photograph above, a parking bay is located to the south of Casselbank Street. The Audit Team have concerns that a vehicle parked in the parking bay could restrict intervisibility between crossing non-motorised users and vehicles turning into Casselbank Street. If visibility was to be restricted, there is a risk that a turning vehicle may not be aware of non-motorised users crossing, leading to them striking and injuring them.	It is recommended that visibility at the junction is maximised.	Parking bays are located as per the CEC TRO drawings. The mentioned restricted visibility was shown in the DD+ Alignment that was accepted via DS-452. The only solution would be to removed the mentioned parking bay that will require a change in the TRO drawing.	CEC to monitor	No action
4.1.3	At the floating bus stop north of Pilrig Street, it was noted that intervisibility between cyclists and pedestrians transitioning from the bus stop island to the footway could be obscured by the bus stop flag and a bin. This could result in approaching cyclists being unaware of pedestrians about to step onto the cycleway, which could lead to a cyclist	It is recommended that visibility is maximised and / or that suitable measures are provided to warn cyclists of the possible presence of crossing pedestrians.	Both bus stop flag and bin have not been installed by SFN but by CEC. Note that was not a bin location in SFN IFC drawings.	CEC to monitor and implement measures if necessary	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
	striking and injuring a pedestrian.				
4.1.4	As shown in the photographs above, two planters are provided adjacent to the cycleway on the northbound approach to Pilrig Street. A limited offset is provided between the cycleway and the planters. The Audit Team have concerns that a cyclist could clip one of the planters with their handlebars, leading to them fall from their bicycle and sustain personal injuries.	It is recommended that the planters are relocated to provide suitable clearance to the cycleway.	Planter location instructed via PMI-1588. Note these were not planter locations in SFN IFC drawings.	Planters to be removed along the route	No action



**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.1.5	<p>During the site investigation several vehicles were observed loading on the footway or cycleway. Examples are shown in the photographs above. There is a risk that a vehicle could strike and injure a non-motorised user when mounting a footway or the cycleway or that a door could be opened that could strike a passing cyclist. There is also a risk that a loading vehicle could obscure visibility to traffic signals, which could lead to approaching drivers / riders to miss a red signal and proceed into a controlled crossing point and strike and injure crossing non-motorised users.</p>	<p>It is recommended that suitable facilities are provided for loading, that suitable kerbside restrictions are provided, and that kerbside restrictions are enforced.</p>	<p>TRO enforcement by authorities</p>	<p>CEC to monitor and discuss Enforcement with NSL</p>	<p>No action</p>

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.1.6	During the site investigation it was noted that a chamber cover on the east side of Leith Walk, north of Annandale Street, was damaged and has been covered by a plastic cover (which itself had been damaged). There is a risk that a pedestrian could trip on the damaged chamber cover or damaged plastic cover, leading to them falling and sustaining personal injuries.	It is recommended that the chamber cover is appropriately repaired / replaced.	Not in SFN scope	CEC to liaise with Utility Contractor	No action
4.1.7	During the site investigation two locations were observed where the carriageway surfacing was in poor condition: Blenheim Place, on approach to London Road; and the west side of Picardy Place gyratory. If a vehicle was to travel over these damaged areas of carriageway, there is a risk that they could lose control. This is a particular risk for bicycles or powered two wheelers, as riders could become unseated and sustain personal injuries.	It is recommended that the carriageway surface is appropriately repaired at these locations.	Blenheim place corrected. Picardy place not in SFN scope since St james Project opened that track.	SFN to undertake Works and Blenheim Place, CEC to investigate other locations	Agreed as per OO response

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.3 Junctions					
4.3.1	During the site investigation it was noted that there were several pedestrian units or low level cycle aspects that had been vandalised. There is a risk that this could lead a non-motorised user to mistakenly believe that it is safe to cross when crossing vehicular traffic is not stopped. This could lead to vehicles striking and injuring crossing non-motorised users.	It is recommended that the pedestrian units and low level cycle symbols are appropriately cleaned or replaced.	CEC maintenance	CEC to monitor and maintain	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.3.2	During the site investigation it was noted that a secondary signal head out was not functioning on Ocean Drive. This is shown in the photograph above. If one or more of the other signal heads at this location were to fail, there is a risk that the driver / rider of an approaching vehicle may not be able to see a red signal, which could lead to them proceeding across the stop line during the pedestrian stage and strike and injure a crossing pedestrian.	It is recommended that the secondary signal head is appropriately repaired.	CEC maintenance	CEC to monitor and maintain	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.3.3	During the site investigation it was noted that a secondary signal head out was not visible to approaching drivers / riders at this location due to its orientation. This is shown in the photograph above. If the primary head was to fail, there is a risk that the driver / rider of an approaching vehicle may not be able to see a red signal, which could lead to them proceeding across the stop line when not safe to do so and colliding with another vehicle or a crossing pedestrian.	It is recommended that the secondary signal head is reorientated to be visible to approaching drivers / riders.	CEC maintenance	CEC to monitor and maintain	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.3.4	During the site investigation a vehicle was observed parked across the crossing across Laurie Street at its junction with Constitution Street. This is shown in the photograph above. A vehicle parked at this location would obscure intervisibility between approaching vehicles and crossing pedestrians, as well as between approaching vehicles and tram drivers. This could lead to westbound vehicles on Laurie Street striking and injuring crossing pedestrians, or westbound vehicles pulling out from Laurie Street into the path of a tram.	It is recommended that appropriate kerbside restrictions are provided to provide appropriate visibility at the crossing and junction.	TRO enforcement by authorities	CEC to monitor and discuss Enforcement with NSL	No action
4.3.5	Risk of vehicles turning onto Leith Walk from Dalmeny Street and striking and injuring crossing pedestrians due to position of crossing, visibility of signal heads, and constrained visibility on approach.	It is recommended that: <ul style="list-style-type: none"> <li>• Visibility to the crossing is maximised on the approach from Dalmeny Street.</li> <li>• The position of the stop line on Dalmeny Street is relocated to provide appropriate visibility to the traffic signals downstream.</li> <li>• Appropriate measures are provided to warn approaching drivers / riders of the location of the crossing.</li> </ul> Reference is also made to the previous	The truck is wrongly parked invading the carriageway. Parking bay is located as per CEC TRO drawings. The only solution would be to remove the parking bay.	CEC to monitor, possible removal of Parking if deemed necessary	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
		Problem 3.2.12 above and to Police Scotland's comments which are contained in that problem.			
4.3.6	Risk of vehicles losing control when turning due to overrunning kerb line, resulting in vehicle occupants / riders sustaining personal injuries.	It is recommended that appropriate measures are provided to guide vehicles to the ramp down to Leith Walk.	Driver behaviour	CEC to monitor and investigate possible mitigation if necessary	No action
4.3.7	Risk of vehicles striking planters and vehicle occupants / riders sustaining personal injuries. Secondary risk of vehicles undertaking unsafe manoeuvres upon finding there to be no access onto Leith Walk, resulting in them colliding with other road users or street furniture.	It is recommended that: • Appropriate measures are provided on the planters to improve their conspicuity during the hours of darkness or periods of reduced visibility; and • Appropriate signage is provided on Brunswick Street to inform approaching drivers / riders that there is no access onto Leith Walk.	SFN was instructed via PMI-1574 to place the mentioned planter to stop traffic on Brunswick Street temporarily. Within the same instruction SFN was asked to remove any temporary signs.	Signage installed and further works to be carried out to form permanent solution to Brunswick Street	No action
4.3.8	Risk of vehicles proceeding across stop line when not safe to do so, and striking and injuring crossing pedestrians whilst doing so, due to "see-through" to traffic signals downstream.	It is recommended that appropriate measures are provided to reduce the risk of see-through to the junction downstream from the signalised crossing.	There are 40 meter between both stop lines. SFN disagree this is a problem.	CEC agree, no action required	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.3.9	Risk of vehicles proceeding across stop line when not safe to do so and colliding with crossing non-motorised users or other vehicles, due to visibility to signal head being obscured by parked vehicles.	It is recommended that appropriate measures are provided to enhance the visibility of the signal heads.	Double yellow lines will be added as per Road Marking drawings.	SFN to undertake Works	Double yellow lines will be added as per Road Marking drawings.
4.3.10	Risk of vehicles striking and injuring crossing pedestrians or cyclists due to intervisibility being obscured by parked vehicles.	It is recommended that appropriate measures are provided to improve intervisibility at the junction.	Out of the scope.	CEC to monitor and investigate possible mitigation if necessary	No action
4.3.11	Risk of vehicles being struck by trams due to queuing across tram lines.	It is recommended that appropriate measures are provided to discourage vehicles from queuing across the junction and obstructing the tram lines.	The only solution would be to lay a yellow box across the junction but that was discussed and disregarded during the design phase by CEC. This potential solution would require a TRO update and a change in the scope.	Yellow box now installed as per RSA	No action
<b>4.4 Non-Motorised User Provision</b>					
4.4.1	Risk of visually impaired pedestrians inadvertently stepping onto the carriageway and being struck and injured by passing vehicles due to tactile paving being insufficiently deep.	It is recommended that the tactile paving layouts are amended to reduce the risk of pedestrians missing the tactile paving.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA



**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.4.2	Risk of visually impaired pedestrians becoming stuck on the carriageway and being struck and injured by vehicles due to lack of delineation between carriageway and shared use footway.	It is recommended that appropriate measures are provided to delineate the footway and carriageway at this location.	Not in SFN scope. Adoption line. Private land CEC to discuss with land owner	CEC to monitor and investigate possible mitigation if necessary	No action
4.4.3	Risk of users in mobility chairs overturning and sustaining personal injuries due to gradients of crossing points.	It is recommended that the gradients at crossing points are suitable for all users.	Note that design is constrained by the existing topography eg. door frontages.	Noted and CEC to monitor, however restricted due to existing topography	No action
4.4.4	Risk of visually impaired pedestrians inadvertently stepping onto the carriageway and being struck and injured by passing vehicles due to absence of tactile paving.	It is recommended that appropriate tactile paving is provided.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
4.4.5	Risk of visually impaired pedestrians being unable to locate crossing due to confusing tactile paving layout, resulting in them crossing at unsafe locations and being struck and injured whilst doing so.	It is recommended that the tactile paving layout is amended to enable it to be detected by a visually impaired pedestrian approaching from the east or west.	Corduroy and tramline paving laid as agreed with CEC.	Installed as per ESDG, no action	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.4.6	Risk of visually impaired pedestrians being unable to locate crossing points to floating bus stop, leading to them crossing at unsafe locations and being struck and injured by cyclists.	It is recommended that the depth of the tactile paving is increased.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
4.4.7	Risk of cyclists crossing when not safe to do so and being struck and injured by vehicles due to lack of clarity regarding the requirement to stop.	It is recommended that the existing give way line is replaced by a stop line (to Diag. 1001, TSRGD 2016).	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
4.4.8	Risk of pedestrians tripping or cyclists losing control, due to carriageway / footway surfacing.	It is recommended that the carriageway and footway surfaces are made good.	Agreed.	SFN to undertake Works	Works to be undertaken as per RSA
4.4.9	Risk of cyclists proceeding across stop line when vehicle aspect is on green and being struck and injured by left turning vehicles.	It is recommended that the position of the low-level cycle signal is amended so as to be clear to approaching cyclists that it is this traffic signal that they should comply with.	CEC traffic enforcement	CEC to monitor and investigate possible mitigation if necessary	No action
4.4.10	Risk of crossing pedestrians stepping into the path of oncoming vehicles due to intervisibility at crossing being obscured by parked vehicles.	It is recommended that the extents of the parking bays are reduced to provide appropriate visibility at the crossings.	Parking bays are located as per the CEC TRO drawings. The proposed solution will require a change in the TRO drawing and a change in the scope.	CEC to monitor and investigate possible mitigation if necessary	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.4.11	Risk of cyclists colliding due to unclear priority.	It is recommended that appropriate measures are provided to clarify which movements have priority	The junction arrangement has been discussed with the Client in terms of layout and road markings. City of Edinburgh Council have stated that they are content to retain the junction in its current form.	CEC to monitor and investigate possible mitigation if necessary	No action
4.4.12	Risk of pedestrians slipping on chamber cover resulting in them falling and sustaining personal injuries.	It is recommended that the cover is replaced or that appropriate measures are provided to reduce the risk of pedestrians slipping on the cover.	Not in SFN scope	CEC to liaise with Utility Contractor and undertake Works if required	No action
4.4.13	Risk of pedestrians being struck and injured by cyclists or motorised vehicles due to lack of delineation between carriageway, footway, and cycleway.	It is recommended that appropriate measures are provided to delineate the footways from the carriageway and cycleway	The full CEC design approach of Elm Row was to provide a "subtle delineation" between footpath and carriageway. The proposed measure would require a change in the scope.	CEC to undertake further works at Elm Row, however street furniture has been installed since RSA to help delineate	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.4.14	Risk of cyclists cutting corner of cycleway and striking and injuring pedestrians whilst doing so.	It is recommended that an appropriate radius is provided in the cycleway at this location.	The junction arrangement has been discussed with the Client in terms of layout and road markings. City of Edinburgh Council have stated that they are content to retain the junction in its current form. Moreover cyclists are to slow down when approaching to the junction and they have a zebra crossing right before the bend.	CEC to monitor, however zebra provided to slow cyclists at the junction and allow ease of movement	No action
4.4.15	Risk of cyclists striking overhanging vegetation and being unseated, resulting in personal injury. Secondary risk of cyclists encroaching onto footways to avoid overhanging vegetation and striking and injuring pedestrians whilst doing so.	It is recommended that the vegetation is appropriately trimmed / cut back.	Softlandscaping is not completed yet. It will be completed by the end of November 2023.	SFN to undertake works	Works to be undertaken
4.4.16	Risk of parked or loading vehicles overhanging or unloading items into cycleway, leading to cyclists striking them and sustaining personal injuries.	It is recommended that appropriate measures are provided to reduce the risk of parked or loading vehicles overhanging or unloading items into cycleway.	Bollards have been installed.	Bollards have now been installed	No action
4.4.17	Risk of cyclists losing control when undertaking sharp turning manoeuvres, resulting in them falling and sustaining personal injuries.	It is recommended that appropriate radii are provided in the cycleways that are suitable for use by all types of bicycles.	Constructed cycleway is wider than design requirements.	Installed as per ESDG and relevant guidance, no action	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.4.18	Risk of cyclists attempting to cross, finding there is no facility opposite, and continuing into pedestrian crossing or footway and striking and injuring a pedestrian whilst doing so.	It is recommended that the cycle crossing is removed.	The mentioned cycle crossing has been infilled with paving slabs.	SFN installed paving however lining to be removed	Lining Works to be undertaken
4.4.19	Risk of pedestrians tripping on metal plate, resulting in them sustaining personal injuries.	It is recommended that the metal plate is removed and that the surfacing underneath is made good.	CEC will take care of them. Not in SFN scope.	CEC to liaise with Utility contractor and undertake works if necessary	No action
4.4.20	Risk of vehicle striking and injuring a cyclist due to alignment of advisory cycle lane.	Notwithstanding the recommendation in 3.3.33 above; it is recommended that the arrangement is appropriately amended to reduce the risk of a cyclist being struck by a following vehicle.	Layout agreed with CEC.	Layout installed to reduce angle of crossing track as previously stipulated earlier in the RSA	No action

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.4.21	Risk of cyclists striking and injuring pedestrians due to route not being continuous. Secondary risk of cyclists merging onto carriageway when not safe to do so and being struck and injured by vehicles, due to route not being continuous.	It is recommended that suitable infrastructure is provided to enable cyclists to continue southbound whilst the section of cycleway on Elm Row is closed.	The section is open now	Section has now been opened and risk removed	No action
<b>4.5 Road Signs, Carriageway Markings and Lighting</b>					
4.5.1	Risk of vehicles turning right across tram tracks and being struck by trams whilst doing so, due to absence of signage or road markings to inform users to turn left.	It is recommended that appropriate road markings and / or signage are provided to inform users of the need to turn left.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
4.5.2	Risk of vehicles failing to stop due to absence of stop line, resulting in them striking crossing non-motorised users or emerging into the path of oncoming vehicles.	It is recommended that an appropriate road marking is provided to Diag. 1002.1 (TSRGD, 2016).	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
4.5.3	Risk of vehicles undertaking late lane changes to avoid entering tram lane resulting in side-swipe collisions, due to start of tram lane sign being obscured by parked vehicles.	It is recommended that appropriate forward visibility is provided to the start of tram lane sign.	The only solution would be to remove the parking space there but parking spaces have been located as per CEC TRO drawings. Its for CEC to decide whether they prefer to remove the parking space to provide more forward visibility or to keep it. SFN will move the sign to the central OLE pole. Please	SFN to undertake Works	SFN will move the sign to the central OLE pole. Please note that additional road markings will be implemented as per item 4.5.17.

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
			note that additional road markings will be implemented as per item 4.5.17.		
4.5.4	Risk of vehicles failing to stop at stop line due to signal head being obscured by sign face, resulting in them striking and injuring crossing non-motorised users or colliding with other vehicles.	It is recommended that the traffic sign face is repositioned so that appropriate visibility to the signal heads is provided.	The sign is not in the correct position. But if we place it as per the design is going to be obscured by the signal.	SFN to undertake Works	Sign to be move to the central OLE.
4.5.5	Risk of vehicles on southbound carriageway crossing central reserve and colliding with a tram or a northbound vehicle, due to signage of car park on west side of road.	It is recommended that the signage facing southbound vehicles is removed.	The mentioned signs have not been installed by SFN	CEC to investigate and remove if appropriate	No action
4.5.6	Risk of cyclists failing to slow and / or give way to crossing pedestrians, resulting in them striking and injuring crossing pedestrians, due to absence of mini zebra road markings.	It is recommended that appropriate measures are provided to encourage cyclists to slow and give way to crossing pedestrians.	Agreed	SFN to undertake Works	Agreed

**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.5.7	Risk of vehicles braking sharply due to provision of road markings, resulting in rear-end shunt collisions.	It is recommended that the transverse lines on the approach to the signalised junction are removed.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
4.5.8	Risk of westbound vehicles colliding with kerb and losing control, or mounting footway and striking and injuring pedestrians, due to confusing provision of road markings.	It is recommended that the road markings are amended to make it clear that the road is two-way and not to direct drivers / riders into the kerb line.	Agreed	SFN to undertake Works	Works to be undertaken as per RSA
4.5.9	Risk of vehicles making sharp lane changes resulting in side-swipe collisions, due to restricted visibility to tram lane sign.	It is recommended that the sign is repositioned to maximise visibility to the sign and that it is orientated to be visible to oncoming traffic.	Laybay as per CEC TRO drawings. Sign to be reoriented by CEC.	CEC to undertake works	No action
4.5.10	Risk of vehicles making sharp lane changes resulting in side-swipe collisions, due to absence of signage of bus lane.	It is recommended that appropriate signage to Diags. 958 and 959B (TSRGD, 2016) are provided.	Not in CEC TRO drawings	CEC to monitor and implement measures if necessary	No action
4.5.11	Risk of vehicles failing to stop at stop line, resulting in them emerging onto Leith Walk and being struck by passing vehicles, due to road markings being worn.	It is recommended that the road markings are appropriately refreshed.	Road markings have not been laid. They will be implemented.	SFN to undertake Works	Road markings will be implemented



**STAGE 3 Road Safety Audit – Designers Response**

Ref	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
4.5.12	Risk of vehicles making sudden manoeuvres resulting in side-swipe collisions, due to worn road markings.	It is recommended that the road marking is appropriately refreshed.	CEC is in charge of the maintenance.	CEC to monitor and maintain	No action
4.5.13	Risk of vehicles attempting to turn right from nearside lane on Leith Walk, resulting in side-swipe collisions, due to road markings not having been ineffectively removed.	It is recommended that the road markings are amended to clarify that the nearside lane is ahead only.	The road marking laid is correct.	CEC to monitor and investigate possible mitigation if necessary	No action
4.5.14	Risk of side swipe collisions due to vehicles merging due to the presence of bus lane. Secondary risk of vehicles braking sharply when trying to merge, leading to rear-end shunt collisions, due to the presence of bus lane.	Without prejudice to problem 4.5.11, it is recommended that either: • The bus lane is removed or terminates further in advance of the traffic signals; or • Improved signage is provided to inform drivers / riders of the requirement to merge.	Not in SFN scope	CEC to monitor and investigate possible mitigation if necessary	No action
4.5.15	Risk of head-on collisions or side swipe collisions between vehicles entering Balfour Street and exiting vehicles due to the lane configuration and cycle lane markings.	It is recommended that the road markings are amended to ensure there is adequate effective carriageway width to reduce the potential for vehicle to vehicle conflict.	The junction arrangement has been discussed with the Client in terms of layout and road markings. City of Edinburgh Council have stated that they are content to retain the junction in its current form.	CEC to monitor and investigate possible mitigation if necessary	No action

**STAGE 3 ROAD SAFETY AUDIT RESPONSE REPORT**

**6 DESIGN ORGANISATION AND OVERSEEING ORGANISATION STATEMENTS**

Include the following statements to be signed by the design organisation and the Overseeing Organisation.

**Design organisation statement**

On behalf of the design organisation I certify that: 1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.	
Name:	Ana Saad
Signed:	
Position:	Design Manager
Organisation:	SFN
Date:	23/11/2023

**Overseeing Organisation statement**

On behalf of the Overseeing Organisation I certify that: 1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and 2) the agreed RSA actions will be progressed.	
Name:	Robert Armstrong
Signed:	
Position:	Senior Interface Manager
Organisation:	City of Edinburgh Council
Date:	23/11/2023