

Bus Preservation Society of Western Australia
Preservation Needs Assessment

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Executive Summary

The Bus Preservation Society of Western Australia (BPSWA) aims to preserve Western Australia's bus heritage. The Society holds a large collection of operating and static buses dating from 1929-2004. The collection also includes a significant amount of archival materials, photos and artefacts that are associated with the history of bus services in Western Australia. The BPSWA collection of buses, with its focus on public services is arguably the largest collection of period motor buses in the Southern Hemisphere.

BPSWA is a self-funded, not for profit organisation operated and managed entirely by its volunteer members. The Society was established in 1969 and currently has around 85 members. Between 15 and 25 members regularly attend the Tuesday workshop sessions to carry out restoration and maintenance of the bus collection. A team of drivers provide transport services to Whiteman Park three days a week. Members also undertake tasks such as accessioning, cataloguing, collection storage, digital scanning, fundraising and providing access to the collection.

BPSWA established its depot at Whiteman Park in 1993. Whiteman Park is a state government facility operated by the Department of Planning. The WA Planning Commission provides the land and infrastructure under lease at Whiteman park, while the garages and workshops were financed through WA Lotteries Commission grants and fundraising. The BPSWA is one of five transport and machinery heritage groups that operate at Whiteman Park and is represented on its Transport Coordination Committee (TCC).

Although the Society does not have a dedicated display facility, BPSWA participates in community events throughout the year. They have also been allocated space to display a restored vehicle at Revolutions Transport Museum. The Society produces the quarterly Rattler newsletter, as well as various other brochures on their collection.

The society has achieved much in their years of operation and the members hold comprehensive knowledge and skills. However, the storage facility are inadequate and much of the collection is uncatalogued. Most of the small objects and archival collection are poorly housed due to a lack of funding and knowledge. Three recommendations are made following the assessment, they are:

1. Undertake basic conservation training including collection storage, handling and display methods.
2. Improve collection storage and display methods.
3. Build a new storage facility with a dedicated object workroom.

Key issues required to carry out the recommendations include:

1. Additional funding for training, storage materials, shelving and the development of a new storage facility.
2. Attracting and keeping more volunteers interested in working with the archival and small objects collection.
3. Agreement from Park Management to build a storage facility.

Key Recommendations

Short term recommendations (within 12 months)

- Remove original documents and photographs from display boards, scan and rehouse (pages 5,11,13,16).
- Establish digital scanning standards (page 4).
- Obtain / fabricate a book cradle to assist in safely scanning workshop manuals (page 5).
- Set up a hard drive for storage of digital files at Revolutions Transport Museum (page 5).
- Obtain a full copy of the Mosaic database and continue cataloguing the collection (pages 4).
- Begin scanning Howard Cowell collection albums (full pages plus individual photographs) (pages 4,5,14).
- Move the office area out of the shipping container. Keep the shipping container closed as much as possible (page 7,9,10).
- Provide basic conservation training for volunteers including collection storage, handling and display methods (page 6, 10, 14, 19).
- Undertake a membership drive. This should include registering with online volunteer recruitment services such as the City of Swan Volunteer Resource Centre and Go Volunteer (page 18, 19).
- Transfer more significant items to storage cabinets at Revolutions, and ensure efficient use of this space (page 13).
- Consider deaccessioning multiple items from objects collection in order to make efficient use of limited space and funding. Remove non-collection items from storage shelves (page 12, 14)
- Seek funding for new collection storage and object handling facility for small objects and archives (pages 6, 14, 15).
- Safely remove camphor / moth balls from storage containers (wear appropriate protective gloves / mask) (page 17).
- Obtain and install sticky traps to monitor insect populations in storage areas (page 17).
- Obtain a HEPA vacuum for cleaning storage areas and begin cleaning program (page 17).

Medium term recommendations (within 3 years)

- Undertake training in vehicle conservation and maintenance (page 16, 19).
- Obtain a laser printer to enable cost effective printing of workshop manuals (page 4).
- Establish internet connection at the BPSWA facility to facilitate collection digitisation and communication (page 5).
- Design new collection store / object handling area (pages 6, 14, 15).
- Establish recording standards for vehicle restoration and obtain digital cameras to facilitate this (page 3).
- Obtain archival supplies and begin improving the storage of small objects and archives (page 14).
- Provide training in basic conservation techniques for paper, books and photographs: staple removal, deframing, removing photographs from magnetic albums, cleaning and mould treatment techniques (page 18).
- Remove Howard Cowell photographs from albums and rehouse in archival materials (pages 4,5,14).
- Provide training in collection documentation techniques: accessioning, condition reporting, treatment reporting (page 3, 5, 18)
- Establish maintenance schedule for vehicles, including non-operation vehicles (page 5, 16).

- Improve storage of outdoor collections eg. provision of gravel / concrete pads, canvas covers (page 16).

Long term recommendations(within 5 years)

- Construct new collection store and object handling area (pages 6, 14, 15).
- Provide disaster planning training for volunteers and obtain supplies (page 18, 19).
- Obtain a chest freezer to assist in dealing with pest infestations / disasters (page 17, 18).
- Seek funding for conservation treatment of significant items in the collection - eg. Metropolitan Omnibus Company Minute Books, panoramic photographs, bus design sketches (page 5).
- Deframe paper based items housed in acidic frames (page 5, 14).
- Seek funding for new display facility (page 16).
- Seek funding to upgrade storage of buses stored outdoors (page 16).
- Seek funding for a running shed and washing facility for operational buses (page 15).

Policies

The current Collection Policy was adopted in 2010, and is included in Appendix 1. The Policy adequately sets out acquisition and deaccessioning policies of the Society.

According to the Collection Policy, the Society generally accepts only two buses of a kind, but more may be collected to ensure there are sufficient spare parts available. However, this part of policy has not been applied to small objects, for instance there have been a large number of multiple uniforms collected.

The stated aims of the Society include restoration of its collection, alongside public entertainment. Whilst the type of restoration carried out by the Society does not correspond with AICCM's Code of Ethics, the experience of riding on a historic bus is an important way for the public to appreciate and understand the history of buses in Western Australia. However, it is recommended that the Society introduce a policies on appropriate documentation and acceptable standards for restoration. Currently, all previous surface finishes tend to be stripped and many parts replaced without adequate documentation. In addition, the nature of some buses may be altered considerably from their working life. It is suggested that the Society consider significance and authenticity in planning restoration work. The Society has tried to improve documentation of mechanical repairs in the past by obtaining several digital cameras, but the cameras went missing very quickly. Obtaining some cheap GPS trackers may help solve this problem.

Collection

BPSWA holds an operating and static collection of public road transport passenger vehicles used in Western Australia. An extensive collection of archival materials, photographs and artefacts associated with the history of bus services in Western Australia complements the bus collection.

Overall, there are more than 21,000 objects in the collection, comprising:

- Approximately forty buses, one trolley bus, one horse bus and two chassis. 18 buses are in running order and / or display condition. A further 10 buses are held for spare parts.

- Textiles including uniforms, caps and rolled bus signage
- Organic materials such as leather bags and cases.
- Mixed media objects such as ticketing machines and stamping equipment
- Metals eg. radiator caps, bus stops, badges, spare parts
- Paper and books including historical records, newsletters, workshop manuals and ephemera.
- Photographs including the Howard Cowell collection of 57 albums (5,970 prints) and seven display boards with a total of ninety photos.
- Audiovisual material including DVDs, CDs, videos, slides

Significance Assessment

A Significance Assessment was carried out in November 2013 by Michelle Slarke. Major findings are that the collection demonstrates high historical significance, as well as research and interpretive potential. Several buses are considered valuable by world standards.

Due to time constraints, individual items in the small objects and archive collection were not significance assessed individually. However, items associated with buses of high significance and the history of bus services in Western Australia are also likely to have high significance. This means that the entire collection should be regarded as having potential significance.

Digital access to collection

There has been some cataloguing of the collection, but various systems have been used and much is uncatalogued. One of the volunteers has recently undertaken Mosaic training, and there are plans to catalogue the collection using this system.

Around 75% of the photographic collection has been scanned. Unfortunately, scanning has been done in a range of resolutions and file types and many photographs may need to be rescanned to ensure high quality digital files are available. An information sheet on current digital standards has been forwarded to the BPSWA.

Storage of digital files is on various members computers and hard drives - this may pose access problems in the future. However, the Society is currently investigating storage of files on a hard drive to be kept at Revolutions Transport Museum. Some members have their own relevant private images which they are unwilling to back up on a hard drive held at the BPSWA or in the care of another member. However, they may be willing to do so if the drive was to be kept at Revolutions.

As removal of the photographs from the non-archival albums is recommended, it is essential that complete pages as well as the individual images are scanned. Part of the significance of the Howard Cowell collection lies in the handwritten annotations and original layout, which will be lost when the photographs are removed.

The Society has recently purchased a book scanner and has begun the process of scanning the workshop manuals. This is a significant improvement in collection care, as previously, the rare workshop manuals were in danger of loss or damage when borrowed by members to do mechanical work on the buses. It is recommended that a simple book cradle be bought or made in order to prevent damage to the spines of the books during scanning. In order to facilitate the use of scanned copies by members, it is recommended that the Society obtain a laser printer. Laser printers are far cheaper to run than the existing ink jet printer.

The Society currently has no internet access, although member use their own wifi equipment. A dedicated system at the facility may facilitate research and access in the future.

Use of the collection

A number of buses are in running order and are used to provide tourist transport services around Whiteman Park, and for community events. Buses have also been hired for use on feature films.

The Society receives occasional requests from researchers wishing to look at the collection. They also receive research enquiries from other transport collections.

While the Society does not have a dedicated display facility, parts of the collection are shown at various community days, and on occasional tours of the depot. One vehicle is displayed at Revolutions Transport Museum on a rotational basis, and other items are also occasionally loaned by Revolutions.

Condition

Buses

Many buses have been restored to a 'as new' condition. This is not ideal from a conservation perspective due to loss of original finishes and materials, and lack of documentation. However, no major condition problems to the indoor bus collection were noted during the inspection.

The collection in outdoor storage is generally in very poor condition with extensive corrosion and weathering and biological deterioration of organic materials.

There is little knowledge of conservation requirements for both functional and non-functional buses. Priority issues for the bus collection include protecting the outdoor collection from the elements, and establishing conservation maintenance / storage / running procedures for both functional and non functional buses.

Objects and archives

The Metropolitan Omnibus Company Minute Books have been damaged due to mould and termite and silverfish infestation. These have been deinfested by freezing and are stable but will require treatment in the future. Drawings kept at Revolutions require deframing and appropriate storage.

The small objects and archives have suffered damage due to poor storage, display and handling. Issues include poor storage materials, overcrowding, lack of support, folding and incompatible materials stored together. Rehousing or repacking is required for much of the collection.

Photographs

The photographs in the display board have faded and some have cracking to the emulsion layer. These require urgent protection from light.

The Howard Cowell photographic collection is kept in acidic albums and requires scanning and rehousing. Photographic materials kept at Revolutions also require deframing, appropriate storage and pressure sensitive tape removal.

Handling

While one member has attended some basic conservation training, this has not been adequate. The majority of members are not aware of how to safely handle collection materials, and the collection has suffered damage as a result. Object handling training is recommended for all members working on the small objects and archives collections. This will assist in the establishment of handling procedures for the collection. Another issue is that there is no clean, dedicated space for object handling. Disposable gloves are recommended to handle most collection items. Fragile items that cannot be easily handled with gloves, such as paper, may be handled with freshly washed hands.

Building (repository structure)

The BPSWA is located at Whiteman Park, a recreation and conservation reserve managed by the Department of Planning. The site of the BPSWA is fairly isolated as it is away from the main tourist area of the Park, though nearby the Perth Electric Tramway Society.

The BPSWA premises consist of:

- Shed A (erected in 1987): This contains bus and object storage; an administration and meeting area with a kitchen. In 2005, a shipping container was installed inside the Shed, becoming the small objects and archive storage room and office. An additional archival work area is housed in an adjacent seat-free bus.
- The workshop (erected 2003) is equipped to overhaul engines and chassis, and rebuild/repair bus bodies.
- Shed B, erected in 2010 is used for storage of buses and their components.

The buildings are of uninsulated steel construction with concrete floors. The floor does not extend the full length of the sheds, and there is gravel at the edges. There is no ceiling and some gaps between ceiling and walls. There are no windows, but sliding doors are opened during working hours.

The buildings do little to modulate environmental conditions, although the shipping container does provide some insulation when kept closed.

The buildings are in good repair and there is no evidence of water leaks. No current pest, condensation or mould issues were reported, though the collection is very vulnerable to this occurring.

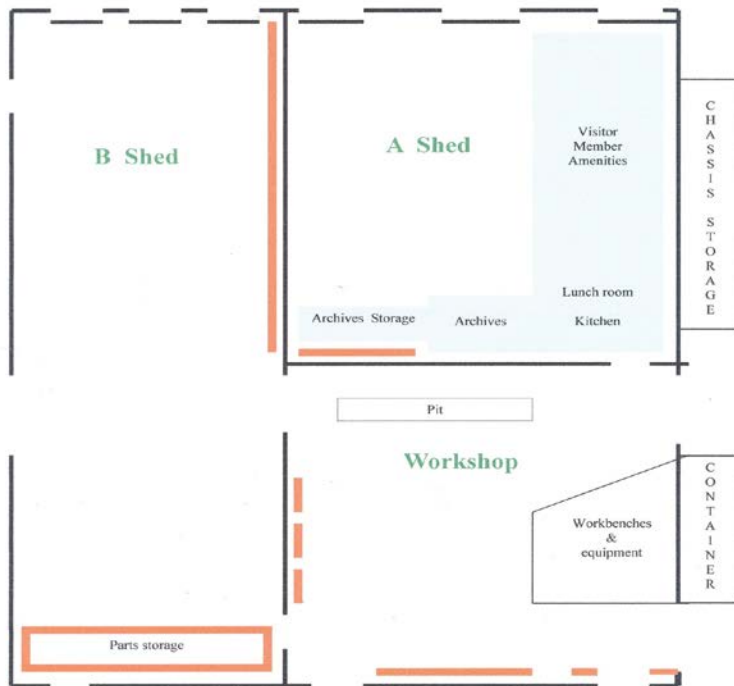


Figure 1: Plan of the BPSWA facility

Security

Some security for the collection is provided by its location within Whiteman Park. The Park gates are closed every evening, and a Park Security Officer patrols the area during this time.

The BPSWA premises are padlocked and use restricted security keys. There is no burglar alarm or security cameras, but the Society have installed imitation security cameras.

While there are perimeter fences, there have been occasional thefts and vandalism to the collection stored outdoors.

Theft amongst the volunteer group is not a general concern.

Fire detection and suppression

New fire extinguishers have recently been obtained and there are adequate numbers located throughout the storage facility, as well as on the running buses. These are of different types according to the area where they are located - dry chemical powder, carbon dioxide and foam. The extinguishers are scheduled to be regularly serviced. There is also internal and external fire hoses, and illuminated exit signs. A diesel generated water pump is also available for external fires. There is no fire detection system or sprinklers.

Environment

Temperature and humidity

Perth has large seasonal variations in relative humidity, with wet winters and hot, dry summers. Average outdoor temperature and relative humidity readings in Perth are plotted in Charts 1 and 2.

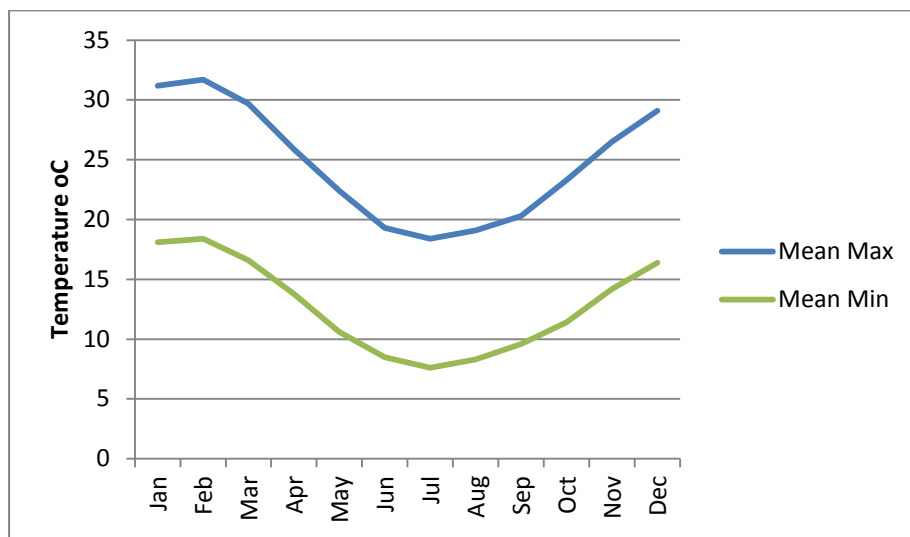


Figure 2: Seasonal average outside temperature (source: Bureau of Meteorology)

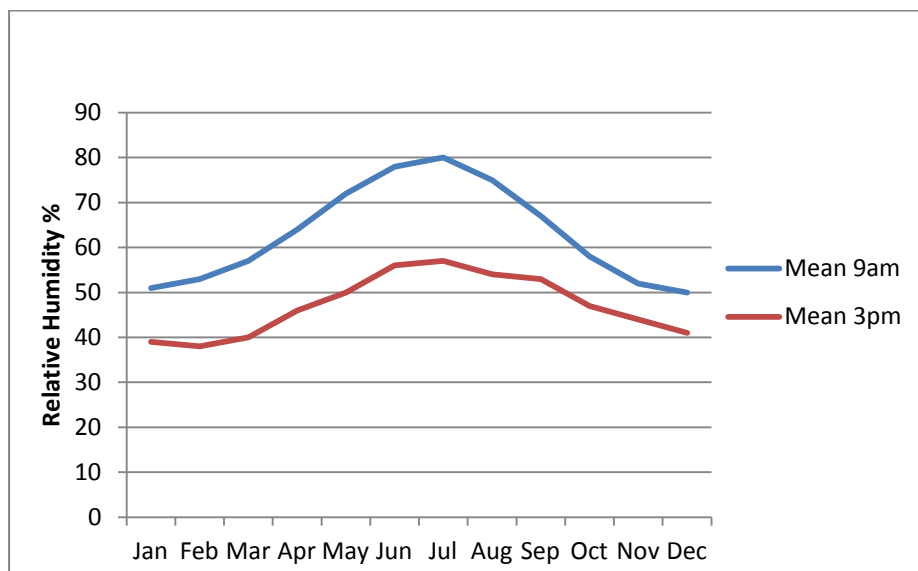


Figure 3: Seasonal average outside relative humidity (source: Bureau of Meteorology)

As can be seen in Charts 2, winter poses the greatest risk of damage to collections in Perth. Physical damage is most likely to occur during this season due to rapid humidity fluctuations. High humidity can also increase the risk of mould, insect damage, corrosion and other deterioration processes.

The temperature and relative humidity at the BPSWA were surveyed using Tinytag Dataloggers between the 26th of March and the 14th of April 2015.

The BPSWA sheds do not have air-conditioning, insulation or ceilings and are not well sealed. The buildings provide little buffering from the outside environment. Large sliding doors are also kept open during working times. The collection stored on open shelving has little buffering from environmental changes, other than that provided by storage containers themselves.

As can be seen from the charts, the environment conditions are very poor in the Drift Bus, Open Shelving and Photo Display. Relative humidity levels were extremely high as it rained during the latter part of the testing period. While no evidence of damage due to mould or damp conditions was noted during the inspection; the collection is vulnerable to damage caused by high relative humidity, including an extremely high risk of mould, pest outbreak and accelerated chemical deterioration. Mould is likely to occur where relative humidity remains at over 70% for 24 hours - conditions were as high as 90% in the testing period.

It can be seen from Chart 4, that the shipping container does buffer environmental conditions quite well. However, there are sharp fluctuations in relative humidity when the shipping container is open every Tuesday to access the small office at the front. It is recommended that the office be moved out of the container if possible, so that it can be kept closed when access to the collection is not required.

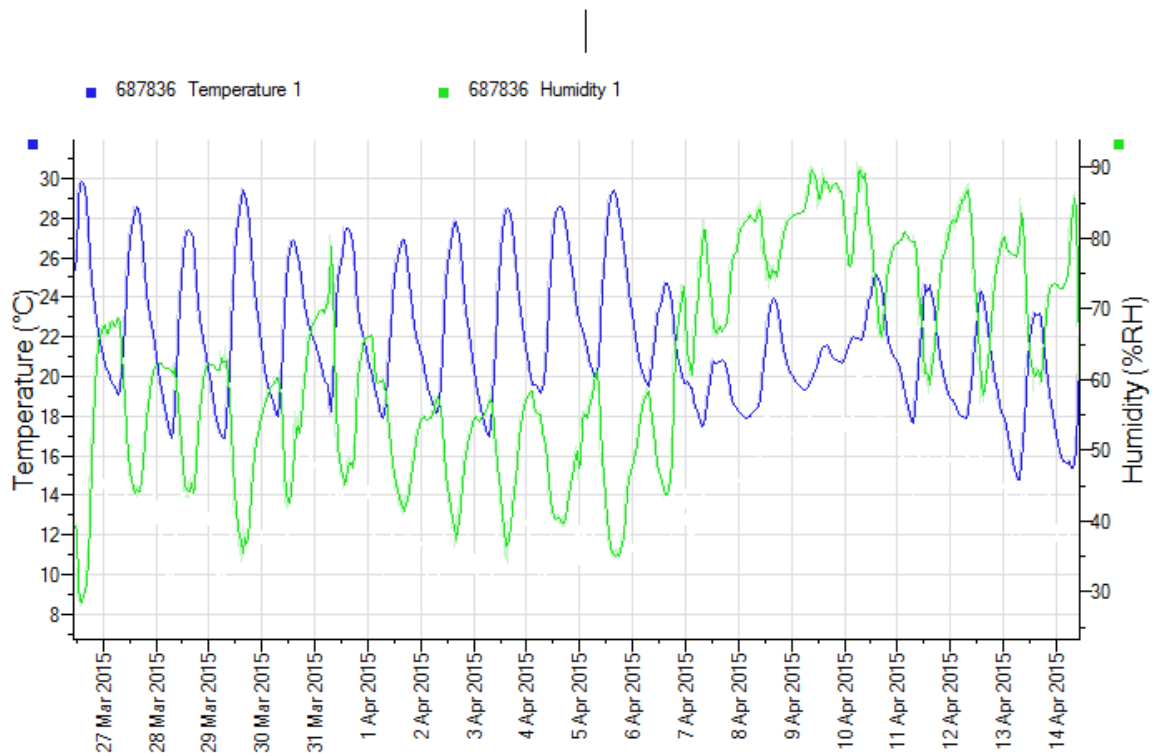


Figure 4: Graph of Photo Display environment

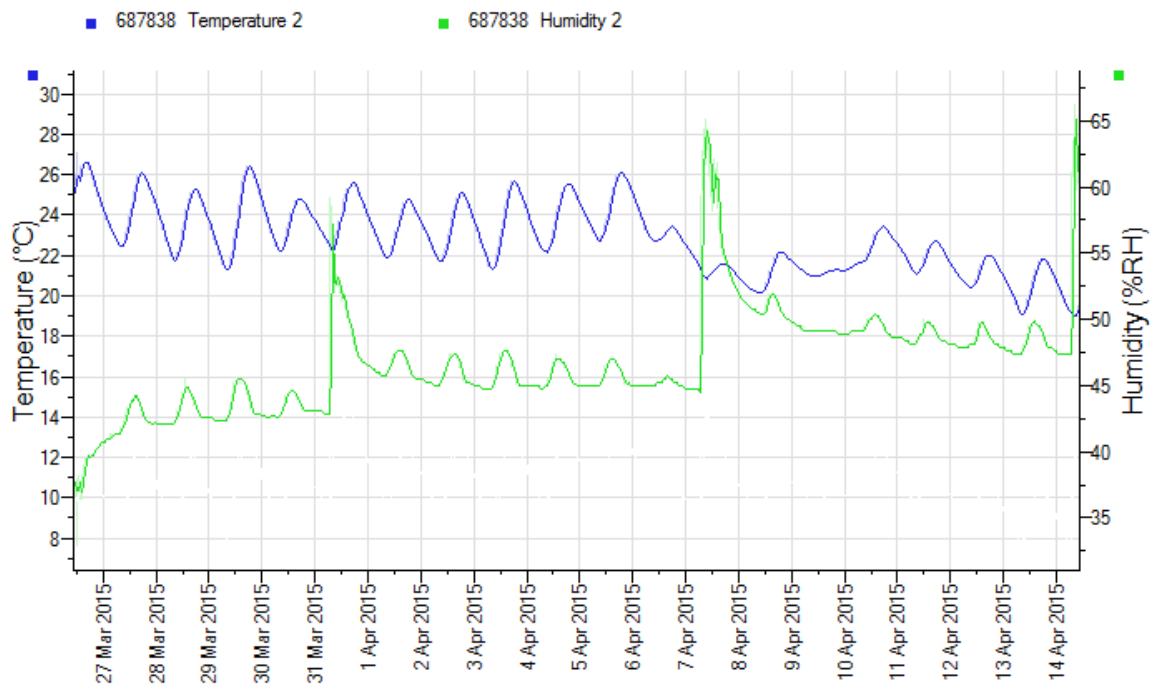


Figure 5: Graph of Shipping Container environment

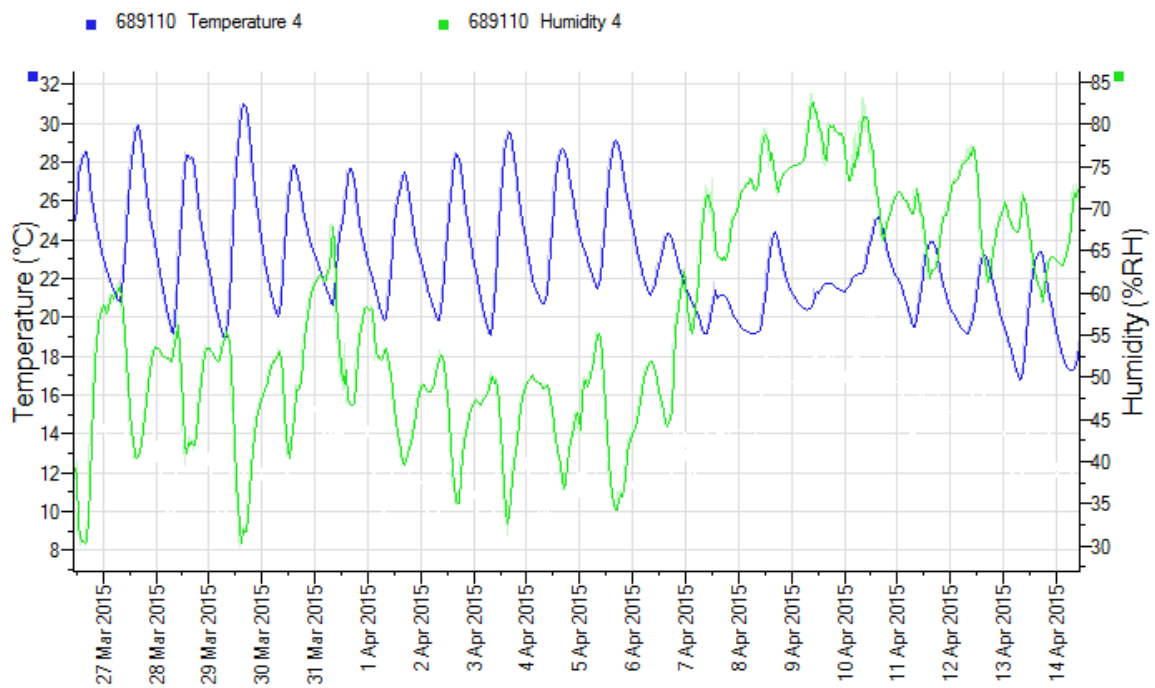


Figure 6: Graph of Drift Bus (Archive Work Room) environment

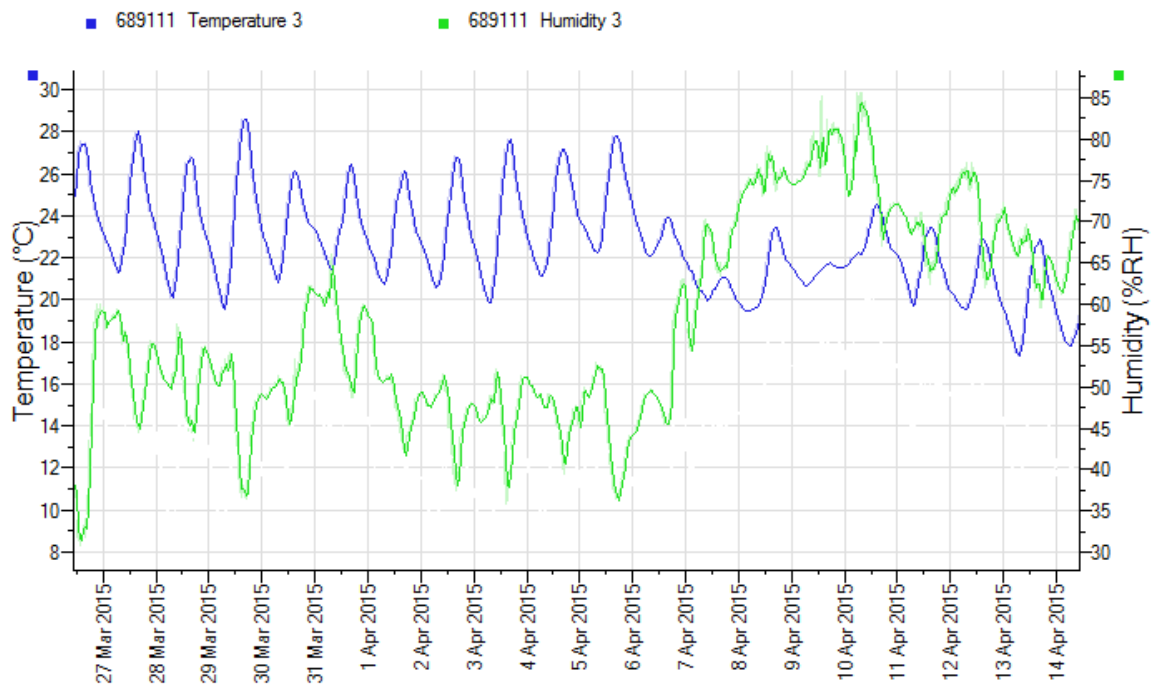


Figure 7: Graph of Open Shelving environment

Lighting

The shipping container is illuminated with fluorescent lights, these are generally only used when the collection is accessed. When the lights are on, this area is lit at 200-400 lux. When the container is closed, there is no light falling on the collection. Most items in storage are covered, so light damage is not an issue in this area.

The open shelving storage area is in part of Shed A which is not used as a work area, so the lights are not used very often. This area is illuminated with tungsten halogen lights. The light levels were measured at around 10-30 lux when the lights were not on, but the shed doors open. Again, much of this collection is boxed, so light damage is not a significant issue..

The items most at risk of light damage are the photographic display boards and the model buses. When the shed is open, they are exposed to daylight. For some of the display boards, the light levels are over 2000 lux. The photographs have begun to fade, and some have extensive peeling of the emulsion layer. It is recommended that all original collection material be removed for the display boards, and the model buses covered with opaque fabric when no visitors are present.



Figure 8: Photo display boards and model buses

Storage

Small Objects and Archives

Storage Areas

Most of the archives and small objects are kept either in a shipping container within Shed A, or on open shelving in a separate area, also in Shed A. Conditions are quite overcrowded, making it difficult to access the collection. A number of extraneous items are kept on the shelves, contributing to the overcrowding. Air circulation is likely to be poor, contributing to the risk of mould damage, particularly in the open shelving.



Figure 9: Shipping container storage



Figure 10: Open shelving storage

Some items are also kept on the floor, which poses a risk of damage in the event of a flooding.

Some of the most significant items are stored at Revolutions Transport Museum, which offers somewhat better environmental conditions. This includes 33 framed photographs, 13 volumes of the Metropolitan Bus Company minutes and a restored trolley bus. Revolutions have provided an upright coated steel cabinet and several plan drawers. There is empty space in these storage units and it is recommended that more significant items be stored at Revolutions. Stacking of items is currently haphazard and does not make efficient use of the space. Neat and careful housing of collection materials will ensure that more items can be stored safely in these units.

Shelving

The shipping container is furnished with unsealed wood / plywood / chipboard shelving. This appears quite old and difficult to clean effectively. The open shelves are constructed from painted steel and plywood. They appear to be in good condition. As unsealed wood and wood products should be avoided where possible as they release damaging acids, it is recommended that coated steel shelving be obtained if a new storage facility is built.

Shelving and boxes are numbered for content and location, and are beginning to be linked to the Mosaic database.

Storage Enclosures and Packing

Much of the archives and objects collections are housed in clear plastic tubs. This is a good choice of storage enclosures in this area, as they are reasonably chemically stable, and help to protect the objects from dust and moisture.

However, there are many non-archival storage containers made from acidic cardboard, Styrofoam, chipboard or plywood. These are unsuitable for collection storage and should be replaced as funds allow.

The packing of objects within the storage containers requires considerable improvement - basic conservation storage training is recommended to assist in this process. Issues to address include:

- There is a general assortment of non-archival packing materials used to house objects eg. plastic bags, bubble wrap and newspapers. These items are likely to contribute to deterioration of the collection through the release of acids and plasticisers. Archival storage materials should be obtained as funds allow.
- Storage containers are generally overcrowded.
- Containers should be repacked to separate organic and inorganic materials wherever possible.
- It is best to place items of a similar weight and nature together. Do not place heavy items on top of lighter ones.
- Paper documents need to be appropriately supported either upright or flat, and not leaning over. Metal staples and paper clips should be removed. Archival enclosures are particularly important.

- flexible organic items such as bags and caps need to be appropriately padded out to avoid being permanently deformed.
- Textiles should not be stored with tight folds. Appropriate padding out of seams and folds is required to prevent future damage.
- Items that are stored rolled, such as the bus signage, requires supporting at the ends. They should not be stacked.
- Original photographs should not be stored in acidic albums or display boards. Archival envelopes or albums are recommended.
- Any collection items that are not boxed should be covered to protect them from dust and light. Tyvek is a good material for this purpose.
- Keeping multiple duplicates of items has contributed to overcrowding of storage enclosures. Consideration should be given to deaccessioning of these items in order to reduce overcrowding and more efficiently use scarce resources.
- Many frames release acids and where possible should not be used to permanently house paper based materials.

Recommendations for the future

A new storage facility should be built to house the small objects and archives. Some information sheets on collection storage facilities have been provided and should be carefully reviewed. The following points should be considered in designing the facility:

- No windows are required in a storage area as it should not be used a work area
- Good lighting is essential but should only be turned on as necessary
- A separate clean work area should be housed in an adjoining room.
- The facility should be well insulated and, preferably have a ceiling and be clad.
- Doors should be well sealed and there should be no gaps in the construction between walls and floors or walls and ceiling.
- Allow adequate space for the collection to grow
- Metal shelving is best for storage, compactus units could be considered to save space but increase the necessary floor loading
- Use fire resistant materials
- The floor should have a vapour barrier
- Concrete floors need to be appropriately sealed
- If the building is sufficiently well insulated it is best to avoid air conditioning:
 - The use of household airconditioning units can be damaging for collections as they do not control relative humidity, and there are sharp fluctuations in humidity if they are turned off at night or fail.
 - HVAC air conditioners do control relative humidity, but are expensive to buy and run, and must be in continuous operation to effectively protect collections
- A back to base fire detection unit is recommended if funds allow.

Buses

Most of the restored buses are kept within the various sheds. However, the collection is continually growing and there is not enough room to store all the buses indoors. Many of the unrestored vehicles, or those wanted for parts only, are kept outside. Some restored buses are currently in storage at Midland, but the Society have been told that this facility will not be available in the near future, placing even more pressure on the BPSWA facility.

Current indoor storage is crowded but provides adequate protection for the buses. The provision of a running shed and washing facility for operational buses is recommended, however, to facilitate the preservation of the collection.

Outdoor storage

A number of buses are stored outside, putting them at risk of increased corrosion and deterioration of components. Most buses are kept directly on the ground, and few are covered, contributing to corrosion of metal components. Light damage to paintwork and organic fittings of buses stored outdoors is also an issue.

Restoration of buses involves many hundreds of hours of volunteer labour, and requires additional undercover space. It is likely that many buses will never be able to be stored adequately or restored. Therefore, it is important to carefully consider whether additional buses should be accepted into the collection. Some deaccessioning of parts of the collection may be required to address storage issues, this should be done with full regard to their significance.

As it is difficult to house all the exterior buses under full cover, steps should be taken to provide some protection for this collection:

- The cheapest method to improve the storage of the outdoor collection would be to store the items on a bed of coarse gravel to improve drainage. This would also help reduce dust from the current crushed limestone.
- If funding allows, a concrete pad would provide better protection. It should be sloped to allow drainage and incorporate a polyethylene membrane. The concrete should be sealed with a concrete sealer to provide water proofing.
- Place vehicles on axle stands where possible
- Where possible, the buses should also be covered with waterproof covers. Efforts should be concentrated on the most significant buses, especially those likely to be restored in the future.
- In the long term, a roof or shed could be installed over the concrete pad, but it is unlikely that there will ever be enough funding to house all the buses this way.

Preservation of engines and working parts

Further training in vehicle conservation and maintenance techniques is recommended, however the following basic guidelines are suggested:

Functional buses

- Use inhibited lubricants
- Allow engines to warm up before use and run for a minimum of 30 minutes.
- Where possible only run during times of low humidity

Non functional buses

- Drain old oils, fuels, engine coolant
- Let down pneumatic tyres or place on stands
- Drain and neutralise batteries



Figures 11 & 12: Outdoor storage of buses

Display / exhibitions

The BPSWA does not currently have a dedicated display facility, but the buildings do host visitors on occasion. A small display area has been set up on one side of Shed A, this includes photographic display boards, honour boards and model buses. The photographic display boards are of particular concern as they use original collection material. The boards themselves are of acidic particle board. The displays are exposed to extremely high light levels and uncontrolled fluctuating environmental conditions. This has already led to fading of the photographs and documents, and peeling of the photographic emulsion. It is recommended that all original paper based material be removed and replaced with copies. It is recommended that the model buses and honour boards be covered with an opaque fabric. In the long-term, these items should be housed in more appropriate conditions.

Several buses in the collection are in running order, and used for visitor transport at Whiteman Park, as well as public events at other locations. The BPSWA take part in several public events during the year. Occasional temporary displays are produced for these events. The Society are working towards a more permanent mobile interactive display.

The BPSWA display one bus at Revolutions Museum, Whiteman Park on a rotational basis. Occasionally other items are also lent to Revolutions Museum. While buses may suffer some wear and tear during display at this facility, environmental conditions are generally adequate.

In the long term, there are plans to work towards a dedicated display venue at Whiteman Park, either for the sole use of the BPSWA, or in conjunction with the other transport groups.

Housekeeping

The open shelving and the shipping container are very dusty due to the unsealed nature of the buildings. It is difficult to clean the shipping container due to the raised central walkway and the crowded conditions. The storage areas are occasionally swept. There does not appear to be a vacuum available for cleaning purposes. It is recommended that the storage areas be cleaned approximately every two months, and that a vacuum cleaner with a HEPA filter be obtained for this purpose. Sweeping is not recommended as the main cleaning method as it can distribute dust and insects more widely.

The bus collection stored indoors is kept in a fairly clean condition, with particular attention paid to the running buses. However, the unsealed crushed limestone around the shed facility has made keeping the running buses clean quite difficult and dust is a general issue.

No live insects or pests were observed during the inspection, but this is likely to be a reoccurring problem due to the unsealed nature of the buildings. The volunteers carry out occasional pest inspections.

Pest infestations have been dealt with in the past using commercial insect sprays and mouse baits. Insecticide products may damage collection items, and are harmful to health - they are only recommended as a last resort. Camphor blocks have been placed inside some of the storage containers - these are also not recommended.

Localised insect infestations can also be treated by freezing collection items. It is recommended that a chest freezer be obtained to assist in pest eradication and quarantining and for use in case of a flooding disaster. It is recommended that sticky traps (without attractant baits) be installed and monitored on a monthly basis.

Once the new storage building is built, a quarantine system should be put in place for new items going into the collection. All new items should be cleaned and inspected, and preferably kept sealed for some weeks in a plastic bag in order to observe if insects are present. Many items can also be safely frozen in a chest freezer to eradicate insects. Collections must be securely covered with plastic prior to freezing to help prevent damage.

Disaster preparedness

The Society does not currently have a disaster preparedness plan and has not undertaken formal risk assessment or disaster training. However, one of the volunteers has a background in occupational health and safety, and has made a number of improvements to the safety of the volunteers and the collection in recent years. A list of emergency contacts is available onsite, at the Park Office, and at various volunteers' homes.

It is recommended that a disaster plan be written and kept in an easily located position and distributed to other council employees. Separating collection and non-collection items, and clearly labelling significant collection objects would assist in removal of priority items in the event of a disaster.

The two most significant threats to the collection are fire and flood. As both of these disasters can result in water damage to the collection, it is recommended that appropriate disaster supplies be obtained. Disaster bin should be stocked with appropriate materials to deal with flooding, including: buckets, plastic sheet, torches, mops and towels. Fans are also important to help dry out any wet items and should be stored in separate secure area.

Fire

Whiteman Park Management are responsible for fire safety within the park area, and have an overall fire and emergency plan. enforce restrictions on outside work during times of high fire danger. The Whiteman Park Fire Officer conducts regular safety briefings with the volunteers, so they are informed of what to do in an emergency. The BPSWA have a two way radio connected to the Park Office which enables them to stay informed of potential threats. Members are also able to alert the office if they see any fires.

The BPSWA have reduced fire danger by storing volatile materials in a locked separate building.

Flood

Water ingress into the sheds has been a problem in the past due to drainage issues. The soakwells have been improved by the park management, and concrete aprons have been added at the front of the sheds. It is hoped that this will reduce the possibility of flooding in the future.

Training needs / skills assessment

BPSWA may struggle to implement this survey due to lack of volunteers interested in working with the collection, lack of funding and lack of basic conservation training.

Volunteer recruitment and retention should be considered a priority for the Society:

- The aging volunteer workforce is of particular concern. The skills necessary to work on the older buses are only known to past generations of mechanics. Without younger members joining the Society, there is danger that these skills will be lost.
- There are few volunteers with the skills and interest to work with the objects and archive collection.
- Board members are inundated with work, leaving little time for essential tasks such as fundraising.

Training that has been undertaken by a couple of members in the past includes Mosaic database training and basic archival training, recording and photography.

It is recommended that the group seek to increase their collective knowledge of conservation and objects handling. Training in the following skills is recommended:

- Preventive conservation, collection storage and object handling: textiles, objects, paper
- Disaster preparedness
- Basic conservation techniques for paper, books and photographs: staple removal, removing photographs from magnetic albums, cleaning and mould treatment techniques.
- Collection documentation techniques: accessioning, condition reporting, treatment reporting

- Conservation of vehicle collections (both functional and stationary)

Prioritised recommendations

Recommendation	Priority	Resources
Short term		
Remove original documents and photographs from display boards, scan and rehouse.	1	<ul style="list-style-type: none"> • Volunteer to undertake work
Establish digital scanning standards.	2	<ul style="list-style-type: none"> • Volunteer to undertake work
Obtain / fabricate a book cradle to assist in safely scanning workshop manuals.	3	<ul style="list-style-type: none"> • Funds / volunteer to undertake work
Set up a hard drive for storage of digital files at Revolutions Transport Museum.	4	<ul style="list-style-type: none"> • Funds for hard drive
Obtain a full copy of the Mosaic database and continue cataloguing the collection.	5	<ul style="list-style-type: none"> • Funds for Mosaic
Begin scanning Howard Cowell collection albums (full pages plus individual photographs).	6	<ul style="list-style-type: none"> • Volunteer to undertake work
Move the office area out of the shipping container. Keep the shipping container closed as much as possible.	7	<ul style="list-style-type: none"> • Volunteers to undertake work • Suitable area for office
Provide basic conservation training for volunteers including collection storage, handling and display methods.	8	<ul style="list-style-type: none"> • Funds for training
Undertake a membership drive. This should include registering with online volunteer recruitment services such as the City of Swan Volunteer Resource Centre and Go Volunteer.	9	<ul style="list-style-type: none"> • Volunteer to undertake work
Transfer more significant items to storage cabinets at Revolutions, and ensure efficient use of this space.	10	<ul style="list-style-type: none"> • Volunteer to undertake work
Consider deaccessioning multiple items from objects collection in order to make efficient use of limited space and funding.	11	<ul style="list-style-type: none"> • Volunteer to undertake work
Seek funding for new collection storage and object handling facility for small objects and archives.	12	<ul style="list-style-type: none"> • Volunteer to write grant application

Safely remove camphor / moth balls from storage containers (wear appropriate protective gloves / mask).	13	<ul style="list-style-type: none"> • Volunteer to undertake work • PPE
Obtain and install sticky traps to monitor insect populations in storage areas.	14	<ul style="list-style-type: none"> • Sticky traps
Obtain a HEPA vacuum for cleaning storage areas and begin cleaning program.	15	<ul style="list-style-type: none"> • Vacuum cleaner
Medium term		
Undertake training in vehicle conservation and maintenance.	1	<ul style="list-style-type: none"> • Funds for training
Obtain a laser printer to enable cost effective printing of workshop manuals	2	<ul style="list-style-type: none"> • Laser printer
Establish internet connection at the BPSWA facility to facilitate collection digitisation and communication	3	<ul style="list-style-type: none"> • Funds for internet service
Design new collection store / object handling area	4	<ul style="list-style-type: none"> • Volunteer to undertake work • Funds to commission consultant
Establish recording standards for vehicle restoration and obtain digital cameras (with tracking devices) to facilitate this	5	<ul style="list-style-type: none"> • Volunteer to undertake work • Digital cameras (and tracking devices)
Obtain archival supplies and begin improving the storage of small objects and archives	6	<ul style="list-style-type: none"> • Funds for archival supplies
Provide training in basic conservation techniques for paper, books and photographs: staple removal, deframing, removing photographs from magnetic albums, cleaning and mould treatment techniques.	7	<ul style="list-style-type: none"> • Funds for training
Remove Howard Cowell photographs from albums and rehouse in archival materials.	8	<ul style="list-style-type: none"> • Volunteer to undertake work • Archival albums / envelopes
Provide training in collection documentation techniques: accessioning	9	<ul style="list-style-type: none"> • Funds for training
Establish maintenance schedule for vehicles	10	<ul style="list-style-type: none"> • Volunteer to undertake work
Improve storage of outdoor collections eg. provision of gravel / concrete pads	11	<ul style="list-style-type: none"> • Funds for contractor / materials • Volunteer to undertake work

• Long term		
Construct new collection store and object handling area	1	<ul style="list-style-type: none"> • Funds for construction • Agreement from Park Management • Storage furniture
Provide disaster planning training for volunteers and obtain supplies.	2	<ul style="list-style-type: none"> • Funds for training and supplies
Obtain a chest freezer to assist in dealing with pest infestations / disasters	3	<ul style="list-style-type: none"> • Freezer • Suitable space
Seek funding for conservation treatment of significant items in the collection - eg. Metropolitan Omnibus Company Minute Books, panoramic photographs, bus design sketches.	4	<ul style="list-style-type: none"> • Volunteer to write grant application
Deframe paper based items housed in acidic frames.	5	<ul style="list-style-type: none"> • Volunteer to undertake work • Archival storage materials
Seek funding for new display facility	6	<ul style="list-style-type: none"> • Volunteer to write grant application
Seek funding to upgrade storage of buses stored outdoors	7	<ul style="list-style-type: none"> • Volunteer to write grant application
Seek funding for a running shed and washing facility for operational buses	8	<ul style="list-style-type: none"> • Volunteer to write grant application

Authorship

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