

Information Management Advice 58 Managing your agency's photographs

Introduction

This Advice gives practical guidance on how to manage your digital and analogue photographs. It concludes with a Checklist of tasks if needing to manage a series of legacy photographs.

Photographs are taken for many different purposes and of varying quality depending on individual requirements. Photographic images are regularly used as records to identify authorised officers, record incidents, record or promote events, support maintenance processes, support traffic regulation, and in the provision of evidence in Tasmanian courts.

The transition from analogue to digital photographic images has had a significant impact on the way in which images are retained and managed. Images are created in much greater volume with the potential to be retained indefinitely by organisations. In addition, in the past the costs associated with purchasing and processing film limited the volume of images produced. Today digital cameras have the potential to take and directly save thousands of images.

For further information regarding the storage of permanent value photographs, please refer to State Records Guideline No. 11 Physical Storage of State Records

Digital Photographs

It is important that agencies develop and implement procedures for the management of their digital photographic images. These procedures should cover issues such as:

- Preparation
- Capture and management
- Technical specifications and storage, and
- Retention and disposal

Creating full and accurate records is a scalable process; the risks associated with not capturing adequate information are different for each agency. For example digital photos taken at a crime scene require stringent controls over creation and capture, whereas a photo taken at a promotional event may not necessarily require the same controls. Consequently, agencies need to assess their own business practices and recordkeeping requirements, in order to develop business processes for the creation and capture of digital photographic images as State records.

Preparation

Preparation is required before digital images can be appropriately captured. You will need to ensure that you have the right equipment, expertise and controls to produce images fit for their intended purpose. Naturally, a photograph for an annual report will require much less rigorous preparation than forensic images captured by Tasmania Police.

Images and imaging processes like any recordkeeping process should be governed by documented policies and procedures.

However, if there is an important evidential need to capture the images (eg. police or medical images) or the records are required either as long-term temporary or permanent records, you will need appropriate measures to ensure that their integrity will be safeguarded. These include:

- Documentation in the agency's information management policy
- Procedural documentation identifying required metadata standards (see p.3 of this Advice)
- Procedural documentation identifying required technical standards (see p.4 of this Advice)

While the imaging process may be outsourced to a professional photographer, these measures still must be adequately documented as with any outsourcing operation.

Capture and management

Digital photographic images identified as State records according to the *Archives Act 1983* will need to be transferred from the image capture device (e.g. digital camera, memory card, mobile phone) to a recordkeeping system such as image library software. This ensures the ongoing authenticity and integrity of the photographic image. However, when using any type of software it is important that it meets the minimum technical and metadata requirements for capturing your images (see pp.3-4 of this Advice).

While it is common for multiple images to be captured and stored, not all digital photographic images need to be kept. Digital cameras have the potential to take and directly save thousands of images. When multiple images are taken, many might be considered of quite short term value as they are duplicates or of poor quality. The following questions may be useful when appraising digital photographic images to determine which image(s) best serve your business purpose(s):

1. Are the images in focus?
2. Are the light levels adequate?
3. Is the image framed appropriately?
4. Are there multiple angles of the same image?
5. Do the photographs relate to and/or enhance existing collections?
6. Do the photographs have intrinsic and/or long term historical value?
7. Are the photographs readily available elsewhere?
8. Are the photographs saved in a proprietary format which cannot be accessed?
9. Are the photographs created at a low resolution, or embedded in application software, such as spreadsheets?

If the answer to these questions is yes, the photographic images should be retained as State records. If the answer is no, they can be considered of only short-term value.

Example 1

A digital image of a crack in the pavement is captured as part of an investigation of maintenance work required in a particular location. This image will be a State record forming part of a collection of records, documenting the business activity of assessing the maintenance action required

Example 2

A digital image of an applicant captured as part of the process for issuing a driver's licence. This digital image:

- is a State record, forming part of a collection documenting the business activity of processing a licence application
- is one item within a set of items which are evidence of one coherent transaction.

Where any type of image optimisation is desired (e.g. crop, adjust shadow and tones, change the colour balance, rectify faults, restore etc.), master images should be preserved and a working copy created.

Metadata

Recordkeeping metadata must be captured with the digital photographic image. Metadata requirements include:

- implicit metadata recorded at the time of image capture (such as file size, type and date created)
- the name of the creator
- description
- copyright status and rights usage
- Additional information about how the image is used or managed. This additional metadata may provide important assurance of the authenticity of the photograph.

It is important to establish naming conventions for images captured and maintained as part of business processes. If the organization captures a large quantity of images, the naming system for the individual images and the files they are contained in should be outlined in the agency's procedures. A well devised naming structure can ensure consistency and be integral to efficient retrieval. File naming should be in line with document titling conventions adopted for other digital records (eg. YYYYMMDD_PHOTOGRAPHERNAME_LOCATION_EVENTNAME.TIF)

To facilitate the ongoing management and retrieval of digital photographic images, the State Archivist has endorsed the *Recordkeeping Metadata Standard for Commonwealth Agencies* and promotes this standard for use in Tasmanian agencies. The standard is available on the National Archives of Australia website.

Photos containing personal information

Digital (and analogue) photographic images contain personal information if the identity of the individual captured is apparent or can be reasonably ascertained. In capturing personal information via a photographic image, the agency must comply with the Personal Information Protection Principles set out in the *Personal Information Protection Act 2004*.

If images include recognisable living people, you should seek permission before making these images publicly available – eg in annual reports or on websites - especially if the images are of a sensitive nature.

Metadata can be used to record information about intellectual property rights. Remember too, that you are likely to store personal information with some digital images, including:

- the image content, if it includes recognisable images of people
- the 'descriptive metadata', if it names those depicted
- the 'technical metadata', if it says who worked on the image
- user data, if personal information is collected when people register to use images.

Personal data should be securely stored, kept up to date, and disposed of when no longer needed in accordance with the *Archives Act 1983*.

Technical specifications and storage

Digital records such as digital photographic images face a number of special challenges such as technological obsolescence and media degradation. Images must be carefully managed for as long as required to support accessibility, accountability, good business and the expectations of the public. Digital photographic images that are:

- vital to business processes
- required to be retained for long periods of time
- required as State archives, or
- required in legal proceedings

are recommended to be stored in active systems or in a Redundant Array of Independent Disks (RAID) hard drive rather than on removable media (e.g. CDs, DVDs). High quality original images should be retained in these circumstances.

Your agency will need to consider whether it needs to retain an original (master) image at the best resolution (eg colour or spatial resolution) possible, considering current and future needs. High resolution digital photographs require more storage space and can cause network congestion, so they are not suitable in all circumstances.

The integrity of original images must be maintained. Working copies may be made from the original image at lower resolution for the purposes of delivery or display (eg on websites).

File formats

Digital photographic images can be captured and stored in a variety of file formats. A file format should be chosen that:

- is capable of representing any image capable of being captured by the camera
- retains any capture device colour management information
- does not use (or can be set up to not use) compression.

It is recommended that dependence on proprietary file formats is avoided as far as possible to help ensure the accessibility of the images over time.

Suggested file formats include:

- TIFF (Tagged Image File Format)
- PNG (Portable Network Graphics)
- JPEG or JFIF (Joint Photographic Experts Group File Interchange Format)
- Adobe DNG (Digital Negative)

The TIFF file format is one of the most widely used formats. TIFF is however a proprietary format, with a number of versions in existence. Baseline TIFF revision 6 is a recommended file format for digital photographic image preservation. TIFF uses lossless compression, however images can be very space intensive due to their large size.

JPEG is a popular file format for web publishing and ideally suited to images where a picture is a photograph. JPEG uses 'lossy' compression, and as a result these images typically use a fraction of the memory storage space compared to TIFF images. Lossy compressions achieve smaller file sizes by sacrificing some information and picture quality. For the most part this is not noticeable to the human eye, but image quality could be reduced over time if a JPEG file is continually re-saved.

With lossless compression, the decompressed image is identical to the original.

With lossy compression, the decompressed image is different to the original. The loss of information is permanent and irretrievable once lossy compression is applied

Retention and disposal

State Records Guideline No.2 Retention and Disposal of State Records requires agencies to ensure that records are appraised and retained according to accountability, legal, administrative, financial, research and community requirements and expectations.

To achieve this, you must save images to records management systems, or integrate your image management systems with records management software or other business systems. This will:

- improve workflows
- enable better information access, and
- facilitate comprehensive management of your image files.

However, if it is a proprietary software, it can be difficult to integrate image management software with other software or systems. If you require system integration, ensure you budget for this integration.

Disposal of digital photographic images can only be carried out in accordance with an authorised Retention and Disposal Schedule (e.g. *Retention and Disposal Schedule for Common Administrative Functions DA2157* or the agency's own Retention and Disposal Schedule).

Multiple copies of photographs can be destroyed whenever their reference value ceases, under class 01.01.05 of the *General Retention and Disposal Schedule for Short-Term Value Records (DA2158)*. Your agency should clearly state in its procedures which original or working images should be retained and those that can be destroyed according to *DA2158*. Procedures should include specific guidance regarding who has the authority to delete images of any kind.

Analogue photographs

Any analogue photographs will largely be historical (pre-2000) due to proliferation of digital cameras and hence it is critical that any content metadata is recorded as soon as possible.

Prints

Early photographic processes are very light-sensitive and often can become degraded if not stored away from light sources. Traditional fibre-based black and white photographic prints should have a long life if handled carefully and stored in good conditions, namely away from light sources and in stable humidity and temperature conditions. From about the 1960s new print formats were introduced because they could be quickly processed by hand or machine, but they are not regarded as good for long term preservation.

Negatives and transparencies

Photographic negatives and transparencies (positive images) can be black and white or colour. Negatives are used to print positive images on photographic paper. Film negatives are found on a range of bases and in a range of sizes.

Transparencies have a positive image and can be viewed directly or through a projector. Early transparencies were glass lantern slides. Film based transparencies are usually colour images and can also be used to produce photographic prints.

Preservation

While we cannot stop inherent deterioration, with good storage packaging and environments we can influence how fast this happens. (see 'Storage' p.7)

Photographs are prone to various types of deterioration that can affect both the image and support layers. The prime causes of deterioration in photographic materials are poor processing, atmospheric pollutants, physical fragility and chemical instability.

- If chemicals are not thoroughly washed out during photographic image processing, then the residues can cause staining, darkening, yellowing or fading over time. With good storage this deterioration will usually slow. It is advisable to create a copy when image deterioration is noted.
- Pollutants can cause image discolouration, fading, yellowing, staining and silver mirroring.
- Insects and microorganisms cause permanent loss to photographic material. Gelatin is very vulnerable to moisture. Moulds develop as a result of high relative humidity and will eventually affect the entire image layer. Insects also feed on the protein (albumin, gelatin) and may consume the entire image and support.
- Early processes, such as salted paper prints and albumen prints may fade over time, particularly when subjected to high humidity and even low levels of light.
- Colour images change colour balance as they age due to the influences of processing and the environment. The three colours (yellow, magenta and cyan) fade at different rates. For example, colour images from the 1970s often appear magenta, because the cyan dye is fading. The dyes are very sensitive to light but also may fade in the dark.
- In early resin-coated paper prints the polyethylene layer on the front and back of the photo may form an irreversible network of cracks when exposed to light and particularly when in a sealed frame
- The earlier decorative cardboard mounts and album pages can yellow with age releasing harmful agents which will cause staining, embrittlement and silver mirroring. If they become brittle and break, the print is likely to break as well. Poor quality adhesives, corners and tapes may fail, yellow or become tacky, damaging the adjacent photographic material.

- Film negatives are prone to chemical deterioration. Cellulose nitrate and cellulose acetate film-base plastics are inherently unstable. Cellulose nitrate is highly flammable and releases nitric acid as it decomposes. Cellulose acetate hydrolyses and releases acetic acid (Vinegar syndrome) resulting in shrinkage of the base and the formation of bubbles under the gelatin layer.

Handling and care

The following basic points should be kept in mind when handling photographic material:

- Rough handling will result in damage to photographic materials. Prints may be stained, torn, folded, cracked or abraded. Negatives may be broken (glass), scratched, rolled or bent.
- Paper bases can be creased, folded or torn when in good condition and are even more vulnerable when they are already damaged.
- Photographic material should be handled where possible in its protective enclosure. If it must be removed then it should be handled with great care and only by the edges. Clean disposable powder free nitrile gloves may be used. Fingerprints will corrode the silver in black-and-white images and cause colour dyes to change colour.
- Don't apply identification labels or stamps directly to photographic material. Identification should be on the packaging or a piece of archival paper slipped into a sleeve/envelope with the photograph.
- Pencil or an appropriate pigment pen can be used on the non-image border of slides. If an inscription must be written on a photograph, use a soft (2B) graphite pencil along an edge on the back of the print. Write on a firm surface with light pressure to avoid indentations in the paper. Pencil does not write well on resin-coated papers, so it is advisable to use a pen with permanent pigment-based ink only on the back, along one edge. Do not stack prints before the ink has completely dried, otherwise it can transfer to the front of an adjacent photograph and be very difficult to remove.
- Never use metal pins, staples, paper clips, rubber bands or adhesive tape to secure photographic materials. Do not try to remove tapes and labels adhered to photographic materials without conservation advice. Removal may cause damage. Only remove rubber bands and metal fasteners when it can be done without damage.
- Photographic material should always be handled in a clean work environment and all viewing equipment should be well-maintained.

Storage

Cellulose nitrate and acetate films deteriorate irreversibly over time. Copying photographic images is a standard preservation strategy. However, where copying programs are not readily available, specialised low temperature and low relative humidity storage will significantly slow deterioration and 'buy time'.

Ideally, agencies should store photographic collections in:

- A dedicated storage area with stable climate control, particularly for important collections. Specific information can be found in the *State Records Guideline No. 11 Physical Storage of State Records*.
- When these conditions can't be maintained, aim for a stable environment and avoid high temperature and humidity levels. A cupboard in an internal room that does not contact external walls can help buffer photographic records from daily temperature and humidity fluctuations. Lower floor levels in a building are usually cooler and more stable than upper levels. However, avoid damp areas such as basements and storing any items on the floor.

- Packaging will protect photographic materials from light and dust and provide buffering from fluctuating relative humidity.
- Turn off the lighting whenever storage areas are unoccupied.
- Keep storage and work areas clean and free of food and drink.
- Inspect the storage area regularly for insects, water leaks, structural damage or other events that may threaten the collection.

The way a collection is used should determine the type of enclosure. If the material is going to be regularly accessed, clear plastic enclosures allow the photographs to be viewed without removing them from their sleeve. If the collection is infrequently accessed, paper envelopes may be the best choice as they act as a buffer for the photographic item.

Polyester (Mylar, Melinex) is the most stable plastic for photographic storage. Polypropylene (PP) is a low cost and readily available alternative. Glassine is not suitable for storing photographic items. Never use polyvinyl chloride (PVC) sleeves and folders which contain plasticisers detrimental to photographic materials. The term “acid free” is irrelevant for plastic materials as it is a measurement for paper only.

Use paper envelopes that are known to be safe for photographic materials. “Suitable for filing and storing photographs” often refers only to the physical organisation of photos and not necessarily that the material is safe and inert. Paper enclosures should be pH neutral or have an alkaline buffering of less than 2%.

Never use 'magnetic' self-adhesive albums because, over time they can cause severe damage to your photographs. The adhesive discolours and dries over time, potentially staining prints and allowing them to drop out and be damaged.

If photographs are stored in a display album ensure that is manufactured from 'photo-safe' materials and does not contain PVC.

Colour photographic slides can be stored in their original plastic boxes. Otherwise, they can be stored in archival quality slide storage pages made from polyester or polypropylene, available from photographic retailers and conservation suppliers. For further information on specialist suppliers refer to the GISU website.

Checklist for Planning and Implementing a Legacy Photographs Project

The following checklist has been adapted from the Checklist that appears in *Advice 29 Advice for agencies on Managing Legacy Records*

Stage	Actions
I. Establish a Project Plan	<ul style="list-style-type: none"> • Gain senior management support • Scope the project • Identify staff resources • Identify stakeholders • Establish timeframes and overall duration of project

Stage	Actions
2. Locate and identify legacy photographs	<ul style="list-style-type: none"> • Determine and document the location of all legacy photographs • Assess any Workplace Health and Safety (WH&S) risks and contact WH&S Officer if the photographs pose a health risk (e.g. if they contain mould, etc.) • Locate any master control records such as indexes, registers or other relevant metadata, particularly in the case of digital photographs. • Inspect the photographs to determine the business transactions they document
3. Sentencing	<ul style="list-style-type: none"> • Sort the photographs into groups (e.g. according to the relevant Retention and Disposal Schedule or record type/series such as official public events, minor public events, community events, etc.). However, make sure not to disturb the original order of the photographs • Arrange any information on network drives to reflect the same groups (see <i>Advice 42 Structuring shared network drives for recordkeeping</i>). • Identify the appropriate disposal class or classes in the Retention and Disposal Schedule and apply the retention period to the photographs • If the photographs are unscheduled (ie. Not covered by an authorised Retention and Disposal Schedule) contact TAHO.
4. Disposal or preparation for further retention	<ul style="list-style-type: none"> • If the retention period has passed, check that the photographs are no longer required for any further business or legal purposes. If not, implement final disposal. • If the retention period has not passed, set a future review date. • Arrange for their safe storage (on or off-site) • For photographs of permanent retention value, seek appropriate internal approval and contact TAHO to arrange transfer. • Document all disposal actions in your Register of Records Destroyed (see example below).
5. Contact TAHO	<p>Contact TAHO for further advice if the photographs:</p> <ul style="list-style-type: none"> • were created prior to 1960, or; • are the responsibility of another agency.

Sample Register of Records Destroyed

Schedule No	Reference No	Description	Inclusive Dates	Date Destroyed	Certifying Officer	Signature
2157	xx.xx.xx	Promotional photos at community events	1990-2005	1-6-2014	Deborah Jones	xxxx
2200	xx.xx.xx	Photos of inspections of drainage infrastructure	2000-2005	1-6-2014	Deborah Jones	xxxx

Further Advice

For more detailed advice, please contact:

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Tasmanian Archive and Heritage Office
91 Murray Street
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Acknowledgements

- National Archives of Australia, *Preserving photographs*¹
- National Archives of Australia, *Preserving physical records, About the photographic Activity Test*²
- Queensland State Archives, *Guideline for Managing Digital Photographic Images - an overview*³
- Queensland State Archives, *Managing Digital Photographic Images as public records*⁴
- Queensland State Archives, *Managing Digital Photographic Images: Guideline for Queensland Public Authorities.*⁵
- State Records NSW, *5.2 Managing 'born' digital images - still photographs*⁶
- The Getty Conservation Institute, Bertrand Lavedrine, *A Guide to the Preventive Conservation of Photographic Collections, 2003*

Information Security Classification

This document has been security classified using the Tasmanian Government Information Security classification standard as PUBLIC and will be managed according to the requirements of the Tasmanian Government Information Security Policy.

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1.0	13-06-2014	David Bloomfield and Stephanie McDonald	Initial Release	All

¹ <http://www.naa.gov.au/records-management/agency/preserve/physical-preservation/photographs.aspx>

² <http://www.naa.gov.au/records-management/agency/preserve/physical-preservation/pat.aspx>

³ http://www.archives.qld.gov.au/Recordkeeping/GRKDownloads/Documents/managing_digital_photographic_images_overview.pdf

⁴ http://www.archives.qld.gov.au/Recordkeeping/GRKDownloads/Documents/managing_digital_photographic_images_public_records.pdf

⁵ http://www.archives.qld.gov.au/Recordkeeping/GRKDownloads/Documents/digital_images_guideline.pdf

⁶ <http://www.records.nsw.gov.au/recordkeeping/advice/designing-implementing-and-managing-systems/managing-born-digital-images>

Amendments in this Release

Section Title	Section Number	Amendment Summary
All	All	Document imported into new template

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