**Appendix B**

LMS Requirements in Table Form

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| --- |
| **Product Information** |
|  | **Vendor Comments** |
| Product Name |  |
| Original release date of your product |  |
| Current release |  |
| Current release date |  |
| Release frequency |  |
| Planned upgrades and releases for next 6 months |  |
| Number of individual clients |  |
| Largest number of active users for one client (client name not needed) |  |
|  |  |
| **Please include Screen Captures of the following:** |  |
| Public facing home page - if one exists |  |
| View of Catalog page |  |
| View of objects within a course, e.g. online lessons, instructor-led event, peripheral course documents |  |
| Learner home page - what learners see every time they enter the LMS  |  |
| Administrator's home page  |  |
| View of select reports |  |
| Additional screenshots that would be helpful |  |

| **Non-Functional Requirements** |
| --- |
| **ID#** | **Requirements and Questions** | **Y/N** | **Vendor Comments**  |
| **NFR1** | Web-based |  |  |
| **NFR2** | Support for HTML-5 |  |  |
| **NFR3** | Do you support Adobe Flash? What versions of Flash?  |  |  |
| **NFR4** | Required Browsers (on Desktop) |  |  |
|  | o   Internet Explorer 10 and above |  |  |
|  | o   Google Chrome |  |  |
|  | o   Microsoft Edge |  |  |
|  | o   Mozilla Firefox |  |  |
|  | o   Safari |  |  |
| **NFR5** | Responsive Design |  |  |
| **NFR6** | Support for desktop, laptop, and tablets |  |  |
| **NFR7** | Support for mobile devices (optional) with iOS / Android  |  |  |
| **NFR8** | Please provide your Service-Level Agreement (SLA)  |  |  |
| **NFR9** | Virus and anti-malware checker on all uploads into the LMS |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q1** | What is the platform for your LMS solution - SaaS, PaaS, or Self-hosted (on client infrastructure)? |  |  |
| **Q2** | If not a self-hosted solution, where can the system be housed, e.g. Amazon Web-services, Azure, Rackspace. If not SaaS, can our users access your system via a VPN? |  |  |
| **Q3** | What database does your LMS use? |  |  |
| **Q4** | Have you conducted stress tests against your application? Provide details.  |  |  |
| **Q5** | Will you stress test our organization's implementation prior to release in the production environment? |  |  |
| **Q6** | Although not a requirement currently, do you support other languages? |  |  |
|  |  |  |  |
|  | **Backups - Requirements** |  |  |
| **NFR10** | A documented backup procedure must be implemented and maintained. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q7** | What is your backup procedure?  |  |  |
| **Q8** | How often do you back up the system?  |  |  |
| **Q9** | What is your recovery process?  |  |  |
| **Q10** | What is your restoration time? |  |  |
| **Q11** | How far can you go back to retrieve data?  |  |  |
| **Q12** | What is the granularity of the backup? |  |  |
| **Q13** | Do you keep your backups offsite? |  |  |
|  |  |  |  |
|  | **Disaster Recovery** |  |  |
| **NFR11** | A System Failover (DR) plan must be in place. Describe your disaster recovery plan.  |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q14** | Is your primary production site replicated to another facility? |  |  |
|  |  |  |  |
|  | **Maintenance** |  |  |
| **NFR12** | Vendor must practice continuous maintenance activities on the LMS application. |  |  |
|  | **Questions** |  |  |
| **Q15** | How often do you update the application, i.e. versions and patches?  |  |  |
| **Q16** | Do you provide a maintenance schedule? If yes, how far in advance is the administrator notified? (SaaS and PaaS) |  |  |
| **Q17** | How much down time annually have you historically had? Do you guarantee a minimum amount of down time? |  |  |
|  |  |  |  |
|  | **Extended Enterprise** |  |  |
|  | **Questions** |  |  |
| **Q18** | In a SaaS solution, is the LMS multi-tenant? If yes, is data isolated from other customers? |  |  |
| **Q19** | Can each tenant have its own branding? Provide examples.  |  |  |
|  |  |  |  |
|  | **Security and Permissions** |  |  |
| **NFR13** | Application Authentication and Identity support using LDAP, SAML2, or OpenID. |  |  |
| **NFR14** | FedRAMP (Federal Risk and Authorization Program) Compliant. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q20** | Do you encrypt data at rest?  |  |  |
| **Q21** | How will you protect credentials and data transmissions in transit to your application? I.e., Is encryption at the application level (SSL)?  |  |  |
|  |  |  |  |
|  | **Compliance & Regulatory** |  |  |
| **NFR15** | LMS functionality must be designed to be accessible for people with disabilities and verifiably compliant with applicable sections of Section 508 of the Rehabilitation Act of 1973, which defines standards for electronic and information technology and web-based applications.  |  |  |
| **NFR16** | Vendor will be asked to demonstrate that graphical user interface screens are readable and easily navigable using the latest version of the JAWS or NVDA Screen Reader software. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q22** | Has your LMS been tested for accessibility? If so, please describe the results and how you responded to any accessibility issues that were reported. |  |  |
|  |  |  |  |
| **NFR17** | LMS must import content packages published as SCORM 2004 4th Edition. |  |  |
|  | o  Vendor will demonstrate the import of a NASWA-provided SCORM .zip file. |  |  |
|  | o  Provide a description of the subset of SCORM data model elements, if any, that are not retained in your LMS database. |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q23** | What other SCORM versions your LMS support, e.g. AICC HACP, SCORM 1.2, xAPI? |  |  |
|  |  |  |  |
|  | **Licensing** |  |  |
| **NFR18** | Allow purging of licensed learners. |  |  |
| **NFR19** | Provide continued storage of data for purged learners, so data remains should learners be re-licensed. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q24** | How is your licensing structured, i.e. concurrent users/named users? |  |  |
| **Q25** | For named learners, do seats rollover to new learners? |  |  |
|  |  |  |  |
|  | **Initial Implementation of LMS** |  |  |
| **NFR20** | Provide a description of your implementation process and timeframe |  |  |
| **NFR21** | Transfer data from existing LMS, e.g. allow administrator and/or tech team to load past learning history via batch import. Provide process and timeframe for data transfer.  |  |  |
| **NFR22** | Provide a sandbox area where the LMS implementation can be tested. |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q26** | Is there an implementation fee? |  |  |
|  |  |  |  |
|  | **Support** |  |  |
| **NFR23** | Administrative support by email and, when required, telephone support. For critical matters, response time should be within two hours. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q27** | What are your methods of communication, e.g. do you offer e-mail support, live support, phone support and/or web-based support? |  |  |
| **Q28** | What is the average response time for a priority one support call, during business hours and after business hours? |  |  |
| **Q29** | What hours do you offer support? |  |  |
|  | o  Business hours? What time zones? |  |  |
|  | o  Do you offer support on the weekends? |  |  |
|  | o  24/7, 365 day a year support? |  |  |
| **Q30** | What types of support do you offer, e.g. administrator, learner? What are the fees for each type of support? |  |  |
| **Q31** | Is support included for a self-hosted solution? |  |  |
| **Q32** | Is support only for one administrator or if the client has multiple administrators (do they receive support too)? If an additional cost, please state fee(s). |  |  |
| **Q33** | How many people do you have in support? Where are your support agents based, i.e. located? |  |  |
| **Q34** | Do you have built-in help? Do you provide contextual help? |  |  |
|  |  |  |  |
|  | **Training** |  |  |
| **NFR24** | Provide training manuals targeted for LMS Roles, i.e. learners, managers/instructors, and administrators. |  |  |
| **NFR25** | Provide training for administrators as part of implementation process. |  |  |
| **NFR26** | Provide training for administrators on overall LMS functionality. |  |  |
| **NFR27** | Provide materials for learner training, such as job aids, reference guides and/or any other materials, and editable templates that can be modified for learners. |  |  |
|  | **Questions** |  |  |
| **Q35** | Do you provide free training? What is included in the "free" training? |  |  |
| **Q36** | Do you offer training, in addition to free training? What are the costs and what is included? |  |  |
| **Q37** | Do you offer a Community Site/Knowledge Portal? If yes, what is included? |  |  |

| **Functional Requirements** |
| --- |
| **ID#** | **Requirements and Questions** | **Y/N** | **Vendor Comments**  |
|  | **Types of Content to be Supported by the LMS** |  |  |
| **FR1** | Self-paced eLearning built in Articulate Storyline and published as SCORM packages |  |  |
| **FR2** | Instructor-led in-person events |  |  |
| **FR3** | Instructor-led virtual classes, synchronous using an external web-conferencing tool, currently Adobe Connect |  |  |
| **FR4** | Webinars using Zoom, registration for synchronous (live) sessions and playback of asynchronous (previously recorded webinars). |  |  |
| **FR5** | Supplemental training materials |  |  |
| **FR6** | Blended learning - mix of online, instructor-led events, webinars, supplemental training materials, external content |  |  |
| **FR7** | Videos (track that a learner has linked to a video housed externally, e.g. Vimeo) |  |  |
| **FR8** | External Content (track that a learner has accessed a linked document housed externally) |  |  |
| **FR9** | As previously defined, courses contain a collection of lessons, events, and learning materials. A lesson is one SCORM package. Lessons and events may also standalone, not as part of a course. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q38** | Does your LMS have a document library accessible by learners? |  |  |
| **Q39** | Does your LMS allow learners to post informal learning? |  |  |
| **Q40** | What descriptors or identifying information are attached to learning objects and courses (collections of learning objects), e.g. title, description, length/duration. |  |  |
|  |  |  |  |
|  | **Publishing/Uploading Content** |  |  |
| **FR10** | Upload SCORM and AICC custom content without vendor assistance. |  |  |
| **FR11** | Upload to a staging area before content goes live. |  |  |
|  |  |  |  |
|  | **Customizations** |  |  |
| **FR12** | Details about required functionality that may require customization are defined throughout this requirements document. If requested requirements are not available, please indicate alternatives for customization that will address NASWA’s needs. Also indicate when required customizations will incur costs. |  |  |
| **FR13** | The following elements may require customizations: |  |  |
|  | o   Branding, e.g. GUI, web pages, Certifications of Completion, reports |  |  |
|  | o   Fields |  |  |
|  | o   Reports |  |  |
|  | o   Buttons |  |  |
|  | o   Email Notifications |  |  |
|  | o   Functional Changes to meet requirements |  |  |
|  |  |  |  |
|  | **Organization and Display of Content** |  |  |
|  | **Catalog** |  |  |
| **FR14** | Group lessons, events, and materials (learning objects) within a course. |  |  |
| **FR15** | Group or filter courses by tags assigned by administrators. |  |  |
| **FR16** | Group or filter courses by tracks that reflect a job role or a content topic. |  |  |
| **FR17** | Group or filter courses by program area, i.e. NIA, ITSC, WITSC, SIDES, ICON. |  |  |
| **FR18** | Group by delivery method, e.g. instructor-led event, online |  |  |
| **FR19** | Display learning objects in multiple courses and tracks. |  |  |
| **FR20** | Display catalog on public site. |  |  |
| **FR21** | Store selected catalog objects within a learner site. |  |  |
| **FR22** | Link to catalog or courses, when URLS are embedded within emails. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q41** | Does your content catalog identify new, popular or featured content? |  |  |
| **Q42** | Do you offer pre-built courses to your customers that integrate with your LMS at no additional charge, e.g. human resources topics like behavior in the workplace? |  |  |
|  |  |  |  |
| **UC1** | Use Case (Filter Catalog by Program Area): National Integrity Academy (NIA) learners may see NIA content for which they are approved, but cannot see ITSC, WITC, SIDES and ICON content. WITC, SIDES and ICON learners should only be able to view their program area’s content. Some content may cross over program areas. ITSC learners may see content for all content program areas, unless that content requires supervisor approval. How would your LMS handle this? |  |  |
| **UC2** | Use Case (Visually Distinct Programs Areas): Content in the separate NASWA program areas need to be visually identifiable as being associated with each program area. How would your LMS handle this? |  |  |
| **UC3** | Use Case (Visually ID Course Learning Objects): We may like to visually identify the multiple learning objects (lessons, events, materials) in a course. For example, all course learning objects would be marked with a symbol or color to identify them as being part of the same course/curriculum. In some cases, learning objects are used across multiple courses/curriculum, so when they are not identified as being with a course/curriculum or, if the also lesson stands alone as an object, the visual cue would be removed. Can your LMS provide these needs? |  |  |
|  |  |  |  |
|  | **Search Functionality** |  |  |
| FR23 | Search tagged content. Content tagged for searching and reporting, would include courses, lessons, materials. |  |  |
| FR24 | Search functionality allowing learners to find specific courses, lessons, materials, delivery format, based on keywords, title, course description, job roles, and other tagged identifiers. |  |  |
| **FR25** | Enter search parameters within an easy-to-use search interface. |  |  |
| **FR26** | Display search results in an easy-to-interpret format. |  |  |
| **FR27** | Provide search results as permissions-based, i.e. learners can only see information they have permissions to access, via job role or other group assignments. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q43** | (Basic/Advanced Search): Do you provide basic and advanced search functionality? Please describe. |  |  |
| **Q44** | (Search on SCORM metatags): Does your search functionality, search upon SCORM keyword metatags imported from SCORM packages? |  |  |
|  |  |  |  |
|  | **Public-facing Home Page** |  |  |
| **FR28** | A public-facing home page should be customizable and branded for NASWA. |  |  |
| **FR29** | Learners who are not licensed users with the LMS will view a public-facing LMS home page. |  |  |
| **FR30** | Display public view of course catalog with search functionality. |  |  |
| **FR31** | Allow visitors to request enrollment into the LMS. |  |  |
| **FR32** | Display announcements. |  |  |
|  |  |  |  |
| **UC4** | Use Case (Access Catalog from Public Site): Learners enrolled within the LMS will access the internal catalog. However, visitors may access the catalog from a public-facing site and send courses that interest them to a “favorites list.” Upon selecting a course or an event from the list, the visitor is prompted to enroll. If a visitor enrolls, the “favorites lists” is saved to his or her learner site. |  |  |
|  |  |  |  |
|  | **Learner Site** |  |  |
| **FR33** | A “learner site” as described within this LMS is an area where learners may access information specific to them. Please describe how learners access and interact with the following information with your LMS. |  |  |
| **FR34** | Access personal training information by licensed learners, likely from a learner site. |  |  |
| **FR35** | Display a collection of training content selected from the catalog by learners within learner site. |  |  |
| **FR36** | Allow learners to enroll, or request enrollment in course, or cancel their enrollment (see Enrollment section for more information) |  |  |
| **FR37** | Display training content within the learner site assigned or recommend by state personnel at the direction of state management or by LMS administrators. |  |  |
| **FR38** | Display assigned or recommended content on the learner site based upon the learner’s role. |  |  |
| **FR39** | Display training materials accessed and downloaded by learners within the learner site. |  |  |
| **FR40** | Review learning history/completed work by learners. |  |  |
| **FR41** | Download learning history/transcript by learners. |  |  |
| **FR42** | View and download certificates of completion by learners. |  |  |
| **FR43** | Identify and display system-recommended/suggested courses on the learner site based upon learner job role(s). |  |  |
| **FR44** | Provide ranking for courses, events, and instructors, e.g. assign numbers of satisfaction stars. |  |  |
| **FR45** | Display learner training progress and completions by course, module, and lesson. |  |  |
| **FR46** | Notify learners, when they are wait-listed for registered events (see Event Management and Event Registration section for more information). |  |  |
| **FR47** | Provide learner with ability to request that prerequisites attached to learning objects be waived from the learner site. |  |  |
| **FR48** | Display announcements. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q45** | Describe whether there is a learner site in your LMS. For example, is the learner site a portal or a dashboard? What information is displayed? How does the learner access his or her learner site – e.g. is it displayed upon logging in to the LMS or do they navigate to the site? |  |  |
|  |  |  |  |
| **UC5** | Use Case (Push Filtered Content to Learner Profile): Learner role and/or group information in the learner profile can be used to assign course content. Content would be tagged accordingly. If the learner’s role is Adjudicator then, Adjudication content is pushed to that learner. As an alternative, a message could notify learners of content that is relative to them. |  |  |
|  |  |  |  |
|  | **Announcements** |  |  |
| **FR49** | Create, modify and post announcements on Public-facing Home Page. |  |  |
| **FR50** | Create, modify and post announcements on learner sites. |  |  |
|  |  |  |  |
|  | **Learner Profile** |  |  |
| **FR51** | Establish a learner profile when a learner enrolls within the LMS. |  |  |
| **FR52** | Query the learner upon enrollment for required and optional information and save to learner profile. |  |  |
| **FR53** | Provide a template that delineates information to include profile query; the template must be configurable by LMS administrators. |  |  |
| **FR54** | Allow learner to view their profile at any time. |  |  |
| **FR55** | Allow learners to view a subset of the learner profile of others (some information will be private). For example, a state employee from one state may want email addresses for employees from other states with a similar job role. |  |  |
| **FR56** | Identify learners with single or multiple job roles. |  |  |
| **FR57** | Display content within the learner site based on the job role(s) identified by the learner in their learner profile. |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q46** | Can a learner have more than one role? |  |  |
|  |  |  |  |
|  | **Enrollment** |  |  |
| **FR58** | Collect enrollment information from the learner upon his or her request for access to the LMS. |  |  |
| **FR59** | Store enrollment information in a learner profile. |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q47** | If enrollment information is stored separately from a Learner’s profile, can it be viewed and edited by the learner and administrator? |  |  |
|  |  |  |  |
| **UC6** | Use Case (Self-Enrollment from Public Site): New learners will look at LMS catalog from a public-facing site. Upon choosing training content, the learner will be prompted to enroll in the LMS. Learner will complete a learner profile form in advance of being provided credentials for single sign on (SSO). How does your LMS handle SSO? |  |  |
| **UC7** | Use Case (SSO): NASWA requires the learners be provided with SSO credentials across applications/sites. NASWA relies on integration with Active Directory for SSO access to its current LMS. How would your LMS handle SSO? |  |  |
|  |  |  |  |
| **FR60** | Attach the requirement for Supervisor approval before learners can access some courses. Supervisor approval is not required for all courses. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q48** | How does your LMS handle Supervisor approval? Is Supervisor approval addressed during the LMS enrollment process or is it addressed at the course level? Does the learner indicate his or her supervisor’s name and contact information during the enrollment process? Does the LMS allow supervisor information to be updated? |  |  |
|  |  |  |  |
| **FR61** | Allow Administrator to create mass enrollments. |  |  |
|  |  |  |  |
| **UC8** | Use Case (Mass Enrollment): A state representative from Pennsylvania requests that 300 Pennsylvania state employees be registered in the LMS, without requiring self-enrollment. How does your LMS handle this? How can learner profile/enrollment data be entered when learners are mass enrolled? |  |  |
|  |  |  |  |
|  | **Event Management and Event Registration** |  |  |
| **FR62** | Registration refers to learners registering for events, such as in-person classroom training, Adobe Connect virtual training, or Zoom webinars. |  |  |
| **FR63** | Create an event and instances of that event; define properties, e.g. date and times, location, maximum class size, ability to wait list |  |  |
| **FR64** | Create an event as a standard template and then create multiple instances of that event, e.g. over multiple days, times, and locations. |  |  |
| **FR65** | Override maximum class size by Instructors |  |  |
| **FR66** | Accommodate different time zones for live events |  |  |
| **FR67** | Assign instructors to an event. If possible, assign multiple instructors to an event. |  |  |
| **FR68** | Allow mass registration for events by LMS Administrators |  |  |
| **FR69** | Allow attendees to register, modify registration, and unregister for events |  |  |
| **FR70** | Specify end date for learner enrollment and changes to enrollment status (self-register, unregister). |  |  |
| **FR71** | Create approval process for courses within the LMS catalog for all courses, including external courses |  |  |
| **FR72** | Send automated confirmation reminder notices by email for events via email/calendar |  |  |
| **FR73** | Provide wait listing: |  |  |
|  | o   Automatic wait list functionality, i.e. for an event that becomes filled |  |  |
|  | o   Automatic wait list adjustment−learner at top of waitlist is automatically enrolled when a space becomes available) |  |  |
|  | o   Management of the wait list and roster (administrator only) |  |  |
| **FR74** | Sign up for an ILT without first signing into the LMS. (Signup for the event on a public facing site without signing in to the LMS.) |  |  |
| **FR75** | Pass learner registration for events from the LMS to the event application and pass attendance data back to learners’ records in the LMS using an API for Adobe Connect and for Zoom. |  |  |
| **FR76** | Delete registrants for an event after the event has taken place. |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q49** | How does your LMS handle event registration? |  |  |
|  |  |  |  |
| **UC9** | Use Case (Email Links to Events): Learners receive an email notification with a link to register for an event. Upon clicking the link, the learner is taken to the event within the LMS to allow them to register. If the event is part of a course that requires supervisor approval and the learner has not yet enrolled in the course, the learner is asked to register for the course. If the learner does not have an LMS license, instructions for enrolling are provided. Otherwise, the learner can choose to immediately register for the event. |  |  |
|  |  |  |  |
|  | **Calendar** |  |  |
| **FR77** | Provide a calendar that displays all events. |  |  |
| **FR78** | Filter calendar listings by properties, e.g. program area. |  |  |
| **FR79** | Enroll in events from within the calendar, e.g. learners click on any event listed on the calendar to register. |  |  |
| **FR80** | Provide calendar view configured to display learner events on the learner site. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q50** | Does your LMS calendar feature save event registration to external calendars, such as iCal in Outlook, Gmail, and other internet e-mail platforms? |  |  |
| **Q51** | What views does your calendar display? What other functionality does your calendar provide? |  |  |
|  |  |  |  |
|  | **Online Training (eLearning)** |  |  |
| **FR81** | As called out in the Specification Section of this requirements document, LMS must minimally be able to accept SCORM 2004 4th edition content. Vendor must demonstrate the upload of a sample NASWA SCORM package. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q52** | What descriptors or identifying information are attached to online lessons? Are the descriptors separate and in addition to the descriptors passed from the SCORM manifest? |  |  |
|  |  |  |  |
| **UC10** | Use Case (Lesson Length): Learners want to know how long a lesson will take to complete, without opening the actual lesson to view estimated completion time. Does your LMS display completion times for lessons, for course, or for other non-SCORM learning objects? |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q53** | What data which is available in a SCORM manifest is stored in your LMS database? |  |  |
| **Q54** | Does your LMS have canned reports and/or views of SCORM manifest data? |  |  |
|  |  |  |  |
| **FR82** | Provide Test Item Analysis data, i.e. test item data passed from SCORM parameters must be viewable for trainers and administrators to evaluate percentages of incorrect answers per test questions across an audience. |  |  |
| **FR83** | When exiting a lesson, a learner closes the lesson by using exit functionality within the lesson itself. If the lesson has not been completed, it is automatically bookmarked. If the lesson has been completed, as defined by the lesson settings, exiting the lesson reports completion to the LMS. In other words, separate LMS button functionality is not necessary. |  |  |
| **FR84** | Allow administrators to view courses uploaded to the LMS, before making them visible to learners. |  |  |
|  |  |  |  |
|  | **Prerequisites** |  |  |
| **FR85** | Provide two levels of prerequisites: |  |  |
|  | (1) prerequisites among courses, e.g. Fraud Course is a prerequisite for the Fraud Continuing Education course. |  |  |
|  | (2) force the order of viewing learning objects within a course |  |  |
| **FR86** | Allow learners to request that certain prerequisites be waived. (This requirement is also noted with the learner site description.) |  |  |
| **FR87** | Allow the administrator to override prerequisites for individual learners or groups of learners. |  |  |
|  |  |  |  |
| **UC11** | Use Case (Prerequisites): A course contains multiple types of learning objects. We would like to allow: a forced order of course objects; no forced order; and/or a mixture where certain objects of a lesson have a forced order, and others do not. For example, a course has several introductory online lessons which are prerequisite to attending an event. Additional learning objects should then be accessible after the learner attends the event; in other words, the event is a prerequisite for accessing additional lessons. (The administrator must have the flexibility to override prerequisites.) |  |  |
| **UC12** | Related Use Case: When prerequisite learning objects are overridden by an administrator, the learner does not receive a completion status for the course, unless the learner eventually goes back and completes the overridden learning objects. However, the administrator can opt to manually assign a learner’s course status as complete, without the learner completing the waived learning objects. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q55** | Can assigned prerequisites vary depending on a specific user role or by U.S State? If so, can we assign those prerequisites in bulk, rather than one learner at a time? |  |  |
|  |  |  |  |
|  | **Certificates of Completion, Management & Tracking** |  |  |
| **FR88** | Provide certificates of completion when learner completes certain courses (groups of learning objects), stand-alone lessons, or events that are not associated with a course. |  |  |
| **FR89** | Identify which learning objects will generate a certificate of completion (preference set by administrator). |  |  |
| **FR90** | Allow custom certificates to be designed/modified by Administrator. Editable templates are preferred. |  |  |
| **FR91** | Pre-populated content on certificate of completion from the LMS database, minimally with learner name, course name, and date of completion. |  |  |
| **FR92** | Custom certificates can be attached to a course or a stand-alone lesson. |  |  |
| **FR93** | Ability to automatically award a certificate, once course/content is complete. Learner receives immediate visual notification on learner site and option email. |  |  |
| **FR94** | Display, print, download certificates completed on the learner site. |  |  |
| **FR95** | Email the learner’s supervisor a copy of certificate generated by learner or system. |  |  |
| **FR96** | Allow trainers and supervisors to download certificates. |  |  |
| **FR97** | Display a report of learners who have earned certificates for courses. |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q56** | What features are provided in your LMS’ certification functionality? |  |  |
|  |  |  |  |
|  | **Email Notifications / Alerts** |  |  |
| **FR98** | Integrate email notification with NASWA’s email server or secure NASWA-provided external SMTP server |  |  |
| **FR99** | Create, edit, and manage content of notification messages. |  |  |
| **FR100** | Create email notifications based on group or learner profile, e.g. for announcements. |  |  |
| **FR101** | Send email notification of supervisor approval for learner access to requested course(s). |  |  |
| **FR102** | Send email confirmation after learner registers for events. |  |  |
| **FR103** | Send email notification of event wait listing status. |  |  |
| **FR104** | Send auto-reminder email for upcoming events. |  |  |
| **FR105** | Generate custom survey email notifications at multiple specific times after course completion (not required for all courses). (See Survey section for more details.) |  |  |
| **FR106** | Send email notifications to learners when certificates of completion have been earned. |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q57** | What email notification features does your LMS provide? |  |  |
| **Q58** | Does your LMS integrate with a third-party email service, such as Constant Contact or MailChimp. |  |  |
|  |  |  |  |
| **UC13** | Use Case (Enrollment Notification): A learner enrolls and is approved for LMS access, or an administrator enrolls a group of learners within the LMS. The learner should automatically be sent a welcome email with credentials or the administrator should be able to trigger a batch of emails for learners, which contain each learner’s credentials. With current SSO requirements, this is a manual process using mail merge. |  |  |
|  |  |  |  |
|  | **Surveys** |  |  |
| **FR107** | NASWA regularly provides surveys to multiple audiences and performs extensive analysis of survey data. We currently use two commercial survey products. We are interested in any survey capability provided within your LMS but anticipate that we are more likely to require integration with third-party software. |  |  |
| **FR108** | Integrate with a survey application, specifically Survey Gizmo and/or SurveyMonkey. |  |  |
| **FR109** | Generate custom survey email notifications at multiple specific times after course completion (not required for all courses). |  |  |
|  |  |  |  |
| **UC14** | Use Case (Multiple Survey Emails): Upon completion of some courses an email needs to be generated at the completion of the course and sent to the learner asking them to complete a survey. The survey link is embedded within the email. A second email is automatically sent to the learner at a specified time after the first survey request (usually 8 weeks) providing a link to another survey. Can your LMS automatically generate these email notifications? |  |  |
| **UC15** | Use Case (Survey Courses in Development): During the course development process, lessons are posted for learners, e.g. 5 of 10 lessons, on a rolling schedule. We would like to email learner at differing intervals during the course development process as they complete modules and lessons. Emails will contain links to surveys. |  |  |
| **UC16** | Use Case (Event Surveys): Upon completion of a virtual event, an email should be sent automatically to attendees that contains a link to a survey. For in-person events, the email should be manually triggered. |  |  |
| **UC17** | Use Case (Survey/LMS Data Analysis): One of the program groups performs a robust evaluation process looking at data collected using external survey software tools (Survey Monkey and Survey Gizmo) as well as LMS data, to evaluate training outcomes. Evaluations are performed on a planned and ad hoc basis and generates several reports. We are looking for a way to minimize our current manual labor intensive and time-consuming evaluation process. Could your LMS help automate this process by integrating with external tools or using a survey tool that is native to the LMS? |  |  |
|  |  |  |  |
|  | **Built-in Tools / Integration with Apps** |  |  |
| **FR110** | Link to other systems using APIs and web services (open architecture). |  |  |
| **FR111** | Link to surveys and survey management applications, specifically Survey Gizmo and/or SurveyMonkey |  |  |
| **FR112** | Exchange data with Drupal-based and SharePoint-based sites via API integration, e.g. scheduling and course information. |  |  |
| **FR113** | Integrate email notification with NASWA’s email server or secure NASWA-provided external SMTP server (also listed in Notification section). |  |  |
| **FR114** | Integrate with a business intelligence/business analytics tool, e.g. Microsoft BI or Tableaux (see Reporting/BI Tool sections). |  |  |
| **FR115** | Integrate with web-conferencing platforms, i.e. Adobe Connect and Zoom (virtual classrooms). |  |  |
| **FR116** | Provide analytics data for login information, e.g. who logged in and when they logged in. |  |  |
|  |  |  |  |
|  | **Social Learning Requirements** |  |  |
| **FR117** | NASWA would like to implement social learning features and are open to hearing about the types of features provided within your LMS. |  |  |
| **FR118** | Provide social learning capabilities, such as chat rooms, discussion boards, workspaces, and/or threaded discussion forums. |  |  |
| **FR119** | Allow learners to post questions and comments on topics in a social area and respond to other learners. |  |  |
| **FR120** | Create communities across all program areas by topic; create communities tied to each program area. |  |  |
| **FR121** | Create communities tied to a specific course, e.g. learners accessing Legislative training may post questions and comments that may only be viewed by others taking that course. |  |  |
| **FR122** | Social areas are moderated by an Administrator. |  |  |
|  | **Reporting / Business Analytics** |  |  |
|  | **Reports** |  |  |
| **FR123** | View real-time reports |  |  |
| **FR124** | View ad hoc reports |  |  |
| **FR125** | Create and filter reports by date range, job role and other learner profile data, program area, U.S. state, course, learning objects and training delivery type, and other database fields. |  |  |
| **FR126** | Create custom reports and/or alter “out-of-the-box" reports. |  |  |
| **FR127** | Print, download, and export reports. Export data as tab delimited .xls, .csv |  |  |
| **FR128** | Schedule reports which are subsequently sent via email. |  |  |
|  |  |  |  |
|  | **Question** |  |  |
| **Q59** | How does your system preserve custom reports during system upgrades? |  |  |
|  |  |  |  |
|  | **Administrator Reports:** |  |  |
| **FR129** | Display training progress and completions by course, module, and lesson and sort by state and/or job role. |  |  |
| **FR130** | Display Test Item Analysis Reports to identify percent of current responses for individual test questions |  |  |
| **FR131** | Display Learner enrollment reports within the LMS and enrollment within courses. |  |  |
|  |  |  |  |
| **UC18** | Use Case (Analysis of Data from Multiple Sources): A series of reports for management correlating information from various data sources. NASWA would like to reduce the manual processing of creating required reports. Please describe possible integration of this data through your LMS. Data includes: |  |  |
|  | o   Results of learner satisfaction surveys within Survey Gizmo and resulting Survey Gizmo course evaluation summary reports. |  |  |
|  | o   Learner profile data from an external Drupal website (enrollment form data), completed prior to LMS enrollment. This includes job roles and length of experience within their state agency. |  |  |
|  | o   Course progress and completion data from an LMS, |  |  |
|  | o   The date credentials are assigned and last learner login date; data is currently accessed from Active Directory logs. |  |  |
|  |  |  |  |
|  | **Instructor Reports:** |  |  |
| **FR132** | Display reports of learner enrollments for events. |  |  |
|  |  |  |  |
|  | **Learner Reports:** |  |  |
| **FR133** | Display list of courses completed and in progress (learner history) accessible from learner site. |  |  |
| **FR134** | Display list of certifications of completion accessible from learner site. (Not all courses issue certificates.) |  |  |
|  |  |  |  |
|  | **Integrated Business Analytics Tool** |  |  |
| **FR135** | Integrate all reporting data from the LMS with a 3rd party database, such as Microsoft Power BI or Tableau, if the LMS does not provide analytics functionality. |  |  |
| **FR136** | If your LMS provides analytics functionality, it is required to: |  |  |
|  | o   allow users and report writers to see and access information in simple business language, without having to comprehend the complexities of the underlying data or database |  |  |
|  | o   allow creation of user-configurable dashboards for administrator and manager roles that display visual representations of data |  |  |
|  | o   allow drill-down within dashboard views |  |  |
|  | o   map and visualize data in geographical formats |  |  |
|  | o   use conditional formatting to set data alerts, which highlight data exceptions |  |  |
|  |  |  |  |
|  | **Miscellaneous** |  |  |
|  | **Question** |  |  |
| **Q61** | Is there functionality within your LMS, which we have not specified, that you would like to call out to us? |  |  |

| **Functional Requirements by Role** |
| --- |
| **ID#** | **Requirements and Questions** | **Y/N** | **Vendor Comments**  |
|  | **Question** |  |  |
| **Q61** | Can you organize learners within your LMS based upon factors such as program area (NIA, WITSC, ITSC, SIDES, and ICON), U.S State, and job role. Will it require a workaround to accommodate this structure within your LMS? Please describe. |  |  |
|  |  |  |  |
|  | **Administrator Features** |  |  |
|  | ***Allow Upper-level Administrators to:*** |  |  |
| **FR137** | control and manage nonfunctional requirements |  |  |
| **FR138** | direct implementation of LMS on behalf of NASWA stakeholders |  |  |
| **FR139** | manage activities related to integration with APIs to external applications |  |  |
| **FR140** | manages decisions related to upgrading LMS versions |  |  |
| **FR141** | accesses LMS Vendor top-tier support for addressing issues |  |  |
|  |  |  |  |
|  | ***Allow LMS Administrators to:***  |  |  |
|  | **Related to Assigning Permissions:** |  |  |
| **FR142** | create and assign system roles, e.g. Manager, Instructor |  |  |
| **FR143** | specify a subset of functionality available to the LMS Administrator with Limited Access and the Course Uploader roles |  |  |
|  | **Related to Courses / Online Training:** |  |  |
| **FR144** | upload SCORM and AICC custom content without vendor assistance |  |  |
| **FR145** | assign course properties (e.g. duration, description, tags) |  |  |
| **FR146** | identify prerequisites within and among courses |  |  |
| **FR147** | disable a course without removing it from the LMS |  |  |
| **FR148** | create, modify and cancel a course |  |  |
| **FR149** | create/design certificates of completion and assign them to courses. |  |  |
|  | Related to Catalog: |  |  |
| **FR150** | maintain catalog and tag catalog entries |  |  |
|  | **Related to Search:** |  |  |
| **FR151** | tag learning objects for use in search functionality |  |  |
| **FR152** | tag courses with job roles |  |  |
|  | Related to Public-facing Home Page: |  |  |
| **FR153** | create and modify the public-facing home page |  |  |
|  | Related to Learner Profiles and Learner Site: |  |  |
| **FR154** | create and modify the learner site |  |  |
| **FR155** | assign or change information within individual learner profiles, e.g. job roles, U.S. state, or information previously populated by the learner. |  |  |
| **FR156** | assign or change information within learner profiles to groups of learners, e.g. job roles, U.S. state |  |  |
| **FR157** | assign learners to program areas |  |  |
| **FR158** | assign learners to supervisor-approved courses (by-pass supervisor approval) |  |  |
| **FR159** | manage a learner’s training record by marking any course or learning object as complete, in-progress, or incomplete. |  |  |
| **FR160** | batch upload learners for enrollment into LMS |  |  |
| **FR161** | export learner records from LMS, e.g. .xls or .csv |  |  |
|  | **Related to Announcements:** |  |  |
| **FR162** | create, modify and post announcements on public-facing home page / learner site |  |  |
|  | Related to Enrollment: |  |  |
| **FR163** | manage learner enrollment within LMS |  |  |
| **FR164** | mass enroll learners in LMS |  |  |
|  | Related to Event Management: |  |  |
| **FR165** | manage registration functionality |  |  |
| **FR166** | create, modify, wait list, and cancel instructor-led events |  |  |
| **FR167** | create, modify, wait list, and cancel virtual events using Adobe Connect and Zoom APIs |  |  |
| **FR168** | track attendance (e.g., no show, cancelled, attended) for all events |  |  |
|  | Related to Calendar: |  |  |
| **FR169** | manage calendar and calendar events |  |  |
|  | **Related to Prerequisites:** |  |  |
| **FR170** | assign prerequisites to courses and course content  |  |  |
| **FR171** | manage exceptions to prerequisites |  |  |
|  | **Related to Certificates of Completion:** |  |  |
| **FR172** | create and manage certificates of completion |  |  |
| **FR173** | assign certificates of completion to courses |  |  |
|  | Related to Emails and Notifications: |  |  |
| **FR174** | create, modify, and trigger emails. |  |  |
|  | Related to Surveys: |  |  |
| **FR175** | creates and manage assignment of survey email notification to courses |  |  |
| **FR176** | support the reporting of survey data |  |  |
|  | Related to Social Learning Requirements: |  |  |
| **FR177** | create, populate, and monitor social learning features |  |  |
|  | **Related to Reports:** |  |  |
| **FR178** | access administrator dashboard (see business analytics requirements) |  |  |
| **FR179** | create and view real-time reports |  |  |
| **FR180** | create and view ad hoc reports |  |  |
| **FR181** | filter reports by date range, job role and other learner profile data, program area, U.S. state, course, learning objects and training delivery type, and other database fields. |  |  |
| **FR182** | create custom reports and/or alter “out-of-the-box" reports. |  |  |
| **FR183** | print, download, and export reports. Export data as tab delimited .xls, .csv |  |  |
| **FR184** | schedule reports which are subsequently sent via email. |  |  |
|  |  |  |  |
| **UC19** | Use Case (Multiple Instances of a Single SCORM Object): When a training object, e.g. a SCORM object, is used across multiple courses. We prefer that the SCORM object is stored once and is pointed to multiple times. Is it also possible to keep a prior version of the SCORM object for some courses, while other lessons use a revised version? If you upload new training object, do learners who have started a course show the new version of the learning object or does it show the earlier version; when learners access a course for the first time, will they be shown the newer learning object? If learner who has accessed a course and sees the older version of a learning object, upon completion of the course, can they review the course and be shown the newer version of the learning object. |  |  |
| **UC20** | Use Case (New Content in a Completed Course): Learners have completed a course. Administrator adds additional lessons and content to that course later. Learners must be able to access the new content. |  |  |
| **UC21** | Use Case (Optional Courses): When all required learning objects within a course have been completed by the learner, the course status is marked as complete. However, within a course, some of the learning objects are marked as optional. If learners complete all required learning objects and not the optional objects, they should receive a course completion status. Additionally, learners should be able to go back and access the required and the optional material, even after a course has been completed. |  |  |
| **UC22** | Use Case (Additional Learning Objects): Learners have completed a course. Sometime later, additional learning objects are added to the course. Learners must be allowed to reenter the completed course and access additional learning objects. |  |  |
| **UC23** | Use Case (In-progress Status): A course in development is posted for learners, e.g. 5 of 10 lessons are delivered. We would like the status of the course to remain in-progress after learners have completed the first set of lessons, since more content will be added later. Can we keep the status the course as “in progress,” although the first set of learning objects has been completed? |  |  |
| **UC24** | Use Case (Limited View by Role): Currently we use enrollment rules to limit learner-access to training in a specific program area. Learners also may be limited to viewing a subset of content within a program area. For example, learners with the LMS role, Limited Access, Non-Federal/State Employees should only be able to access SIDES training for vendors, and no other SIDES program-area content. How would you handle these LMS role-based viewing restrictions? |  |  |
|  |  |  |  |
|  | **Questions** |  |  |
| **Q60** | Does your LMS have additional content management functionality, if so does it provide version control, a content library, ability to tag content? |  |  |
|  |  |  |  |
| **UC25** | Use Case (Edit Properties for a Group): Administrators can filter and select a subset of learners and alter their learning information at all at once, e.g. manually give a group of learners credit for having completed a lesson or course. |  |  |
|  |  |  |  |
|  | ***Allow LMS Administrators with Limited Access to:***  |  |  |
| **FR185** | access functionality as defined by the LMS Administrator for this role |  |  |
| **FR186** | view LMS data |  |  |
| **FR187** | access in-depth reports and extract LMS data |  |  |
| **FR188** | create and view real-time reports |  |  |
| **FR189** | create and view ad hoc reports |  |  |
| **FR190** | filter reports by date range, job role and other learner profile data, program area, U.S. state, course, learning objects and training delivery type, and other database fields |  |  |
| **FR191** | create custom reports and/or alter “out-of-the-box" reports |  |  |
| **FR192** | print, download, and export reports. Export data as tab delimited .xls, .csv  |  |  |
| **FR193** | schedule reports which are subsequently sent via email |  |  |
|  |  |  |  |
|  | ***Allow Course Uploaders to:***  |  |  |
| **FR194** | access functionality as defined by the LMS Administrator for this role |  |  |
| **FR195** | create courses and populate courses with learning objects |  |  |
| **FR196** | upload SCORM packages for online learning |  |  |
| **FR197** | modify courses |  |  |
|  |  |  |  |
|  | **Manager Features** |  |  |
| **FR198** | Adjust permissions of other managers’ roles. |  |  |
| **FR199** | Access manager dashboard (see business analytics requirements). |  |  |
| **FR200** | Adjust content of dashboard viewed by other Managers’ Roles. |  |  |
| **FR201** | View learners assigned to courses and events. |  |  |
|  |  |  |  |
|  | ***Allow Training Managers/Lead Instructors to:***  |  |  |
| **FR202** | assign instructors to events |  |  |
| **FR203** | assign learners to events |  |  |
| **FR204** | create, modify, wait list, and cancel events |  |  |
| **FR205** | create, modify, waitlist, and cancel events using Adobe Connect and Zoom APIs for virtual instructor-led events and webinars |  |  |
| **FR206** | track attendance (e.g., no show, cancelled, attended) for all events |  |  |
| **FR207** | add/reject/update/approve learners for events |  |  |
| **FR208** | view learner profiles |  |  |
| **FR209** | create, modify, and trigger emails for events |  |  |
| **FR210** | create, modify and post announcements on public-facing home page / learner site |  |  |
| **FR211** | approve or reject a learner’s request that prerequisites be waived |  |  |
| **FR212** | manage a learner’s training record by marking any course or learning object as complete, in-progress, or incomplete |  |  |
|  |  |  |  |
|  | ***Allow Instructors to:***  |  |  |
| **FR213** | view registered learners for the instructor’s assigned events |  |  |
| **FR214** | add/reject/update/approve learners for events |  |  |
| **FR215** | update course attendance after events are conducted |  |  |
|  |  |  |  |
|  | ***Allow the Designated State Agency Team Manager to:***  |  |  |
| **FR216** | view learning data for LMS-enrolled employees of that state |  |  |
| **FR217** | view a list of registered learners from their U.S. state for the instructor’s assigned events |  |  |
| **FR218** | approve learners for courses that require supervisor approval |  |  |
|  |  |  |  |
|  | ***Allow State Agency Managers to:***  |  |  |
| **FR219** | view learning data for LMS-enrolled employees of their state |  |  |
|  |  |  |  |
|  | **Learner Features** |  |  |
|  | ***Allow Federal and State Workforce Agency Employees to:***  |  |  |
| **FR220** | access training from a catalog based upon their roles  |  |  |
| **FR221** | search and filter catalog content |  |  |
| **FR222** | change learner profile settings by field |  |  |
| **FR223** | access a learner site and learner site features (see Learner Site section) |  |  |
| **FR224** | view, print, and download learning history, including completed work and work in progress |  |  |
| **FR225** | receive and access announcements |  |  |
| **FR226** | provide rankings for courses, events, and instructors, e.g. assign numbers of satisfaction stars |  |  |
| **FR227** | enroll or request enrollment in courses or cancel their enrollment |  |  |
| **FR228** | request that prerequisites be waived (also noted with the Prerequisites description) |  |  |
| **FR229** | access and download training materials associated with courses |  |  |
| **FR230** | register and unregister for training events, including instructor-led virtual classes, webinars, and classroom training |  |  |
| **FR231** | view a calendar of all events |  |  |
| **FR232** | register for events directly from the calendar |  |  |
| **FR233** | view personal calendar displaying the learner’s registered events |  |  |
| **FR234** | view, print, and download a Certificate of Completion issued upon course completion |  |  |
| **FR235** | view and respond to social learning features |  |  |
|  |  |  |  |
|  | ***Allow Limited Access, Non-Federal/State Employees to:***  |  |  |
| **FR236** | access assigned training, but not view or access internal catalog |  |  |
|  |  |  |  |
|  | ***Allow Non-licensed Visitors (Public Facing View) to:***  |  |  |
| **FR237** | view catalog |  |  |
| **FR238** | filter catalog content |  |  |
| **FR239** | request enrollment in LMS. Visitors are presented enrollment option, upon accessing catalog content |  |  |