



MARSHALL DAY
Entertech 

WHITEHORSE CENTRE
VENUE INFRASTRUCTURE
AND DESIGN OPTIONS REPORT

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Project: **WHITEHORSE CENTRE VENUE REVIEW**

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Report No.: **Rp 001 2015504 R02**

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1.0 EXECUTIVE SUMMARY

The Whitehorse Centre is a multipurpose performing arts and community venue located in Nunawading approximately 20km east of Melbourne, Victoria.

Marshall Day Entertech (MDE) has been commissioned by the Whitehorse City Council to provide venue infrastructure and design options advice for the Whitehorse Centre.

Opened in 1986, and seating 400+ in a single tiered auditorium the venue contains foyer space, function rooms, Soundshell, fully equipped main stage proscenium arch theatre, backstage facilities and other supporting elements.

Although nearly 30 years old, the Whitehorse Centre is well run and generally in reasonable condition for its age. However facilities maintenance and infrastructure upgrades are required for the venue to continue to operate effectively and to comply with code and legislative requirements. Changes to industry standards for performance equipment and systems since the initial opening have not served the building well with a number of elements including signage, cabling infrastructure, structural rigging load allowances and some venue acoustics elements all requiring attention and provision should be made for upgrades in the near future. The over stage flying system, although operational, requires a thorough inspection and full maintenance, mains power supply and distribution in the venue is barely adequate and audio visual and communications cabling in many areas is outdated or temporarily installed and provision should be made for upgrades in the near future. A technical cabling upgrade would allow the venue to transition to digital systems, and substantially improve flexibility and performance of the theatre systems, including paging, lighting control, stage management and performance relay.

Upgrades to theatre systems equipment will improve overall venue flexibility whilst reducing time spent on set ups and change overs and on staff training as is currently required across various systems.

A refurbishment of the existing Whitehorse Centre has the potential to address the majority of the deficiencies in the Centre's existing infrastructure. However, due to structural requirements, operational impact or functional relations with other spaces, substantial elements of a refurbishment of the Centre would be very challenging to address in any partial or staged refurbishment. These include:

- Any increases to the theatre audience capacity or changes to sightlines
- Changes to the proscenium height and width
- Improvements to the stage and stage wing size
- Increases in the flytower structural loading
- Increases to the flytower height and counterweight fly system drift
- Improvements to the orchestra pit size and access and lid system
- Replacement of the ageing technical cabling infrastructure
- Code compliance with Universal Access requirements
- Code compliance in the lighting bridge headroom

- Provision of access to the flytower
- Improvement in internal and external sound insulation
- Control of building services noise and vibration in the theatre
- Control of rain noise in the theatre.

It is estimated the technical upgrades to the centre would cost as at 2015 approximately \$696,000. The building works associated with the upgrades would be an additional cost to be identified in the design phase.

We thank the Whitehorse Centre Theatre management and staff for the opportunity to develop this report and we look forward to further opportunities to work with you.

Figure 1: The Whitehorse Centre



2.0 INTRODUCTION

The Whitehorse Centre is the municipal performing arts centre in the City of Whitehorse. Opened in 1986 the Centre includes a 400+ seat proscenium arch theatre, full stage facilities, function room, sound shell, foyer, rehearsal room and ancillary spaces.

Marshall Day Entertech has been engaged to review the existing conditions of the Whitehorse Centre theatrical systems, equipment and acoustics and to provide venue infrastructure and design options advice for the theatre.

This report covers the theatre operations and technical systems design requirements of the venue and immediate precinct and is intended to assist Council in facility master planning and funding applications preparation.

This report is not intended to be a highly detailed document that details the exact specifications for the theatre design (stage layouts, lighting, rigging, lifts, circulation, etc) but rather to provide high level advice and recommendations for structural, operational and building design requirements for further evaluation.

Information in this report is subject to change as the design progresses and any project is subject to variations in scope and budget through the design, construction and commissioning phases.

In the sections below we have noted the various spaces inspected and have identified existing uses and issues requiring attention within these spaces.

The final section of our report provides preliminary cost estimates for the works outlined in our report for Council consideration.

Technical and Theatrical terms used throughout this report are described in Appendix A.

2.1 Project and Site Description

The Whitehorse Centre is located in parkland at the rear of the Council's Civic Centre at 397 Whitehorse Road, Nunawading and is accessed by the public from the east side of the foyer with the loading dock to the stage also from the northern access road from the carpark area.

The Centre is comprised of a number of spaces, the major components of these are summarised in Table 1

Table 1: Whitehorse Centre primary spaces - major components

Zone	Element
Forecourt and carpark precinct	<ul style="list-style-type: none"> • Carparks • Main entry forecourt
Front of House areas	<ul style="list-style-type: none"> • Box Office • Administration areas • Bar • Waratah function rooms • Studio rehearsal space • Commercial Kitchen
Theatre	
Auditorium	<ul style="list-style-type: none"> • Stalls seating area • Proscenium • Orchestra Pit
Stage	<ul style="list-style-type: none"> • Stage • Wing areas • Fly tower
Technical areas	<ul style="list-style-type: none"> • Prompt Corner • OP side flies • OP side Galleries • Dimmer area • Fly tower • Galleries • Over stage grid • Lighting bridges
Backstage facilities	
	<ul style="list-style-type: none"> • Dressing rooms • Theatre access for cast and crew • Theatre access for production requirements • Soundshell • Loading Dock • Workshop

2.2 Review Basis

This report has been based on the following:

- Site meetings and discussions held 16/10/2015
- Site inspection conducted on 16/10/2015
- Whitehorse Centre Technical Specifications 2014 update

3.0 VENUE ASSESSMENT AND REPORT

3.1 Entry

The main public access to the venue is from the car park through an opaque glass airlock located on the eastern end of the foyer.

Venue identification signage is strong, however directional signage to the centre entrances is minimal and the facility could benefit from a signage review and upgrade.

3.2 Foyers

3.2.1 Main foyer, Bar and Kiosk

The main entry foyer on ground level is a moderately sized open area. On its perimeter are the venues main bar, the Box Office, venue management offices and access to the Waratah Function rooms and the Studio /Rehearsal Room. Basic technical infrastructure has been added to the foyer to provide program advertising etc.

The foyer is small for the venues overall capacity and technically under equipped.

The foyer paging system is inadequate and announcements to a crowded foyer are often unheard.

Figure 2: Whitehorse Centre foyer



3.2.2 Box Office

The centre's box office is well located adjacent to the main foyer area however its role is not assisted by the difficulty in finding the entrance to the venue and lack of high profile signage of "What's On".

This space is small and when, as is commonly, operationally required the space is barely functional with two staff serving multiple customers sharing one EFTPOS machine and printer. Separate serving windows in such a small area mean noise levels can be high and patrons find it difficult to hear staff and visa versa.

The box office area requires significant upgrade to meet operational requirements and we believe that external signage and a stronger approach to a coordinated signage system would benefit the overall operations of the venue.

3.2.3 Foyer Technical Infrastructure

The foyer has the potential to support displays, small scale performance or presentations and limited technical infrastructure, systems and equipment should be provided in this area.

In order to support the current and proposed future events use of the foyer area power, data and performance control systems such as DMX for stage lighting, suitable cable for digital audio systems use and potentially fibre optic cable for future use should be installed. Wi-Fi functionality should be stabilised, extended and increased in capacity to support the patrons and variable foyer activation through more of the day.

To further support these operations and to assist in activating the foyer areas we recommend the following:

- Upgrade to the foyer lighting and lighting support systems to increase functionality and ability to support exhibitions, presentations and performances
- Provide a quantity of loose rigging including lighting bar mounts for the foyer allowing installation event specific lighting / sound equipment easily and safely
- Provide a rack mounted cabling hub in the bar area with links to the foyer area, the theatre Bio Box or rear stalls control area and the foyer entry areas.
- Improvements to FoH signage system including a centrally controlled digital display system
- Provide power, audio/video and data tielines to the foyer areas to support exhibitions, presentations and performances

As part of the above noted cabling infrastructure works we recommend the provision of power and data cabling to support an integrated digital signage system to all present poster frames and other possible locations such as external signage opportunities, auditorium, studio and function room entry doors. In house promotions will increase sales, sponsor branding for events will increase hire fees income and client and 3rd party advertising content will offset some of the cost of this and eventually provide revenue.

3.3 Staff Accommodation

Due to over crowding the administration area no longer caters appropriately for the quantity of staff that are employed to run the centre.

Staff that are located at the Whitehorse Centre also manage the Courtyard Room in the adjacent civic centre and library building and an upgrade of the buildings cabling infrastructure should include business and theatre systems to this room.

This should be considered as part of any building works undertaken in the theatre.

4.0 FUNCTION AND MEETING ROOMS

4.1 Waratah Room

The Waratah is the Whitehorse Centre's function room. This space hosts conferences, meetings, seminars and other civic events. This room is adjacent to a commercial kitchen that requires substantial upgrade.

The track based lighting system is not designed for event lighting. Although projectors, sound equipment and a lectern are available in this room the space lacks adaptable rigging and audio-visual infrastructure such as lighting bars, luminaires, floorboxes, comprehensive sound system, and connectivity to the theatre. Such infrastructure is generally required for event theming, and adaptable usage configurations such as presentations, lectures, large meetings.

4.2 Studio

The Studio Room is a small rehearsal space generally used for dance and occasionally for community meetings etc.

As befitting a dance studio the Banksia Room has a mirrored wall and ballet barres and a vinyl floor suitable for dance.

There is no technical infrastructure or equipment to support event or presentation uses of this space.

Both the Waratah and Studio room spaces are viable and are in very regular use however upgrades to technical systems and equipment are required to maintain the venues viability.

5.0 SOUND SHELL

The sound shell operates predominately as a rehearsal room and as an assembly space for large casts or ensembles. The sound shell has a wooden presentation floor, with a tarkett dance surface installed for ballet rehearsals and is serviced by split system air conditioning. Although over 14m wide the space is approximately only 4m high which limits the technical capabilities for events using the Soundshell stage.

The sound shell also caters for large outdoor concerts servicing the entire municipality, such as the annual Australia Day concert and fireworks and the Whitehorse Christmas Carols event. The Australia Day Concert draws an audience of approximately 15,000.

Figure 3: Whitehorse Centre event



Figure 4: Whitehorse Centre sound shell



The sound shell is of an appropriate size for the type of events, and generally functions effectively however there is inadequate rigging or lighting positions within the space to fully support event requirements and temporary event infrastructure including power and cabling within the centre and associated grounds are not sufficient for increasing production sizes and values for these events.

6.0 THEATRE

6.1 Theatre auditorium

The seating capacity of the theatre is small for this type of community venue, with similar venues catering for a minimum of 500 persons.

Horizontal sight lines are in line with the minimum benchmark of 85% of seats with excellent sightlines. Maximum viewing distance (distance to the rear row of seats) at less than 20m from the stage is acceptable, however the auditorium rake is generally considered to be too shallow and is not consistent with modern facilities.

Wheelchair seating numbers appear to be within the requirements Building Code for class 9b buildings, we consider that this quantity is low for the potential audience demographic for this venue and believe that as the wheelchair spaces are all in the front area of the auditorium that the theatre fails to comply with the current codes.

The auditorium seats are showing their age with worn fabric and there is evidence that the seat framing system is beginning to fail. If the venue is to continue operating a reset of the auditorium should be undertaken.

Figure 5: TheWhitehorse Centre auditorium



6.2 Orchestra pit

The orchestra pit is approximately 26m², including an irregular shaped annexe, and has a ceiling height of 2.1m. The pit floor is carpeted and access is via a stair and hatch into the auditorium. The pit lacks direct access from backstage.

In order to extend the stage into the auditorium, as required for some performances, the orchestra pit has a series of lids, which are required to be removed when the pit is in operation. Venue operational staff have identified manual handling issues with removal of the orchestra pit lids.

Community based musical theatre and opera performances often require a larger number of performers than the theatre orchestra pit can accommodate and on occasion this has resulted in the orchestra being located in the workshop.

Due to the permanent concrete pit railing which creates the shaft for the lift there is no facility to stop the lift at auditorium level. This results in some operational design issues for incoming productions with those requiring use of the house curtain being forced to remain up stage or to compromise their set design to achieve the desired (often required) proximity to the audience.

6.3 Stage area

The proscenium opening (10m wide x 4.7m high) is consistent with community venues of this age and type, however these limited dimensions restrict the scale of works that can be performed on the stage.

The acting area (7.7m from setting line to rear wall) is small compared to similar community or regional venues of this type, and restricts the number of performers that can occupy the stage and the size of production elements that can be used.

The stage consists of a hardwood floor covered with a sacrificial layer of Masonite. This satisfies operational requirements and we understand that this floor has been structurally inspected to ensure safe use of elevated work platforms.

As the production on stage had laid a show floor we were unable to inspect the condition of the stage floor.

6.4 Stage wings

The stage wing space is limited on both sides and access to the stage from the workshop is constrained. According to staff it is common for scenic elements to be made to reduced size or cut down on site by local theatre companies in order to navigate this difficult travel path.

Wing height on OP side is restricted by the fly gallery, 4.2m above stage level.

6.5 Grid

The grid allows access to the loft beams for inspection and maintenance of the counterweight flying system, and for installation of temporary rigging.

The existing grid is a lightweight mesh panel system which provides good access over the acting area stage (not over the entire stage) which provides good access but a low working load for the installation of temporary rigging equipment and is difficult to rig temporary elements through. All temporary rigging is dead hung in straight drops or by bridling from the main flying system diverter beams.

The grid coverage includes the acting area and PS side of stage. The distance from the stage to the underside of the grid is 11.75 metres which is low for venues of this type and nature.

The working load of the grids is unknown and structural advice regarding this should be sought.

Figure 6: Theatre grid area comparisons (Whitehorse Centre and benchmark venue)



No safety signage is provided at the grid access points advising users to empty their pockets or tether equipment. None of the potential rigging points or locations are placarded with suitable signage advising allowable distributed or point loads in the grid, on the diverter beams or on the head beams.

We recommend;

- That safety signage be provided at the grid entry points
- Pigeon holes be provided at all grid entry points for loose items to be stored prior to entry to grid areas
- Structural assessment of the main rigging beams to establish allowance for additional rigging loads
- Installation of suitable signage advising maximum uniform distributed and point loads for rigging locations.

6.6 Flying system

The theatre stage is equipped with 27 single purchase counterweight fly lines. The standard working load limit of most of the fly lines is 240kg, which is below the industry standard of 350kg. The current flying system is in fair condition and is often used to capacity with existing performances.

The ratio of the proscenium height to grid height is 2.5:1, which allowing for the safety margins of the flying system is less than fully operationally acceptable in venues of this type and some large scenery elements may not be able to be flown totally out of audience view thus affecting productions and hirers.

Space is available within the existing counterweight frame to provide additional fly lines up to a maximum of approximately 35 (subject to structural advice.)

Subject to further review, it is unlikely that the building structure would support an upgrade of both quantity and working load to the flying system.

Figure 7: Flying system rigging



With the current flying system load capacity for the main lighting bars occasionally meeting its operational limits, replacement of the 5 main lighting bar line sets with electric winches of similar capacity removes the OH&S risk of overloaded bars, improves staff and venue user safety and improves stage operations and production turnaround times could be considered.

Staff report that the system has been regularly inspected however we note excessive wear in some elements of the system that is unacceptable both from noise and OH&S aspects.

In order to support venue operations and to maximise use of the stage area we recommend that flown panorama bars (running up and down stage) be installed under the height of the existing fly floors.

We further recommend that a comprehensive inspection and resultant maintenance program for the flying system be implemented immediately.

6.7 Fly floors and loading gallery

The theatre is well provided with access catwalks, fly floors, and the required loading gallery for the flying system.

All of these are in reasonable condition and well lit however significant safety risk issues are apparent in these areas.

We have indentified the following;

- Code compliant self closing gates at ladder access points are required to meet AS 1657 requirements
- Unless required for access to the flying system, i.e. for loading/ unloading cradles handrails should be infilled to midrail height with steel mesh to prevent counterweights falling from height
- As the fly floors and loading gallery are used to store counterweights working load signage should be provided advising users of maximum distributed loads in areas.

Figure 8: Loading gallery handrail mesh safety measures from other venues



6.8 Stage Drapes

All stage masking drapes hung at the time of our inspection were in fair condition, correctly labelled as per the relevant codes and being wool are inherently fire retardant and do not require re fire proofing.

The house curtain and all other stage drapes should be inspected by the theatre crew to check reproofing and re labelling requirements. Those drapes found to be requiring re treatment should be re treated to prior to further use on stage.

7.0 STAGE LIGHTING

7.1 Stage Lighting Bars

The stage lighting bars are made up as standard flying bars with additional internally wired metal conduit attached above to provide lighting outlet patch points etc.

These bars are not provided with internally reticulated power or segregation of power from any data such as DMX or audio or projection data.

Cable reticulation to the lighting bars is by a series of loose cables from the dimmers on the fly floors to the bars. This is an industry accepted approach to this issue however care must be taken in operation to avoid these cables tangling or fouling on other flown bars.

As noted above to improve the OH&S of load management of these bars and improve operational turnaround times we recommend replacing the lighting bar counterweight frames with powered hoists.

We further recommend;

- Replacement of the existing component lighting bars with internally wired lighting bars providing a minimum of sixteen stage lighting outlets per bar, DMX, technical data and AV outlets
- In order to increase venue functionality and improve cabling standards industry standard internally wired lighting bars provided with DMX and technical data outlets etc should be provided.

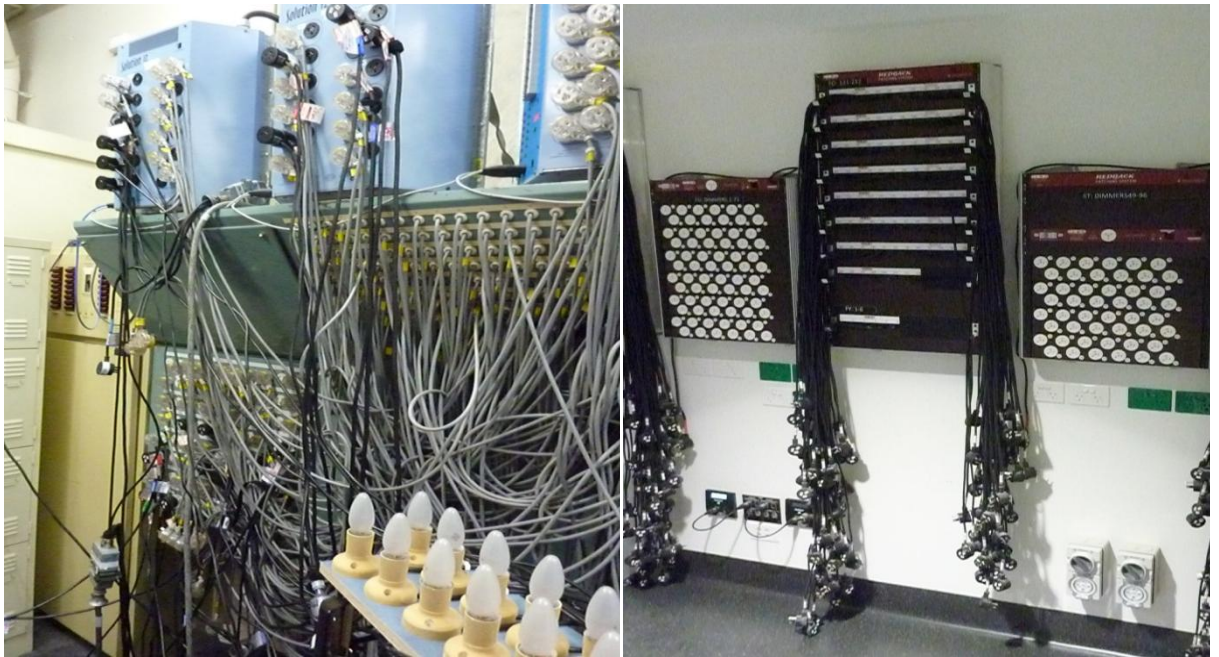
7.2 Stage lighting dimmers

The venue is equipped with 24 x 5kW analogue and 84 x 2.5kW digital dimmers.

The analogue dimmers are becoming increasingly unreliable and difficult to maintain, and do not have modern circuit breakers or earth leakage protection (from RCD's) as generally required in Council owned spaces.

The layout of the dimmer area is poor, with some newer dimmers badly positioned. The dimmer area is confusing mix of new and legacy systems that no longer effectively supports the lighting control requirements for the theatre.

Figure 9: Dimmer area comparisons (Whitehorse Centre and benchmark venue)



Additional lighting bars have been installed in the theatre without permanent cable reticulated to the dimming area.

Examples of recent dimmer installations are shown below.

Figure 10: Dimmer rooms



All lighting bars should be replaced with industry standard internally wired bars providing stage lighting, audio and technical data outlets.

7.3 Stage lighting control

The Theatre stage lighting control is provided by an ETC ION Lighting Desk with 2000 channel output which is in good condition and fully operable.

Two universes of lighting control cabling are provided in the theatre and this is reasonable for venues of this size and type.

As part of a greater infrastructure upgrade provision of an Ethernet based DMX system such as Pathport could be considered.

7.4 Auditorium lighting bridges and access

Both the front of house lighting bridges are well located and suitably provided with stage lighting outlets and other technical cabling.

There is no access from the control room to the stage, without entering the auditorium.

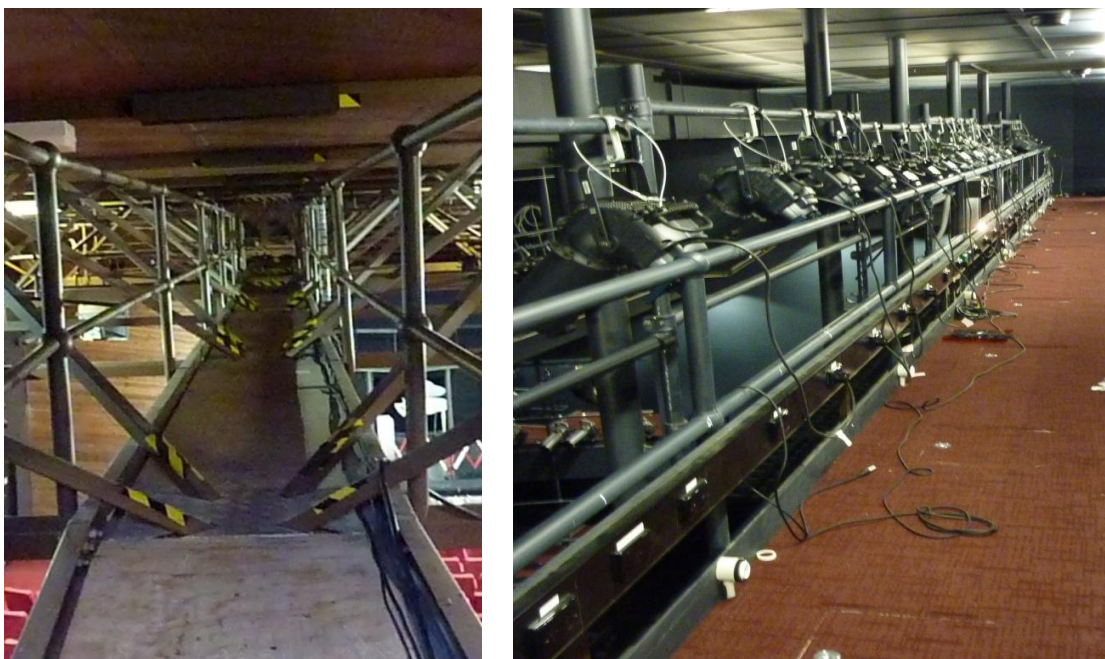
Access to lighting bridges is limited to a stairway from the control room, and there is no access to the bridges from the stage.

The bridges are narrow and access through the above auditorium area is not fully compliant with some areas missing mid rails, toeboards and safety gates. These elements should be installed.

The catwalk from the control room to the lighting bridges and the lighting bridges themselves are well below general access standards and fail to meet current code requirements.

The cabling installation although functional is worn and will require replacement and we advise that a cabling upgrade as part of a major works package would be beneficial.

Figure 11: Lighting bridge comparisons (Whitehorse Centre and benchmark venue)



MDE note that the working height of the lighting bridges cannot be rectified without significant structural works and that any cabling works should be part of a wider overall venue cabling upgrade.

7.5 Lighting equipment

The standard stock of lighting equipment in the Theatre is aging but is generally in good condition however we recommend an increase in the general stock of LED and conventional light fittings to support the ongoing operations of the venue and to support environmentally sustainable development initiatives.

Any funding application based upon venue utilisation should include a 1/5/10 year plan for equipment upgrades with benchmarking against other venues in the Australian Performing Arts Centres Association (APACA) networks.

7.6 Auditorium side lighting

The auditorium side lighting locations (perches) are well located and suitably provided with stage lighting outlets and other technical cabling.

Access to these areas is provided by an extension ladder specially adapted for this use. Safety rails or safety harness points (and relevant harnesses) should be provided to protect staff from fall from height when using this ladder in these areas.

Figure 12: Side lighting locations



8.0 SOUND SYSTEM

The existing passive loudspeaker system is in a left, centre, right configuration, supported by front fill, delay speakers and a stage foldback system.

The loudspeakers are from four different manufacturers, supported by amplifiers from four different manufacturers.

There appears to be no overall venue sound system design, with components added over time as operational budgets have allowed. Whilst operational this lack of compatibility reduces the overall effectiveness of the sound system.

The venue requires a complete sound system upgrade.

During our visit it was not possible to assess the sound system loose cabling kit and replacement of this stock should be allowed for in any redesign.

9.0 CONTROL ROOM

The existing control booth is well located and regularly used.

Figure 13: Control room



Cabling provisions in the control room are poor and should be upgraded as part of a venue wide project.

10.0 TECHNICAL INFRASTRUCTURE

Recent upgrades have included a limited quantity of Cat 5/6 data cabling, however the venue does not contain the type of technical infrastructure to enable ongoing digital connectivity, including fibre optic backbone cabling, HD-SDI digital video infrastructure, Ethernet based DMX nodes (lighting control), or a modern stage management console.

Various work around solutions have been installed over the years and these long term temporary solutions are not suitable for permanent installation or ongoing operation.

11.0 VENUE WIDE TECHNICAL SYSTEMS AND EQUIPMENT

Along with the technical equipment dedicated to specific theatres there is a general pool of equipment which is moved around the venues as required, this includes various elements of AV / projection equipment, stage lighting or loose audio equipment.

In addition to the individual areas or elements identified above MDE have identified the following venue wide technical systems or equipment that should be upgraded.

11.1 Cabling infrastructure

All performance facilities require a high level of interconnectivity for video and paging communications between spaces.

Operational requirements have changed over the years since the Whitehorse Centre was built and performance systems infrastructure cable upgrades or additions are required. This upgrade should include an increase in power provisions for control areas, improved technical communications (talkback) and general communications patching (tielines) and the provision of fibre optic cable to hubs serving selected areas including the theatre, potential broadcast points and all public facilities.

11.1.1 Video systems

Show relay services should be provided to dressing rooms, green room, backstage, admin offices, foyers (for late comers) complete with venue selection options and local volume controllers where applicable.

This should be integrated with a venue wide digital signage system allowing venue management to utilise any active display screens (such as TVs) in the venue for signage, promotional or directional purposes.

11.1.2 Overall show relay and paging system upgrade

Stage management paging to dressing rooms, green room, backstage etc is very important for the successful operation of performances. This functionality, complete with zone selection and local volume controllers where applicable, should be provided to all backstage spaces.

11.1.3 Performance communications systems

In addition to the show relay and paging upgrade we recommend that an upgrade to the performance communications systems be provided. This should include allowances for the provision of wireless headset communications and a complete system upgrade.

11.1.4 AV Equipment

Changes in AV equipment and systems have been significant in recent years.

The loose AV equipment at the Whitehorse Centre is no longer meeting operational requirements or users expectations and these should be replaced with newer models.

11.2 Stage Managers console

The stage managers console is the hub or “ships bridge” of a performance space. Normally housing talkback stage communications systems, dressing room paging infrastructure, monitors for stage cameras including those in use for safety reasons and other critical control and communication systems. The current console is limited to talkback (hardline) and dressing room paging only.

11.2.1 Technical communications system (Talkback)

The SM talkback system in the theatre is a 2 channel cabled system and future plans should include provision of a number of wireless stations integrated with this network. Utilising a modernised cabling infrastructure there are a good range of digital wired systems which could be installed in all venues (and used in the foyer for performances).

11.2.2 Vision System

The vision systems required for visual show relay and stage management stage view requires a unified plan and can be integrated into digital signage and other vision systems.

12.0 BACKSTAGE AND SUPPORT AREAS

Comprised of a stage door, loading dock, scenery store, technical workshop, dressing rooms, green room, laundry and circulation areas the backstage areas of the venue are generally well maintained. Equipment storage is at a premium with various elements being located in exit corridors or general circulation areas.

We advise that in order to better support current and proposed future venue operations that additional dressing rooms and storage spaces be provided.

12.1 Stage Door

The traditional stage door is the secure gateway to the backstage part of the theatre and is normally a fully equipped small office staffed on a performance needs basis.

The stage door at the Whitehorse Centre is a single entry with access controlled by the duty technician on an as needs basis. Unfortunately venue users can leave this door unlocked or open and without security camera provisions (or staffing) of this entry point there is no means of monitoring who is coming or going from the venue.

This system is operationally compromised with the one theatread small user groups. It would be impossible with multiple theatres or larger groups such as dance schools or with overlapping groups such as a commercial hirer and the resident ballet school. An upgrade would allow for a formal stage door office and entry.

12.2 Loading docks

The loading docks for the kitchen and theatre are designed for small delivery vehicles. Generally, bar and kitchen deliveries do not use the dedicated loading dock area and are required to load without the use of a loading dock.

The effective, efficient and safe operation of the loading dock for a performing arts facility is important to the running of the facility. The loading dock is the ‘front door’ for sets, staging and equipment for all performances.

Without a vehical turning circle there are vehical egress issues and large vehicles loading into the theatre are often required to drive over the grass and occasionally become bogged, leading to further operational and safety issues.

The theatre loading dock is not enclosed or provided with any cover for use in inclement weather; the dock also appears to have inadequate lighting for evening or late night production bump outs and has no provision to match the height of an incoming truck with the dock height.

Figure 14: Loading dock area and benchmark comparision



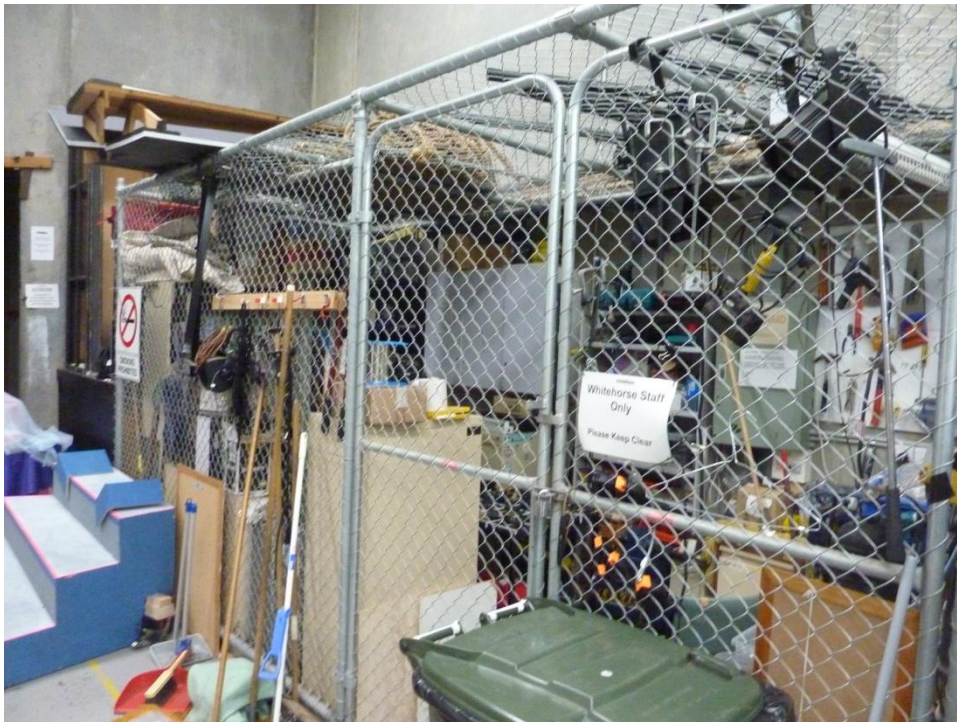
In order to better accommodate loading and unloading activities MDE recommend;

- Upgrades to the external lighting of the dock area
- Considering the potential installation of a dock leveller
- Providing an awning or other permanent cover for the dock area as part of any greater master plans for the venue and precinct.

12.3 Workshop

The theatre workshop area is located adjacent to the loading dock and the theatre prompt side wing. The space is double height and is used for storage of theatre equipment, such as luminaires, tools, staging, manual handling equipment, steel pipe and lighting booms. As there is no scene dock, the workshop is used for the storage of sets. It is also used as a cast assembly area and Utassy dance school student travel path between spaces which has on occasion created OH&S issues particularly during bump ins or event movements on the main stage.

Figure 15: Technical workshop



As previously noted additional storage areas are required in this facility and an upgrade of the buildings cabling infrastructure should include business and theatre systems to this room

12.4 Dressing room facilities

The theatre has one dedicated ensemble dressing room with a capacity of 30 persons and an additional upstairs dressing room (15 persons) is shared with the resident ballet school.

The facility lacks small dressing rooms for principal performers, and facilities of this size generally have 2 ensemble dressing rooms.

The upstairs dressing room has no provision of toilets or showers.

The dressing room facilities are aging and require replacement to meet current industry standards and hirers expectations.

Figure 16: Dressing room and benchmark comparison



12.5 Green room

The Green Room is the actors lounge room when they are in the building, providing a private space where they can eat, drink or rest between requirements on stage or performances.

The Green Room is normally provided with audio visual program relay and stage manager paging functionality from the Theatre enabling cast and crew to remain on call or in readiness for the production requirements.

The Whitehorse Centre has no Green room or similar area and in order to meet industry standards one should be provided.

12.6 Laundry

As is required in all theatre venues a small laundry area has been provided.

This space is located within the existing workshop area and is equipped with a washing machine and dryer, sink and ironing area no defined area for wardrobe maintenance is provided.

Figure 17: Laundry



Whilst this space is operational we recommend that upgrades to these and related facilities be considered as part of any building works undertaken in the theatre.

12.7 Storage

Storage is always at a premium in any venue and the Whitehorse Centre is no exception.

At the time of our inspection all spare corners and most areas not regularly accessed by incoming productions were being used for loose format storage. This is often damaging to equipment such as drapes or lights and in some instances unsafe.

Storage for all of the municipal activities conducted in the centre is inadequate, with storage of a large quantity of theatrical costumes, props and sets occurring in plant rooms, under the auditorium seating block and other unsprinkled potentially unsafe locations. The majority of these items belong to the Utassy Dance School.

Equipment storage could be maximised in the venue by purchase and installation of commercially available racking systems and a large area of additional storage space could be created by the installation of a mezzanine level technical store over the existing workshop cage.

13.0 UNIVERSAL ACCESS

Good design is good for everybody and it is currently expected that Universal Access will be provided to all public and general staff areas.

Flat floor or elevator access from the theatre entries to both levels of the auditorium and though the foyer facilities to the stages and dressing rooms, workshops and administration should be provided.

13.1 Hearing augmentation systems

Hearing augmentation systems to allow equal access to performances for hearing impaired patrons are required to be provided. AS/NZS 1428.5 provides guidelines for the scope of these systems in public buildings. Hearing augmentation systems are required in various locations, including, foyer, ticket booth, theatre etc.

A hearing augmentation induction loop and an additional infrared "light wave" hearing augmentation system using either headphones or neckloops (for use with hearing aids) are both currently installed throughout the theatre. This is good practice, providing base line code compliancy with increased accessibility for users and venue staff report no issues with these systems.

Hearing augmentation in other areas may be provided by local hearing loops and specialist advice should be sought regarding the design and installation of these systems.

13.2 Vision impaired users

To aid the vision impaired any works on the building should be designed with good colour contrast in choice of materials particularly relating to floors, steps ramps and signage.

Clear signage of sufficient size incorporating Braille must be provided in all areas. The capability to provide audio description of all performances should be available.

14.0 OTHER ELEMENTS

14.1 Auditorium lighting

For aesthetic reasons and to achieve greater energy efficiencies a relight of the auditorium space should be undertaken and we advise that this should entail use of new LED fittings.

We advise careful selection of any luminaires for house light purposes as it is critical that all fittings used as house lights must be 100% smooth dimming from 100 – 0% and 0 – 100% and no sudden off or “digital cliff” should be encountered, likewise fluorescent and discharge fittings also are not suitable for auditorium house light use.

Careful lighting design of this theatre and the associated aisle ways and access corridors using suitable fittings in compatible colour temperatures and appropriately circuited and controlled could deliver an exciting energy efficient upgrade to the appearance and experience of this theatre.

15.0 ACOUSTICS

15.1 Room acoustics

15.1.1 Theatre

The theatre acoustics are controlled and suitable for drama, amplified and acoustic music and other similar performance or events. No particular acoustic issues with performances have been noted or advised by Whitehorse Centre staff.

15.1.2 Waratah Function Room

The acoustics of the Waratah Function Room are comparable to many similar venues. The carpeted floor, drapes and furnishings result in controlled acoustics suitable for a function room.

15.1.3 Foyer

The foyer is relatively lively as the only acoustically absorptive surface is the carpeted floor. However the roof structure, ducts and other building elements provide acoustic diffusion which breaks up and scatters sound. This is beneficial, particularly when the foyer is occupied pre and post shows and functions.

15.1.4 Studio

This room is very lively as all surfaces are hard which provide a low level of sound absorption. As this room is used primarily by external users for dance classes, the acoustics are acceptable.

15.1.5 Soundshell

The Soundshell space has been provided with acoustic panels to provide some control of occupant noise during dance classes. This treatment is also beneficial when the external doors are open and the space forms part of the stage.

15.2 Internal sound insulation

Improvements in sound insulation between the following spaces have been identified as being desirable by staff to improve the flexibility and concurrent use of the spaces:

Issue	Comments
Waratah Function Room operable wall.	The operable wall provides acceptable acoustic separation for concurrent functions that are meetings, conferences etc. A function that involves any type of amplified music means that the adjacent function room cannot be used for quieter functions
Waratah Function Room kitchens/bar.	The kitchens and bar are not adequately separated from the function room and dishwasher noise, plates, voices etc can be heard in the Waratah room
Workshop to the theatre stage.	The workshop is not adequately separated from the theatre stage.

15.3 External sound insulation

The following items have been identified which affect the control of external noise intrusion into the theatre:

- The external double doors in the theatre which open to the plant area.
- Rain impact noise on the theatre roof which can affect quiet performance

15.4 Building services noise

No significant building services noise issues have been identified in the building except for some noise and vibration from the theatre air conditioning system which is evident during quiet performances.

16.0 RECOMMENDATIONS AND PRELIMINARY BUDGETS

The following table lists all recommendations made in this report and where possible provides preliminary budget estimates for these.

Budget estimates are for infrastructure or technical equipment commensurate with other theatres of this size and type and assumes that building, structural and cabling works are costed by others. Marshall Day Entertech are not quantity surveyors or builders and cannot provide costings for the identified builders or other disciplines works.

Several of the above recommendations are related to code compliancy issues and are outside the scope of the Marshall Day Entertech works. These elements to be managed by the Council include

- Architectural
- Structural
- Builders' works such as wheelchair seating locations,

Rates are current, exclude GST and allow for installation and commissioning.

Table 2: Budget

Item	Estimated cost
Directional signage upgrade	\$7,500
Digital signage system	\$20,000
Upgrade foyer lighting system	\$27,500
Auditorium relight estimate \$85,000	Builders works TBA
Reseat auditorium	\$230,000
Rebuild lighting bridges to standard if possible	Builders works TBA
Stage Flying system and Drapes	
Inspection and general maintenance to counterweight system	\$25,000
Motorised flown lighting bars (4) including patch and data cabling, control and rigging.	\$100,000
Supply and install 2 x panorama bars for stage rigging system	\$20,000
Installation of mesh infills on fly floor handrails	\$2,500
Installation of suitable signage at all grid entry points and other in grid area advising maximum uniform distributed point loads for rigging locations	\$500
Pigeon holes be provided at all grid entry points for loose items to be stored prior to grid entry	\$500
Working load of existing grid area to be reviewed by structural engineer – consideration given to increasing the floor working load.	\$2,500
Structural review and provision of required signage provided to fly floors and technical galleries	Inc above
Structural assessment to the main rigging beams to establish allowance	Inc above

for additional rigging loads	
Replace grid mesh with current standard	Builders works TBA
Re fire proofing house curtain (external supplier)	\$1,000
Stage Lighting	
Creation of new side lighting safety access	Builders works TBA
Increase in venue lighting stock	\$25,000
Sound System	
Replacement of existing out dated and ineffective sound sound system	\$85,000
Matched and interchangeable loose sound system equipment.	\$20,000
Control room	
Cabling upgrade	Inc above
Stage Management systems	
Stage Management systems, upgrades to SM consoles, talkback, paging and input to hearing assist system upgrade	\$45,000
Performance relay video and production video capture	\$7,500
Backstage	
Upgrades to dressing rooms, laundry and green room	Builders works TBA
installation of a dock leveller	Builders works TBA
New lighting to loading dock area	\$1,500
Awning or cover to dock area	\$5,000
Provision of additional mezzanine storage space to rear workshop area	Builders works TBA
Storage racking units for various locations (offices, drapes etc)	\$10,000
Acoustics	
New roof to theatre and fly tower	Builders works TBA
Venue wide technical systems	
Provide venue wide cabling upgrade including wifi functionality across foyers, theatre and backstage areas, inc Stage Management systems cabling where required	\$40,000
Loose AV system equipment.	\$20,000
TOTAL VALUE TECHNICAL WORKS	\$696,000
TOTAL VALUE BUILDERS WORKS	TBA

APPENDIX A THEATRE TERMS

All industries have their own language and In order to clarify some of the discussions in this project please find below a list of words or terms used in our report and on stage generally.

A useful link to a variety of other theatre dictionaries is:
<http://www.theatre crafts.com/glossary/glossary.shtml>

Acting area	The area on the stage that can be seen from the auditorium
Auditorium	The seating area of the theatre
Auditorium side lighting booms:	Vertical and horizontal 50mm pipes used for rigging stage lighting from.
Audio Green Power (AGP)	Also know as Technical power. Separate earthed electrical supply dedicated for use with audio systems so as to avoid, hisses, earth lops and hums
Centre line	The line drawn through the centre of the stage opening and auditorium. An important line as all east/west (or Prompt /OP) measurements are taken from this. Unless specifically advised there should be no structural elements on the building or the stage centre line.
Back of House (BoH)	A phrase from the hotel industry sometimes used instead of backstage.
Back Stage	The non public areas of the theatre.
Bio Box / Control room	Control areas for the stage lighting and audio systems.
Borders	Part of the stage draperies. Long curtains generally made of black wool hung above the stage or performance area to help stop audience members seeing into the above stage or flytower areas.
Crossover	Upstage corridor that allows cast and technicians to travel from one side of the stage to the other without being seen by the audience.
Cyclorama	A full stage width filled gauze / soft fabric used with stage lighting and projection at the back of the stage.
Dimmed outlets	Dedicated stage lighting outlets used in conjunction with the stage lighting console and dimmer systems.
Downstage	Along the centreline closer to the auditorium.
Fly / Flying	The suspension or operation of suspended scenery or lighting bars in the theatre.
Fly bars	The actual scenery bars suspend over the stage off which the scenery, stage masking and lighting is hung.
Followspot bridge	The lighting bridge at the rear of the auditorium also used for followspot operating locations.
Front of House (FOH)	The public areas of the theatre.
Forestage	The area in front of the house curtain but not into the auditorium, particularly that space over the orchestra pit.
Greenroom	The cast and crew lounge room, not accessible to the general public, preferably

	with access to natural light and outside balcony or terrace area
Grid	The above stage rigging loft, covering the entire stage area and providing access to and support for the required diverter pulleys for the stage flying system.
Header/s	Solid panels generally used in conjunction with the teaser panel to shape the proscenium size or used on stage as a hard border for masking.
House Curtain	The curtain hung immediately upstage of the proscenium arch. Sometimes very decorative and generally hung in conjunction with a decorative boarder, header or valance. (aka the Act Drop, House rag or the Rag)
Legs	Part of the stage draperies. Tall curtains generally made of black wool hung towards the sides of the stage or performance area to help stop audience members seeing into the side stage or off stage areas.
Lighting Bridge	The structures above the auditorium where the performance lights are rigged. Technical areas not accessible to public.
Lines / Line sets	Suspended flying line and batten / bar sets
Masking	Concealment of the overhead, side or back stage areas of the stage using soft curtains (legs / borders) or hard scenery.
Prompt Side (PS)	Left hand side of the stage if you are facing the auditorium. Generally the Stage Managers console is located on PS.
Offstage	Away from the centre line
OP or Opposite Prompt;	Right hand side of the stage if you are facing the auditorium.
Orchestra pit (the pit)	The section of the forestage area that fitted with a lifting platform that may be positioned at stage level to add to the acting area, at auditorium level fitted with seats, at orchestra level for use with a band or orchestra or at substage level for transport of equipment or at any level in between these preset stops.
Proscenium	The wall between the auditorium and the stage
Proscenium arch	The opening in the proscenium wall that frames the stage/acting area.
Raked (Stage, seats)	A raked stage is higher at the back of the stage than the front. A raked auditorium has the seating rows stepping up as they progress away from the stage edge.
Setting line	A line drawn from the upstage face of the setting line walls across the stage perpendicular to the centre line. An important line as it from this that all measurements onstage are taken from.
Setting line walls	The two walls that make up the fixed sides of the proscenium if no tormentors are in use
Teaser panel	The flown unit that flies (is suspended on moveable winch line sets) either in the proscenium line to assist in shaping the proscenium arch. Used in conjunction with the tormentors.
Technical Galleries	The structures above the stage where the motorised winches, stage lighting dimmers and other equipment is located. Technical areas not accessible to public.
Technical Panel (TP):	Coordinated wall, floor or ceiling plates holding power or other outlets, plugs and sockets for various cables and connections.

Technical Power	Separate earthed electrical supply dedicated for use with audio systems so as to avoid, hisses, earth lops and hums
Tormentors	The sliding panels of varying thickness attached to the upstage onstage edges of the setting line walls to allow adjustment of the proscenium sizes.
Upstage	Along the centre line away from the auditorium and the setting line.
Winches	Power or hand driven systems used for raising or lowering of scenery or stage lighting bars
Wings / Wing space	The areas offstage from the acting are where scenery is stored and performers enter the stage from