

**EXPLANATORY MEMORANDUM TO THE**  
**RAIL VEHICLE ACCESSIBILITY (CROYDON TRAMLINK CLASS CR4000**  
**VEHICLES) EXEMPTION (AMENDMENT) ORDER 2005**

**2005 No. 395**

**1.** This explanatory memorandum has been prepared by the Department for Transport and is laid before Parliament by Command of Her Majesty.

**2. Description**

2.1 This Order amends S.I. No.2001/3952, amended by S.I.2002/3001, which exempts certain specified rail vehicles, used by Tramtrack Croydon Limited, from certain requirements of the Rail Vehicle Accessibility Regulations 1998 (S.I. 1998/2456, amended by S.I. 2000/3215). The effect of this amendment Order is to extend the expiry date of one of the exemptions, and to add a condition.

**3. Matters of special interest to the Joint Committee on Statutory Instruments**

3.1 None.

**4. Legislative Background**

4.1 Section 46 of the Disability Discrimination Act 1995 (“the DDA”) empowers the Secretary of State to make rail vehicle accessibility regulations (“RVAR”) to ensure that it is possible for disabled persons, including wheelchair users, to travel in safety and reasonable comfort in those vehicles to which the regulations apply. The regulations, which were made in 1998 and amended in 2000, apply to rail vehicles constructed or adapted for passenger use, and first brought into use after 31<sup>st</sup> December 1998.

4.2 Section 47 of the DDA enables the Secretary of State, on receipt of an application for exemption from particular requirements of the RVAR, to make Orders authorising specified regulated rail vehicles to be used in passenger service even though they do not conform to all of the requirements of the RVAR. Such Orders may contain conditions and set time limits.

4.3 The vehicles in question had already been constructed when the RVAR came into force and the operator was unable to make the necessary changes to the vehicles before service entry. Therefore the original application for exemption from requirements of the RVAR, submitted in 1999, was made because the vehicles did not comply with a number of the requirements. Several of the exemptions were granted for periods of a matter of months, simply to give the operator more time to make the vehicles compliant, and these exemptions are now spent. (see S.I. 2000/6, revoked by S.I. 2001/3952).

4.4 The current exemption order exempts the vehicles from four provisions of the RVAR, including the requirement in regulation 16(1)(c) that the wheelchair space in a regulated rail vehicle (vehicles used on tramways come under this definition) must be

fitted with a structure to prevent the wheelchair moving or tipping. This exemption was also originally only granted for a short period, but the operator has since applied for and been granted two further extensions, the latest of which expires on 31 March 2005. Last July the operator submitted a further application (see Annex A), seeking an extension of the exemption from this requirement until 2017.

4.5 The operator has continually taken the view that there is no evidence to suggest the safety of wheelchair users is compromised by not meeting this requirement, and that the necessary modification should not be made until the time of the vehicles half life refurbishment in 2017. However, at the time of their previous application in 2002 the Department asked them to commission a report on the behaviour of wheelchair users on their trams as a means of justifying their view that the structure was unnecessary. They subsequently submitted the report (see Annex B), along with their application for a further extension of the exemption until 2017. In the Department's view, the report clearly showed that wheelchair users would feel safer if the structure was fitted. The Department therefore asked the operator to withdraw their application and fit the structure as required.

4.6 Since that time, officials from the Department have met with representatives from Tramtrack Croydon and Transport for London on several occasions to consider the best way of making the required alterations. The operator now accepts that the alternations must be made but will not be able to complete the modification of all the vehicles before the end of December 2005. Having been involved in the dialogue, the Department reluctantly agrees with this assessment. As the current exemption expires at the end of March, the operators have applied for a short time-limited exemption to cover the period of time required for the necessary alterations to be made to all 24 vehicles. The alternative would be to take all the trams out of service until they have been modified. This would lead to the suspension of the Croydon Tramlink service, which would not benefit anyone, in particular disabled passengers who rely on it. This Order therefore grants Croydon Tramlink a further extension until 31<sup>st</sup> December 2005, but on condition that the exemption will cease unless notification is given to the Secretary of State in writing by the end of October that at least half of the fleet has been modified so as to be compliant with this requirement. .

## **5. Extent**

5.1 This instrument applies to Great Britain.

## **6. European Convention on Human Rights**

6.1 Not applicable.

## **7. Policy background**

7.1 The policy objectives of the parent Act are to ensure that all rail vehicles first brought into use after a certain date are designed in accordance with the specific requirements of the RVAR, so as to enable disabled persons to travel in them in comfort and safety. However, the Act provides the Secretary of State with a power to exempt specified vehicles from particular requirements, on application by the operator, where he is satisfied that it is not possible for the vehicles to comply fully with the Regulations, and where this failure will not seriously compromise the ability of disabled persons to travel in the vehicles. Each application is considered on a case

by case basis. In this instance, the vehicles were designed and constructed before the RVAR came into force and a short exemption from regulation 16(1)(c) was granted. Since then the operator has claimed that the structure is not needed as there is no danger to wheelchair users on the trams, and therefore that the cost of installing the structure could not be justified. However, the report they have produced at the Department's request clearly indicates that this is not the case and, following extensive discussions between the operator and the Department, it has been agreed that the modifications should be made.

7.2 Section 47(3) of the DDA requires the Secretary of State, as part of the consideration of an application for exemption, to consult the Disabled Persons Transport Advisory Committee ("DPTAC"), together with any other appropriate persons. The DPTAC was established under section 125 of the Transport Act 1985 to advise the Government on transport policy as it affects the mobility of disabled people. The DPTAC has been consulted on this application, and supplied comments. The DPTAC were initially surprised when Croydon submitted an application for exemption from this requirement until 2017, especially when the findings in their report seemed to contradict comments made on their application that wheelchair users would not find the structure particularly beneficial. However, once they received the revised application, and learned that the vehicles were going to be made compliant, they were content for a short period of exemption to be granted to give the operator the necessary time to make the modifications. A copy of DPTAC's comments on the revised application is attached to this Memorandum at Annex C. We also consulted Her Majesty's Railway Inspectorate, who had no objection to the exemption being granted. Having taken the comments made by the consultees into account, the Secretary of State has decided to grant this exemption for the period shown in the Order.

## **8. Impact**

8.1 A Regulatory Impact Assessment has not been prepared for this instrument as it has no impact on business, charities or voluntary bodies.

8.2 The impact on the public sector is negligible.

## **9. Contact**

Peter Colmans at the Department for Transport, Tel: 020 7944 4916 or e-mail [Peter.colmans@dft.gsi.gov.uk](mailto:Peter.colmans@dft.gsi.gov.uk), can answer any queries regarding the instrument.

## Annex A

<b>Application for an Exemption from the requirements of the Rail Vehicle Accessibility Regulations (RVAR) 1998</b>
---

1	Full name of applicant and address	John Rymer, Managing Director, Tram Operations Limited, Tramlink Depot, Coomber Way, CROYDON CR0 4TQ Telephone: 020 8665 9695 Fax: 020 8665 7347
2	Description of Rail Vehicles	Croydon Tramlink Class CR4000 Serial Numbers 2530 to 2553
3	Circumstances in which the exemption is to apply	At all times.
4	Relevant requirement from which exemption is sought	Regulation 16(1) (c) of the Rail Vehicle Accessibility Regulations (RVAR) 1998. Continuation of exemption provided by The Rail Vehicle Accessibility (Croydon Tramlink Class CR4000 Vehicles) Exemption (Amendment) Order (S.I. 2002 No. 3001). This is due to expire on 31st March 2005. The original Exemption Order - The Rail Vehicle Accessibility (Croydon Tramlink Class CR4000 Vehicles) Exemption Order 2001 (S.I. 2001 No. 3952) included a provision, at Paragraphs 7(1) and 7(2), that the exemption in respect of Regulation 16(1)(c) would cease if the operator of an exempted vehicle failed to notify the Secretary of State "of any physical injury which is suffered by a disabled person in a wheelchair in an exempted vehicle, within a period of seven days starting with the date on which the injury occurred".

		<p>The Secretary of State was empowered under paragraph 7(3) of the Exemption Order to notify the operator that the exemption from Regulation 16(1) (c) would cease three months after the date of giving notice to that effect if, in his opinion, conformity with that Regulation would have prevented any injury notified under paragraphs 7(1) and 7(2).</p> <p>It has been necessary to notify the Secretary of State of only three incidents in the last 15 months where physical injury had been sustained by a wheelchair-user while travelling in any of the exempted vehicles.</p>
5	Technical, economic and operational reasons why exemption is sought	<p>TOL does not believe that it is reasonably economical to introduce modifications of the type required outside of the planned maintenance and refurbishment regime of the trams.</p> <p>.</p>
6	The effect which non-compliance would have on a disabled person's ability to use rail vehicles of the description to which the application relates.	<p>The exemption has no effect on a disabled person's ability to use the vehicles concerned. In addition, there is no evidence to suggest that the safety of wheelchair-users or any other passengers is compromised as a result of these vehicles not complying with Regulation 16(1) (c).</p>
7	Any measures which could be taken to enable disabled persons to use the rail vehicle if exemption sought is granted.	<p>If the exemption continues no measures of this kind are required.</p>
8	Any proposals for later modification of rail vehicles to secure compliance with RVAR within a stated period.	<p>TOL would prefer to undertake major structural change to trams, such as the addition of a structure or fitting to the wheelchair space in trams to prevent a wheelchair moving or tipping, to coincide with the major refit of trams due in 2014 / 15.</p>
9	Unless permanent exemption is sought, the period during which exemption is to apply.	<p>TOL seeks the exemption until 2017 when it is envisaged that the mid life refurbishment scheduled to take place in 2014 /15 will be complete. TOL will seek to comply with Regulation 16(1) (c) of the RVAR 1998 during the mid-life refurbishment programme for Croydon Trams.</p> <p>TfL undertook to commission a research</p>

		<p>to investigate the use of trams and perceptions of safety by wheelchair users on Croydon Tramlink. Consultants Paul Beecham &amp; Associates carried out the research and submitted the report in April 2004. The report and its recommendations are being considered by London Trams and we will develop the case for conversion of the bay, by production of costed design proposals and assessment of the safety and business implications, including the impact on other users of the tram and the availability of the tram fleet / impact on service levels, if we determine that there is a business and safety case for undertaking the modifications ahead of the tram mid-life refurbishment we will do so.</p>
--	--	---

**Annex B**

**RESEARCH ON USE OF TRAMS  
AND  
PERCEPTIONS OF SAFETY  
BY  
WHEELCHAIR USERS ON  
CROYDON TRAMLINK**

**A Report by**

**Paul Beecham & Associates**

April 2004

***Paul Beecham & Associates***

**20 Ebenezer St**

**Hednesford**

**Cannock**

**Staffordshire**

**WS12 4HD**

**Tel 01543 879637**

**e-mail – [pbeecham0@aol.com](mailto:pbeecham0@aol.com)**



## CONTENTS

1. INTRODUCTION .....	10
2. OVERVIEW OF THE STUDY .....	10
3. METHODOLOGY .....	11
3.1 Talking to disabled people .....	11
3.1.1 Travelling on the trams .....	11
3.1.2 Local forums .....	11
3.1.3 Disability groups .....	11
3.1.4 Dial-a-Ride users .....	12
3.2 Revenue Inspectors .....	12
3.3 Staff Consultation .....	12
3.4 Background research .....	13
4. SERVICE INFORMATION .....	14
4.1 Tramlink .....	14
4.2 Other tram operators .....	18
4.3 Bombardier .....	19
5. ANALYSIS OF INTERVIEWS .....	20
5.1 Users of Tramlink Services .....	20
5.2 Those not using Tramlink .....	25
5.3. Further discussions with disabled users .....	26
6. TECHNICAL CONSIDERATIONS .....	27
6.1 Legislation .....	27
6.2 Good Practice .....	28
6.3 Engineering Considerations .....	29
7. CONCLUSIONS .....	30
8. RECOMMENDATIONS .....	32

## 1. INTRODUCTION

The brief required the consultants to research three aspects of the use of Tramlink by disabled people:

- Why wheelchair users in general choose not to use the designated wheelchair bays in the trams;
- What other, ambulant disabled people think of the trams;
- Why some disabled people do not use the Tramlink service.

The brief particularly focused on the first of these three aspects. As the Tramlink service was designed before the introduction of the Rail Vehicle Accessibility Regulations (RVAR), the operator Tram Operations Ltd have an exemption, re-examined annually, from certain of these – in particular from the need to provide ‘a structure or fitting’ at one end of the wheelchair bay as a backrest for wheelchair users. As part of their exemption the operator is required to submit data on all incidents occurring on Tramlink involving wheelchair users, including those in the wheelchair bays, to the Department for Transport (DfT). In the last 15 months, three such incidents were reported, including two involving a passenger in a manual wheelchair which tipped over in the bay.

The operator, the concessionaire Tramtrack Croydon Ltd and the Contractor Transport for London (TfL) have hitherto resisted the introduction of such a ‘structure or fitting’ on the grounds that this could be detrimental to passengers, for instance by affecting the width of the gangway and the number of priority seats available. The consultants were asked therefore to investigate the evidence to date and especially to seek the views of passengers in wheelchairs on the need for a structure or fitting.

## 2. OVERVIEW OF THE STUDY

The consultants’ work over the last two months has focused on talking to as many disabled people as possible in the Croydon area, including wheelchair users and ambulant disabled people and both users and non-users of Tramlink. Overall, their views are very consistent:

- Almost without exception, all are very positive about the Tramlink service and rate it significantly more highly than accessible mainstream buses;
- Most wheelchair users do not make an active choice not to use the designated wheelchair bays – they are prevented from using them by overcrowding;
- Wheelchair users are aware that it is much safer to be in the wheelchair bay but do not think actively of the risk and liability issues should an incident occur when they are not in it;
- The main worry of the ambulant disabled users is the tram setting off before they are seated;
- The main reason for non-use of the service is distance from the tram stop.

Overall, our recommended measures for improving the service therefore address the need to raise the awareness of able bodied passengers and drivers to the needs of

passengers in wheelchairs and those who are ambulant disabled, in order to improve their safety and the attractiveness of the service to them.

### **3. METHODOLOGY**

#### **3.1 Talking to disabled people**

As outlined in the consultants' proposal, our target was to interview 80 disabled people:

- 40 existing Tramlink users who travel in wheelchairs;
- 40 non-users of the service.

In the event, we were able to interview 42 Tramlink users with a disability, of whom 25 were wheelchair users and 34 people with a disability who did not use Tramlink, a total of 76 interviews.

##### **3.1.1 Travelling on the trams**

Our starting point was to travel on the trams to approach passengers in wheelchairs. Although we had some reservations about this approach, mindful of the sensitivities of these passengers, our main problem was rather the lack of wheelchair users. We spent two, half days, travelling on trams from terminus to terminus, only meeting 3 people, only one of whom we felt able to approach. We spent another two, half days, 'tram hopping' in the centre of Croydon. This was more successful, with 8 wheelchair passengers approached, the majority of whom were given a self completion questionnaire to return in a stamped, addressed envelope. As a result of these experiences, we concluded that this approach was too time intensive.

##### **3.1.2 Local forums**

With the co-operation of TfL London Dial-a-Ride (DAR), we were able to give short presentations at the two relevant Local Area Panel (LAP) meetings of DAR users. General views were discussed at both and a few people gave us their contact details to allow us to undertake more detailed interviews over the 'phone.

Croydon Council also invited us to attend the local Mobility Forum. Again, after a short introduction and discussion, a few people agreed to follow up phone interviews.

##### **3.1.3 Disability groups**

Contact was made with a number of local groups:

- Age Concern,
- Garwood Foundation
- Disability Croydon

- Croydon Association for the Deaf
- Croydon Voluntary Action for the Blind
- MS Society

All gave details of their members' experience of travel on Tramlink. Four groups agreed to distribute questionnaires to members.

There was also telephone consultation undertaken with the Access Officer for LB Croydon.

### **3.1.4 Dial-a-Ride users**

An approach was made to both Croydon Council and TfL London Dial-a-Ride to provide lists of members of Taxicard and Dial a Ride, respectively, in LB Croydon. Unfortunately, it was not possible to obtain permission from the Council. However, TfL agreed although, for data protection reasons, TfL would need to write to its users asking them to agree to a phone interview. Given the known positive response of DAR users to this type of research, it was agreed to only mail half the DAR members who had used the service in the last 12 months, some 600 people. It was not possible to target those users who lived within a kilometre of Tramlink as this could not be done electronically and manual selection would have been too time intensive.

There was an extremely good response to the letter, with 118 reply slips returned within a week to DAR services. Fifteen of these had no contact details but were from people who did not use Tramlink, many adding the comment they that they were too far from a stop.

## **3.2 Revenue Inspectors**

While we abandoned travel on the trams as a means of identifying wheelchair users it was recognised that Tramlink revenue inspectors had a substantial knowledge of this group of passengers and the times/places they were likely to travel. We therefore arranged with the operator for Inspectors to hand out questionnaires to any passengers in wheelchairs they encountered.

## **3.3 Staff Consultation**

A visit was made to the Tramlink depot to obtain the views and experiences of Tramlink drivers, revenue inspectors, scheduling and management staff. All Tramlink staff are expected to undertake at least some driving duties each week to ensure all have direct experience of operating conditions. Many of these staff and the revenue inspectors in particular know the regular wheelchair users by name, also when and where they usually travel. Conductors are not provided on Tramlink services.

All drivers and inspectors are provided with training in first aid and disability awareness. Revenue staff seek to assist mobility impaired users wherever necessary and they are available, including off the vehicle assisting users to cross roads adjacent to tram stops, etc. Drivers do what they can and will leave their cab to assist when absolutely necessary. All said they would encourage a wheelchair user to use the wheelchair bay as long as they felt the user was approachable but did not feel they could oblige a user to do so.

All recognised the conflicts with other passengers mentioned by wheelchair users, but most thought the main reason wheelchair users locate themselves in doorways when travelling, was in order they were positioned ready to exit the tram when it reached their stop. A number of users were said to take up this position if they were only making a short trip of one/two stops or to move from the wheelchair bay to this location at least one stop ahead of their destination.

Drivers reported that they experienced particular difficulty assessing when it was safe to set off from stops because they could not always see clearly through the interior of the tram. This was especially true when trams are crowded at peak times when drivers said they could realistically only rely on external mirrors and ensure all passengers were on or off the tram. They also reported that they encountered difficulties knowing when the communication button in the wheelchair bay had been pressed for a real emergency or when accidentally by a passenger leaning on it. This was thought to cause some drivers to pay less attention to this than they would if they were sure it was always pressed for good reason. There is also some concern that passengers do not understand they cannot answer the call until the tram is stationary.

Revenue Inspectors highlighted Wimbledon as the station wheelchair users most sought to avoid. This was in particular because it was necessary to use a lift to exit the station from the Tramlink platform and all too often this was not working. East and West Croydon were considered the most popular destinations. In general those with mobility impairments were known to value the service and to compare it favourably with other forms of public transport.

Inspectors also highlighted a concern with the sighting of the infra-red beam that held open the tram doors until all were on or off the tram. This was located just below midway to the height of the door. As a result there were occasions when the front of a wheelchair or push-chair could pass below it undetected, the doors therefore shutting while the wheelchair or buggy was only part way through. We observed two instances when this happened, one with a wheelchair, one with a push-chair.

Inspectors also noted that Tramlink was being used by a small but increasing number of larger, road-going, pedestrian vehicles. These vehicles were simply too large to travel in any other location than the doorway area of the tram and were unable to manoeuvre once on board. This often meant users reversing their vehicle off the tram unless they happened to be getting off at a stop on the opposite side of the tram to which they got on.

The greatest danger was thought to be at times the tram was accelerating away from a stop or in an emergency braking incident. However, standing passengers were thought to be in far greater danger of falling at these times than a wheelchair user, as long as that user had put on the brakes for their wheelchair. It was believed that many wheelchair users would modify their times of travel to avoid peak times when trams were most crowded.

### **3.4 Background research**

Background research was undertaken to establish the relevant legal framework and guidance on the use of trams and public transport in general by people with disabilities in the UK and elsewhere

## 4. SERVICE INFORMATION

### 4.1 Tramlink

The Tramlink service has a total length of 28.2kms, serves 38 stops and is focused on Croydon Town Centre. The system consists of three branch lines serving Wimbledon, Beckenham Junction, Elmers End and New Addington. The service is a PFI initiative operated by Tram Operations Ltd on behalf of the concessionaire Tramtrack Croydon Ltd and the Contractor TfL. TfL provided the consultants with data from CATS on service take up and a complete data set of all incidents occurring on Tramlink services since inception was provided by Tramtrack Croydon.

- Tramlink services carry out approximately 20m trips each year;
  - An average of 384,615 trips a week;
  - Approximately 50% of all passengers hold a Travelcard;
  - Approximately 20% of all passengers hold a Freedom pass;
- The high use by card holders suggests good penetration of the elderly and disabled

market. More specific information on the numbers of wheelchair users travelling on

Tramlink was provided from CATS data, as follows:

October to December 2003

	Users of Electric Scooters	Users of Electric or manual wheelchairs	Total
Monday to Friday	375	130	505
Saturdays	38	38	76
Sundays	17	29	46
Total per week	430	197	627

January to March 2004

	Users of Electric Scooters	Users of Electric or manual wheelchairs	Total
Monday to Friday	95	110	205
Saturdays	20	12	32
Sundays	22	7	29
Total per week	137	129	266

This suggests that use varies significantly at different times of year, especially amongst users of scooters. Apart from inclement weather there is no apparent explanation for this and unfortunately there was no opportunity to explore this further during the study as CATS data was not available until it was nearly complete. Extrapolating from the above suggests over a 12 month period there could be a total of around 23,218 trips by wheelchair users using Tramlink services, equivalent to 0.1% of all passenger trips. This suggests wheelchair users may be underrepresented amongst passengers compared with the proportion of the population that they make up (0.7%, OPCS 1988).

There have been a total of 10 incidents involving wheelchair users travelling on Tramlink since its inception in May 2000, an average of 2.5 a year. None are understood to have resulted in a serious or long term injury to the passenger and none have generated a personal injury claim. There were 3 incidents of wheelchairs tipping during hazard braking, when travelling sideways in the doorway area early during the life of the service. Most recent incidents have involved wheelchair users in the wheelchair bay, with 2 cases of wheelchairs tipping over in the wheelchair bay area in the last 6 months. However, there were no incidents at all for the previous 6

months. In 2002 there were two incidents one involving a person entering the tram and the other a person exiting from it. All incidents are summarised over:

<b>All incidents involving wheelchair users, since Tramlink services commenced</b>						
<b>No</b>	<b>Date</b>	<b>Time</b>	<b>Travel location</b>	<b>Cause</b>	<b>Consequence</b>	<b>Notes</b>
10	30/01/04	22.15	N/a	Braking incident	Possible whiplash	Object on track
9	15/08/03	12.00	Wheelchair bay Forward facing, brakes on	Tram accelerating	Wheelchair overturned Passenger attended doctor's	
8	16/07/03	11.22	Wheelchair bay Forward facing, brakes on	Braking incident	Wheelchair overturned Passenger taken to hospital	Person walked in front of tram
7	19/11/02	09.57	Entering vehicle	Swivelled front wheel of powered wheelchair caught between platform edge & tram step	Wheel broke off	Passenger assisted by revenue team – lift home
6	11/10/02	N/a	N/a	Tram pulled away before wheelchair brake applied	Wheelchair rolled back and hurt arm of companion	
5	27/05/02	N/a	Exiting the tram	Doorway closed before passenger could exit	Acceleration of tram away from stop tipped wheelchair and passenger hit head	Another passenger caught wheelchair preventing it tipping over completely
4	17/03/02	N/a	Wheelchair bay	Tram accelerated before brakes applied	Wheelchair rolled towards adjacent seats	Bruising and cuts to legs
3	18/11/01	12.30	Doorway area	Braking incident	Wheelchair tipped over sideways	Passenger declined medical treatment
2	29/11/00	18.30	Doorway area	Emergency brake activated by passenger	Wheelchair tipped over sideways	Passenger declined medical treatment Wheelchair



						slightly damaged
1	17/10/00		Doorway area	Braking incident	Wheelchair tipped over sideways	Passenger declined medical treatment Wheelchair slightly damaged

Note – Although the type of wheelchair being used can not be clearly identified from incident reports, it appears from notes describing the incidents examined that it is possible most may involve people who use a manual wheelchair

Overall in the year 02/03 to 01/04 a total of 237 incidents were recorded, of one kind or another, relating to Tramlink operations:

- 73 of the incidents involved an injury to the person
- 47 personal injury incidents occurred to people when travelling on the tram, including all 3 incidents that year involving wheelchair users
- 16 personal injury incidents occurred to people at the tram stop or when accessing it, none involving wheelchair users
- 10 personal injury incidents occurred to people getting on or off the tram, none involving wheelchair users
  
- 86 incidents were recorded as Road Traffic Accidents (RTA)
- 73 RTA involved injury to the person, including the 3 incidents involving wheelchair users
- There were 71 RTA where 1 person and 2 RTA where 2 people were injured (including 1 where a wheelchair user and their carer were injured)
- 13 RTA incurred no injury to a person (involving vandalism or 'alcohol' related)
  
- 13 RTA that involved personal injury to passengers were braking incidents, of these
  - 4 when Full Hazard braking, including 2 involving wheelchair users (1 + carer)
  - 5 when Partial Hazard braking was applied
  - 3 when Emergency brake was applied
  - 1 when normal braking was applied
- 151 Hazard braking Incidents (HBI) of all kinds involved no personal injury
  
- 17 RTA that involved personal injury, occurred when the tram was accelerating away from a stop
- 15 RTA that incurred personal injury occurred when the tram was accelerating normally, including 1 involving a wheelchair user

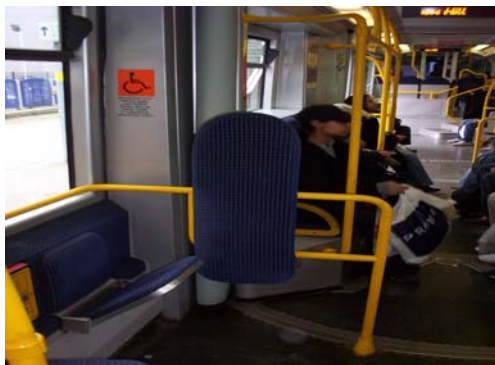
- 2 RTA that incurred personal injury occurred when the tram was said to have accelerated “fast”

In the year, personal injury incidents involving wheelchair users made up 6% of all (47) personal injury incidents occurring on board the tram and are significantly more common for this group of users relative to their overall use of Tramlink (0.013% of all use) than for the public at large (0.00024% of all use). This is equivalent to a wheelchair user being 54 times more at risk of personal injury than passengers as a whole. In particular, in the year, 2 of the 3 personal injury incidents involving wheelchair users made up 50% of all (4) personal injury incidents that occurred during Full Hazard Braking.

## 4.2 Other tram operators

Tram operators in South Yorkshire (Sheffield Supertram) and the West Midlands (Midland Metro) were contacted to establish what arrangements they made for use of their services by wheelchair users. In the West Midlands, two wheelchair users of Midland Metro were also consulted.

The Midland Metro vehicles were first operated just prior to the introduction of the RVAR so are not required to comply with this legislation. Nevertheless they do have a wheelchair bay containing a backrest and comply in most other ways with the regulations and available guidance.



There are 2 wheelchair bays in the vehicle, each with a single backrest nearest the entrance door, one allowing rear facing and the other forward facing travel. It is understood that a padded backrest was included in the West Midland vehicles because it would be familiar to wheelchair users from their use of low floor buses and therefore attract them to travel within the wheelchair bay itself. The bay itself also contains 2 fold out seats and is constructed for one wheelchair user only. There are no incidents of wheelchairs tipping over on Midland Metro services known to CENTRO, the contractor of the service.

It is known that wheelchair users encounter some conflicts with other passengers and pushchairs also using the wheelchair bay or when trying to access/exit it. However, the service operates with conductors who seek to resolve these conflicts and also wherever possible encourage wheelchair users to occupy the bay. As with Tramlink, the Midland Metro is generally considered more accessible than most other public transport alternatives by its wheelchair users.

Travel Midland Metro usefully produce an accessibility guide to the service. This takes the form of an A4 fold out leaflet that provides, in large, colour contrasted print, information on:

- The service route and timetable;
- Fares and concessions;
- Car parks at stations with spaces for blue badge holders;
- Access features at tram stops;
- Access features of the tram;
- The tram layout;
- Safety features and personal hints;
- Contacts

Vehicles for Supertram in Sheffield were first operated in 1994 prior to the introduction of RVAR. They operate with a wheelchair bay that has a Perspex partition at either end, approximately 750mm wide. Again conductors are available on all vehicles and they encourage wheelchair users to travel facing backwards in the bay, resting against the partition. Most but not all users are said to do so.

The operator reports only occasional incidents, under braking, with no significant injury caused. All these have occurred to users who were occupying the doorway area of the tram and there have been no incidents in the wheelchair bay.

Operating staff are all trained in disability awareness, customer care and passenger liaison. The operator also draws on members of the Access Forum established by the Passenger Transport Executive for the area to gain advice on improvements to access features of the system or on the suitability of any infrastructure changes proposed.

### **4.3 Bombardier**

A visit was made to Bombardier, the tram builder, who also maintains the Tramlink vehicles. There are 24 vehicles operated in total, each based on the Bombardier City Tram, which was originally built for operation in Cologne. The wheelchair bay was essentially the same as that used in Cologne but Tramlink vehicles have a cushioned rail for passengers to rest against, instead of tip down seats.



During the visit all access features on the vehicle were examined and their function was discussed. It was noted that Bombardier was familiar with concerns about the

infra-red beam in the doorway and were currently considering ways to address this, probably by drivers controlling doors manually. They had also given some consideration to how a backrest in the wheelchair bay could be incorporated and to the implications of this. In this respect they believe vehicle infrastructure can accommodate the additional fittings that might be required and sustain the forces it may have to withstand. However, they also believe adding these fittings would impact on other aspects of the vehicle layout.

It is also the case that Bombardier has addressed a number of the original shortcomings in the trams' access features for which they had initially been given an exemption to RVAR.

There are 4 outstanding areas:

- Seat cushions of priority seats do not comply with the minimum width requirement;
- The request stop controls on handrails besides priority seats are below the minimum height from the floor;
- The wheelchair space does not have a structure or fitting to prevent a wheelchair tipping or moving;
- The floor by the wheelchair compatible doorway has a 6 per cent slope.

Vehicles are expected to have a working life of approximately 30 years with a comprehensive refit programmed midway through the operating term. Normal maintenance is provided on an ongoing basis. The operator, concessionaire and contractor's preference for any major structural change to vehicles would be to undertake this during the major refit due in 2014/15.

**5. ANALYSIS OF INTERVIEWS**

**5.1 Users of Tramlink Services**

There were 42 questionnaires completed by Tramlink users with some form of mobility impairment

**Age Group**

Under 20	1
21-40	3
41-60	11
61-75	16
Over 76	10

**Access to Tramlink**

The following modes were used by respondents to reach Tramlink:

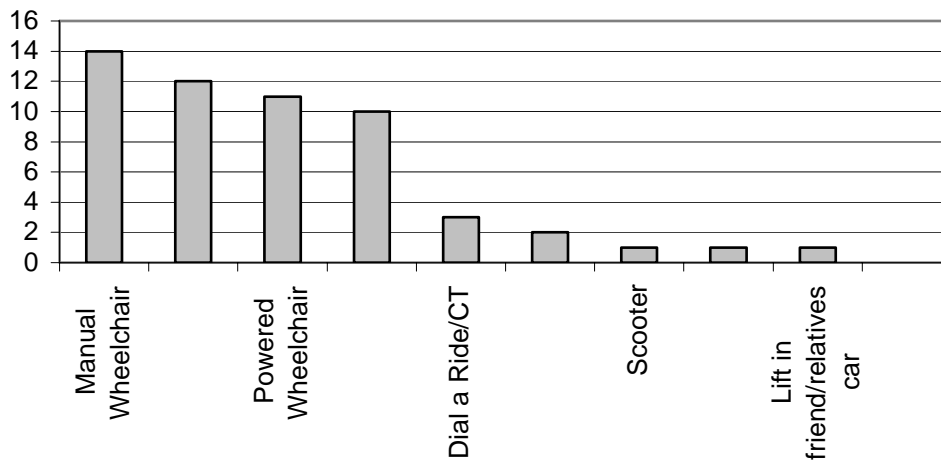
Manual Wheelchair	14
Public bus	12
Powered Wheelchair	11

Walk	10
Dial a Ride/CT	3
Other	2 Wheeled Zimmer, Shopping trolley
Scooter	1
Drive own car	1
Lift in friend/relatives car	1
Taxi/Private hire	0

10 used more than 1 mode:

Manual Wheelchair/Powered Wheelchair	2
Powered wheelchair/Dial a Ride	2
Manual Wheelchair/Public bus	2
Walk/Public bus	1
Powered wheelchair/Public bus	1
Scooter/Own car	1
Manual wheelchair/Lift friend or relatives car	1

### Access to Tramlink



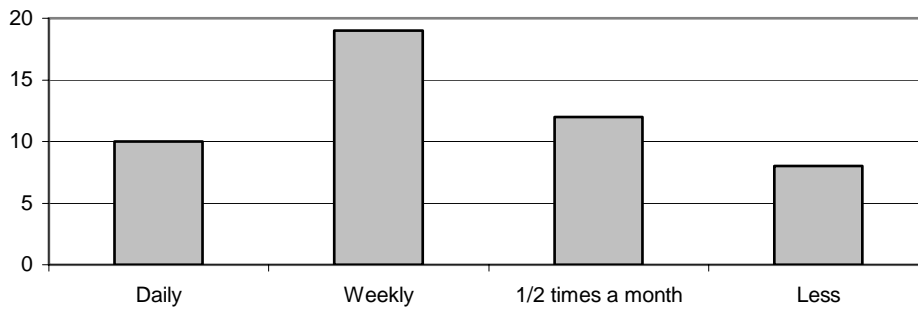
### Time of travel

Morning/Evening peak	11
Daytime off peak	2
Weekday evening	0
Weekend daytime	1
Weekend evening	2
	16

### Frequency of travel:

Daily	10
Weekly	19
1/2 times a month	12
Less	8
	39

Frequency of travel on tramlink



12 respondents state they have some difficulty getting on or off Tramlink services. 11 gave an explanation for this:

Doors close too quickly	4
Tram crowded/other passengers or buggies won't move	4
Some stops don't offer entirely level access	3 (Church St, Wimbledon)

**Preferred location of travel**

In a wheelchair bay	25
Seat near the door	9
In the doorway area	3
In aisle/standing area	1
Seat in raised floor section	0

17 of those using the wheelchair bay commented on their choice:

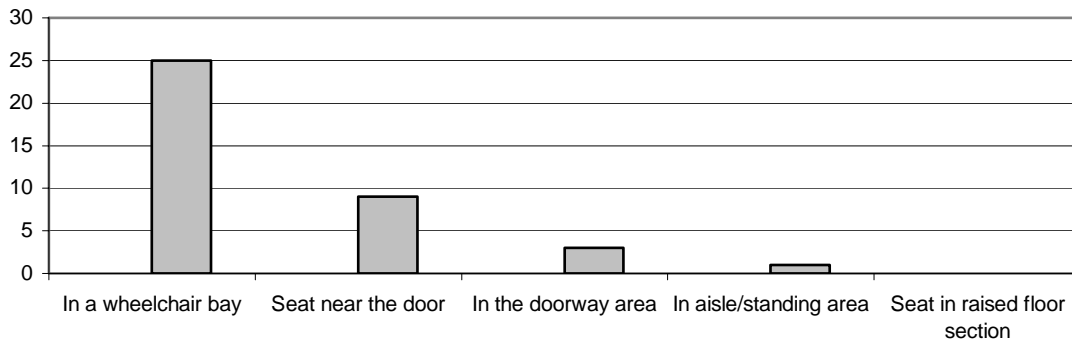
Sometimes travel outside the bay because pushchairs or other passengers are in the way	7
Bay is safest position & out of the way	4
Bay easiest to get to, most spacious	4
Suits wheelchair	2

1 respondent who travels in the doorway area said they did so because they find it the easiest position from which to get off

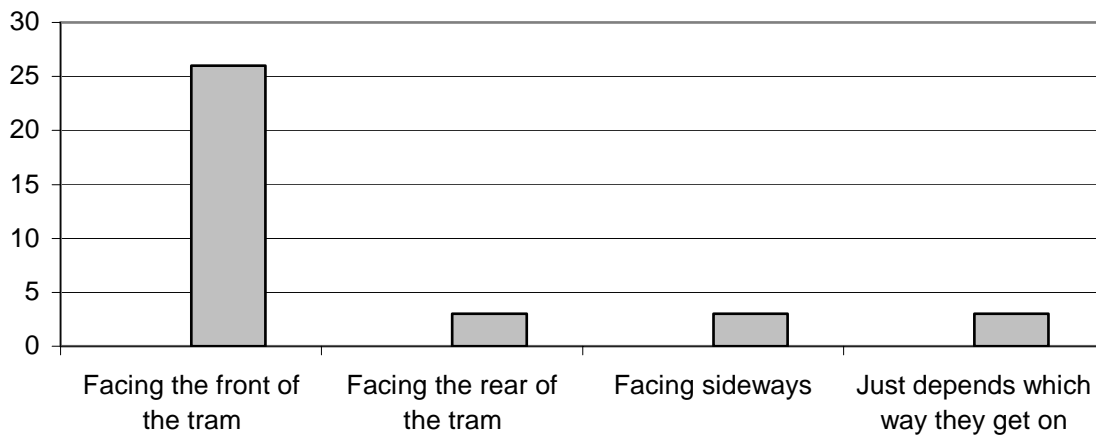
**Preferred direction of travel**

Facing the front of the tram	26
Facing the rear of the tram	3
Facing sideways	3
Just depends which way they get on	3

**Preferred location of travel**



**Preferred direction of travel**



Those facing the front do so because:

Like to see where they are going	4
Feel ill if travel in another way	2
Easy to manoeuvre	3
Feel safer	1

2 of the 3 respondents travelling sideways said this was because their wheelchair fits best that way.

2 of the 3 respondents travelling backwards said this was because of how they could best manoeuvre their wheelchair.

Respondents identified the following difficulties when travelling on Tramlink:

Access blocked by other passengers	19
Seat/location already occupied	18
Don't feel safe if the Tram has to brake suddenly	16
Not given enough time to get off the Tram	14

Exit route to door blocked by other passengers	13
Tram sets off before you're seated/located	11
Other	10
Don't feel safe when the Tram is braking normally	9
Don't feel safe when the Tram is moving forward	7
Not sure when Tram is coming to/has reached your stop	5

Other difficulties identified were:

- wheels get caught on way out
- too jerky when stopping
- stares at people which causes problems (can't help it)
- once missed stop because announcements out of synch
- antisocial behaviour, needs a security guard
- intercom to driver often doesn't work
- if people behind w/c, can't push button because only has use of one finger
- even less time when tram is crowded
- door position on platforms to enable scooters to line square to tram and be visible to people at that door
- crossing the tracks
- acceleration too sudden

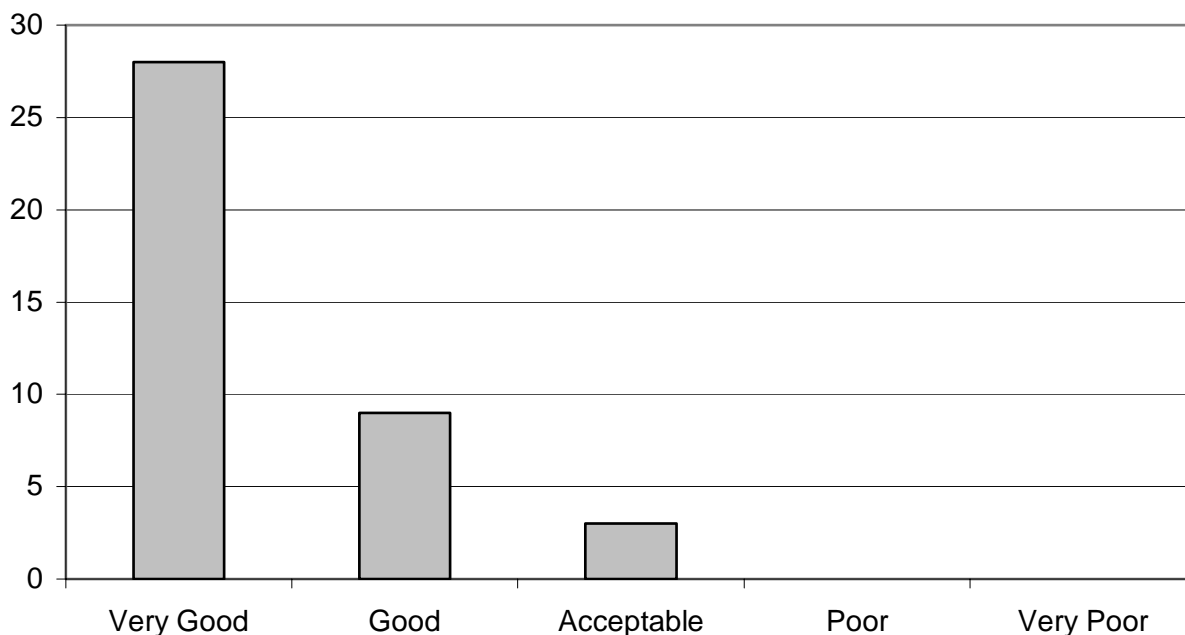
### **Views on Tramlink**

Respondents rated the Tramlink service:

Very Good	28
Good	9
Acceptable	3
Poor	0
Very Poor	0



## Service Rating



The following suggestions were made to improve access:

- More Routes
- Better bus links
- Address anti social/disruptive behaviour by youth/schoolchildren
- Clamps for wheelchairs
- Notice asking prams/pushchairs to move for a wheelchair user
- Provide conductors
- More wheelchair bays
- One door in, one door out
- Move bell push
- Drivers should give more time for passengers to get on/off
- Greater stability for wheelchair users

One person commented:

*'Every effort should be made to make people aware of the benefits of using a scooter with the tram. It amazed me and I am still getting used to getting about (again). My biggest concern is for people around me.'*

### 5.2 Those not using Tramlink

A total of 34 people with a mobility impairment living in the Croydon and surrounding area but not currently using the Tramlink service were interviewed. Overwhelmingly

this group were found not to use Tramlink because of the distance they had to travel to the service together with the difficulties of accessing connecting bus services. A number considered they would use the tram if services were nearer. However, while use of Dial a Ride or Taxicard might overcome this barrier, most using these door to door services preferred to travel directly to their destination, rather than interchange.

There were 2 non-users who said if they were to use Tramlink they would require a companion to travel with them but neither were able to identify anyone to help. When the consultants offered to go with them to try out the service both declined.

Of the non-users who had used Tramlink in the past, most had either moved house to a location further away from the service or their mobility difficulties had increased, making it impossible for them to now reach the service either by bus or walking. There were only 2 of these non-users who had ceased because of a bad experience in the past. One lady had fallen when crossing the tramway in a hurry to catch a tram. This lady used a 3 wheeled zimmer frame and blamed herself entirely for the fall. She was now waiting for a 4 wheeled zimmer frame to be supplied and then intended to start using Tramlink again.

The second lady had fallen twice when using the tram, once when she had not been able to get to a seat before the tram set off from the stop. On the other occasion, she caught her arm in the closing door, causing an injury for which she claimed she was still being treated. This lady blamed drivers for setting off too soon and other passengers who were reluctant to give up a priority seat for her. She is no longer 'prepared to risk' using the tram.

### ***5.3. Further discussions with disabled users***

We wanted to get a group of disabled people together in a tram in order to discuss with them ideas for improvement, based on the evidence we were collecting from the interviews and questionnaires

The questionnaires asked respondents to give their contact details if they were willing to join in a discussion group. Those whom we met at various forums were also asked if they would attend, as were all DAR wheelchair users consulted. In total 15 people agreed and were invited by letter to come to the Tramlink Depot, with arrangements made to meet them at the Therapia Lane stop. Unfortunately, although 6 replied to say they would attend, on the day there was a very poor response with only one disabled person turning up. We cannot be sure about why the response was low, although in a number of cases, the addresses given on the self completion questionnaires were not complete. It is also possibly a reflection of the satisfaction with the service.

The person who did come along attends a centre for disabled people and he thought that others at the centre might be willing to come to another session, especially as we ideally needed to talk to wheelchair users. Contact was made with the centre and

eventually two people, a wheelchair user and his ambulant disabled wife volunteered to help. However, in spite of approaches to a number of local organisations and South Central, managers of East Croydon rail station, it proved impossible to borrow ramps which were essential for these volunteers to access a tram at the depot. As a fall back, these people agreed instead to go on a tram ride with us.

It was also our intention to identify one or two non-users to accompany on to the trams where we and they felt that the experience of travelling on a tram might help overcome negative perceptions and build confidence for future use.

As the analysis of the questionnaires and interviews showed, we were unable to find any non-users who fitted this category. Only one person had a bad experience on Tramlink which had put her off using it again. Some of the respondents who indicated on the reply form that they were non-users were in fact not currently using but intending to when the weather or their health improved. Apart from these, the non-users were people who lived too far from the nearest stop and who, by reason of poor mobility, travelled by DAR.

## **6. TECHNICAL CONSIDERATIONS**

### **6.1 Legislation**

The primary legislation governing accessibility to light rail vehicles, including those used for Tramlink, is provided by the Disability Discrimination Act 1995 (DDA). Part 5 of this Act provides for the Secretary of State to introduce transport legislation specifically to ensure public transport vehicles are accessible to people with disabilities.

Part 5 of the DDA has been enacted for rail vehicles, including trams, in the form of the Rail Vehicle Accessibility Regulations 1998. These apply to all rail vehicles coming into service after the 31<sup>st</sup> December 1998. However, in recognition that some vehicles were under order prior to the introduction of the regulation but would not be put into operation until after it came into force, an exemption procedure was introduced.

This is the position with Tramlink vehicles, Transport for London sought an exemption and has continued to do so annually since then. Initially, the exemption required them to report to DfT any incident involving a wheelchair user travelling in the wheelchair bay of the Tram. More recently this has been extended to include reporting of any incident involving a wheelchair user.

For Tramlink vehicles to meet fully the RVAR would require:

**Priority seats** – the whole surface of the seat to extend to a minimum width of 450mm. Currently the seat base meets the width requirement but is not padded across its full width;

**The bell push** - for priority seats, to be placed in reach (not more than 1,050mm) of each priority seat and at a height at its centre not less than 1,150 and not more than 1,250mm from the floor;

**The wheelchair space** – the wheelchair bay meets minimum length and width requirements (not less than 1300mm long and 750mm wide with no intrusion below a height of 1,400mm) but requires a structure or fitting at one end, of a minimum width of 700mm, that is capable of preventing a reference wheelchair backed up against it from moving or tipping;

**The gradient of the floor** - adjacent to the wheelchair compatible doorway would need to be reduced to a maximum of 5 per cent.

Access requirements to all aspects of public transport services other than the vehicles themselves, are provided for in Part 3 of the DDA, access to services. Part 3 follows a phased introduction to the full removal of barriers to access by October 2004. Under Part 3 of the DDA transport operators should already be ensuring information is accessible to disabled people before, during and after their Journey. Once the final phase of part 3 is introduced in October they should also ensure access is available to:

- stations
- bus-stops and boarding points
- ticket booths
- sanitary provision
- cafes and restaurants, and
- Other non vehicle infrastructure

However, while issues of service on board vehicles remain exempt this can mean, for example, that a tram driver could legally refuse to allow a disabled person to board their tram solely because of their disability. In the new draft Disability Bill, to be published later this year it is likely that Government will be taking forward some of the commitments that it made in the report "Towards Inclusion", which required primary legislation. This could include transport provision as a whole being included as a service under Part 3 of the DDA, as suggested by the report.

Although not central to our brief, the only aspect of Tramlink where this study has identified there may be an issue in relation to Part 3 of the DDA is the ticket machines at tram stops. These appear difficult to use for many users and can present particular problems for those who are disabled, especially when interpreting the ticket options are available to them, reading information on screens on and for some being physically able to use the machine. These difficulties are somewhat offset by the ability of many disabled users to use their concessionary pass on Tramlink and for wheelchair users who can anyway travel free. However, there are still some disabled people who will buy tickets from the machines and there would be benefits to all in addressing the issues these may face.

## 6.2 Good Practice

A recent study by TRL on behalf of the Department for Transport, '**The safety of wheelchair occupants in road passenger vehicles**', 2003 looked specifically at the use of back and head rests for wheelchair users in M category vehicles (road going, public service, not rail vehicles) in comparison with passengers seated in conventional seats (fitted with headrests). The work found that the heads and necks

of wheelchair users were particularly vulnerable but that this could be addressed through the use of a head and back restraint. However, the work also suggested that while injuries to wheelchair users would be reduced through the use of a head and back restraint, the lack of their use would not mean a severity of injury beyond accepted limits.

ISO7176 pt19 '**Wheeled Mobility Devices for Use in Motor vehicles**', gives comprehensive consideration to the wheelchair and WTORS (restraint system) combination in transportation, and is the standard referred to when discussing crash testing of different makes of wheelchair. There has also been work undertaken by the UK Medical Devices Agency, MDA guidance (MDA DB2001), to advise wheelchair users on the use of wheelchairs on public transport and by a joint working group under the umbrella of IPEM.

The above advice highlights the need to ensure vehicles used are compliant with construction and use regulations and the duty of care incumbent on the operator and wheelchair manufacturer. The undertaking of risk assessment by the wheelchair manufacturer and/or transport provider, in order to manage and minimise risk in wheelchair use on transport, is also strongly encouraged. Guidance suggests any risk assessment should be less complex for larger public transport vehicles. Generic risk analysis, based on recorded experience, as provided in section 3 of this study, should highlight any increased or new risk for a user.

Guidance suggests a full risk analysis should consider at least the following areas:

- user occupying a wheelchair/seating unit during transportation;
- effect of normal vehicle manoeuvres, such as braking, accelerating, and cornering on the wheelchair user;
- suitability of the interface that connects the seat unit to the wheelchair;
- effect on other passengers if the user, wheelchair/seat or accessories become separated from the wheelchair during impact;
- postural support or belt/harness that is not sufficiently strong to withstand the force of an impact;
- requirement for a headrest to restrict rearward movement of the head during vehicle motion or impact.

Alongside this, all guidance recognises that it is not possible to remove risk altogether and any efforts to address it must be balanced with the importance of access to the individual and their demand to travel. There are over 750,000 wheelchair users in the UK. Although thousands travel in vehicles every day, very few problems are reported. Also, in the small number of injuries and fatalities recorded, investigations most often reveal that the cause is rarely attributed to a piece of faulty equipment. The majority are the result of inappropriate, inadequate or incorrectly used equipment, which it is believed can pose as much risk to wheelchair users as a vehicle impact.

### **6.3 Engineering Considerations**

As any vehicle builder, Bombardier is confident it can meet any requirement sought by the customer. In the case of making the Tramlink vehicle fully RVAR compliant, the most difficult requirement to meet would be the change to the gradient of the floor as this could impact on the structural integrity of the vehicle. However, it is

understood fitting of wider priority seats, the moving of the bell push for these and even the fitting of a wheelchair support structure would not require any major structural alterations to the vehicle.

Regulations require a passageway to the wheelchair space of at least 850mm in width with this providing a turning circle (minimum diameter 1,500mm), incorporating the wheelchair space, to allow a reference wheelchair to turn through 180°. Therefore if a wheelchair support were to be fitted in the wheelchair bay of a Tramlink vehicle, without moving the current padded bar it might be necessary to move/remove a seat opposite, to provide the combined passage width, turning space and wheelchair space required. This would be the case whichever end of the wheelchair bay a backrest might be fitted, although it may be more easily achieved at the doorway end of the bay.

To support a backrest in this location it would probably be necessary to move the vertical handrail at the same end of the bay. This in turn could allow a bell push positioned on that handrail to be made available to those in the priority seats located opposite. If this was done the issue of the current bell push being situated too low could also be resolved.

Fitting compliant priority seats would require remoulding the whole seat to accept a larger area of padding, unless there is already a seat of slightly larger size produced by Bombardier for one of its other vehicles.



## 7. CONCLUSIONS

**7.1** We start with the very obvious and positive conclusion that Tramlink is very highly regarded by people with disabilities, some of whom even said that it had given them their independence. Numerous, unsolicited favourable comparisons with buses were made and without exception, users had no problems gaining access to the trams. The majority of ambulant disabled people could think of no improvements necessary to Tramlink except – mentioned by a number of people – request for extensions to the service. However, a small number commented on the need for drivers to wait till passengers are seated before moving off. Indeed, we observed

two occasions where elderly people travelling lurched forward when the tram moved off.

While many people could think of no improvements beyond an extension to the service, others made suggestions which we have considered and, in some cases, incorporated into our recommendations. Other suggestions we rejected because they are neither operationally nor financially viable. In particular, we do not think that additional wheelchair bays would be necessary given the few times it is likely that a group of wheelchair users will travel at the same time. Nor do we believe that use of wheelchair clamps, only suggested by one person, would be practical. A number of people suggested the introduction of conductors on trams. Although this might be an ideal solution to a number of the difficulties faced by people with disabilities it is financially a particularly expensive option. We have also rejected the suggestion, again made by one person, to have separate doors for passengers getting on and those getting off as this would not address the main difficulties of accessing the wheelchair bays encountered by wheelchair users.

**7.3** Wheelchair/scooter users are prepared to tolerate a certain amount of difficulty in order to benefit from the convenience and independence of the trams. The main difficulty for wheelchair users is the conflict with other passengers, especially those with buggies who both block the way to the wheelchair bay and the bay itself. Our evidence shows that the vast majority of wheelchair users prefer to travel forward facing in the bay, knowing this is the safest position but are often prevented from doing this. Some have the confidence to ask people to move, usually but not always successfully, while others do not. Awareness of the needs of wheelchair users to access the wheelchair bay appears low amongst other passengers and some with pushchairs appear to see their need to use the bay as equally valid.

**7.4** Once in the wheelchair bay, the fear of missing their stop encourages passengers in wheelchairs to leave the bay very early. They then spend some time at an angle or facing sideways as close to the door as possible, feeling less safe but unwilling to take the risk of missing their stop. This risk is rated more highly than any risk to their own safety, especially by users of the heavier powered chairs who are confident that these would not tip over or otherwise move with the brakes on. Our interviews suggested that there is little or no awareness of the potential risk to other passengers. One wheelchair user believed that if there was an accident, the wheelchair manufacturer should be responsible.

**7.5** The lack of demand for any type of 'structure or fitting' at the end of the bay suggests that wheelchair users feel safe in it. However, none of our interviewees reacted unfavourably to the idea so long as it did not impede manoeuvres and, in one case, so long as it was made of clear material to prevent users from feeling boxed in. The three interviewees we spent time on the tram with could all see the benefits of such a structure and these are also highlighted by the examination of Tramlink incident reports, national guidance and research.

**7.6** Many of the issues that arose ultimately revolve around the driver's awareness of the difficulties faced by disabled people, and especially wheelchair/scooter users inside his/her tram. A number of wheelchair users in particular commented on drivers. Those who travelled regularly gained great confidence in the knowledge that certain drivers knew them and the stop where they got off, while some drivers were considered noticeably less aware of their passengers. There were a small number of

anecdotes about drivers ignoring the communication button. From the drivers' perspective it was difficult for them to see into the full interior of the tram to watch over passengers safety, especially when it was crowded and they were frustrated by the inadvertent or inappropriate use of emergency communications.

**7.7** We do not believe that there are any major gaps in publicity to disabled people. Even those who do not use Tramlink because they live too far from a stop are aware of the service – and indeed, often wish it could be extended to their area. Distance was the main reason for not using it although we did come across a small number of people who used it for short journeys once they were in the centre of Croydon. Many of our interviewees were DAR users who used this as a door-to-door service but had not considered booking a trip to their nearest tram stop to continue their journey on Tramlink. Their response to this suggestion was usually that once they had managed to book DAR, they may as well get it for the whole way. The local DAR operator confirmed that they were unlikely to persuade their passengers to use DAR as a feeder service to Tramlink. While this may not be the most sensible use of DAR resources, in practice we can understand DAR users' resistance to the idea, with worries about the last leg of the journey and the co-ordination of the return trip.. DAR should certainly continue to offer this alternative to passengers but we do not think that, at this stage, there are strong enough incentives for interchange.

However, we believe there may be a case for promoting the benefits of the service to attract some people to use it more and at the same time raise awareness amongst others that it is there for wheelchair users. In particular the access features available should be promoted and how these are used to best effect, for safe travel. To this end, establishing regular opportunities for dialogue with disability organisations in Croydon, the dial a ride forums or other transport based disability groups could also prove useful.

## **8. RECOMMENDATIONS**

**8.1** On balance, we believe that the incorporation of a back rest at one end of each wheelchair bay would improve the safety of passengers travelling in wheelchairs. Two reasons support this:

Safety – as potentially a particularly vulnerable group, wheelchair users can run the risk of a more severe personal injury in any incident. While, there is every indication from national guidance and research that inclusion of a backrest in the wheelchair bay could only improve safety. In addition incident data from Tramlink suggests that, while the overall number of incidents involving wheelchair users since services commenced is small, all have occurred on board the tram and are significantly (54 times) more likely to occur amongst this group of users than amongst the public at large. Two of the 3 incidents in the last year involving wheelchair users occurred in the wheelchair bay under full hazard braking, the type of incident that might be prevented by a backrest.



Awareness – we believe that the presence of such a structure would indicate more clearly that passengers in wheelchairs were the priority users of this space. As such both enabling and encouraging more passengers in wheelchairs to make use of the bay and therefore further improving safety.

We, therefore, recommend that the business case for incorporating a backrest in the wheelchair bays of all trams is examined with a view, if the case is upheld, to considering the fitting of a backrests, as soon as possible and ideally before the comprehensive vehicle refit programmed some years from now. As explained in 6.3, the addition of the backrest may necessitate some modifications to the seating opposite but may also result in the ability to provide a bell push at the regulation height for passengers in the priority seats on the stanchion opposite these, as this would probably need to be moved. Based on known costs for retrofitting of similar equipment on buses, we estimate that the cost of incorporating the backrest might be as little as £4,000 - £5,000 per bay, a total of £240,000 for all 24 vehicles.

Design is extremely important. Although retrofitting is not the ideal solution, we stress the need to ensure that the design is aesthetically pleasing, attracting rather than deterring passengers in wheelchairs and easy on the eye for all other passengers. One interviewee suggested that the backrest should be made of Perspex. Any such transparent surface would need to be highlighted to conform with RVAR regulations and may be a good idea, although we would recommend that Tramlink uses the existing local consultation mechanisms to involve disabled people and other users in the final decision.

We clearly understand the contractors, concessionaire and operators concern that any such improvements designed to benefit wheelchair users should also not adversely affect the safety of other Tramlink passengers. We believe therefore that a risk assessment should be undertaken to ensure that this would not be the case, if the business case supports the provision of a fitting.

8.2 We believe there is a greater role for drivers in ‘managing’ the journeys of disabled passengers, and in particular, of passengers in wheelchairs. We are sympathetic to the difficulties they face, especially when the tram is crowded. We, therefore, recommend a specific element should be added to current driver awareness training to illustrate the issues to pay attention to when wheelchair users or people with other obvious mobility difficulties are boarding, travelling or alighting from trams. We considered, but rejected, the idea of routine passenger

announcements asking people to let wheelchairs through to the wheelchair bay as these would quickly lose impact. Instead, we believe drivers should be able to activate a pre-recorded announcement if they see a passenger in a wheelchair boarding or, through their mirror, getting out that may benefit from this. The use of such a device should also be incorporated in training.

We cannot ignore the difficulties which the drivers have in looking back into the tram and we think their awareness of passengers with mobility difficulties, in particular those in wheelchairs would be greatly assisted by:

- The introduction of CCTV, for which there may, clearly, also be a much wider safety case.
- If feasible, singling out in the driver's cab, the bell push in the wheelchair bay. We are conscious of the drivers' wariness of the emergency communication button being accidentally pushed but think that, in conjunction with the other measures recommended to clear the wheelchair bay, this particular bell push would be used by passengers in wheelchairs in the majority of cases at least. Linking this bell push to the CCTV would allow the driver to check that it was not being misused. The purpose of this different bell push would be to give those people in the wheelchair bay the confidence to remain in it until the tram had stopped, knowing the driver was aware that they needed to get off at the next stop. To reduce the amount of time wheelchairs were in the doorway area, we believe, would improve safety for them and other passengers.

8.3 We also recommend efforts are made to raise awareness amongst other passenger of the needs of wheelchair users and others with disabilities, using the tram. In particular, in conjunction with the introduction of back rests, there should be a poster placed on the side of the tram opposite every bay, at eye height, advising passengers that space in the bay should be given up if required by a wheelchair user. The form of words proposed in DfT guidance for both notices in the wheelchair bay and by priority seats should also be adopted.

8.4 We recommend a leaflet for disabled passengers is produced, similar to that used by Midland Metro, providing not only details of the service but advice on making their journey as safely as possible.

8.5 There was already some evidence that the infra-red beam in tram doorways was set too low and our research has confirmed that this is the case. We, therefore, recommend that proposals to address this through switching to manual operation of the doors by the driver or if automatic operation continues, by adjustment of the height of the beam, are pursued.

8.6 We recommend that the operator and concessionaire should establish formal mechanisms for more regular consultation with disabled users. There already exist forums – in particular the Croydon Mobility Forum, organised and hosted by the Borough Council - that would provide an opportunity to meet regularly with disabled users and their representative organisations. At this time, when Tramlink may be embarking on modifications to benefit disabled passengers, it would be especially beneficial to consult them on the detail of design proposals.

8.7 Our final recommendation concerns the ongoing monitoring of use of Tramlink by people with disabilities and wheelchair users in particular. Where access improvements are made it will be important to undertake specific monitoring to establish the impact of these both in terms of their intended purpose and on service take up by wheelchair users and people with disabilities in general. Current wheelchair incident do not specifically capture information on the type of wheelchair involved, whereas it would be useful to establish any trends in this. CATS data proved limited in terms of the information it offers on the numbers of wheelchair users carried. In particular the substantial difference in overall levels of take up at different times of year warrants further examination. It may also prove helpful for future analysis to separate out the numbers of users of manual and powered wheelchairs as well as powered scooter users. The numbers of users with baby buggies and the proportion of these wanting/needing to use the wheelchair bay may also be useful data to obtain, if it is not already collected. Finally it was noted that a passenger satisfaction survey being conducted on Tramlink at the same time the consultant was travelling on trams did not appear to capture information on the level of mobility difficulty of respondents. This might usefully be considered in future surveys of this type.

## **Annex C**

Peter Colmans  
DfT Mobility and Inclusion Unit  
4/23 Great Minster House  
76 Marsham Street  
London  
SW1P 4DR

Ffion Grant  
Secretariat  
Disabled Persons Transport Advisory  
Committee

4/24 Great Minster House  
76 Marsham Street  
London  
SW1P 4DR

Direct line: 020 7944 8013  
Fax: 020 7944 6998  
Minicom: 020 7944 3277  
GTN Code: 3533

E-mail: [ffion.grant@dft.gov.uk](mailto:ffion.grant@dft.gov.uk)  
Website: [www.dptac.gov.uk](http://www.dptac.gov.uk)

Dear Peter

10<sup>th</sup> February 2005

—

**Disability Discrimination Act 1995**  
**Rail Vehicle Accessibility Regulations 1998**  
**Application for Extension of Exemption by**  
**Croydon Tramlink**

Thank you for seeking DPTAC's advice on this extension application for of exemption under Section 47(3) of the Disability Discrimination Act 1995.

Croydon Tramlink were seeking extension to the current exemption from clause 16(1c) in regards to their Class CR4000 vehicles, as set out in Statutory Instrument 2002 No. 3001.

In making our recommendations, DPTAC have considered the applications in terms of their implications and effect on disabled passengers. We have not necessarily taken any financial, technical or operational issues into account. We accept that the Mobility and Inclusion Unit of DfT, after consultation with other relevant bodies, will include these wider considerations when making their recommendation to the Secretary of State.

DPTAC's views are set out in Annex A.

Yours sincerely

**Ffion Grant**  
**DPTAC Secretariat**

## **RVAR Exemption Extension Application**

**Croydon Tramlink**  
Class CR4000

**Considered February 2005**

**Regulation Clause Number**

16(1c)

**Regulation**

16(1) A wheelchair space shall comply with the following specifications:

(c) at one end of the space there shall be a structure or fitting which shall have a minimum width of 700 millimetres and shall be capable of preventing a reference wheelchair, which has been positioned with its back against the structure or fitting, from moving or tipping towards the structure or fitting, whether or not that movement or tip includes a sideways movement or tip.

**Period Sought**

Until 31 December 2005

**DPTAC Recommendation**

Although disappointed to receive another application for extension relating to this exemption, DPTAC are pleased to receive evidence that Croydon Tramlink are finally undertaking work necessary to make these vehicles compliant with the relevant RVAR clause.

Following a meeting with representatives from Croydon Tramlink, TfL and the Mobility and Inclusion Unit of DfT, DPTAC recommends the granting of the extension, from 31<sup>st</sup> March 2005 until 31 December 2005, to allow the work to be completed. However DPTAC recommend that a phased implementation programme of the work should be made a condition of the exemption to ensure that the work is carried out in a timely and effective manner. This would ensure that the work is not left until the 'last minute' or another exemption sought.

DPTAC would also recommend that improved signage within the vehicles should be made a condition of the granting of the recommendation.

Both DPTACs own observations and those of the report commissioned by Croydon Tramlink indicate that many wheelchair users are putting themselves at a higher risk

of accident/injury by not travelling in the designated space. This may be either because the space is not easily identifiable or because it is occupied by standing passengers or parents with 'buggies'.

DPTAC is concerned that the current signage is obscured by standing passengers when the tram is in use. Therefore DPTAC would expect Croydon Tramlink to liaise with MIU to develop and locate appropriate signage to clearly identify the wheelchair space and to establish its priority use for wheelchair users.

We would also wish to take this opportunity to reiterate our concerns in relation to other issues outlined in the report relating to why wheelchair users do not use the designated bays. The Committee would expect to see policies devised and implemented that will deal with the conflicting demands of wheelchair users and other passengers using the trams.

DPTAC urge the Mobility and Inclusion Unit to encourage Croydon Tramlink to implement the other recommendations made in the report as soon as possible. The majority of these items such as appropriate signage, driver awareness training etc are relatively low cost and could be implemented before the expiry of the current exemption.

If granted DPTAC recommend that this exemption should only remain valid for Class CR4000 vehicles, as specified in the application, when operated by Croydon Tramlink on this service.