

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF STATE
STATE ARCHIVES DIVISION
PUBLIC RECORDS ADMINISTRATION

**RULES AND REGULATIONS FOR
THE MAKING AND MANAGEMENT
OF IMAGED PUBLIC RECORDS**

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This regulation includes two parts. PART A sets the policy, legal, and records management framework within which the rules for the creation and management of digitized public records are set. PART B describes technical requirements with which agencies must comply, as well as recommendations.¹

PART A. POLICY, LEGAL, AND RECORDS MANAGEMENT FRAMEWORK

Section 1.0 Definitions

Accessibility - The characteristic of being easily reached or used with a minimum of barriers.

Accountability - The quality of being responsible, answerable; the obligation to report, explain, or justify an event or situation.

Accuracy - The degree of precision to which something is correct, truthful, and free of error or distortion, whether by omission or commission.

Architecture - The design and specifications of hardware, software, or a combination thereof, especially how those components interact.

Authenticity - The quality of being genuine, not a counterfeit, and free from tampering, and is typically inferred from internal and external evidence, including its physical characteristics, structure, content, and context.

Back-up - To copy files to a second medium as a precaution in case the first medium fails.

“Born Digital” - Information created in electronic format. Born-digital information is distinguished from digitized, the latter describing a document created on paper that has been scanned (and possibly transformed into character data using Optical Character Recognition (OCR)). A document created using a word processor may be described as born digital.

Capture - Using a scanner, digital camera, or other device to create a digital representation of a document or object.

¹ This regulation is based on a consultation of national and international standards, the administrative codes, regulations, standards, and guidelines of the National Archives and Records Administration as well as of twenty state administration, archives, information technology, and records management programs. Documentation from the following professional organizations was also consulted: Center for Technology in Government (Albany, New York), Cohasset Associates (MER) Council on Library and Information Resources, Federal Information Processing Standards (FIPS), International Color Consortium, Lockheed Martin (Electronic Digital Imaging Standards for Archival Records), National Media Labs (Imation), Northeast Document Conservation Center, Research Libraries Group, Uniform Electronic Records Transaction Act, Reference Model for Open Archives Information Systems, and InterPARES Project (International Research on Permanent Authentic Records in Electronic Systems).

This regulation may be subject to amendment in response to new information about existing technologies, and the availability and adoption of new information and communication technologies and standards.

Completeness - The property of having all physical and intellectual components required by the process or laws regulating the system that created the record.

Compression - The re-encoding of data to make it smaller. Most image file formats use compression because image files tend to be large and consume large amounts of disk space and transmission time over networks.

Conversion - The transfer of data to a different format, especially data from an obsolete format to a current format. See also Migration.

Cropping - A method to remove parts of the left and right sides of a widescreen image so that it fits into another aspect ratio, without stretching the image or filling the blank spaces with letterbox bars.

Deskew/Skew - During printing or scanning, the degree to which the page is not vertical. De-skewing is a process where the computer detects and corrects the skew in an image file.

Despeckle - Filter that smoothes areas in which noise is noticeable while leaving complex areas untouched.

Digital - Describes any system based on discontinuous data or events. Computers are digital machines because at their most basic level they can distinguish between just two values, 0 and 1, or off and on. There is no simple way to represent all the values in between, such as 0.25. All data that a computer processes must be encoded digitally, as a series of zeroes and ones.

Digital Signature - A code, generally created using a public key infrastructure (PKI), associated with a digital object that can verify the object has not been altered and, in some contexts, may be used to authenticate the identity of the sender. An authentication mechanism.

Digital record - See Electronic record.

Disposal - The transfer of records, especially non-current records, to their final state, either destruction or transfer to an archives.

Disposition - Records' final destruction or transfer to an archives as determined by a records retention schedule.

Dots per inch/DPI - A measurement of the scanning resolution of an image or the quality of an output device. DPI expresses the number of dots a printer can print per inch, or that a monitor can display, both horizontally and vertically.

Electronic - Of, or relating to, technology having electrical, digital, magnetic, wireless, optical, electromagnetic, or similar capabilities.

Electronic record (Digital record) - A record created, generated, sent, communicated, received, or stored by electronic means. 'Electronic records' are defined as: "Records

capable of being processed in a computer system and/or stored at any instant in a medium which requires electronic or computer equipment to retrieve them.” [From Judith Ellis, ed., *Keeping Archives*, 2nd ed., Port Melbourne, 1993, p.469.]

Format - The shape, size, style, and general makeup of a particular record. A structure used for the interchange, storage, or display of data.

Gamut - The range of colors that is reproducible on a particular device.

GIF (Graphics Interchange Format) - A bitmap image format for pictures with up to 256 distinct colors from the over 16 million representable in 24 bit RGB. A GIF file employs lossless data compression.

Grayscale - An image type that uses black, white, and a range of shades of gray. The number of shades of gray depends on the number of bits per pixel. The larger the number of shades of gray, the better the image will look, and the larger the file will be.

Human-readable storage medium - Paper, a photograph, a photocopy, or a microform, including, but not limited to, microfilm, microfiche, computer output microfilm, and aperture cards.

Imaging - The process of copying documents by reproducing their appearance through photography, micrographics, or scanning.

Information - Data, text, images, sounds, codes, computer programs, software, databases, etc.

Integrity - The quality of being whole and unaltered through loss, tampering, or corruption.

Interoperability - The ability of multiple systems, using different hardware and software platforms, data structures, and interfaces, to exchange and share data without corruption.

Interpolation - Sometimes called “resampling.” The processes of adding or removing pixels to an image to either change the image’s dimensions, or to change how large the pixels will be when the image is printed. An imaging method to increase (or decrease) the number of pixels in a digital image.

JPG, JPEG Joint Photographic Experts Group - A compression algorithm for condensing the size of image files. JPEGs are useful in allowing access to full screen image files on-line because they require less storage and are therefore quicker to download into a web page. JPEG is usually “lossy” compression.

Lossless - A term used to describe digital compression techniques in which no information is lost. An object is identical before and after being compressed and restored.

Lossy - Used to describe digital compression techniques in which information is lost. An object is altered after being compressed and restored. Lossy compression sacrifices fidelity

for size. Fidelity and compressed file size are inversely proportional. The technique may be used in instances where the loss of information is not noticeable or significant. MPEG and JPEG are lossy compression algorithms.

Microfilm - Transparent film containing highly reduced copies of documents. Microfilm may be in rolls, sheets (microfiche), strips (usually in jackets), or chips (usually in aperture cards). Standard widths of roll film include 35 mm and 16 mm. Microfilm may use silver gelatin, diazo, or vesicular processes to form the images. Silver halide duplication film is the only duplicating film considered suitable for producing microfilm of archival quality. (State of Rhode Island. Office of the Secretary of State. Rhode Island State Archives & Public Records Administration. Rules and Regulations for Microfilm Standards.)

Migration - The process of moving data from one information system or storage medium to another to ensure continued access to the information as the system or medium becomes obsolete or degrades over time.

Network - The equipment and materials used to connect servers and terminals. A network may be configured as a ring, bus, star, or tree topology. Networks vary in size and may be described as a local area network (LAN) or a wide area network (WAN). The Internet is a network of networks.

Non-current records - Records that are no longer used in the day-to-day course of business, but which are preserved and occasionally used for legal, historical, or operational purposes.

Open System Architecture - The phrase “open system architecture” has been defined in various ways. For the management of records, the most important feature of open system architectures is that they allow their users to make system improvements and incorporate technological changes over time without significantly compromising the integrity of the existing records. Open systems also support the importing and exporting of digital images to and from other sources and systems. The flexibility of open systems architectures enables agencies to continue to access their digital records with long retention periods and to transfer them from one type of hardware or software platform to another.

Optical disk - A platter used to store large quantities of data that can be read using light.

PDF - Portable Document Format. PDF is a file format for representing documents in a manner that is independent of the original application software, hardware, and operating system used to create those documents.

PDF/A - Portable Document Format/Archival is an ISO Standard (ISO 19005-1:2005) that was published on October 1, 2005. This standard defines a format (PDF/A) for the long-term archiving of electronic documents and is based on the PDF Reference Version 1.4 from Adobe Systems Inc.

Pixelated - Describes an image in which individual pixels are apparent to the naked eye. (Typically, individual pixels should not be discernible.)

Program - The State Archives Division in the Department of State. Also the Public Records Administration in the State Archives Division.

Public record - "Public record" or "public records" shall mean all documents, papers, letters, maps, books, tapes, photographs, films, sound recordings, magnetic or other tapes, electronic data processing records, computer stored data (including electronic mail messages, except specifically for any electronic mail messages of or to elected officials with or relating to those they represent and correspondence of or to elected officials in their official capacities) or other material regardless of physical form or characteristics made or received pursuant to law or ordinance or in connection with the transaction of official business by any agency.

Quality Control - Techniques used to ensure that high quality is maintained through the various stages of digitization.

Record - Information that is inscribed on a tangible medium or that is stored in an electronic or other medium and is retrievable in perceivable form. Information created or received during the course of government business that becomes part of an official transaction.

Records control schedule/Records retention schedule/Schedule - Document establishing the official retention, maintenance, and disposal requirements for a series or type of record based on administrative, legal, fiscal, and historical values for the scheduled records.

Record Copy - The record that an agency designates as its official record for legal and business purposes, and to which it applies commensurate records management policy measures for protection, security, and preservation.

Records Management Program - The activities, policies, and procedures within an organization to implement records management.

Record Series - A group of documents or file units maintained and related to a particular subject or function of an agency or office or is derived from a particular activity of an agency or office. The series title should be as specific and descriptive as possible. Records series are the basic unit for setting record retention and disposition conditions in records control schedules.

Refreshment/Refresh - The accurate transfer of digital files to new storage media on a regular basis to prevent the loss or corruption of stored information as a result of media degradation.

Reliability - The quality of being dependable and worthy of trust. The quality of being consistent and undeviating. Created by a competent authority, according to established processes, and being complete in all formal elements.

Reproduction - Something that is made in imitation of an earlier style; a facsimile. A duplicate made from an original; a copy.

Resolution - A measure of the sharpness and detail in an image or optical system. Resolution is often determined by photographing a standard target and measuring the lines per millimeter that can be discerned in the developed image. Resolution quality depends on the optical system, the type of film, the manner in which the film is processed, and other factors.

Scanning - The process of creating a raster graphic that reproduces a document or image by converting reflected or transmitted light into a digital signal that can be stored, transmitted, and reconstructed for display as an electronic image.

Scanning system - A combination of hardware, software, policies and procedures, and personnel devoted to the production of digitized images of records in paper, microfilm or other media.

Sharpening - The process of sharpening the edges and contours in digital images.

Structured Data - Data that resides in fixed fields within a record or file. Relational databases and spreadsheets are examples of structured data. (Unstructured data refers to masses of usually computerized information that does not have a data structure and that is easily readable by a machine. Examples of unstructured data may include audio, video and unstructured text such as the body of an email or word processed document.)

TIF, TIFF (Tagged Image File Format) - An industry standard image file format.

Uncompressed, originally developed for desktop publishing. 1 to 64-bit depth, used mostly for high quality imaging and archival storage. Generally non-compressed and high quality, including large file sizes. Most TIFF readers only read a maximum of 24-bit color. Delivery over web is hampered by file sizes, although LZW compression can reduce these file sizes by 33%, it should not be used for archival material. It is unique in that it incorporates multiple compression techniques, allowing the user to specify the best format for a type of image, and that one file can contain multiple images.

Trustworthy Information System - A computer application designed to create, store, and retrieve data according to well-documented processes that ensure records based on those data are authentic and reliable. An information system that produces reliable and authentic records.

Section 2.0 Explanation of Policies, Intent, Purpose, and Outcomes

2.1 Policies

Records and sound record keeping practices help to keep government working from day-to-day, year-to-year, and decade-to-decade. The continuity of government and the protection of the government's rights and interests crucially depend on the continuing availability of its records. Public trust and confidence in state and local government as a protector of individual rights, as a promoter and defender of the public interest, and as a provider of vital public services similarly depend on the quality and availability for inspection of its public records. The excellence and integrity of government are measurable in terms of the care it devotes to its own records.

The government of Rhode Island has been relying increasingly on electronic means to create and keep the records it requires to maintain the public trust and to effectively fulfill its roles and perform its functions. The Department of State, and the State Archives Division, supports the move to electronic government. Thanks to innovative information technologies, state and local government can better deliver important services to Rhode Island's individual and corporate citizens in a timely manner, and make more information more widely accessible. Computerized, networked systems environments are also presenting new opportunities to enhance the workings of state and local government, making it possible for agencies to improve their business processes by coordinating, sharing, and using their information and information resources to better effect than ever before.

*Note: Compliance with this regulation is not obligatory where agencies are producing digital copies of records on an ad hoc or as needed basis strictly for convenience of reference and/or ease of distribution, **and where the paper documents are retained and continue to serve as the agency's official record for the entire duly authorized retention period.***

2.2 Intent

Electronic records management is a key technology underpinning electronic government. The conversion of paper records to electronic form through electronic scanning processes, commonly known as "scanning", "digitization" or "imaging", is playing an important part in this on-going transformation. Digitization technology, however, is also presenting unprecedented challenges for the management and protection of the records and information it creates. This regulation is intended to support the move toward digital government. It does this by setting requirements and recommended actions that will help state and local governments to ensure the quality and availability of their digitized records until the need to keep them for administrative, legal, business, or other reasons ceases to exist. It is not the intent of this regulation to impose requirements that will reduce the intended benefits of imaging applications.

2.3 Purpose

The purpose of this regulation is to establish and clarify for agencies undertaking to scan their records the outcomes that are necessary to satisfy the state's administrative, legal, and business requirements for the management of its digitized records.

2.4 Regulation Outcomes

This regulation establishes the following outcomes.

2.4.1 Agencies understand their accountability and responsibilities for proper record keeping.

2.4.2 Agencies understand state laws as they pertain to the digitization of their records.

2.4.3 Scanning projects occur within the framework of sound records management. Digital records are integrated into state agency records management programs.

2.4.4 Agencies are accountable for the outcomes of scanning projects. Digitized records remain accurate, authentic, and complete, and maintain their integrity, until their retention period expires.

2.4.5 Agencies notify the State Archives Division before embarking on every new digitization project in order to confirm the identity of the records.

2.4.6 Agencies carefully weigh on a project-by-project basis the potential short-term and long-term benefits and costs to the state of committing to various imaging solutions.

Section 3.0 Laws

3.1 Statutory authority to issue this regulation

Rhode Island General Laws (hereafter, R.I.G.L.) § 38-1-11 - The public records administration program of the secretary of state shall have the right to examine the condition of public records and shall give advice and assistance to public officials in the solution of their problems of preserving, creating, filing, and making available the public records in their custody.

R.I.G.L. § 38-3-3 (7) - The program shall adopt rules and regulations deemed necessary to carry out its duties and responsibilities under this chapter, which rules shall be binding on all agencies and persons affected thereby. The willful violation of any of the rules and regulations adopted by the program shall constitute a misdemeanor.

R.I.G.L. § 38-3-5 - It shall be the duty and responsibility of the public records administration program to:

(1) Establish and administer a public records management program, including the operation of a record center or centers, and appoint a director who will apply efficient and economical management methods relating to the creation, utilization, maintenance, retention, preservation, and disposal of records.

(2) Analyze, develop, establish, and coordinate standards, procedures, and techniques of record making and record keeping.

R.I.G.L. § 38-3-6 (k) - The program shall adopt reasonable rules and regulations not inconsistent with this chapter relating to the destruction and disposal of records.

R.I.G.L. § 38-3-6 (3) - Standards for the reproduction of records for security or with a view to the disposal of the original record.

R.I.G.L. § 42-127.1-17 - Each governmental agency of the state shall determine whether, and the extent to which, it will create and retain electronic records and convert written records to electronic records; provided, however, all determinations shall be governed by the provisions of title 38. (Emphasis added.)

3.2 Status of reproductions of public records as evidence

R.I.G.L. § 38-3-5.1 - If any department or agency of government, in the regular course of business or activity ... has caused any or all of the records to be recorded, copied, or reproduced by a photographic, photostatic, microfilm, micro-card, optical disk, miniature photographic, or other process which accurately reproduces or forms a durable medium for reproducing the original, the original may be destroyed in the regular course of business, provided the process meets standards established by the public records administration, and

provided all the provisions of § 38-3-6 concerning disposal of public records are fulfilled. The reproduction, when satisfactorily identified, shall be admissible in evidence as the original in any judicial or administrative proceeding whether or not the original exists or is available and an enlargement or facsimile of the reproduction shall be likewise admissible in evidence if the original is in existence and available for inspection under the direction of the court. (Emphasis added.)

R.I.G.L. § 42-127.1-7 (a) - A record or signature may not be denied legal effect or enforceability solely because it is in electronic form.

R.I.G.L. § 42-127.1-12 (f) - A record retained as an electronic record in accordance with subsection (a) satisfies a law requiring a person to retain a record for evidentiary, audit, or like purposes, unless a law enacted after the effective date of this chapter specifically prohibits the use of an electronic record for the specified purpose.

R.I.G.L. § 42-127.1-13 - In a proceeding, evidence of a record or signature may not be excluded solely because it is in electronic form.

3.3 Prohibitions

R.I.G.L. § 38-1-10 - No public official may mutilate, destroy, sell, loan, or otherwise dispose of any public record without the consent of the public records administration program of the secretary of state.

R.I.G.L. § 38-3-6 (j) - No public record shall be destroyed or otherwise disposed of by any agency without prior notice to the program.

4.0 Application/Scope of Regulation

4.1 This document provides agencies, as defined in Rhode Island General Law (R.I.G.L. § 42-8.1-2 (1), R.I.G.L. § 38-1-1.1(a) and R.I.G.L. § 38-3-2(1)), with recommendations and minimum requirements for the conversion of public records from paper or microfilm to digital images for the purpose of producing reproductions of official records in digital format.

4.2 This scanning standard applies to the conversion of public records in the form of textual documents, photographs, maps, plans and drawings.

4.3 This document does not apply to structured data in databases, digital publications, or convenience copies of records produced purely for the purpose of information distribution, such as web publications and emails of publications.

4.4 This regulation does not cover audio, video, 3-D representation, or special use files (radiological or other medical scans).

4.5 This regulation does not encompass records that are “born digital.”

5.0 Records Management Framework

All agency heads are required to establish a records management program within their respective departments. Digitized records form part of the corpus of agency records. Therefore, digitized documents must be managed as an integral part of agency records in a manner that complies with state records law and this regulation.

Statutory Authority: R.I.G.L. § 38-3-7 - It shall be the duty of each agency to:

- (1) Cooperate with the program in complying with the provisions of this chapter.
- (2) Establish and maintain an active and continuous program for the economical and efficient management of public records.

5.1 Documentation of Agency Activities and Decisions

Statutory Authority: R.I.G.L. § 42-8.1-17 - It shall be the duty of each agency of the state and political subdivision thereof to:

- (1) Cause to be made and preserved records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the agency and designed to furnish the information necessary to protect the legal rights of the government and of the persons directly affected by agency's activities.

5.2 Records Retention Schedule Requirement

This regulation's recommendations and requirements for the management and disposition of digitized records and their related original source records hinge on the duly approved retention and disposition conditions established for particular sets of records. (See section 9).

Records retention schedules provide agencies with an essential tool for achieving the multiple corporate purposes of agency records management. Records retention schedules enable agencies to strategically manage, use, and dispose of their records to meet statutory obligations and to fulfill legal, business, and other requirements, while minimizing the financial cost of doing so.

Therefore, the State Archives Division strongly recommends that agencies embarking on a digitization project for records without a retention period first take the necessary steps to develop a duly approved retention schedule that includes retention periods for the records designated for scanning. Establishing retention periods for the records at the outset will provide agencies with important information on the most sound and economical strategy for maintaining the records. (See section 9.)

Agencies may elect, however, to proceed with the scanning of unscheduled records, on condition that they:

1. Do not destroy the source records from which the digital copies have been made. The absence of a duly approved retention schedule makes the destruction of the source records illegal. In addition, the absence of approved retention periods precludes the feasibility of developing a sound disposal and preservation strategy for the records, as per section 9.
2. Understand that proceeding with the digitization of records in the absence of approved retention periods may involve an additional expense of retroactive records

microfilming, should the established retention period require it once the records are scheduled, as per section 9.

3. Understand that proceeding with the digitization of records for which no duly approved retention periods exist will require scanned images of a higher quality (as specified in section 6.2.3) than an approved retention schedule might otherwise dictate.

4. Complete a draft records retention schedule covering their agency, division, office, or program, in cooperation with the State Archives Division that includes the records that have been or are being imaged. The development of the draft records retention schedule shall begin no later than three (3) months after the beginning of the scanning project and be completed no later than nine (9) months thereafter.

Statutory Authority:

R.I.G.L. § 38-1-11 - The public records administration program of the secretary of state shall have the right to examine the condition of public records and shall give advice and assistance to public officials in the solution of their problems of preserving, creating, filing, and making available the public records in their custody. When requested by the program, public officials shall assist the program in the preparation of records control schedules of public records in their custody approved by the head of the agency having custody of the records. Upon review and approval of the schedules by the program, the program shall, subject to the availability of necessary space, staff, and other facilities for those purposes, make available space in its record center for the filing of semi-current records so scheduled and in its public records repository for noncurrent records of permanent value and shall render other assistance as needed, including the microfilming of records so scheduled.

R.I.G.L. § 38-3-2 (3) - Records control schedule shall mean the document establishing the official retention, maintenance, and disposal requirements for a series or type of record based on administrative, legal, fiscal, and historical values for the scheduled records.

R.I.G.L. § 38-3-3 (7) - The program shall adopt rules and regulations deemed necessary to carry out its duties and responsibilities under this chapter which rules shall be binding on all agencies and persons affected thereby. The willful violation of any of the rules and regulations adopted by the program shall constitute a misdemeanor.

R.I.G.L. § 38-3-5 - It shall be the duty and responsibility of the public records administration program to:

- (1) Establish and administer a public records management program, including the operation of a record center or centers, and appoint a director who will apply efficient and economical management methods relating to the creation, utilization, maintenance, retention, preservation, and disposal of records.
- (2) Analyze, develop, establish, and coordinate standards, procedures, and techniques of record making and record keeping.
- (3) Insure the maintenance and security of records which are deemed appropriate for preservation.

- (4) Institute and maintain a training and information program in all phases of records management to bring to the attention of all agencies approved and current practices, methods, procedures, and devices for the efficient and economical management of records.
- (5) Make available a centralized program of microfilming for the benefit of all agencies.
- (6) Make continuous surveys of record keeping operations.
- (7) Recommend improvements in current records management practices, including the use of space, equipment, supplies, and personnel in creating, maintaining, and servicing records.
- (8) Establish and maintain a program, in cooperation with each agency, for the selection and protection of public records considered essential to the operation of government and to the protection of the rights and privileges of citizens.

R.I.G.L. § 38-3-6 (a) - Each agency shall prepare and submit to the program, in accordance with the rules and regulations of the program, record control schedules for all public records in the custody of the agency.

(k) The program shall adopt reasonable rules and regulations not inconsistent with this chapter relating to the destruction and disposal of records.

Note: See also section 5.6 Reporting Requirements.

5.3 Disposition/Destruction Requirements

Regardless of the medium of the records, each agency must notify the State Archives Division of its intention to dispose of records, as defined by RIGL § 42-8.1-2 and public records as defined by RIGL § 38-1-1.1, 38-3-2 and 42-8.1-2, in accordance with a duly approved records retention schedule. Those agencies already having approved retention schedules must first submit a Certificate of Records Destruction to the State Archives Division for review and approval by the State Archivist/Public Records Administrator before actual records destruction may take place.

Statutory Authority:

R.I.G.L. § 38-1-10 - No public official may mutilate, destroy, sell, loan, or otherwise dispose of any public record without the consent of the public records administration program of the secretary of state.

R.I.G.L. § 38-3-6 (j) - No public record shall be destroyed or otherwise disposed of by any agency without prior notice to the program.

R.I.G.L. § 42-8.1-10 – Every public officer who has public records in his or her custody shall consult periodically with the state archivist together with the state auditor, and the attorney general, and those officers shall determine whether the records in question are of permanent legal or historical value. Those records unanimously determined not to be of permanent legal or historical value shall be disposed of by such method as specified by § 38-3-6. A list of all records so disposed of, together with a statement certifying compliance with § 38-3-6, signed by the archivist, shall be filed and preserved in the office from which the records were drawn. Public records in the custody of the state archivist with the approval of the secretary of state may be disposed of upon a similar determination by the attorney general, the auditor general, and the head of the agency from which the records were received or its legal successor.

R.I.G.L. § 38-3-6 (k) - The program shall adopt reasonable rules and regulations not inconsistent with this chapter relating to the destruction and disposal of records.

R.I.G.L. § 42-127.1-17 - Each governmental agency of the state shall determine whether, and the extent to which, it will create and retain electronic records and convert written records to electronic records; provided, however, all determinations shall be governed by the provisions of title 38.

5.4 Agency Heads and Project Coordinators

Each agency head shall have responsibility for the oversight of digitization projects and the production of accurate, complete digital copies of records. The agency head or, where applicable, a project coordinator designated to act on the agency head's behalf, shall be responsible for requesting, completing, and submitting to the State Archives Division the *Notice of Intention to Digitize Public Records* form. The form shall be signed by the agency head and, where appropriate, the project coordinator. (See section 5.6)

Statutory Authority:

R.I.G.L. § 38-3-7 - It shall be the duty of each agency to:

- (1) Cooperate with the program in complying with the provisions of this chapter.
- (2) Establish and maintain an active and continuous program for the economical and efficient management of public records.

R.I.G.L. § 42-8.1-17 (3) - It shall be the duty of each agency of the state and political subdivision thereof to: ... Establish and maintain an active and continuing program for the preservation of records of permanent legal or historical value and assist the division to implement the provisions of this chapter.

5.5 Agencies and Contractors

If an independent contractor, consultant, or some other party outside of government produces a reproduction of a record for an agency, the agency shall ensure that the party acts in compliance with this regulation. An agency may ensure compliance through execution of a contract that contains adequate legal safeguards.

5.6 State Agency Reporting Requirements – *Notice of Intention to Digitize Public Records/Certification of Records Preservation Strategy*

a. The agency head, or where applicable, the project coordinator, designated as responsible for digitization projects on behalf of the agency head, (see section 5.4) shall obtain, complete and submit to the State Archives Division the *Notice of Intention to Digitize Public Records* form (See Appendix A). The *Notice of Intention to Digitize Public Records* should be submitted during early stages of project planning, but shall arrive at the State Archives Division no later than one month before the project start date. The form shall provide a brief description of the proposed imaging solution. The form shall also include, but is not limited to, information concerning the physical size, characteristics, and condition of the original records, the nature of the content of the records, the dates spanning the earliest and most recent records in the series, and the record series title and number as they appear in the approved records retention schedule. This form shall be filed with the State Archives Division.

The State Archivist/Public Records Administrator shall confirm receipt of the filing of the *Notice of Intention to Digitize Public Records* form in no more than ten business days from the date of receipt by the State Archives Division.

b. In order to obtain approval for the destruction of records that have been digitized, and which have a duly approved retention period of more than ten, but no more than twenty years, agency heads or agency heads' designees, shall complete and submit to the State Archives Division a *Certification of Records Preservation Strategy* form in accordance with the requirements specified in section 9.2.2 and 9.2.3 of this regulation.

The State Archivist/Public Records Administrator shall review and respond to the submitted *Certification of Records Preservation Strategy* form in no more than 10 business days from the date of receipt by the State Archives Division.

Note: For records not having a duly approved retention period, see section 5.2 Records Retention Schedule Requirement.

Statutory Authority:

R.I.G.L. § 38-3-6 (j) - No public record shall be destroyed or otherwise disposed of by any agency without prior notice to the program.

R.I.G.L. § 38-3-6 (k) - The program shall adopt reasonable rules and regulations not inconsistent with this chapter relating to the destruction and disposal of records.

R.I.G.L. § 38-1-10 - No public official may mutilate, destroy, sell, loan, or otherwise dispose of any public record without the consent of the public records administration program of the secretary of state.

R.I.G.L. § 42-8.1-9 - The state archivist in person or through a deputy, shall have the right of reasonable access to all public records in the state, or any public offices of the state or any city, municipality, district or political subdivision thereof, and research, with a view to securing their safety and determining the measures necessary to secure their preservation and conservation.

R.I.G.L. § 42-127.1-17 - Each governmental agency of the state shall determine whether, and the extent to which, it will create and retain electronic records and convert written records to electronic records; provided, however, all determinations shall be governed by the provisions of title 38.

PART B. TECHNICAL REQUIREMENTS

Agencies must achieve the three following functional requirements with respect to the management and preservation of electronic records:

Records Capture. Techniques and technology employed are suitable for the accurate capture or copying of records in a manner that supports the business process and meets all legal, business, and records management requirements related to the process.

Records Maintenance and Accessibility. Technical measures are in place to ensure that digitized records are maintained so that they remain accessible and retain their integrity until the expiration of their retention period.

System Reliability. Agencies must employ trustworthy information systems to digitize and manage their digitized records. The system should be administered in accordance with best practices in the information resource management (IRM) field to ensure the faithful reproduction of source documents. Technological and procedural measures must be implemented to protect the integrity and reliability of the reproduced records through their entire life cycle.

6.0 Imaging Process Management

6.1 System Requirements – Open System Architecture

a. The system must be administered and configured in accordance with best practices to ensure the continuing accuracy, authenticity, integrity, availability, accessibility, legibility, and usability of the imaged records for their entire retention period. Whether purchasing a scanning system for in-house use or outsourcing the scanning project to a vendor, agencies can best assure achieving these goals by requiring an open system architecture. The longer records need to be retained to meet legal, business, and other purposes, the more prudent an open system architecture becomes. Accordingly, the State Archives Division strongly recommends that agencies require an open system architectures to the extent possible when selecting a system or vendor for scanning their records.

b. Imaging projects must include contingency upgrading, data transfer and migration path plans that guarantee the portability of current data to be used for future technologies. (See also section 9.)

c. The system shall be capable of producing a standard set of reports on capacity, production, monitoring and maintenance, auditing and security, and systems operations management. Systems shall also be capable of creating and producing custom management reports.

Note: For system documentation requirements, see section 10.

Statutory Authority:

R.I.G.L. § 38-3-3 (7) - It shall be the duty of each agency to:

- (1) Cooperate with the program in complying with the provisions of this chapter.
- (2) Establish and maintain an active and continuous program for the economical and efficient management of public records.

R.I.G.L. § 42-127-1.8 (b) - If a law other than this chapter requires a record (1) to be posted or displayed in a certain manner; (2) to be sent, communicated, or transmitted by a specified method, or (3) to contain information that is formatted in a certain manner, the following rules apply:

- (iii) - The record must contain the information formatted in the manner specified in the other law.

R.I.G.L. § 42-127.18 (a) - Each governmental agency of the state shall determine whether, and the extent to which, it will send and accept electronic records and electronic signatures to and from other persons and otherwise create, generate, communicate, store, process, use, and rely upon electronic records and electronic signatures; provided, however, all determinations shall be governed by the provisions of title 38.

R.I.G.L. § 42-127.1-18 (b) (3) - To the extent that a governmental agency uses electronic records and electronic signatures under subsection ... the governmental agency, giving due consideration to security, may specify; control processes and procedures as appropriate to ensure adequate preservation, disposition, integrity, security, confidentiality, and auditability of electronic records.

R.I.G.L. § 42-127.1-19 - A governmental agency of this state which adopts standards pursuant to § 42-127.1-18 may encourage and promote consistency and interoperability with similar requirements adopted by other governmental agencies of this and other states and the federal government and non-governmental persons interacting with governmental agencies of this state. If appropriate, those standards may specify differing levels of standards from which governmental agencies of this state may choose in implementing the most appropriate standard for a particular application.

6.2 Scanning Requirements

Statutory Authority:

R.I.G.L. § 42-127.1-17 - Creation and retention of electronic records and conversion of written records by governmental agencies. – Each governmental agency of the state shall determine whether, and the extent to which, it will create and retain electronic records and convert written records to electronic records; provided, however, all determinations shall be governed by the provisions of title 38.

6.2.1 Source record preparation and handling

a. Agencies shall inspect, document condition, and prepare source records prior to beginning of scanning process.

b. Agencies shall ensure that source records have been properly prepared for scanning prior to the image capture phase (section 6.2.3). Agencies shall take all necessary steps to remove anything that may obstruct document content, including paper clips, binder clips, staples, and folds that may obscure portions of a page, including marginalia and page numbers, and

anything else that may limit the accuracy and completeness of the digital capture of the source document.

- c. Agencies shall repair tears or other damage that may obstruct part of the document.
- d. Agency shall maintain or require appropriate documentation tracking movement of source records sent for digitization and returned following completion of scanning.
- e. Whatever procedure agencies use to scan their records, the original order of the source records must be maintained and the order of the digitized records must correspond to the original order of the sources records. The disruption and loss of original order can compromise the authority of records.
- f. During scanning process, all materials shall be kept in their original order and returned to their original jackets or containers.
- g. No material, and especially records identified as archival or permanent in records retention schedules, or that is identified as essential or confidential, shall be left unattended or exposed on digitizing equipment or elsewhere.
- h. All materials, and especially records identified as archival or permanent in records retention schedules, or that have been identified as essential or confidential, and that remain un-digitized, but which are needed for the next day's work, shall be returned to their jackets and containers and placed in an appropriate secure storage area.
- i. No material, and especially records identified as archival or permanent in records retention schedules, shall be placed on surfaces that involve rolling, pulling, bending, or folding.
- j. Nothing shall come in contact with the source documents during handling that leaves residue whose effect may substantially alter the records, or degrade the documents over time. When necessary, gloves will be used to handle fragile materials as well as photographs, film, and transparencies.

Standards:

See ANSI/AIIM MS52, 1991 Recommended Practice for the Requirements and Characteristics of Documents Intended for Optical Scanning.

ANSI/AIIM TR15-1997, Planning Considerations Addressing Preparation of Documents for Image Capture Systems.

6.2.2 Scanning equipment

- a. Agencies shall ensure that scanning equipment is capable of meeting requirements for capture of accurate and complete images of their records.
- b. Automatic feed devices, drum scanners, or equipment that places more pressure on materials than does an oversized electrostatic copier, or require documents to be taped to cylinders shall not be used for permanent records.

- c. Imaging systems shall not be capable of altering a public record as scanned, except for computer-enhancement routines, where appropriate (See section 6.2.3 (g)).
- d. Scanning equipment shall consist of platens upon which physical items are supported over their entire surface to prevent cropping.
- e. Scanning equipment shall not emit light that raises temperature to a level that physically alters or damages the document being imaged.
- f. Scanning surface shall be clean and dry. Scanning surface shall be completely free of any permanent or temporary scratches, smudges, dirt, stains, blotches or other markings.
- g. Scanning equipment shall receive regular and periodic inspection and maintenance to ensure proper functioning.

Standard: ANSI/AIIM MS44-1988 (Rev. 1993), Recommended Practice for Quality Control of Image Scanners.

6.2.3 Image Capture

Capture Systems - Agencies shall choose scanning systems whose features assure accurate and complete representations of source documents.

- a. Scanner Calibration - Scanners shall be calibrated to ensure images are faithful to source document and of consistent quality. Standard resolution targets, patches, aim points and other color guides shall be used to produce proper calibration with respect to black point and white point, tonal range, color gamut, shading and other features bearing on the faithfulness of the digital image to the source record's appearance. (Examples include Kodak Color Separation Guide, Grayscale Control Bar, AIIM Scanner Test Chart **Gamut Chart**, and IEEE Standard Facsimile Test Chart, and the RIT Alphanumeric Resolution Test Object target.)

Agencies shall assemble a set of sample documents or records equivalent in range of characteristics to the source documents for purposes of evaluating the initial scanner results against defined quality criteria prior to production.

Agencies shall establish quality control criteria based on results of pre-production inspection of quality samples.

Agencies shall produce and inspect new samples for quality if conditions or attributes of documents to be digitized change, or if any or all scanning equipment components are replaced.

- b. Monitor Control - Scanning monitors provide feedback on the performance accuracy of the image capture process. Monitors shall be calibrated and periodically recalibrated to maintain a gamma of 2.2, and color temperature of 6500 K. Monitor calibrations shall be

adjusted as required, and industry standards such as targets and photo-sensor based color calibrators used to ensure continuing appropriate color temperatures.

c. Scanning resolution and bit depth - Scanning resolution is quantified in dots per inch (DPI). The greater the number of dots per inch the richer the image. In addition, the medium, size, use and value of the source document can have a bearing on the selection of the appropriate scanning resolution. Scanning a master image at greater DPI provides flexibility for accommodating future requirements that may not have been anticipated. Below are minimum requirements.

Master Image Files

Master image files are highest quality files because they are meant to be stored and preserved as the official agency record, to accommodate future uses, and to serve as a source for making derivative images and access copies.

Must be scanned to reproduce original dimensions of document.

Tonal depth: 8-bit grayscale/24-bit color or greater

Spatial Resolution: Scan text files with retention of no more than twenty years at minimum 200 DPI effective resolution for original documents whose font is no smaller than six points. No interpolation from lower to higher resolution to compensate for resolution deficiency is permitted.

File Format: See section 6.2.3 d.

Compression: See section 6.2.3 d.

Access Image Files/Derivative Images

These images shall be derived from master files for purposes of making imaged documents more widely accessible on a frequent or regular basis, and more easily transmissible.

Tonal depth: 8-bit grayscale/24-bit color

Spatial Resolution: Resize image to 640 x 480 pixels, or 1024 x 768 pixels, or 1280 x 1024 pixels

File Format: See section 6.2.3 d.

Compression: See section 6.2.3 d.

Thumbnail Image Files

Tonal depth: 4-bit grayscale/8-bit color

Spatial Resolution: 72 DPI

File Format: See section 6.2.3 d.

Compression: See section 6.2.3 d.

Spatial Resolution Exceptions:

The above minimum scanning densities may not be sufficient for all documents. Higher density or alternative scanning techniques may be required for some documents.

Appropriate scanning density and techniques may differ from document to document due to the particular attributes of individual documents or sets of documents, purpose of scanning, and characteristics and limitations of the scanning equipment. To accommodate particular requirements and situations, scanning density of documents shall be selected and validated using tests on samples from the set of actual documents selected for scanning. Testing and review procedures shall include comparison of example images against original documents.

Permanent, Long-Term (more than twenty years), and Unscheduled Records: Minimum-scanning resolution shall be 300 DPI.

For data capture using OCR/ICR scan no lower than 300 DPI.

For documents with text fonts less than six points, use 300 to 600 DPI.

Graphic materials such as maps, plans, blueprints and other visually presented information often require higher scanning density (300-600 DPI and higher) for purposes of legibility of detail, and to accommodate future applications and manipulation, for example, for computer assisted design (CAD) and virtual reality applications.

d. Format/Compression (Image Transmission Protocols (Import/Export)

The compression of image files algorithmically reduces the amount of electronic data used to represent a digital document. The smaller amount of representational data helps to lower storage capacity requirements (and costs) and helps to expedite delivery of documents over the Internet. The establishment of compression (and decompression) standards serves to ensure the continuing effective transmission of images across different sites and over time.

Non-Standard/ Proprietary Formats vs. Standard/Common Compression Methods

Different scanning file formats use different compression methods. It is strongly recommended that agencies choose file formats that come with common compression methods, or those which conform to national or international standards. They should also avoid formats with non-standard, product-specific compression methods.

Compression methods that are not widely used, or which come bundled with a file format supported exclusively by one vendor, may offer higher compression ratios. Such vendors, however, may cease business, thereby impeding the migration or transmission of reliable records over time.

Therefore, non-standard or proprietary compression methods, as well as the introduction of proprietary algorithmic modifications into standard compression should be avoided. These requirements and recommendations are especially crucial in the case of records whose retention requirement exceeds ten years.

Below are file format/compression requirements and recommendations for (1) Permanent, Long-Term, and Unscheduled Records, (2) Master Files, (3) Access Files, and (4) Thumbnail Files.

(1) Permanent, Long-term, and Unscheduled Records:

Compression: No Compression.

Format: TIFF 5 or 6, or PDF/A required.

Other formats, such as PDF, are permissible for permanent, long-term or unscheduled records only when the paper records are also being retained, and/or when the agency has arranged to have records simultaneously microfilmed in conformity with the Public Records Administration issued Rules and Regulations for Microfilm Standards.)

Source: ISO 19005-1. Document management - Electronic document file format for long-term preservation

(2) Master Files:

Compression: Master files (non-permanent) with an approved retention period of more than ten years:

No compression, or lossless compression only.

Master Files with an approved retention period of ten years or less:

Lossless or lossy compression, as appropriate.

Format: Retention of no more than twenty years:

TIFF 5 or 6, PDF, JPEG2000 or other suitable format.

Statutory Authority:

R.I.G.L. § 38-3-5.1 - If any department or agency of government, in the regular course of business or activity, has kept or recorded any memorandum, writing, state tax returns, report, application, payment, entry, print, representation, or combination thereof, or any act, transaction, occurrence, or event, and, in the regular course of business, has caused any or all of the records to be recorded, copied, or reproduced by a photographic, photostatic, microfilm, micro-card, optical disk, miniature photographic, or other process which accurately reproduces or forms a durable medium for reproducing the original, the original may be destroyed in the regular course of business, provided the process meets standards established by the public records administration, and provided all the provisions of § 38-3-6 concerning disposal of public records are fulfilled. The reproduction, when satisfactorily identified, shall be admissible in evidence as the original in any judicial or administrative proceeding whether or not the original exists or is available and an enlargement or facsimile of the reproduction shall be likewise admissible in evidence if the original is in existence and available for inspection under the direction of the court. The introduction of a reproduced record, enlargement, or facsimile into evidence shall not preclude the admission into evidence of the original. This section shall not be construed to exclude from introduction into evidence any document or copy thereof which is otherwise admissible under the Rhode Island general laws, as amended.

R.I.G.L. § 42-127.1-10 - If a change or error in an electronic record occurs in a transmission between parties to a transaction, the following rules apply.

R.I.G.L. § 42-127.1-19 - A governmental agency of this state which adopts standards pursuant to § 42-127.1-18 may encourage and promote consistency and interoperability with similar requirements adopted by other governmental agencies of this and other states and the federal government and non-governmental persons interacting with governmental agencies of this state. If appropriate, those standards may specify differing levels of standards from which governmental agencies of this state may choose in implementing the most appropriate standard for a particular application.

CFR § 1234.22 (4) - Creation and use of text documents. "Provide a standard interchange format when necessary to permit the exchange of documents on electronic media between agency computers using different software/operating systems and the conversion or migration of documents on electronic media from one system to another."

(3) Access Files:

Compression: Lossy compression is permissible.

Compression Ratio: Depends: 7:1 - 10:1 for grayscale/10:1 - 20:1 for color

Format: TIFF 5 or 6, PDF, JFIF/JPEG or any other suitable format.

(4) Thumbnail Files:

Format: GIF (or JPEG) or any other suitable format.

Compression: Suitable for access and delivery.

e. Tonal Range - Scanner shall be set at minimal tonal level necessary to accurately capture the entire range of tonal gradations in source record.

f. Sharpening - Image files shall be sharpened as needed to achieve the approximate appearance of the original. All sharpening shall be done with an unsharp mask algorithm. Level of filtering will vary depending on the scanner and the material being scanned. Typical unsharp mask parameters: For master file images, the amount of sharpening is usually at the higher end and the radius is usually at the lower end of the ranges cited above. Usually threshold can be set and used at a single value, such as 4 levels.

Amount: 100 percent to 200 percent

Radius: 1 to 2 pixels Threshold 2 to 8 levels

g. Color Management/Image Enhancement

Scanners shall be capable of capturing full color spectrum. Agencies must verify that hardware and software is capable of being adjusted or modified to meet this requirement.

An agency may use record enhancement techniques commonly available in scanning software, including but not limited to deskew, despeckle, crop, and rotate. An agency may not use an enhancement technique that alters the content of the original record.

Agencies may use image enhancement techniques to increase the legibility of documents.

For records scheduled as archival or permanent, and unscheduled records, agencies shall also capture and preserve separately an “original”, pre-enhancement image of the record.

h. Quality Control

Compliance with state law requires that electronic scans of public records accurately reflect information in the original record. To ensure quality, scanning systems shall include post-production quality control processes, including benchmarking or quality indexing (QI), for captured and stored images, and SCSI write and verify setting capability.

Agencies shall document all quality control procedures.

Agencies shall inspect representative sampling of imaged master files, access files, and thumbnails, where appropriate. Quality control shall include error detection and control for elimination of the following kinds of errors:

Image size is incorrect

File name is incorrect

File format is incorrect

Image is in incorrect mode (i.e., color image has been scaled as grayscale)
Losses of detail in highlight or shadows
Excessive noise especially in dark areas or shadows
Overall too light or too dark
Uneven tonal values or flare
Lack of sharpness/Excessive sharpening
Pixilated
Presence of digital artifacts (such as very regular, straight lines across picture)
Moire patterns (wavy lines or swirls, usually found in areas where there are repeated patterns)
Image not cropped
Image not rotated or backwards
Image skewed or not centered
Incorrect color balance
Image dull or no tonal variation
Negative curve in the Look-Up Table
Clipping black and white values (in histogram)

Agency shall require or produce, and keep, summary reports of all quality control inspections performed for each batch of digital images produced until the records' retention period has expired.

Scanning parameters shall be adjusted if necessary.

Standard: ANSI/AIIM MS 59-1996. *Media Error Monitoring and Reporting Techniques for Verification of Stored Data on Optical Digital Data Disks.*

Statutory Authority:

R.I.G.L. § 42-127.1-12 (1) (a) - If a law requires that a record be retained, the requirements are satisfied by retaining an electronic record of the information in the record which:
(1) accurately reflects the information set forth in the record after it was first generated in its final form as an electronic record or otherwise; and
(2) remains accessible for later reference

i. Tagged Information File Format (TIFF) Header

TIFF provides a rich environment within which applications can exchange image data. Agencies shall use latest single non-proprietary standardized TIFF format, G3 or G4 compression (See section 6.2.3 d.) and profiles recommended for black and white and color images, for master files and permanent records. Operators shall use single-page TIFF headers. TIFF headers shall consist of standard required baseline metadata relating to scanning and scanner parameters, image profiles, as well as appropriate technical notes. Headers shall also include the following TIFF optional fields: document/series name, image description, and date and time scanned.

Standard: ANSI/AIIM MS53-1993. *Standard Recommended Practice – File Format for Storage and Exchange of Images – Bi-Level Image File Format: Part 1. ISO 12234-2.*

j. PDF and PDF/A Headers and Metadata

PDF and PDF/A formats provide space for entering context and metadata information about scanned records. This information is crucial for purposes of filing, indexing, and retrieval of records, as well as for their preservation. Header data serves to record the version of the PDF Adobe software used to perform the scanning of material. Metadata/Context data should include document title, document author, document creator, subject, keywords, creator program, and producer. Also crucial are creation dates, modification dates, File Identifier, and File History/Provenance.

The PDF/A format is specifically designed for digital records that need either permanent or long-term retention. It includes two conformance levels, designated PDF/A - 1a and PDF/A - 1b. ² PDF/A -1a is more stringent than PDF/A-1b and is better suited to accommodate changes in technology over the long term.

PDF/A - 1b excludes two requirements that are crucial for faithful long-term or permanent preservation of records. The first requirement specifies the use of tagging that preserves the logical structure and reading order of records. The second requirement concerns the use of Unicode character maps that map character codes to Unicode values. Therefore, PDF/A-1a conformant file standard should be implemented for scanned records requiring permanent or long-term preservation.

7.0 Indexing and Image Retrieval

Quick, accurate, and continuing retrieval of agency records as well as timely disposition of records in accordance with record retention schedules depend on effective intellectual control of the records. Effective intellectual control requires appropriate identification, naming, and organization of image files. To ensure the accessibility, retrieval, and timely disposal of digitized records, agencies shall establish indexing, nomenclature, and organization protocols for individual and/or sets of image documents and files before starting the project. The file name must be a unique identifier that uniquely identifies the image. (See also section 6.2.3 i).

An agency using an imaging system shall:

7.1 Index each image stored by the system with a specific or unique identifier. The index shall contain information sufficient to enable the agency to retrieve images and records in an efficient and effective manner based on the anticipated needs of its users. The index shall

² PDF/A attempts to maximize:

- Device independence
- Self-containment
- Self-documentation

The constraints include:

- Audio and video content are forbidden (PDF/A 2, currently being drafted, will address these media)
- Javascript and executable file launches are prohibited
- All fonts must be embedded and also must be legally embeddable for unlimited, universal rendering
- Colorspaces specified in a device-independent manner
- Encryption is disallowed
- Use of standards-based metadata is mandated

have the same retention period as the information and shall be migrated at the same time as the information.

7.2 Implement procedures and a regular timetable for verifying the accuracy of index entries. Verification may be accomplished visually, by duplicative typing of index data, or by any other method that accomplishes positive index data verification. An agency shall test its indexing verification method to ensure that the index permits the retrieval of images in an accurate and efficient manner.

7.3 Retain all index information relating to stored images on magnetic or optical media that are designed to function with the imaging system. An agency may retain index data on the same medium where recorded images are stored, if the agency also retains a separate copy of the index.

7.4 Maintain the integrity of the index as well as the images on the new medium if agency replaces any storage media. The new medium shall be capable of reading and fully converting all information stored on the replaced disk.

7.5 Index and store the imaged records so as to allow classification by record series in order to ensure their proper retention and transfer or disposal per approved records retention schedules, and to protect the records from unauthorized access.

Statutory Authority:

R.I.G.L. § 38-2-3 (e) - Any person or entity requesting copies of public records may elect to obtain them in any and all media in which the public agency is capable of providing them. Any public body which maintains its records in a computer storage system shall provide any data properly identified in a printout or other reasonable format, as requested.

R.I.G.L. § 38-2-3 (g) - Nothing in this section is intended to affect the public record status of information merely because it is stored in a computer.

R.I.G.L. § 42-127.1-12 (a) (2) - If a law requires that a record be retained, the requirements are satisfied by retaining an electronic record of the information in the record which:
(1) accurately reflects the information set forth in the record after it was first generated in its final form as an electronic record or otherwise; and
(2) remains accessible for later reference.

8.0 Storage Management of Imaged Records – Authenticity, Access, and Integrity

The continuing accuracy, authenticity, accessibility, integrity and retrieval of digital records depend on their placement on appropriate media and in an appropriate storage location and environment. They also require adequate maintenance procedures.

8.1 Storage Media - Storage media include fixed storage solutions and removable storage solutions. Selection will depend on access frequency, retrieval time requirements, cost considerations, and retention and security requirements. No storage media currently available has demonstrated the capability to permanently store records requiring permanent retention. Physical deterioration and technological obsolescence continue to limit the storage life of digital media.

a. For agencies' record copies, including long-term and permanent records (see section 9), as well as unscheduled imaged records, only non-rewriteable storage media is acceptable. Such media include write once read many disks (WORM), CD-Recordable (CD-R), and Compact Disk – Read Only (CD-ROM). Standards for WORM optical disks may be found in the WORM portion of ISO 13490 (also known as ECMA 168).

Agencies may also choose to store image data on computer hard drives or magnetic tape. Implementation of either of these options must, minimally, be in accordance with industry standards and vendor recommendations. It must include provision for back-up measures in case of system or computer failure.

b. The following factors shall be considered before selecting a storage medium, or a combination of storage media, and before converting from one medium to another:

The records' approved retention period, as determined during the scheduling process,
The maintenance necessary to retain the records,
The estimated shelf life of the storage medium,
The cost of storing and retrieving the records,
The records' density,
The access time to retrieve stored records,
The portability of the medium (that is, selecting a medium that will run on equipment offered by multiple manufacturers) and the ability to transfer the information.

c. Agencies shall test and ensure that new media stock is free of systematic manufacturing errors before being used to store digital information.

d. Media shall have a pre-use shelf life of at least five years and a post-write shelf life of at least twenty years.

e. Agencies shall avoid the use of floppy disks for the storage of their record copies, including long-term and permanent records. This requirement shall also apply to unscheduled imaged records.

f. Media shall be placed in appropriate containers when not in use.

g. Agencies may use floppy disks and other storage media to temporarily store information being used while preparing public records. Agencies may not store official records/record copies on floppy disks or other media not prescribed by this regulation.

CFR § 1234.30 *Selection and maintenance of electronic records storage media.*

8.2 Storage Location and Environment

8.2.1 Storage of media containing digitized public records shall comply with latest standards relating to optimal storage environments for stability and durability of media. Storage selection shall meet industry/vendor recommendations respecting handling, temperature,

moisture (relative humidity), water, and exposure to organic solvents, magnetism, x-rays, microwaves, and radiation.

8.2.2 Agencies shall maintain the storage and test areas for computer magnetic tapes containing agency record copies, including long-term and permanent records, as well as unscheduled imaged records, at stable level in following ranges of temperatures and relative humidity:

Recommended constant temperature - 62 to 68° F.

Recommended constant relative humidity - 35% to 45%

(Temperature requirements may vary depending on records retention requirements.)

8.2.3 Agencies shall prohibit smoking and eating in magnetic computer tape storage libraries and test or evaluation areas that contain agency record copies, including long-term and permanent records. This requirement shall also apply to unscheduled imaged records.

8.2.4 To protect disks from warping, they should not be subject to pressure and should be stored in an upright position when not in the disk drive.

8.2.5 An agency shall not store media under other objects.

Source: National Institute of Standards and Technology. Special Publication 500-252. *Care and Handling of CDs and DVDs – A Guide for Librarians and Archivists*. (Washington: 2003). National Media Laboratory. *Magnetic Tape and Storage Handling. A Guide for Libraries and Archives*. (1995).

8.3 Labeling

Appropriate labels shall be affixed to appropriate digital storage media containers – *not to digital discs*. Labels shall provide unique identification for each unit, including the name of the organizational unit responsible for the data, system title, and security classification, if applicable. Additionally, the following information shall be maintained for (but not necessarily attached to) each reel used to store agency record copies, including long-term and permanent records, as well as unscheduled electronic records: file title(s); dates of creation; dates of coverage; the recording density; type of internal labels; volume serial number, if applicable; number of tracks; character code/software dependency; information about block size; and reel sequence number, if the file is part of a multi-reel set.

External labels may be affixed to diskettes or removable disks used when processing or temporarily storing agency record copies, long-term and permanent records, as well as unscheduled records.

8.4 System Maintenance Backup Procedures/System Security/Disaster Recovery

a. Storage location(s) shall be selected in accordance with calculation of levels of state social, economic, and individual and public security costs associated with the loss of any or all records and data.

b. Duplicate copies of agency record copies, including copies of long-term and permanent records, shall be maintained in storage areas separate from the location of the records that

have been copied. Storage location should be sufficiently remote to remain unaffected by incidents and events that may occur in primary storage location. This requirement shall also apply to copies of unscheduled imaged records.

c. Regular Back up - Agencies shall back up electronic records on a regular basis to safeguard against the loss of information due to equipment malfunctions or human error.

d. Refreshment - Process employed to retain digital data shall be inspected and refreshed on a regular basis in accordance with a documented refreshment schedule.

e. Media Maintenance - Agencies shall ensure that media remain free of defects, including scratches, fingerprints, smudges, dirt and dust.

f. Magnetic Computer Tape Maintenance - Agencies shall test magnetic computer tapes no more than 6 months prior to using them to store electronic records that are record copies, including long-term and permanent records. This test should verify that the tape is free of permanent errors and in compliance with National Institute of Standards and Technology or industry standards. This requirement shall also apply to unscheduled imaged records.

Archival tapes should not be brand-new. Tapes should undergo between four and twenty tests pass through a drive before data are recorded on them.

g. Magnetic Computer Tape Maintenance - Agencies shall annually read a statistical sample of all reels of magnetic computer tape containing agency record copies, including long-term and permanent records, to identify any loss of data, to discover and correct the causes, (poor quality tape, high usage, poor environment, improper handling) and to restore data to extent possible. This requirement shall also apply to unscheduled imaged records.

h. Agencies shall copy agency record copies, including long-term and permanent data, from magnetic tapes before the tapes are 10 years old onto tested and verified new tapes.

Source: National Media Laboratory. *Magnetic Tape and Storage Handling. A Guide for Libraries and Archives.* (1995).

9.0 Preservation Strategy – Rules for Retention and Destruction of Original (Paper) Records and Digital Records³

This section provides rules respecting the destruction of paper records and scanned digital records.

Agencies shall ensure that information is not lost because of changing technology. The relatively brief experience with electronic information and communication processing and storage systems (compared to paper and microfilm), the uncertain future course of information technology, and the current absence of any widely accepted method for ensuring the longevity of records in electronic form require that increasing levels of documentation, accountability, and protective measures be established for digital records with relatively long retention periods. This section prescribes disposal requirements for

³ For exemption from section 9 requirements, see note at end of section 2.1

records with No Retention Schedule (9.1), Non-Permanent Retention - Original (Paper) Records (9.2), Long-Term/Permanent Retention - Original (Paper) Records (9.3), and Destruction of Digitized Records (9.4)

9.1 No Retention Schedule

Public records, in any form, whether original paper records or digitized copies, that have no duly approved retention schedule may not be destroyed under any circumstances.

9.2 Non-Permanent Retention – Original (Paper) Records

9.2.1 Short-Term Retention – Non-permanent records with a duly approved retention period of ten years or less.

Agencies are not required to submit Certificates of Records Destruction to the State Archives Division for the destruction of original, paper records with a retention period of ten years or less that have been scanned, provided all of the following conditions are met:

- (1) The paper records are handled and scanned as part of a regular business work flow.
- (2) The digital, scanned records are maintained in accordance with their status as official agency records.
- (3) The scanning process complies with the requirements of this regulation.
- (4) The agency has completed and submitted a Notice of Intention to Digitize Public Records form (See section 5.6 and Appendix A) to the State Archives Division.
- (5) Agency possesses appropriate Notice of Intention form signed by the State Archivist/ Public Records Administrator.
- (6) Agency submits for approval a Certificate of Records Destruction for the destruction of the digital records at the end of their retention period.

Agencies may nevertheless choose to submit Certificate of Records Destruction for the destruction of paper records to the State Archives Division in order to document this action.

9.2.2 Medium-Term Retention – Non-permanent records with a duly approved retention period of more than ten and no more than twenty years.

The State Archives Division will generally approve the destruction of original (paper) records with a duly approved retention period of more than ten and no more than twenty years that have been scanned, provided agencies submit a Certificate of Records Destruction for approval by the State Archives Division, and provided they:

Make microfilm copies of the original records that comply with the Public Records Administration issued Rules and Regulations for Microfilm Standards, and are in accordance with prescribed procedures.

Or

9.2.3 For agencies that do not intend to make microfilm copies of the digitized records, the State Archivist/Public Records Administrator will generally approve, via a Certificate of Records Destruction submitted to the State Archives Division, the

destruction of original records that have been digitized and which have a duly approved retention period of more than ten and no more than twenty years, and provided they also first complete and submit for review by the State Archives Division a *Certification of Records Preservation Strategy* form (See section 5.6 and Appendix B). The preservation strategy should, minimally, encompass the following items and considerations:

- Images have been produced in conformity with state law and the applicable requirements of this regulation,
- Security measures are in place for proper storage of media and indexes off-site,
- Sampling of both the working and security copies of media and indexes occurs at least once a year to ensure the data remains readable,
- Recopying to new disk takes place immediately if loss of information is detected,
- Migration and conversion plans exist for both the working and security copies of the disks and indexes, when (1) systems are up-graded or changed in a way that prevents access to the contents of the disks created by the old system, or (2) the information has not been recopied in ten years,
- Consideration has been given to the fiscal impact on agency of committing to making, maintaining, and preserving the records in digital form for their entire retention period.

9.3 Long-Term/Permanent Retention – Original (Paper) Records

Records with a duly approved retention period that exceeds twenty years.

Copies of records with a duly approved retention period that exceeds twenty years (up to and including permanent retention) can be maintained in digital form. The original paper records must also be retained for their entire duly approved retention period. The State Archivist/Public Records Administrator, however, may approve the destruction of the original paper records upon submission of a Certificate of Records Destruction if microfilm copies of these records are produced in compliance with the Public Records Administration issued Rules and Regulations for Microfilm Standards, and in accordance with prescribed procedures. The State Archivist/Public Records Administrator reserves the right to request the transfer of source records to the State Archives Division.

Statutory Authority:

R.I.G.L. § 38-1-10 - No public official may mutilate, destroy, sell, loan, or otherwise dispose of any public record without the consent of the public records administration program of the secretary of state.

R.I.G.L. § 38-3-6 (k) - The program shall adopt reasonable rules and regulations not inconsistent with this chapter relating to the destruction and disposal of records.

R.I.G.L. § 42-8.1-13 (2) - The state archivist or any other public officer of the state or any city, municipality, district, or legal subdivision thereof may cause any or all public records, papers, or documents kept by him or her to be photographed, microphotographed, or

reproduced on film or non-erasable optical disc or through other processes which accurately reproduce or form a durable medium for reproducing and preserving the original records. These reproduction processes shall comply with the standards approved for the reproduction of permanent records under § 38-3-5.1.

R.I.G.L. § 42-8.1-17 (4) - It shall be the duty of each agency of the state and political subdivision thereof to: Establish necessary safeguards against the removal or loss of records. These safeguards shall include notification to all officials and employees of the agency that no records in the custody of the agency are to be alienated or destroyed except in accordance with the provisions of this chapter.

R.I.G.L. § 42-8.5-10 - The state archivist, with the approval of the secretary of state, shall cooperate with and, insofar as practicable, assist agencies, libraries, institutions, and individuals in projects designed to preserve original source materials relating to the state history, government, and culture, and to prepare and publish in cooperation with the public records administration, handbooks, guides, indexes, and other literature directed toward encouraging the preservation and use of the state's documentary resources.

R.I.G.L. § 42-127.1-12 (a) (1) and (2) - If a law requires that a record be retained, the requirements are satisfied by retaining an electronic record of the information in the record which:

- (1) accurately reflects the information set forth in the record after it was first generated in its final form as an electronic record or otherwise; and
- (2) remains accessible for later reference.

R.I.G.L. § 42-127.17 - Each governmental agency of the state shall determine whether, and the extent to which, it will create and retain electronic records and convert written records to electronic records; provided, however, all determinations shall be governed by the provisions of title 38.

See also CFR §1234.30. *Electronic Records Management – Selection and Maintenance of Electronic Records Storage Media*.

9.4 Destruction of Digitized Records

a. Permanent Records: Under all circumstances, even where paper records and/or microfilm are being permanently kept, the destruction of permanent records in digital format requires a duly approved Certificate of Records Destruction.

b. Non-Permanent Digital Records - Paper/Microfilm No Longer Exist: Digitized records may be destroyed only in accordance with (1) a duly approved records retention schedule including General Records Schedules, and (2) a Certificate of Records Destruction submitted to and approved by the State Archivist/Public Records Administrator.

c. Non-Permanent Digital Records - Continuing Existence of Paper/Microfilm Copies: Where paper and/or microfilm continue to exist, no Certificate of Records Destruction is required to destroy non-permanent digital records. In such circumstances, agencies shall

either submit a Certificate of Records Destruction at the time of the destruction of the paper and/or microfilm, or, where applicable, for all existing formats at one time.

At a minimum each agency shall ensure that:

9.4.1 Digitized records scheduled for destruction are disposed of in a manner that ensures protection of any sensitive, proprietary, or national security information.

9.4.2 Magnetic recording media previously used for digitized records containing sensitive, proprietary, or security information are not reused if the previously recorded information can be compromised by reuse in any way.

9.4.3 Agencies shall establish and implement procedures that specifically address the destruction of digitized records.

Statutory Authority:

R.I.G.L. § 38-1-10 - No public official may mutilate, destroy, sell, loan, or otherwise dispose of any public record without the consent of the public records administration program of the secretary of state.

R.I.G.L. § 38-3-6 (j) - No public record shall be destroyed or otherwise disposed of by any agency without prior notice to the program.

See also CFR § 1234.34. *Destruction of electronic records.*

10.0 Technical Documentation

Detailed technical documentation is needed to facilitate future system access. Agencies must keep or ensure availability of system documentation, which must minimally include:

10.1 A hardware systems administrator manual specifying hardware, cabling, and communications configurations.

10.2 Software applications documentation, including user manuals and design documentation.

10.3 Operational procedures for scanning, indexing, and verifying images.

10.4 Current security and system change control procedures, including logs of those changes, indicating the date, the identity of the person making the changes, and the reason for the change.

10.5 Written procedures for periodic back ups, including schedules and the location of secure off-site storage for those back ups.

10.6 Agencies will maintain one copy of current documentation on-site and one current copy in designated secure storage.

10.7 Where agencies use contractor services, contractors must have available complete documentation of the specific systems hardware, software, processes, and procedures used to scan each set of agency records.

Statutory Authority:

R.I.G.L. § 42- 8.1-17 - It shall be the duty of each agency of the state and political subdivision thereof to:

(1) Cause to be made and preserved records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the agency and designed to furnish the information necessary to protect the legal rights of the government and of the persons directly affected by agency's activities.

See also: CFR 1234.20. *Electronic Records Management – Creation and Use of Data Files.*

Appendices

- Appendix A Notice of Intention to Digitize Public Records
- Appendix B Certification of Records Preservation Strategy
- Appendix C Summary Table of Imaging Requirements

Notice of Intention to Digitize Public Records

A. Agency Information

1. Agency Name:
2. Sub-Unit Name (Division/Bureau/Office):
3. Address:
4. Project Coordinator:
5. Tel. Number:

B. Record Series Description

Have retention periods been established for the records either in an approved agency specific records retention schedule or in the General Records Schedule?

Yes – Respond to: 7 – 11.

No – Respond to: 6, 9 – 11.

6. Records Function and Content Description:
7. Record Series Number:
8. Record Series Title:
9. Date Span of Records:
10. Physical Dimensions:
11. Document Color: Black and White Grayscale Color

C. Imaging Information:

Agency using state Master Price Agreement contractor/vendor?

Yes No (If yes, proceed to D.)

List Hardware:

List Software:

Open System Architecture: Yes No

Image File Format:

Image Resolution:

Indexing: OCR Manual Database Number of fields

Backup Media: None CD-R WORM Microfilm Paper

Magnetic Tape Other _____

D. I hereby certify that the information provided on this form is accurate.

Agency Head: _____

Signature

Print Name

Date:

Certification of Records Preservation Strategy

1. Agency Name:
2. Sub-Unit Name (Division/Bureau/Office):
3. Project Coordinator:
4. Record Series Number:
5. Record Series Title:
6. Date Span of Records:
7. Retention Period:
8. Are these records confidential? Yes ___ No ___
9. Did the agency submit a *Notice of Intention to Digitize Public Records* form before commencement of scanning project? Yes ___ No ___

10. I hereby certify that the above-described records have been scanned in conformity with the provisions of the state regulation on the Making and Management of Imaged Records.

Agency Head: _____
Signature _____ Print Name _____

Date: _____

Project Coordinator: _____
Signature _____ Print Name _____

Date: _____

State Archivist/Public Records Administrator: _____

Date: _____

Statutory Authority: R.I.G.L. § 38-3-5, R.I.G.L. § 38-3-6 (j) and (k), and R.I.G.L. § 42-8.1-17

This form is exclusively for the use of those agencies seeking approval to destroy source records with an approved retention period of more than ten years and no more than twenty years that they have digitized, but who do not wish to produce microfilm security copies of the records. This form must be submitted in conjunction with a **Certification of Records Destruction** form (RI/PRA 003).

Return to:

State Archives Division, Public Records Administration, 337 Westminister Street
Providence, RI 02903

Summary Table of Imaging Requirements

Regulatory Requirements	NID Form	PSF Form	File Format for Master Images	DPI Minimum For Master Copy	Retention of Original Paper records and/or Microfilm-to-standard copy	Destruction of Paper Records That Have Been Digitized	Destruction of Scanned Records
Retention Requirement							
10 years or less	Required 5.4, 5.6	N/A	TIFF, PDF, JPEG 2000, or any other suitable format. 6.2.3 (d)	200 6.2.3 (c)	Not required when requirements of 9.2.1 met.	No CRD requirement if NID submitted /approved and conditions of 9.2.1 met.	CRD required, unless paper and/or microfilm to standard has been retained. 9.4 (b), 9.4 (c)
More than 10 years and no more than 20 years	Required 5.4, 5.6	May be required. See 5.6, 9.2.2, 9.2.3	TIFF, PDF, JPEG2000, or any other suitable format. 6.2.3 (d)	200 6.2.3 (c)	Required, unless State Archivist approves PSF 9.2.2 & 9.2.3.	Prohibited, unless requirements of 5.6, 9.2.2, & 9.2.3 are met.	CRD required, unless paper and/or microfilm to standard made and retained. 9.4 (b), 9.4 (c)
More than twenty years	Required 5.4, 5.6	N/A	TIFF, PDF/A 6.2.3 (d)	300 6.2.3 (c)	Required 9.3	Prohibited, unless microfilm copies to state standard made and retained. Requires State Archivist approval of CRD. 9.3	CRD required, unless paper and/or microfilm to standard made and retained. 9.4 (b), 9.4 (c)
Permanent Records	Required 5.4, 5.6	N/A	TIFF, PDF/A 6.2.3 (d)	300 6.2.3 (c)	Required 9.3	Prohibited, unless microfilm copies to state standards made and retained. Requires State Archivist approval of CRD. 9.3	CRD required. 9.4 (b). (a)
Unscheduled Records	Required 5.4, 5.6	N/A	TIFF, PDF/A 6.2.3 (d)	300 6.2.3 (c)	Required 9.3	Prohibited by law RIGL 38-1-10, RIGL 38-3-6 9.1	Prohibited by law RIGL 38-1-10, RIGL 38-3-6 9.1

CRD – Certification of Records Destruction
 JPEG – Joint Photographic Experts Group
 NID – Notice of Intention to Digitize Public Records
 PDF – Portable Document Format
 PDF/A – Portable Document Format/Archival
 PSF – Certification of Records Preservation Strategy
 TIFF – Tagged Information File Format