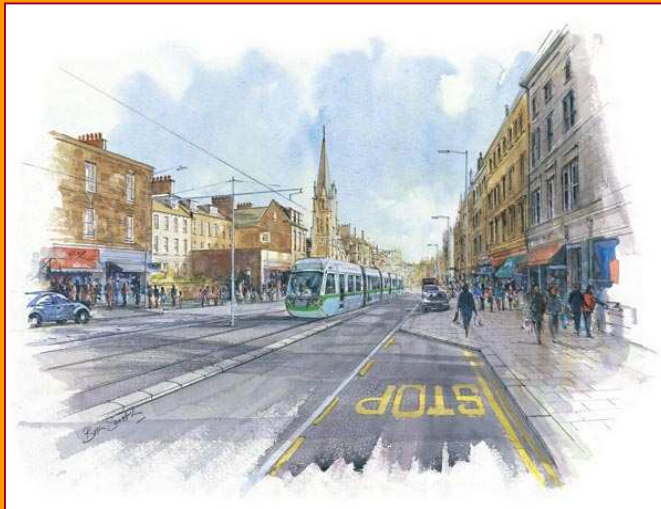


# Cycling and the Edinburgh tramway



For: TIE Ltd & Spokes  
November 2007

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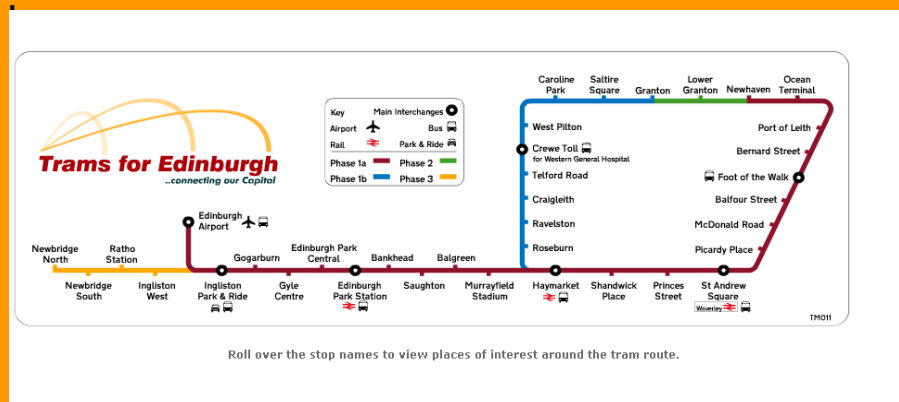
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# 1. Introduction

The city of Edinburgh has been planning a new tramline. TIE Limited is responsible for preparing all designs for the roads concerned.

Spokes is an organisation representing Edinburgh cyclists and advocating the position of cyclists in traffic.

To further explore the possibilities for good cycle facilities while designing the tramway in several major Edinburgh streets, TIE and Spokes agreed to seek expertise on this matter in The Netherlands.



## Goudappel Coffeng

Goudappel Coffeng has been asked to look at provisions for cyclists along the on-road sections of Tram route 1a. A site visit and discussion with all parties was held in Edinburgh on 8th and 9th November 2007.

Based on the experience of such facilities in the Netherlands and elsewhere in Europe, Goudappel Coffeng have prepared this report to bring about and illustrate various options.

This report concentrates on Leith Walk, Princes Street and St. Andrew Square, but some principles could as well apply to other streets.

In this stage it has not been the intention to make detailed designs.



## 2. General Remarks

Edinburgh has been planning a new tramline to make public transport more efficient.

The lay-out of the Edinburgh traffic system is based on heavy usage by private cars and public transport (buses). Most streets provide the maximum available space to driving and parking of cars.

Improvement of the public realm can be one of the positive consequences of the project.

Cycling in Edinburgh has over the years become a serious means of transport. Good off-road facilities for cycling have been built on deserted railways. On-road facilities have been mainly limited to advanced stop lanes at junctions and some lanes at the side of streets. Many of these lanes suffer from vehicle parking.

The introduction of a tram system is a chance to emphasise other means of urban transport than private cars. This could work out not only as a good form of public transport, but also provide good facilities for cyclists on the main tramway corridors.

Dedicating of the main roads such as Leith Walk only for public transport (trams and buses), cyclists and pedestrians, as happens in many French cities (Straatsburg, Orleans), has not been considered a serious option.

***City of Edinburgh Local Transport Strategy, states that...***

*In tram and bus schemes, "conditions for pedestrians and cyclistsshould be maintained or improved"*  
[policy PT10]

*and*

*"Safe provision for cyclists will be made on streets used by the tram" [policy Cycle 10]*

***The City Council meeting on 25 October 2007 decided...***

*"To reaffirm the commitment in the Local Transport Strategy to maintain or improve conditions for pedestrians and cyclists(...).*

### 3. Remarks on cycling

In the Netherlands the position of cyclists in traffic goes without saying. In every new design for a street facilities for cyclists will be laid out. In the Netherlands standards for cycling facilities have therefore been developed.

This is not (yet) the general practice in the UK, although efforts are being made to improve this situation. Specifications have been developed for designing a tramway in Edinburgh, which include specifications for cycle facilities. (See scheme)

For reasons of safety it is essential to meet the standards, or not have these facilities at all. It's unsafe to suggest for example there is a cycle lane, if the space for vehicles and cycles is too narrow for accommodation of both.

In the Dutch design practice cyclists are accommodated mainly in the "slow realm" of pedestrians, as opposite to the "fast realm" of cars, buses (and parking).

With streets the size of those in Edinburgh a safe and comfortable position for cyclists must be possible, within the local constraints

From Design Manual Working Draft 2  
(TIE, 14th november 2003):

- *"The objective is to increase and improve the quality of the public realm by readressing the distribution of space between the different user groups, including vehicles, public transport, pedestrians and cyclists"*
- *"The key issues associated with pedestrians and cyclists in relation to the proposed tram system are:*
  - *Safety*
  - *Freedom of movement "*
- *"It is important that cycleways are of adequate size and physical barriers limited to areas of high speed track, in order to generate safe and efficient cycleways."*
- *"Cyclists should be given priority by providing adequate space adjacent to the tram route. Cycleways alongside tram routes should be 1.75m desirable (minimum) and 1.5m normal (minimum)."*
- *"Cycleways should be fluent throughout the tram route, avoiding interaction with both tram and vehicles such as parked cars or unloading areas and be designed so as not to cross rails."*



## 4. Design principles

### 4.1 Poles for overhead wire

One aspect of the current design is the position of the poles for the overhead wire. They are now situated in the middle of the street. Doing so leads to an extra consumption of space. In the current design it takes 1.5 m to place them.

The main advantage is probably the lower costs of the poles, and the possibility to place traffic lights on the thus created isle.

Bringing the poles to the side of the street will reduce the width of the tramlane by 1.5 m. This means it provides the potential space needed for one cyclelane!

Poles can be positioned in the strip used for parking or on the pavement. Thus they can also serve as poles for street lightning. Maintenance is easier if poles are at the side, rather than having to dig up or interfere with the space between the two tramlines, thereby possibly blocking both lines.

Traffic lights can be located on the islands that are needed at junctions for pedestrians to be able to cross the street in several phases. These islands are to be located to both sides of the tram lane anyway. In this way extra space is only needed at junction, not all the way along the street.

If it is not permitted to cross the tramway coming from small sidestreets, then a 1.5 m wide barrier could be applied.

### 4.2 Compulsory cycle facilities



Cycle lanes, and specially dedicated lanes for cyclists are safe and easy, when used. In The Netherlands the use of these facilities is in most cases compulsory.

This much used sign means one has to use the cycleway and is not allowed on the main road



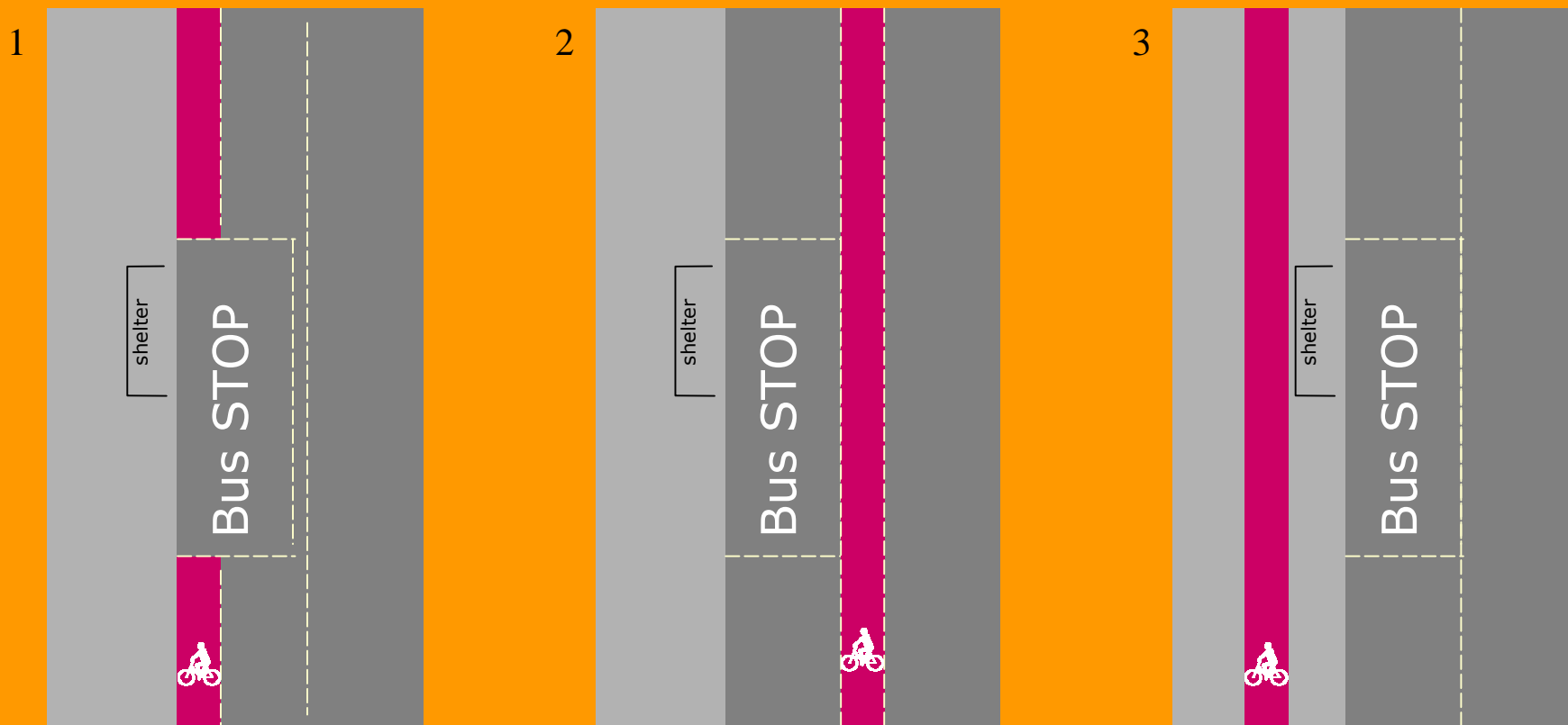
## 4.3 Cycle lanes vs bus stops

At this moment the general practice for cycle lanes in Edinburgh is that at bus stops they are interrupted. (1)

This brings about an uncomfortable and unsafe position for cyclists, and some disturbance for bus traffic.

By positioning the cycle lane next to the loading/unloading-area of buses, mutual interference is less, but still cyclists and buses have to cross.

In streets with many buses and busstops (i.e. Princes Street) separating buses and cycles is the most safe solution and gets the best traffic flow. Area for shelters should be provided near the curb.





## 5. Leith Walk

TIE has made a new design for all streets in which the new tramline is going to be laid out.

In the cross section for Leith Walk a 1.0 m wide cycle lane has been drawn, next to a vehicle lane of 2.45m.

Knowing that many trucks and buses are at least 2.5m wide, this doesn't look like a safe solution. We would suggest a minimum of 3.0 m for vehicles next to a cycle lane of at least 1.5m.

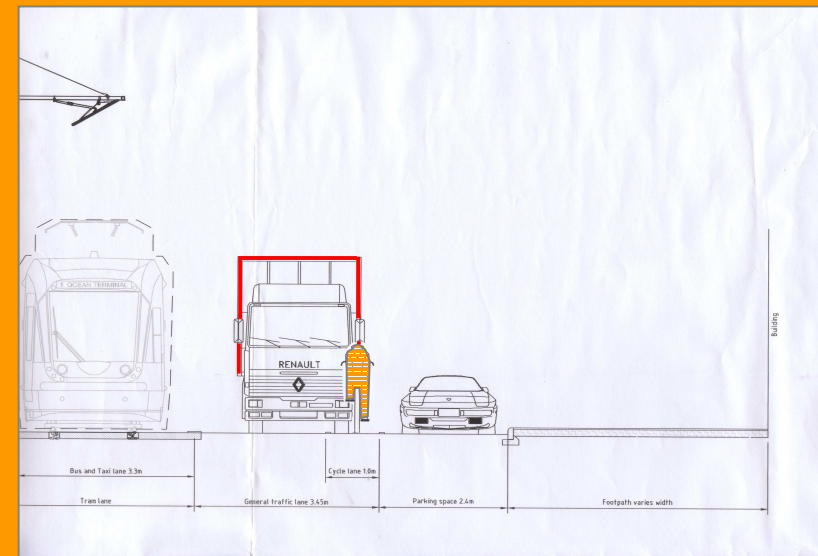
Function of Leith Walk:

Leith Walk is a busy street with many hairdressers, betting offices, bars, grocery stores and a lot more. It appears to have a merely local function, although there are some more specialised shops. Due to fact that Leith Walk connects Leith with the city centre, the many motorised passers by form part of the clientele.

Most of the parking space is available in sidestreets.

To be able to comment on the designs made, and make propositions for possible improvement, we would suggest to

1. Develop possible cross sections
2. Investigate the width of the profile
3. Discuss solutions at junctions and stops







## 5.1 Develop possible cross sections

To investigate on other possible cross-sections over Leith Walk we have first drawn some standards.

In discussions a minimum size of the pavement of 2.0 m was discussed. According to the function of this street we think 3.0 m is the minimum.

Parking space can be reduced to 2.0 m wide, when parking area is clearly marked, and possibly a small curb is used between parking space and cycle lane; a 0.5 m buffer between cycle lane and parking is desirable.

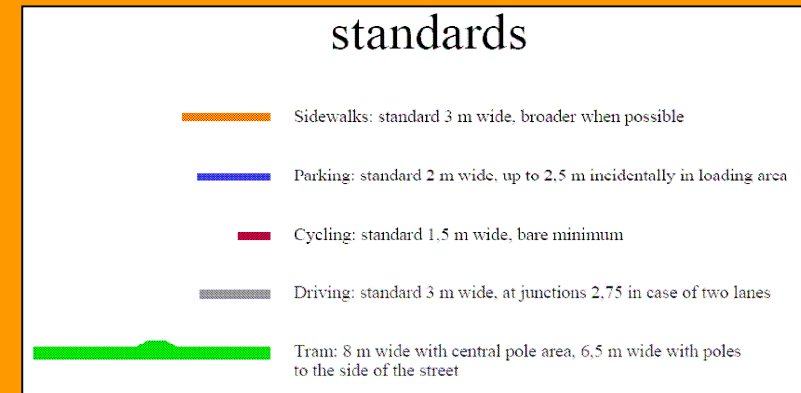
Where unloading takes places, parking can be 2.5 m wide, reducing the size of the pavement by 0.5 m (but only temporarily)

Cycle lane: minimum of 1.5m, not to be interrupted by bus stops

Traffic-lane: 3.0 m wide; near junctions two lanes can be 5.5 m together.

Tram and bus use a separated lane. When poles for overhead wire are in the middle, 8.0 m is the minimum, to be reduced to 6.5 m with poles to the side of the street

Using these standards, the TIE-profile adds up to 26 metres.



## 5.2 Investigate the width of the profile

The narrowest part of Leith Walk is 23-24 metres wide. Most of it, from Stead's Place to the South, is 26.5 metres or more. (see p 11)

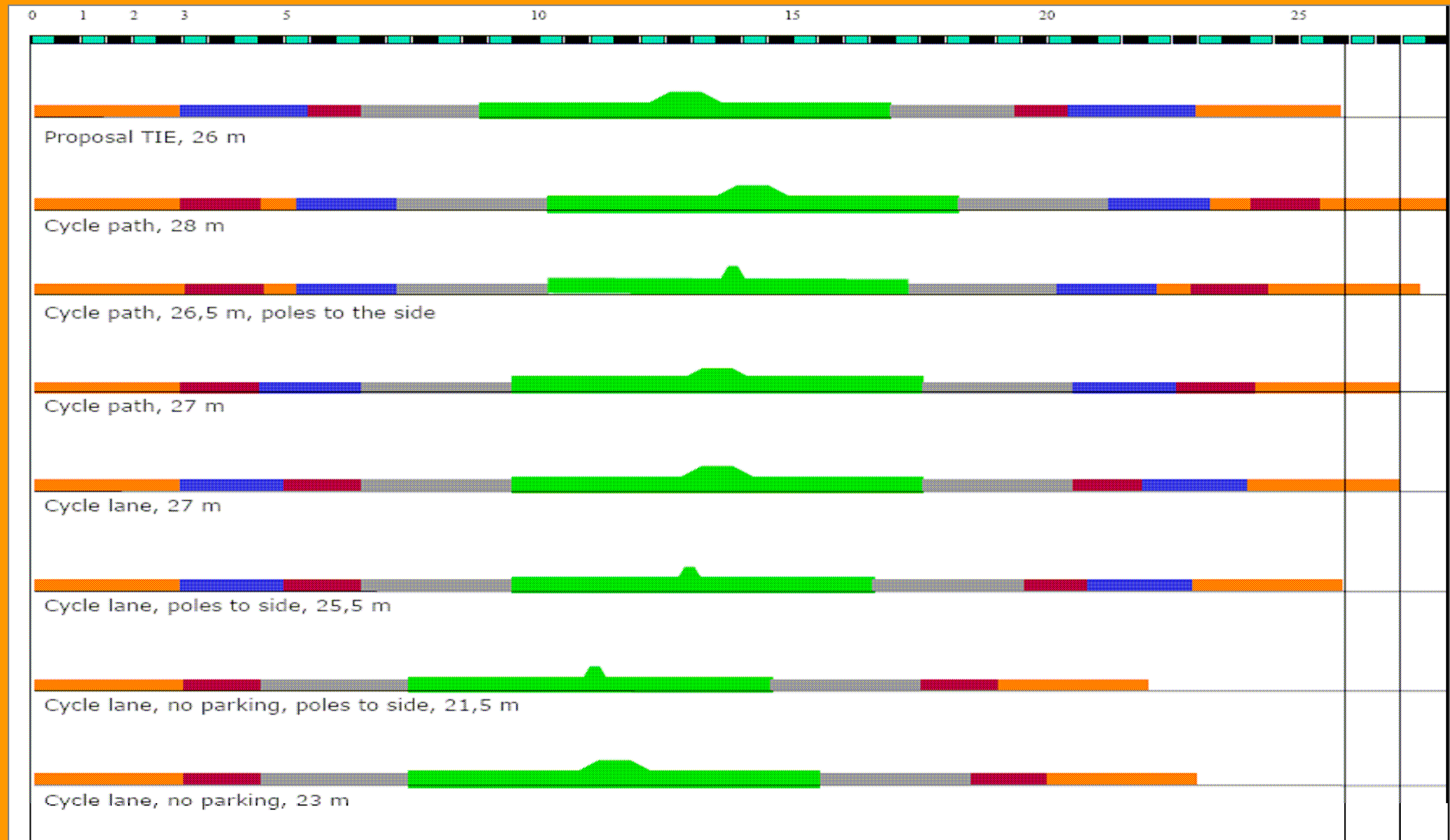
On the next pages several possibilities have been schematically drawn

## 5.3 Discuss solutions at junctions and stops

A profile is useful for drawing stretched parts of the street. At junctions and stops local solutions have to be designed. In spite of not having made a design on Leith Walk, p 13 offers a sketch of a possible layout

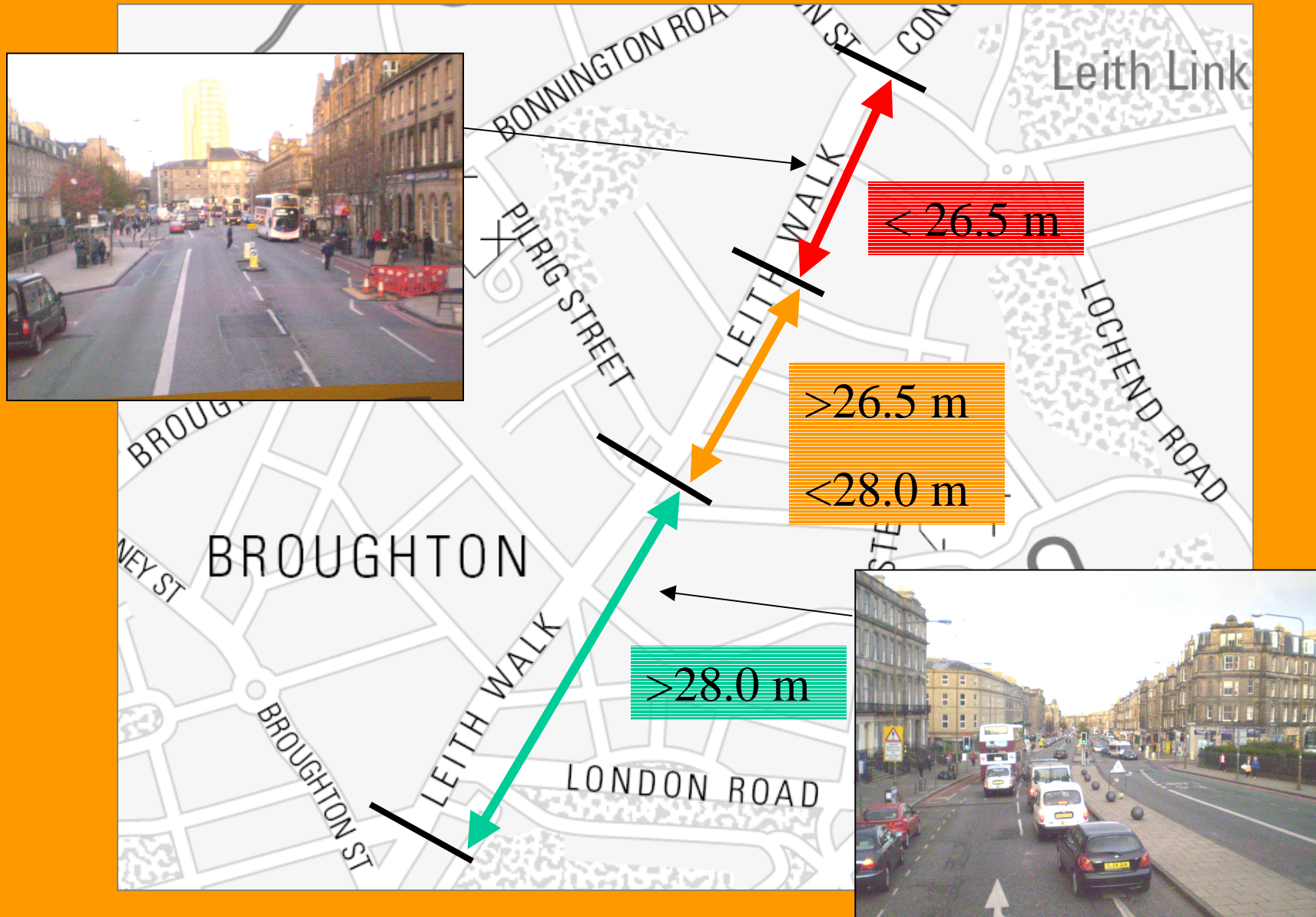


## Possible profiles for Leith Walk





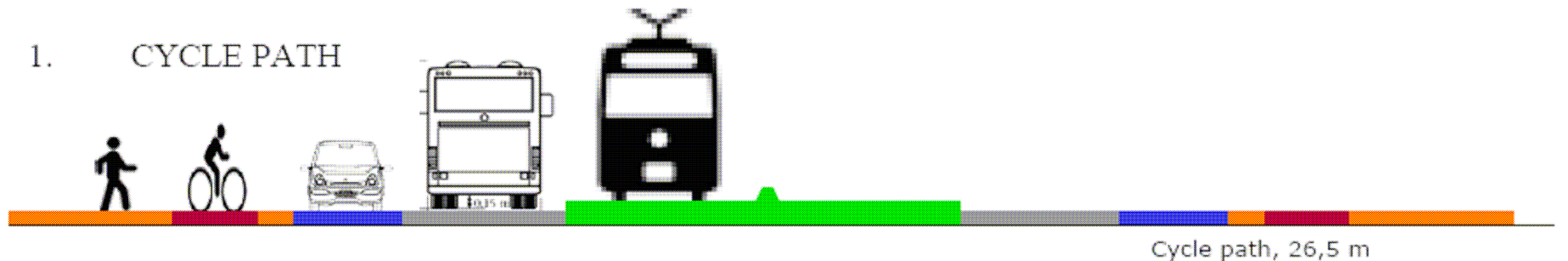
## Leith Walk, width between facades



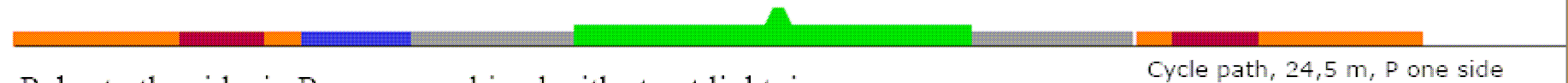


## Leith Walk with cycle paths

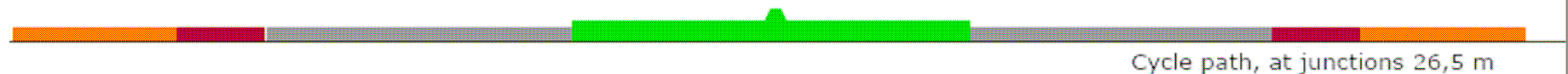
### 1. CYCLE PATH



- Narrow profile (26.5 m) with room for all users (28 m with central poles)
- In narrow areas to be reduced to 24.5 m, by one sided parking

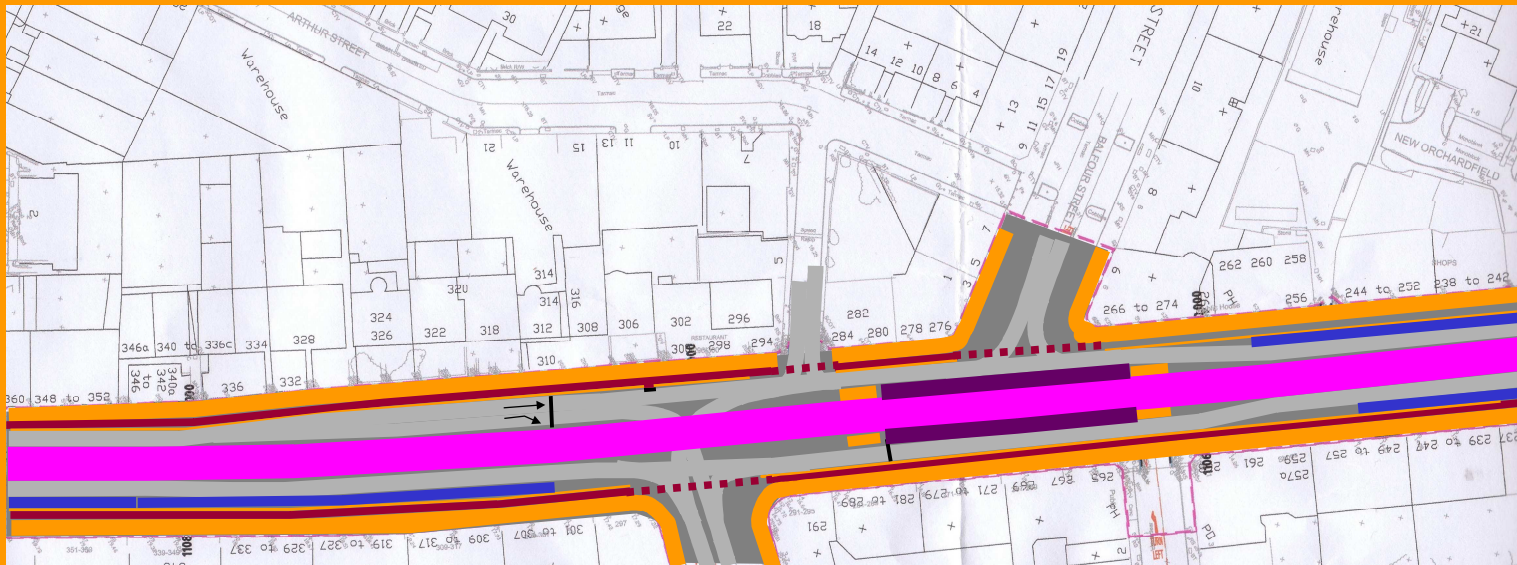


- Poles to the side, in P-zone, combined with street lightning
- Cycle path to side of main road at junctions



- + No conflict cycles-cars in straight parts
- + No conflict cycles- parking (opening doors)
- + Cycles in "low-speed area"
- Possible conflict pedestrian-cyclist (specially down-hill)
- Possible conflict loading-cyclist







## Example: The Hague, Laan van Meerdervoort

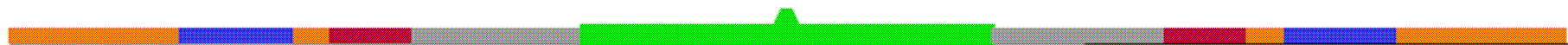






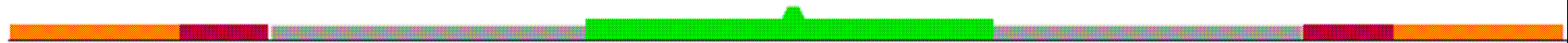
## Leith Walk with cycle lanes

### 2. CYCLE LANE



Cycle lane, 26,5 m

- Narrow profile (26.5 m) with room for all users (28 m with central poles)
- Poles to the side, in P-zone, combined with street lightning
- No parking near junctions



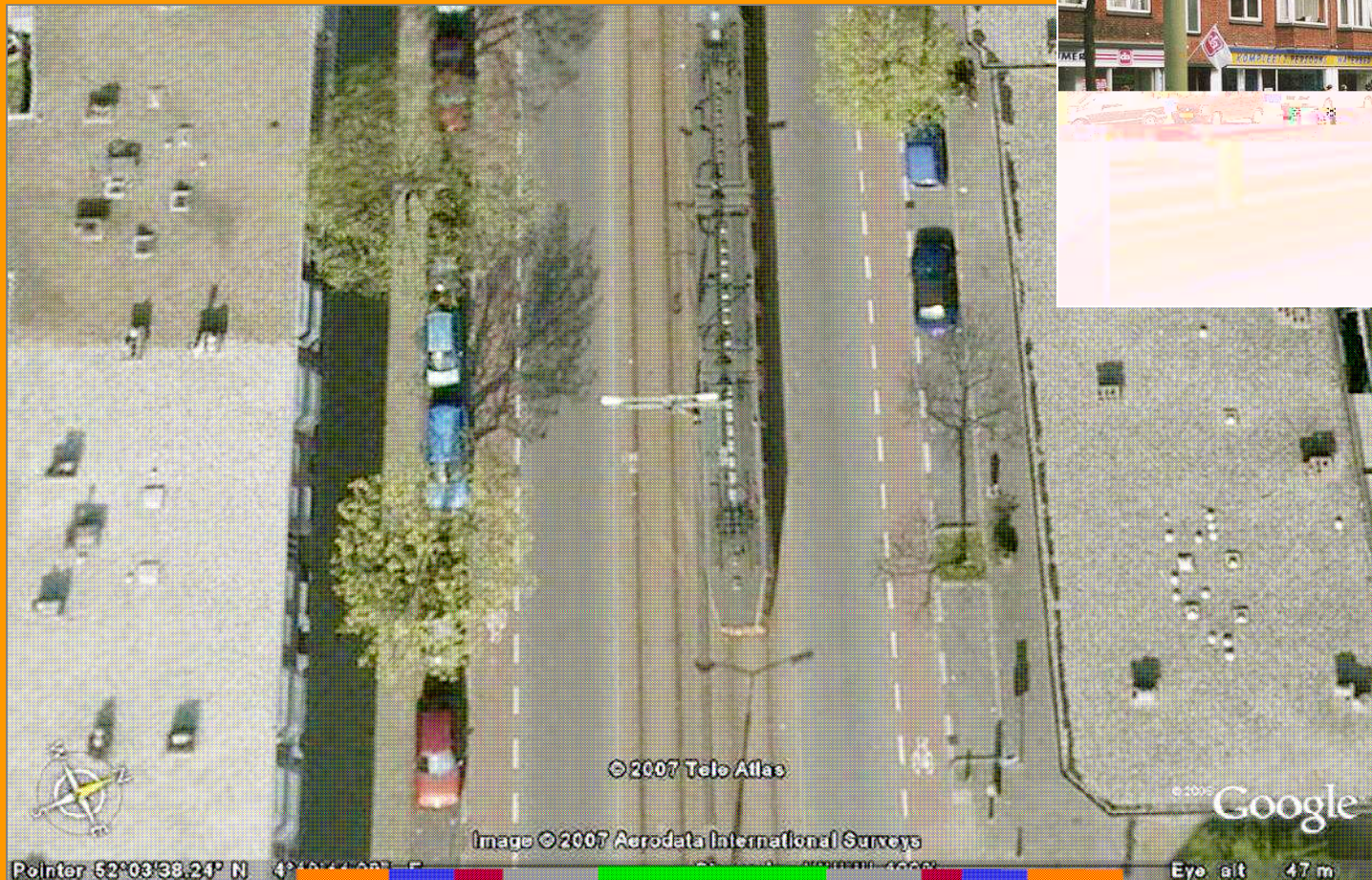
Cycle lane, at junctions 26,5 m

- +No conflict cycles-cars in straight parts
- +No conflict cycles- parking (opening doors)
- +Cycles in “low-speed area”
- Possible conflict pedestrian-cyclist (specially down-hill)
- Possible conflict loading-cyclist





## Example: The Hague, Jan van der Heijdenstraat





## 5. Princes Street

Princes Street is a very busy street, although on large part of it private cars are not allowed.

Large numbers of buses and taxis use it. The pavement is used largely by shopping people on the north side. On the south side there are no buildings, but there is a major view on the castle which attracts tourists. There are also many bus stops on the south side.

The busstops in Princes Street are not neatly organised. The number of buses having stops is large and each bus has several stops along Princes street.

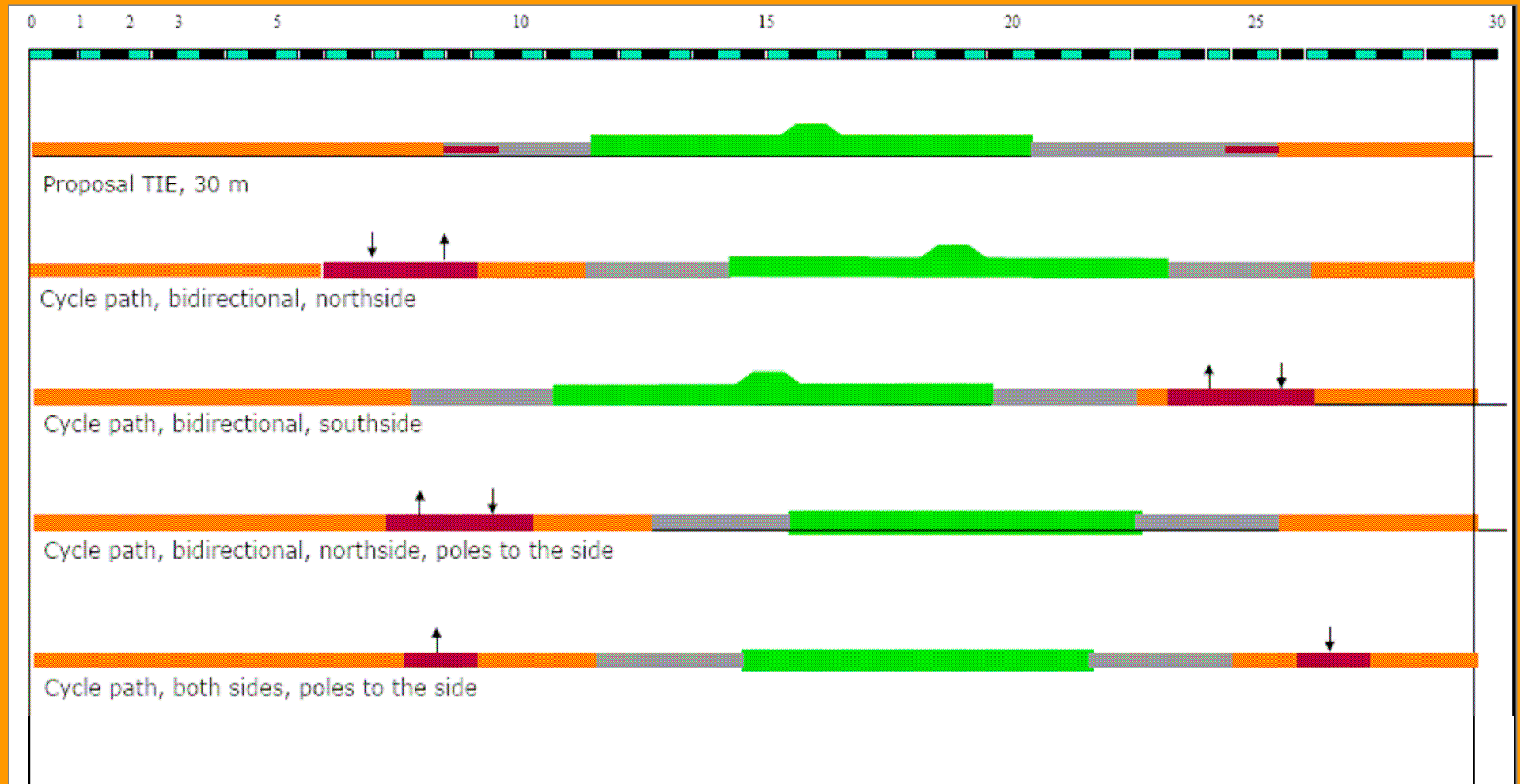
The number of buses will be reduced after introduction of the tram but will remain high. In the cross section for Princes Street no cycle lane has been drawn.

These factors put together suggest a firm solution: a dedicated cycle path which could be bidirectional. This is the only way to provide a safe passage for cyclists and an undisturbed passage for buses and taxi's at the same time (see 3.2)



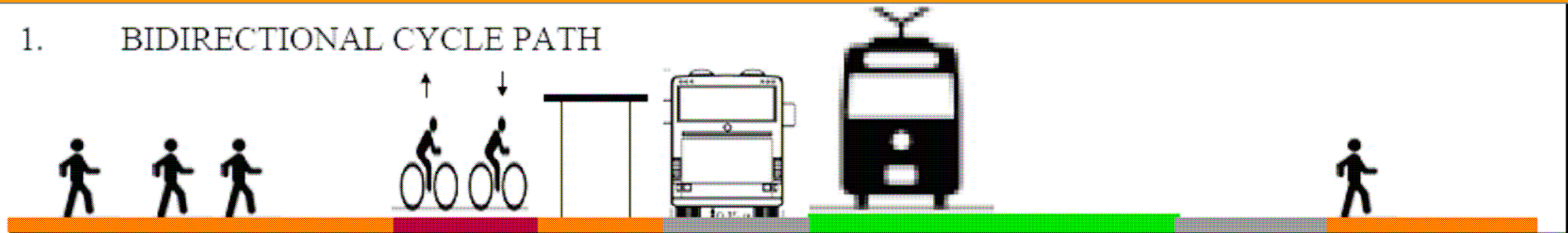


## Possible profiles for Princes Street



## Princes Street with dedicated cycle path

### 1. BIDIRECTIONAL CYCLE PATH

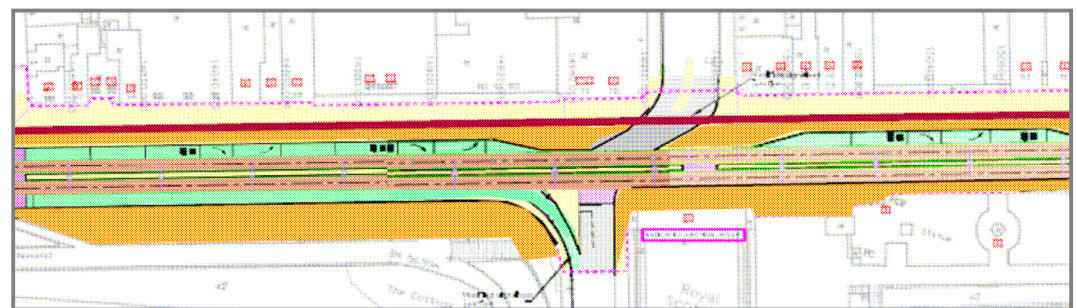


Cycle path, bidirectional, northside, poles to the side

- Profile with room for all users (30 m)
- Bidirectional cycle path,
- Shelters detached from rest pavement
- Poles to the side, combined with street lightning
- Cycle path to side of main road at junctions

+No conflict cycles-buses in straight parts

+Cycles in “low-speed area”



–Possible conflict pedestrian-cyclist (on busy days)



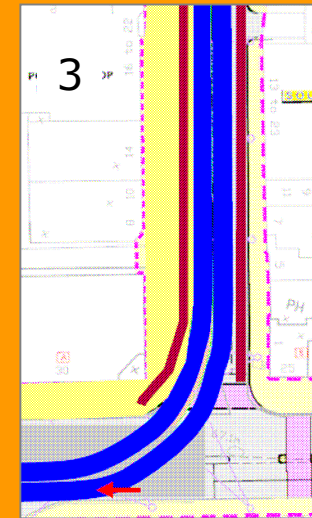
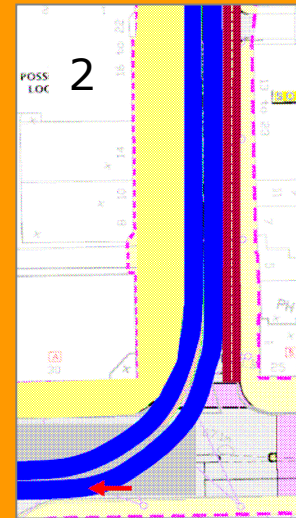
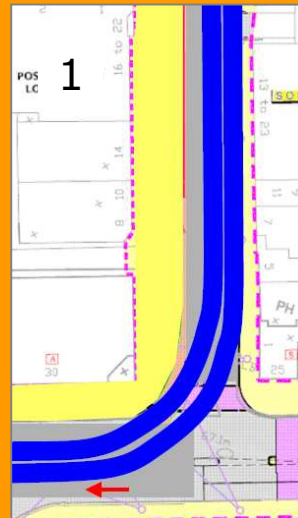
## 6. St Andrew Square

In the curve the tram uses to enter St. Andrew Square the tramway uses a lot of space, due to the necessary widening of the profile. It closes off the entrance of St Andrew Square like a cork in a bottle.

This means one of the most outstanding cycle facilities has to go.

However, in the current design the eastern-most part of St Andrew Square will be dedicated to tram and local traffic, leaving a good possibility to include a new dedicated cycle lane.

To be able to do so, the tramrails could be moved slightly to the south in Princes Street. This creates the space to “uncork” St Andrew Square, and add cycle facilities. The car lane that is now blocked by the tram has to wait for the tram anyway, so this won’t be an extra obstruction. A second car lane probably is not necessary, but could be added as the tramlane has to bend back towards the middle of the street.



## 7. Conclusions & recommendations

- Edinburgh is working on a better position for cyclists in the city;
- The construction of a tramline is a good opportunity to change the public realm; It's an opportunity to create good cycling facilities along the tramline;
- Cyclists are vulnerable, so cycling facilities have to be safe; It's important to meet the standards that are set for cycling facilities;
- If they cannot be made safely, it's better not to create them;
- With streets the size of those in Edinburgh (most Edinburgh streets are broader than Dutch inner city streets) a safe and comfortable position for cyclists must be possible, within the local constraints;
- Tram platforms could be separated and along the track instead of island-shaped platforms; thus the tracks don't have to curve toward the outside (maintenance)
- Using a broad barrier in the middle of the street is not an efficient way to use the space available;
- On Leith Walk there are good possibilities to incorporate good cycling facilities in the new lay-out; Even in the narrowest part, in which like nowadays, hardly any parking is possible; The facilities could consist of dedicated cycle lanes adjacent to the pavement as well as cycle lanes along the car lanes;
- In Princes Street the number of buses and bus stops is so large, it would be desirable to apply a dedicated (bidirectional) cycle lane
- By reconsidering the way the tram enters St. Andrew Square, cycle facilities could be incorporated in the design.

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