

Pacific Northwest Railroad Archive

Organizing Plan

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This document outlines the establishment and operation of a railroad history archive in the Puget Sound region of Washington State. The organization is named the Pacific Northwest Railroad Archive (PNRA or Archive) to reflect the regional nature of its collections. It is incorporated in the State of Washington as a non-profit corporation. The Archive's sphere of interest will include all aspects of railroad history and operations in the Pacific Northwest states, including the transcontinental, regional and local, and logging and industrial railroads.

Railroads Shaped Pacific Northwest

In the late 1800s, railroads had a mystique and an attraction for most people since they offered a pathway to life-changing opportunities and travel to other areas of North America. The western railroad operations took them across thousands of miles of open prairie and desert, over rugged mountains, and through virgin forests, and were impressive examples of human vision, effort and cooperation. The story of the western railroads offers inspiration and many lessons, both of what can be achieved and what sometimes causes failure.

Railroads are a major part of Pacific Northwest heritage and helped shape the region; its towns, communications and its economic life. Today they continue to play a central role in the emergence of the Pacific Northwest as a significant region of the United States. For the pioneers in the region, the railroads were an intimate part of their community, their history and our family heritage. In the first-half of the last century, the people who live in the region were here because railroads brought their families, offered employment, provided low-cost land for settlement, or supplied the transportation essential to pursue business development.

Need For Archive

In the Pacific Northwest region of the United States, there are a the number of significant railroad collections gathered over the last sixty years by well-informed people. These people are approaching the age when they want to find a home for their collections where the items will be honored, preserved and made available to researchers and the interested public. Currently, four collection owners have inquired about the possibility of an archive in the Puget Sound area that would receive their collections. Once PNRA becomes an operating entity, other railroad collections from the Pacific Northwest will be made available.

Since 2001, the Northern Pacific Railway Historical Association (NPRHA) and Great Northern Railway Historical Society (GNRHS) have operated a joint archive at the Jackson Street Roundhouse (JSRH) facility in St. Paul, Minnesota. JSRH is owned and operated by the Minnesota Transportation Museum (MTM) which rents space to the two historical organizations along with groups that restore and maintain railroad equipment. In a similar manner, PNRA will act as the master lessee and operator of space used by railroad history organizations in the Pacific Northwest.

An additional factor motivating the creation of the PNRA is the consumption of space at the JSRH Archive by the two historical organizations. That Archive recently received the transfer of many technical drawings of their predecessor railroads by BNSF Railway from Fort Worth to St. Paul. In the near future the JSRH Archive will require additional space at the St. Paul facility and PNRA would provide that relief.

Archive Mission

Sparkling and maintaining awareness of railroad history by the general public is an important element of the mission of all rail-history organizations in the United States. In 2003, the NPRHA started its web site on the theory that providing easy access to significant information about the operation of the Northern Pacific would generate increased interest from potential members who had developed a love of trains at an earlier age. After six years of web site operation, the NPRHA has generated 220 new members for each of the last two years, confirming the initial theory and highlighting the value of providing wide access to the significant information.

With this objective in mind, the GNRHS and NPRHA organizations launched a long-term project to digitize the information in their JSRH archives and make as much of it as possible available to the general public via the Internet. Based on this strategy, PNRA will not act as a museum or provide public access to the physical collections, although researcher may access the collections by appointment. Instead it will use digital techniques to provide access to the broad variety of the interested parties, from railfans to researchers.

PNRA will provide the following services to the history organizations:

- Protect and preserve their collections.
- Provide means for their members to digitize and catalog records for the information in their collections.

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- Post the information and accompanying records on internet.
- Prepare interpretive displays for traveling railroad exhibits.
- Assist the railroad historical organizations in providing access to items in their physical collections for researchers, by prior arrangement.

Archive Model

PNRA will recruit participation and support from the Railroad History Organizations (RHO) that are active in the Pacific Northwest states of Washington, Oregon, Idaho and Montana. All of these organizations have historically significant collections that have been or would be donated to them, if there was a place to maintain those collections within the region. PNRA will offer such services to the participating RHOs with collections from the Pacific Northwest states.

PNRA plans to establish partnerships with governmental and corporate entities where the Archive's mission also supports their organizational objectives. These relationships could provide space for the Archive or involve other operational assistance. The Archive facility will be established between Seattle and South Tacoma to safely house the RHO collections and provide working space to catalog and digitize the individual items.

For requests for copies of materials in the cataloged collections, the Archive will operate in a manner similar to a stock photo agency which markets copies of items in the collections and fulfills requested copies with restricted use rights. PNRA will offer photos, railroad timetables, correspondence, maps, technical drawings, project files, etc. from the collections. Such informational items are of interest to local and national historians and railfans, along with the advertising and publishing industries.

Participating Organizations

With PNRA in operation, RHOs will be able to present a creditable proposal to their potential donor-members and their families, that their material would be honored and preserved for the future generations. Participating organizations will retain ownership of the donated collections and will use the PNRA facility to store, digitize and catalog of their collections. They will pay a fee for the space they use and the services provided by the Archive. Sales of services to their members can be discounted as a benefit for membership in the RHO organizations. Initially, RHOs of the Northern Pacific, Great Northern, Spokane, Portland & Seattle, Milwaukee Road railroads have expressed interest in PNRA mission, but have not committed. Other RHOs will be contacted in the future.

Archive Facility

Initially, PNRA projects a need for between 3,000 and 4,500 square feet of dry, heated warehouse space where shelving can be installed and maintained. In addition, the Archive will require a climate controlled vault to store the sensitive items in the RHO collections. The preferred archive space would be a less expensive industrial building and can be much more remote than would be needed if the facility were open to the public. Ideally, the secure space would be on an isolated floor of a multi-story building that is owned by an organization supporting the objectives of the Archive and result in a continuing relationship and lower rents.

Archive Staffing

A large group of active RHO members live in the Puget Sound region and can be enlisted to participate in the digitizing and cataloging processes, thereby increasing the total effort available to archive the collections. Once the material from the collections have been digitized, interested RHO members worldwide can be enlisted to catalog items using their internet connections, further expanding the effort to be applied to the cataloging process.

Digital Systems

PNRA will share the internet systems established by the Digital Archive Committee formed by the NPRHA and GNRHS to support their joint archive at the JSRH. The Archive will be able to scan documents; large-format rolled drawings; photographic negatives, slides and prints. Initially, PNRA and JSRH will share the internet server which carries the NPRHA.org web site. The server is housed in a commercial server collocation facility in Seattle with excellent internet bandwidth. All digital data is backed up regularly with independent copies stored at multiple location outside the Archive.

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Other Institutional Relationships

PNRA expects to establish and maintain associative relationships with the state and local historical museums, but plans to remain independent to assure control of the accessioning and de-accessioning of material donated to the RHOs participating in the Archive. The other historical institutions have shown, over time, little desire to preserve the range of operational railroad history documents valued by the railroad history organizations.

Public Education

Educating the general public on the historic role of the railroads in creating the Pacific Northwest region and its economy is an important part of the mission of PNRA and the RHOs. However, given the nature of the collections, the information must be illustrated and interpreted to be understood by the public. PNRA plans to curate traveling exhibits on various aspects of railroading using items from PNRA's collection for display at the many museums and exhibit spaces in the Pacific Northwest region.

Organizational Structure

PNRA is incorporated in Washington State as a non-profit corporation and seeking recognition as a 501(c)(3) organization by the Federal Internal Revenue Service. This Federal designation will allow application for grants from foundations and organizations which support community-based historical activities. The PNRA Board of Directors is drawn from RHO members and interested community participants.

Archive Policies

PNRA will be governed by policies and agreements with the RHOs participating in the Archive. These policies will simplify the operation of the facility and standardize the actions taken by staff at the Archive.

Accessioning & Deaccessioning Policies

Differentiating between “rare” versus “general use” materials in the of collections will play a significant role in determining the preservation methods used. PNRA will recommend that Items in the RHO collections be divided into four categories:

- Rare or unique informational materials requiring physical preservation in perpetuity.
- Informational items which are on unstable media and must be preserved in digital form.
- Physical railroad artifacts having a uniqueness, making them not replaceable.
- Common physical railroad artifacts without uniqueness which may be transferred to another institution or sold on the open market.

This determination will be made by the owning RHO during the accessioning process and will effect the way individual items are handled and preserved at the Archive. Rare informational materials will be digitized and stored in a climate-controlled vault at low temperature and humidity to preserve their physical condition. Materials to be preserved digitally, will be stored at normal room temperature and humidity conditions until digitized and then disposed of by the RHO. Physical items made of metal will be stored at normal room temperature and relative humidity conditions.

The ongoing preservation of the materials in the RHO collections also requires PNRA's and the participating cataloger's commitment to good handling policies that assure the safety of each item in the Archive. A handling policy manual will outline the steps to be taken to preserve the collections and used in the staff training. The criteria for this determination will consider uniqueness of the item, its age, condition, historical significance, physical media and value. Non-rare items will preserved only in digital form.

The criteria will be developed to clearly define the protocol for deaccessioning material that is deemed not appropriate for preservation in the collection. Material outside the scope of the Archive can become a problem as the Archive expands its program of attracting and accepting donations. Deaccessioning must not be misconstrued as an opportunity to simply gain more shelf space, but simply as a necessary tool for keeping the collection within scope. Written guidelines for deaccessioning will include a system for documenting why items are deaccessioned, where they end up, and will employ a double signature protocol to eliminate the possibility that an personal impropriety occurring through the deaccessioning process.

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Staff Training

Proper care and handling of the items in the collections will minimize damage throughout all of the Archive's processes. As the items in the collections will not be exposed to the general public, handling guidelines will focus on training the Archive staff, volunteers and occasional researchers. Other guidelines will be set to assure the safe handling of items which are part of traveling exhibits. Collection materials will be most susceptible to damage from finger prints and stains transferred from unclean hands during digitizing, photocopying and general transport within the facility.

The Archive will be responsible for the training of people who handle items at PNRA. This training will be provided by PNRA staff for new volunteers who will not be allowed to work with collection materials until they have completed this training.

All PNRA staff will be trained on proper check out and return of materials in the archive. Staff will only be allowed to checkout a single box at a time and must return that box before checking out another and no physical materials will be allowed to leave the building. A box may be left at a work station for more than one day's work, but all staff will be encouraged to return all checked out boxes at the end of each day. Items being returned to the collection will be placed in their assigned locations in the Archive to complete the check-out process.

Collection Digitization

The digitization of items in the PNRA collections will expand public access to the information in the Archive that has in the past only been accessible to researchers in person. That access will be provided worldwide over the internet. Digital imaging technology is not currently recognized as a long-term medium for preserving content by the archival community. However, internationally-recognized standards for creation, storage, and migration are being formulated and will be established in the future. The NPRHA has a number of the members who are active in the digital archival field and expect to stay current with the latest developments over time.

PNRA will document the required processes for creating digital images of photographs, negatives, slides, micro-film, correspondence, project files, and technical drawings. The conversion of these items to a digital format allows tightly controlled access to originals, thus preventing unnecessary damage, while providing distant access via the internet.

PNRA will maintain the software, hardware, and equipment necessary to access the digitally formatted information, and plans to reformat the files in the collection when necessary to update the Archive's technology as it evolves. Also, the Archive will acquire and maintain hardware to scan documents, photos and some negative formats, but will predominately use outside service bureaus for scanning slides and large format drawings.

Scanning Policies

The RHOs have a number of different formatted items that will be digitized. The resultant files may be used to generate printed copies of the items and will provide access via the internet. The printing process requires that a file be at least 300 pixels per inch to obtain good quality photo, document prints and large-format drawings. The following specifications will be used to scan items in the RHO collections:

- All negatives, slides and photographic prints will be scanned at a rate to provide a digital image at least 6,000 pixels in its widest dimension and the digital master files saved in an uncompressed TIF format.
- Letter and legal sized documents will be scanned at 300 pixels per inch and the masters saved in an uncompressed TIF format.
- Large-format, single color (black on white or white on blue) rolled drawings will be scanned in a one-bit format at a minimum of 400 pixels per inch and saved in an uncompressed TIF format.
- Large-format, multicolor drawings or prints will be scanned as color drawings at 300 pixels per inch and saved in an uncompressed TIF format.
- Photographic images that have been screened for publication will be scanned at 300 pixels per inch and saved in an uncompressed TIF format to produce an image no larger than 20% larger than the screened-image being scanned.

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Digital File Preservation

When digital files are created, they will be preserved in a manner that reflects their rarity. The files of highly rare items will be stored on best-quality, archival CD or DVD disks in at least two separate physical locations for no more than ten years before being rewritten to new media. It is anticipated that a real, long-term optical storage disk format will be developed in the next 20-years. When available, the digital files may be written that the new format to be preserved on a more permanent basis.

Items of medium and lower priority will be saved on external hard drives in at least two locations. The cost of digital storage is getting lower by the month with large hard drives available for under \$100. However, hermetically sealed hard drives are not permanent storage, as the data must be rewritten to the drives periodically since the magnetic charge on each drive degrades over time. Solid state storage, similar to the current flash drives, only much larger capacity, are projected to replace mechanical hard drives over time as their cost falls dramatically as expected.

Underlying the above storage methods is the assumption that digital data will need to be renewed periodically as the storage and computer technology evolves over time. Certainly, as reading and writing formats change, the Archive must update the data storage or maintain the old technology after it has become obsolete and replacement parts are no longer available. Maintaining files in mass storage devices, like mechanical or solid-state hard drives can simplify the data refresh processes, but can lead to endless system hardware updates which can be an added expense. These considerations will be built into the projected budgets of PNRA.

Permission To Publish Images

PNRA will establish and manage the processes and procedures to protect the RHOs copyrights and ownership of the material made available to publishers and users. This will include preparing applications for rights to use the material and agreements which spell out the material ownership and use limitations. These agreements will explain the rules pertaining to those rights and will be signed by all purchasers of use rights. Failure to comply with the conditions may result in the revocation of PNRA's permission to use the material and the denial of future use.

Physical Storage

The physical collections will be stored predominantly on fixed shelving in supportive boxes selected for storage of the following materials:

- Bankers boxes for 8.5" by 11" paper files containing correspondence, project records, magazines, etc.
- Document tubes or boxes for storage of rolled drawings from 30" to 48" wide.
- Drawers to hold large flat drawings.
- Display drawers for collections of similar small items.
- Storage enclosures for photographic materials that conform to the recommendations specified in *ISO 18902-2001 Imaging Materials - Processed Photographic Films, Plates, and Papers - Filing Enclosures and Storage Containers*.

The shelving will vary from 15" to 48" deep and be divided into marked sections. Boxes and drawers will be identified by their assigned section and position on their designated shelf. Each box will be listed in the Archive database by its section, shelf, position and weight. Variability in weight will be an indicator of missing files.

Photographic Negative Storage

All negatives will be considered rare items and will be stored in the climate-controlled vault to extend their usable life. Negatives will be stored in acid-free envelopes with the relevant information about the image printed on the envelope. All negatives will be scanned at a rate to provide a digital image at least 6,000 pixels in its widest dimension. Unless not possible, photo images will be viewed only from the digital database, not from the physical negative. 35-millimeter negatives will be left in multiple image strips and stored in polyester film sleeves made up on an 8.5" by 11" formatted sheet and place in acid-free boxes. Card-mounted negatives and sheets of negatives will be stored in acid-free boxes before placing them in the climate-controlled vault.

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Photographic Slide Storage

Color images are very sensitive to color change due to heat and light exposure. Slides should be stored in polyester film sleeves in 20 slide groups made up on 8.5" by 11" formatted sheets. Because of the delicate nature of color slide images, they should be the first to be scanned to preserve the color information and to keep the slides from further handling and exposure to the elements. The sheets of slides will be stored in acid-free boxes before placing them in the climate-controlled vault.

Photographic Print Storage

The preferred way to view photo images from the collections will be from the photo database, rather than from a print of the image. All photographic prints without negatives in the collections will be scanned and the file added to the database. However, photographic prints in the collection will be housed individually in acid free, archival sheet protectors before handling, eliminating the need for gloves. By storing prints individually in clear protectors, notes recorded on the back of the photo will be easily seen. The sheet protectors will be stored in appropriate archival boxes, instead of three-ring binders to minimize creasing and other damage.

Boxes

Housing rare paper-based collection material in archival-quality boxes provides a significant benefit, as the surrounding alkalinity of the box board contributes long-term stability to the stored items. Standard size archival boxes will be purchased in quantity by the Archive and sold to RHOs to store their items. The boxes can be obtained in a wide range of dimensions to house a diverse array of collection materials, while keeping the items dust free, protected from light, and buffered from shifts in temperature and humidity. Paperboard boxes that contain photographs, but not in direct contact with them, should have a pH between 7.0 and 9.5 and a 2% alkaline reserve.

Oversized Flat Materials

The greatest risk of damage to oversized materials is their vulnerability to mechanical damage, particularly as the paper ages and stiffens. Currently, protective storage of large drawing is being provided by rolling multiple drawings together and placing them in long cardboard boxes. However, rolled storage causes most papers to permanently curl, putting them in danger of cracking or breaking when unrolled due to normal chemical aging.

If the item has not been rolled before or is still flexible, oversized flat files can be purchased to accommodate maps, blueprints and architectural drawings. Inside these drawers, maps and architectural drawings can be stored in 10- or 20-point alkaline cardstock folders, while blueprints must be stored in pH neutral folders made from either 4- or 5-mil polyester film or pH neutral cardstock. Unlike most paper based materials, the blueprinting process is actually damaged from contact with alkaline or acid free housing materials.

Alternatively, oversized paper objects can continue to be rolled, although greater physical protection could be afforded item by rolling it between two sheets of 4- or 5-mil polyester film in high density polyethylene tubes. This would also provide an inert lining to separate the collection materials from the storage tubes.

Facility Requirements

As mentioned above, PNRA projects a need for between 3,000 and 4,500 square feet of dry, warehouse space where shelving can be installed and maintained. The facility will be divided into the Vault and Working areas which will differ in the environmental conditioning applied to each area. The vault will be maintained at low temperature and humidity conditions to preserve the rare items. The Working area will be used by staff to scan and catalog the items from the collections and will be maintained at normal room temperatures and relative humidities. Additional requirements include the following:

Collection Security

PNRA's facility will limit the access to the collections to only people who have completed training and abide by the Archive policies and procedures. The Archive will have provisions to fully lock and secure the vault and working areas of the facility to block entrance to unauthorized people. PNRA will adopt security policies consistent with the need to retain portions of the collection in perpetuity in the climate-controlled vault. In particular, access to

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the vault will be limited to trained staff charged with performing specific tasks requiring access to the materials contained therein.

In addition the following policies will be implemented and enforced:

- A collection inventory system will be developed and maintained to track all items in the collection.
- Access records will be maintained for all users that work with or examine any collection materials, identifying the material used, and the time and date of use. This system will act as a theft deterrent, in addition to helping track misfiled boxes and materials.
- Collection photos, negatives or document originals will not be loaned to anyone to be removed from the facility. Only digital copies may be taken from PNRA after proper agreements have been signed.
- Physical collection items will be loaned as part of a curated exhibit, but will be covered by signed documents of responsibility and evidence of insurance.
- Archive volunteers and staff will be required to wash hands with soap and water or put on silk gloves prior to handling any rare materials.
- All personal items (coats, backpacks, notebooks, etc.) will be left in a designated area outside the work rooms to prevent staff, volunteers and researchers from having an opportunity to conceal small objects within their belongings.

Heating-Air Conditioning Equipment

PNRA's storage vault will store the rare items and require an environmental control system to protect the stored collection 24-hours a day seven days per week to the level detailed in the next section. Environmental conditions within the PNRA Vault are intended to decelerate chemical breakdown of the materials. A cold, dry, dark environment provides optimal storage conditions for extending the life of archival material by minimizing external catalysts that cause chemical breakdown. High temperature or high relative humidity, as well as wide fluctuations in either of these environmental variables should be avoided because they also accelerate the breakdown of the items in the collections.

Storage practices for imaging materials (*ISO 18902-2001*) recommends several combinations of temperature and relative humidity that are appropriate for extended-term storage of sensitive materials. Extended-term storage conditions are defined as, "Storage conditions suitable for the preservation of recorded information on the majority of freshly processed photographic films for 500 years." The recommendations include:

- Temperature of 36° F, the RH should be between 20-50%, and not cycle more than 5% in a 24 hour period.
- Temperature of 42° F, the RH should be between 20-40% and not cycle more than 5% in a 24 hour period.
- Temperature of 45° F, the RH should be between 20-30% and not cycle more than 5% in a 24 hour period..

Thus, the higher the temperatures, the lower the allowed variability of the relative humidity. Material stored at these recommended low temperatures must be allowed to equilibrate to room temperature before being used.

Non-rare items will be stored in the Working area of the Archive at normal room temperature and relative humidity while they are scanned and cataloged. The actual setting will be dictated by the comfort of the staff. Temperatures in the Puget Sound region do not have the extremes of other areas of the United States, reducing the temperature controls needed. Because the region's climate is effected most by weather coming from the colder environs of the North Pacific, Puget Sound also tends to have lower humidity than other parts of the country. This will significantly lower the use of humidity controls in the Working area of the Archive, as they will mostly be needed only during a few days of a normal year.

Lighting

All light is radiant energy that causes chemical deterioration to organic materials in the form of fading of pigments and dyes and the weakening of paper. The severity of light damage depends upon the type and intensity of the light source, the duration of the exposure, and the sensitivity of the object to the specific form of energy. Light damage is additive as well as irreversible, suggesting that even when an object is removed from direct exposure, light's degrading effects continue to effect the item, even in darkness. Preventing this deterioration is the only means of protecting the collection, as no conservation treatment is able to reverse light damage. The most aggressive source of light affecting collections is natural daylight, followed by artificial light sources including fluorescent tubes, with incandescent bulbs being the least damaging of the three forms of illumination. While setting up the PNRA facility, consideration will be given to reducing the harmful effects of the lighting of the storage and work areas.

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Emergency Preparedness

The western Washington area is subject to periodic earthquake activity from seismic faults which traverse the Puget Sound region through a number of corridors. In addition, certain areas in the region have a continuing flood risk from some uncontrolled rivers which have tended to flood in periods of heavy rains. This later condition can be mitigated by selecting a site for the Archive that is not in one of the many flood plains in the area. However, the earthquake conditions make emergency preparedness very important to assure the fulfillment of the Archive's mission in the future.

PNRA will write a preparedness plan and update it regularly. The storage vault and work areas will be configured to withstand the expected earthquake severity for the region. The plan will include the following concerns:

- Fixed storage shelves will be internally braced and bolted to the floor to minimize collection movement.
- Shelving will include moveable guards to prevent items from falling off shelves during an earthquake.
- Moveable shelving will be considered since the bays can be positioned with adjacent ones touching each other, thereby eliminating items falling from shelves in case of an earthquake. While these storage systems are expensive, they can greatly increase the storage for an available floor space.
- All plumbing will be routed within the Archive to eliminate the possibility of water reaching the collections.
- Fire suppression in collection storage areas should be provided using a non-aqueous system to prevent collection damage in the case of fire.
- Smoke and motion detection systems will be wired directly to the local fire and police department to provide early warning in the case of a smoldering fire or an intrusion.

Restroom Facilities

A single restroom will be included in the Archive and located to not allow water to reach the collections.

Capital Equipment Requirements

PNRA will require many types of capital equipment to allow the RHOs to carry out their mission. The Archive plans to provide equipment and supplies necessary to scan, catalog, and preserve the items in the RHO's collections. The initial costs of capital equipment will be borne by the PNRA and amortized over their useful lives through user fees to the RHOs. Those fees are expected to be lower than each RHO's ownership costs over a comparable time period. The follow types of fixtures and equipment are expected to be provided by the Archive:

Storage Shelving

As discussed before, the PNRA facility will be divided into two areas: the Storage Vault and Working areas. Each area will store the railroad information files in banker's boxes on racks of shelving. Given the difference in the space allowed in Vault and Working area, the shelving systems used in each will likely vary considerably, with more compact racks used in the Vault facility.

The height of the racks in both area will depend on the ceiling height of the facility, but the racks will need external bracing to sustain earthquakes. Rolled drawings, train sheets, maps, etc. will be stored in 6" x 6" rectangular boxes or tubes of varying lengths which match the box contents. The containers will, in turn, be stored horizontally in bays where the marked ends are visible.

- Fixed storage shelves will be internally braced and bolted to the floor to minimize collection movement.
- Shelving will include moveable guards to prevent items from falling off shelves during an earthquake.
- Moveable shelving will be considered that can be positioned with adjacent bays touching each other, thereby eliminating items falling from shelves in case of an earthquake. While these storage system are expensive, they greatly increase the storage for an available floor space.

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Scanning Equipment

PNRA will require equipment and work stations to scan the railroad data on all the various media. In most cases the documents, photos or drawings will be scanned before they are cataloged, to allow members to do the cataloging over the internet. It is assumed that scanning at the Archive will be limited to:

- Paper sheets and photo prints (9" x 14") from a sheet feeder.
- Photo negatives (2.5" x 5").
- Slides and film (35mm) with cartridge feeder. Initially 35mm images will be scanned by a local service bureau.
- Large-format drawings (up to 40" high) with Mylar carriers to protect fragile drawings. Initially these drawings will be scanned by a local service bureau.

After the Archive is setup and staffed, the use of service bureaus will be reviewed to see if those scanning processes should be performed at PNRA.

Computer Equipment & Software

The Archive will require computer equipment capable of processing image files as large as 150 MB at reasonable speeds. Multiple-processor, high-performance desktop computers are priced below \$800 and capable of running image processing software when configured with 4 GB of memory. In addition, all computers in the Archive will be interconnected via a secure wireless router and will be used for the following tasks:

- Computers used to drive the document and negative scanners (two).
- Post-scan processing of images with PhotoShop to prepare them for posting on the web site (one).
- Internet connected computers used for researching and cataloging images (three). These computers can be single processor machines with 1 GB of RAM, since they will be handling web images.
- A server with internal and external hard drives configured in RAID 1 to store the scanned and processed images and data. (one).
- Wireless router and seven receiver cards to connect all computers used at the facility.

Printing Equipment

PNRA will provide print copies of photo images, large-format drawings and document pages. In addition, some files will be sold on optical disks with the proper limited use provisions. The archive will have an ink jet printer to produce document-sized prints. However, photo and large-format drawing prints will be made by local service bureaus. All such copies of materials from the PNRA archives will be governed by the use rules discussed previously.

Office Equipment

PNRA will require office equipment in the Work area for the staff to use when reviewing and cataloging the stored data. The following equipment will be provided:

- Computer work stations with goose-neck lamps and chairs (six stations initially).
- Book shelves to store references necessary to the operation of the Archive.
- Work tables for review of rolling drawings, (one 4' x 8' table and one 30" x 60" table)
- A Light table for review of film negatives and positives, (one initially)
- An accurate paper cutter.

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Cost Elements

PNRA will incur startup capital costs for the items listed above and for operating expenses to maintain the Archive and accomplish its mission. The initial costs will be paid for by startup assessments of the RHOs and from grant monies received. The ongoing operating expenses are estimated below and will be covered by RHO payment of the semiannual assessments:

- **Facility Costs**
The projected 3-4,000 square foot of warehouse space will be an ongoing monthly expense. Attempts will be made to keep the cost near \$500 per month on a long-term net-net-net lease. This will require the lease to be made with an entity supporting the PNRA mission. It is assumed that parking fees will be not be charged, since the facility is projected to occupy industrial space.
- **Utilities**
The facility will require electrical, water, sewer, phone, fire suppression system and internet connections which will generate monthly expenses.
- **Insurance**
PNRA will require a level of insurance for the equipment and stored contents in the facility and normal liability insurance, including directors and offices coverage.
- **Office Supplies**
PNRA will stock archival boxes, file folders, negative holders, sheet protectors, etc. for use by the RHOs.
- **Postage & Freight**
The participating history organization will pay for shipping of collections to and from the PNRA facility, but the Archive will mail regularly to participating members and organizations, as well as mailing research results to requestors.
- **Advertising**
PNRA will advertise regularly in railroad history related publications to promote the sale of photo and drawing use rights. Also, the Archive will print a brochure detailing the services offered.
- **Bookkeeping Services**
PNRA will require someone to maintain an accounting system, deposit collected funds, pay bills, prepare tax returns and provide financial reporting to granting agencies. These services may come from Archive volunteers with experience in the disciplines.
- **Archive Management Services**
Depending on the extent to which PNRA sells use rights to materials in the collection and conducts paid research projects, a level of management will be required to assure the work is done correctly and in a timely manner. It is assumed that these services will initially be donated by interested participants.

Income Sources

PNRA will require funding to establish and sustain its mission. A number of funding sources have been identified, including:

- **Semiannual rent and services fees.**
Participating RHOs will pay a semiannual fee to cover an allotted portion of the rent and services provided by PNRA. The fees will be prepaid every six months and will be apportioned per the space and services used by the RHO. The space usage and services will be negotiated between PNRA and the RHO and documented in a contract with provisions for renegotiation as required.
- **Grants for physical setup and cataloging.**
PNRA plans to seek grant funding and individual donations to establish the Archive; purchase scanning equipment; set up the collections in the facility; catalog specific collections; and curate traveling exhibits.

Pacific Northwest Railroad Archive

Organizing Plan

- **Archive user memberships.**
PNRA will sell individual Archive memberships to members of the participating historical organizations who want to help fund the Archive and use the services and information of the Archive at discounted rates.
- **Selling image use rights.**
PNRA will have a substantial number of the railroad photos in the collections and will actively promote the sale of digital prints of those photos using a stock photo agency model. Fees for photo use will be divided between the owning organization and PNRA to cover the Archive's cost of promotion and fulfillment. Attempts will be made to keep the cost of drawing and photo prints low to encourage use of the service.
- **Funded research.**
Railfans, book authors, historical researchers and model manufacturers will request help with research of various subjects covered in the PNRA collections. Member-volunteers familiar with the PNRA collection will be able to provide such research services to raise funds for the Archive and participating RHOs.
- **Traveling exhibits.**
Curatorial services of exhibits of photos and artifacts on railroad-related subjects should produce fees to offset the exhibit costs. The benefit to PNRA would accrue mainly from the exposure of the Archive and subsequent use of our services.
- **Web site online advertising.**
The Archive expects to have a strong presence on the internet which could attract reasonable traffic flows from the railfan community. That traffic could generate an income from advertising sold by companies like Google and Yahoo.

Archive Establishment Process

To meet the objectives of PNRA's mission, a number of steps must be completed before the Archive can be established. These steps may have a slightly different order, but are the essential tasks which must be completed to get the Archive up and running:

1. Complete the Archive Proposal which can be presented to a potential partner or funder to fully describe the mission and steps to establish PNRA.
2. Gain formal commitments from the Railroad History Organizations to participate in PNRA.
3. Establish one or more partner relationships to secure a long-term lease on space suitable for the Archive and part of the initial funding.
4. Prepare and submit grant applications to fund the startup expenses of the Archive.
5. Remodel the facility to meet the needs of PNRA.
6. Prepare descriptive literature to gain members and advertise the services of the Archive.
7. Purchase equipment for the storage and digitization of the collections.
8. Install the storage racks for housing the collections.
9. Move into the selected facility.
10. Connect the computer network and workstations in the facility.
11. Start digitizing parts of the collection.
12. Enroll members to catalog parts of the collection over the Internet.