KEYNOTE ADDRESS

Geoffrey Claydon, Vice President, Tramway Museum Society (U.K.)

Session Chair: John Radcliffe Session Secretary: Bill Kingsley

G'Day. You must all be gluttons for punishment.

But it is great to be able to attend and address COTMA for the second time (The first being Christchurch in 1978).

In 1978 I had the privilege at seeing all the Museums first. Not so this time, coming directly from the U.S.A.

Note that Crich in Derbyshire is pronounced "CRYCH IN DARBISHEER".

The disused quarry of 1959 is now the National Tramway Museum, a charitable institution, with 50 trams, one mile of "1 in 20" track, 20 paid full time staff, 2000 members (of which 200 are active), 120,000 visitors per annum and an annual income of $700,000.

About marketing

At National Tramway Museum, the basic offering is a tram ride along the middle of the street that then goes into "the outback".

But the total product is much more and you must identify:-

1. Active participation by visitors (but beware the white knuckle ride - the pink knuckle ride is slightly more relaxing!).
2. Passive interpretive displays
3. Level of interest, especially with other attractions at the Museum.
4. The demand by - Local residents.
   - Tourists (especially those staying with local families).
   - Groups and Schools.
5. Weather and protection from the rain (the sun always shines in Bendigo).
6. Price.
7. Size of the market.

The National Tramway Museum identifies two isochromes of visitors, being those 'locals' who can travel to the Museum within 60 minutes, and the 'further afields' who are within 90 minutes. For each you must identify the numbers and types of households, ethnic groups, lifestyle, unemployment.

The better the marketing, the higher percentage of groups attend. Groups should constitute 12% to 24% of visitors.

Groups have booked in advance, so poor weather alternatives must exist.

School children will often bring their parents along later.

Coach drivers and operators must be given free meals and entry.

12.5% of net turnover is spent on marketing, But don't throw money away.

The lower the admission price the more people will come, but the more staff you must employ. The higher the price, the less will come, but the less you need to employ.

You must have a marketing officer, who does not need to know about trams, but must understand the press, T.V., and politicians.

Avoid paid press and T.V. advertisements. Utilise special events such as the millionth visitor, awards, special visitors, for free press and T.V. coverage. The annual National Tramway Museum Extravaganza is now too costly and the novelty has worn off.

Try car rallies, Yorkshire bus rallies, street entertainers, Santa Specials, Santa in his grotto (National Tramway Museum needs two Santas!).

Charge people to be taught to drive a tram - theory, practice, the lot. Then present a Certificate. Comments such as "A marvellous experience" are frequent.

About Membership

Seek more members. The active will mean a larger workforce. The inactive are unpaid marketers.

Try induction weekends for new members, and special days for all who joined in the previous 12 months, with hands-on driving and social events. Look after and care for your members.

Nothing succeeds like success. Enthusiasts will work for the body with a proven record, as they can expect to see results by the end of the day (eg., Festiniog Railway).

New Management

Restrict the use of the term "museum", for such brings needs for curators, collection policies, safeguarding of exhibits.

Beware of the competition "Conservation" versus "Replacement", such as "we must keep the original brake blocks" versus "let's put on new brake blocks". Preserving the past is also about preserving the motion and movement of vehicles. To this end the most important item to conserve is "skills".

Use audio-visuals, exhibitions, "expositions of the past", library and archives, research. Safety is important. One accident can affect the other museums too.

There is no such thing as "absolute" safety. Establish procedures, counter risks, recognise hazards, and the role of the coroner. Keep histories of cars and crews. Train new crews by syllabus. Keep records.

It is hard to keep people enthusiastic about safety. Sir Richard Clark stated, "If you are dedicating your life to a project, make sure the project is the greatest".

Craig (Tooke) has helped with a 60 page Code of Practice for overhead wiring. Even Blackpool has asked for a copy.

There is a role here for COTMA. Unfortunately, COTMA is unique in the world. There is nothing similar anywhere. The National Tramway Museum leads the United Kingdom. The American Rail Museum in America is not really effective.

The interest of Delegates at this conference, the width of agenda, the enthusiasm, the encouragement, is all indicative of success.

Best wishes for the future.

Discussion

To a question by John Radcliffe about museums in Britain, Geoffrey spoke of too many stuffed animals where "hands-on" is really needed. There are too many competing attractions fighting to maintain market shares.

Don Campbell asked about paid employees. Half the income at National Tramway Museum is for wages, but the Per-Way Department is entirely volunteer. Vast numbers of volunteers are essential.

To an inquiry by Daryl McClure about new tramways in the U.K., Geoffrey mentioned 6 foot deep track foundations, encasing rails to deaden sound and overcome electrolysis, massive overhead requiring more poles and reduced aesthetics, and highly sophisticated car maintenance.

Bob Pearce queried the undergrounding of power. Indeed A.C. had to go under the tracks.

WHAT TO DO UNTIL THE CORONER COMES

Presenter: Phil A'Vard
Session Chair: Dennis O'Hoy

Session Secretary: Bill Kingsley

In the late 1950s a small group of people in Wales started a movement which was to be copied all over the world.

A dedicated band of young enthusiasts proved to the Government and to the population of England, that a railway could be restored and operated by volunteers, i.e. by ordinary people working in their own time.

The late 1950s and early 1960s saw this urge to preserve railways and tramways spread into all points of the compass, with the result that there are now hundreds of rail guided systems of one form or another, preserved and operated by amateurs in almost every country.

In the 1970s and early 1980s we saw these groups develop into small businesses in which well-wishing amateurs give their labour free to the enterprise, allowing them to invest their fares in capital development and in the employment of personnel to service their equipment and, in some cases, to operate and market.

Development and consolidation was perhaps not as difficult as one might think. The organisers, i.e. the management, had years of tradition and practice upon which they could model the development of each enterprise. There were existing rule books, practices and laws which would guide them in the restoration of their relics and satisfy the nostalgic needs of their volunteers, club members and patrons. In many ways the 80s were perhaps the halcyon years of the preservation movement.

The 1990s however, are different. These are the years in which the preservation movement will have to grow up. Forty years after the first act of preservation, we find that our preserved relics are now operating in a different world. We are still offering enjoyment to patrons and to volunteers. Their expectations are no longer those of people of the 1950s. Patrons see the enterprise as a tourist attraction (i.e. as a business) and have much less sentiment for voluntary operation. Volunteers today are now in a second generation phase, without the same dedication and wisdom of their earlier brethren. Most cannot recall the preservation phase and have joined the organisations for reasons other than that of saving it.

Something else has happened however, and it may be time for amateur management of preserved railways and tramways to become aware of this. I refer to the fact that in the 1990s the environment in which our businesses operate has changed dramatically! The rules of a century ago are no longer relevant or are under challenge.

Since the mid 1980s we've seen at least three changes which will, in time, have enormous effect on our businesses. There are more to come! The first of these changes was the lifting of the bans upon the legal profession advertising their services. This means every newspaper one turns to, will have ads claiming that one solicitor or another can "get you money" by acting on your behalf against the perpetrator of an outrage against you. The net effect of this is that we are moving very quickly to the American style of economy where the first words that are uttered after the word "ouch" are "who do I sue?"

The second change and probably the most far reaching, is the Occupational Health and Safety philosophy. This had its roots in the U.K. and Europe many years ago and has the effect of taking from government authority the responsibility for ensuring safety in the work place and other areas and transferring it to the occupiers or the proprietors of the work places. Occupational Health and Safety Acts do not prescribe any specific safety procedures, yet they have the power to "hang" anybody who does not follow one. They also have the power to trace responsibility for any negligence or malpractice down to an individual, be it a volunteer or an employee of the organisation.

A third one is director's liability. We have seen in the last decade, the removal of corporate protection of decision-makers and it is possible now for individuals serving on the committee or on the board of any of our preservation businesses to be sued by shareholders (i.e. members), or by the Australian Securities Commission for negligence in exercising their directorial duties. This almost means that every member of a board can be sued if an error is made in a balance sheet and not detected by their vigilance. It can also extend to management at all levels.

There are more changes in the pipeline. Recently, there came across my desk, a draft of a new Victorian Act, the "Equipment Public Safety Act, 1994". This had been issued for comment before being proclaimed. After proclamation, it will have, I believe, a substantial impact on all of our operations. The object of the Act is to secure the health and safety of persons in relation to the design, construction, manufacture, installation, erection, alteration, maintenance, repair and use of prescribed equipment to protect people generally against risks to health or safety in relation to prescribed equipment and to eliminate at the source, risk to health and safety of persons in relation to the design, construction, manufacture, installation, erection, alteration, maintenance, repair and use of prescribed equipment.

The definition of the words, "prescribed equipment" is given as "any equipment which is declared by the regulations as "prescribed equipment"". I have yet to find any reference to qualify this further other than a

reference to the fact that The Governor in Council may make regulations declaring any equipment to be prescribed equipment.

What is it that we are operating other than equipment? Implications behind this are not unlike that of Occupational Health and Safety. It places the onus of ensuring that the equipment is safe upon the proprietor, the designer and probably, the operator.

Let me ask you now, does any of us really understand the full design parameters of the ancient equipment that we are now running? Have we added to it in any way? In so doing, did we undergo a full analysis as to the safety of the particular item that we added? Has it been appropriately stressed from an engineering point of view? Was the timber used in a repair, the appropriate structural grade for the job to which it was being applied? What were the qualifications of the person who decided to make the repair and/or what were the qualifications of the person who designed the improvement? How many times have we, as amateurs, done things to our equipment and then placed it into public traffic? That individual as well as the employer can be culpable under the Act.

Neither the Occupational Health and Safety Act nor the Equipment, Public Safety Act, 1994 gives any guidance or clear definition for their term "so far as is practicable" with regards to safety procedures. They do provide, however for the relevant Minister to approve a code of practice. Compliance with such a code absolves individuals or organisations from civil or criminal proceedings. However, the preparation of such codes is not prescribed by any Act and requires a vast amount of spade work to be done by the organisations concerned.

The existence of these Acts brings into question the rules, regulations and practices which have been used by the preservation groups since they began and since the enterprises they preserve began. They also highlight the risks to which volunteers expose themselves in undertaking roles in operating under these rules, regulations and practices.

All is not as gloomy as it may sound. Fortunately, these same Acts also apply to the professional railways.

In Victoria and New South Wales, most of the preserved railways are supervised by their respective public transport commissions. Both of these States have now introduced a system of accreditation against which railways, professional or amateur, can be assessed. The process refers to any gauge 2ft. and upwards. This Railway safety accreditation process examines safe working procedures, administration, engineering practices and standards, training and certification of staff competency, emergency procedures and management policies. In fact, almost every aspect of operating the rail enterprise is subject to detailed examination.

At present, the system is being administered through the Public Transport Corporations of both states and applies to railways only. I however suggest it is only a matter of time before a National Rail Safety accreditation process will apply to every railway and tramway system throughout the country. While such a system will not replace Occupational Health and Safety and similar Acts it will provide the mechanism for the establishment for Codes of Practice.

It would behove all preservation groups to adopt common practices, standards and procedures so that a common code of safety practice would apply across all preserved railways. Victoria has taken a step in this by adopting standard regulations and safe working procedures which apply to all preserved lines.

The amount of work involved in this however, is prodigious. The rail safety accreditation process is not one which specifies the practice. It is, as the name says, one which gives accreditation to the practices and procedures which are adopted by the organisations.

Every organisation can submit its own set of practices to the process and be given accreditation individually. I suggest however that we would be better served if we were to establish an industry Code of Practice which would be approved under Occupational Health and Safety and similar Acts. The great advantage of this would be in the mobility of volunteers.

If safety procedures were standardised throughout the industry, the transition of volunteers between preserved systems would simply involve certification in local knowledge and practice rather than the full scale training and certification for each organisation.

Having painted a part-picture of the environment in which our enterprises now exist, I now turn to a small aspect of the scene in order to justify the colourful title of this paper. That of procedures in an emergency!

A detailed examination of such procedures will be one of the first aspects of your operation to be considered under any form of accreditation.

In its forty years of existence, the railway preservation movement in Australia has led a "charmed life" in so far as accidents are concerned. However, as the insurance companies say, "the longer you go without an accident, the bigger it will be when it happens". In short, the next big one could be just around the corner.

Avoid complacency! It can happen on your railway at any time! Already we have had, to my knowledge, two fatalities on preserved rail systems. Last year saw a boiler incident on a railway in South Australia in which at least one person was killed. I believe in New South Wales some years ago, a footplate man was fatally injured. We are operating dangerous equipment and despite stringent operating precautions, anything can and invariably, will happen. When it does, the entire reputation of your organisation which may have been built up over forty or more years, will be put to the test. After the crunch, you only have a matter of minutes in which to save the reputation, the organisation and perhaps its directors, staff and volunteers from prosecution.

Let me now paint another picture.

It is a quiet Sunday afternoon during the January school holidays. Most of your regular volunteers are on vacation, as is most of the executive management. Despite their best efforts, the roster officers have been unable to fill all operating positions for the day, so you are running slightly short-staffed. As most of your skilled and experienced volunteers are absent, the operation is being performed by those of lesser skills and experience. These may be very willing and, in fact, qualified personnel who are second or third generation volunteers. Even though qualified, they may not have the experience of older members or full time employees.

This, I am sure is a familiar scenario. Now let's introduce an unfamiliar one.

Through equipment failure, a tram loaded with people derails on an embankment. The trolley pole entangles in the overhead and brings it down, the tram rolls on its side down the embankment. The nearest road is 500 metres away across a field. Trapped in the tram are injured children, people possibly killed. The tram driver is unconscious. The conductor, a youth.

If this was your tramway, what would happen next?

* Would the conductor know who to call for assistance?
* Is there a communication system available for the conductor to use?
* Is there a senior person on duty for the conductor to contact?
* Has that senior person been trained in what steps to take in this situation?
* Has that senior person the means to make that contact?
* Is there a suitable qualified person on hand to disconnect the power supply?
* Does that senior person (if any) have instant access to telephone numbers for emergency services?
* Will he lose valuable minutes rummaging through the telephone directory?
* Does the tramway have emergency breakdown equipment available and does it have people available who are trained in its use?
* Is there a system whereby the location of the incident, can be identified clearly to emergency vehicles? There is no sense in telling the emergency services that the incident took place at "Fred Nurk's Curve" on the tramway.

Let's now assume that someone has managed to make the right decisions and that the emergency services have been called, the State Emergency Services, ambulances and fire trucks et alia have all turned up on the scene and the dead and injured are being taken away. The police arrive!

* Who represents the organisation on the scene, to the police? Bear in mind, the incident took place on your own property and is not a road traffic matter.
* Is there a mechanism in place for the gathering of information and evidence which can be used by the organisation to determine the cause of the incident?
* Is the mechanism sufficient to be used as a defence in subsequent litigation in a court of law or in the Coroner's Court?

* Is there a mechanism to protect volunteer staff from incriminating themselves when making statements to the Police?
* Has anybody thought of bringing out their camera and photographing the incident from every possible angle?
* Is there a competent person available to handle questions from the press?

Let us now move to events after the incident. The wreckage has been cleared away, the damage has been repaired and it is time for the great wash-up.

* Is there a formal mechanism for the evaluation of the evidence which was gained from the site?
* Has the cause of the incident been identified?
* Has appropriate action been taken to ensure that it will not happen again?
* If there is any blame, has it been apportioned?
* What disciplinary steps if needed, have been taken?
* Has the organisation a policy of assisting volunteers when in court?
* Has the organisation any system where a volunteer, who has been traumatised by an incident of this nature, can be counselled? In this case, think of the driver or the conductor or the first on the scene, each of whom has witnessed death and serious injury.
* Has the administration of the organisation evolved a system whereby reports arising from incidents of this and any other nature are systematically recorded?
  And last, but certainly not least;
* How far is the organisation prepared to go in supporting a volunteer whose negligence contributed to the accident and to the deaths of the people concerned? Employees generally, have their Unions. What support do volunteers have?

Most of the points covered above are sufficient to make our collective hair stand-on-end but I assure you they are real.

As mentioned at the beginning of this discussion, the emergency services vehicle will probably run neck and neck with the legal profession trying to get to the victims and law suits will follow an incident of this nature like waves on a beach.

"But that then, is the job of the insurance company", I can hear you saying. That may well be. The insurance company will certainly research behind the scenes, will take advantage of all the information you gather and will fight on your behalf, but it involves an enormous amount of input on your part. Volunteers will be called to give evidence. The integrity of your organisation will be called into question by the prosecution. The press will be in court seeing what dirt they can get upon you. Prosecuting barristers will have a field day about "amateurs playing trains or playing trams". The insurance company will certainly look after their interests in the case. They will not necessarily seek to protect volunteers or your organisation and they are not necessarily interested in "hosing down" the press. This leads to my first question - has your organisation the executive resource to oversee its interests in such a situation?

Now that's a grim picture and it's on the cards for every one of us. So, having terrified you, I hope, I'll now give you some examples of what my organisation has sought to do in these matters.

It's not possible to cover every contingency in planning emergency procedures, but with an incident such as that described, any procedures that have been laid down are going to save precious seconds, will save lives and may, in the long term, save your reputation and credibility as an operating entity. I ask you to use these ideas and examples not as a total solution to your problems but as a basis for you to form your own procedures.

Firstly, we have in place a system of incident reporting. Located in the kit of every guard on every train, in every signal box, in every station, in every office is a blue form or "The Incident and Defect Report" - the ubiquitous "I.D.R.". This is a form, which, if followed correctly, will note most important details surrounding an incident. We have conditioned our workforce, both voluntary and professional, that they must complete one of these forms when any incidents occurs that could cause injury, be of any embarrassment to the organisation, or be of potential damage or injury. These are collected by the station master every day and transmitted to the relevant divisional manager. After action, they are filed.

Secondly, we have invested heavily in communications. From the beginning, we had a telephone line which ran adjacent to the right of way between the terminal stations. Very early in our history, we went to train-to-

base communications by the installation of portable radios in each guard's van. We have latterly installed a far more flexible and wide reaching system and are encouraging now all drivers and guards to carry hand-held radios to supplement the main train-to-base system. The telephone line has been retained with a more sophisticated exchange system and we have installed telephone boxes along the track at approximately every 500 metres. Telephones are also located at every level crossing. As a backup to our own system, Telecom telephones are located at every station along the line. It is possible therefore for an officer on the train to have access to some form of communication within minutes of any incident happening.

Thirdly, we have evolved a system of identification for places along the railway. The poles of the old telephone system have been placed to good use. Starting at Belgrave, every telephone pole along the right of way has been numbered. The location of each pole has been recorded on a strip map of the railway line. Copies of this strip map have been distributed to the emergency services in the district, namely, the Fire Brigade and Ambulance services. Hence, it is possible for an officer of the railway to indicate to the Ambulance or the Fire Brigade the pole number at which their attention is required.

The service is then able to locate that number and its adjoining road by reference to the plan provided for their reference.

Located in every station along the railway line where they are constantly in view to senior personnel, are copies of the folder labeled "Emergency Procedures Manual". Personal copies of this manual have been issued to every Station Master on the roster along with instructions as to their use. Fortunately, from the very beginning the Puffing Billy organisation instituted an hierarchical structure where the station master of the Belgrave station was to be the key person in the day's operation. The station master is always in attendance at Belgrave whenever the train runs and therefore is a logical focus for the first point of call in an emergency. The emergency procedures manual defines incidents or accidents in a series of three categories.

The first being simple derailments, with no injuries being involved or simple level crossing collisions.

The second being incidents which occur on the property which result in injury or death to any person but not which we consider to be a disaster of major proportions.

The third is any incident or accident of major proportions such as a major derailment, major level crossing accident, fire, flood, landslide or other "Act of God".

The manual lists a set of contacts which must be made by the officer in charge or the station master for each of these categories. These range from a "call out" of staff for the first category, through to a major call out of Board members and senior management in the category three. It also indicates the emergency services to be called out in each category and lists the numbers of the services in the area.

Attached to the three main pages of the manual is a comprehensive listing of senior management, all operative staff and all Board members. With this manual the station master is able to assess the scale of the incident and contact the appropriate people to take the matter in hand thereafter.

The railway has invested heavily in a breakdown resource. Working on the premise that there are parts of the railway which are inaccessible for road vehicles containing heavy salvage equipment, a special van has been fitted out with jacks, oxy-cutting equipment, tackle, winches and other materials which may be required to move, re-rail or perhaps wreck equipment involved in an incident. This is located at the middle point of the railway line i.e. Emerald where, on most occasions, a small shunting locomotive is available to move the breakdown van to any part of the railway.

The senior management of the railway holds workshop sessions among themselves as to what would be required in the event of a disaster. At present, this takes the form of general discussions between people who are likely to be concerned. However, it is proposed in the future to conduct actual mock exercises.

We put our mechanisms to the test. In early 1994, the Emerald Tourist Railway Board co-operated with local authorities in staging a "disaster" which involved local police, local ambulance, local fire brigade and local emergency services. Thus, a mock accident was staged which involved a car colliding with a locomotive and a petrol tanker subsequently colliding with the side of the stationary train at a road crossing. Naturally, the exercise was conducted out-of-hours. The exercise was useful to all concerned as we all found the flaws in our arrangements, particularly in communications. I won't go into details with this paper; there is a handout in the

form of a reprint of an article from our magazine "Narrow Gauge", which will give a brief description of what took place on the day.

We have in place, mechanisms of inquiry into incidents and the reason for their happening, to make recommendations to see that they do not happen again and to apportion blame, if necessary.

These are on two levels. The lower level inquiry coincides with incidents in category one of the Emergency Procedures Manual. This takes the form of an inquiry conducted by the manager of the relevant division concerned with one other manager from a totally uninvolved area. The other form is a formal "board" of inquiry which is set up for incidents under categories two and three.

Each of these requires the gathering of written evidence generally on the I.D.R. forms mentioned above and interviews with people concerned with the accident or with eye witnesses. These reports are gathered, numbered and filed in chronological order on a master file which is kept permanently in the main office. Under the Act of Parliament which controls the Emerald Tourist Railway Board, the result of any board of inquiry i.e. for categories two and three, must be submitted to the Minister for Tourism.

I turn now to the item I was first asked to address in this paper; the matter of a Board of Inquiry.

In the event of a category two or three disaster on Puffing Billy, the role of the senior board member when summoned by the station master, is to attend the site and appoint as quickly as possible a board of competent people to inquire into the cause of the event. This board is generally made up of two members of the Emerald Tourist Railway Board, at least one manager of a division of the railways management whose division is not involved in the incident, if appropriate, the manager of the division involved and a person/persons with skills which relate to the perceived cause of the incident. For example, if the incident was caused by a safe-working misdemeanor, the appropriate person would be the railways safe-working officer.

To assist this group of people, some person with stenographic or secretarial experience is recruited. One of the board members selected for the board of inquiry is nominated as the convenor.

The board is convened as soon as possible after the event. This is necessary for obvious reasons, the closer to the event, the more accurate is the evidence to be obtained, recollection is sharp and the less opportunity there is for collusion. It is quite surprising that the longer the time lapse between the incident and the inquiry, the more identical does the evidence from all participants become.

The first role of the board is to examine all written submissions received and decide which witnesses should be interviewed. The conduct of the inquiry is done on much the same way as for a job interview. The person is brought into a full, formal interview situation and quietly asked questions with regard to what took place. Questions are based upon the previously obtained written submissions and other oral evidence received. Over a period of time, the board gains a fairly clear picture as to what took place at the event and where any faults may have lain. On occasions, a board has adjourned to inspect certain aspects on the site. In one case, a separate meeting was held on the site of a derailment along with the manager, mechanical engineering to check the gauge and cant of the curve at which the derailment took place.

Once the board has processed all the information and is satisfied that it has sufficient evidence, it then formulates its conclusion and any recommendations that it may see fit. This is then written and presented to the management of the railway.

The board is required to determine the reason for the incident and to apportion blame and to make any recommendations it sees fit to see that such an incident may not happen again.

The board does not discipline anybody. That is left to the management which may choose to withdraw qualification, suspend volunteers or reprimand staff. The report is generally signed by the convenor of the board and is forwarded to the Chairman of the Emerald Tourist Railway Board. The Emerald Tourist Railway Board then may accept the report and forward a copy to the Minister for Tourism as is covered by the Act of Parliament. Recommendations made by a board of inquiry become very important and must be acted upon or consciously rejected by management. If rejected, there must be very good reasons because obviously, if a board of inquiry has examined an incident and detected a fault in the system and if the fault should happen again and result in serious injury or death to a passenger or volunteer, the management itself will become culpable.

The Emerald Tourist Railway Board has a policy that in the event of an incident involving death or serious injury, its solicitor will be appointed as a member of the board of inquiry particularly to make certain that the correct questions are asked of all witnesses. This, of course, is in the interests of the Emerald Tourist Railway Board as the report from the board of enquiry is bound to finish up as evidence in a coroner's examination.

I see that the number of pages I have taken up in this paper is now approximating to a number of small trees. I will therefore finish.

I hope I have given you enough nightmares to keep you going for the rest of the year, but I'll leave you with just a number of questions which I hope you will mull over and may keep you awake for a few nights more.

How would your operation stand up to an "Occupational Health and Safety" audit? Does your organisation have a disaster plan? Have you documented your engineering, operating and training standards and have they been certified by some competent person? Have you developed a policy as to how much you would support a volunteer who has to confront a Coroner's court inquiry or in the case of litigation against your organisation? Does your first aid policy conform with the present day codes of practice?

If any of these or any of the questions I have asked throughout the paper cannot be answered in the affirmative, then I suggest my last question should be: "Have you taken out Director's insurance to cover the liability of your executive and management members?"

Editors Note:- The following article appeared in "Narrow Gauge" March 1994, the official journal of The Puffing Billy Preservation Society. It reports on their 'dry run' in graphic detail! We reprint it here with thanks to, and the permission of, the Editor of 'Narrow Gauge', Phil A'Vard.

RECIPE FOR DISASTER

By Don Marshall

At approximately 5.00pm on Saturday, February 5th, 1994, a special passenger train travelling in the Down direction collided with a car at the School Road Level Crossing at Menzies Creek.

The car, carrying two occupants, had been standing at the crossing waiting for the train to pass when it was struck from behind by a petrol tanker which lost its brakes coming down the steep hill on the approach to the crossing. The car was propelled by the impact onto the rails and was then struck by the locomotive of the train. The force of the second collision drove the car to the extreme down end of the crossing where it eventually came to a rest jammed under the front pilot beam of the locomotive.

The petrol tanker, after colliding with the car, slewed sideways, striking the first and second carriages of the train. The force of the impact derailed both carriages and turned the first one on its side. The second carriage, although badly damaged, remained upright and attached to the rest of the train.

The results of the collision were as follows:

1. MOTOR VEHICLE: badly damaged with occupants injured and trapped inside.

2. (a) LOCOMOTIVE: slight damage to front end. Front pony wheels, Front driving wheels and centre driving wheels all left the rails.

   (b) CREW: Both driver and fireman were dazed and shocked. The fireman had a burnt arm after making contact with the boiler backhead during the collision. The driver experienced a severe blow to the head.

3. (a) PETROL TANKER: Although relatively undamaged, the tanker came to rest alongside the two derailed carriages. Extensive damage, however, occurred to the control valve assembly and fuel discharging from the tanker ran down-hill from the Down side of the crossing to the Up side where it flowed down the embankment towards houses and the Selby-Aura Road. Fumes were evident.

   (b) TANKER DRIVER: Although injured in the collision was conscious.

4. (a) 1st CARRIAGE: This vehicle took the main force of the collision and was badly damaged. The carriage was derailed and tilted over on its side supported only by the Automatic Couplings. Injured passengers were still trapped inside while others were thrown out onto the ground and down the embankment. Petrol from the damaged tanker flowed underneath this carriage.

   (b) 2nd CARRIAGE: Although derailed, this carriage remained upright. The force of the collision, however, forced the doors open throwing injured passengers onto the ground and down the embankment.

5. REMAINING CARRIAGES: There were a large number of people in the remaining carriages behind the 2nd carriage.

Some of these people suffered minor injuries (bruising etc) but were able to walk.

The location, the terrain and the leaking fuel made it impossible to bring these passengers forward to School Road for alternative transportation.

The stuff nightmares are made of? Most certainly. Fortunately it didn't really happen on this occasion - but it could.

It all started one evening in September 1993 when the local fire brigade captain wandered into my home workshop where I was drilling holes and said "what about this emergency exercise we are always talking about?"

I eventually ran out of excuses and agreed that the Railway would be happy to participate. Following several meetings with representatives from the local emergency services e.g. Police, St John Ambulance, Fire Brigades and the S.E.S., the date was set for 5th February, 1994.

It was agreed that I would write the scenario, and pick a location which would present a degree of difficulty for all concerned.

In addition to testing the capability of the emergency service groups, the scenario was also designed to test the Railway's emergency procedures and expose operational staff to the problems which could be encountered should a real emergency ever eventuate.

The great day arrived and the "Disaster" train left Belgrave at 3.40pm on time to cross the last Up train from Lakeside at Menzies Creek.

Travelling on the train were 180 guides and scouts, many whom were made up to look like accident victims.

Following receipt of the ACRE message from No.20 Pass on its arrival at Belgrave, No.7A propelled the "Disaster" train in the Up direction clear of the School Road Level Crossing.

Fire Brigade workers then unloaded the collision car (a wrecked ....) and placed it in position at the Down end of the crossing.

The "Disaster" train was then bought forward so that 7A's cow catcher was in contact with the car.

In order to ensure authenticity, Driver Graeme Daniel gave the car a hefty nudge with 7A's auto coupling.

The petrol tanker was manoeuvred into position on the high side of the crossing to lie roughly parallel with the first two carriages. The control valves were then opened to allow coloured water to leak out of the tanker.

"Accident" victims were strewn out on the grass and down the embankment beside the train.

The locomotive crew, Graeme Daniel and Andrew Marshall, were suitably made up to reflect their injuries.

The scene was now set and four long blasts of 7A's whistle brought guard Tony Stratford to the front of the train to assess the problem and take appropriate action.

After absorbing the basic details of the accident, Tony called Belgrave Station Master Rob Emmerson from the Trackside phone at the crossing, relaying essential details and requesting assistance.

Utilising the Emergency Procedures Manual, Rob then triggered the exercise by calling the various emergency services.

In a short time the accident site was a hive of activity as the fire brigade attempted to deal with the problems of leaking petrol, the St John Ambulance attended to the "injured" passengers and the S.E.S. tried to assist the passengers of the wrecked car.

Residents turned up to survey the goings on, presenting police with a real problem of crowd control.

Back on the train our two Conductors, Errol Hermann and Doug McLeish, were attempting to control the remaining passengers and stop them from leaving the carriages.

In order to test the Railway's safeworking resources it was arranged for the Train Staff to be "lost".

Because in theory the remaining passengers could not be brought forward past the leaking fuel tanker a request was made to Belgrave for a relief locomotive to rescue the rear portion of the stranded train and to take the passengers to buses which would be waiting at the Selby Aura Road crossing.

With the Staff "lost", the Belgrave Station Master now ably assisted by personnel from the "Commissioners' Special" Train, instituted a form of Pilotman working in order to dispatch D21 to the accident site and return with the rear portion of the train. At Belgrave the "Commissioners' Special" crew moved to set up a "Damage Control Centre" to cope with public enquiries and enquiries from relatives of those travelling on the train.

From the accident site a request was made to the Station Master at Belgrave and to Signalman Peter Walker at Menzies Creek to make arrangements for the breakdown van to be bought down from Emerald.

This was done and in due course the breakdown van propelled by NRT1 and crewed by Alan Johnstone and Alan Gardner with Workshops Foreman Neil Mathieson in attendance made its way under the protection of a red flag to the accident site.

At the rear of the train, Guard Stratford, having protected his train in the rear, was guiding D21 onto the rear portion of the stranded train.

D21, crewed by Ron Gunn and Ian Newman together with co-opted Pilotman Chris Raggett, arrived at the accident site at 6.33pm, approximately one hour and twenty minutes after the emergency started which was a very creditable effort considering that the Driver was called from home.

Also at the accident scene were the Railway's Chairman and Vice Chairman who commenced to gather material for the Board of Inquiry and who provided support for the Railway's operating personnel where necessary.

Many other actions were of course taking place but which are too numerous to mention in this brief report.

By 8.30pm the accident site had been cleared and the remains of the "Disaster" train were moved to Menzies Creek where the train and emergency crew members were fed.

What did we get out of this?

As was intended, the exercise revealed a few weak spots in the emergency services activities.

These weaknesses ranged from poor, and at times, difficult communications with their own control HQ and each other, to simple matters such as the injured tanker driver who was left by himself without attention for a long period. Our own Driver and Fireman were also left unattended for a long period of time.

From where I sat, our Railway acquitted itself quite well.

There were problems with communications, particularly in the use of the trackside phone to contact Belgrave. Once the exercise got under way the Belgrave phone was continually engaged making phone communications difficult.

Radio communications using the small hand held portables was difficult but acceptable, at times requiring Menzies Creek to be used as a relay station. It was thought that the use of a mobile phone in this type of situation would have made communications easier. The lack of a PA system through our carriages made crowd control difficult for the train crew and is a matter that will need to be addressed in the future.

It is obvious that our Rules and Regulations need to be made more flexible in certain areas to allow easier provision of rescue trains.

The accident scenario made it almost impossible to institute Pilotman working in strict accordance with the existing rules.

All in however, a very satisfactory exercise and one from which we can all learn because that is, after all, what it was all about.

I would like to acknowledge the efforts of everyone who participated in the exercise and to especially thank all the volunteers and staff who gave freely of their own time to make it happen.

PUFFING BILLY PRESERVATION SOCIETY

CATEGORIES OF INCIDENT OR ACCIDENT, APPROVED REACTIONS AND PERSONNEL TO BE INVOLVED

Category 1

(a) Derailment of locomotive or carriage in station yards. No injuries
(b) Derailment of locomotive or carriage on Main Line. No injuries.
(c) Level crossing collision. No injuries.
(d) Any other incident involving E.T.R.B. property which could result in injury to the E.T.R.B.'s passengers or staff includes BUSHFIRE.

Category 2

Any incident or accident which occurs on E.T.R.B. property and which results in injury or death to any person but which would not be considered to be a disaster of major proportions, e.g.,

(i) Suicide
(ii) Level crossing accident involving a train and a passengers carrying motor vehicle.
(iii) A person or persons struck by a train operated by the E.T.R.B.

Category 3

Any incident or accident of major proportions which results in death or injury to more than one person, e.g.,

(i) Major derailment
(ii) Major level crossing accident
(iii) Fire, flood or landslide

CATEGORY 1 - Minor derailment, collision or other incident. NO INJURIES.

Final requirement:
1. Board of Inquiry
or
2. Managerial Investigation

CONTACT:

Weekdays:

1.	(a)	Nearest available Management Member	
		ON SITE Belgrave - Office	754 6800
		Internal - Don Marshall (713), Graham Archer (715), David Eaton (717)	
		Emerald Carshops	059 68 4548
		Pager 016030 number 357260	
		Internal - Mel Elliott (767)	
	(c)	Workshops Foreman - Neil Mathieson	B: 754 6522
		Internal (732)	
	(d)	Road Foreman - Tom Kilner	H: 756 7649
		Pager 264 1800 number 20038	B: 754 6522
		Internal (742)	
2.		FIRE BRIGADE (IF NECESSARY) - Belgrave	754 2992
3.		POLICE - if road vehicles involved	11444
		Belgrave	754 6999
		Ferntree Gully (24 hour)	758 3333
		Emerald	059 68 4422
4.		DIVISIONAL MANAGER concerned if not already co-opted in 1 (a) above	DIRECTORY
5.		Signal Fitter - if level crossing accident	DIRECTORY
6.		A Board member	DIRECTORY

Weekends or Holidays

1.	(a)	Nearest DIVISIONAL MANAGER at home	DIRECTORY
	(b)	Manager S & T - Mel Elliott	H: 874 5665
		Pager 016030 number 357260	
	(c)	Workshops Foreman - Neil Mathieson	H: 059 42 7218
	(d)	Road Foreman - Tom Kilner	H: 756 7649
		Pager 264 1800 number 20038	
2.		FIRE BRIGADE (IF NECESSARY) - Belgrave	754 2992
3.		POLICE - if road vehicles involved	11444
		Belgrave	754 6999
		Emerald	059 68 4422
4.		DIVISIONAL MANAGER concerned if not already co-opted in 1 (a) above	DIRECTORY
5.		Signal Fitter - if level crossing accident	DIRECTORY
6.		A Board member	DIRECTORY

CATEGORY 2 Injury or death to person or persons on E.T.R.B. property but NOT a disaster of major proportions

Final requirements:
1. E.T.R.B. Board of Enquiry
2. Possible Police Investigation
3. Possible Coronial Enquiry

CONTACT:

Ambulance		11440
DOCTOR(S)	- Belgrave	754 2019
	- Emerald	059 68 3733
POLICE	- Emergency (24 hours)	11444
	- Belgrave	754 6999
	- Emerald	059 68 4422
	- Ferntree Gully (24 hours)	758 3333
State Emergency Service - Sherbrooke		754 2981
Fire Brigade - Belgrave		754 2992

Hospitals (if necessary) - William Angliss	764 6111
Nearest available DIVISIONAL MANAGER	DIRECTORY
Nearest available BOARD MEMBER	DIRECTORY
Workshops Foreman - Neil Mathieson	B: 733/754 6522 H: 059 42 7218
Road Foreman - Tom Kilner	B: 742/754 6522 H: 756 7649
Signals & Telegraph Manager (if level crossing accident) - Mel Elliott Pager 016030 number 357260	B: 767/059 68 4548 H: 874 5665

CATEGORY 3 Incident or Accident of Major Proportions

Final requirement:
1. Board of Enquiry
2. Police Investigation
3. Probable Coronial Enquiry

CONTACT:

Ambulance		11440
DOCTOR(S)	- Belgrave	754 2019
	- Emerald	059 68 3733
POLICE	- Emergency (24 hours)	11444
	- Belgrave	754 6999
	- Emerald	059 68 4422
	- Ferntree Gully (24 hours)	758 3333
State Emergency Service - Sherbrooke		754 2981
Fire Brigade - Belgrave		754 2992
Hospitals William Angliss		764 6111
All available DIVISIONAL Managers		DIRECTORY
All available Board Members		DIRECTORY
Workshops Foreman - Neil Mathieson		B: 754 6522 H: 059 42 7218
Road Foreman - Tom Kilner		B: 742/754 6522 H: 756 7649
Local Shire		Pager 2641800 no 20038 212 8222 (Sherbrooke)

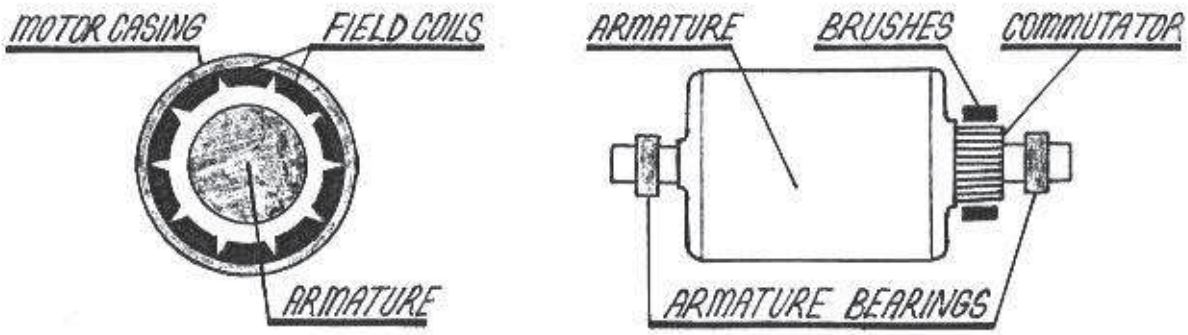
Refer to Appendix A for Incident or Defect Report Form (pg 126)

GOOD HOUSEKEEPING OF TRACTION MOTORS

Presenter: Richard Gilbert
Session Chair: Ray Blackmore
Session Secretary: Craig Tooke

The paper I am presenting is on behalf of Colin Britt of the firm AC - DC Electric Motor Repairs of Edwardstown, South Australia. That firm specialises in rewinding all makes of electric motors. I am pleased to present this paper because I feel the housekeeping of traction motors is something that is not high up on the priority of most museums. Too often the policy is one of a corrective solution and not one of a preventative solution.

We need to develop a better understanding of traction motors and their maintenance requirements. Generally our motors are very old, but they are the heart of the tram and without due regard to their well being the museum can be up for a big repair bill. Colin Britt is a great advocate of good housekeeping of traction motors in the form of preventative maintenance and should a motor require repair he aims to do the job properly as he does not intend the motor to be back with him again.



Simplified Diagram of a Motor

The motor has 4 main parts: Armature, Commutator, Field Coils, Brushes. The principle of the motor is to cause a strong magnetic field from the field coils to react with a strong magnetic field of the armature to cause the armature to spin freely to drive the tram. We use electricity under a lot of pressure to achieve this. Once we open the controller, electricity has to go somewhere. If the motor has a fault the electricity will take the most convenient path and there is a risk of damage to the equipment.

It's a case of some simple housekeeping rules or maintenance schedules.

Have the commutator clean. Modern tools for the job make these tasks more easily accomplished. An abrasive stick can be used to remove carbon build-up from the commutator. This stick is held over the commutator whilst the motor is slowly turned. The brushes should be checked to see they have sufficient length and are fitting the full face over the commutator.

Armature bearings should be in good order. An armature having ability to move about within the motor could strike the field coils and cause a major fault.

There should be a regular inspection schedule drawn up as part of the routine tram maintenance schedule. Colin Britt is keen to advise museums to contact him on these matters.

What causes an electrical fault? A flashover on the commutator is generally caused by carbon build up on the commutator. The electricity takes the shortest path and jumps across the commutator from one brush to the other.

Faulty armature coils. This can be due to a breakdown of the insulation through age or moisture collecting in the armature. Moisture can be a concern in museum operation because trams are not working hard and are not used day after day continuously.

We have all stood beside a tram, or train, that has been working hard all day and can feel the dry heat and electrical smell radiating from the motors. Our museum operation rarely achieves this.

Faulty Field Coils. Like an armature can break down due to age or moisture, the armature striking the field coil will cause a fault. This happens when the armature bearings are worn allowing the armature to move about.

When the Ballarat Tramway Preservation Society sent the traction motor from No.40 for repairs we were enlightened by Colin Britt to just how poor the condition of the motor was. The insulation of the wires entering and within the motor casing was well broken down, as was that on the field coils.

The point of concern is that the motor at the other end of 40 looks the same as do many of ours, and they are still working - but, for how long?

This is not a statement meant to frighten people, but a visit or telephone call to Colin to discuss issues would be enlightening. Our Society has been most impressed with his work, personal interest and understanding of the requirements of the museum and the vintage electrical equipment we use. His firm winds the motors for 'Trans Adelaide' (the MTT) and Australian National Railways.

His address: AC - DC Electrical Motor Repairs, 8 Deloraine Road, Edwardstown South Australia 5039, Postal Address: PO Box 255, Melrose Park SA 5042, Telephone: 08-2775166, Fax: 08-2776667

Questions/Comments

1. D.Lange - What happens to the commutator stick material as it is ground away on application to the commutator?
   Answer: C.Tooke - The material, which is a fine particle and is non-conductive, tends to fall out via the motor ventilation. A small amount remains inside the motor case, however, it is not harmful.
2. T.Burling - How often is it necessary to bed in motor brushes?
   Answer: R.Gilbert - I believe it is generally only necessary when the brushes are new.
3. M.Sanders - We experienced a motor problem with Brisbane Drop Centre (234) and repairs were carried out by the EMD Co of Dunedin.
4. R.Gilbert - Another possible poor practice is to regularly practice 4th emergency by pulling the reverse key back when the tram is in motion. The B.T.P.S. train drivers in the technique but not whilst the tram is in motion.
5. J.Pennack - Lower supply voltages at museums are also a good practice for museum operation and had proved successful at the AETM.
6. J.Phillips - The V/Line locomotive simulators which we will be inspecting as part of the post conference activities is capable of illustrating emergency brake stops by pulling the controller key back.
7. J.Nyman - Asked what delegates thought of GEC Alsthom as a repairer of traction motors?
   Answer: In general, museums had not had any work done by this company so were therefore unable to comment.

Conclusion

J. Shanks (THS) on behalf of the group moved a vote of thanks to R. Gilbert for the presentation, R. Blackmore for chairing the session and C. Tooke for recording the details.

DRIVERS MEDICAL REPORT

Presenters: Dennis Bell - Bendigo Tramway Superintendent.
Mrs Judy Mott - Occupational Therapist.
Driver Rehabilitation Program
Vic. Roads Registration 88-8-1.
Ms Heather Newnham - Optometrist.

Session Chair: Dennis Bell

Session Secretary: Russell Jones

Dennis Bell: Bendigo Tramways Superintendent - Gave reasons for the need of a Drivers Medical Report. Explained how the current Medical Report evolved (based on VicRoads Medical report for bus drivers).

Mrs Judy Mott: Occupational Therapist -Explained how health and age effects our reaction time. Spoke on the Driver Rehabilitation Program.

Ms. Heather Newnham: Optometrist - Explained the importance of vision in regards to driving and problems and diseases effecting vision.

Refer to Appendix B for copy of Medical Certificate (pgs 127-128)

The following notes were provided by Session Secretary Russell Jones.

Dennis Bell: The Bendigo Trust

The Bendigo Trust originally required volunteers to undergo a medical examination and on the basis of this, classified applicants into appropriate possible occupations. It was then decided to tighten up the process with respect to drivers. Both the systems used by the Metropolitan Transit Authority and Perth suburban rail system was examined, but the method selected was the VicRoads report used for examination of bus and coach drivers, as modified by The Bendigo Trust in conjunction with a General Practitioner.

The second edition of this Bendigo Trust report is now in use, the major addition being a requirement for annual examinations between ages 60 and 70, with drivers being suspended from the age 70.

Mrs Judy Mott: Occupational Therapist

In 1987 Occupational therapists (O.T's) were enabled by legislation to make recommendations to VicRoads on a person's ability to drive a motor vehicle after serious illness or injury. This is primarily achieved by observation of a person's performance whilst driving a vehicle. The ageing process does degrade a person's ability to drive, but this can be compensated for by a number of factors:-

In cases where this is the case, due to ageing or illness/injury, it is the O.T's role to investigate and make recommendations to VicRoads as to what can be done to enable the person to continue to drive.

A person is evaluated through the medium of the VicRoads Driver Medical Report. This covers the following sections:

* Vision - 6/12 in one eye is the minimum legal requirement to drive a private motor vehicle either aided or unaided by spectacles.
* Hearing - no legal requirement but this can provide an important component of the overall assessment.
* Communication - the ability available in both verbal and written form, to express information and events, which is particularly important in the case of an accident or incident.
* Upper limb function
* Lower limb function
* Head/neck mobility
* Balance - both static and dynamic
* Mobility aids requirements - e.g. walking stick, frame, wheelchair etc.
* Cognitive skills - information processing and decision making.

Mrs Heather Newnham - Optometrist

Visual standards for driving are based on four different visual functions.

* Visual acuity - This is effectively the ability to distinguish detail. The minimum legal requirements are:-
  - Private vehicles - 6/12 in one eye
  - Bus and coach drivers - 6/12 in both eyes and 6/95 in binocular vision.

* Binocular vision - This is the ability to determine the depth of vision based on the resolution of parallax through both eyes.

* Peripheral vision - the minimum legal requirement for bus and coach drivers is 170 degrees.
  This can be affected by loss of vision through glaucoma or strokes. The issues that can affect the ability of a drivers in this area is double vision, which rules out driving, or a squint, which may not necessarily be the case, providing that the image provided by the good eye dominates or overrides the other image.

* Colour blindness - there are two tests to determine the degree of colour blindness - the Ishihara test, which requires the test to differentiate numbers amongst coloured dots, is used to indicate if there is a problem. If four examples are failed, then the person is classed as colour blind. A more discriminating test is available which if passed, allows persons afflicted by this disability to drive motor vehicles, but not under current Public Transport Corporation policy, trams.

The major diseases affecting vision are:-

Cataracts - this is a loss of transparency in the vitreous material in the eye. This causes light shattering leading to a loss of contrast and problems with glare. The effect of this can be reduced during daylight hours by use of tinted glasses and/or sun visors. This can be improved by appropriate surgery.

Glaucoma - this is the loss of visual field as a result of optic nerve damage usually caused by excess pressure within the eye. It affects the periphery and leads to tunnel vision. It can be treated by a combination of medication and surgery. Sufferers should not drive at night.

Malculopathy - this is also a loss of visual field but affects the centre of the field. It results from actual damage and is not treatable, but laser surgery has shown some success in preventing further loss of visual field due to this condition. This condition is exacerbated by high glare/low contrast conditions. It leads to particular difficulties in operating at night or dawn/dusk conditions.

Diabetes - this disease causes loss of visual function as a result of reduced flow through blood vessels supplying the optic nerve and retina, leading to a loss of retinal function. This damage is permanent. The ageing process tends to gradual loss of visual function, commencing usually in the mid 40s. This degradation can be corrected to some degree with the use of glasses, but performance is lost in low light conditions, particularly with respect to recovery times in situations such as exposure to bright head lights at night.

However, each museum should treat each problem on a case by case basis, to assure the most appropriate outcome.

TRAMWAYS IN MELBOURNE AND EXPECTATIONS FOR THE FUTURE FROM A MANAGERIAL VIEWPOINT

Presenter: Eric Keys, Manager, Business Planning and Marketing, Met Tram, Public Transport Corporation
Session Chair: Dennis O'Hoy Session Secretary: Peter Hyde

The views expressed in this paper are those of the author and are not the views or the policy of the Public Transport Corporation.

Introduction

The Public Transport Corporation has and is continuing to undergo significant change as a direct result of the Government's transport reform program, 'From a System to a Service'(1). This program is a two pronged approach to revamping Victoria's public transport system. First reducing the cost of providing public transport and then by improving the quality of the services provided.

One outcome of the reform program was the creation of Met Tram. Met Tram is the business unit within the Public Transport corporation responsible for providing Melbourne's tram services. As a business unit, Met Tram has the responsibility to develop tram services that both meet the needs of the travelling public while ensuring that services provided are at the lowest possible cost.

This paper briefly outlines some changes that are currently occurring to Melbourne's tram services and some issues or changes that the Author believes may arise in the future.

Part A - Current Developments

Melbourne's Icon

Melbourne's tram system has a long and interesting history with the first cable services opening in 1885 and the network expanding as the inner part of Melbourne grew. Unlike many cities Melbourne has 'stuck with it' and it is not surprising that trams are seen as more than just a means of providing transport. The decision to retain an extensive tram network has set Melbourne apart from most other large western cities. Even in this age when cities are re-introducing light rail or tramway systems the Government's commitment to retaining and promoting many of the historical elements of the tram system continues to be a distinctive feature of Melbourne.

No transport system as extensive as Melbourne's would survive without a purpose. In 1993/94 Melburnian's made 98 million tram trips on our peak fleet of 405 vehicles (2). Usage is growing and with the urban development occurring within the inner metropolitan areas the future for the Tramway is assured.

The Tram System

The tram system provides an extensive network of routes throughout the inner metropolitan area with some routes extending to newer areas including Bundoora and East Burwood. Over the last four years key additions have been made to the network; extensions have been undertaken to Airport West and East Burwood, a City

Circle tram loop created and a new extension is underway on the Bundoora line to Mill Park terminating at RMIT's new campus.

Several programs are underway to renew the tramway infrastructure. This includes replacing rotatory converters and mercury arc rectifiers with solid state equipment, converting the overhead to pantograph operation and ongoing renewal of trackwork.

The Tram Fleet

The composition of the tram fleet was reviewed in the early part of the reform program. This review considered the current condition of the existing vehicles, the passenger needs and importantly the need to preserve a working fleet of W class trams. This review concluded that the fleet should be reduced to a total of 472 vehicles.

The fleet includes 53 W class trams dedicated to operate on the City Circle, Toorak, St Kilda Beach and South Melbourne/St. Kilda Beach services. These routes will be promoted as Melbourne's heritage routes where visitors can ride these historic vehicles through areas which themselves have been largely preserved. These services will also continue to provide for the needs of regular customers.

These W class trams have been overhauled and repainted. The City Circle trams have a distinctive burgundy livery while the remaining 43 have been repainting in their 1950s livery. Work is continuing on these trams to enable the introduction of one person operation and automatic ticketing. A further 50 W class trams are being stored 'on system' as a ready reserve to meet any future demands for services beyond the capacity of the service fleet.

The eventual fleet also includes 102 Z1/2 class, 115 Z3 class, 70 A class and 132 B class trams. The Z 1/2 class trams are currently being overhauled to extend their life for at least a further 7 to 10 years. The Z3 class is planned to undergo a major overhaul once the work on the Z 1/2 is completed.

Automatic Ticketing

All trams will be converted to one person operation and fitted with automatic ticketing equipment. This equipment will include a Ticket Vending Machine located in approximately the centre of each tram and four (six on LRV's) 'Check in' or validating machines located close to each door. The driver will be able to control and monitor the ticketing system through a console in the drivers cab. Data for the ticketing system will be passed to and from the tram via a portable memory 'key' carried by the driver.

Route Ownership Strategy

Met Tram is progressively devolving much of the management of the tram system to individual depots. This allows a much flatter business structure and one which encourages staff in all levels of the organisation to participate in the development of the business.

For this to be effective it has been necessary to ensure each depot is given clear responsibility for particular parts of the tram network. A route servicing strategy has been developed which allocates each route to a particular depot eliminating shared routes. To further streamline the business the number of classes of tram kept at each depot had been reduced to a minimum.

This strategy is currently being implemented progressively as part of a general review of tram services. The route servicing strategy is changing the means by which services are provided and so there is no impact on customers other than paving the way for on-going improvements in quality of the services provided.

Part B - Future/Emerging Issues

High Technology Modes

The biggest task for new technology is how it will be used to improve the quality of the existing service provided by the established modes. Melbourne currently has the advantage of being able to choose between three established public transport modes to meet any particular transport task. It is the Author's view that high technology modes (such as mono rails or automated people movers) will only prove to be viable in few limited

applications for specific purposes. The O-bahn bus technology may find some application as means to improve bus services utilising existing freeways or other corridors to avoid the congested 'bottlenecks'.

Areas where technology is currently being utilised to advantage and will continue to do so includes computerised rostering, monitoring of trams, the provision of information and the current Automatic Ticketing System project.

People with Disabilities

The Minister for Public Transport has required that the PTC implement the recommendations of the Mobility Enhancement Strategy (3) which contains a number of initiatives to improve services for people with disabilities. This includes visible edge strips, announcements of stops and next stop buttons.

A major issue that all transport operators face is the question of wheelchair access. In the U.S.A. many buses are now fitted with wheelchair lifts and the trend in Europe is for low floor buses and trams. The low floor vehicles have proven to be of benefit to all users and the operators benefit from the faster loading times. For operators such as Met Tram with large fleets of older vehicles there will be increasing pressure for retro-fit programs.

In addressing wheelchair access it should be noted that vehicles are not the only aspect, and consideration also must be given to facilities provided at stops.

Passenger Facilities

Met Tram is currently improving the quality of the facilities provided at tram stops. Shelters are being upgraded and new shelters are being issued through a cost off-set arrangement with Australian Posters. A highly reflectorised stop flag is being installed at all stops which not only promotes the tram service but also warns motorists of passengers boarding and alighting. Full timetables are also being installed at every stop.

We have recently trialed the use of dynamic passenger information using the information from the Automatic Vehicle Monitoring System. The first permanent installation is expected to be operating by the end of the year at the new Elizabeth Street terminus. Over the next few years I hope that this installation may be extended to other busy locations.

Passengers will also benefit from good quality interchanges and services that are designed to facilitate interchange between services and modes. This must include changes between public modes as well as private modes including cars and bicycles.

Integration With Urban Development

There is growing awareness of the need to integrate public transport with urban development. The pace of change is slow and much of the current urban development continues to occur on the outer edges of the city away from convenient access to public transport. Nevertheless, there is a growing awareness of the advantages gained from access to good public transport both for the individual and for the community.

Of particular interest to Met Tram is the recent trend towards apartments in and around the central area of Melbourne. This process is, in many cases, transforming underutilised sites into high density urban developments and in the process providing new customers for our services. In many cases one of the main attractions of a site is the availability of good public transport. One such example, is the Bayside developments at the end of the Port Melbourne line. Not only does this development offer the attraction of bayside living but it is only ten minutes from the city centre by tram which leaves every eight minutes.

In the future, extension of the tram system is likely to be strongly linked to urban developments. Proposals such as the extension of City Tram to the casino and Docklands services are designed to encourage and take advantage of these new developments.

In the existing urban areas on the edge of the tram system which have largely been designed assuming a predominance of the motor car, extensions into these areas may occur but they are unlikely to be as attractive as extensions to areas which will be designed with public transport in mind.

Conclusion

Melbourne's tram system is undergoing major changes. These changes are occurring because of the need to reduce the cost of public transport to the taxpayers. These changes, however, are being done in a way to ensure that the quality of services to customers is improved and also that the history of the Tramway continues to be a feature.

References

1. *From a System to a Service*, Minister for Public Transport.
2. Public Transport Corporation, Annual Report 1994.
3. Department of Transport, Mobility Enhancement Strategy.

Questions

Bill Kingsley:- When might tram services be extended to Knox City?

Answer: The need for service is recognised, but solution is depended on funding. Most recent extensions have been paid for by the Commonwealth Government. The likelihood of funding for this is small in the absence of schemes such as 'Better Cities' which provided for City Circle etc.

Bob Pearce: Asked concerning the 'origin' of projects, whether they are conceived by The Met or imposed or suggested externally?

Answer: Both. The Met needs to look 10-15 years ahead to arrange provisions of rights of way as wider median strips in roads. Other things like City Circle are government initiatives which the Met implements.

Keith Stodden: Asked what the future of the Heritage Fleet would be if it is unable to be contracted out?

Answer: Referred to Minister on Monday.

John Shaw: Observed the problem of rough riding of Z1 class cars on route 64.

Answer: Two problems exist. First, Z1 & Z2 cars have poor suspension (which is being upgraded during the current major renovations). Second, track replacement is being done on life-expired sections. Track which is almost life expired can be quite rough.

John followed up with a second question. As to what is being done for the customers during this period of bad track/bad suspension?

Answer: Past customer relations have not been good but MET is becoming more customer focused. Complaints are being answered individually. A newsletter for customers will commence in approximately January 1995 and be published 3 or 4 times each year. As an aside, though, there is some worry about telling the public that their problems will not be fixed for 5 years or so!

Ron White: Does PTC see Grand Prix as an opportunity or a problem?

Answer: Both. Plans are being developed. Albert Park does not have a lot of parking capacity and there is some worry about the impact of a large influx of visitors. Discussions are being held with organisers to plan for the event.

TRAM CAR RESTORATION

Presenter: Graham Jones
Session Chair: Lindsay Richardson Session Secretary: Keith Stodden

Introduction

The topic on which I have been asked to talk to you, today, is "Tramcar Restoration". My paper perhaps, deals more with the Bodywork than Painting and the Electrical side of the Restoration.

Starting The Project

Restoration really starts when the decision is made to actually restore the Tramcar. The main decision to be made is which period to restore it to. This will depend on historical documents, such as drawings, photographs, and any written articles that are available. You should make it known to all other museums that have the same class of tramcars, or modified versions, asking for information that they may have.

If a Restoration Project is to proceed smoothly it must be organised. One person should be made Project Leader with a responsible person to lead each group (i.e. Electrical, Mechanical, Body and Paint.). The Project Leader would be the one to collect the information, sort and pass on to each Section Leader.

Quality or Standard should be set to ensure that the vehicle is as near to the condition it would have been in when first entering services.

Research

Three points:

1. The Tramcar itself.
2. Photographs of the actual tramcar or similar tramcars from other services.
3. Drawings, Documents, Colours of the system the vehicle served.

The Tramcar

As the Tramcar is dismantled, its life will be shown, as new timbers, timber splices, replaced panels from wooden to metal, will tell of collisions or other repairs carried out through its working life.

Photographs

Every photograph you can obtain of the tramcar, or of similar design, should be obtained from all sources; your museum archives, the collections of private individuals, or again from other museums which have similar vehicles.

Drawings, Written Documents

It is of great assistance if you can obtain a copy of the original drawings, specifications, or other documents relating to the tramcar being restored. Unfortunately drawings for most of the old vehicles being restored do not now exist.

Drawings often differ from the tramcar being restored as some modifications done have not been recorded.

Dismantling Of Tram

This can often be mistaken as the easiest part of the restoration project. If this attitude is taken, then the rest of the restoration program will have many problems.

Care should be taken when removing every piece of the body, as it can tell many stories of the past life of the tram, such as collisions or modifications, carried out over the years.

Pieces broken on removal should be glued and nailed back together as they then are used for patterns when rebuilding commences. Each piece on removal should be correctly numbered or marked to make assembly easier.

Melbourne and Metropolitan Tramway Board practice was standing inside the centre of double bogie cars facing number one end - parts are Left Hand and Right Hand. On facing number two end - parts are Left Hand and Right Hand.

On Melbourne's later built Comeng vehicles, it is outside facing number one end is Right Hand, Left Hand, and facing number two end, Right Hand, Left Hand.

When dismantling of the tram starts, the decision as to how much is to be removed has to be made.

All interior woodwork and other items should be removed to prevent damage.

When dismantling it pays to only remove the portions of the body you can work on in the immediate future. In most cases trams have two of everything and by working on a limited area you always can check on the remaining parts for guidance.

In coach making all joints should be tight. In the body framing glue should not be used. In original body frames red or white lead was used. As this practice is not now allowed, I would suggest that a thick coat of paint or pink primer be used.

When joinery is required I believe the old animal glue is the best for sashes and interior doors.

The body work, electrical and air, should all be completed prior to painting. Then interior stripped and refitted on completion of painting.

You now have completed the restoration task and hand it back to your Traffic Section to put into service.

Questions

L Millar asked whether a tram should be restored for use in road traffic, or to look good as a static exhibit?

Answer: It was stressed that the decision must be made at the start, but that the quality must be the highest possible.

THE EMPLOYMENT OF PROFESSIONAL STAFF BY COMMUNITY MUSEUMS

Presenter: John Radcliffe
Session Chair: John Shanks
Session Secretary: John Phillips

Most community-based museums including the tramway and railway museums in Australia and New Zealand, have their origins in community groups who have established incorporated associations or similar bodies for the purpose of developing and operating museums in their fields of interest. These museums operate with voluntary contributions which are made by their members who give their skills to achieve the goals which the museum members have set through the endeavours of the committee members whom they will have elected at annual general meetings.

Tramway museums in the English-speaking world have traditionally been developed by volunteers through processes which have been described for North America by Andrew Young (1983) and for Britain by Tony Bacon (1982). This usually involves a progression encompassing the collection of cars, the ultimate establishing of a collection policy, the housing of the vehicles, their operation, their progressive restoration/conservation, and the interpretation of their role within the social fabric of the society in which they operated.

While many projects have operated for considerable lengths of time solely based on volunteer labour and management, opportunities can arise, such as by grants from government, allowing the museum body to employ staff to carry out major projects which might take the volunteers a considerable length of time to otherwise complete. In recent years, unemployment relief schemes, and sesquicentenary and bicentenary celebrations in Australia and New Zealand have provided examples where this has been possible. In addition, the museums may be able to generate sufficient revenue to employ staff to carry out basic operating activities, with supplemental operations and often the longer term developments such as high quality restoration projects being undertaken by volunteers.

However, the introduction of paid staff to a volunteer-based and managed museum can involve both considerable delicacy of relationships and the potential for substantial and unforeseen debt to be incurred. Furthermore, the volunteer management of the organisation may not have ready access to the industrial

relations expertise to ensure the appropriate and equitable employment of paid staff. There are a number of issues to be considered as follows:

Terms of Employment

There should be clearly established terms of employment with duty statements which are accepted by the museum executive on behalf of its members and are accepted by the employee at the time of commencement. To whom the employee is responsible should be made clear and other members must understand that they do not have the right to give instructions (which may be contradictory) to the employee. The "chain of command" must be well defined. This applies both ways between staff and volunteers.

Salaries and Wages

Wages and/or salaries should be paid at an appropriate rate in line with established conditions and awards for that type of endeavour. Recognition should be taken of the need for casual loadings (often 20%), any special shift conditions, weekend rostering obligations, the extent of use of awards, enterprise bargaining or the need for "market parity" , taking into account whether the work is to be carried out in regulated or deregulated employment environment.

Additional supplementary costs including workers compensation, annual leave entitlements, long service leave entitlements, superannuation, payroll tax and other sometimes unexpected costs must be included within budget calculations before staff are taken on.

In some cases, it may be possible for recompense to be provided by other means than by direct payment of wages or salaries, but if this course is taken, fringe benefit tax (FBT), may be payable by the employer.

Where the employee is being reimbursed for specifically incurred costs, for example in the use of their motor vehicle as part of transport on the job, appropriate rates should be agreed before commencing. Note that if a lump sum is given to cover any likely transport costs and no acquittal for actual expenses is required, FBT may be an additional cost payable by the museum as the employer.

The frequency of payment, and whether it is by cash, cheque or bank deposit should be resolved before commencement. Paying by cash can often be relatively inconvenient for a small organisation whose office bearers can be distant from the point of payment. Direct credit to a bank account is increasingly acceptable. However, it is essential for audit purposes that appropriate time sheets, records of attendance or other measures are retained. Provision will need to be made for direct payment of income tax, insurance policies, payroll tax, etc, by the museum treasurer, accountant or finance manager.

Selection Processes

Vacancies should preferably be advertised, recognising that this may be an additional employment cost. Hiring should be on a basis of selection on merit using processes which are, in the jargon, "transparent". These processes must allow for equal opportunity without discrimination against age, sex, religious belief or disability according to local state or national legislation. Any hiring should be free from potential criticisms of nepotism (hiring of friends or relatives of the committee, or of "mates" from among the museum membership where the merits of the appointment may not be apparent to other members). Where applicants are from both sexes, it will be desirable to have members of the selection committee drawn from both sexes.

There should be a clear understanding between the museum and its potential staff member as to whether the employment is on a casual, indefinite, contract or other basis. A written offer of employment should be given to the prospective staff member who should formally accept it in writing by either counter-signing the offer or by accepting with a separate letter by return mail.

Occupational Health and Safety

Appropriate provision should be made for occupational health and safety on the job, including provision of training, where necessary, in the use of any equipment with which the employee is not familiar. (The same provisions must in any case be provided for volunteer members working in the museum).

Cash Flow

A particular problem often faced by small employers including museums can be that of cash flow. Depending on the nature of the source of income, payments to the museum which form the basis of employment of staff may be erratic or may be received on the completion of "milestones" in the project.

Staff employed under short term grants may have to be paid before payments are received from the granting organisation for work which has been completed. The need to pay staff in advance of receipt of the grant monies may result in additional costs, particularly if funds have to be borrowed from the bank. The job of the "paymaster" in keeping all these issues on the "straight and narrow" should not be under-estimated. The museum treasurer may need some additional assistance over that normally required to operate the museum finances. Construction of a month-by-month income and expenditure budget for the entire financial year is very helpful as a means of identifying when museum finances are likely to be stretched.

Similarly, where income through the gate is quite seasonal, serious problems can arise if staff continue to have to be paid when in the low season the income through the gate becomes significantly less than the cost of paying the staff. This can also result in the museum running into liquidity problems. It may be possible to secure overdraft facilities from your bank, but this can be expensive in additional costs, and may be difficult to secure because the museum offers little security. Accordingly, staff should not be taken on until the museum has sufficient working capital to tide it over the peaks and troughs of its annual income cycle.

Sources of Advice

It may well be advisable for the museum to have access to appropriate sources of advice before entering into or during the course of employing staff. This advice may come from consultants (who are fond of charging money), the government Small Business Corporation, or local industry associations such as the Chamber of Commerce, which may be worth joining if they have special business advisory services and industrial relations or legal services available to members.

The Long Term Cash Flow

In working out the budgets for a new museum development, care should be taken to recognise the probability of declining visitor attendance and income after the initial "novelty value" of the new museum has passed by. For example, the National Gallery of Victoria on St Kilda Road received ten million visitors in its first year, but by ten years later, its annual visitation had fallen to two million visitors. Similarly, the Port Dock Station Railway Museum at Port Adelaide initially constructed a budget when it changed from a two Sundays a month volunteer operation at Mile End to a full time part professional operation at Port Adelaide showing that it would be able to employ six staff. Five years later, the staff which were by then three and a half full time equivalents, had to be reduced to two full time staff. This ensured that there were sufficient surplus from the operation of the museum to provide the resources for the volunteer members to undertake restoration and development projects without having to go through a substantial and discouraging haggling process to get even small funds to undertake activities.

Skills Required

It should also be recognised that as the museum develops, a change may be needed in the skills required for its continued operation. If a manager is being employed, a fixed-term employment contract of, say, three years may be desirable. In the initial stages, a high level of initiative and entrepreneurship may well be the attributes needed, whereas in later years, management, museum development and negotiating skills may become paramount. However, the primary skills needed in the type of museums in which we operate is that to have effective inter-personal relationships between the professional staff and the volunteers.

Conflict

Frequently there can be conflict between the paid staff who "know what to do", and the volunteers including the committee, representing the members of the museum and who through their annual elections, determine the objectives which the museum is seeking to achieve. The paid staff must be prepared to accept that they are responsible to the museum organisation. At the same time, they must be prepared to work with volunteers in a co-operative manner, recognising the diversity of skills which the volunteers bring and having the ability to ensure that the volunteers continue to enjoy their participation in the museum's activities and its achievements.

Unlike staff employed in an employer-employee relationship, the volunteers cannot be "made" to do anything. They will only undertake the work if they are motivated by the satisfaction of the achievements they can produce. The effective employee will recognise this and seek to facilitate what the volunteers are doing. Too often, there can develop an "us versus them" relationship between the paid staff and the volunteers. This becomes a managerial issue, and frequently has its origins in inadequate setting up objectives, and in inadequate communication between the staff and the management of the museum which is almost invariably the elected committee drawn from the membership. Just as a wide diversity of skills is required in running a tramway, a wide variety of skills is required in ensuring that a diverse range of volunteers and paid staff can work harmoniously together. This is the challenge to be faced by the management committee of the museum.

The Bottom Line

Finally in continuing the employment of staff, it is absolutely essential to ensure that the income which the museum is continuing to receive is sufficient to maintain the employment of any staff who have been hired. If there is any doubt in regard to this issue, further expenditure through employment must be reduced or terminated as soon as possible to ensure that the museum is not placed in a position of no longer being able to service its debts. Should the museum be left with a surplus of liabilities which have been incurred over the extent of the cash assets at its disposal, it becomes a prime target for the appointment of receivers who will be entitled to sell any of or all of the Museum's assets in order to recover any unpaid debts. This can result in the disposal of the very vehicles which the museum was established to preserve in perpetuity for the benefit of its members and all mankind.

References

Bacon, A.D. (1982) - "Restoring the Tramcar", Paper 13, (Tramway and Light Railway Society: London) 32pp.

Young, A.D. (1983) - "Trolley to the Past - A Brief History and Companion to the Operating Trolley Museums of North America" (Inter-Urban Press: Glendale, California), 158pp.

Questions

Lewis Nyman: Asked if there are problems when sacking people?

Answer: Yes there are problems e.g. Redundancy and disputes re payments.

Geoffrey Claydon: Talked on contract for services as answer to those problems?

Don Campbell: Enquired about the responsibility of income tax re contract employers.

Answer: Yes, after $3000 you must deduct tax.

Geoffrey Claydon: Continued about the problems of permanent staff and volunteers being under different arrangements.

Phil A'Vard: Spoke on where do you stop in regard to volunteer and permanent staff re work safety (WorkCare) claims.

Ray Webster: Continued on an incident that happened in Perth re the above question.

Lewis Nyman: Expressed his thanks to John Radcliffe on his presentation.

THE CHRISTCHURCH TRAMWAY COMES TO TOWN - BUILDING A HERITAGE STREET TRAMWAY IN THE 1990s

Presenters: Dave Hinman and Murray Sanders
Session Chair: Les Stewart
Session Secretary: Tony Cody

Synopsis

This presentation, to be illustrated with overhead transparencies, looks at the steps taken and the problems overcome in realising the dream of bringing trams back to the streets of Christchurch after a forty year absence.

In the limited time available, it will not be possible to more than briefly touch on the major features and issues of this project as it has developed over the past four years.

The major areas include:

* The Beginning - the Worcester Boulevard
* Economic and Marketing Analysis
* Environmental Issues
* Finding a Tram Shed Site
* Safety System
* The Extension Study - Route selections
* Political Commitment - Budget
* The Eastern Extension
* Detailed Track and Overhead Designs
* Tram Refurbishment - including vehicle modifications

Background information on a number of the matters listed above are attached and following a general overview presentation by Dave Hinman, Murray Sanders will present a more detailed case study of (a) Electrical Supply System and (b) Electrical Modifications made to the trams to update them for use on city streets for the 1990s, noting the Safety System and Safety Audit provisions and procedures adopted.

Attachments

1. Extracts from "A Tourist Tramway for Christchurch".
2. Route Map.
3. The Economic and Marketing Analysis - Extracts.
4. Extracts from key Council Reports.
5. The Eastern Extension.
6. Track and Overhead Design Details.
7. Tram Shed Information.
8. Safety System - Extracts
9. Tram Vehicle Modifications.
10. Electrical Audit Report.

A TOURIST TRAMWAY FOR CHRISTCHURCH

A report on proposed extensions to the Worcester Boulevard Tramline

1. Executive Summary

1.1 The concept of the Worcester Boulevard from Rolleston Avenue to Cathedral Square including the provisions of an electrified tourist tramway was approved by the Council in 1990. Construction is now proceeding on an annual basis.

1.2 It has been apparent that the present tramway proposal is too short to be viable as a tourist tramway and in September 1991 the Council requested a study be undertaken to investigate options for extending and expediting the construction of the tramway.

1.3 Consideration was given to the purpose of having a tramway, with some views being expressed that it should form the basis of a future commuter line or light rail system. However the study confirms that a tourist tramway, with an historic emphasis, is the appropriate approach, and that a light rail/commuter tramway option for Christchurch is unlikely at least in the short to medium term.

1.4 Some 22 options have been considered with a "short list" investigated in detail by the Tourist Transport Working Party and Officer Project Team. With the focus of tourist activity to the north and west of Cathedral Square, route options in that part of the City were favoured.

1.5 A short list of options considered by the Working Party concentrated upon a loop line incorporating Victoria Square and Armagh Street with options extending into Hagley Park, through the Gardens and around Victoria Lake. While the Gardens Loop in particular had many advantages, it was agreed that there could be substantial public opposition to it and that it should not be further pursued in the meantime. A more acceptable medium term option could be an extension into Hagley Park as far as the Gardens carpark and bridge.

1.6 The preferred option therefore is the Armagh Loop and the report identifies a number of forms its construction might take. The need for two-way operation as far as Victoria Square is emphasised, but the remainder of the route (ie along Armagh Street and Rolleston Avenue back to Worcestor Boulevard), would ultimately be one-way in a clockwise direction.

1.7 Planning, environmental and traffic issues were identified and the report suggests that the preferred option can satisfactorily fit in with other central city initiatives such as the Cathedral Square redevelopment proposal. Potential environmental effects such as appearance and noise are identified, but the conclusion is reached that these will be acceptable on all parts of the route including residential areas.

1.8 The problems of a single line operating in two directions in a traffic street are acknowledged, and various ways of overcoming this, including partial double track, are discussed.

1.9 The need for secure covered storage for the trams which will operate the service is confirmed. Various sites have been identified, but at this stage the glass walled pavilion in the Square is favoured. The need to agree on and complete construction of a tram storage building prior to operation commencing is noted.

1.10 Details of future tramway operation require more investigation, but the need to confirm arrangements with the Tramway Historical Society for the supply of historic tramcars is recognised. The question of who will operate the tramway is addressed, and it is again noted that private enterprise involvement should be sought. A longer route that the initial Boulevard line is seen as necessary to attract private investment.

1.11 A preliminary exercise has been undertaken on patronage based on projected capacity, operating costs and a conservative estimate of likely users. To achieve an operating surplus, the break-even annual ridership for one tram is 90,000 and 97,000 for two trams. It is conservatively estimated that 150,000-250,000 passengers will use the tram per year, and while this preliminary work needs further checking, it does seem that the tramway will be a viable operation.

1.12 The various legal requirements are identified, and it is noted that present outdated legislation is due to be replaced by a new Act, currently before a Parliamentary Select Committee. Submissions made to the Committee should ensure that there are no serious legal impediments to the tramway development proceedings.

1.13 Depending on the form of construction (ie the amount of double track or passing loops) the initial total cost estimate for the Armagh Loop extension beyond the present approved single line to Cathedral Square is between $2m and $2.4m. Further costs which have been identified and not so far budgeted for include a sum of about $150,000 for further tramcar restoration plus funding for transporting vehicles to and from Ferrymead.

1.14 Part of the brief of the Working Party was to find ways of expediting the construction of the tramway and the report suggests that this may be the best achieved by seeking private enterprise involvement in the project. Following the adoption in principle by the Council of the Armagh Loop extension, an active search for investors and sponsors should be undertaken, assisted by an economic and marketing feasibility study. The report argues that the Council should continue to contribute towards the development of the tramway project but seeks the views of the Council on the extent to which it should be self-funded.

1.15 The report identified a minimum lead time of two years before operations can commence. In addition to the need to complete the track at least to Cathedral Square and to construct a tram storage building, the obtaining of any necessary legal approvals and the upgrading of the tramcars to street operation standard is expected to take this amount of time.

1.16 This report has been examined by the Melbourne based specialist consultants, Melbourne Transport International. The consultants broadly confirm the thrust of the report and its recommendations but have raised a few issues of detail which will require further examination. In particular, they have suggested that the projected tramway construction costs may be excessive.

1.17 The report concludes by noting the considerable interest and support of the tramway so far, and its potential to become an important element in the central city and a significant tourist attraction in its own right.

1.18 The following specific recommendations are presented for the Council's consideration.

(a) That the Council adopts in principle the "Armagh Loop" option of extending the tramway.
(b) That the funding of the tramway extensions include private enterprise involvement as well as the Council.

(c) That a realistic target date for the opening of the first section of the tramway be set as soon as possible.

(d) That if practicable, following the completion of the tramway to Cathedral Square and the commencement of operation, the complete Armagh Loop be constructed in a single stage. Should funds not permit this however, and in order to improve the viability (and thus attract investment) and public acceptability, the project be constructed and opened in stages. The first stage would be Cathedral Square to Victoria Square, the second stage Victoria Square to Rolleston Avenue/Armagh Street corner and the final stage completion of the loop.

(e) That an economic and marketing feasibility report be prepared for presentation to potential investors.

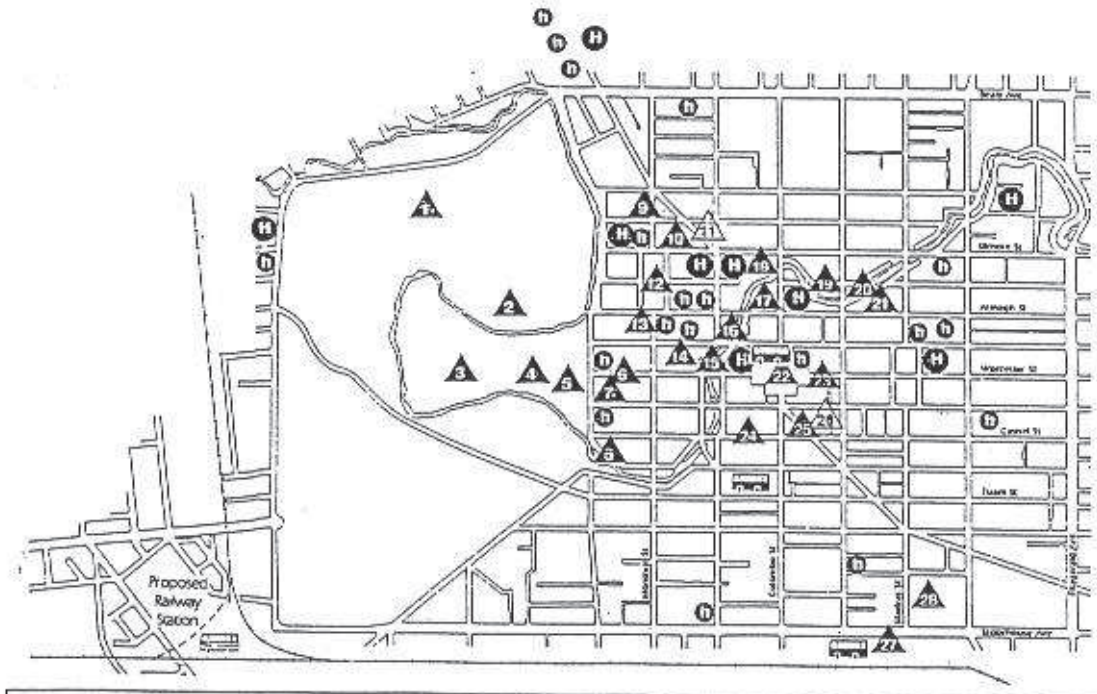
(f) That discussions be held with interested local organisations including retailers, residents groups and other landowners.

(g) That discussions proceed with the Tramway Historical Society concerning arrangements for the provision of tramcars for the tramway.

(h) That the question of further extensions (eg to Hagley Park), be the subject of future study by the Tourist Transport Subcommittee.

4. Tourism Focus

4.2 The following diagram plots the location of central city hotel accommodation, other tourist facilities such as bus terminals, and major tourist and civic attractions. It will be noted that there is a significant concentration to the north and west of Cathedral Square. The present Worcester Boulevard Tramway proposal recognises this and goes some way towards linking the concentration of attractions around Rolleston Avenue with those in the Cathedral Square vicinity. It follows that any extension of the tramway as a tourist line servicing the greatest number of and most significant tourist attractions and facilities, should be to the north and west of the Square.



KEY

Major Hotels

Other Hotels / Accommodation

Transport Terminals

Tourist Attractions (excluding Shops, Restaurants)

1 Hagley Golf Course
2 Victoria Lake / Entertainment Area
3 Botanic Gardens
4 McDougall Art Gallery
5 Canterbury Museum
6 Worcester Boulevard
7 Arts Centre
8 Antigua Boatsheds
9 Arts Centre (Peterborough)
10 Cranmer Courts (Old Normal School)
11 Proposed Casino Site
12 Cranmer Square
13 Arts Centre (Cranmer)
14 CSA Gallery
15 Information Centre and Punt
16 Provincial Government Building
17 Victoria Square
18 Town Hall
19 Edmonds Band Rotunda and Punt
20 'Poplar Avenue' (River)
21 Centennial Pool
22 Cathedral Square
23 Government Building
24 - 25 City Mall
26 Proposed Casino Site
27 Science Centre
28 Roman Catholic Cathedral

Central Christchurch Tourist Atrractions and Hotels

5. Criteria for route selection and design

5.1 The following matters were seen as significant when assessing options for extensions to the Boulevard Tramway:

(a) Proximity of the line and stopping places to significant tourist attractions, facilities, accommodation and parking.
(b) Suitability for continuation of 'historic' theme.
(c) Compatibility with local environment.
(d) Conformity with Cathedral Square redevelopment proposals.
(e) Provision for tram storage building.
(f) Separation from other traffic where possible (particularly in heavily trafficked streets and particularly if 'contra flow' is necessary).
(g) Ability for streets to incorporate tram line without significant impact on parking or access, and minimal loss of service to regular traffic and street users.
(h) Passing or run-around facilities.
(i) Ability to operate the tram in either direction (assuming single line). In the case of a circular route which may ultimately be in one direction only, the ability to also operate in the other direction during staged development is desirable unless the whole circuit is to be built before operations commence.
(j) Allowance for future line into or around Hagley Park, including a Botanic Gardens link.
(k) Compliance with present and possible future legal requirements.
(l) Design and operational simplicity, including stopping areas.
(m) Reasonable costs.

6. Earlier Investigations

6.1 Taking into account ideas expressed from a variety of sources, some 22 options for extending the Worcester Boulevard tramway had already been investigated prior to the appointment of the Working Party. These were reported to earlier meetings of the Tourist Transport Sub-Committee and are summarised in the diagram opposite and in the following Table.

Tram Extension Options

1. No change.
2. Extended Square terminus.
3. Victoria Square (Armagh Street).
4. Victoria Square (Colombo Street).
5. Armagh St Loop.
6. Kilmore St Loop.
7. Oxford Tce Loop.
8. High St, Ferry Rd to Ferrymead link
9. New Regent St via Gloucester St Loop.
10. New Regent St via Worcester St Loop.
11. Worcester - New Regent - Armagh Loop.
12. Museum to Armagh St (Rolleston Ave).
13. Armagh Bridge to Gardens Bridge.
14. Museum to Science Centre (via Antigua St and Railway)
15. Colombo St shuttle.
16. Worcester, Manchester Sts to Science Centre
17. Armagh, Manchester Sts to Science Centre.
18. Gardens Loop.
19. Victoria Lake Loop.
20. Mona Vale through the Park
21. Mona Vale around the Park.
22. New Christchurch Station via Antigua St and Hagley Ave.

6.2 From those studies it became apparent that the most sensible and potentially viable options were those which concentrated on an area to the north and west of Cathedral Square close to major tourist facilities (eg hotels) and attractions. In particular it became apparent that at the very least the line should be extended to Victoria Square, thus linking not only this attractive area with Cathedral Square and the Museum but also the major hotels in the vicinity (Parkroyal, Quality Inn, Hyatt-Kingsgate), and the Christchurch Town Hall.

Editor's Note: Mr Hinman's paper also included a considerable quantity of attachments. It is felt that they cannot be included as part of this publication due to constraints of space reasonably available in this volume. Anyone interested may care to contact the Presenters direct.

Questions

Geoffrey Claydon: Posed the question regarding provision of street lighting on span poles as this would be forbidden in the U.K? For example, there would be problems with people from other authorities maintaining their equipment.
Answer: Advised that there should be no problems.

Carolyn Dean: Asked whether provision existed for turning the tramcars?
Dave Hinman: Replied that there was provision for a triangle in the development at the eastern end of the loop. This could be installed in the future. There could be a problem if open cars are to be turned if one side has to be enclosed for safety reasons.

COTMA DRIVER TRAINING COMMITTEE

Presenter: Richard Gilbert
Session Chair: Chris Steele
Session Secretary: Bill Kingsley

Report of the Committee established to provide advice and a set of Guidelines encompassing Driver standards, training and testing.

The Committee was established at the General Meeting at the last Conference with its aim to provide advice and a set of guidelines encompassing Driver Standards, Training and Testing. The Committee consisted of a representative from each of the four Victorian tramway museums. Members of the Committee were:-

Richard Gilbert - Chair and BTPS Rep
Dennis Bell - The Bendigo Trust
Tony Smith - Melbourne Tramcar Preservation Association
Andrew Hall - Tramway Museum Society of Victoria
Max Fenner - Australian Electric Transport Museum

The Committee met a number of times and developed a set of Guidelines which we emphasise are not Rules. They are recommended Guidelines. To call them Rules is walking into a minefield. Tram Driving Rules and Standards would have to be the most jealously guarded and coveted standards that a museum holds. The pinnacle of being a member of a tramway museum is the permission to drive the trams.

If this Committee is going to achieve its 'Charter' then it can do so if the report is packaged acceptably. It will be up to Delegates at this session to offer final input, based around the responses received and then agreeing on a final draft to be presented at the 'General Meeting' for acceptance by the COTMA organisation.

A questionnaire and a copy of the Guidelines were sent to all museums and there were seven respondents.

QUESTIONAIRE
TO ASSIST WITH THE DEVELOPMENT OF GUIDELINES FOR TRAM DRIVING FOR TRAMWAY MUSEUMS BELONGING TO C.O.T.M.A.

1. Requirements for selection of candidates
   Do you conduct a medical?
   What requirements do you have for members to be eligible for entering the driving scheme?
   i.e. Length of time as a member
   Must they be a Conductor first
   Must they complete a certain number of hours in any area
   Any other criteria before they are selected

2. Method of Training
   Do you have a set number of hours of practical driving or a set number of trips?
   Are the trainees endorsed on all trams in the fleet immediately they are passed or are they endorsed on certain trams progressively?

3. Fault Finding
   Do the qualified tram drivers investigate faults that may occur on a tram in traffic and as a result attempt to rectify it, or do you have a policy of 'Don't touch a thing' as someone who is qualified at the workshop will attend?

4. Customer Relations Skills
   Do you have this as a part of the tram drivers criteria?
   Do you have regular ongoing training in it?

5. Validation of Drivers
   Do you have an outside body for Driver Validation?

6. Going over time
   Is there a minimum attendance time observed in retaining qualification to drive?

7. Age limit for Drivers
   Do you have a minimum and/or maximum age limit?

8. Re-exams
   Do you have re-exams or revision on fault finding and tram driving skill and if so at any set interval of time?

YOUR MUSEUM:
YOUR NAME:
POSITION:

THE SUMMARY OF THE ANSWERS IS AS FOLLOWS:-

Question					Total responses
1a	Yes	4	Drivers licence	3	7
1b	No	5	Yes	2	7
1c	Yes	5	No	1	6
1d	No	4	Yes	2	6
1e	No	1	Conductor applies for driving	4	5
2a	Yes	3	No	3	6
2b	Progressively	3	Overall	3	6
3	Drivers investigate fault	4	don't touch	1	5
4a	Yes	3	No	3	6
4b	Yes	2	No	3	5
5	No	6			6
6	Yes	5	No	1	6
7	Minimum 21:	3	No Retirement Age	3	
	Minimum 20:	2	Max age 70:	1	
	Minimum 18:	1	Max age 64:	1	6
8	No	3	Yes	3	6

RECOMMENDED MINIMAL GUIDELINES FOR TRAM DRIVING RULES FOR TRAMWAY MUSEUMS BELONGING TO C.O.T.M.A.

Selection Of The Candidate For Tram Driving

It is the business of each museum to set the selection criteria, bearing in mind individual museum policies, laws between States and New Zealand law.
The one criteria that must be standard is that the Candidate must have a current Medical Certificate.

Selection Of The Tram Driving Course

It is the business of each museum to set the course, as this is outside the scope of this Working Party and as each museum has a total variance of tramcars different from each museum. It would simply mean reproducing each individual museums own rules, which in turn would be useless knowledge to all other museums.

The Driver Trainer or Trainers should be separate from the position of Examining Officer. They should not be the same people.

Driver Trainer

A Driver Trainer shall be selected and endorsed by the individual museum committee. Practical experience and teaching ability are part of the selection criteria of the Driver Trainer.

Examining Officer

To be appointed by the relevant museum. The selection of the Examiner is subject to any National, State or Local Government regulations. If the Law of the land overrides the museum being able to appoint the Examining Officer, obviously the law is upheld.

Examination

The exam can be written, or oral, and a compulsory practical. Each museum is to keep a copy of the written exam by the candidate. If there is no written exam a written report on the oral exam is to be completed by the Examining Officer and kept by the museum.

Certification Of The Candidate

Individual certificates of competency are to be issued by the museum for which the candidate drives. Each museum is to have the responsibility to design and supply the certificate.

Regular Attendance At Tram Driving

A tram driver must drive at least one shift every 6 months to retain the qualification.

Retraining And Regular Performance Tests

Each individual museum will set its standard for retraining drivers who go over the 6 months without driving and develop a standard to monitor the standard of tram driving skills.

Medical Certificates

Members of a museum undertaking tram driving courses have to obtain a Medical Clearance from a Practitioner, to the standard provided for on the Medical Certificate enclosed. The Medical Certificate is valid at all other COTMA museums should someone change active membership from one museum to another.

The renewal period for these certificates is 3 years which is in step with normal road traffic authorities in regard to commercial passenger carrying vehicles. Persons over the age of 60 years must have a yearly Medical up to the age of 70 years. The age of 70 years should be a retirement date from public driving.

Implementation

It is proposed to implement these standard rules within 12 months from their adoption.

****

That is the Report of the Committee and I would like to thank all of them for their time spent at meetings and developing the Guidelines. I now throw the meeting open to comment with a view to adopting a final proposal to present at the General Meeting.

Discussion

Craig Tooke: Has the Committee fulfilled its own expectations?
Richard Gilbert: Yes. But the real test will be to see how many museums accept the Guidelines.

Phil A'Vard: The Preserved Railways in Victoria have a model where 'reserved sections' exist in guidelines where local arrangements can be introduced.
Richard Gilbert: Thanks Phil - agree.
Lindsay Richardson: Retirement at 70 is too arbitrary. Museums should be able to monitor drivers closely beyond 70 but not have to arbitrarily retire them.
Trevor Burling: It is discriminatory to talk of specific ages.
John Radcliffe: 70 it is at Crich. In South Australia it is illegal to require retirement due to an age.
Darren Hutchesson: Is there a minimum age. Can drivers start at 15?
Chris Steele: Asked if we are getting younger?
John Shaw: Based on TransPerth, there should be no licence under 21. Could give youngsters a turn in non-public times.
John Radcliffe and John Pennack both spoke of restricted licences, and the need to "earn your stripes".
Don Campbell: SPER has no policy on "time behind the pick'.
Chris Steele: Do we require a separate medical certificate if we already have one from our normal work?
Peter Hyde: Concern that doctors depend on information from patient. Perhaps a Statutory Declaration from the driver is relevant. Would reduce 3 year to 1 year.
Thanks were expressed to Richard and his Committee for their good work.

Voting on Propositions

Results of consensus voting on propositions:-

1. Retirement Age for museum drivers?
   (a) Compulsory at 70 years of age - 1 vote.
   (b) Subject to annual re-examination over 70 years of age - majority.

2. Medical Certificates for museum drivers?
   (a) Compulsory to qualify - 10 votes.
   (b) Motor car drivers licence or job accreditation (bus, tram or train) sufficient - 11 votes.
   (c) None of (a) or (b) available, so a statutory declaration can be submitted - 2 votes.

3. Alcohol and drugs limitation by drivers?
   (a) Complete ban on both when public operations are being conducted - majority.

4. Restricted licences for drivers?
   (a) To be issued, with discretion, to persons not normally permitted to drive for public operations - majority.

The following amendments were voted for by the majority of the members at the Workshop Session.

PROPOSED AMENDMENTS TO THE RECOMMENDED GUIDELINES FOR TRAM DRIVING RULES FOR COTMA MUSEUMS

Selection Of The Candidate For Tram Driving
Medical Certificates

These two sections of the Guidelines be amended to read:-

The criteria for medical fitness in that the candidate must satisfy a fitness criteria based on either of the following:-

1. A current Medical Certificate must be held by the candidate.

2. A current valid recognition of fitness from an employer must be held that allows the member to operate passenger carrying vehicles used for public transport employment, including trams, trains, aircraft, ships and the like.

Alcohol and Drugs

The laws relating to zero blood alcohol level and freedom from drugs which could potentially impair the operation of tramcars or machinery under appropriate O.H.S. regulations, be acknowledged and followed.

Restricted Licence

A Restricted Licence be developed to allow members who are not accredited to drive under the formal criteria to operate trams under 'Restricted Circumstances' with regard to their particular circumstances and the relevant museums decision on the matter.

Retirement

This section to be fully amended as follows: Persons over the age of 70 years must provide a yearly Medical Certificate to be able to continue to hold a full driving qualification.

Editors Notes:- The Consolidation of "The Recommended Minimal Guidelines for Tram Driving Rules for tramway museums belonging to C.O.T.M.A.", and the "Proposed amendments to the Recommended Guidelines for Tram Driving Rules for C.O.T.M.A. museums", appears near the end of this volume, after the Minutes of the 1994 Council Meeting. The final version was discussed and, as noted in item 20 of the Minutes, voted on and accepted.

STREET AND SITE SCAPING - DISCUSSION SESSION

Session Chair and Secretary: Bill Kingsley

Geoffrey Claydon introduced the topic by discussing "the quarry" at Crich. It was no Melbourne or Bendigo but needed to show trams in their proper environment and setting. It was difficult to acquire appropriate buildings and people to put those buildings in place. Pavements (cobblestones, setts) and drainage are essential for engineering and heritage reasons. At Crich the "Assembly Rooms" are but a facade, the rest being destroyed by fire at the original location. Toilet blocks, cafes, bits and pieces of ironwork are all important. The arch bridge was donated and serves as a sense of enclosure to the Stephenson Place streetscape. The cottages could pay for their own existence by being occupied by retired members.

John Pennack asked if Crich had a caretaker and was answered in the negative (did, but left).

Don Campbell asked about the "Red Lions". It, being brick and permanent, will provide meals and replace the wooden cafe.

Don Campbell also wanted to know how the setts were laid with such quality, being a slow labour process. There were some enthusiasts, but mainly government schemes.

Jack Nyman was impressed with Beamish, with people in original uniforms, a rapid wire system, row of miners cottages, cat flaps, a chapel for services.

Lindsay Richardson spoke of Whiteman Park, the forest, craft village, sheep shearing, kangaroos, lots of scenery variation along the tramline.

Geoffrey Claydon compared this to Crich having a working quarry beside the line.

John Radcliffe noted the advantages of commercialising shops and restoring motorbikes.

Geoffrey Claydon. Street vendors are important, especially when crowds are expected.

Murray Sanders. The bakery at Swan Hill Pioneer Settlement is financially self-supporting.

Don Campbell. The Royal National Park Railway Station is a problem. The umbrella type roof is of use if it rains, but the platform is too high. A lower section within the high level platform is possible. The streetscape at STM is deliberate, from the entrance gate to the depot complex. There will be three shops in King St,

Newtown style, working, with one as a residence. The entrance will be a bank where you can pay your fare. Traffic bollards are stored. There is a NSW police call box. It is important to keep down dust by using macadam and bricks.

Bill Kingsley closed the discussion by posing a question for the future, "Where do we put the car park?", which drew some gasps of obvious relevance.

THE USE OF VINTAGE BUSES TO SUPPLEMENT A TRAMWAY MUSEUM INCOME

Presenter: Bruce Dale
Session Chair: David Verrier
Session Secretary: Peter Kahn

Editor's Note: This presentation was illustrated by colour slides.

In this paper, I am going to outline briefly the way in which the Society's 'Vintage' Bus fleet complements and works with the Tram fleet and tramway to increase the income the Society generates. The Society has had a policy for many years of endeavouring to preserve examples of urban public transport, from the early horse, steam and electric trams, to cable cars, to early modern trolley buses and to early and modern diesel buses.

The Tramway Historical Society has been very fortunate in its motor vehicle operation in the good working relationship the Society has with Christchurch Transport Limited and its predecessor, the Christchurch Transport Board. This relationship commenced back in the early 1960s when horse Tram No 43 was being restored for running at Papanui. Working with the then General Manager of the Christchurch Transport Board, Mr John Fardell, the Society proved its worth, and this then led to our activities being accepted by the then Engineer, and later General Manager of the C.T.B., Mr Max Taylor. Max is now President of the T.H.S.

The acquisition of our vehicles is interesting - In 1974 the Society was in a position to purchase - for $5000.00 - an ex-London RT double-decker bus from the women members of the English Commonwealth Games Team after the Games finished in Christchurch. Prior to operating the RT, a protocol was drawn up between the Society and the C.T.B. for back-up services that could be activated at short notice should this become necessary.

After full Ministry of Transport certification of the Double Decker, and after being granted certain exemptions from regulations which the bus could not comply with (eg the width of the tread on the spiral staircase was not uniform), the Society obtained a Transport Services Licence which enabled fare paying services to be run to and from Ferrymead and also at specific School Fairs. The bus was made available to the C.T.B. for sub-charter work.

During this time, negotiations were going on with the C.T.B. (now with the new General Manager, Max Taylor) regarding the acquisition of AEC Regal Mark IV No 290. 290 was the class leader of the imported British-built tram replacement diesel bus fleet, and, as such, had been mentioned by the Society as being worthy of preservation. The vehicle was finally made available on permanent loan to the Society at the COTMA Conference in Christchurch in 1978. While the Double Decker was the most popular vehicle, the addition of 290 now gave us the capacity to carry nearly 100 passengers and this was put to good use with some charter work.

1989 saw the formal abolition of the C.T.B. with local authority reorganisation in New Zealand, and, to mark this occasion, the Society was donated a 1967 AEC New Reliance, No 452 as well as the Mark IV and some other vehicles which had been on a permanent loan basis. AEC Short Reliance No. 410 of 1958 was gifted to the Society in 1991 in a very sad state by Mr Ian Fisher of Rununga on the West Coast and has now been fully restored (by our own members working in the C.T.L. workshops). 410 has been repainted into the original 1958 livery and has since been re-engined, again with the help of the workshops.

With transport de-regulation and the breaking up of the former CTB fleet and services, the Society felt that we were essentially three vehicles short of having preserved a class representative of all the major groups of C.T.B. buses since 1952. Accordingly, a submission was made to the Christchurch City Council (which inherited the ex-C.T.B. bus fleet at deregulation) for a Mark 1 Bristol (1974), a Mark II Bristol (1978), and a Bristol/Hess (1979) to be donated to the Society for preservation. This was approved, and suddenly our working preserved bus fleet was seven. While this seemed a large number of vehicles to keep certified and in working order, it

also gave the Society the flexibility to carry out many charters requiring a number of vehicles - work which could not have been contemplated earlier.

The seating capacity of the fleet is now 318, and this being utilised to its fullest by conventions, as well as the Banquet Section of the Christchurch Parkroyal - who use our vehicles because of their novelty value - to transfer Incentive Conference Delegates to various venues all over Christchurch. Many other groups and organisations such as schools, pensioner groups, kindergartens and social groups also use one or more vehicles at a time for outings, dinner transfers, progressive dinners and trips to and from Ferrymead.
Up until this point, much of the maintenance work carried out on our vehicles was carried out by the C.T.B. on a very non-commercial "when time permits" basis. However, C.T.L. was now in the real commercial world, and the Society was getting more bookings which required vehicles to be available on time. It was jointly decided to enter into a commercial arrangement with C.T.L. to carry out our maintenance - C.T.L. was chosen because many of the staff had worked on our vehicles and were familiar with the little vagaries such vehicles could throw up now and again. After successful negotiations a favourable charge-out rate was struck so that, from that time on, the vehicles have been maintained mechanically by C.T.L. but crewed in service (where possible) by volunteers.

You will be able to see that this operation now has all the elements together to enable it to earn income for the Society. As you will appreciate such ventures never make a profit, but suffice it to say the monies generated are not kept specifically for bus restoration, but may be used on the tramway. Last year we were fortunate to carry out heavy maintenance on one vehicle and repaint three others commercially (and still make a slight profit). It is interesting to note that last year the income from both the trams and the buses was very similar.

The key to this operation is six-fold:-

1. We now have a good fleet in place;
2. We have a transport licence in place;
3. We have a good maintenance arrangement with a large local operator in place.
4. We have a wonderful pool of Society members who are interested in buses, as well as sympathetic, retired drivers who help out on a volunteer basis and enable us to keep the fleet moving.
5. This operation accords with the long-standing society philosophy that all exhibits should operate and carry passengers, rather than being merely static and "lifeless" museum-pieces.
6. We have a "co-ordinator" available who has a full time work phone available for Kaiapoi Depot outside contacts. We still have one major hurdle to overcome - that of permanent covered storage for the vintage bus fleet. An ex-C.T.B. building was available, but unfortunately we were unsuccessful in obtaining this. We are now actively searching for a suitable building within our budget.

While I am very aware that each State in Australia has different rules and regulations, I have presented this short paper in order to stimulate some lateral thinking to encourage groups to consider if there are any methods by which vehicles that a number of groups are already holding in their collections could be used to generate more income for their museums.

Finally, all transport museums, like all transport operators, realise that the bottom line, is to get more "bums on seats". I feel it will be good for all of us to go away reflecting on this cartoon from the 1960's which featured the then General manager of the M.& M.T.B.

Questions

Lewis Nyman: Asked re basic costs of the buses?
Answer: $1.50 per hour. Dollar per km based on C.T.B. day hire (no drivers wages). T.H.S. could undercut (with volunteer crew) but has not the intention to do so. The cost with crew supplied was $42.00 per hour.

A question was asked about advertising on buses. Cosmetic or revenue?
Revenue - through submissions of advertising proposals (with the profile of T.H.S.). All over advertising was considered. Suggested costs of $250.00 per year for a small panel.

One had to prove oneself to get a track record. The attraction of the double-decker bus for use by advertising was a major spinoff.

Chris Steele: Spoke (as a bus driver) that the experience appeared to be that people are attracted to drive the buses rather than advertise the Museum.

Bruce Dale: Recounted his experience - he joined the T.H.S. for the trams but then got involved with the trolley buses and then motor buses by default.

The T.H.S. bus crews are in T.H.S. generally for the buses.

The promotion of the buses was twofold:-

1. To the public
2. To the bus companies.

Communication with the bus companies was necessary to ensure an awareness of the reasons for having buses, but not as competition.

The "English Connection" with the double decker bus was promoted as a specific sightseeing tour. The bus was chartered by the C.T.B./C.T.L. for six weeks for city-sights tours. It is now operated as a private double-decker tour.

Alan Robb: Mentioned that at times in the early days the Authorities were concerned about the proposals ; however T.H.S. obtained a license to operate and subsequently have shown a proven track record.

Frank Doherty: Commented about overhead dimensions.

David Verrier (Chairman) thanked Bruce Dale, noting that the THS had been very business-like in their promotion of their buses.

PROJECT MANAGEMENT-TURNING YOUR DREAMS INTO REALITY

Presenter: Craig Tooke
Session Chair: Michael Stukeley
Session Secretary: Jeff Stocco

Introduction

As the President of the Melbourne Tramcar Preservation Association I am often asked the question how is your Association able to achieve so much in such a short time with relatively few resources on hand.

The answer invariably lies in good project management and planning for which the results of our efforts often reflect.

The purpose of my presentation is not to discuss in great depth the academic side of project management, but more some of my practical thoughts and experiences in the hope that they may be of assistance to you in your endeavours at your respective museums.

What Is Project Management?

Project management as it's name implies is the successful management of related tasks directed towards a single goal.

Planning - A Vital And Effective Tool

Before the actual management of a project can begin, the key to success is planning. By it's very nature planning can be either very simple or very complex, however in all projects regardless of their nature the following key elements must be identified if planning is to be successful. These elements are as follows:

*Who	*What	*When
*Where	*How	*Why

Very often the failure to either complete a project on time or successfully can be put down to a lack of poor planning and preparation in one of the above areas. How often have you attempted a project at your museum only to find that you have wasted considerable time and effort for lack of proper planning? I am sure everyone can relate to this experience in one way or another.

The key to attempting any project is to break it down into a series of smaller tasks or objectives each of which are clearly defined and have a beginning and an end which can also be identified.

Once each of the tasks related to the project have been identified then questioning can begin to identify the six critical elements to any project, who, what, where, when, how and why.

It is a very good idea to actually list the tasks down onto a piece of paper as headings and provide answers to each of the six elements as they are determined. For example, let our project be to place a pole in the ground and the specific task to dig the hole. Your list on paper could perhaps look like this:

PROJECT: To place a pole in the ground
TASK: Dig hole in ground

* Who? Craig Tooke
* What? To dig hole 1 metre deep in the ground for the erection of a pole
* Where? 2 metres north of the north corner of the workshop building
* When? Work to commence on 5/12/94 at 13:00 hours
* How? Using the largest spade available
* Why? Hole necessary to allow the pole to be placed in the ground

Once you have clearly identified the above six key elements for each task in the project then you must critically examine each of the details that are provided for the six elements.

For example, questions such as are there any underground services in the way? Do any of the tasks have to be completed before one of the others can be started? Have we clearly identified all of the information that is required for the task elements?

Once you are certain that all of the elements for each tasks are clearly identified then it is possible to identify the materials and man power that are required to complete the project.

As with identifying the elements of the task it is a good idea to commit your thoughts to paper for reference.

Using our above example of digging a hole, a list of man power and materials required to complete the task would perhaps look like:

MANPOWER	MATERIALS
1 person x 4 hours	Large shovel
	Tape measure
	Depth gauge

Once the man power and materials list has been completed it should be carefully reviewed to ensure everything has been included.

The next stage in the process is to identify the order in which the tasks have to be undertaken. To use an old adage, "there is no use having the cart before the horse". For example, in the case of our sample project, the erection of a pole, there would be no point in attempting to erect the pole without having first dug the hole in the right location and of sufficient depth, therefore time spent carefully analysing the order in which tasks have to be undertaken in order to successfully complete a project is well spent before commencing work.

With all the necessary financial resources in place the final step in the planning process is to actually work out when work can and should commence on the project. Most museums, of which the Melbourne Tramcar Preservation Association is no exception, do not have finite human resources and as such we have to be very careful that we do not attempt projects requiring high involvement of many members at the one time. This is not to say that we do not have a number of projects on the go at the one time but rather we do not attempt

projects requiring large membership involvement simultaneously unless we have sufficient members available to successfully complete the project.

To assist us in this project we actually prepare a quarterly works schedule for work that will be undertaken at the museum. This works schedule encompasses all facets of our activities at the museum and is prepared for presentation at our Committee Meetings by our General Manager. At our meetings we review, modify and approve the works schedule and this then becomes the plan to which our activities at Haddon are directed towards for the next quarter.

At the Committee Meeting prior to the expiry of the current quarterly works schedule we ensure that a new schedule for the next quarter is ready and that it contains any new items and outstanding or continuing items from the current quarterly schedule.

Mention at this stage should perhaps be also made of the possible use of a personal computer in the planning and preparation stage of a project. Although not absolutely essential or indeed at times necessary, depending upon the complexity of a project, the use of a personal computer and project management software such as Microsoft "Project", Symantic "Time Line" or other project management software can at times assist in the planning and preparation phase of a project depending upon the complexity of the project.

Project management software can also be used to advantage in the management of a project particularly if the project is extremely complicated or involves a large number of tasks.

Another management tool in project management can also be the use of CPM which stands for Critical Path Management or other similar mathematical tools, however further discussion on the use of a computer or these mathematical tools is outside the scope of this presentation and people interested in these fields are directed towards the wealth of published literature that is available on the subject of project management and planning where the use of computers or mathematical models is covered in depth.

Project Management - Reviewing A Project As It Is Happening

We are now at the stage where after careful planning and preparation we commence our project so why bother continuing to keep abreast of our progress?

This stage is as important if not more important than the planning process for without reviewing our project as it progresses we cannot see if our project is on track and our planning for other tasks involved in the project still accurate and more importantly realistic.

Every project regardless of it's complexity will always suffer from variation or delay in our plans due to unforeseen difficulties which for example could be the lack of material or the need to divert resources to other more urgent pressing tasks which in the case of our museums is very often the case.

It is therefore important to review our plans as we progress to ensure that our planning for future tasks remains accurate, thus ensuring the successful completion of a project.

Using our example of the erection of a pole, should we have been unable to complete digging the hole in time, and we had allowed for no delay in our plans there would be no point in the cement to hold the pole in place arriving at the determined time, particularly if the pole could not be put in the ground on time because the hole had not been dug.

The reviewing of our progress on a regular basis to ensure time lines can be met is the key to ensuring success.

Project Completion

Well we have reached the stage where our project is now complete and we can give ourselves a pat on the back for a job well done, however this is by no means the end of our project management cycle.

Critical review of our planning, execution and results for the project that we have just completed is important because we would not want to fall into the same traps with our next project or would we?

Careful analysis will help build on our achievements and, like any skill, project management is one that has to be developed and this only comes with practice and learning from our mistakes.

I will pause my presentation for a moment as we view part of a video titled "The Plank", which I believe highlights many of the points I have mentioned so far. I ask you to bear in mind as you watch the video.
(Video "The Plank" 15 minute duration)

Conclusion

Perhaps much of what I have spoken about is common sense, however the point I am trying to get across is that if we undertake careful preparation, execution and review of all our efforts at our respective museums then we will be surprised in the quality and quantity of the outcomes for our efforts.

We are all striving to achieve excellence in the preservation of our tramway heritage and quality project management can and does go a long way to the fulfillment of our goals and avoids unnecessary wasted effort or resources which although when reviewed in hindsight can appear comical, just as we have seen watching "The Plank", I am sure it is not the way in which we currently do or want to run our museums in the future.

Editors Note:- At the end of the Speaker's address, the time available for the session had expired. Therefore it was not possible for any discussion or questions/answers on the subject.

BUS AND COACH MUSEUMS AS COTMA MEMBERS - DISCUSSION SESSION

Session Chair: John Radcliffe Session Secretary: Bill Kingsley

Bill Kingsley related his visit to the Historic Commercial Vehicle Association (HCVA) at Tempe, Sydney, with Peter Kahn and of his discussions with HCVA Secretary David Wilson. The HCVA is seeking to be part of a larger 'umbrella' organisation. No such yet exists in the bus and coach preservation field. COTMA's achievements encourage HCVA to look in our direction. They do have two Trolley buses so are eligible for full membership. But does this set a precedent? Do we accept pure petrol/diesel bus/coach museums? Should we move towards being COSTMA - Council Of Street Transport Museums of Australasia? We should note that many of our tram preservationists are also bus preservationists - people with feet in both camps.

John Radcliffe. Individual bus owners come and go. The BTMS abandoned its bus committee for lack of interest.

Peter Kahn. Ownership of vehicles is important. Even within bus/coach museums, a lot of vehicles are privately owned.
John Radcliffe. It is core ownership of vehicles which is important.
Don Lange. How many tramway museums have buses?
John Radcliffe. Many have exhibits but few are operational. A majority have buses but it is not part of the core business.
Les Stewart. There are problems in using an umbrella to lobby governments (eg the narrow gauge steamers). There are problems in diversifying from one activity. There is a danger of take-over. Traction engine preservationists are also trying to squeeze into the Legislative framework.
Bob Merchant. Buses can be an embarrassment.
Rod Atkins. A TMSV problem of parts for buses could be sought through COTMA.
Don Campbell. Conflicts possible in the future, trying to promote both polluting and non-polluting vehicles.
Martin Grant. Conferences would become unwieldy. There is too much business for a three-day Conference now.
John Radcliffe. Disparate groups can be a problem.
John Phillips. (also President at BCSV). Bus enthusiasts can suffer tunnel vision.
Trevor Burling. Buses would attract younger members and create some cross-polinisation.
Les Stewart. (also Tramway Convenor within NFRS). We would need a Bus Convenor to co-ordinate the bus people.
Frank Doherty. Asked if we should restrict to city buses only or coaches as well, to which Peter Kahn suggested mainly urban.

Consensus

The Chairman asked as follows:-

A. Should COTMA include groups who are mainly preserving buses but with some electric traction? 80% for.
B. Should COTMA include groups who are preserving buses alone, without electric traction vehicles? 30% for.