

How do I protect and handle maps and plans?

Types of maps and plans

There are a variety of methods for producing maps and plans:

- hand-drawn maps and plans, prepared using inks, pencil, crayons and watercolour paints
- computer-drawn maps and plans, transferred to a hard copy of paper or film, using a line printer
- photoduplicates, made using processes such as blue print, electrostatic duplicating, diazo, and photographic processes
- printed maps, created using modern printing techniques such as offset

They are created on a wide range of materials, for example:

- tracing and offset papers
- photosensitive papers and synthetic papers
- plastic film and tracing cloth, which are often used for architectural and engineering plans

Deterioration of maps and plans

All materials degrade over time. We cannot control this inevitable deterioration, but we can control how fast it happens. Certain materials are susceptible to deterioration in particular ways just because of their properties, and other materials deteriorate as a result of particular environmental conditions.

- Some types of tracing paper deteriorate more quickly as the process of making them translucent makes them more acidic.
- Thin papers backed with cloth are sometimes damaged because the cloth and the paper react differently to changes in relative humidity and temperature. The paper may lift from the cloth, or fracture because of the tensions built up between the paper and the cloth backing.
- Starch-filled tracing cloth may be affected by moisture and mould.
- Oiled cloth and paper often turns rancid.
- Diazo prints may turn yellow or brown over time. This is due to a slow chemical reaction between the chemicals used to develop the image and oxygen in the environment. These records must be stored away from light and should be copied to another medium if they contain information of permanent or long-term value.

Handling and care of maps and plans

As with any archival item, correct handling of maps and plans will aid in preserving them for as long as they are required:

- Handle with care.
- Recognise that maps and plans are difficult to handle because they are usually large. Allow enough space for their safe manoeuvring and viewing.
- Plans should be transported flat. However, sometimes it is necessary to roll plans for storage or transport. Roll around a large core (at least 90 mm diameter) with a protective covering around the outside. When unrolling a plan, do it very gently using weights to hold the curled ends down flat. If the curl in the paper is very strong it may need humidifying first. Contact your local National Archives office for advice on how to proceed.
- Rather than carrying a plan by holding onto the plan itself, support it on a piece of paper and hold the paper, or put the plan inside a folder and carry the folder.
- Use flat bed trolleys when moving bulky items. The plan should not hang off the edge of the trolley and drag on the floor.
- Do not use adhesive tape to repair torn items.
- Plastic heat lamination should never be applied to archival records. It is irreversible and is only suitable for copies of records.
- Folding maps or plans will damage them. If a plan must be folded to fit on a file, copy the plan and fold the copy for the file, keeping the original plan flat elsewhere.

Protective packaging

Maps and plans tear very easily because of their size and because they tend to sag.

Before placing maps or plans in a drawer or in protective packaging, it is important to ensure that they are free of dust and unaffected by mould or insects. Affected maps, plans and charts should be isolated from other items and advice on how to deal with them sought from your local National Archives office.

Protective packaging for maps, plans and charts includes the following options.

- Polyester sleeves – polyester is a transparent plastic which supports the plan and protects it from dust and handling.
- Polypropylene plastic bags are a cheaper alternative to polyester.
- Interleaving with pieces of archival paper protects the plans from abrasion, ink transfer or adhesive transfer from other plans.
- Folders that are as large as the actual plans provide support while preventing items from getting 'lost' in the drawer.
- Label maps and plans by writing on the back of the item with a soft pencil.

Storage

Maps and plans should be stored flat inside plan cabinets. (Vertical storage may lead to the plan falling off the rack when holes tear or adhesive margins age and fall off.) The plan drawers should be accurately labelled to minimise handling. To prevent damage to the objects when the drawers are opened and closed the drawers should:

- operate smoothly
- have stops to prevent them from being pulled completely out when they are opened
- have a lip at the front to prevent items from falling onto the floor and one at the back to prevent them from falling behind the drawers
- never be overfilled

Other considerations when storing maps and plans are as follows.

- Plan drawers should be made of coated metal. Wooden shelving should be avoided as it can release harmful vapours, contribute to the spread of fire and harbour insects.
- Items should not be stored on the top of storage equipment. They will be too close to ceiling lights and there is also the possibility of water damage from fire sprinklers.
- Aisles between equipment should allow easy access to and removal of items.
- Suitably-sized tables should be located adjacent to the storage cabinets, so that staff can comfortably and safely check the contents of map folders and retrieve individual items.

Environment

Maps and plans should be stored at temperatures between 18–20°C and relative humidity levels between 40–45%. In these conditions the natural deterioration of the objects can be slowed. In some instances deterioration can be slowed further by lower temperatures. It is important that these environmental levels are stable. Mould will start to grow around 60% relative humidity and if the humidity fluctuates more than 10% in 24 hours or the temperature is too high, the items in the collection will be stressed, speeding up their deterioration.

Materials degrade quicker when exposed to ultraviolet light. Fluorescent tubes which are low in ultraviolet light should be used wherever possible in storage areas. Ultraviolet light can be easily measured with a light meter, and levels should not exceed 75µW/lumen. Lights should be turned off whenever possible. Storage areas should not have windows, but if they do they should be covered with curtains or blinds.

Insects and rodents once attracted to a record storage area may start eating the records, so:

- do not eat in storage areas
- keep surfaces (floors, tops of shelves) clean
- bait regularly for rodents and fumigate annually for insects
- insect pest strips can be used as localised insect deterrents – however, the strips should not come into direct contact with individual items

Copying

Maps and plans are difficult to copy because of their size. However, rolling photocopiers may be used for items that are not fragile, or large flat photocopiers (A2 size) may be used. Take care when using flat photocopiers. You may need to remove the lid to allow access without having to fold up the plan.

Other options include microfilming and the creation of aperture cards.

Further advice

Please contact the Agency Service Centre <<http://www.naa.gov.au/records-management/help/index.aspx>> if you require further advice on protecting and handling maps and plans.