SECTION 4. TECHNICAL APPROACH

Data Recognition Corporation (DRC) is pleased to present our technical approach to meeting the requirements of the Request for Proposals (RFP) issued by the Nebraska Department of Education (NDE), for development, administration, scoring, and reporting of the Nebraska statewide assessment system (Nebraska assessments). For ease of evaluation, DRC has included the requirements beginning on page 43 of the RFP. The RFP text is shown in light blue font, with DRC's response in black font.

A. PROJECT MANAGEMENT AND SUPPORT

1. Management Team for All Assessments

a. Project Director

Project Director – The Contractor will appoint a single project director who oversees the management of the project and serves as the primary point of contact with the NDE project director and management team. This person must be responsible for all activities required by the project and will have the authority to make decisions and commitments on behalf of the Contractor, subject to NDE approval.

DRC is pleased to propose **John Born, Program Lead,** to serve as the **Project Director** for the Nebraska assessments, overseeing the management of the project and serving as the primary point of contact with NDE. He will be responsible for all project activities and will have the authority to make decisions and commitments on behalf of DRC.

Mr. Born has 18 years of experience managing educational assessment projects, including seven years of experience managing Nebraska assessments. He is focused and resourceful, effectively relating with diverse constituencies and proactively finding the best solutions for his clients. His experience crosses multiple publishing disciplines, including editing, production, graphic design, proofreading, and print manufacturing. Mr. Born has coordinated the development and implementation of innovative and technical online, software, and system solutions for delivering and supporting assessments. As a certified PMP®, he is committed to applying project management theories and methodologies to facilitate optimal performance, higher-quality products and services, and greater customer satisfaction.

Mr. Born is a natural teacher with three years of classroom experience teaching English to second-language learners of diverse ages and backgrounds. He has taught a variety of courses in his community for 16 years, and has trained coworkers throughout his career. Mr. Born holds a B.A. in English, and embraces lifelong learning to advance his skills and enhance his professional performance.

b. Project Manager

Project Manager(s) – The Contractor will appoint one or more project managers who will serve as the primary point of contact with NDE.

DRC is pleased to propose **Jennifer Nicklin, Senior Project Manager,** to serve as the **Project Manager,** managing aspects of the overall Nebraska program. She will serve as a primary point of contact to NDE along with Mr. Born, and will maintain a comprehensive understanding of the activities required by the project and their ongoing status.

Ms. Nicklin has 13 years of experience managing and supporting large-scale educational assessments. She joined the Nebraska Program Management Team in 2014, where she currently leverages her experience while managing online assessments. She actively participates in monitoring the various online assessment applications and supports the Customer Service team. Ms. Nicklin also manages paper/pencil material production and scheduling, and facilitates post-testing material processing research and client communication. She participated in Nebraska's transition to College- and Career-Ready standards and enhanced online item development discussions.

Ms. Nicklin was born and raised in Nebraska. She graduated Summa Cum Laude with a B.A. in English and completed a Mini MBA.

c. Management Meetings

Management Meetings – The Contractor will support regularly scheduled weekly management meetings, video conferences, or conference calls with the NDE project management team.

DRC understands that effective collaboration requires productive meetings. Whether in person or through teleconferencing, DRC's Project Management professionals are highly skilled in facilitating such meetings. DRC is prepared to support regularly scheduled management meetings, video conferences, and conference calls with the NDE project management team.

d. Management Reports

Management Reports – The Contractor will provide the following reports:

i. Weekly written project status reports

ii. Monthly Budget Update reports

iii. Annual project plan and timelines

iv. Minutes of all meetings and conference calls

i. Weekly Written Project Status Reports

DRC's Project Management Team will produce written weekly status reports that detail agreements and decisions made and pending, the status of relevant tasks and activities, timelines for scheduled activities, and any unforeseen outcomes or problems. These reports will be provided in a format and according to a schedule approved by NDE.

If NDE approves, DRC proposes to include the following in the weekly report:

- Key decisions reached during the preceding week that affect deliverables in terms of budget, schedule, or both.
- Unanticipated issues encountered and actions taken to resolve the issue.
- Recap of deliverables that DRC sent to or received from NDE during the past week.
- Summary of customer service communication for that week, in the form of a call log report from our database system, to include:
  - Time and date of communication.
  - Person(s) involved in the communication.
  - Nature of the communication.
  - Resolution of the issues addressed by the communication.
- Open issues needing input or resolution.
- Planned activities, milestones, deliverables, and action items for the upcoming weeks.

ii. Monthly Budget Update reports

As we do under the current Nebraska program, DRC will continue to provide a monthly budget update report to NDE to review and approve prior to invoice production. These reports can be used for evaluating each corresponding monthly invoice, as well as tracking progress.

iii. Annual Project Plan and Timelines

The on-time delivery of high quality products and services is a corporate commitment at DRC. DRC has implemented company-wide use of MS Project as a tool to track progress toward meeting the deliverables of our assessment programs.

DRC will develop a detailed project plan and schedule on an annual basis, which will be made available to NDE and all DRC project staff. DRC's Project Management Team will ensure that the global schedule will be updated weekly, at a minimum, and distributed to all team members. Using MS Project, DRC's Project Management Team will ensure management of the following:

- Correctly identifying and communicating the tasks and deliverables.
- Tracking and communicating progress.
- Evaluating the status and availability of resources.
- Identifying project managers, resource managers, team members, and executives.

A Key Dates schedule for the first contract year (2017–2018) is provided in *Subheading B.5*. This timeline specifies the major milestones that would lead up to quality products or services delivered to either NDE or local Nebraska districts and schools. Each milestone has been

assigned a tentative timeframe. During the initial management meetings, DRC's Project Management Team will review the timeline in detail with NDE to determine actual timelines, as well as the desired level of detail for each facet of development, administration, scoring, and reporting Nebraska's assessment program. After these discussions, we will produce a detailed MS Project schedule for the program year for NDE's review and approval.

As the program moves forward, the previous year's administration will be reviewed to identify areas of the program that require special attention, including discrepancies from established procedures and the causes for those discrepancies. The information to be reviewed will be gathered by our project management staff and will incorporate all test administration issues. Based on this review, recommendations for improvement to procedures, plans, and activities, as approved by NDE, will be incorporated into each year's project plan and timeline moving forward.

iv. Minutes of All Meetings and Conference Calls

All DRC Project Management Team members recognize the importance of capturing decisions, action items, and notes from all program-related meetings. Our Nebraska team will continue to ensure that effective minutes and action items for all meetings are captured accurately. Meeting minutes and meeting participant lists for all meetings will be recorded and distributed to NDE and all DRC project team members according to schedules and formats determined by NDE.

Project decisions will be documented in meeting minutes and transferred into appropriate planning documents, including the individual project plans and schedules. DRC's Project Management Team members will adhere to the general meeting minutes/summary notes guidelines outlined below in order to properly capture minutes for each meeting.

- Use the NDE-approved agenda as an outline for the meeting minutes.
- Record the time and date, the location, the attendees, and the sponsor or leader of the meeting.
- Record decisions, important issues, and action items (and capture owners and due dates).
- Be professional both in style and content.
- Circulate the minutes among attendees prior to publishing, dependent on NDE preference.

DRC's preferred procedure for action items is to maintain an action item log, which would be incorporated as part of the Weekly Project Status Reports and Monthly Budget Update Reports. This will provide maximum visibility to all parties on the status of each actionable item.

In addition to the scheduled management meetings, DRC will coordinate and facilitate ad-hoc conference calls as requested by NDE and/or as necessary to ensure the success of the

program. As with the scheduled management meetings, DRC will collaborate with NDE to develop meeting agendas and other supporting materials and will distribute all meeting minutes and meeting participant lists.

e. On-Going Communication

i. Communication between the Contractor and NDE personnel is essential. Telephone calls, telephone conference calls, emails, overnight courier service, facsimile correspondence, webinars, and other communication procedures will be at the Contractor's expense. Toll-free numbers will be provided by the Contractor for telephone communication including conference calls and webinars.

ii. Contractor will make all written communication or summaries of communications with any subcontractor(s) identified in this proposal available to NDE at its request. In addition, NDE expects to be able to participate during all appropriate and applicable meetings and trainings between the Contractor and any subcontractor(s) identified in this proposal.

DRC's hallmark in the testing industry is our collaborative, cooperative, and responsive service to our clients. We are a partner with our clients, striving to enhance and contribute to the quality of education available to all students.

DRC's Project Management Team will be in frequent communication with NDE and will be authorized and prepared to respond quickly to inquiries. The team has extensive experience working closely with NDE and is qualified, knowledgeable, and capable of providing timely assistance. Project Management will be available to NDE staff by either telephone or email and will always respond in a timely manner.

DRC's Project Management Team will provide immediate notification to NDE of critical issues or risks that arise in the project. **DRC's commitment is to be a trusted advisor that NDE can rely on for support and counsel regarding all aspects of this program.** Our proactive project management approach will ensure that the development and administration of the Nebraska assessments will not be hindered or delayed by unforeseen issues or complications. In addition, DRC will provide reliable and timely customer service support to respond to district assessment coordinators' questions or concerns. Customer service support will be available for districts throughout the duration of the contract and will include a toll-free customer service telephone number, email address, and fax number.

DRC's proposal includes all costs related to telephone calls, telephone conference calls, emails, texts, overnight courier service, facsimile correspondence, and other communication procedures related to project fulfillment. DRC will also provide and pay for all conference calls and webinars associated with this contract.

Although DRC does not plan to utilize any formal subcontractors on this contract, we acknowledge and agree to make available to NDE any communication with vendors that is of interest to NDE. If any subcontractors are added to the program during the life of the contract,

DRC will ensure that the subcontractor is approved by NDE, and that NDE participates during any appropriate meetings and trainings. Finally, copies of all correspondence sent by DRC to local school district personnel will be reviewed and approved by NDE prior to being sent to district personnel.

f. Timeliness of Communication

i. Contractor's Program Manager will return calls from NDE staff and respond to email messages within no more than 24 hours, preferably within the same day. If the Program Manager is not available to take calls and return messages, NDE will be notified in advance. In the event that the Program Manager is not available, the Contractor will notify NDE as to whom to contact in his or her absence, and will provide contact information for such individual.

To ensure that communication from NDE to DRC is addressed in a timely fashion, DRC's Program Manager and other members of DRC's Nebraska Project Management Team will carry smart phones that will enable them to quickly respond to NDE staff either by telephone or email. Urgent calls and email messages from NDE staff will be responded to as quickly as possible, and by no later than 5:00 p.m. Central Time. During time periods when the Project Director and/or Project Manager will not be available to take calls and return messages, NDE will be notified in advance and provided with contact information for another member of DRC's Nebraska Project Management Team. Our Nebraska project communication plan, containing contact lists and routing protocols, will be updated accordingly under the new contract and will continue to be provided to NDE as one of DRC's standard project management tools.

g. Weekly Status Meetings

i. At a minimum, weekly phone calls between pertinent NDE staff and the Contractor's Program Manager and other key Contractor staff will be held between in-person project meetings to keep NDE current on project status, discuss issues as they arise, and to plan upcoming activities. NDE may determine and require more or fewer status updates over time. As the need arises, other periodic or on-going conference calls may be conducted. Contractor's Program Manager will prepare written documentation of each conference call. This is to be submitted to NDE within two business days of the conclusion of each meeting. Contractor will confirm its agreement to meet this requirement.

DRC's Project Management Team will work with NDE to schedule, coordinate, and participate in weekly status meetings with NDE staff. Weekly status meetings may be held via teleconference or WebEx, depending on which method is preferred by NDE and will be most conducive to a successful meeting. We understand that the weekly status meetings will continue for as long as NDE desires. The DRC project management team will work with NDE to ensure the focus of each meeting is appropriate given where the project is in its yearly cycle and that the necessary DRC team members are prepared to participate.

Early weekly meetings will focus on ensuring all activities associated with this new contract are clearly understood by all parties, and NDE preferences for conducting and documenting

meetings are communicated to any new participants. Subsequent meetings will focus on the progress of tasks and activities relevant to the assessment cycle at those points in time. Prior to each meeting, DRC's Project Management Team will collaborate with NDE to identify topics and draft a meeting agenda for NDE review and approval. An Action Item Log will be included as a permanent item on the agenda listing any open tasks. DRC will distribute the NDE-approved agendas and any accompanying materials to meeting participants no later than 24 hours prior to each meeting. Detailed notes and lists of participants for all meetings will be recorded and distributed to NDE and all DRC project team members within two business days of the conclusion of each call.

As needed, other periodic or on-going conference calls will be scheduled and conducted with NDE's approval. For these ad-hoc or recurring conference calls, DRC will distribute NDE-approved agendas and other materials to meeting participants no later than 24 hours prior to each meeting. Detailed notes and lists of participants for all meetings will be recorded and distributed by DRC to NDE and all DRC project team members within two business days of the conclusion of each call.

h. Project Meetings

i. Periodic face-to-face meetings between NDE staff and representatives of the Contractor are essential. Those persons directly involved with this component of the project will be available for technical assistance and discussion at the project meetings at the expense of the Contractor for up to six (6) planning/work sessions through December 2017. These face-to-face meetings will be held in Lincoln, NE.

ii. NDE will be responsible for the costs for its staff to travel to the Contractor's location. The State will bear no cost for the time and travel of the Contractor or its personnel or subcontractors for attendance at any meeting.

iii. Planning for Project Meetings will be the responsibility of the Contractor. Contractor must work closely with NDE staff to prepare a preliminary agenda and schedule that will be sent to NDE for review and approval no less than seven days in advance of the Project Meeting.

iv. Contractor's Project Manager will prepare written documentation of each project meeting. Meeting notes/documentation will be submitted to NDE within one week of the conclusion of each meeting. Contractor will confirm its agreement to meet this requirement.

DRC understands that periodic, face-to-face project meetings will occur throughout the life of the contract and will include DRC team members and NDE staff. DRC's proposal includes costs for six planning/work sessions through December 2017 in the first year of the new contract period. In accordance with NDE's response to Question 37 on the Q&A document for the RFP, DRC proposes that three of these meetings occur in Lincoln, Nebraska, and the other three at DRC's headquarters in Minnesota. NDE will be responsible for all travel, lodging, and meals for NDE staff to attend the meetings held in Minnesota. DRC will bear all costs for DRC staff attending project team meetings.

DRC's Nebraska Project Management Team will work closely with NDE to ensure the focus of each meeting is appropriate and that the proper team members are prepared to participate. DRC will collaborate with NDE to identify topics and draft a meeting agenda for NDE review and approval at least seven days in advance of the meeting. DRC's Nebraska Project Management Team will ensure that detailed notes and lists of participants for all meetings are recorded. Meeting notes and records of participants will be submitted to NDE for review and approval within one week of the conclusion of each meeting.

This meeting schedule will promote success for the Nebraska assessments and ensure continuous program improvement.

A full list of the meetings included in DRC's proposal can be found in *Appendix C.*

i. Kick-Off/Orientation Meeting

Within two weeks from execution of the Contract, the Contractor will be required to attend a 2-day kick-off/orientation meeting to discuss the content and procedures of the Contract. The meeting must be held in Lincoln, NE at a date and time mutually acceptable to the State and the Contractor but must be scheduled within two weeks of the contract start date. The State will bear no cost for the time and travel of the Contractor for attendance at the meeting. The preliminary agenda must be sent to NDE seven days prior to the meeting. At the same meeting the program kick-off will include program specifics, including deliverables, timelines, meeting and training schedules, program changes, and data and reporting processes, all subject to NDE approval.

DRC recognizes the importance of getting the work for the new Nebraska assessment program off to a good start. DRC will plan to coordinate and attend a two-day kick-off/orientation meeting in Lincoln, Nebraska, within two weeks of the contract start date. DRC understands that NDE will bear no cost for time and travel for DRC's team members' attendance at the meeting.

DRC's Nebraska Project Management Team will provide a preliminary agenda for the kick-off/orientation meeting for NDE's approval at least seven days before the meeting and will be prepared to discuss all program specifics identified by NDE.

DRC will be prepared to discuss key program specifics and will provide any necessary handouts (both electronic and paper) to all NDE team members. Below is a list of potential documents to be reviewed and discussed at the kick-off meeting:

- **Key-Dates Document** that outlines deliverables, training dates, and meetings
- **Staffing Plan** that lists the DRC team members who will be supporting the program
- **Communications Plan** that outlines DRC's customer service plan, as well as commination protocols with NDE and district personnel
- **Project Plan** which will detail activities and processes at each stage of the project

DRC will provide a meeting summary that documents key decision and action items. DRC will also update all materials, as necessary, based on the discussion and decisions at the meeting. The draft summary and any updated handouts will be provided to NDE within seven days of meeting completion.

j. Annual Debrief Meeting

At the conclusion of the annual assessment cycle, the Contractor will be required to attend a program debrief meeting to discuss results, reports, and data trends from the previous year's assessment cycle. The meeting must be held in Lincoln, NE at a date and time mutually acceptable to the State and the Contractor. NDE will bear no cost for the time and travel of the Contractor for attendance at the meeting.

DRC welcomes the opportunity to attend the annual debrief meetings after each assessment cycle to discuss results, reports, and data trends from the previous year. DRC acknowledges responsibility for time and travel costs associated with DRC staff attending the debrief meetings.

k. Monthly Reports

Contractor will provide a monthly report that summarizes actions taken, issues that arose, issue resolution that occurred, outstanding issues and when they will be resolved, upcoming deadlines, work that will occur in the next month and beyond, and so forth. These reports will be sent monthly to NDE by the third business day of the following month.

DRC's Project Management Team will produce monthly status reports that summarize actions taken in the previous month and any issues that occurred. The monthly reports will also include a snapshot of work and key milestones for the month ahead and beyond, as well as any outstanding issues pending resolution. These reports will be provided to NDE by the third business day of the following month and in a format approved by NDE.

l. Quality Control and Sign-Offs

Reviews and signoffs for all deliverables will be documented and available to NDE upon request. The Contractor will document the steps, timeline, and staff involved in the quality control procedures for each phase and deliverable of the project. The Contractor will confirm its agreement to fulfill this requirement.

For the success of Nebraska's assessment programs, NDE's requirements, goals, and constraints must be thoroughly understood, documented, and communicated. These critical activities are the foundation of DRC project management activities. DRC's **Shaundra Sand, Vice President, Education Program Management,** provides high-level oversight and leadership for the overall quality process for Nebraska assessments. Under her guidance, DRC's Nebraska Project Management Team ensures that problem-reporting procedures are strictly followed to ensure immediate action is taken to resolve any issues.

DRC will be responsible for maintaining quality products and services in all aspects of the assessment program from initial development of training materials to the production of electronic data files and score reports. As part of DRC's quality control and sign-off procedure for the Nebraska assessments, DRC will create detailed logs that trace the application of QA procedures for each phase and deliverable of the project.

m. Invoices

i. Contractor will submit invoices according to the procedures and requirements set forth by NDE. It is expected that the payment schedule for this contract will be monthly with one payment for the services performed and deliverables provided during each month. The proposed contract will run from July 1, 2017 through June 30, 2018. Contractor will confirm its agreement to fulfill this requirement.

DRC will provide a monthly payment schedule for services performed and deliverables provided for NDE approval. After the payment schedule is approved, DRC will submit monthly invoices according to the procedures and requirements set forth by NDE. With each invoice, DRC will provide a status report indicating all tasks completed during the pay period covered by the invoice. NDE approval of each invoice and status report will be required before payment is issued to DRC.

DRC understands that NDE's fiscal year runs from July 1 to June 30. DRC will provide a final report that provides a review of each phase of the assessment program and includes recommendations for improvement, as well as completion of all tasks outlined in the RFP, the Proposal, and the Revised Budget Summary with the final invoice for each fiscal year. The report accompanying the final invoice of the fiscal year will be marked "Final" and is subject to NDE approval prior to payment. The final report and the invoice will be provided to NDE on or before August 1 of each year. DRC acknowledges that the funds for payment of this contract are set aside on a fiscal year basis and failure to complete all tasks as outlined in the contract and failure to submit a final invoice by the stipulated deadline will result in the loss of state appropriated funds for this payment and, consequently non-payment.

n. Project Control

i. Contractor must carry out this project under the direction and control of NDE. Within two weeks of the execution of the Contract, Contractor must submit the project plan to NDE's Assessment Office and Project Management Office for final approval. This project plan must be in agreement with must include the following:

1. Contractor's project organizational structure.

2. Contractor's staffing table with names and titles of personnel assigned to the project. This must be in agreement with staffing of accepted proposal. Necessary substitutions due to change of employment status and other unforeseen circumstances may only be made with prior approval of the State.

3. The project work breakdown structure (WBS) showing sub-projects, activities and tasks, and resources required and allocated to each, including a Key Date timeline.

DRC's Nebraska Project Management Team will fulfill NDE's requirements for project control. A project plan will be provided within two weeks of contract execution and will include an organizational chart and staffing table reflecting the staffing plan provided in the proposal. Any necessary substitutions will be brought to the State's attention. DRC is committed to staffing the Nebraska contract with resources capable of delivering the requirements of the program, and to the greatest extent possible, retaining the same resources that have worked on the contract for the past few years. DRC's Nebraska Project Management Team will ensure that all DRC project staff involved in the Nebraska assessments understand and adhere to project scope and that all deliverables are met on time.

DRC will also develop and maintain work breakdown structure (WBS) and project schedules in Microsoft Project that are specific to the Nebraska assessments. DRC has implemented company-wide use of MS Project as a tool to track progress toward meeting the deliverables of all of our assessment programs. The project schedules include quality assurance tasks, with appropriate durations to allow for timely and effective processes that will result in high-quality deliverables. The planned schedule will be submitted to NDE for review and approval on an annual basis.

Additionally, DRC will develop and maintain a key-dates document, which contains the key milestones and deliverables in a program year. The key-dates document will be updated as necessary, minimally before each weekly status meeting.

ii. Contractor must manage the project in accordance with recognized project management standards. Contractor must use an automated tool for planning, monitoring, and tracking the Contract's progress and the level of effort of any Contractor personnel spent performing Services under the Contract. The tool must have the capability to produce:

1. Staffing tables with names of personnel assigned to Contract tasks.

2. Project plans showing tasks, subtasks, deliverables, and the resources required and allocated to each (including detailed plans for all Services to be performed within the next 30 calendar days, updated weekly or biweekly as directed by the State).

DRC's Nebraska Project Management Team will meet the stated requirements through the use of Microsoft Project for the project scheduling. All tasks and deliverables are listed with resource assignments. Resources are directly responsible for updating the completion status of each of their tasks.

Microsoft Project's reporting features allow a wide array of options for monitoring and reporting status. Reports can be pulled on-demand that isolate activities for the next 30 calendar days or any date range between the overall project start date and end date.

iii. Updates must include actual time spent on each task and a revised estimate to complete. Graphs showing critical events, dependencies and decision points during the course of the Contract.

Reporting work remaining and revised estimates to complete is easily accomplished through regular updates to the Microsoft Project Schedules. Resources are required to indicate the percentage of work completed from the time a task starts until the work ends through a tool called Project Web Access (PWA), which seamlessly integrates with the master MS project schedule. All critical events and decision points are tracked in the schedule, and tasks that are dependent on each other are linked to provide clear visibility of impact if any work shifts. Program Managers know the status of a project at any given time.

DRC's Nebraska Project Management Team has access to past schedules for the full history of Nebraska's statewide testing program. This experience, along with established, documented processes for delivering every aspect of the Nebraska program, enables DRC to set realistic target dates for the critical milestones across the program. The DRC Project Team has proven very capable of adjusting for variances and requested changes that occur in the course of the program's delivery.

iv. Any tool(s) used by the Contractor for such purposes must produce information of a type and in a manner and format that will support reporting in compliance with the State standards.

DRC focuses on our client's needs and we have demonstrated our ability to provide information that complies with Nebraska's standards. The versatility of Microsoft Project's reporting capabilities provides many options for presenting information. DRC's Nebraska Project Management Team is prepared to present information about project status and performance that meets NDE's needs.

2. Psychometric Support for All Assessments

a. The Contractor shall provide for the direct involvement of a qualified psychometrician with sufficient time to ensure technical quality for general assessments of English Language Arts, Mathematics, and Science, and alternate assessments for English Language Arts, Mathematics, and Science, such as:

i. Item and assessment formatting appropriate to both online and paper/pencil administration.

ii. Items and test forms for field testing and equating multiple forms including embedded items.

iii. Appropriate validity and reliability calculations.

iv. Appropriate cut-score processes as needed.

v. Alignment of items and test forms with a sufficient number of Nebraska State Standards to meet the requirements of USDE peer review.

vi. Inclusion of item statistics in the item banks for alternate and general assessments.

vii. Converting raw scores to scaled scores for reporting purposes.

viii. Technical and policy support for all assessments.

Since 2009, DRC's Psychometric Services Department has supported NDE in all psychometric activities related to test development for test items developed by the NDE and Nebraska educators including test construction, scoring, standard setting and validation activities, secondary analyses, data interpretation, policy support, planning, and technical reporting. DRC has supported NDE by providing options, answering questions, attending and presenting at Technical Advisory (TAC) meetings, and providing measurement expertise. DRC collaborated with NDE to understand, articulate, and achieve Nebraska's goals. It has been a pleasure to work with NDE and we look forward to working together on the next phase of the Nebraska program.

DRC is pleased to propose **Richard Smith, Ph.D.,** as the **Lead Psychometrician** for all Nebraska assessments, with the direct support of **Senior Vice President of Research, Mr. David Chayer,** and **Director of Research Quality and Data Forensics, Ms. Christie Plackner.**

Dr. Smith currently serves as the Psychometric Lead on the Nebraska program. He will continue to provide direct support to NDE and will ensure technical quality for the regular and alternate assessments in the content areas of ELA, mathematics, and science. DRC's psychometric support will include all of the following:

- Item and assessment formatting appropriate to both online and paper/pencil administration;
- Items and test forms for field testing and equating multiple forms including embedded items;
- Appropriate validity and reliability calculations;
- Appropriate cut-score processes as needed;
- Alignment of items and test forms with a sufficient number of Nebraska State Standards to meet the rigorous requirements of USDE peer review;
- Inclusion of item statistics in the item banks for alternate and general assessments;
- Converting raw scores to scaled scores for reporting purposes; and
- Technical and policy support for all assessments.

These processes are discussed in detail throughout *Section 4, Technical Approach*, and specifically in *G, Analysis for Statewide Assessments.*

b. The Contractor shall attend semi-annual one-day meetings of the NDE Technical Advisory Committee (TAC) as requested. The proposal budget may include costs for attendance at the meeting of up to three staff such as the project director, project lead psychometrician, and one additional staff member.

DRC recognizes the importance of attending advisory and technical committee meetings for our state testing programs. DRC's Project Director, Lead Psychometrician, and one additional staff member will attend a semi-annual one-day meeting of the NDE Technical Advisory Committee (TAC), as requested. We have attended TAC meetings under the current contract for several years, and have been happy to support NDE at these meetings in whatever capacity is most useful.

c. The Contractor may attend selected meetings of the state assessment advisory group upon request up to two times per year. Costs should be included for the project director and psychometrician to attend two meetings a year.

DRC's Project Director and Lead Psychometrician will be available to attend selected meetings of the state assessment advisory group upon request up to two times per year.

d. This proposal must address how the Contractor will meet the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014).

DRC endorses the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], National Council on Measurement in Education [NCME], 2014) as well as other professional guidelines, such as NCME's *Code of Professional Responsibilities in Educational Measurement* and the Joint Committee on Testing Practices' (JCTP) *Code of Fair Testing Practices*. Although these are not legal documents, per se, they do help establish a shared understanding regarding what constitutes sound testing practice.

Subheading *G, Analysis for Statewide Assessments* presents a detailed look at our proposed psychometric plan to ensure the technical quality of the assessments, including valid, reliable, and accurate assessment results that meet or exceed the *Standards*. These services may include, but are not limited to: item development and calibration, field test development, operational test design, test form construction, sampling, scaling, and equating across and within years.

DRC Psychometric Services staff work closely with all departments within DRC through all phases of the test development, administration, scoring, and reporting process, starting with data review and forms construction with the Test Development group, all the way to Information Services creating file layouts for analysis. In some of our other large-scale assessment client states, we have reported out the *Standards* addressed in the annual technical reports.

The Lead Psychometrician has access to all DRC staff members and any issues are addressed and taken care of immediately.

3. Training for District Personnel

a. The Contractor and NDE Staff will provide training in:

i. Fall workshops- the Contractor will provide fall workshops each year to provide an annual update to school district personnel.

ii. Enrollment for ordering tests.

iii. Interim System – by October or date agreed upon by NDE in year one; by end of August or earlier in subsequent years.

iv. Test Administration for general and alternate assessment in English Language Arts, Mathematics, and Science.

v. Reporting – one month prior to the release of results.

i. Fall Workshops

DRC recognizes the value of spotlighting changes to the assessment program and key milestones at the start of each school year to prepare district personnel for the year ahead. DRC Nebraska Project Management staff has collaborated with NDE on assessment presentations at Administrators' Days and accompanied NDE representatives on sessions across the state in years when more significant changes to the assessment program occurred.

DRC understands that NDE's goal to rebrand the NeSA test and enhance the program in the ways outlined in this RFP constitute just such a significant shift in the 2017–2018 contract year. DRC's proposal includes costs for up to ten in-person, half-day workshops across the state in the fall of 2017 to introduce these changes. Additionally, we are prepared to provide the same service in subsequent years of the contract and our proposal costs reflect this accordingly.

ii. Enrollment for Ordering Tests

DRC has delivered an Enrollments application via the DRC INSIGHT portal (formerly eDIRECT) to obtain all required order information for Nebraska assessments for the past eight and current administration years. The information required each year needs to reflect changes to grades, subjects, and formats of the tests offered.

The Enrollments application is often a District Assessment Contact's first point of engagement with DRC's system and staff. DRC has provided training to District Assessment Contacts via webinars before the start of the Enrollments window each year, which also covers the initial access to the DRC INSIGHT portal and options for providing access to other users in their districts and schools. As District Assessment Contacts have become more familiar with the processes for entering Enrollments and user administration in the DRC INSIGHT portal, DRC and

NDE agreed to provide training in the form of a recording posted to the NDE Assessment website. DRC is open to continuing this practice or to returning to providing training through live webinars to allow District Assessment Contacts to pose questions directly to trainers. DRC proposes collaborating with NDE to offer the appropriate number of sessions for the topic and audience. DRC would make available a recording of one of live sessions that can be accessed by anyone unable to attend a live session.

iii. Interim System

It is important to introduce district and school personnel to the Interim System prior to or early in the school year to provide them with the maximum opportunity to benefit from using the system in advance of administering the statewide summative assessment. DRC is committed to ongoing support of the Check4Learning (C4L) item bank and test delivery system as a component of our proposed Interim System solution. DRC is prepared to develop a plan with NDE for providing targeted training sessions on C4L via webinars. An advantage of the adoption of the secure interim assessment that has been proposed is that school and district personnel are already familiar with DRC INSIGHT and will be easily transitioned to this new use.

iv. Test Administration for General and Alternate Assessment in English Language Arts, Mathematics, and Science

DRC's experience delivering test administration training for Nebraska's general education and alternate assessments of English Language Arts, Mathematics, and Science has facilitated a high level of understanding and compliance with administration and security procedures on the part of district and school personnel.

Initially delivered as in-person, half-day sessions, test administration training has evolved into a 90-minute webinar on online administration procedures and a 60-minute webinar on paper and alternate assessment administration procedures. Each webinar is presented twice—at different times on different days—to give District Assessment Contacts and school staff involved in test administration options for fitting the training into their daily schedules. One instance of each session is also provided as a recording that can be viewed by those unable to attend training or used to review the procedures covered during the webinar.

DRC proposes continuing with this model. However, we recognize the value in keeping training content fresh and interesting and would welcome discussion on how webinar sessions could be modified to most effectively and efficiently provide District Assessment Contacts and other staff delivering the Nebraska assessments with the direction and information they need to ensure a smooth testing process. DRC would be open to expansion or reconfiguration of the webinars presenting test administration procedures to the target audiences.

v. Reporting

Understanding the data presented on score reports and in data files is the culmination of all the effort undertaken in the assessment process. DRC has provided reporting workshops for

Nebraska's assessments since NeSA-Reading results were first reported in 2010—first as a series of live webinars and later as recorded sessions posted to the NDE Assessment web page.

DRC is proposing significant enhancements to Nebraska's report offerings for the English Language Arts, Mathematics, and Science tests. In light of those changes, we recommend offering training sessions on reports as live webinars to give participants the option of interacting with the presenters to get answers to their questions. DRC is open to setting the number of sessions and the content of the training as NDE considers best for reaching district and school personnel who use the reports.

b. With the exception of **i.** above, which requires in-person presentations, the above identified training can be provided through workshops or Web-Exes. Costs should be provided separately for workshops and for Web-Exes. In-person Workshop costs should include on-site registration, materials, and facility costs (average cost of $500-$1000 for a minimum of ten half-day workshops held across the state for at least 75 attendees for each of the four (above) required trainings. NDE will cover any other costs associated with on-site workshops.

DRC's proposal includes costs for ten half-day, in-person presentations across Nebraska for the fall workshops as required by the RFP and suggests webinars for enrollments, the Interim System, test administration, and reports. DRC will collaborate with NDE to determine if training content is best presented as a recording only or as live, interactive webinars. If interactive webinars are selected for a topic, DRC can be flexible on the number of sessions and the schedule for hosting them to provide ample opportunities for participation.

4. Online Support

a. The Contractor will provide toll-free telephone support to schools throughout the school year for general and alternate assessments and for the interim system. The proposal should discuss options for staffing the support center, training support personnel, and duration of support during peak usage times, such as prior to and throughout the testing windows. The proposal must also discuss procedures for ensuring that efficient service is provided in the event of a breakdown in telephone service.

As DRC has done since 2009, we will provide Nebraska with a dedicated toll-free telephone number and email address for all programs.

The Nebraska program will have a dedicated Customer Service Lead and team of core agents. These individuals, many of whom have serviced the state for the past several years, will be trained on current state-specific requirements, as well as on a series of DRC core online customer service curriculum and certification assessments. During peak periods, we also have the ability to rapidly ramp up additional certified customer service resources to accommodate high volume levels.

In the unlikely event that telephone service is interrupted, DRC will send an email notifying District Assessment Contacts that the telephones are down. We will send another email once

service has been restored. In addition, DRC customer service representatives have access to cell phones that can be used in emergency situations.

b. The Contractor will provide NDE with reports analyzing use of customer support services. At the discretion of NDE, weekly reports that track resolution of issues reported in customer service calls may be requested, especially if issues arise that cause dissatisfaction with the assessment and/or interim system.

DRC has been providing NDE staff with various types of customer service reports throughout our partnership and we will continue to do so under the new contract.

DRC utilizes the Service Management tool ServiceNow to capture client specific information. ServiceNow is one of the world's leading Service Management solutions. ServiceNow is a cloud-based tool, which allows DRC's Nebraska customer service team to:

- Input client-specific data into a single repository.
- Facilitate, track, and report on incident management (an incident could be a problem, question, or a request); process improvement; complaint resolution status; and other follow-up activities NDE may require.
- Provide timely reporting capabilities on multiple client requirements, such as call volumes, incident management follow up, and email activity to name a few.

DRC understands the importance of providing NDE with an excellent customer service experience. As mentioned above, we strive to enhance this experience by utilizing the best people, processes, and tools in the industry.

5. Technology for All Assessments

DRC is pleased to offer the **DRC INSIGHT™ Online Learning System** for the delivery of Nebraska's new assessments, including online summative, interim, practice, and C4L assessments. DRC INSIGHT is a secure, browser-based system that supports and enhances the testing experience for students and educators. It is a proven and extremely reliable online testing platform, having successfully delivered tens of millions of online assessments for large-scale state programs since 2010 (over 25 million delivered in 2015–2016 alone).

Nebraska students and educators are already familiar with DRC INSIGHT—the system has delivered more than 3.7 million NeSA, practice, and C4L online assessments in the past 3.5 years. DRC has a first-hand understanding of Nebraska's needs, and we have the expertise, experience, and technology solutions to ensure a successful online testing experience for Nebraska students.

Figure 4–1: Why DRC INSIGHT Is the Best Choice for the Nebraska Assessments

1. **DRC INSIGHT is a fast, powerful, and dependable online testing engine.** We have a national reputation for delivering high-stakes, online assessments with reliability. Our system currently delivers educational assessments in 41 states and U.S. territories, making it one of the most widely used and established platforms in the market.
2. **DRC INSIGHT is a modern, continually evolving platform that leverages the latest technology advances.** Our system supports a large variety of technology-enhanced (TE) item types, supports computer-adaptive test designs, and includes universal tools and accommodations to support every student across all assessments and platforms.
3. DRC understands Nebraska's technology requirements first-hand**. DRC has provided on-the-ground technology support in Nebraska, including an in-state liaison based in the Lincoln-Omaha area who is available to support school personnel** and to help respond to incidents and provide to support Nebraska prior to and during the online testing process. Additionally, DRC technology resources have worked directly with school technology coordinators on site, online, and as part of their state conference to both understand and support local technology use.
4. **Nebraska schools and districts are familiar with using DRC INSIGHT** for the C4L and NeSA programs since 2013. We have been fortunate to partner with NDE to refine and enhance an online testing program to best meet the needs of students and teachers. DRC INSIGHT would provide continuity and efficiency from year to year for Nebraska's assessments.
5. DRC INSIGHT provides **superior Technology Readiness tools and services** that go well beyond the industry standard. We are an expert in engaging students and educators in online testing and supporting schools and districts with diverse technology environments. We have also included **consultation with Network Nebraska** in our proposed services.
6. DRC INSIGHT provides **flexible technology options for schools with limited bandwidth**. Our caching solution ensures that performance is consistent and reliable regardless of a school's bandwidth.

Feedback from Our Clients

While DRC has the technology and technical expertise to deliver the Nebraska assessments, what really sets us apart from other vendors is our dedication to delivering exceptional service and a high level of client satisfaction. Excerpts of some of the feedback DRC has received from our clients are provided in Figure 4–2.

Figure 4–2: Feedback from DRC's Clients

"Thanks to all of you for a great testing year for NeSA in Nebraska!! We appreciate your patience, your attention to details, and the great customer service given our districts."

– Valorie Foy, EdD, Director of Statewide Assessment and Accountability, Nebraska Department of Education
Source: Email correspondence, May 6, 2015

"NDE worked with a new vendor, Data Recognition Corporation (DRC), this year. The testing ran much more smoothly and provided a high-quality testing experience to all Nevada students. Most assessments were offered online and offered the most up-to-date advances in assessment content and delivery."

– Source: Nevada Department of Education Press Release, June 3, 2016

The year after Nevada switched from their previous vendor to DRC:

"What a difference a year makes. I could not be more proud of the team effort exhibited by the Department of Education assessment team and their partners in all 19 Nevada school districts for administering one of the most successful testing efforts in the country … our successes this year mean we can focus on what's important: teaching our students and offering them a high quality education that prepares them for success in college, career, and community."

– Steve Canavero, Ph.D., Nevada Superintendent of Public Instruction
Source: Nevada Department of Education Press Release, June 3, 2016

"The computers worked out, and students said they liked testing online better. It went smooth, a lot smoother than I could have dreamed."

– Michele Herbert, Principal, Eldon Upper Elementary School
Source: Missouri Department of Elementary and Secondary Education, Press Release, May 5, 2015

"Overall the M-STEP administration continues to be a resounding success. As of today, we have over 3.5 million completed online test sessions, with just eight days to go. We are continuing to monitor the administration for any issues or concerns, and so far we have yet to hear about <u>any</u> major technology issues. This is remarkable given this is the first year of online administration! … Among the comments we are hearing, we are receiving a lot of positive feedback from educators and students."

– Martin Ackley, Office of Public and Governmental Affairs, Michigan Department of Education
Source: Email correspondence, May 27, 2015

Integrated and Secure Online Testing

DRC will work with NDE to deliver a complete online testing solution tailored to your unique requirements. We offer a powerful, integrated solution that brings together all of the tools and resources needed to administer a secure online assessment. Our system is intuitive and easy to use for students and educators and can be configured to meet the needs of any type of assessment. **Most importantly, our system provides the level of security demanded by a high-stakes testing program and required to protect student data.**

DRC offers the convenience of a "one-stop" approach for administrators: all test setup, administration, and reporting functions are accessed through a single-sign on, permission-based client portal. The **DRC INSIGHT portal** (known as eDIRECT under the current Nebraska program) provides tiered, secure access to all required administrative functions, including testing browser downloads, precode, enrollment, test setup and monitoring, scoring, reporting, and other resources. Educators only need one login to access administrative tools and resources for all assessments, including summative, interim, practice, and C4L.

a. Online Assessment Security

Proposals must include a detailed description of the methods that will be used to ensure the security of the online assessments.

DRC recognizes that ensuring security is of the utmost importance in maintaining the technical quality, perceived fairness, and integrity of any testing program. DRC has integrated security features and procedures throughout the DRC INSIGHT system to ensure the highest level of security for all aspects of the Nebraska assessments.

Secure Student Access

Students are required to provide a valid username and password to access the online testing system. The test administrator provides each student with a Student Test Login Ticket, which contains the student's username and a unique, pre-generated password. A separate, unique password is generated for each assessment, ensuring that **students can only access the test they were assigned**. Passwords are generated by combining a common four-letter word (from a pre-specified pool) with a random four-digit number. Test Tickets are generated from within the secure educator portal, which is pre-populated with student records. As an additional security measure, upon logging in, a Student Verification Page prompts the student to verify their profile information, including any assigned accommodations, prior to initiating the test. The student's name is also displayed on the screen during the test, providing an additional verification check for the student and the test administrator.

Because login tickets are secure material, DRC recommends they be printed as close to the date of testing as possible and kept secure until given to the test administrator for distribution.

Secure Administrator Access

The DRC INSIGHT portal will provide tiered access for all state, district, and school staff involved in the administration of the Nebraska assessment program, including District Assessment Contacts, test coordinators, test administrators, state personnel, and any other staff needing access to the system. These functions are controlled through **a variety of security levels to ensure a user only views or edits data for which the user is authorized**. Users must login with a pre-determined unique user ID and password to gain access to the system. The system automatically enables or disables access to specific functions based on the user's profile and permissions.

To promote security and maintain the confidentiality of student data, new users are prompted to review and agree to a security and confidentiality agreement upon logging into the system for the first time. The user agrees not to disclose any student information from the system to anyone other than a state, district, or school official as defined by the Family Educational Rights and Privacy Act of 1974 (FERPA).

Security of Test Content and Student Data

In high-stakes assessment, security of test content and student data is of paramount importance. Throughout all data transfers—from the student testing device, across the Internet, to DRC's databases and back—test content and student responses are secured through a combination of methods:

- Use of kiosk mode and other device-specific settings to "lock down" the student testing device.
- Use of encryption technologies for encrypting data.
- Secure Sockets Layer (SSL) protocol through Hypertext Transfer Protocol Secure (HTTPS) for securely transmitting data.

Test content is encrypted at the host server and remains encrypted throughout all network transmissions; content is decrypted only once the student login is validated. Decrypted test content on the student workstation is stored only in memory during each test session. Once the session is ended (the test is completed or the student logs out), computer memory is purged to ensure security of test content is maintained.

When the DRC caching service is used, test content is stored locally within a school or district's network. All data that resides in the caching service is encrypted and is not decrypted until it reaches the student's computer. Only authorized users are allowed access to the caching service.

Security of the Testing Interface

The following features of the DRC INSIGHT testing interface ensure that test items and content are not compromised during testing.

- **Device Security—**During testing, DRC INSIGHT completely locks down the student testing device, preventing copying, pasting, or printing of screen images and content, and any other functionality that could compromise the test. The system also blocks access to other applications and web browsers and prevents interference from automatic software processes such as virus scans. Security is device-specific:
  - For desktop computers and laptops, the system uses "kiosk mode" to completely lock down the testing device. Dual monitor usage will automatically inactivate the second monitor while in testing mode.
  - For iPads, our system uses the "Guided Access" feature to deliver tests securely. Features such as spell check, auto-correct, auto-complete, and auto-capitalization are disabled through the device settings.
  - For Chromebooks, our system runs in Single App Kiosk Mode to lock down the device properly.
- **Prevention of Test Submission from Multiple Machines—**This feature prohibits two students from using the same login at the same time. When more than one login is detected, a warning message will appear and the student is directed to ask for assistance.
- **Pause Feature—**Students may pause testing if a short break is needed (e.g., restroom break). Once a student clicks the Pause button, the current test item will be removed from the screen to ensure the security of the question and answer. If a test is paused and not resumed within the same day, the test is locked and intervention is required to unlock the test so the student can resume the test.
- **Inactivity Timeout Feature—**The system will timeout and close the test after a defined period of inactivity (e.g., no mouse movement or typing for 15 minutes). The application will display an inactivity countdown clock and timeout warning message prior to logging the student out of the test.

Procedural Security

DRC provides training and documentation to District Assessment Contacts, test coordinators, technology coordinators, and test administrators to ensure consistent security measures are implemented and followed during online testing. Standardized testing procedures ensure all students are tested under similar conditions in all classrooms.

Nebraska manuals for assessment coordinators and administrators will thoroughly document security procedures for test administrators to follow during online testing. In addition, security procedures are reviewed during DRC-led training sessions with assessment coordinators and technology staff.

Information Technology, Facility, and Personnel Security

In addition to the online testing system security measures described above, DRC utilizes multiple security controls that relate to our hardware, data, and network technologies. Figure

4–3 describes the security measures in place at DRC that will protect and safeguard Nebraska program data.

Figure 4–3: DRC's Information Technology, Facility, and Personnel Security Controls

Information Security Program Management	☑ Full-time, experienced IT security administrator and Security Team, who oversee the implementation and operational aspects of technology security for the company. ☑ Security Team enforces security policies and standards and performs ongoing mitigation of risk and vulnerability management.
Information Security Risk Management	☑ Full array of security technologies, including audit trails, firewalls, intrusion protection, vulnerability scanning, anti-virus, source-code security, Secure Sockets Layer (SSL), and monitoring. ☑ Manage hundreds of terabytes of client data; therefore, security is an inherent, inextricable, and indispensable component of our system. ☑ Proactively identify areas of risk to ensure remediation.
Information Security Policies and Standards	☑ Stringent information security policies and standards are in place. ☑ Policies are reviewed and updated on an annual basis. ☑ Regular audits ensure compliance with policies and standards.
Information and Technology Compliance	☑ DRC's information security policies are based on, and annually audited against, the NIST criteria (NIST Standard 800-53). ☑ DRC is actively configuring our systems and processes to comply with the ISO 27001 information security system standards. Document Services is certified; we are expanding the security certification to other business areas. ☑ Compliance with NIST RMF for work with the U.S. Department of Defense. ☑ DRC undergoes annual security audits for current clients.
Business Continuity and Disaster Recovery	☑ Emergency Response Management Plan (ERMP) is in place to provide guidelines for all DRC personnel when an unexpected or undesirable event occurs that disrupts the normal operations of the company. Copies of the plan are kept in a secure location on-site, at off-site locations, and with the emergency response coordinator. The plan is reviewed and updated annually or as needed. ☑ Emergency response and business continuity strategies and procedures apply to all core operations at DRC. ☑ Our data backup process includes redundant backup copies, data replication, and off-site copies. ☑ In-place disaster recovery plan for all systems and data. DRC uses a high-speed fiber ring for network redundancy and has an identified secondary data center in the case of a disaster.
Security Training and Awareness	☑ DRC personnel are trained in security requirements, which include physical building access, employee confidentiality and behavior, data access, network and Internet access, and the safeguarding of client documents and products. ☑ Security awareness materials are reviewed on an annual basis and annual Cyber Security Awareness training takes place. ☑ DRC requires employee-signed agreements upon training completion.

Figure 4–3: DRC's Information Technology, Facility, and Personnel Security Controls

Identity and Access Management	☑ Data protection starts with a process that denies everyone access to data, and then specifically grants access to those authorized. DRC's identity and access management is controlled through Active Directory, whereby users are given the lowest level of access required to perform their jobs. ☑ Any changes in system access follow our formal change management process. ☑ Passwords—which must be strong, unique, complex, and changed regularly—are required for all personnel to access any data. Data and electronic files are accessible only to authorized personnel. ☑ Network connections are regularly audited and immediately disabled whenever personnel leave DRC.
Security Incident Response and Forensics	☑ In the event of a security incident, DRC's Incident Response Team is trained to follow an organized approach to address and manage the situation. ☑ The team is poised to handle the situation in a manner that limits damage and reduces recovery time by following our Incident Response Plan. ☑ All security events are logged to a localized SIEM solution that provides the ability to retrieve data forensics should a security incident occur.
Information Security Monitoring	☑ Robust data loss prevention system that continuously scans and monitors the data traffic in order to discover and protect sensitive data. ☑ System has the ability to block/quarantine transmissions violating policies. ☑ All security events are logged to a localized SIEM solution that provides the ability to retrieve data and generate reports to ensure compliance.
Vulnerability and Threat Management	☑ Proactive identification and audit of security vulnerabilities through continuous scanning practices conducted on servers, workstations (including devices connected to USB ports), and network devices. An array of industry-leading scanning technologies is leveraged in this process. ☑ Rigorous patch management process that ensures the proper patches are installed, tested, and configured. ☑ Standardized vulnerability reporting, remediation, and validation are in place.
Boundary Defense	☑ Secure internal network through the use of fault tolerant firewalls, protecting company resources from unauthorized access. ☑ Intrusion prevention/detection (IPS/IDS) tools that allow the detection of possible infiltration or denial of service attacks before a security breach occurs. ☑ Wireless networks are secured to industry standards.
Endpoint Defense	☑ Aggressive endpoint and anti-virus scanning solution in place. ☑ Endpoint and virus scanning software packages automatically update virus definitions daily and protect the following: email, servers, workstations, removable media, including any device connected to USB ports, and web traffic.

Figure 4–3: DRC's Information Technology, Facility, and Personnel Security Controls

Physical Security	☑ Mandatory personnel key-card picture identification badges to enter and work in DRC facilities. ☑ Mandatory visitor sign-in and temporary badges; all visitors accompanied by DRC employees. ☑ Secure access system logs all persons entering facilities, including all after-hours/weekend activity. ☑ Data centers are constructed of concrete floors, walls, and ceilings and meet industry standards and best practices for climate control, fire suppression, power and cooling, and physical security. The facility is staffed with security guards 24 hours a day, 7 days a week. ☑ Unauthorized personnel are prohibited from receiving, check-in, document processing, or materials assembly areas unless accompanied by a project manager.

Protection Against Cyber Attacks

DRC regularly assesses new risks to the security and availability of our systems and takes proactive steps to implement new solutions required to mitigate the risks to our environment. DRC's hosting environment is configured to manage and detect cyber attacks and outside threats, including distributed denial of service (DDoS) attacks.

- Our firewalls are configured to provide protection so company resources are safeguarded from unauthorized access.
- We use Intrusion Prevention Systems (IPS) and Intrusion Detection Systems (IDS) that allow for the detection and prevention of possible infiltration before a security breach occurs.
- IPS/IDS alert when possible DDoS attacks occur. If a DDoS attacks occurs, DRC proactively routes testing traffic to our security solutions partner's "scrubbing" service, which removes the attack traffic and sends to DRC only the valid testing traffic. DRC runs tests with our partner to ensure that any DDoS attacks would not adversely impact performance.
- We annually engage a third-party firm to conduct penetration tests on our network. These "attacks" attempt to gain unauthorized access to our network over a multiple-day period. DRC has successfully passed these tests in that all our perimeter controls have prevented penetration into the DRC network or any devices.
- DRC also performs annual, third-party audits to ensure our security processes are properly and consistently implemented and meet industry best practices.

b. District Capacity

The proposal must describe a procedure and timeline for evaluating district capacity for online assessments including local storing (cache) for large districts. The system proposed must assure that districts are able to meet the capacity demands of online testing at peak times.

Over the past four years, Nebraska has achieved above 90% student participation in online testing. DRC welcomes the opportunity to continue supporting NDE, schools, and districts in maintaining and exceeding this high level of participation. We recognize that there are many factors that can affect capacity for online testing at the district and school levels, such as technology infrastructure, availability of school technology support personnel, and the geography of the state. In response to these challenges, DRC has developed a **powerful suite of Technology Readiness tools and resources** to support online testing readiness. Our goal is to deliver the best possible student experience by identifying and reducing the issues associated with technology readiness. We strongly believe that technology preparation, in concert with people readiness and engaged technical support, are critical elements of a sound online testing program.

Technology Readiness

DRC provides a variety of tools and resources that help school and district personnel evaluate capacity and prepare for online testing. Figure 4–4 summarizes DRC's Technology Readiness offerings for Nebraska.

Figure 4–4: Technology Readiness Support for the Nebraska Assessments

SITE TECHNOLOGY READINESS CHECKLIST	Reference guide and planning tool for sites implementing online assessments
SYSTEM READINESS CHECK	Verifies each testing device meets the minimum requirements for testing
CAPACITY ESTIMATOR	Estimates network performance times based on site-specific factors such as number of concurrent testers, connection speed, etc.
COMPUTER USAGE ESTIMATOR	Estimates whether a site has enough testing devices based on the length of the test, number of planned testing days, number of students, etc.
LOAD SIMULATION TOOL	Simulates a realistic testing experience on each site's network; confirms data can complete the route from testing devices to DRC servers
IN-STATE TECHNOLOGY LIAISON	Senior support analyst dedicated to the Nebraska program; provides on-the-ground support to schools and districts
STUDENT AND EDUCATOR TRAINING	Comprehensive training plan for students and educators, including tutorials, webinars, and practice opportunities
TECHNICAL SUPPORT	Engaged, proactive tech support for school and district staff before and during the test window, including consultation with Network Nebraska

We offer this package realizing that one size does not fit all when addressing readiness; our approach is carefully tailored to Nebraska's unique needs. We begin the process of ensuring site readiness as far in advance as possible so that schools have the opportunity to make adjustments before the testing window. We will work with NDE to establish appropriate timelines for tech readiness activities as part of the annual project plan and schedule.

DRC's online testing readiness tools and resources help testing sites to:

- Evaluate, monitor, and improve school and district readiness for online testing
- Look at the technology variables that impact readiness
  - Testing device specifications
  - District and school networks
  - Internet service providers
  - Internet connectivity
- Certify that testing devices meet requirements and are prepared to deliver tests

Our tools will support Nebraska districts in the verification process for all supported platforms and operating systems.

DRC Addresses Critical Technology Questions that Impact Performance

- **Do testing devices meet the minimum requirements for online testing? Can they connect to the testing servers and transmit information?**
- **Is network capacity and configuration adequate for peak testing demands?**
- **What is the Internet service provider (ISP) capacity and configuration?**
- **How long will it take to download tests? Upload student responses?**
- **How many students can test at the same time?**

Site Technology Readiness Checklist

DRC provides a detailed, step-by-step Site Readiness Checklist that addresses the various factors a district needs to consider, organized under the following categories:

- **Staff and Personnel:** Identifies each team member's assignment in facilitating the online testing experience so that all staff and personnel have a clear understanding of the testing process and expectations.
- **Scheduling and Logistics:** Identifies a number of technology and non-technology considerations, including considerations for students requiring accommodations.
- **Network and Devices:** Provides guidelines to assist technology staff in determining their district's capacity, identifying eligible computers, and determining the total number of students the district can serve.

This comprehensive checklist is intended to serve as a reference guide and planning tool for the district. A number of checklist items involve not just technology directors, but also test coordinators, curriculum directors, and others within a district working together as a team.

A sample of the Site Technology Readiness Checklist has been provided in *Appendix D*.

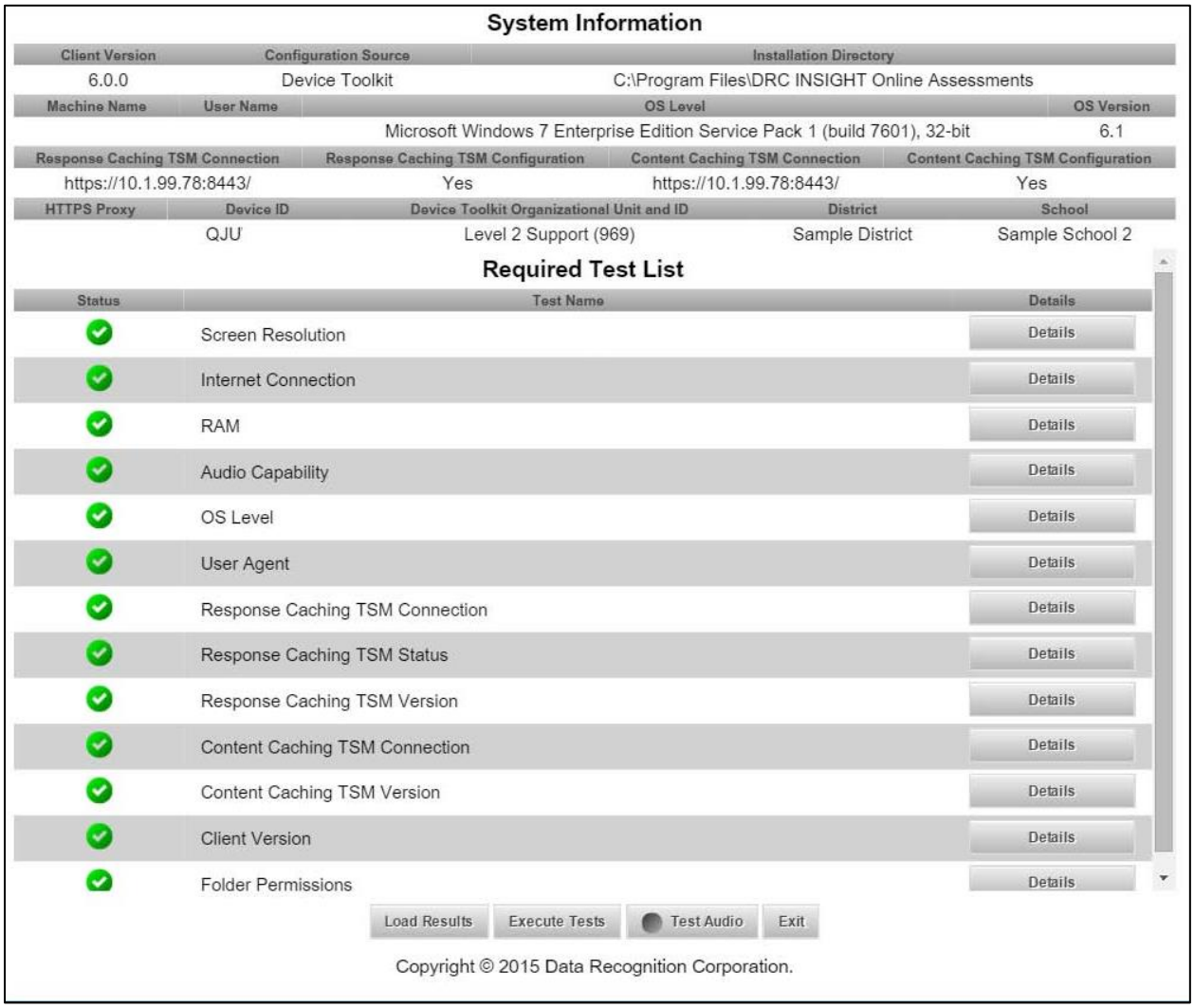
System Readiness Check

The System Readiness Check verifies that each testing device meets the minimum requirements for testing, including sufficient screen resolution, Internet connectivity, memory (RAM), and

other requirements. This step helps to ensure that all testing devices are operating properly prior to testing and to prevent delays once testing begins.

Figure 4–5 shows the results of a successful system readiness check.

Figure 4–5: System Readiness Check. *The System Readiness Check verifies that each testing device meets minimum requirements and is ready for testing.*

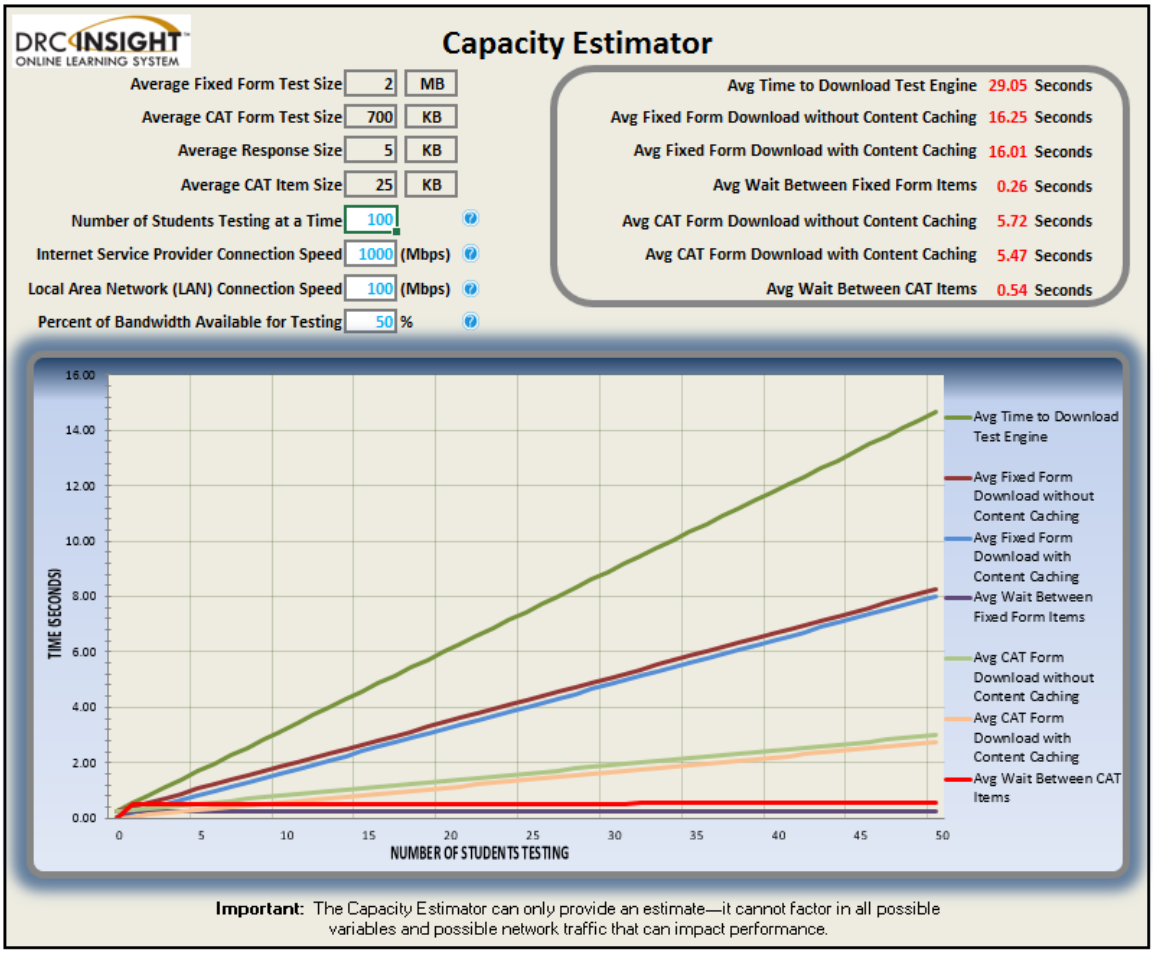


The System Readiness Check runs automatically when the secure testing browser is installed. It can also be run on demand for debugging purposes at any time. DRC receives reports each time the application is run and can assist in any troubleshooting that may be required. District and school technology personnel appreciate readiness applications such as this because they simplify the process of determining if student testing devices are capable of delivering tests.

Capacity Estimator

DRC's Capacity Estimator helps sites plan for testing based on a number of factors, including the Local Area Network (LAN) connection speed, Internet upload and download connection speeds, estimated percentage of bandwidth available, and number of students who will test at roughly the same time (concurrently). Based on the parameters entered, the application estimates the average test download times and the wait time between items.

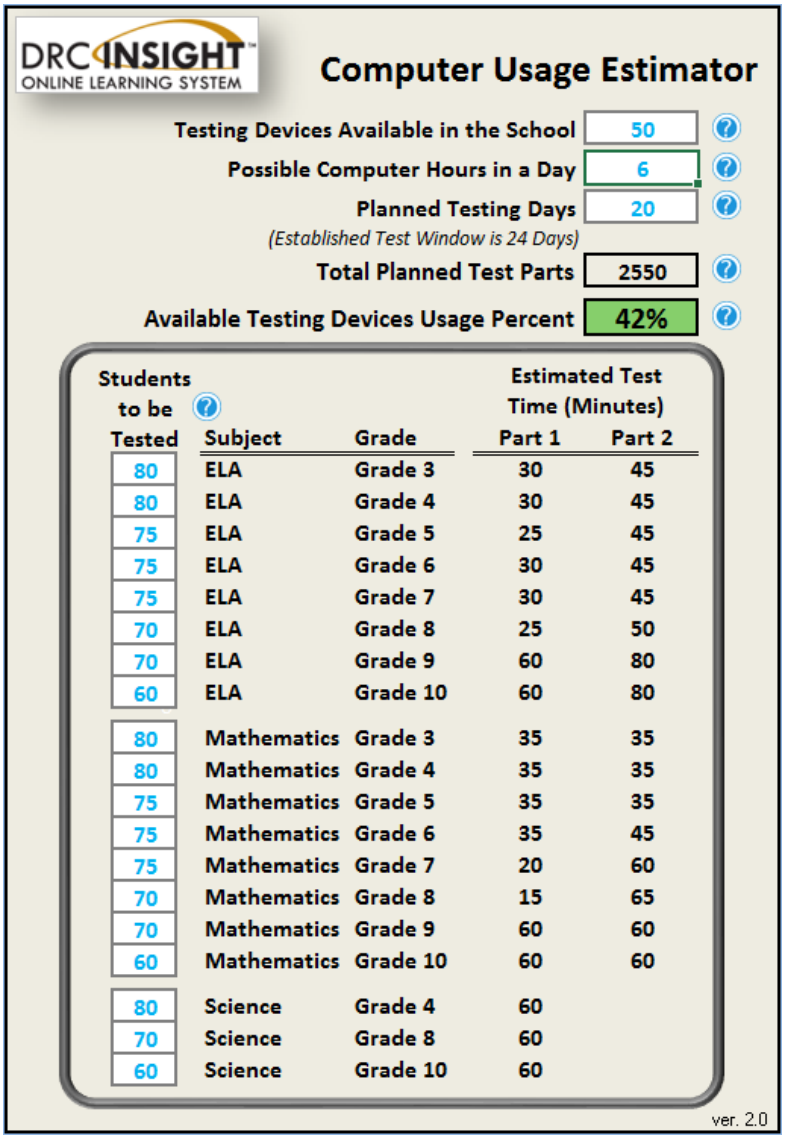
Figure 4–6: Capacity Estimator. *This tool helps technology staff plan for testing by factoring in the site's unique network variables and showing how they can impact performance. The testing site enters the variables shown in blue font on the left, and then the tool generates the performance metrics shown in red font on the right and displayed in the graph.*



Computer Usage Estimator

A new offering in 2017, the Computer Usage Estimator gives school and district personnel insight into their estimated computer usage based on site-specific and test-specific variables. These variables include the number of testing devices available in the school, number of planned testing days, possible computer hours in a day, number of students to be tested by grade and subject, and estimated test time (length of each test session). Taking into account these variables, the Computer Usage Estimator helps determine if the testing site has an adequate number of testing devices available for testing.

Figure 4–7: Computer Usage Estimator. *The testing site enters the variables shown in blue font, and then the tool automatically generates the estimated number of test "parts" and the expected computer usage percent. A usage percent over 100% indicates that a site does not have enough testing devices. (Note: Nebraska's estimator would be configured based on Nebraska's test window length, subjects and grades tested and estimated test time.)*

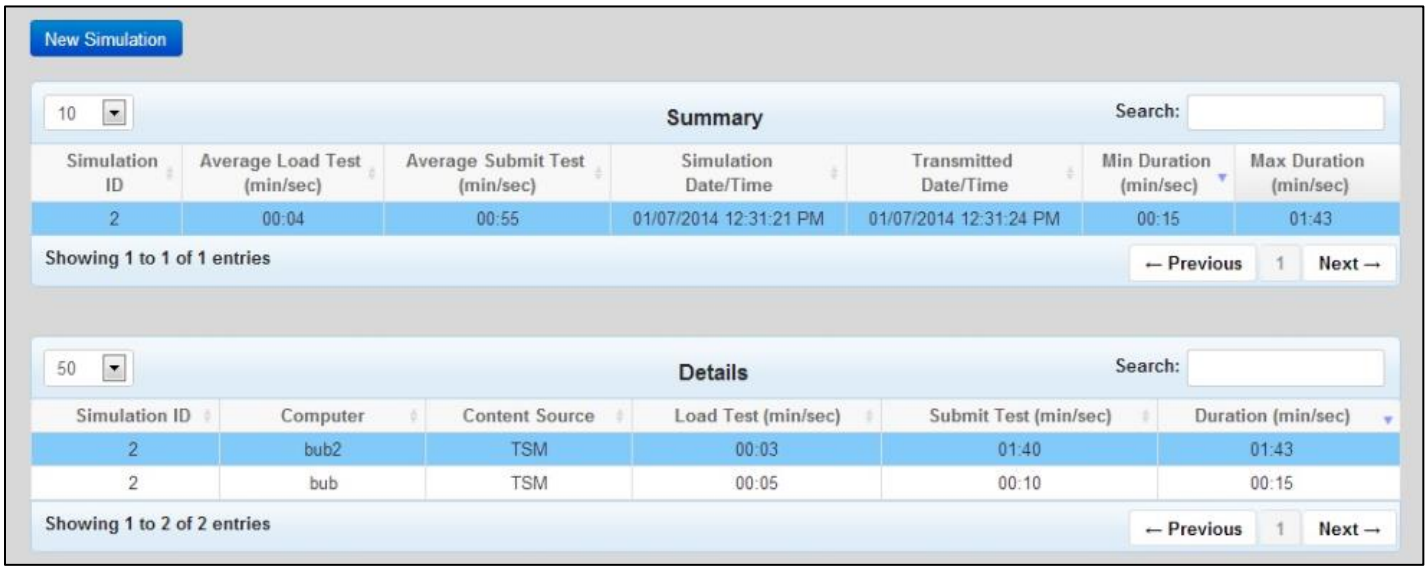


Load Simulation Tool

The Load Simulation Tool performs simulations that estimate the amount of time it will take to download tests and upload responses, both for individual testing devices and averaged across multiple devices. The simulation traces the entire data route from the student testing device to DRC's testing servers, revealing any potential issues prior to live testing. Simulation results can be used to troubleshoot potential issues with network connections, computer memory, and computer configuration.

DRC recommends that the simulations include as many of the testing devices in a district as possible, to allow districts to better assess each location's readiness. The intention is to replicate realistic upload and download traffic on the district and school infrastructure.

Figure 4–8: Load Simulation Tool



In-State Technology Liaison

DRC believes it is important to have a first-hand understanding of Nebraska's technology infrastructure. **We will continue to provide on-the-ground technology support in Nebraska through DRC's in-state liaison, Mr. Ryne Keel.** Mr. Keel is a Senior Support Analyst at DRC who is based in the Lincoln-Omaha area. He provides technical support for NDE, DRC, and school personnel and helps respond to incidents prior to and during the online testing process. Mr. Keel will continue to support the state in this capacity under the new contract.

Student and Educator Training

DRC provides online testing tutorials and practice opportunities to familiarize students and teachers with the online testing system. Please see *Subheading A.5.d* for details.

In addition, we provide ample training opportunities for staff, including in-person and online seminars and training sessions (see *Subheading A.3*). If there are specific technical concerns for

an assessment, we repeat those topics again and again to make sure people have an opportunity to come back a second time if they need clarification or additional support.

Technical Support and Network Nebraska Consultation

DRC will continue to provide Level 2 technical support to help schools through special situations and to respond to any questions about technology setup in advance of testing.

DRC is also prepared to provide engineering consultation with Network Nebraska engineers to help identify data bandwidth needs and network security considerations throughout the life of the contract. **In order to best support the collaboration with Network Nebraska, DRC is pleased to conduct one (1) face-to-face meeting in Nebraska and up to two (2) web conference meetings in Year 1 of the contract.**

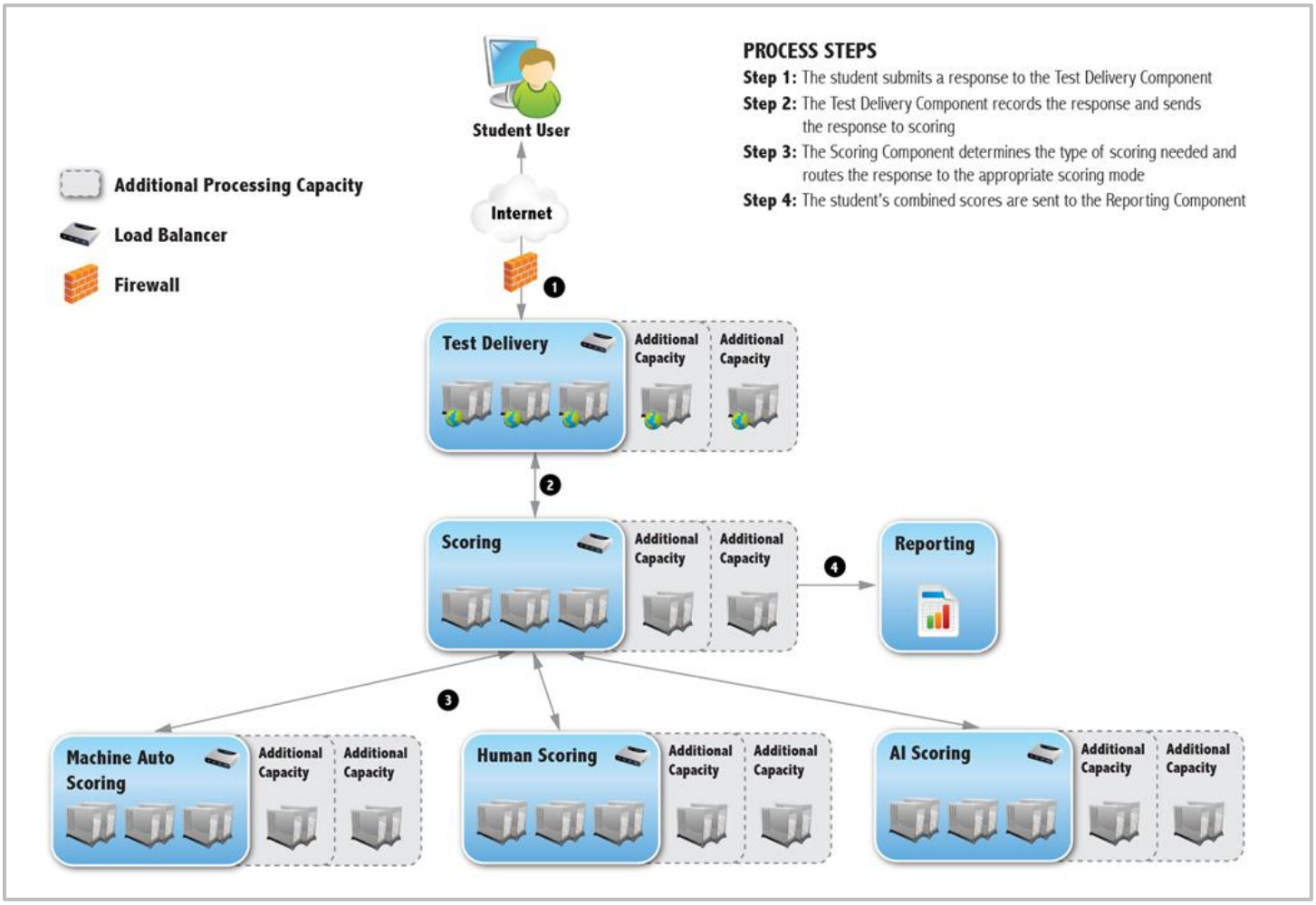
As a separate option for NDE's consideration, DRC would be pleased to work with Network Nebraska to explore the possibility of establishing an independent network connection through the Internet2 network. Internet2 is a research and education network that connects participating higher education institutions, regional and state education networks, corporations, and other affiliate members and partners with one another. It operates independently of the standard internet, and may provide a cost-effective increase in connection throughput (speed and capacity) compared to other connection types. It can be set up in conjunction with standard internet connections to serve as a set of redundant and fault tolerant network connections. Under this option, DRC and Nebraska would both need to be participants in the Internet2 network. DRC and Nebraska would then establish VLANs across the network that would allow interactions with DRC systems from Nebraska endpoints as an alternative to the standard internet. Proposed costs for this option have been included in DRC's Cost Proposal.

System Capacity and Scalability

DRC INSIGHT was designed to be highly scalable, ensuring we will meet our clients' current and future performance requirements. DRC works with each client to understand their needs, and we thoroughly test our system capacity to ensure that it will accommodate all programs. We build a detailed capacity requirements model that illustrates all testing activities, administration windows, and the number of planned tests across all client states, so that we can identify the peak needs for online testing. Based on the capacity requirements model, **DRC builds and tests our infrastructure to support over 300% of the peak projected testing volumes.**

Each aspect of DRC's architecture is horizontally scalable. Database servers expand in size and in the number of servers available to our clients. Application servers and web servers scale the same way, in size and in number. The network also scales in bandwidth with burstable, on-demand capacity. This combination allows the entire online system to scale horizontally at any layer, as well as vertically as a whole. Figure 4–9 illustrates how different system components scale when needed to handle additional volume.

Figure 4–9: Integration and Scalability of the Online Testing System



DRC carefully monitors usage and capacity requirements across all of our clients' programs to plan for future needs. **We run performance tests at three to five times the expected rate** to demonstrate that our system will perform well above the required capacity without error. Performance tests are based on the anticipated number of students who will test concurrently for a given assessment. When evaluating expected loads, we also take into account the effect of varying testing patterns throughout the administration window. For example, test loads are typically lower at the beginning of the test window, reach their peak mid-window, and fall off again at the end of the window. Tests loads also trend higher or lower on certain days of the week and at certain times of day. All of these criteria are factored into the performance load testing process to ensure the system is prepared for every scenario.

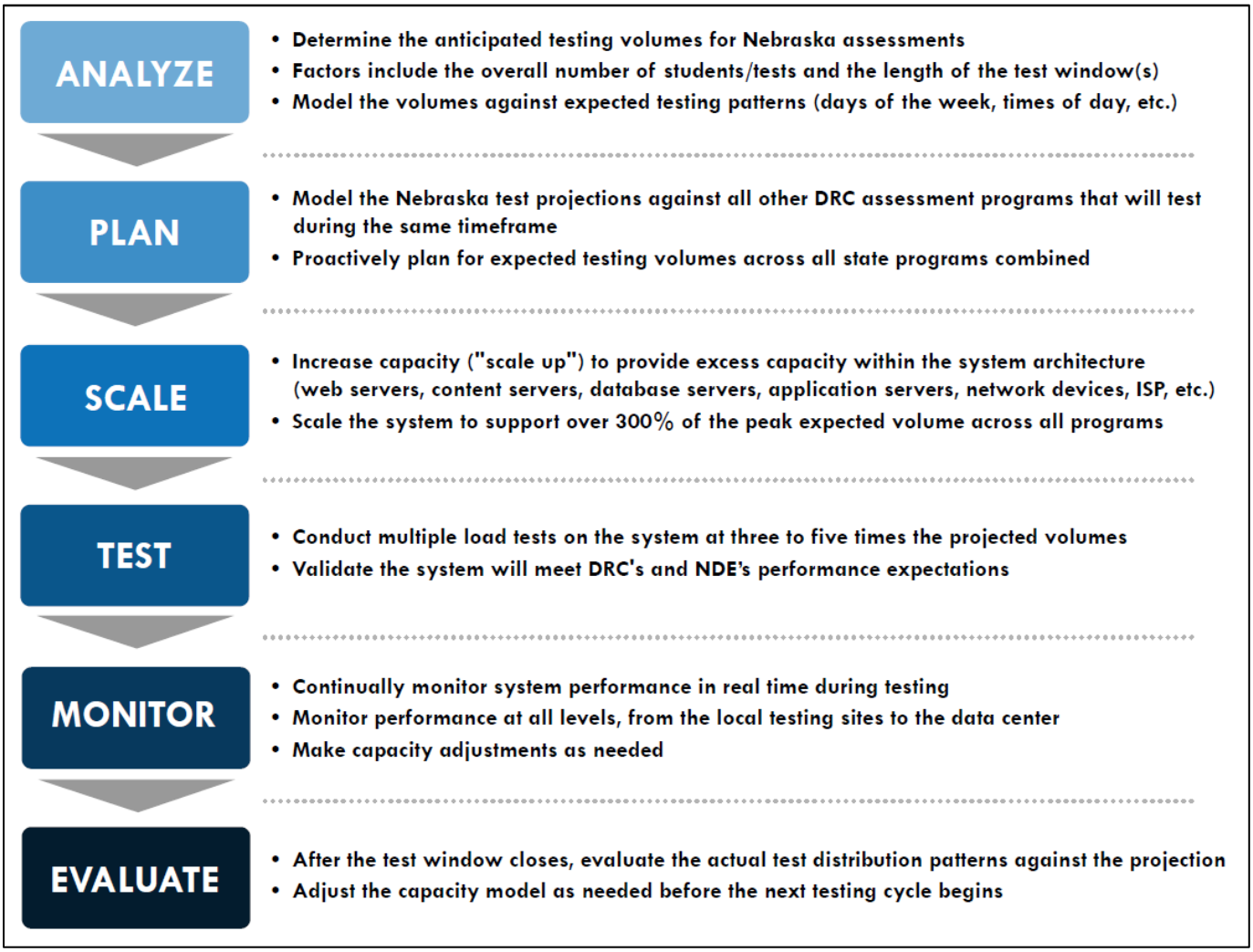
To prepare for the peak expected volumes in the spring 2016 testing season, DRC load tested our system to a level of approximately 3 million tests in 1 day (500,000 tests per hour). **In the 2015–2016 school year, our system successfully delivered more than 25 million online assessments and supported 220,000 concurrent testers.** A summary of our peak performance in 2015–2016 is shown in Figure 4–10.

Figure 4–10: DRC INSIGHT Peak Performance in 2015–2016

- More than 25 million tests delivered online in 2015–2016
- 11.4 million tests completed in a single month
- 1.1 million tests completed in a single day
- 17.3 million responses processed in a single morning
- 220,000 students testing at the same time (concurrent users)
- 2,200 responses processed per second
- Less than 0.05 seconds to process a response

Figure 4–11 summarizes DRC's capacity modeling process for the Nebraska assessments.

Figure 4–11: DRC's Online Testing Capacity Model for the Nebraska Assessments



Our proactive system capacity and scalability measures will ensure we meet the needs of the Nebraska assessment program.

System Technology and Deployment

DRC INSIGHT is a scalable, fully secure testing system designed to meet the technical requirements demanded by today's high-stakes assessment programs. Our system is designed to work with the technology commonly available in schools and provide flexible options for districts with limited technology and bandwidth. The system is platform-independent (agnostic), meaning that it provides standardized display of content and consistent performance across all supported testing devices.

Figure 4–12: DRC INSIGHT Powerful and Reliable Performance

With DRC INSIGHT, educators enjoy the peace of mind that their students will have a consistent, uninterrupted online testing experience. Our safeguards include:

- Innovative tools to support schools with low bandwidth
- Ability to continue testing during Internet outages
- Continuous performance monitoring and engaged technical support
- Robust, scalable infrastructure with back-up data centers in two independent locations
- Proactive planning to avoid unexpected demand issues

DRC's system ensures that students and teachers can focus on the test, not the technology.

Secure, Web-based Platform

The DRC INSIGHT test engine runs on a custom web browser that is designed to ensure a fully secure environment during testing. The custom browser software is downloaded from the INSIGHT portal and installed onto student testing devices. The secure browser can be installed on computers individually, or it can be downloaded to a central location, copied, and distributed to multiple computers simultaneously using common network distribution tools.

DRC includes everything needed for testing with the secure browser, eliminating the need for districts to coordinate updates to third-party software. Our system utilizes the same code base for different testing platforms, ensuring a consistent user experience across testing devices.

Support for Multiple Devices, Operating Systems, and Configurations

DRC's system runs on all of the computer platforms identified in the RFP, including Windows (PC), Apple (Mac), iPad tablets, and Chromebooks. It can be used in several configurations, including:

- Standard, single-user testing devices

- Remote connectivity configurations (such as Citrix, terminal server, and remote desktop)
- Wired and wireless network configurations
- "Cloud ready" setup for use with virtual networks and thin client environments

DRC's online testing system does not require the school or district to install or host additional servers; all servers are hosted by DRC and are fully secure. The only hardware needed by the school are the devices (computers, tablets) that will be used for testing and for hosting the optional caching application.

DRC updates our system requirements on a regular basis to stay current on the latest devices and operating systems in the market. Current system requirements for DRC INSIGHT have been provided in *Appendix E*. This includes our support policy for retiring devices and operating systems when they are no longer supported by the manufacturer. When a manufacturer discontinues support for a device or operating system, they advise against using the unsupported level. However, if this occurs within the school year, we can reassure NDE that we will continue to provide "Best Effort" support through the end of the test window.

Caching Solution for Schools with Low Bandwidth

Sites with low bandwidth have the option to use DRC's caching service to cache test content prior to testing, which reduces the bandwidth needed to deliver online tests and increases the number of students who can test at the same time. The service also provides failover for student responses in the event of an Internet disruption at the school. The caching application is installed on one or more computers at the school, relative to the number of students who will be testing.

DRC's online testing clients use the caching service to ensure student testing is not interrupted due to Internet instability. DRC will continue to work with Nebraska schools and districts to make recommendations regarding wired and wireless network configurations (both LAN and WAN), and caching configurations for sites that choose to use caching. Recommendations are based on a given site's available bandwidth, available testing devices, and the anticipated number of students who will test simultaneously.

DRC has made a number of enhancements to our caching software in 2017, including a new 64-bit version of the application that can support a larger number of concurrent testers.

Reducing the Burden on District and School Staff

DRC appreciates the many demands on district and school technology staff and we understand how valuable their time is. We have minimized the time and effort needed to deploy our online testing system so that technology personnel will experience **straightforward and user-friendly installation processes**. DRC INSIGHT minimizes burden on technology staff in several important ways, as described in Figure 4–13.

Figure 4–13: DRC INSIGHT Advantages for Nebraska Technology Personnel

Testing can be a busy and stressful time for school personnel. Dealing with technology issues that could have been avoided shouldn't be part of that stress. **DRC provides our clients with the most user-friendly and straightforward set up process of any vendor in the industry.** Here's why our system is different:

- **No third-party software requirements.** DRC includes everything needed for testing via the secure browser software and does not require third-party software plug-ins, such as Java or Adobe Flash Player. Other vendor systems require technology personnel to first install the plug-ins and then carefully coordinate regular updates to those plug-ins in conjunction with testing windows. DRC's all-in-one solution eliminates these efforts for district staff.
- **No dependencies on commercial browsers.** DRC's system runs on a custom web browser that is maintained by DRC. Unlike systems that run on commercially available browsers, our system has no dependencies on third-party browsers and is not driven by changes to those browsers. With DRC INSIGHT, technology staff are not required to respond to complicated and ever-changing dependencies between the testing engine, commercial browsers, and third-party software.
- **Support for automatic updates.** As a web-based application, DRC INSIGHT supports automatic updates. In contrast to desktop-based test engines that are installed directly on the testing device, updates to DRC's test engine do not require installation of new software versions on student computers.
- **Low-maintenance caching tool.** DRC's optional content and response caching application can be installed on a standard computer at the school or district; no additional servers or hardware are required. Once installed, test content is automatically downloaded to the application. If content is updated or changed, the applications are automatically updated by the DRC servers, requiring no intervention from personnel at the testing site.

System Monitoring and Alerting

DRC collects data to analyze all aspects of the online testing system. We meticulously monitor our software to achieve optimal performance throughout the system, especially with the student experience. The overall solution is monitored at all levels, from the software to the infrastructure that it runs on.

DRC actively monitors all production infrastructure and responds immediately to any issues. Network and server host status are monitored through multiple channels. DRC monitors web system availability 24 hours a day, and is notified immediately about availability or performance issues within the production environment. **Technical support staff are available 24 hours a day, 7 days a week** via an on-call notification system.

DRC's applications generate performance metrics that are stored on our databases and monitored regularly to assess any parts of the system that are not performing optimally. In most cases, performance issues are caught during the extensive system and load testing phases of DRC's development process. In addition, these metrics are always monitored on a proactive basis in order to ensure that the overall testing experience goes smoothly.

Test Monitoring Dashboard

DRC's technology personnel monitor the performance of the online testing system and investigate issues at the school level using our **Test Monitoring Dashboard.** The Test Monitoring Dashboard is an internal tool used by DRC's Level 2 technical support staff to continually monitor testing on the ground. The dashboard provides real-time data and a view of the testing activity throughout each state, enabling our support team to proactively reach out to sites that are experiencing technical or connectivity issues in order to resolve them quickly.

DRC's Level 2 support staff use the Test Monitoring Dashboard to remotely monitor statewide online testing activity throughout the testing window, looking for unusual activity. Any unusual activity is immediately researched and corrective action is taken when deemed necessary. In cases where DRC detects unusual testing activity for a school, DRC's customer service team will attempt to reach out to the district/school to see if assistance is needed to resolve technical issues they may be encountering during testing.

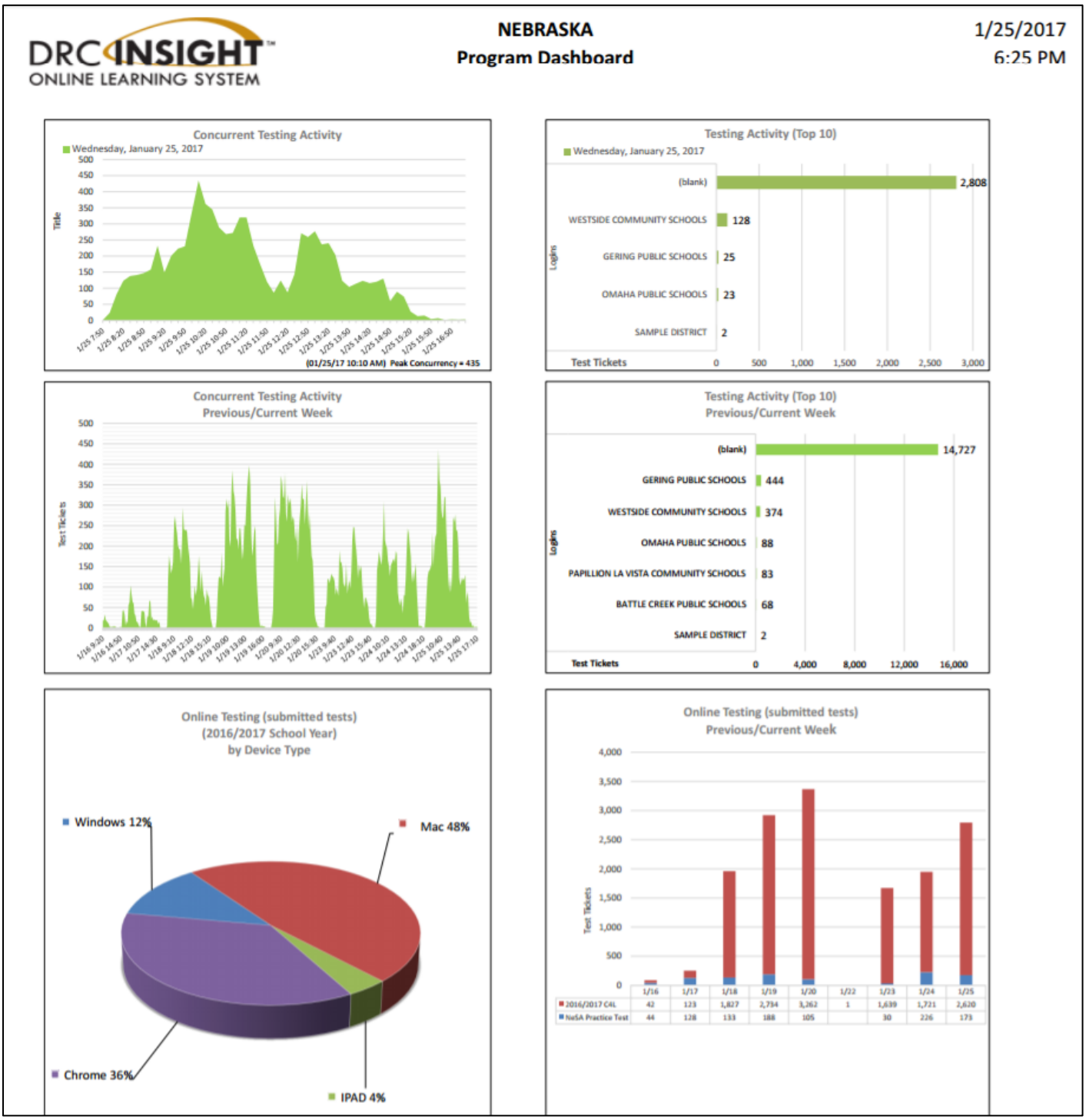
DRC's clients appreciate our personalized approach to monitoring testing activity at the school level, and proactively reaching out to schools that may need assistance.

Program Dashboard for State-Level Users

DRC is pleased to provide our **State Program Dashboard Report** for NDE's use. The State Program Dashboard Report contains a variety of user-friendly charts and figures that allow NDE to monitor testing activity in the state. The report is provided in PDF format and is refreshed hourly.

A sample Nebraska dashboard report is shown in Figure 4–14.

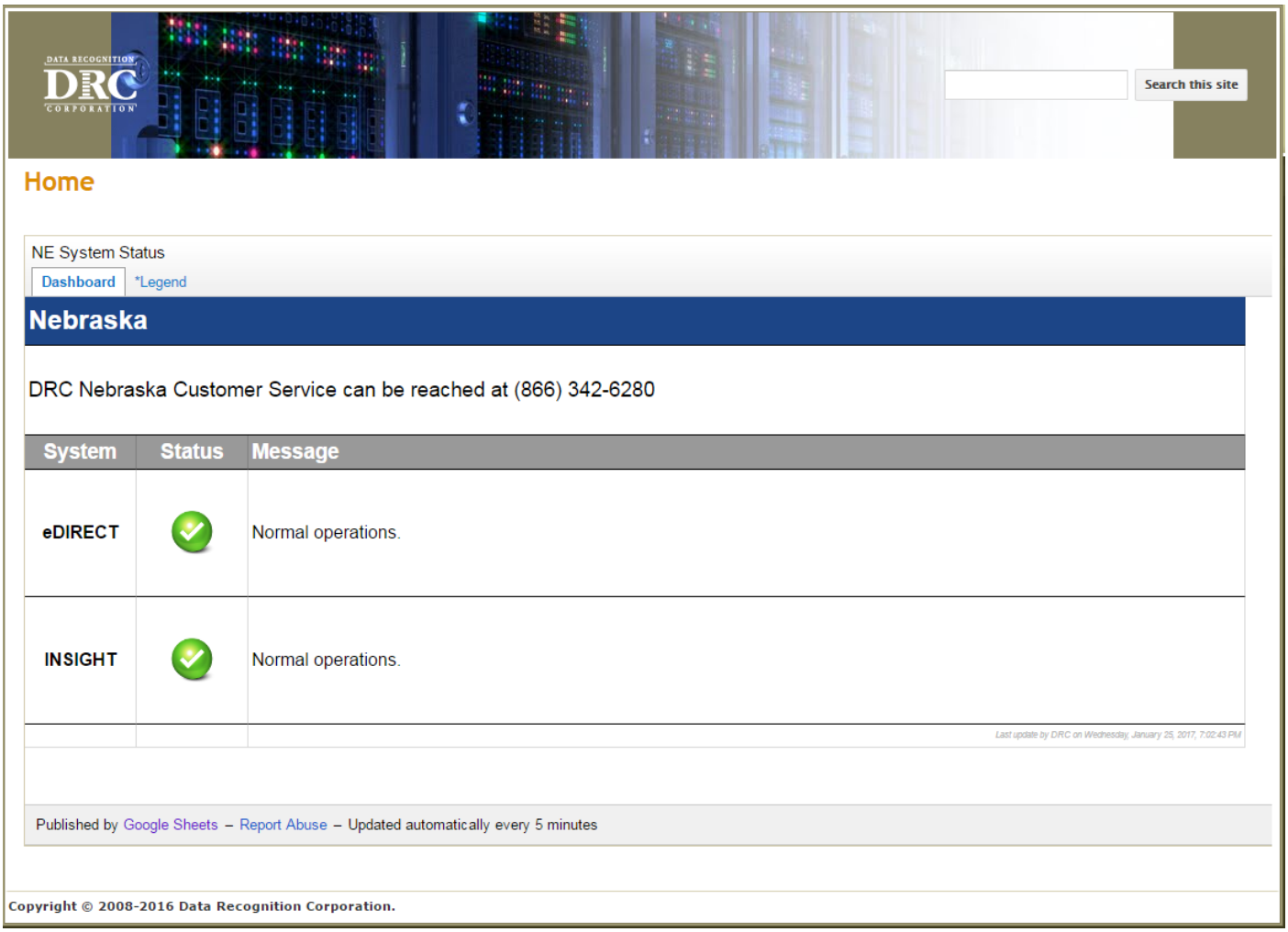
Figure 4–14: Nebraska Online Testing Program Dashboard (Excerpt)



System Status Updates

DRC provides a System Status webpage that gives information to state, district, and school staff on the operational status of our online systems. The System Status page is linked from the DRC INSIGHT portal and can be accessed at any time to view the current status of online systems as well as view updates and announcements about system status.

Figure 4–15: Nebraska System Status Site



c. Online Assessments

Online assessments should maximize the use of technology while facilitating ease of use by students of all levels. The proposal should describe appropriate testing tools such as:
i. Audio capacity with human-voice-recorded text-to-speech for appropriate accommodations and/or to provide directions/instructions.
ii. Speech-to-text capacity if open-ended items are included.
iii. Ability for the online system to provide hard stops for students who need extended testing time, without compromising the security of the test or burdening districts or NDE with manual reactivations.

iv. Font size, contrast, and coloration that is adaptable for students with special needs or age appropriateness.
v. Assessment items with reading passages should use a split screen so as to keep the passage visible while moving through the items.
vi. Acceptable range of screen resolutions.
vii. Need to scroll down or to the right is kept to a minimum.
viii. Capability to mark an item for rechecking before finishing the test.
ix. Notification to students who attempt to exit the test if items are incomplete or marked for rechecking.
x. A visual indication of the items answered.
xi. Capability to reactivate a test, if needed, for incomplete tests.
xii. In the possibility of an interruption in a testing session, the system should minimize loss of student responses.
xiii. Online system that must track students' use of tools and accommodations so research can be conducted into the effectiveness of the use of tools and accommodations provided to students.

Student Testing Interface

DRC INSIGHT provides an engaging experience for students who test online. Our system was designed to be intuitive and easy to use, with built-in universal tools and accommodations that are configurable to meet all students' needs. We would be pleased to have the opportunity to provide an in-person demonstration of our testing interface, along with the rest of our system components, during the proposal evaluation process.

Highlights of the student interface include the following:

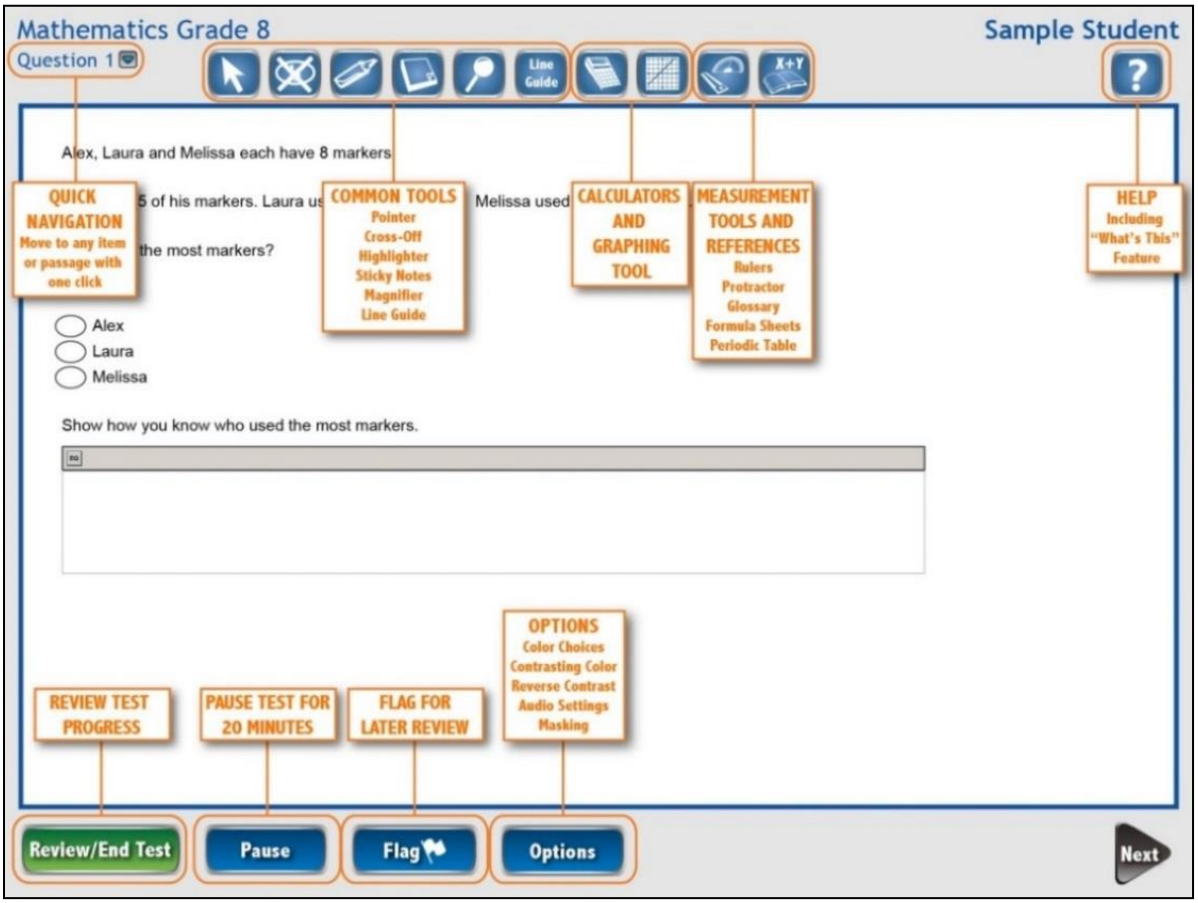
- **Platform-Neutral Technology—**The student interface provides standardized display of content across all supported platforms/testing devices (desktops, laptops, and tablets) and across all supported monitor/screen resolution settings. The system also ensures text and graphics are device-appropriate.
- **Intuitive, Student-Friendly Tools—**An important design feature of the student interface is the capability to mimic the tools and test-taking strategies used on paper-based exams. A set of familiar universal tools is presented with icons for quick comprehension, and can be tailored by test and by individual questions. Testing tools are presented with consistent location and look and feel across all screen layouts, testing devices, and assessments.
- **Easy-to-View Screen Layout—**Only one item at a time is displayed on the screen with all graphics, item text, and answer choices visible for clarity and ease of viewing. The need to scroll down or to the right is kept to a minimum. Passages are presented in a split-screen view, allowing independent vertical scrolling (or page turning) of passage text while keeping the item stem and answer choices visible. This also keeps the passage visible when moving through a set of multiple items related to that passage.

- Two options are available for viewing passages. Pages can either be "turned" similar to how one turns pages in a book or digital reader, or "scrolled" vertically using the scroll wheel. We encourage choosing one option for all passages. This ensures each student receives the same presentation of the material.

- **Effortless Test Navigation—**Straightforward navigation buttons help students move through the test with ease and check their progress as they go. Students can mark answers using a mouse or keyboard. A "Go To Question" feature allows the student to view the current item number, jump from one question to another in non-sequential order (if allowed by the test design), indicates if an item has been flagged, and shows all the passages with titles and their associated items.

- **Flexible Test Delivery—**Tests can be delivered and reviewed in multiple sections over multiple days (including security to prevent students from returning to a previous section, if restricted). Students also have the ability to move from one testing device to another device in a different location and continue testing, using their Test Ticket (secure, unique login) to gain access to the test.

Figure 4–16: User-Friendly Testing Interface



Student and Teacher Feedback

DRC consults with leading education specialists and organizations to ensure our tools are supported by the latest research and best practices. **We also seek feedback from students and educators to truly understand how they use the system to test online.** We care deeply about the student and educator experience during testing, and have sought their feedback and input to shape the design and ongoing development of our system.

To prepare for testing on tablets, DRC conducted iPad usability trials with students in Nebraska, Pennsylvania, Minnesota, and South Carolina. DRC's study facilitators worked with students and teachers at the classroom level to:

- Understand how students respond to testing on an iPad
- Gather feedback from students regarding the functionality of the system
- Explore the "ease of use" of system tools and various item types, from the student's perspective

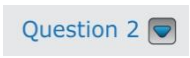
Input and feedback from DRC's usability studies—including observational findings, facilitated classroom feedback, and teacher and student surveys—greatly enhances our ability to provide a smooth and reliable tablet testing experience for students.

Student-Centered Online Testing Tools

Most online testing vendors have come to offer a basic, familiar set of online tools for students to use during testing. **But not all online testing tools are created equal.** What differentiates DRC is our commitment to continually enhance and improve our tools to offer the best possible online testing experience for every student. We consult with leading education specialists and organizations to ensure our tools are supported by the latest research and best practices. Most importantly, we seek feedback from our students to truly understand how they use tools to test online.

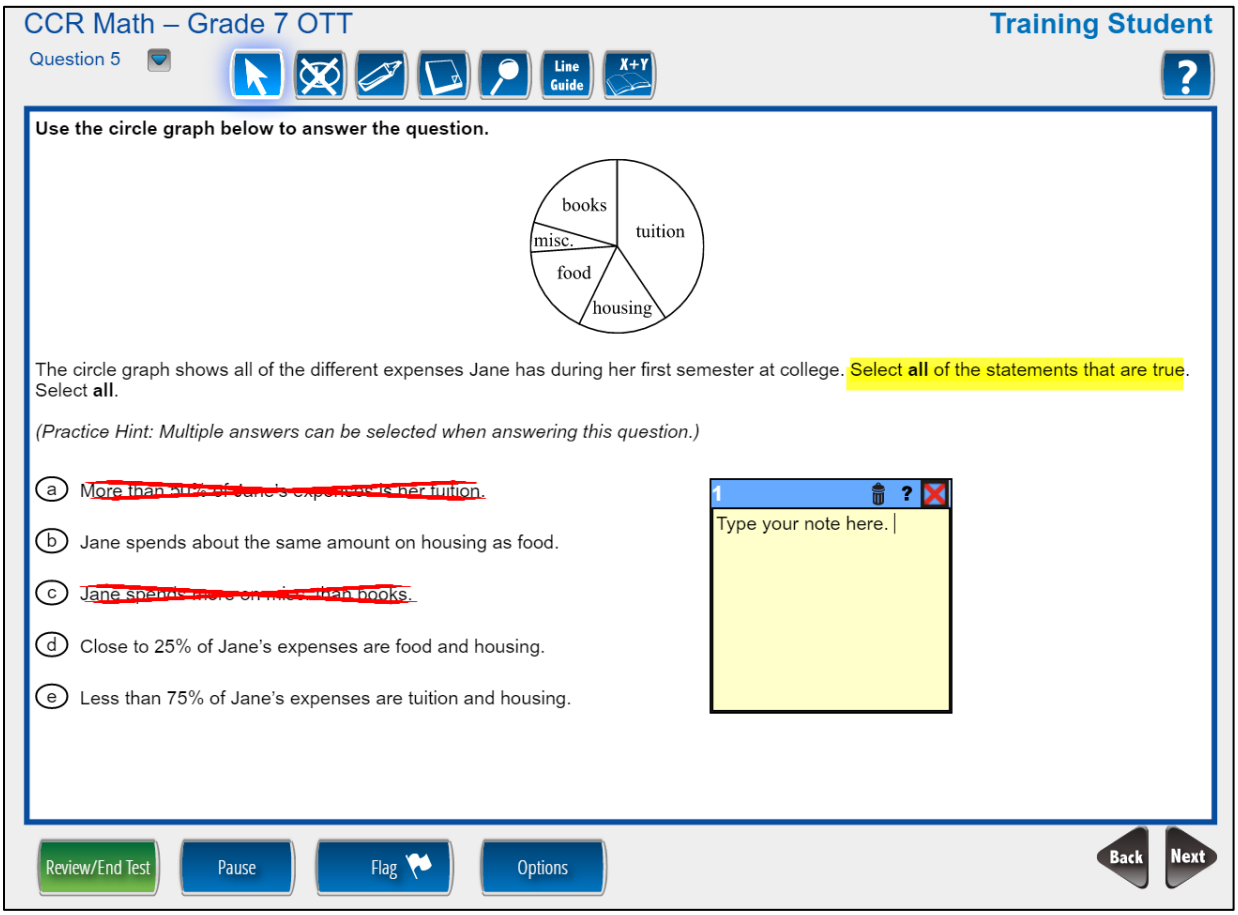
All of the available DRC INSIGHT online testing tools are described in Table 4–1. DRC will work with NDE to determine which tools are needed for the Nebraska assessments based on the item specifications.

Table 4–1: DRC INSIGHT Online Testing Tools

Tool Icon	Description/Function
Navigation Tools	
	**Back and Next**—Navigation tools for moving to the next question or a previous question.
	**Go To Question**—Allows a student to jump to any item or passage set on the test by choosing the item from a drop-down list (unless restrictions are in place that would preclude skipping items, such as computer-adaptive testing or sectioning of the test across multiple sessions/days).
	**Pause**—Pause the test for a short period of time (e.g., restroom break) and resume upon return. Allows the student to leave their machine for a break without logging out of their test, while still providing test security by not showing their items on screen.
	**Flag (Bookmark)**—Mark a question for review at a later point, if allowed by the test design.
	**Test Review**—Allows student to see which items have been answered/unanswered or flagged for review and to return to questions and change answers, if allowed by the test design. Indicates if a test is ready to be scored.
N/A	**Keyboard Navigation**—Move through the test, access tools, and answer questions using the desktop keyboard rather than the mouse.
Common Test-Taking Tools	
	**Pointer**—Select, change, or unselect an answer option; select other user tools; and navigate through the test. When moved over an answer choice, the pointer converts to a pencil image.
	**Strikethrough**—Cross out/eliminate a multiple-choice answer selection(s) (distractors) believed to be incorrect. Includes an eraser to remove the cross off if a student changes his or her mind.
	**Highlighter**—Highlight a portion of text or a graphic and remove highlights. Unlike other systems that only allow the passage or item text to be highlighted, DRC's highlighter can be used virtually anywhere within the item to highlight passage text, item text, answer options, portions of graphics and images, and text within images.
	**Magnifier**—Magnify/enlarge the entire screen, including all text, images, and objects, for better viewing. The tool magnifies the screen by 150% or 200%.
	**Line Guide**—Movable, straightedge line used to follow along with each line of text. Student can drag the guide up or down on the screen as an aid in reading an item or passage.
	**Help**—The Help Library provides information on tool usage, test directions, helpful hints, and other topics. Also includes a "What's This?" feature that allows a student to access contextual help for a specific tool or button.

Tool Icon	Description/Function
N/A	**Tooltips**—Pop-up labels that describe each tool/function within the testing interface. Tooltips appear when the student hovers over a tool with the mouse pointer. For students who use the Text-to-Speech audio accommodation, the tooltip description will be read aloud to the student.
Advanced Test-Taking Tools	
	**Sticky Notes (Scratch Paper)**—Creates and places a note on the screen in which a student can type a short message for later reference. DRC's sticky note is more flexible than other vendors' tools. Multiple notes can be created for each item or passage, and the notes can be moved around the screen, minimized or completely hidden, and re-opened. For a passage or scenario that contains multiple parts (for example, one passage that has several questions associated with it), the student can use the Sticky Note tool to take notes that are retained for all questions associated with that passage or scenario (i.e., a **Global Note**).
	**Calculators**—Basic four-function and scientific calculators are available, either individually or used together. The calculator can be set to appear only when needed on specific item(s) or test sections.
	**Equation Builder**—Allows student to enter and edit symbols not found on the keyboard in order to create an expression or equation. Available in variable configurations, allowing for grade-level, content area, and subject customization.
	**Measurement Tools and Manipulatives**—Includes a Ruler that can be moved to the desired location on the screen and pivoted, and that takes measurements in both inches and centimeters (standard and metric). Also includes a Protractor for measuring angles that can be moved over any object on the screen and rotated.
	**Reference Materials**—Includes a Formula Sheet that provides patterns or rules to aid students in answering a question. Also includes a Periodic Table and a Glossary of Terms.
	**Graphing Tool**—Used to graph one or several functions. Includes zoom and trace features.
	**Customizable Exhibit Window**—DRC's Click-to-Enlarge feature allows for large graphics by using a thumbnail image of the graphic that can be enlarged for viewing. Students can interact with the test item and other tools simultaneously. We also have a Click-to-Respond tool that allows for placing various types of response areas in a snapshot view that a student expands in order to respond to the question. For example, a large graphing item can be placed in an item where it might not normally fit.
	**Writing Tools**—Formatting tools that can be made available to the student include: Undo, Redo, Cut, Copy, Paste, Bold, Italic, Underline, Adjustable Font Size, Justify, and Indent. A **Dictionary**, **Thesaurus**, and **Spellcheck** tool are also available. These tools all draw from the Merriam-Webster student dictionary word bank, ensuring we are aligned across the three writing support tools and utilizing student-appropriate choices.

Figure 4–17: Sample Tools: Highlighter, Strikethrough, and Sticky Note



Online Accommodations

DRC INSIGHT offers numerous online accommodations and universal accessibility tools for students. System accommodations may be turned on and off at the student level, giving access only to those students who require it. They can also be provided to all students for a given test as an accessibility support.

We understand that Nebraska requires audio capabilities (human voice recorded audio), speech-to-text capability, breaks for students during testing, and adaptable font size, contrast, and coloration features; these offerings are described in Table 4–2. Unless otherwise noted, the following accommodations will be provided for the summative assessments only.

Table 4–2: Online Testing Accommodations for the Nebraska Assessments

Accommodation/ Accessibility Feature	Description
Human Voice Audio	DRC's system supports the delivery of Human Voice Audio (HVA) narration for test directions, items, and response options using pre-recorded, human voice audio files. The human voice reader includes audio controls (play, pause, stop, and volume control), and provides multiple starting points for English passages. The audio files automatically play during testing for those students who have an oral administration accommodation. HVA will be provided for Nebraska's summative and secure practice tests. We have also provided an option in our Cost Proposal to provide Spanish HVA. Note: DRC understands that NDE prefers human-voice recorded audio for the new assessments based on information provided in the RFP (rather than computer-voice Text-to-Speech, which is used for the current NeSA program). We support both accommodations within our system, and have included pricing for Text-to-Speech as an option in our Cost Proposal so that NDE can see the cost savings offered by Text-to-Speech.
Speech-to-Text Dictation	DRC is developing support for voice recognition software within our system. We will use the innate ability of the testing device to support speech-to-text, allowing the student to dictate responses via microphone that are transcribed into the testing system through the device's speech-to-text software (for example, iPads have built-in speech-to-text capability), or through integration of an industry-standard third-party software option. While DRC is committed to supporting classroom practices and student use of industry-standard assistive software, we would note that there are limitations with using third-party voice recognition software since DRC is not able to guarantee the accuracy of third-party tools. DRC is in the process of evaluating when speech-to-text dictation will be supported within our system, and will work with NDE to establish a timeline for the new program.
Hard Stops/Breaks during Testing	DRC is pleased to propose a **new solution** for Nebraska students who may need to take multiple breaks during the summative tests. Students with this new accommodation will be prevented from returning to previously answered questions after taking a break and will be required to answer each question before moving forward. This approach will **protect the security of the test** by not allowing the student to go back to previous answers after a break. (Note: because of these limits on navigation, the student would not be able to use Flags or use the Review page.) The student could take as many breaks as they need and go back into the test the same day using the same test ticket without the need for manual reactivation. However, if they need to go back into the test the following day, that will require reactivation of the test ticket by an administrator within the portal.

Accommodation/ Accessibility Feature	Description
Spanish Translations	DRC's system supports the delivery of translated test content in Spanish, including test directions and test items. Spanish translations will be provided for Nebraska's summative and secure practice tests.
Online Large-Print	DRC has developed a fully scalable large-print solution for students who test on larger monitors. Using vector-oriented image formats ("vector graphics"), DRC's solution enlarges the screen display to maximize the area available on the larger monitor, while maintaining the correct aspect ratio for all test content. This means that all text, tools, and images are resized to scale, without any distortions or fuzzy, pixelated images resulting from the increase in size. In addition, because the system scales in relation to the available area, the student does not have to scroll around the screen to see the entire item/response area. Online Large Print is available for all Nebraska assessments. In addition, DRC is currently testing our system for compatibility with some commonly used third-party assistive magnification software, including MAGic and ZoomText. In our research, we've learned that these are the most commonly used vision-enhancing software tools in our clients' classrooms. Once these are certified as compatible with our system, they could be used for the Nebraska program.
Contrasting Colors and Reverse Contrast	DRC's system provides several color combinations based on recommendations from the National Center on Education Outcomes (NCEO) and consultation with the American Printing House for the Blind (APH). The objective is to provide color choices that are appropriate for all users, based on the needs they have. Specifically, DRC has followed the advice of both NCEO and APH to use color combinations that are in opposite positions on the color wheel. This includes an option for Reverse Contrast. These features can be enabled on the summative, practice, and secure interim assessments.
Color Overlays	DRC's system provides color overlays that change the background color behind text, graphics, and response areas based on student needs. This tool also follows recommendations from NCEO and APH as noted above. Color overlays can be enabled on the summative, practice, and secure interim assessments.
Masking	Allows the student to cover up (mask) the content on the screen using an adjustable, solid black overlay. This enables the student to block out content that may be distracting so they can focus their attention on a specific part of the item. The student can easily add, resize, move, and delete multiple masks as needed to customize the masked area(s). Masking can be enabled on the summative, practice, and secure interim assessments.

Examples of some of these accommodations are shown below (Figures 4–18 through 4–21).

Figure 4–18: Sample Item with Contrasting Colors. *A variety of font and background color combinations are available for the student to choose from.*

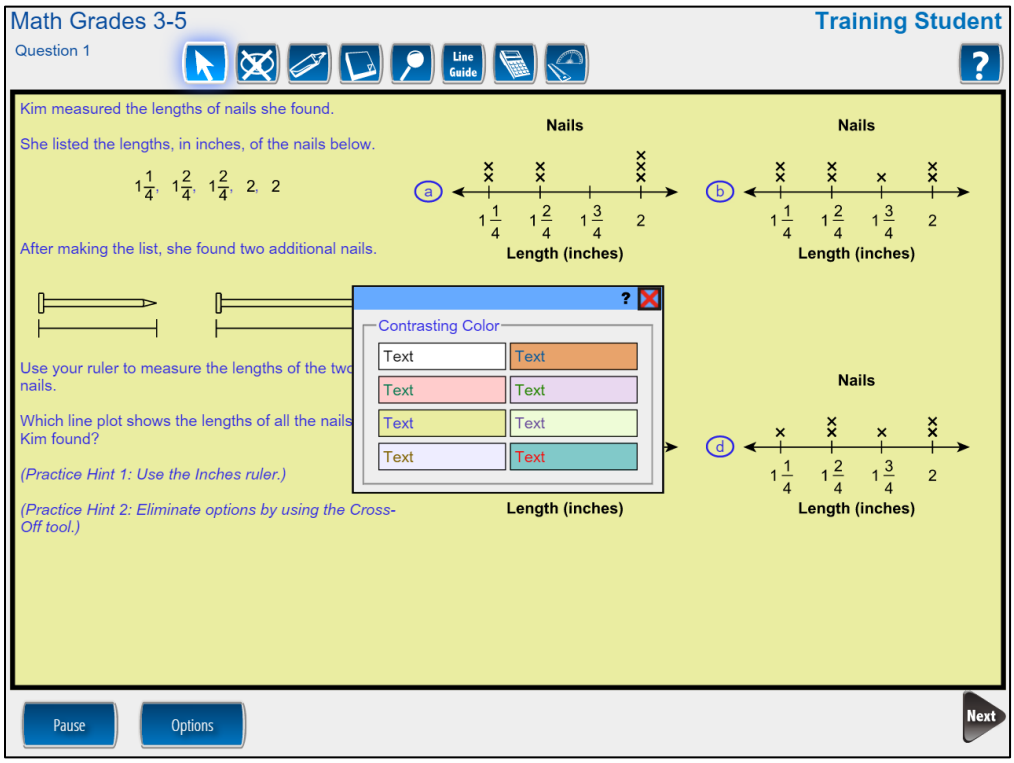


Figure 4–19: Sample Item with Color Overlays. *Six different color choices are available for the student to choose from.*

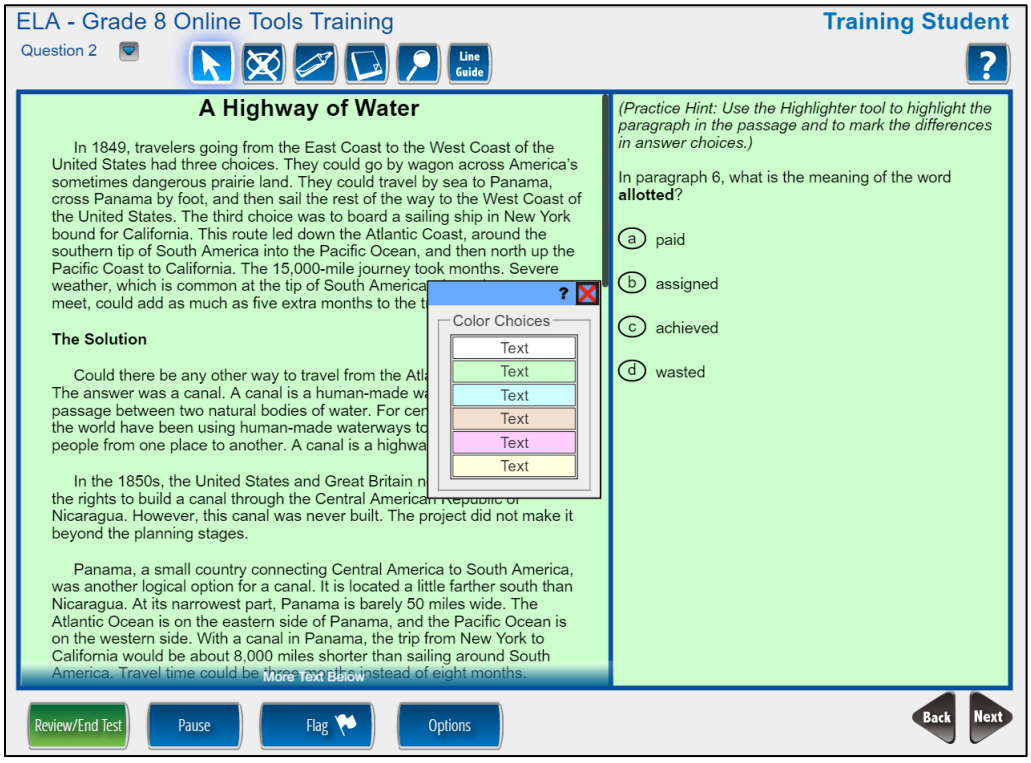
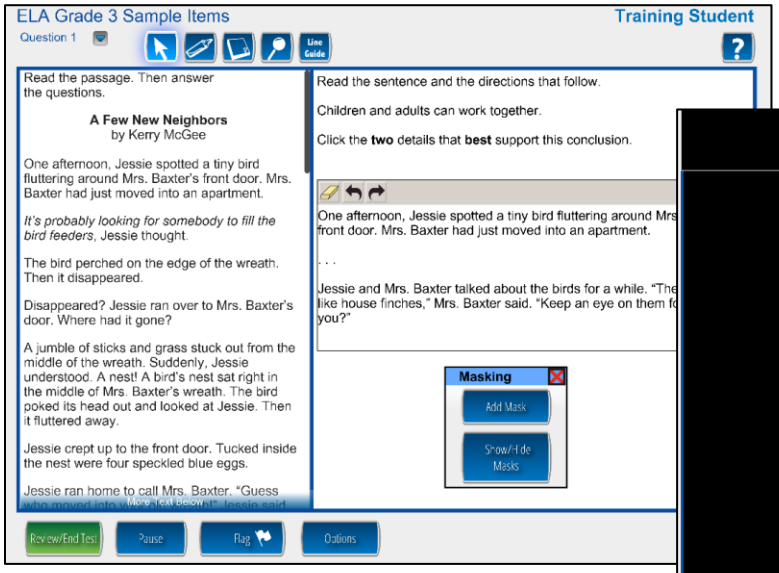
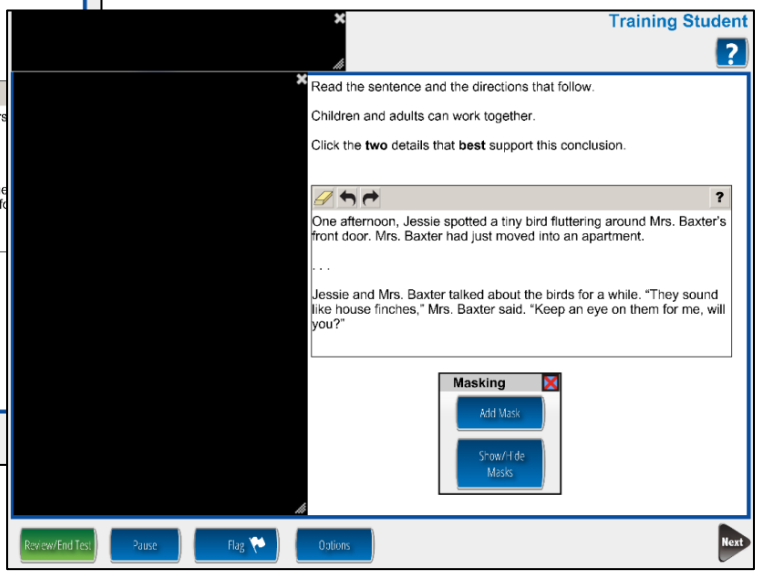


Figure 4–20: Sample Item with Masking. *The student can place masks over any portion of the screen. Multiple masks may be used simultaneously to customize the viewing area, and a toggle option allows the student to quickly "show all masks" or "hide all masks." In the example below, two masks have been used—one placed over the tool bar and another over the passage.*

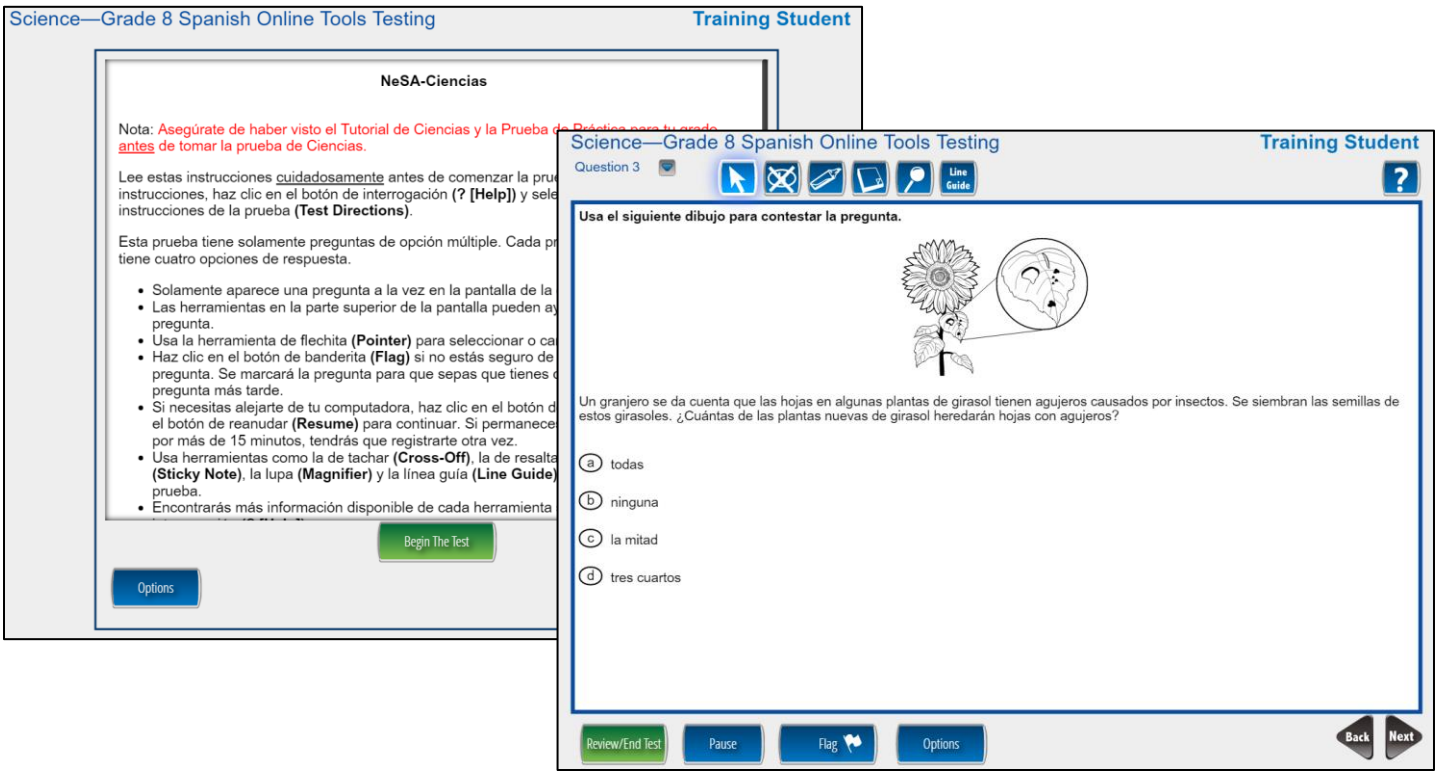


Original Item



Item with Masks Applied

Figure 4–21: Sample Spanish Translation



In addition to the accommodations described above, DRC supports a number of other accommodations within our system, such as Video Sign Language and Voice Capture Response. We would be happy to discuss these with NDE upon request.

Tracking Students' Use of Tools and Accommodations

DRC's system tracks students' use of tools and accommodations and we can report this information to NDE. The system tracks whether or not a student used a given tool or accommodation during a test. We will include this usage data in the state student data file delivered to NDE.

Test Directions and Test Review

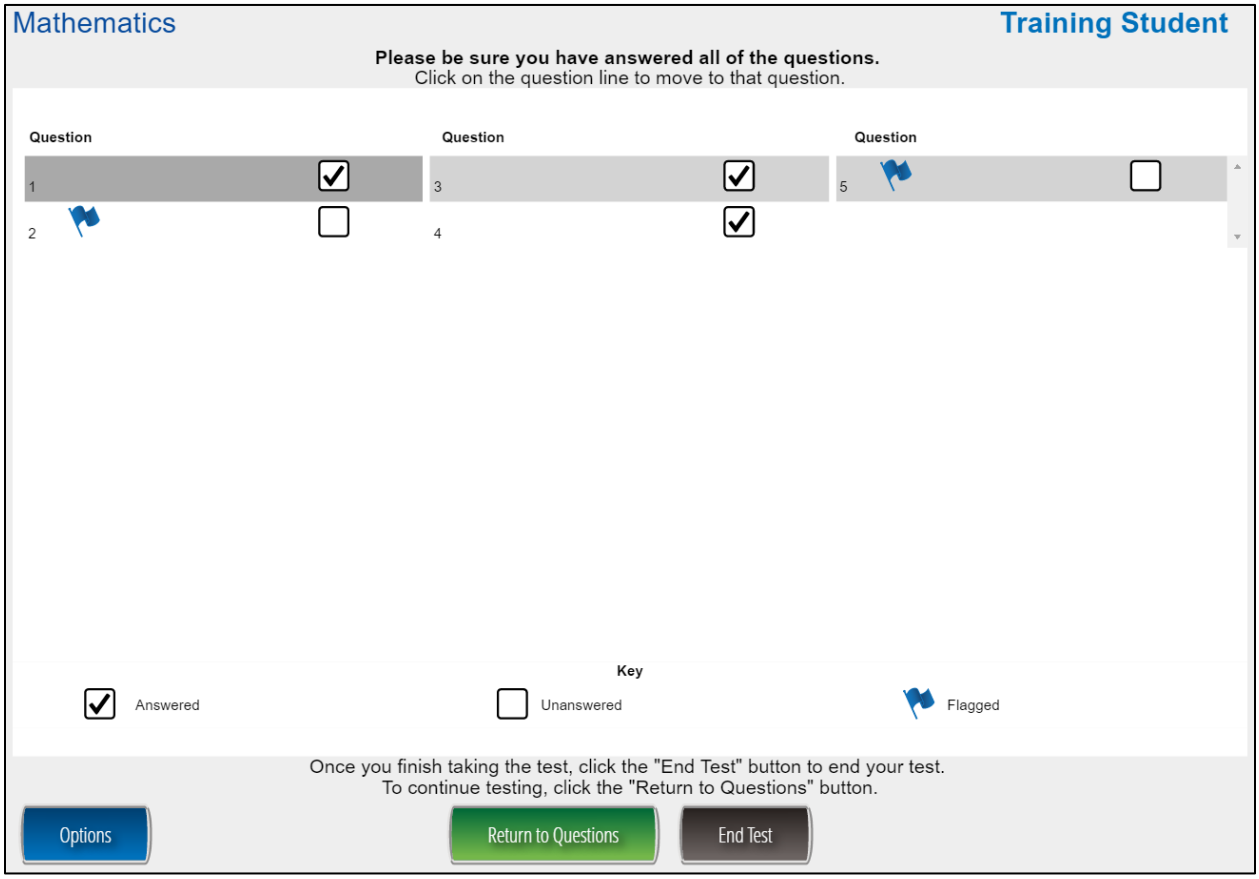
Easy-to-follow instructions are provided at the beginning of the test to guide students on how to use the online tools and how to navigate and submit the test. Test directions are customized to each particular assessment, and the student can return to them at any point during the test.

Based on the test design, students may be allowed to review items and change their answers. The system can be configured to allow students to review answers for specific sections, for sets of questions, or for entire tests, before moving on to the next section or submitting their test.

If permitted by the test design, the test review screen allows students to easily see which questions have been answered or not answered, and which questions they previously flagged

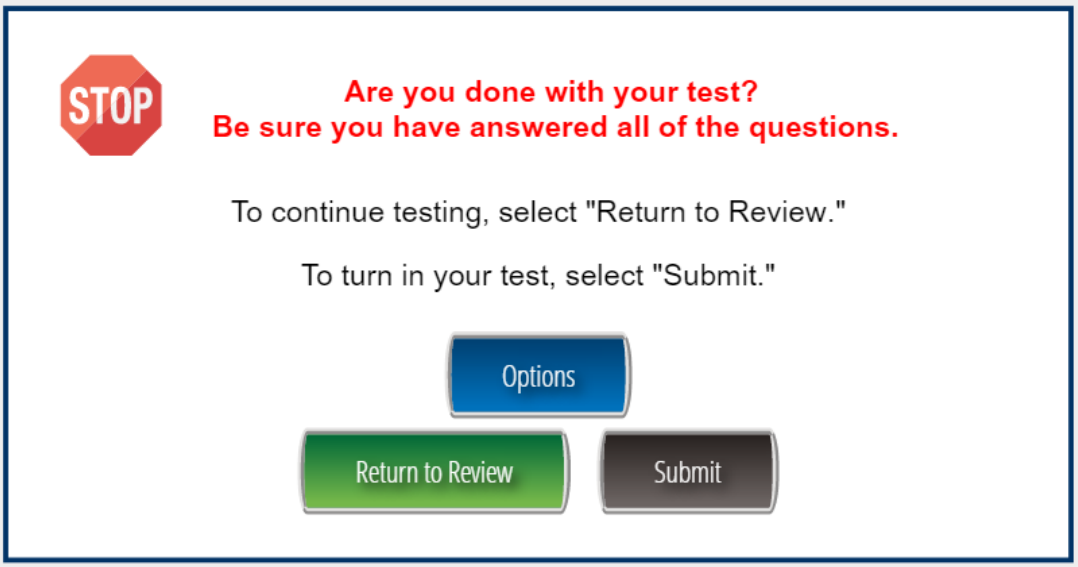
for review. The student can quickly return to any item to review their answers by clicking on the item from this screen.

Figure 4–22: Review Answers and Submit the Test



The system can also be configured to warn the student if they try to exit the test but still have unanswered questions. This ensures that the student doesn't intentionally or accidentally end their test without first confirming that's what they want to do.

Figure 4–23: Confirm Test Submission



If a student exits a test before completing all of the items, the test is considered incomplete. The student may re-enter the test the same day using the same test ticket to finish the assessment. If the student needs to continue testing the following day, then an authorized test administrator must reactivate the test through the administrative portal.

Complete Protection of Student Responses

During testing, if the test is interrupted for any reason (such as an Internet outage, a device crash/reboot, a student pausing a test, a session timeout due to inactivity, or any other reason), the student's responses are protected. Responses are saved automatically every 45 seconds during testing, or when the student navigates away from an item or answers a selected-response item (whichever comes first). If a particular question takes the student longer than 45 seconds to answer, then the partial, incomplete responses are submitted at 45-second intervals until the student completes the item. This auto-save feature helps safeguard against students losing their work on longer items, such as constructed-response items. When the student returns to the test after a break or interruption, the student is returned to the point that they left off without having to navigate through all previously answered questions.

d. Online Student Training

The proposal should include a solution in each subject area to allow students to learn how to navigate the online assessment system and utilize accommodations and tools.

To aid students and teachers in preparing for the Nebraska assessments, DRC will continue to provide student tutorials, online tools training (OTTs), secure practice tests, and non-secure guided practice tests. Practice tests, OTTs, and tutorials will reflect the content, item types, and formats of the Nebraska assessments.

Student Tutorials

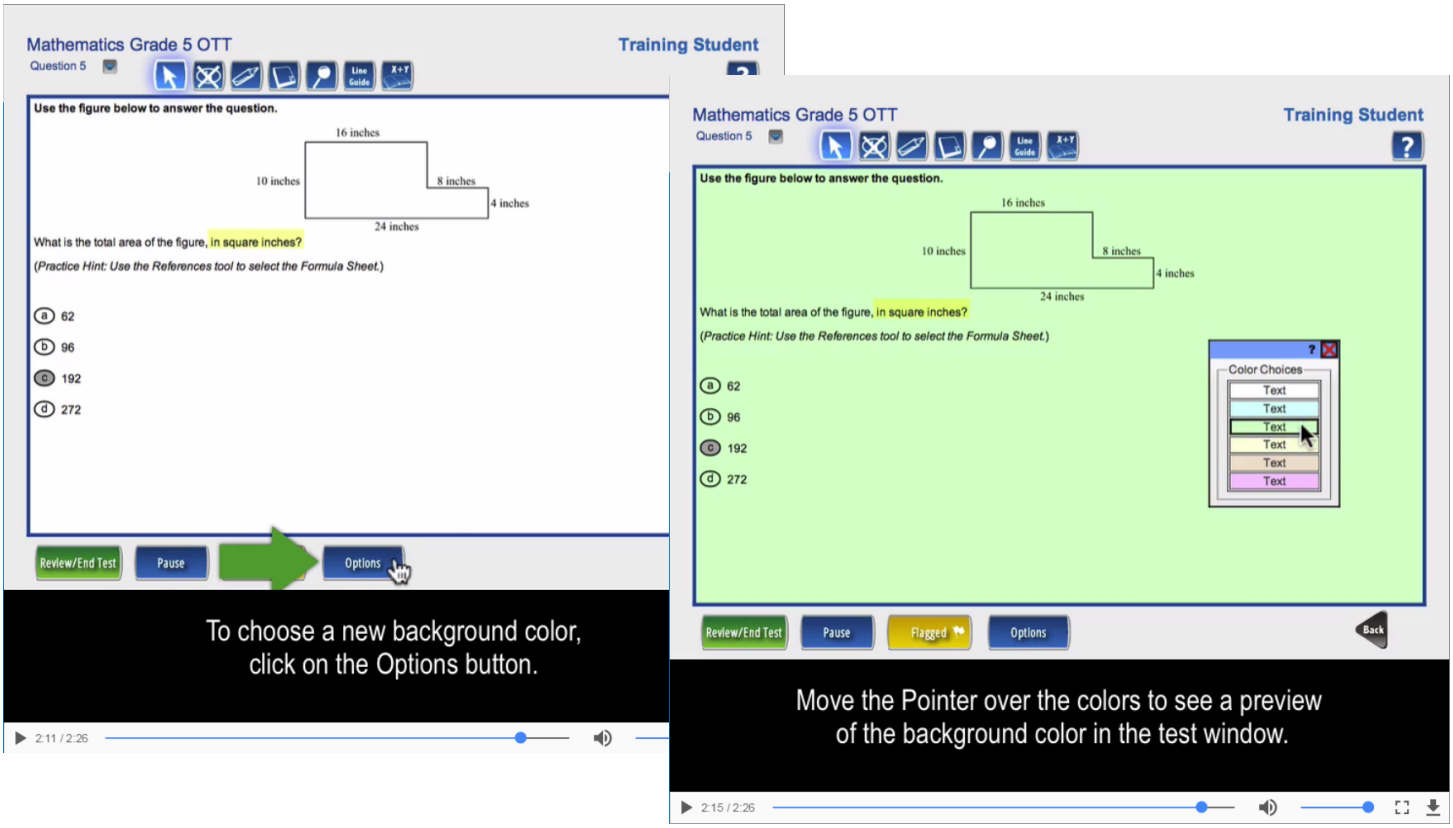
The student tutorial is a scripted, web-based video that introduces the online testing system. The tutorials use age-appropriate sample test items, animation, and audio to describe the testing tools and other features of the system. Tutorials are available for review by administrators, teachers, students, and parents. Students may be allowed to repeat the tutorial as often as desired and needed.

The tutorials operate on industry-standard web browsers such as Internet Explorer, Mozilla Firefox, and Apple Safari. DRC also includes a link to the student tutorial on the main page of the DRC INSIGHT test engine for convenient access via the secure browser. Tutorials can be viewed in sections, making it easy for students to focus on specific topics and easily navigate between them.

Teachers are encouraged to use the tutorial together with the practice tests and OTTs as part of instruction so that when online testing begins, students are familiar with using the testing tools correctly when responding to test questions.

Figure 4–24 is an example from the current Nebraska tutorials.

Figure 4–24: Nebraska Student Tutorial. *Narration within the tutorial includes both spoken audio and print captioning, allowing the student to read along with the audio.*

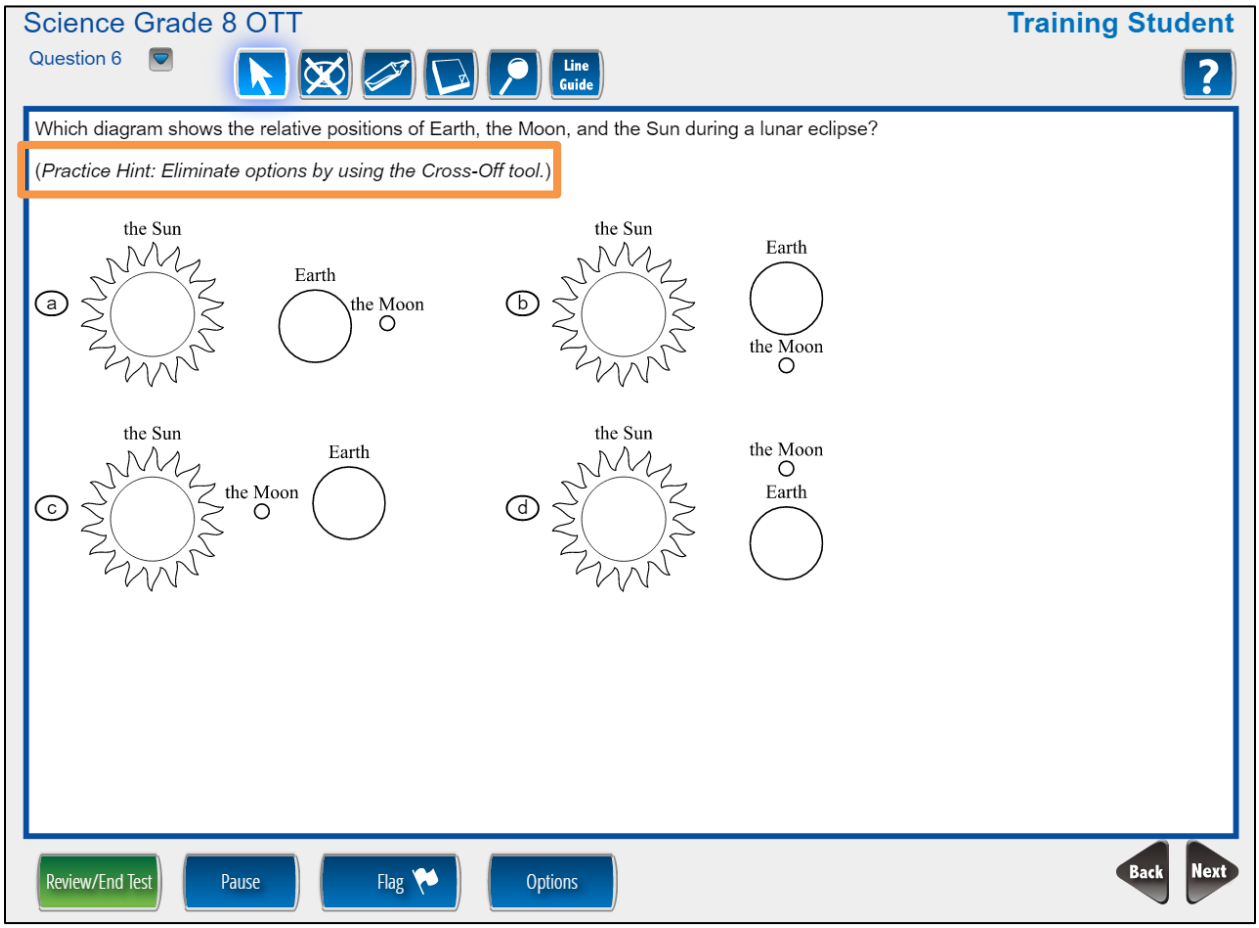


Online Tools Training

DRC's Online Tools Training (OTT) is a practice and training environment that provides an introductory experience to using the online testing system in preparation for taking an operational test. OTTs are provided for each grade and subject.

The OTT allows students to try out system features and tools, practice navigating through the test, and become familiar with the look and feel of the system, either in the classroom or from home. Detailed instructions are provided to guide students on how to use the online tools and how to navigate the test. In addition, on-screen training hints are provided to direct students to practice using specific tools and features of the online test. (Note: These hints do not appear in a live test administration.)

Figure 4–25: Sample Nebraska OTT Item with Practice Hint



Practice Tests

In addition to the student tutorial and Online Tools Training, DRC will continue to provide Practice Tests and Guided Practice Tests for the Nebraska assessments. Please see *Subheading B.1.p.* for more information.

e. Test Management System

The proposal should include description of the test management system and include the following criteria:
i. Speed—the system should retrieve information quickly
ii. Facile student look-up
iii. Efficient filtering to retrieve data or to locate information
iv. Easy method of determining who has tested and who has not
v. Intuitive operation
vi. Easy method of entering and deleting students from the system in batches and/or individually
vii. Real-time reports of technology issues so districts can react quickly with methods of notifying school district personnel.
viii. NDE is interested in a system that allows state or district users to login as another user for support purposes.

DRC INSIGHT Portal

DRC recognizes that school, district, and state personnel are required to navigate a complex array of resources, online systems, and data to effectively administer an assessment program. The DRC INSIGHT portal (known as eDIRECT under the current NeSA program) is a secure, web-based system that **seamlessly integrates** the tools and resources needed by administrators, test coordinators, and school personnel to assess student performance, monitor growth, and inform instruction. The portal streamlines access through a single secure login for each user, and access is tiered according to the user's role and assigned permissions.

DRC's integrated approach to assessment management will allow authorized users to access all Nebraska assessments (summative, interim, practice, and C4L) through a single portal, providing ultimate convenience, ease of access, and a consistent "look and feel" to users.

Single Sign-on System

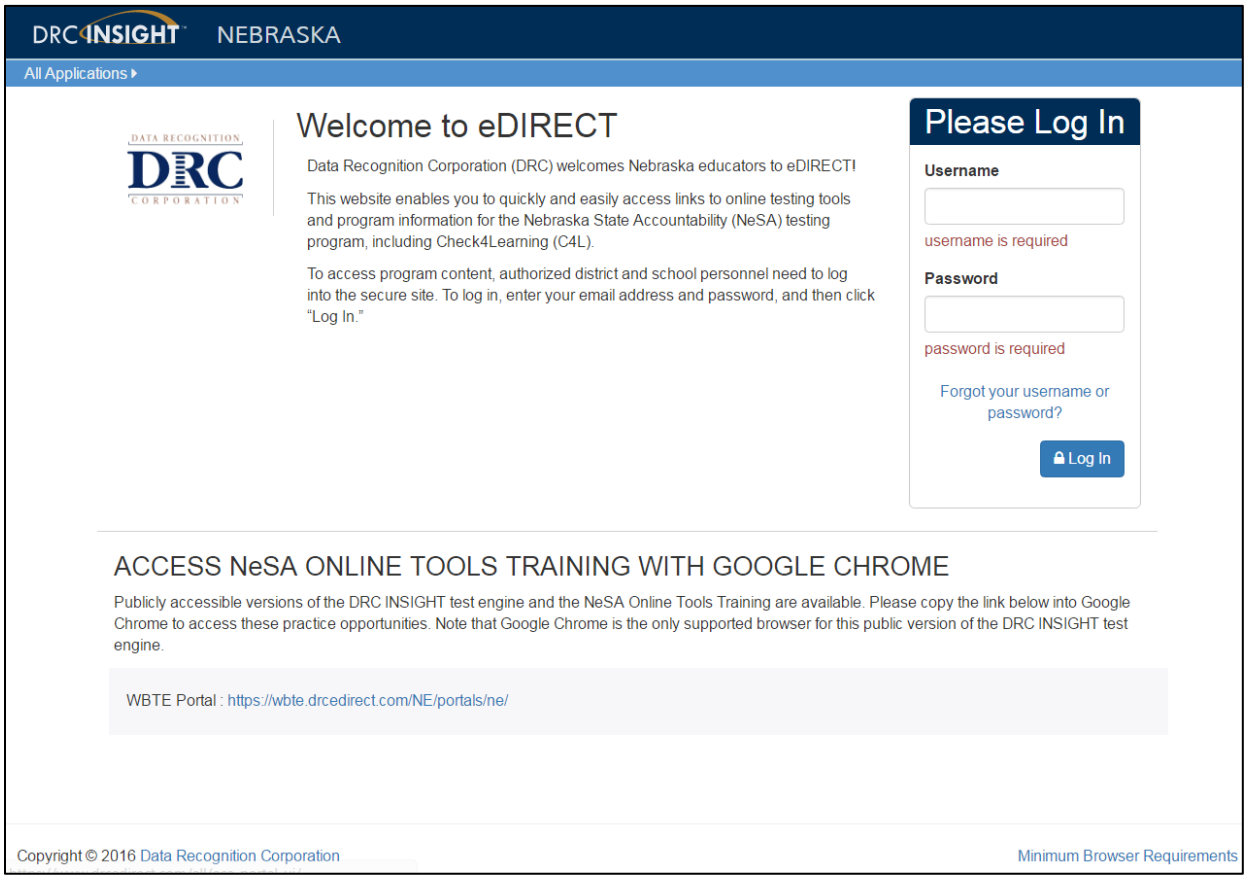
By logging in with a single user ID through the password-protected DRC INSIGHT portal, authorized individuals may access general assessment information, key contacts at DRC and NDE, and all tools and resources designated for their assessments. Users will access the site using a single user ID and password; users will not be required to memorize multiple passwords or log out and log back in to access different areas. Our goal is to make access to information as easy as possible without users having to go to multiple locations to find what they need.

Users with administrative rights select what role a sub-user has and assign permissions to that individual. Authorized state or district users to can easily see what permissions are assigned to users under them, and can use this information for support purposes.

The portal can be accessed on all of the browsers identified in the RFP, including Safari, Google Chrome, Firefox, and Internet Explorer.

A sample of the current Nebraska portal home page is shown in Figure 4–26.

Figure 4–26: Nebraska Portal Home Page



As part of the home page, DRC can post materials and links to sites that can be accessed by the general public, as well as school users who may not be authorized to log on. Public access materials can include assessment brochures, online testing tutorials, and other materials as determined by NDE.

Recent Portal Enhancements

Based on feedback from our state clients, DRC recently introduced a redesigned version of our portal that provides numerous improvements for the 2016–17 school year and beyond:

- An updated, easy-to-navigate interface that can be used on tablets and mobile devices
- Better overall performance with faster response times and information retrieval times
- Improved, intuitive tools for student and test management
- Centralized administration of testing devices and caching services for technology administrators to do what they need to do from one central location

Nebraska educators will benefit from this updated version of our portal for this year's testing, as well as for future years under the new contract, if awarded to DRC.

Importing Student Data

DRC supports multiple data collection methods for obtaining student information. We can receive a large student data file from NDE, we can receive multiple district files, or districts and schools can upload their own files through the DRC INSIGHT portal. With any of these options, the student information is easily loaded into our database and displayed within the portal. Students can also be directly entered into the portal by hand, either individually or in a batch upload where multiple students are uploaded at once.

Searching and Viewing Student Information

Once loaded into the system via data file or hand entry, student demographic information can be accessed through the Manage Students tool within the portal. We will work with NDE to decide what information will be required and what information should be optional in the data fields.

Figure 4–27 shows an example of the Manage Students tool within the portal. The top portion shows the search filters, which allow users to quickly and easily find the student records they are seeking. The available search filters are also customizable based on Nebraska's program. In this example, the user has searched for a listing of all student records associated with a particular district and school.

Figure 4–27: Manage Students Tool

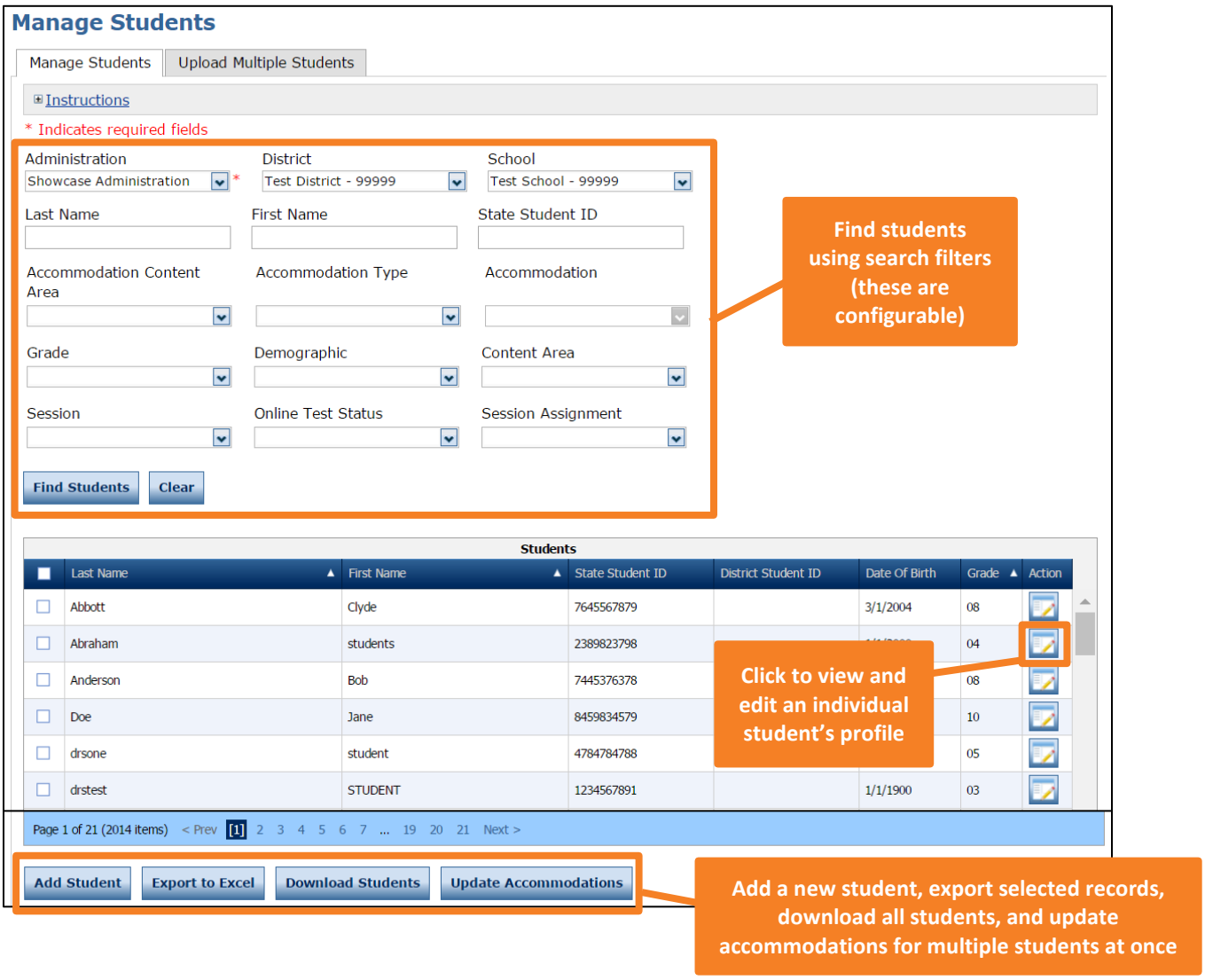
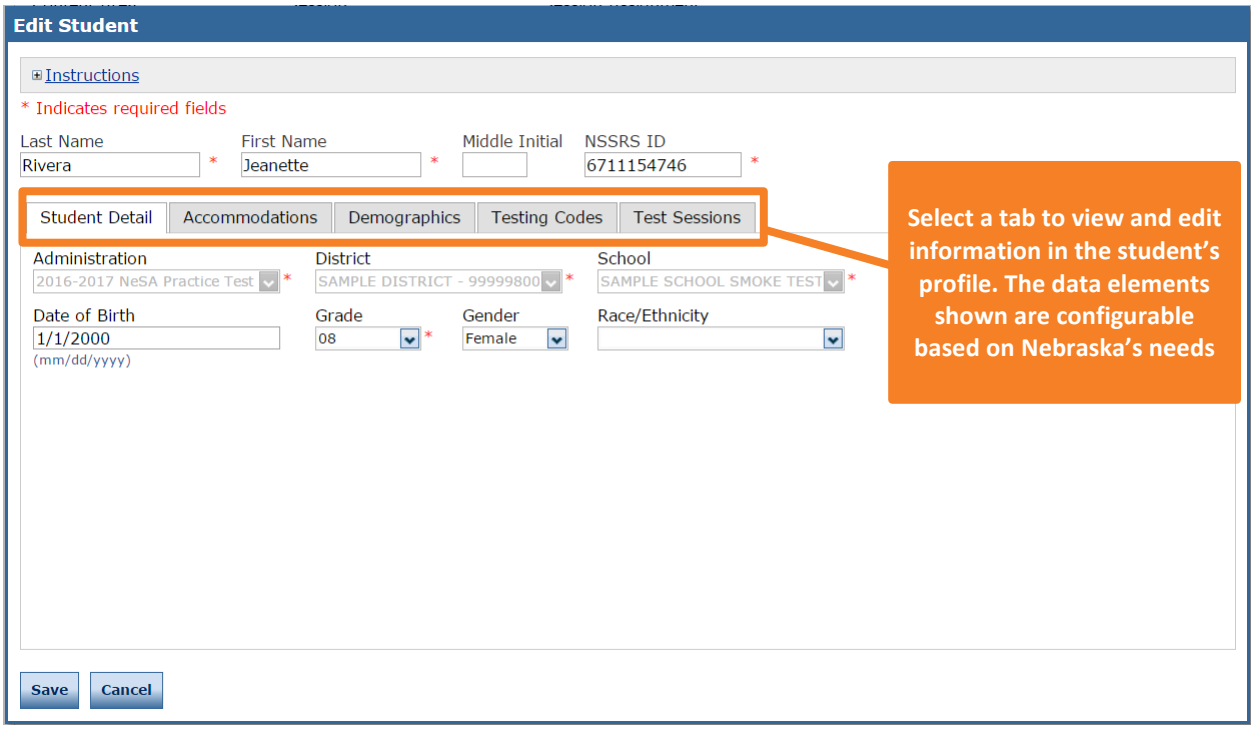


Figure 4–28 shows an individual student's profile. A user with the appropriate permissions can make edits to the student's information. The tabs in the middle of the screen (Student Detail, Accommodations, Demographics, etc.) allow the user to view the different elements in the student's profile. The information and data fields included in the profile are configurable based on NDE's requirements.

Figure 4–28: Individual Student Profile

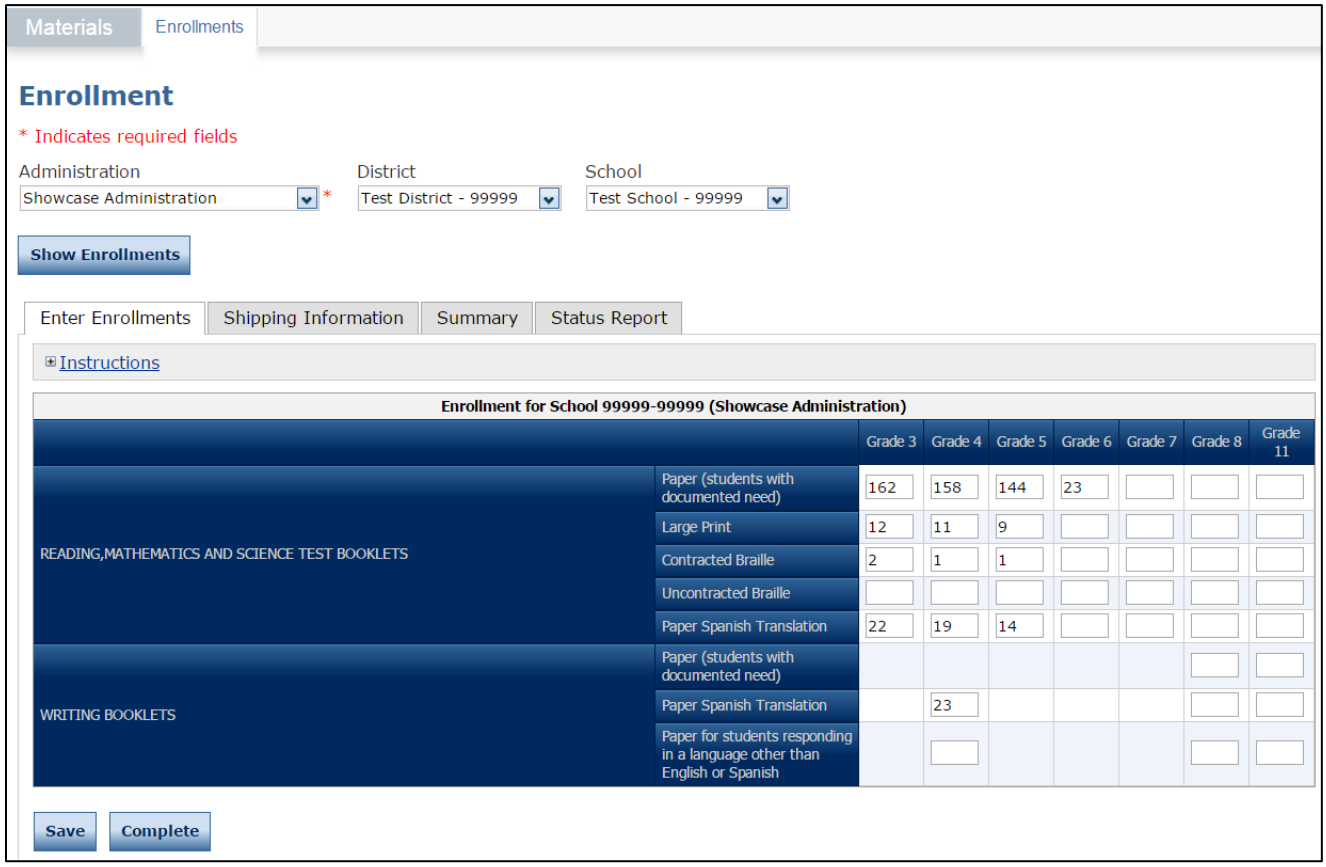


Based on NDE's preferences, in subsequent contract years, DRC can carry forward the collected student information so that the next administration is pre-populated with information that is relative to the previous year's needs.

Enrollment for Paper-based Tests and Accommodations

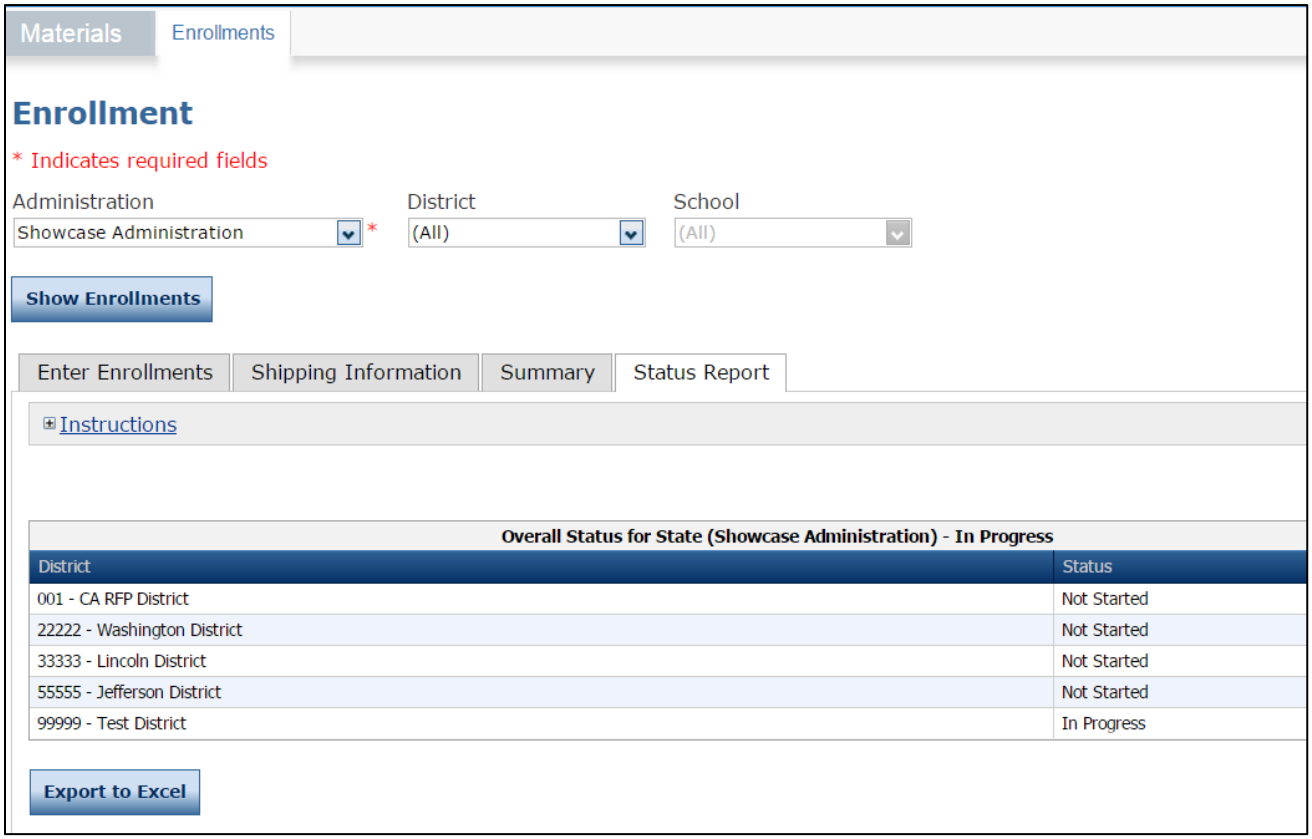
Enrollment for paper-based tests and accommodations can be collected as part of the initial electronic student file upload(s). It can also be manually entered through the Enrollments tool within the DRC INSIGHT portal. Figure 4–29 shows an example of the Enrollment tool in the portal. The fields shown will be configured to Nebraska's specific needs for paper materials.

Figure 4–29: Enrollment Tool



The Enrollment tool includes summary and status reports that show the user (depending on their permissions), the status of schools and districts, and where they are in the process of completing their enrollment information. Figure 4–30 shows an example of an Enrollment Status Report for all districts within an administration.

Figure 4–30: Enrollment Status Report

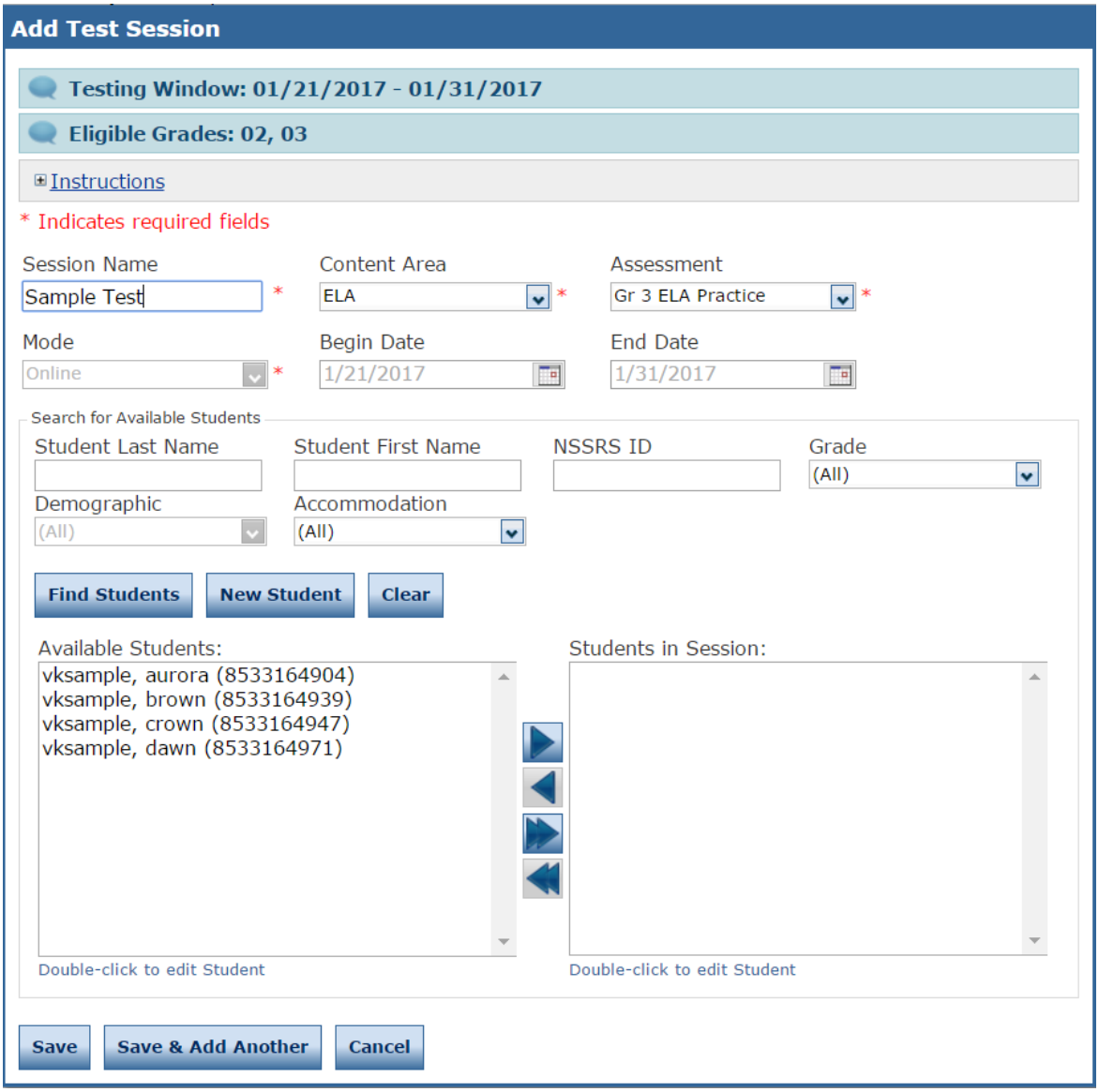


Enrollment for Online Tests and Accommodations

Students can be enrolled in online tests as part of the initial student file upload(s). They can also be manually added or removed from an online test session through the Test Sessions tool within the DRC INSIGHT portal.

Figure 4–31 shows an example of the Add Test Session screen within the portal. Test sessions are created by content area and assessment/grade, and then students are assigned to test sessions. Users can edit test sessions to add or remove students as needed.

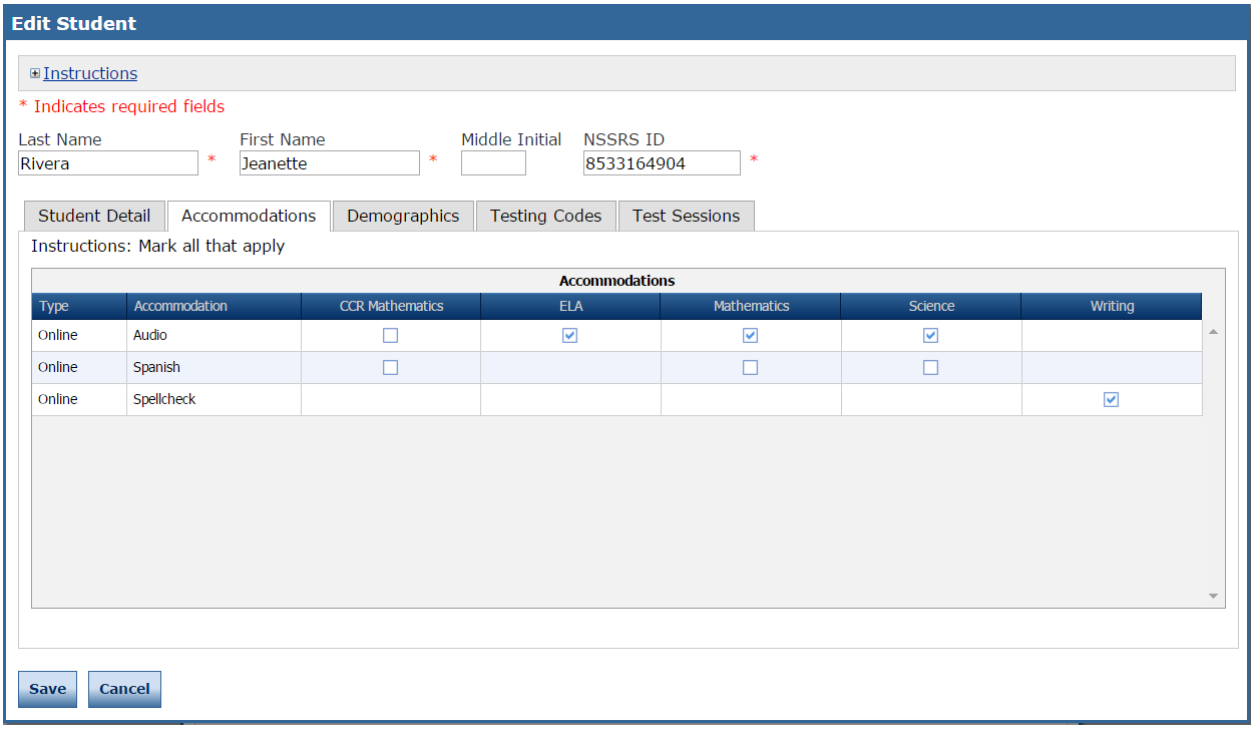
Figure 4–31: Create a Test Session



NDE will have the option of providing online test session information as part of the initial file upload(s) or creating the test sessions manually within the DRC INSIGHT portal.

Accommodations for online testing are assigned through the individual student's profile. Again, this information can be collected as part of the initial data file upload(s) or it can be entered/edited manually within the portal. Figure 4–32 shows an example of the Student Accommodations screen.

Figure 4–32: Assign Student Accommodations



The accommodations listed will be configured based on the needs of the Nebraska assessments. For a particular student, this can be updated right up until the student takes his or her online test. Once updated, the student is immediately delivered the appropriate test with the appropriate accommodations.

Student Testing Status

The portal provides numerous tools for educators to easily determine who has tested and who has not. Please see *Subheading D.1.k.* for more information.

Real-Time Reports

DRC provides real-time reports of technology issues affecting our systems through the Nebraska System Status website (see *System Status Updates* under *Subheading A.5.b.*). The System Status site enables districts to react quickly to notify school personnel if needed.

f. District Access to Assessment Information

i. The system must have a secure access web-based system for district administrators and District Assessment Contacts (DAC) to verify information such as enrollment by grade/school, and to collect or confirm information provided by the state such as contact information of district personnel and grade configurations.

ii. The system should have appropriate levels for viewing and changing information and must have appropriate security.

The DRC INSIGHT portal accommodates tiered access for all state staff involved in the administration of Nebraska's assessments, including assessment coordinators, technology coordinators, teachers/test administrators, NDE personnel, and any other personnel needing access to the system.

A robust user management tool allows administrators to add and edit users and assign user roles and permissions for each administration. Typically, district-level users are granted access to all student, teacher, and class information associated with their district, and can determine how this information will be managed. User accounts have already been established for many district and school users in Nebraska. The flexibility of the portal's tiered access approach means that it can be customized to the unique needs of NDE, including summative and interim assessments.

iii. Changes made to information in the system should have a success pop-up notice and/or confirmation notices sent to the responsible party in the school/district and NDE.

A confirmation is provided on-screen when changes are successfully made within the portal.

iv. The system must be accessible by the appropriate NDE staff. The proposal must describe how these requirements can be met.

Please see the response to *Subheading i*, above.

v. The interim system also requires a secure access web-based system which may be separate from the summative system because the interim system will be accessed by classroom teachers as well as administrators.

As noted previously, all of Nebraska's assessments will be securely accessed through our single sign-on portal, including summative, interim, practice, and C4L assessments.

g. Data

All assessments, including the interim system, must use the NDE Student ID as the link for demographic data in the Nebraska Student and Staff Record System (NSSRS) and assessment results. The NSSRS is the current official source of all student and staff information for the NDE and maintains the longitudinal data on all students and all assessments. NDE will provide a complete set of demographic data for each student at the point-of-time of assessment. The proposal should describe the process and security measures used for data transfer to and from NSSRS. The proposal should describe a process that can be used to link online assessments to the appropriate student information via the NDE Student ID. The NSSRS is scheduled for deprecation at the end of the 2017-18 year and will be replaced by the Ed Fi® based ADVISER data system.

DRC has established a network protocol that provides file transfer, access, and management capabilities over a secure data stream. Using the Secure File Transfer Protocol (SFTP), any exchange of student data or secure assessment content is handled over password-protected SFTP sites. DRC provides separate login credentials for DRC users and NDE users to access the site and will inactivate or change those credentials at any time per NDE's request.

DRC has securely exchanged student information with NDE since 2009. All transfers of data from the Nebraska Student and Staff Record System (NSSRS) start by establishing the data fields relevant to each assessment to be administered and then defining the valid formats for presenting each data element. Data file requirements are clearly documented, and file transfers are scheduled at points throughout the administration year to assure that data presented to districts in systems such as the DRC INSIGHT portal or on materials such as PreID Labels is accurate and current.

While every effort is made to present the most current information available at the point-in-time of testing, provisions must be made to verify and change data after student data is initially loaded. DRC accomplishes this for Nebraska by presenting the NSSRS data in the Student Management application in the DRC INSIGHT portal. Authorized users can view and, if necessary, edit student information in real time via the Student Management application.

The student data housed in the DRC INSIGHT portal is partitioned by administration. DRC proposes maintaining separate administrations for Nebraska's summative assessment, for the practice tests associated with the summative assessment, and for the Interim System following the configuration used for 2016-2017 NeSA testing and C4L. This configuration facilitates flexibility for the year-round use of the practice tests and Interim System, as well as optimal control of the data for the summative assessment.

DRC has initially provided DRC INSIGHT portal access to District Assessment Contacts, who in turn have administration capabilities to issue accounts to other personnel in the district or individual schools in their districts. District Assessment Contacts have full control to share the same level of access they have with other users, or to limit access to specific applications and

levels of data in the portal. DRC can discuss any changes to NDE's desired levels of access to the DRC INSIGHT portal upon award.

DRC has also established procedures for supplying student information for students who take assessments on paper. In cases when the students to be tested on paper are identified in data files in advance, DRC can produce student-specific PreID Labels that link to data NDE provided in NSSRS files. If the district or school identifies any information on a PreID Label that must be corrected, they are directed to provide student demographic information on the answer document and use a District/School Label to form a direct link between the data on the answer document and site where the student is tested.

Note that DRC is proposing to have test administrators enter student responses to the Alternate Assessment in the DRC INSIGHT web-based test engine instead of using an answer document. This change from current practice would eliminate the use of PreID Labels. It would facilitate clearer management and control of student data for students taking the Alternate Assessment via the Student Management application, and would also make it possible to provide their test scores the same day that the administrator enters the scores.

NDE begins with the expectation that every student in the NSSRS will have either a test result or one of the established reasons for not testing. NDE also expects a full accounting of any student who is new to a school during the testing window. Student mobility and other changes that can occur in students' status during the testing window necessitate a reconciliation of NSSRS data and data provided in the Student management application or on answer documents at the time of testing to assure results are reported to districts and schools accurately.

DRC and NDE have worked together to develop post-testing checks on student data that identify records that could result in reporting discrepancies, and to correct those records prior to issuing reports. Variances are identified by comparing final, submitted data to the initial NSSRS data provided by NDE. NDE then has the ability to bring the reporting data and NSSRS data into sync.

DRC shares NDE's commitment to fully accurate reporting of student-level results and secure handling of student information. In our proposal we have accounted for the same data transfer procedures that have provided for successful test administration and reporting of Nebraska statewide assessments since 2009. We have assumed that student data will be exchanged in much the same manner when NSSRS is replaced by the Ed Fi® based ADVISER data system in 2017–2018, but welcome the opportunity to discuss changes to the process that may prove advantageous in reducing the amount of time needed for data reconciliation and/or improve the data accuracy at the time of testing and reporting.

h. Software Updates/Maintenance

Any software updates and maintenance to the assessment software system should be kept to a minimum, preferably once a year, to ease the burden on districts. If possible, annual updates should occur in the summer before the school year starts. Software updates should always allow ample time for district technology staff to complete the work prior to the testing window and include time to verify the system is prepared for testing.

Updates that are unavoidable, should be able to occur automatically and without the necessity of an uninstall/reinstall process. NDE and Districts should receive as much advanced notice as possible for any software updates and the processes involved.

DRC has one major release each year in the summer that contains the software components that need to be installed at testing sites for the coming school year (i.e., the secure testing browser and caching software). While we don't plan additional releases, we do have the ability to send out updates or hot-fixes behind the scenes if needed after the initial summer release.

Testing sites have the option to set up automatic updates when they initially install our software. In that case, if we do need to send out an update, the sites receive it automatically and they do not need to do anything to install the update.

Should there be any system updates or hardware, software, or network changes at the school or district level that require occasional system downtime to implement, DRC will work with NDE well in advance to schedule the updates/maintenance for a time that will minimize disruption to the testing schedule.

i. Link to Online Video

The proposal is to include a link to an online video that demonstrates the test engine and test management system. If the video contains proprietary information, the start of the video should indicate so.

A demonstration video of the DRC INSIGHT Online Learning System is provided at the following website: https://vimeo.com/201068487

The password to access the video is: DRC

Reviewers may also access the current DRC INSIGHT Online Assessments Tutorials for Nebraska at the following link:

https://assets.drcedirect.com/States/NE/Tutorials/Student/201301-html5/index.html

DRC would welcome the opportunity to demonstrate our system to NDE in person during any interviews or presentations requested as part of the proposal process.

6. Accessibility and Design

a. NDE is committed to the use of technology to facilitate the efficiency and accessibility of the assessments. Throughout its response, Bidder will provide specific examples of how technology will be applied to support the assessment system including meeting the requirements of accessibility as defined by the Americans with Disabilities Act as amended in 2008.

b. The proposal must address the principles of Universal Design as articulated in materials developed by the National Center for Educational Outcomes at the University of Minnesota (NCEO) and available at: http://www.cehd.umn.edu/NCEO/TopicAreas/UnivDesign/UnivDesignTopic.htm

DRC INSIGHT is a universally designed system that incorporates numerous universal tools, supports, and accommodations to meet the needs of all students. Please see *Subheading A.5.c.* for a full account of these tools and accommodations.

Accessibility and Universal Design for All Students

DRC's decisions regarding functionality and access for students are based in considerations of the Principles of Universal Design, providing access for all learners, and working to mirror classroom instructional environments.

DRC makes available universal tools and appropriate accommodations and ensures that assessments are accessible to students with disabilities and English learners. Specifically, our online system is designed to provide tools for use by all students that mirror those used in instructional environments. In addition, the system is designed to ensure that appropriate accommodations are available for students with disabilities under the Individuals with Disabilities Education Improvement Act (IDEA), for students covered by Section 504, and for English learners. The accommodations are appropriate and effective for meeting the individual student's need(s) to participate in the assessments, do not alter the construct being assessed, and allow meaningful interpretations of results and comparison of scores for students who utilize them. The available accommodations, supports, and universal tools will not interfere with the ability to validly measure a construct.

DRC has many years of experience in applying the Principles of Universal Design to the items, tests, and student interfaces developed for state assessment clients. In adherence with the federal IDEA of 2004, DRC has incorporated universal design principles into the design and development of DRC INSIGHT, ensuring that the system is accessible to the widest possible range of students. In moving to digital environments, DRC has provided for the use of assistive technologies and embedded and non-embedded accommodations. DRC attends to industry best practices and developments regarding the application of universal design to online testing, and consults with leading figures in special education, accessibility, and accommodations. In addition, DRC actively works to follow the guidance provided through the W3C Web Accessibility Initiative (WAI) by complying with the Accessible Rich Internet Applications (WAI-ARIA) specification in order to deliver accessible web content by means of an industry standard.

As a result, DRC's system is fully capable of implementing appropriately tagged items for accessibility. DRC is committed to developing and sharing a clear understanding of the need for online accessibility tools as well as supports and accommodations.

DRC has experienced educators on staff who proactively research and recommend updates. DRC staff actively participates in the Council of Chief State School Officers (CCSSO) State Collaboratives on Assessment and Student Standards (SCASS) groups, and know and appreciate the depth of consideration that states and the national assessment consortia groups are giving to students with disabilities and to ELLs. The growing body of research on accommodations for ELLs and ELLs with disabilities is just one example of the work that these expert staff constantly review with attention to testing system upgrades.

Additionally, DRC actively researches current legislation, technologies, and methodologies that impact student experiences, accessibility, and universally designed assessments. In that effort, utilizing the recommendations of leading external experts enhances the recommendations made by internal experts.

Research to Practice

DRC has had the good fortune to work closely with the National Center on Education Outcomes (NCEO). In addition to a history and mission of leadership for the full inclusion of students with disabilities, NCEO has been a resource for research and recommendations on the use of specific accessibility features and accommodations and alternate assessments (Johnstone, Altman, and Thurlow, 2006). NCEO is based near our headquarters at the University of Minnesota, and this proximity makes collaboration even easier. Our Test Development Team has been fully trained by NCEO in the elements of Universal Design for the development of large-scale, statewide assessments in all content areas. NCEO has also advised DRC development on aspects of accessibility such as color combinations and contrast settings available to student users.

In addition, DRC is very familiar with Section 508 of the federal Rehabilitation Act, and uses these guidelines for ensuring that web content and information technology are made accessible for people with disabilities. These standards are also considerations that support all users.

c. The online technology must track student use of accommodations/tools provided for students with IEPs, 504 plans, or for students who are English Language Learners.

DRC's system tracks students' use of tools and accommodations and we can report this information to NDE. The system tracks whether or not a student used a given tool or accommodation during a test. We will include this usage data in the state student data file delivered to NDE.

B. ASSESSMENT DEVELOPMENT

1. Test for General and Alternate Assessments Statewide Assessment Design

a. NDE is looking for an innovative approach to assessment as it moves forward in assessing College and Career Ready standards in ELA, mathematics, and science. Assessments may include multiple choice items; however, NDE seeks assessments that test standards at higher depth of knowledge and include rigorous new item types that are effective in assessing higher order thinking skills while also better at engaging students than multiple choice items.

Overview of Fostering Rigor and Cognitive Complexity in Nebraska Assessments

DRC is pleased to propose an innovative item development plan that will continue to ensure that Nebraska assesses student, school, and district performance with rigor, validity, reliability, and efficiency. Over the past eight years, we have demonstrated that we have the staff, knowledge, expertise, and processes necessary to effectively address all key components of Nebraska's item development needs—alignment to standards; universal design; bias, sensitivity, fairness issues—along with adherence to item parameters and approved style and format. DRC recognizes NDE's commitment to providing an innovative assessment that effectively assesses higher order thinking skills through the use of rigorous, traditional multiple-choice (MC) items and new, innovative item types.

The DRC development team is uniquely qualified to provide the item development services as outlined in the RFP. In our previous work on the program, our Test Development Team has established a consistent record of reliability and quality. We have worked closely with NDE to deliver items and test forms that have been integral to supporting the state's assessment and educational efforts; we are committed to continue providing this same level of quality service. As NDE continues to move forward toward expanding the types of test items on its assessments, DRC continues to offer NDE many strengths and advantages as your test development partner.

Based on our acquired knowledge and our direct, side-by-side involvement within Nebraska, the DRC team is grounded in a solid understanding of the standards that form the foundation of the assessment. We have worked closely with NDE as decisions about standards and cognitive complexity have been made over the life of the current program and as NDE has added rigor to the assessment through increased demands for cognitive complexity and through the introduction of innovative technology-enhanced items.

In each of the past eight years, we have successfully worked with NDE to produce educator-developed items and we have worked at the direction of NDE to develop assessments for reading (now ELA), mathematics, and science, including assisting in the recent transition of the ELA and mathematics program to Nebraska College and Career Ready standards. For example, we worked with NDE to introduce the higher cognitively-complex item types like the Text-Dependent Analysis writing prompt to the current testing program.

NDE uses Norman Webb's Depth of Knowledge (DOK) framework (Webb, N. L. 1997, 2007) to classify cognitive complexity in test items, and DRC staff have extensive knowledge and experience using Webb's DOK to classify cognitive complexity. In determining the DOK level for each item, the content specialists at DRC have worked closely with NDE staff in order to internalize and implement NDE's definition for the overall cognitive complexity by clarifying objectives and developing strategies to expand the DOK of the item pool. Our team of item editors is well positioned to continue to meet Nebraska's goals for complexity and rigor.

DRC's thorough understanding of the Nebraska assessment, the standards, and the desired cognitive complexity (higher DOK) places us in a unique position to respond to any future changes in the standards or other parameters of the development. Going forward, we face no "learning curve" in developing such an understanding because our Test Development team is conversant in all aspects of the content that is at the heart of the Nebraska standards for all content areas, including science once the new standards are finalized. DRC will be ready to combine our working understanding of Nebraska's historical view of its standards with our understanding of the national next generation of science standards movement. This will allow DRC to confidently move forward with the necessary skill and discipline to ensure that the transition reflects Nebraska's intent behind the change in the standards.

In addition to discussions about the standards and items' cognitive complexity, DRC has worked with NDE to specify features and parameters of Nebraska items. As a result of our conversations from NDE staff regarding item parameters, our staff has a full understanding of the acceptable limits of items. Whether the issue relates to acceptable choices for point of view in a English language arts items, acceptable fractions to use in a mathematics item, graphics parameters for a diagram, acceptable topics or themes for science tasks, or the understanding of subjects or topics that will engage student interest in responding to Text-Dependent Analysis (TDA) items, we have internalized the item parameters, which enables us to efficiently prepare items that are consistent with the expectations of NDE. This knowledge base will be critical as NDE expands the range of innovative item types.

In addition to the knowledge of Nebraska's standards and item parameters, our Test Development team is also fully conversant in Nebraska's item style (the Nebraska style guide). Knowledge of, and consistent implementation of, the Nebraska style is critical to the development of rigorous items that reflect a uniform presentation of content that supports the reliability and validity of the assessment. A consistent style helps to remove irrelevant elements from the assessment—a key confidence when introducing new item types to the assessment. Our adherence to NDE-approved style extends to the wording and format of the items, the specifications for graphics, and the final presentation of items within the printed and online test forms. This is reflected in overall consistent phrasing in item stems, answer choices that do not stand out (and such that all are plausible and logical), consistent labeling of figures and graphics, and the use of a common font style and size throughout the item pool. This knowledge is shared by all of our item editors, test development specialists, and publishing staff. DRC will be able to use the depth of our understanding of Nebraska style to seamlessly integrate additional innovative item types at the direction of NDE.

The item authoring and management tools in DRC's item banking system, IDEAS (Item Development and Educational Assessment System, patent pending), are customizable for Nebraska so that NDE and DRC content editors are always seeing a close approximation of the item as it will appear in a test booklet and online. By implementing the Nebraska style guide throughout all stages of the item and test development process, efficiencies are achieved during production because items do not have to be edited for style or format once they have been placed in forms. Edits at that point in the development process lead to increased production costs and significantly increase the risk of introducing errors into the forms. This seamless control within IDEAS is ideal for developing and editing innovative technology-enhanced test items consistently—a key feature in preparing quality test items that will be effective at engaging students. Additional information concerning our IDEAS item banking system can be found later in this section.

We share the commitment with NDE to develop a fair test that provides an accurate measure of what all assessed students know and can do without compromising reliability or validity. In so doing, members of our leadership development team have received direct training from the National Center on Educational Outcomes (NCEO) and are highly knowledgeable regarding the Principles of Universal Design. The elements of universal design that characterize sound assessment practice are incorporated throughout our development practices and processes. The Principles of Universal Design were created to ensure accessible environments for all people through equitable use, simple and intuitive design, effective communication, tolerance for variability, and minimal fatigue. Their application is defended by research that links the Principles of Universal Design to higher performance for all students. These principles are just as valid for the development of innovative item types.

DRC has found that explicit universal design considerations are critical because they provide a systematic means for developing assessments in which the context for testing, user diversity, and equitable access are examined at each step of the process. All phases of the test development cycle reflect the integration of universal design principles with sound measurement theory, current research, and best practices in assessment.

Utilizing the NCEO published guidelines (Thompson, et al., 2002) for universal design and the training we received from NCEO, we have incorporated these principles in the development and layout of test forms. All developers, editors, graphic artists, and publications experts are trained in applying universal design principles. Our current practices include the following:

- Using consistent naming and graphics conventions.
- Replacing low-frequency words with simple common words.
- Avoiding irregularly spelled words, words with ambiguous or multiple meanings, technical terms unless defined and integral to meaning, and concepts with multiple names, symbols, or representations.
- Ensuring clarity of noun-pronoun relationships.
- Simplifying keys and legends.

We recognize that Nebraska has a legal and ethical obligation to ensure that the state's assessments are accessible and fair to all students. Implementation of universal design principles contributes to participation by the widest range of students in the assessment program and provides support for the validity of inferences about levels of student performance. By focusing attention on inclusive design principles and providing for a full range of test performances, the assessment quality is maintained. Since these items are intended to complement current pedagogical practices, test results will continue to give an accurate picture of what students really know and can do in key content areas.

Just as considerations for universal design are built into our development processes, the same can be said for our attention to issues related to bias and sensitivity. The *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014) emphasize the importance of evaluating the language, symbols, words, phrases, and content used in items that could be considered biased or offensive to members of racial, ethnic, gender, or other groups.

DRC has established guidelines for bias, fairness, and sensitivity that are key elements of the training for all development staff. The areas addressed by this training include stereotyping and issues related to gender, socioeconomics/class, religion, regional/geographic differences, disability status, and biases against particular age groups. In addition, DRC has catalogued topics that should be avoided and purposefully maintains balance in gender and ethnic emphasis within the pool of available items and passages.

Partnership to Develop Engaging, Rigorous, and Innovative Test Items

DRC has had the privilege of working side-by-side with Nebraska educators, schools, districts, and NDE for more many years, in the development and administration of the Nebraska State Accountability (NeSA) testing program, as well as the Check4Learning (C4L) classroom assessments. These experiences have allowed DRC to understand Nebraska's needs and re-visioning. DRC has worked with NDE on new approaches for the ELA and mathematics assessments, where new College and Career Ready Standards were adopted and Nebraska assessments became more complex. We are proposing to work at NDE's direction to continue to assist NDE to evolve the assessment system towards additional innovative and rigorous item types, including the planned update to the Nebraska science assessment based on standards influenced by the Next Generation of Science Standards.

The DRC solution offers many distinct advantages to the State of Nebraska that sets this offering apart from other solutions in the field. The DRC solution will maintain high quality, relieve testing burden, and operationalize the State's new assessment vision. The items used in the DRC proposal will be fully aligned with the Nebraska standards. In all components of the proposed system, Nebraska students will be assessed on what they are being taught in their classrooms. DRC has undertaken item development with Nebraska teachers through the years, partnering in item writing/review and professional development. The DRC proposal will allow the opportunity to continue that item development partnership for the summative assessments, including the alternate assessment, populating the Nebraska item bank with Nebraska-authored college- and career-ready items.

Below is a list of the types of items that DRC is proposing to explore with NDE to provide engaging, yet rigorous technology-enhanced (TE) items that assess higher depth of knowledge.

- **TE Item Type 1: Selected Response with Multiple Correct Answers—**These items allow the user to select more than one correct answer. The number of selections that can be made can be limited.
- **TE Item Type 2: Evidence-Based Selected-Response with Multiple Sets of Bubbles (One or Multiple Correct Answers)—**These items are typically presented in two parts. The first part answers the main question and the second part is used to support the answer to the first part.
- **TE Item Type 3: Short Input—**There are many types of short inputs that can be used. The number of characters is usually limited to a relatively small number in order to facilitate autoscoring.
- **TE Item Type 4: List Input—**A list input is a combination of the short input described earlier with the ability for the student to add additional input boxes. For example, it can be used for describing the steps in a process without revealing to the student the number of steps needed. The added input boxes can be rearranged and/or deleted.
- **TE Item Type 5: Drag and Drop—**There are a wide variety of ways that a drag and drop input could be utilized. The main difference between it and a drag and paste is that each entity that can be dragged can be used only once with a drag and drop input. A reset feature is available that allows the student to start over from the original configuration.
- **TE Item Type 6: Drop-Down List—**The drop-down list input allows us to create a situation where we can gather a great deal of information about a student's grasp of a concept with a single item. An example could include a graphic organizer with multiple drop-down lists related to a concept.
- **TE Item Type 7: Text-Dependent Analysis—**The Text-Dependent Analysis is a text-based constructed-response item where a prompt is paired with a passage. This requires a student to use writing skills while inferring and synthesizing information and construct a response while citing supporting evidence.

b. Technology-enhanced items must contribute to a significant portion of the assessment unless an off-the-shelf solution is being provided that does not include technology-enhanced items. NDE is interested in inclusion of adaptive testing. While open-ended items may be included, the Contractor must include analysis of student time to administer and demonstration of ability to return assessment results to students, schools, and parents on a timely schedule. Evidence of timeliness of return of results is a critical part of this RFP.

DRC recognizes the importance NDE has placed in the role of technology-enhanced (TE) items on current and future Nebraska assessment administrations; these TE items must contribute to a significant portion of the assessments. DRC is proposing a test plan that incorporates TE items for the ELA, mathematics, and science assessments. In Tables 4–3, 4–4, and 4–5, DRC proposes the number of items and points that TE items will play in Nebraska assessments, including how the proposed number of items and points function as a proportion of the overall assessment at a given content and grade level.

Table 4–3: Proposed Role of TE* Items on the ELA Assessment

Content Area	Grade	Proposed TE Items			
		# of TE Items	TE Items as a Portion of the Core	# of Points from TE Items	TE Points as a Portion of the Core
ELA	3	14	40%	24	53%
ELA	4	14	40%	24	53%
ELA	5	13	35%	28	54%
ELA	6	13	35%	28	54%
ELA	7	13	35%	28	54%
ELA	8	13	35%	28	54%

*Includes text-dependent analysis (TDA) writing prompts, evidence-based selected-response (EBSR) items, and auto-scored constructed-response (ASCR) items

Table 4–4: Proposed Role of TE* Items on the Mathematics Assessment

Content Area	Grade	Proposed TE Items			
		# of TE Items	TE Items as a Portion of the Core	# of Points from TE Items	TE Points as a Portion of the Core
Mathematics	3	3	6%	6	12%
Mathematics	4	3	6%	6	11%
Mathematics	5	3	6%	6	11%
Mathematics	6	3	5%	6	10%
Mathematics	7	3	5%	6	10%
Mathematics	8	3	5%	6	10%

*Includes auto-scored constructed-response (ASCR) items

Table 4–5: Proposed Role of TE* Items on the Science Assessment

Content Area	Grade	Proposed TE Items			
		# of TE Items	TE Items as a Portion of the Core	# of Points from TE Items	TE Points as a Portion of the Core
Science	5	14	100%	50	100%
Science	8	16	100%	60	100%

*Includes short tasks and extended tasks

DRC believes that inclusion of the Text-Dependent Analysis (TDA) item type is important to maintain the rigor of the college- and career-ready ELA assessments and to capitalize on the important professional development work that has already been done in the state around this item type. Therefore, we are proposing the inclusion of this open-ended item, with the use of artificial intelligence (AI) scoring to achieve faster turnaround of results for students. More information on AI scoring can be found in *Subheading F* and more information on DRC's proposed reporting timelines can be found in *Subheading H.*

In addition, should Nebraska desire to move to computer adaptive testing (CAT) for the summative assessments, that goal can be achieved over time through the intentional development of items sufficient in number for that purpose. DRC is very familiar with CAT and would be pleased to work with NDE in creating such an assessment for use with our adaptive testing engine. Upon contract award, DRC will be happy to discuss the timing and cost implications of additional item development to support adaptive testing with NDE.

c. NDE is interested in a proposal that will meet the requests of Nebraska stakeholders in response to options allowed under the ESSA. Assessments must meet the requirements of peer review under ESSA and include:

- measurement of higher order thinking skills,
- measurement of growth on a vertical scale, and/or
- adaptive items in order to measure growth in student learning more accurately.

As described above, DRC is proposing to continue assisting NDE to develop and maintain assessments that measure higher order thinking skills. Over the last several years, DRC has been Nebraska's confident partner as Nebraska has begun the transition to Nebraska College and Career Ready standards—standards that are providing the foundation for Nebraska assessments to meet the requirements of peer review because they demand higher order thinking skills, the requisite higher depth of knowledge, and the corresponding rigor.

DRC will continue to work at NDE's direction to provide expert guidance to NDE as Nebraska educators develop Nebraska's test items. Our content and test development experts will continue to provide NDE with the subject-matter and technical expertise to ensure that test items appearing on Nebraska's assessments measure higher order thinking skills, as required by peer review under ESSA—including the technology-enhanced items that NDE is interested in adding to its assessments. DRC has experience providing these innovative item types for our other clients, ensuring that the innovative items provide reliable and valid measurement of higher order thinking skills.

DRC's plan for the new Nebraska assessments includes adding a vertical scale to both the ELA and mathematics assessments. By adding a vertical scale NDE will have the ability to monitor growth. For more information on the vertical scale please see *Subheading G.1.c*

d. For ELA and mathematics, the Bidder shall respond with information on a summative assessment for grades 3-8 for operational administration in spring 2018 that is:

- An off-the-shelf assessment (commercially available, published, or Contractor-owned), or
- An assessment developed with items from other sources that is augmented or customized for Nebraska, or
- An assessment developed with items from Nebraska's item bank.

DRC understands that the development of a test depends upon the quality of each and every item, and our plan for supporting Nebraska during item and test development includes our commitment to quality at every stage of the process. Our team of content area test development specialists has put in place a set of quality procedures that we believe exceeds industry standards. These procedures help to ensure that sufficient numbers of items will survive the rigors of item and test development, including both the internal reviews by content area test development specialists and editorial staff and the external reviews by Nebraska.

All items and test materials developed at DRC undergo stringent proofing quality assurance procedures. Before any item or test material is submitted to Nebraska, DRC's editing team will be responsible for coordinating word-for-word proofreading; editors will perform independent word-for-word reviews of materials. The editing team will conduct a final "three-way" proofreading of all test booklets, answer documents, and manuals to confirm that all directions in each form work in concert and are accurate and easy to follow.

DRC will develop ELA and mathematics tests starting in 2018 using the existing Nebraska item bank that DRC currently maintains on behalf of NDE, **allowing the seamless continuation of Nebraska's ongoing transition to Nebraska College- and Career-Ready standards**.

Following a mutually agreed-upon schedule, DRC will accept items and tasks from NDE and input them into our electronic item bank, IDEAS. The use of IDEAS will streamline the item banking process because IDEAS and our item banking process has been used successfully by DRC and NDE for the current Nebraska contract. As has been done for Nebraska, DRC will provide NDE and the educator item writers with an item-writer/task-writer template that can be uploaded electronically into IDEAS. IDEAS is fully described below, under *Subheading 4.B.2.*

DRC will use the current item bank to build quality forms, and, based on our understanding of the requirements, our role as the contractor will be to take the items and tasks provided and work with NDE to develop operational test forms. We have also assumed that DRC will be responsible for editing teacher-developed items for the general education assessment and the alternate assessment (after acceptance by NDE). DRC has also assumed that we will be responsible for providing art/graphic development for teacher-developed items, as appropriate.

Throughout all development activities, Nebraska's item bank will be an integral element around which both individual and aggregate item metadata, item text, and item performance data will be used by DRC to respond successfully to the deliverable requirements established by NDE.

The information that follows details DRC's proposed test designs for ELA and mathematics.

English Language Arts

In 2018, DRC proposes that grades 3–8 Reading/ELA Assessments will have completed the transition to ELA. Assessments will be comprised of a single operational form at each grade level. The forms will contain 37 operational items. Operational test items will include Multiple Choice (MC), Auto-Scored Constructed Response (ASCR), Evidence-Based Selected-Response (EBSR), and Text-Dependent Analysis (TDA) items. TDA items will only be administered in grades 5–8. In addition, every student will receive a single passage set containing newly developed field test items. Each Field Test passage set will contain MC, Auto-Scored Constructed-Response (ASCR), Evidence-Based Selected-Response (EBSR), and Text-Dependent Analysis (TDA) items. Field Test TDA items will only be administered in grades 5–8.

The 2018 ELA operational tests will be administered to the student in a fixed order and will include operational passages with associated items and one field test or research block passage

with associated items. Operational forms will use an approximate 30 percent overlap of passages and items from the previous administration. All embedded field test items on the 2018 test will be aligned to the revised (2014) Nebraska English Language Arts Standards. Items for use in the field test positions for spring 2018 will be developed and reviewed in the summer/fall of 2017. Items field tested in spring 2018 will be used first on the spring 2019 core.

In 2018 for grades 5–8, a research block (RB) of vertical linking items will be added equal to two forms worth of research positions (15 items), for a total number of 30 items available for the vertical link. For grade 4, a research block of vertical linking items will be added equal to two forms worth of research positions (14 items), for a total number of 28 items available for the vertical link. Since the vertical link will utilize the research block positions, the vertical link will not add any additional items to an individual test; rather the vertical link will be accomplished by adding forms to the total form count. The link will be "up," meaning that a block of grade 3 items will be used on the grade 4 test, a block of grade 4 items will be used on the grade 5 test, etc. No vertical link research positions will be required on the grade 3 test.

Table 4–6: ELA Operational Test (2018)

Grade	Total # of Operational Items per Form				Total # of Embedded Research/FT Items per Form*				Total # of FT Forms	Total # of Items Field Tested	Total # of Items per Form	Total # of RB Forms	Total # of RB Items
	MC	ASCR	EBSR	TDA	MC	ASCR	EBSR	TDA					
3	29	6	2	0	10	3	1	0	5	70	51	0	0
4	29	6	2	0	10	3	1	0	5	70	51	2	28
5	28	6	2	1	10	3	1	1	5	75	52	2	30
6	28	6	2	1	10	3	1	1	5	75	52	2	30
7	28	6	2	1	10	3	1	1	5	75	52	2	30
8	28	6	2	1	10	3	1	1	5	75	52	2	30

* Field Test (FT) items are a part of a passage set. One FT passage set is embedded per form.

Starting in 2019, the vertical link research block will be eliminated; therefore, the total number of required forms will drop.

Table 4–7: ELA Operational Test (2019 and Beyond)

Grade	Total # of Operational Items per Form				Total # of Embedded Research/FT Items per Form*				Total # of FT Forms	Total # of Items Field Tested	Total # of Items per Form	Total # of RB Forms	Total # of RB Items
	MC	ASCR	EBSR	TDA	MC	ASCR	EBSR	TDA					
3	29	6	2	0	10	3	1	0	5	70	51	0	0
4	29	6	2	0	10	3	1	0	5	70	51	0	0
5	28	6	2	1	10	3	1	1	5	75	52	0	0
6	28	6	2	1	10	3	1	1	5	75	52	0	0
7	28	6	2	1	10	3	1	1	5	75	52	0	0
8	28	6	2	1	10	3	1	1	5	75	52	0	0

* Field Test (FT) items are a part of a passage set. One FT passage set is embedded per form.

Note that the vertical link research items may be introduced in the future as required for the maintenance of the vertical link for ELA.

Mathematics

In 2018, DRC proposes that grades 3–8 mathematics assessments will be composed of a single operational form at each grade level. Depending on the grade, the forms will contain 47 to 57 operational items. Operational test items will include multiple-choice (MC) and auto-scored constructed-response (ASCR).

The 2018 Nebraska mathematics operational tests will be administered to the student in a fixed order, and the field test (FT)/research block (RB) items will be maintained in a fixed position. Field test items will be separated into distinct forms, with forms being randomly administered to students. Within the second session, there will be a "calculator section" where students are granted access to calculators. Once this section ends, calculators will no longer be accessible for the students. Operational forms will use an approximate 30 percent overlap of items from the previous administration.

All embedded field test items on the 2018 mathematics test will be aligned to the revised (2015) Nebraska Mathematics Standards. Items for use in the field test positions for spring 2018 will be developed and reviewed in the summer/fall of 2017. Items field tested in spring 2018 will be used first on the spring 2019 core.

In 2018 for grades 4–8, a research block of vertical linking items will be added equal to two forms' worth of research positions (11 items), for a total number of 22 items available for the vertical link. Since the vertical link will utilize the research block positions, the vertical link will not add any additional items to an individual test; rather the vertical link will be accomplished

by adding forms to the total form count. The link will be "up," meaning that a block of grade 3 items will be used on the grade 4 test, a block of grade 4 items will be used on the grade 5 test, etc. No vertical link research positions will be required on the grade 3 test.

Table 4–8: Mathematics Operational Test (2018)

Grade	Total # of Operational Items per Form		Total # of Embedded Research/FT Items per Form		Total # of FT Forms	Total # of Items Field Tested	Total # of Items per Form	Total # of RB Forms	Total # of RB Items
	MC	ASCR	MC	ASCR					
3	44	3	9	2	6	66	58	0	0
4	49	3	9	2	6	66	63	2	22
5	49	3	9	2	6	66	63	2	22
6	52	3	9	2	6	66	66	2	22
7	52	3	9	2	6	66	66	2	22
8	54	3	9	2	6	66	68	2	22

Starting in 2019, the vertical link research block will be eliminated; therefore, the total number of required forms will drop.

Table 4–9: Mathematics Operational Test (2019 and beyond)

Grade	Total # of Operational Items per Form		Total # of Embedded Research/FT Items per Form		Total # of FT Forms	Total # of Items Field Tested	Total # of Items per Form	Total # of RB Forms	Total # of RB Items
	MC	ASCR	MC	ASCR					
3	44	3	9	2	6	66	58	0	0
4	49	3	9	2	6	66	63	0	0
5	49	3	9	2	6	66	63	0	0
6	52	3	9	2	6	66	66	0	0
7	52	3	9	2	6	66	66	0	0
8	54	3	9	2	6	66	68	0	0

Note that the vertical link research items may be re-introduced in the future as required for the maintenance of the vertical scale.

e. For science, the state expects a Contractor may use Nebraska's current science items and test blueprints to provide a summative science assessment in spring 2018 and 2019. If an off-the-shelf assessment is proposed, the assessment must include alignment to the current Nebraska State Standards of Science. In subsequent years when college and career ready science standards are adopted, NDE expects a new assessment design that is aligned to the future Nebraska College and Career Ready Standards of Science, meets the intent of the new generation of innovative science assessments, and can contribute to a system to measure three-dimensional science learning. The proposal must address assessing the legacy standards and solutions for measuring the College and Career Ready Standards for Science, with field-testing to begin in 2019.

Since additional field testing for the current set of science standards has been suspended, the item bank for Nebraska science has remained static since 2016. Therefore, for the 2018 assessment administration for science, DRC proposes to continue to use recycled science test forms that have already been constructed and are available in Nebraska's arsenal of testing materials. The existing test forms have proven to be effective and reliable, and DRC will be able to provide the seamless delivery of the 2018 science test forms and the 2019 science test forms with embedded field test positions for new items aligned to the new science standards—all in anticipation of developing new test forms for the first administration of the transitioned test in spring 2020.

DRC recognizes that NDE is pursuing a science assessment that will measure the next generation of College and Career Ready standards, meeting the intent of the new generation of innovative science assessments that will contribute to measuring three-dimensional science learning. For Spring 2020, DRC will be able to provide new science assessments for grades 5 and 8, using items written by Nebraska educators to the to-be-adopted new science standards. DRC is proposing an innovative test design for grades 5 and 8 that consists of science stimuli, with items or item sets, defined as *short tasks* and *extended tasks*. All tasks, with item sets, are designed to be autoscored. The short and extended tasks may include the following: scientific phenomena, research passages or stimulus, technological advances, laboratory investigations, problem solving, and environmental stewardship. Additional information regarding the item types is found in *Subheading B.1.a.*

The design provided below allows for the measure of science standards based upon the National Research Council's Framework for K–12 science, describing practices, core content, key concepts, and crosscutting concepts associated with natural sciences, technology, and engineering. While there are several options for reporting categories, for purposes of this proposal, preliminary reporting categories might be, for example, life, physical, and earth sciences along with the science practices and concepts. It is also important to note that the designs provided below comply with the sensitivities to overall test administration times. It is estimated that the assessment administration times for each grade level would be approximately 60–70 minutes.

DRC is able to consider other item development and assessment designs based upon the new science standards should NDE desire different methods from what we have summarized in the following section. For example, in addition to a variety of autoscored, technology-enhanced items, DRC may include from our own internal item bank standalone autoscored items based on science test blueprints designed to measure new standards.

Science in 2018

For spring 2018, DRC proposes that the grades 5 and 8 science assessments be based on the NAS Nebraska science standards and test design. The tests would be comprised of a single operational form at each grade level. DRC also proposes that this operational form will be a recycled form from 2016, since no recent field test activities have been conducted for science in order to develop new core forms. Depending on the grade, the forms will contain 50 to 60 operational items, all of which are Multiple Choice (MC). The Nebraska science operational items will be administered to the student in a random order.

In order to maintain test-length continuity with prior administrations, the research positions normally devoted to field test purposes will be limited to a placeholder role.

Table 4–10: Science Operational Test (2018)

Grade	Total # of Operational MC Items per Form	Total # of Embedded Research or Place Holder MC Items per Form	Total # of FT Forms	Total # of Research Items	Total # of Items per Form
5	50	10	1	10	60
8	60	10	1	10	70

Science Transitional Test

For spring 2019, DRC proposes that the grades 5 and 8 science assessments be based on the NAS Nebraska science standards and test design. The tests would be composed of a single operational form at each grade level. DRC also proposes that this operational form will be a recycled form from either 2015 or 2016, since no recent field test activities have been conducted for science in order to develop new core forms. Depending on the grade, the forms will contain 50 to 60 operational items, all of which are multiple-choice. The Nebraska Science operational items will be administered to the student as fixed forms.

For spring 2019, DRC proposes that field testing would resume, based on the new set of standards being adopted by the state in late 2017 or early 2018. The field test would be comprised of items aligned to the new science standards, and would consist of science stimuli, with items or item sets, noted as shorts tasks or extended tasks. All tasks, with item sets, are designed to be autoscored. The short and extended task may include the following: scientific phenomena, research passages or stimulus, technological advances, laboratory investigations, problem solving, and environmental stewardship.

Table 4–11: Science Transitional Test (2019)

Grade	Operational			Total Op Pts.	Forms	Embedded Research/FT Items					Total Stimuli (OP + Research) per Form
	MC	Short Tasks (2–4 Pts.)	Extended Tasks (4–6 Pts.)			MC	Number of Short Tasks (2–4 Pts.)	Number of Extended Tasks (4–6 Pts.)	TE Points per Form (FT)	Total Research (FT) Pts.	
5	50	0	0	50	9	0	3	1	14	126	54
8	60	0	0	60	9	0	3	1	14	126	64

Science Fully Transitioned Test

The design for the full transitioned science test provided below allows for the measure of science standards based upon the National Research Council's Framework for K-12 science describing practices, core content, key concepts, and crosscutting concepts associated with natural sciences, technology, and engineering. While there are several options for reporting categories, for purposes of this response, preliminary reporting categories might be, for example, life, physical, and earth sciences along with the science practices and concepts. It is also important to note that the designs provided below comply with the sensitivities to overall test administration times. It is estimated that the assessment administration times for each grade level would be approximately 60–70 minutes.

For spring 2020 and beyond, DRC proposes that the grades 5 and 8 science assessments be based on the new science standards and test design. The tests would be composed of a single operational form at each grade level. Depending on the grade, the forms will contain 14 to 16 operational tasks, all of which are technology-enhanced (TE). The Nebraska science operational items will be administered to the student as fixed forms. The field test would include all technology-enhanced items aligned to the new science standards, organized into both short tasks and extended tasks linked to science stimuli.

Table 4–12: Science Operational Test (2020)

Grade	Operational			Total Op Pts.	Forms	Embedded Research/FT Items					Total Stimuli (OP + Research) per Form
	Unique Stimuli	Short Tasks (2–4 Pts.)	Extended Tasks (4–6 Pts.)			# of Unique Stimuli	# of Short Tasks	# of Extended Tasks	TE Points per Form (FT)	Total Research Points	
5	14	10 tasks (30 pts)	4 tasks (20 pts)	50	7	4	3	1	14	98	18
8	16	10 tasks (30 pts)	6 tasks (30 pts)	60	7	4	3	1	14	98	20

DRC is able to consider other item development and assessment designs based upon the new science standards should NDE desire different methods from what we have summarized above. For example, in addition to a variety of autoscored, technology-enhanced items, DRC may include in its bank standalone autoscored items based on science test blueprints designed to measure new standards.

f. NDE requires delivery of alternate statewide assessments in English Language Arts and mathematics for grades 3-8 & 11 and science for grades 5, 8, & 11. NDE is open to an innovative technology approach to assessing students with the most significant cognitive disabilities.

Alternate Assessment

For spring 2018, DRC will provide alternate assessments for grades 3–8 and 11 in ELA and mathematics and grades 5, 8, and 11 in science, using items written by Nebraska educators. The proposed design below for grades 3–8 and 11 is a design that consists of only specialized multiple-choice items. These specialized multiple-choice items are intended for students with severe cognitive disabilities and will align to alternate achievement standards. The items will be rendered using current Nebraska alternate assessment style for the paper/pencil booklets.

The design is reflective of what NDE currently administers for the Nebraska alternate assessment, and reflects the movement to the new mathematics standards in 2018. In 2019, science items written to newly adapted science standards and extensions would be embedded field tested. These items would then be administered operationally in 2020. The existing alternate science item bank would then be realigned to the new science standards and their respective extensions for operational use in 2020. It is also important to note that the designs provided below comply with the sensitivities to overall test administration times.

Field testing for the alternate assessment will occur each year for ELA and mathematics. The field test items will be embedded in the operational forms. In 2019, science items written to newly adapted extended science standards will begin to be field tested. These items will then be administered operationally in 2020 in the alternate assessment. The existing Alternate science item bank would then be realigned to the new extended science standards for operational use in 2020 wherever possible. It is also important to note that the designs provided below comply with the sensitivities to overall test administration times.

Table 4–13: Proposed Nebraska Alternate Test Design*

Grade	Operational Items			Total Op Points	Forms	Embedded Field Test Items				
	ELA	Math	Science			ELA	Math	Science	FT Pts.	FT Items
3	25	25		50	2	8	8		16	32
4	25	30		55	2	8	8		16	32
5	25	30	25	80	2	8	8	8	24	48

Grade	Operational Items			Total Op Points	Forms	Embedded Field Test Items				
	ELA	Math	Science			ELA	Math	Science	FT Pts.	FT Items
6	25	30		55	2	8	8		16	32
7	25	30		55	2	8	8		16	32
8	25	30	25	80	2	8	8	8	24	48
11	25	30	30	85	2	8	8	8	24	48

*Science is not assessed at grades 3, 4, 6, or 7.

Innovative Technology Approach for Nebraska Alternate Assessment

DRC is able to consider other item development and assessment designs should NDE desire different methods from what we have summarized above. For example, if NDE wishes to pursue additional innovative technology-based approaches for the alternate assessment, DRC strongly recommends that NDE invest in cognitive laboratory activities across the state to research possible approaches and to engage special education experts at the local level to provide additional input into the transition process. DRC has successfully conducted cognitive laboratory events for other state clients, helping to ensure that the planned changes to assessment are targeted correctly to the assessment need and meet measurement validity. Costs for cognitive laboratory events will vary significantly based on the type of information that NDE would collect. DRC would welcome the opportunity to discuss this uncosted option with NDE, upon award of the contract, in order to tailor the events to be as meaningful as possible for the future Nebraska alternate assessments.

g. Nebraska's assessments must measure the depth and breadth of Nebraska's standards, demonstrating a balance of content emphasis and cognitive complexity through all depths of knowledge levels. If an off-the-shelf test is proposed, the proposal must provide evidence of alignment to Nebraska state standards that has been completed by using non-Contractor consultants or a non-Contractor organization, that includes evidence of the alignment of forms of the assessment in terms of distribution of content (i.e. knowledge and cognitive process) across the full range of the State's grade-level content standards. If a custom or blended assessment is proposed to be developed, the assessment must be aligned to Nebraska's standards and the Contractor will be responsible for providing an independent alignment study and review in the first year of implementation. Nebraska does not intend at this time to assess the listening and speaking standards of ELA.

DRC understands that the Nebraska assessments must measure the Nebraska standards. As described previously, because of our knowledge of and experience with the state, our experts are grounded in a solid understanding of the standards that form the foundation of the Nebraska assessments. Over the last eight years, we have successfully worked with NDE to produce educator-developed items and to develop and implement valid, reliable assessments.

For information on our experience with Nebraska's standards and recent and current assessments, please see *Subheading B.1.a*.

DRC will continue to assist NDE in having Nebraska educators develop new field test items for a custom Nebraska assessment. Please see the next subheading, *Subheading B.1.h*, for further information.

Our detailed test form designs are provided previously in *Subheading B.1.*

For information on the independent alignment study and review in the first year of implementation, please see *Subheadings I.1* and *I.2*.

h. If the proposal is not for an off-the-shelf test, item development for new assessments will continue to involve Nebraska educators.

DRC will continue to promote Nebraska educator-developed items by providing NDE with the means to import educator-written items into the current Nebraska assessment item bank. This will be accomplished by providing NDE with an item-writer template that can be uploaded electronically into our IDEAS item bank. The system then allows for editing by appropriate DRC and NDE personnel. The system maintains the item exactly as it will be presented on the test form. This method allows NDE to continue to empower Nebraska educators to be directly involved in developing test items for Nebraska assessments.

In addition, DRC content and test development experts will continue to provide NDE with support for the NDE-facilitated and hosted item writing sessions that would take place in Nebraska using Nebraska educators. DRC will help NDE to prepare documentation about proposed item development plans, based on the Item Usage Reports (discussed below) to target the item development plan where most needed.

In addition, through the use of IDEAS, DRC Test Development staff and NDE staff will be able to track the development progress of items and passages. DRC test development specialists will monitor the development of the item bank to ensure content coverage across and within standards to provide breadth and depth of content. Tracking reports can be generated and provided to NDE, upon request. The tracking report would show the current state of item and passage development, including number of items and distribution of items across standards. It would also show the complete item pool at any given point in the development process. IDEAS would ensure that updates to items occurring at any stage of the process, including external committee reviews, are recorded. Changes would be noted and an historical record of all changes/revisions to the item will be kept throughout the life of the item. The historical record will be available to NDE at any time. With these tools in place to track quality and continuity, the work of Nebraska educators remains the conceptual and physical reality of Nebraska assessments.

Item Usage Reports

As part of NDE's overall plan to develop a robust item bank for the Nebraska assessments and alternate assessments, twice a year DRC will provide NDE with Item Usage Reports by content and by grade. The Item Usage Report will provide a tally of the number of items that exist in the overall Nebraska item pool by grade, content, and item status. For items that have been through a field test or operational use, the Item Usage Report will also provide information about the range of performance based on *p*-value. The first semiannual report will be provided prior to when scoring data is complete for the current administration, but will benefit item writing planning for the next upcoming administration because NDE will be able to evaluate the overall content pool in relation to a content's Table of Specifications. The second semiannual report will be provided once all scoring data is available from the current administration and will be presented to NDE in the summer.

Accepting Items from NDE

Following a mutually agreed-upon schedule, DRC will accept items from NDE for each subject of the Nebraska assessments. We understand that our role as the contractor is to take the items provided and work with NDE to develop embedded field test and operational test forms. As part of that process, DRC will provide assistance to NDE as directed to proof and edit Nebraska items. We understand that it is not within our scope to convene or facilitate content review or bias/sensitivity review meetings with Nebraska educators. However, if NDE is interested in this service, we would be happy to provide costs upon contract award.

NDE will electronically submit all items and passages via a Microsoft Word item-writer template provided by DRC. All item and passage characteristics (e.g., standard, key, depth of knowledge) will be provided electronically by NDE's educator item writers via the Word template, and all graphics will be provided electronically by NDE's educator item writer as native graphic files or as hand-drawn sketches or written descriptions. These will all be uploaded and entered into the item bank system (IDEAS) by our Test Development staff.

After an item is submitted, each item and passage is assigned a unique identifier and the appropriate style is applied to the item. The system then allows for editing of the item by appropriate DRC and NDE personnel. The system maintains the item exactly as it will be presented on the test form, and item-level/passage-level associations will establish links as necessary to associated artwork, items/passages, and related items. Artwork and graphics not provided as the native graphic files will be generated by DRC's graphics team based on the sketches and/or descriptions provided by NDE's educator item writers. These identifiers will allow IDEAS to track items electronically and securely throughout the item development process and subsequent forms development process. In addition, through the use of IDEAS, DRC Test Development team members, and NDE staff members, if desired, will be able to track the development progress of items and passages. This cohesive process ensures that NDE and DRC have full understanding and control of the depth of knowledge and standard information of every item that appears on the Nebraska assessments.

Item Editing to Ensure Control of Alignment to Standards and Depth of Knowledge

An editorial and content review of all new items will be completed prior to a face-to-face meeting between NDE and DRC for each content area. Materials development following the face-to-face meetings will be the responsibility of DRC, with final approval by NDE.

DRC's Editorial Services will perform a review of all new items. At least two editors will perform two independent word-for-word reviews of items and other test materials. If the changes require proofing against test booklets or manuals, the editing team will also conduct a review of the test booklets, online versions, and manuals to confirm that all documents are in concert and are accurate.

In addition to Editorial Services review of items, our content-area item and test development specialists will review items and passages for technical quality; match to standard; bias, sensitivity, and fairness; depth of knowledge; estimated difficulty; adherence to the Principles of Universal Design; etc. As previously stated, our content item development and editorial team, including two additional independent editors, will review all items, etc., to ensure that they possess the following characteristics:

- Content alignment or congruence with the knowledge and skills specified in the standards
- A range of estimated difficulty levels
- Appropriate DOK Level
- Appropriate grade-level vocabulary, subject matter, and assumed student knowledge
- Freedom from issues or concerns for bias, sensitivity, or fairness
- Accessibility, following the principles of Universal Design
- Correct grammar, usage, and structure/format

As a part of our internal review of the items, DRC's item and test development team members and graphic specialists ensure that item art can be reproduced clearly and accurately when electronically displayed.

Test specifications will be reviewed to identify any potential display requirements that may present challenges in a print or electronic display environment. Display tolerances are impacted by line thickness, percent screening for shading, and specialized fonts and symbols. Item art is produced using vector graphics that allow for scalar adjustments without the breakdown of image clarity that is common with lower quality bit-mapped formats. DRC's multi-tiered quality assurance process makes certain converted item art is carefully compared to the original format throughout the item development, test development, and production process.

Items and associated revisions will be discussed with NDE at planned face-to-face content meetings, providing NDE with full oversight of the development of all items. DRC will

implement any additional edits from NDE captured during the face-to-face meeting. If, potentially, an item is identified as out of alignment or otherwise in need of revisions or rewriting, the revision effort will take place at the meeting with the goal of all item revisions being captured during the meeting. DRC will have test development staff available off-site during the face-to-face meetings to assist in item editing and rewriting as needed.

i. If an off-the-shelf solution is being proposed, the proposal shall include ways in which the Contractor plans to include Nebraska educators in aspects of the process of providing the state summative tests.

DRC is not proposing to use an off-the-self solution for the Nebraska assessments. We have discussed our approach to including Nebraska educators in the previous sections.

j. The proposal shall describe a process for ensuring that all test items are linked to the Nebraska State Standards or provide evidence of alignment to sufficient number of Nebraska state standards, or provide plan for completing alignment. The current Tables of Specifications are available in the Technical Report available on the Assessment website at:

DRC's process for working with NDE and Nebraska educators using the Nebraska State Standards to develop new items is the first step in ensuring the alignment of the Nebraska assessments. DRC will also provide materials and planning support for independent alignment studies for mathematics and science (the alignment study for ELA was conducted under the current contract). For more information on DRC's proposed process for supporting the alignment studies, please see *Subheading I.1*.

k. If items are to be written by Nebraska educators, the proposal should include the costs of the Contractor assistance in editing of test items. Nebraska would consider proposals that include Contractor supplied test items.

As discussed previously, all new items will be authored by Nebraska educators. Newly developed items will be delivered to DRC Test Development for formatting and graphic development in IDEAS. An editorial and content review of the items will be completed prior to a weeklong face-to-face meeting between NDE and DRC staff for each content area. Materials development following the face-to-face meetings will be the responsibility of DRC with final approval by NDE.

Test Development staff will review and edit items in IDEAS after submission to DRC by NDE. Items and associated revisions will be discussed with NDE at planned face-to-face content meetings. DRC will implement any additional edits from NDE captured during the face-to-face meeting. If, potentially, an item is identified as out of alignment or otherwise in need of revisions or rewriting, the effort will take place at the meeting with the goal of all item revisions being captured during the meeting. DRC will have the staff available off-site during the face-to-face meetings to assist in item editing and rewriting as needed.

Passages submitted by DRC to NDE for summer item development activities involving Nebraska teachers will follow the Nebraska style guide. DRC will be responsible for any necessary edits to those passages that NDE may need as a result of item development. Passages will be maintained in IDEAS.

DRC will complete key verifications and standards verifications on all items in all forms and make any and all edits directly in IDEAS (tables and graphics will also be developed by Test Development staff). On behalf of NDE, DRC will complete all work in IDEAS for the entire program.

After the face-to-face meeting, DRC will be responsible for all quality processes and verifications to ensure that items are clean and ready for field testing. NDE will review items in paper/pencil and online formats (alternate assessment forms are in print only). The goal of the post-meeting process will be targeted towards formatting changes, but modifications to content will be done when necessary as directed by NDE.

For more information about item editing, see *Subheading B.1.g.*

l. Unless proposing an off-the-shelf solution, the proposal must address converting current test items to a new Contractor's system, including any costs. If proposing an off-the shelf product, the proposal must include ways in which Nebraska educators can be involved in development, review, and/or alignment of assessment items and the cost for educator involvement.

Since DRC is proposing to use the current Nebraska item bank contained within DRC's IDEAS item banking system, no conversion process will be necessary if the contract is awarded to DRC. Since no transition process will be required, NDE will not have to organize and facilitate a complex transfer of item data to a new vendor, a cost and time savings for NDE.

m. If the proposal is designed for Nebraska educators to write items, the proposal budget should include a minimum of ten (10) reading passages per grade each year supplied by the Contractor for use on the ELA assessment. NDE will select and pay only for passages used. The proposal must include the cost per passage as well as the total cost. The proposal must identify if passages are purchased or original (Contractor developed). The Contractor is responsible for securing all permissions and copyrights for the passages.

DRC will provide a minimum of ten (10) reading passages per grade per year to NDE (60 passages total across the 6 grades). From this pool of submitted passages, NDE will select those passages that will be used as a part of the item development process for reading/ELA. Passages provided to NDE will be original works commissioned from qualified writers experienced with developing passages for use in Nebraska.

Passage writers will be instructed to target Nebraska standards, with an emphasis on areas within the current item bank that require additional coverage. Passage writers will also be provided specific parameters and will develop passages based on criteria approved by NDE. For

example, NDE will specify the percentage of passages that will be fiction and nonfiction, the number of passages that will be Nebraska-specific, and the number of passages that will include a piece of art or graphic (e.g., map, chart, graph, diagram, illustration). Art will be custom created by DRC for use with a passage. In addition, prior to each passage development cycle, DRC will provide NDE with an initial list of topics with proposed graphics for NDE's approval. Writers will be asked to propose topics for fiction passages and poems.

The word count for passages will also vary by grade, and NDE will approve the proposed passage length ranges as outlined in Table 4–14.

Table 4–14: Proposed Word Count Ranges for ELA Reading Passages

Grade	Word Count Range
3	300–600
4	325–700
5	400–700
6	450–750
7	500–900
8	550–950

Passages will be judged on quality factors and adherence to Nebraska specifications. The factors and specifications include, but are not limited to, the following:

- Is the conceptual load, vocabulary, syntactic patterns, sentence length, and clarity appropriate for the grade level?
- Is the passage "rich" enough to generate a variety of items?
- Do the passages represent a range of reading levels appropriate for the grade level?
- Do the passages lend themselves well to measuring the Nebraska Reading Standards, including text structures and elements?
- Are the passages free of issues of bias, fairness, and/or sensitivity?
- Does the overall pool of passages represent appropriate diversity in the areas of gender, culture, ethnicity, urban/rural status, socioeconomic status, physical differences, and age?

Total costs for 10 passages per grade are provided yearly in the Major Task Area Budget Summary that accompanies DRC's proposal. Information about the cost per passage can be found in our Cost Proposal. DRC understands that NDE will pay only for passages used.

n. The proposal budget shall include costs for providing Spanish versions of online and paper/pencil tests for general assessments in mathematics and science and Spanish directions for online and paper/pencil general assessments in English Language Arts. It shall include an auditory version of the translated Spanish paper/pencil tests.

DRC's budget includes the cost associated with providing full Spanish-translation versions of the online and paper/pencil test for the Nebraska assessments in mathematics and science. In addition, the costs also include the Spanish translation of the directions for the online and paper/pencil general assessment in ELA. Audio versions of the translated Spanish paper/pencil tests will be delivered via audio CDs as physical test materials. DRC is also happy to offer Spanish Human Voice Audio (HVA) and Spanish text-to-speech for the online assessments, as cost options. The process DRC will use to prepare these translation materials is described below.

Translation of English Test Items

Providing Spanish language translations of the English versions of the Nebraska assessments will require a series of procedures in order to ensure accuracy, continuity, and validity between the original English and the translated version. Under the direction of NDE, DRC proposes to follow the criteria below.

Criteria 1: Reflect the Original English as Much as Possible

Since the test items are translated from English into Spanish and since the two languages share similarities in common root words and sentence structure, the Spanish text should reflect the English as much as possible.

The original English text effectively serves the testing purposes of the item. If the Spanish text is as close to the original English as possible, the Spanish text will also serve the testing purposes and will not provide an advantage or disadvantage to Spanish-speaking students. This practice will also maintain the purpose of the distractors and keep parallelism between the questions and the answer options.

Criteria 2: Provide Only the Original Content and Intent

Accurately translating the original content and intent of the English text safeguards the Spanish text against unintentionally creating an advantage or disadvantage for the students taking the translated test.

The content should be clearly and understandably stated. It should convey the meaning as accurately as possible. Occasionally, slight modifications may need to be made in order to accomplish this. Even though the two languages have some common root words and similarities in sentence structure, in order for the Spanish to accurately reflect the original English, minor alterations may need to be made.

Criteria 3: Make Accurate Word Choices

Choosing the correct word in the target language is vital. When that word is also the best sounding, clearest, and simplest, that is the ideal scenario. The choice of one word over another could affect the testing purposes of the question and/or the purpose of the distractors. To choose the best word, DRC will consider word frequency, ambiguity, terminology, cognates, and proper names.

Criteria 4: Use the Correct Numbers and Formulas

Make sure numbers are correct (not transposed) and in the correct order. Make sure the mathematical and chemical formulas are correct and using the correct variables and acronyms that match the Spanish terms.

Criteria 5: Use Proper Grammar

Spanish grammar rules of the Real Academia Española will be followed, with few exceptions (e.g., verb choice and verb tense, most punctuation, most capitalization, accents, and grammatical structure).

Criteria 6: Maintain Consistency

The purpose of consistency is to facilitate taking the test. Students become accustomed to certain terms or phrases in standardized tests and can more easily process them—including remaining consistent with the Nebraska translation glossary and using the natural hyperclarity of language demanded by the measurement of the specific standard.

Criteria 7: Use the Correct Format

In accordance with the accepted specifications, the text should be formatted correctly by matching the original font type, spacing, indenting, boldface, italics, line breaks, etc.

o. Items to be field tested are to be embedded in the annual assessments for both general and alternate assessments. NDE is open to an innovative approach to field-test items with Nebraska students for increased efficiency and decreased test time. Or the proposal must include the methodology of field-testing that shows field-testing of items is accomplished with a student group representative of Nebraska students.

Since 2009, for both the general and the alternate assessments, DRC Test Development and Psychometric staff have collaborated with NDE on how to most effectively field test new Nebraska items. The most important factors have been minimizing test time for students and maximizing field test data to build valid and reliable forms. As we will discuss in depth in *Subheading G,* DRC is suggesting moving the new general education assessments to pre-equated assessments using an embedded field test design. The combination of pre-equating with embedded field testing ensures all field test items are placed on the operational scale the year they are first administered. Moreover, embedding the field test items within the operational assessment ensures that all field test items are taken by representative groups of Nebraska students. This combination of embedded field testing and pre-equating provides high-quality field test data that supports expedited score reporting because post-administration equating analyses are not required prior to releasing scores. This combination also provides an

extremely effective and efficient field test strategy that can be readily modified to minimize testing time required by students, while maximizing the quality of the field test data to support expedited score reporting throughout the evolution of the Nebraska assessment testing programs. DRC will review and evaluate the stability of the estimated item parameters each year to validate the pre-equating design.

For the alternate assessments, DRC proposes to stay with the current post-equating and embedded field test design as DRC is proposing other ways to expedite reporting. Please see *Subheading H.* for more information on turnaround time for both the general and alternate assessments.

p. The system must provide a practice test for each subject and grade level. Practice tests should be available online through the online test engine and in paper/pencil format. Paper/pencil practice tests should be made available via a website or download procedure. The proposal should describe the process for meeting these requirements. Practice tests should be available in accommodated forms, such as Braille and large print.

DRC proposes to provide practice tests to Nebraska students and educators as part of NDE's ongoing adoption and implementation of and transition to the new Nebraska College and Career Ready standards. Each practice test will include traditional multiple-choice items (MC) and technology-enhanced items, including auto-scored constructed-response (ASCR), evidenced-based selected-response (EBSR), and text-dependent analysis (TDA) items. Practice tests will be built for each grade and content area tested by the Nebraska summative assessments (general and alternate). Practice tests will be made available in English, Spanish, Braille, and large print. All practice tests for the general assessment will be available online and in PDF format for students who require a printed copy. The practice tests for the alternate assessments will be available as a PDF only. Student responses to TDA items in the online version of the practice test can be viewed by school personnel in View Online Responses within the DRC INSIGHT portal.

Test items used within the practice tests can be developed by Nebraska educators, pulled from the existing Nebraska item bank, or custom developed by DRC's experienced item and test development staff. DRC proposes developing practice tests that are about one-quarter of the size of a standard Nebraska assessment. Items used in the practice tests will be aligned to Nebraska standards and have the cognitive complexity in alignment with the live test items on Nebraska operational assessments.

DRC can also provide the practice tests in a guided practice test format, in addition to the standard practice test format. Under the guided version, each item will include standard/indicator information, scoring information, and a scoring annotation describing how score points are determined. For one-point MC items, there will be a single annotation describing why the correct answer is correct. For ASCR items, there will be at least one sample response with one annotation describing what a complete and correct response is to each part of the item. When necessary, additional annotations for ASCR items will be provided when additional sample responses are required to illustrate how each score point may be obtained.

In addition, general scoring guidelines for ASCR and EBSR items will also be provided. The TDA items are provided with a Click to Enlarge button that displays the Writer's Checklist. The guided practice test would only be available online.

Items that appear in the practice tests will be reviewed and approved by NDE. We recommend a face-to-face meeting or an online conference to discuss the items and their intended performance attributes. Once NDE approves the items, DRC will prepare the practice tests for online publication and as PDFs for web-based online publication on NDE's website.

q. The proposal is to include samples or access to samples of test items for English Language Arts, mathematics, and science that demonstrate the high quality of items the Contractor is able to provide.

While DRC is proposing that NDE continue its tradition of involving Nebraska educators in the item development process, there are times that NDE will direct DRC to bring to bear its test development resources to provide item development expertise. This will be most prominent when it comes to preparing technology-enhanced test items since the specialized skill sets involved in working with technology-enhanced items require more time to master than is possible/feasible for the NDE-led item writing sessions.

DRC is pleased to provide a web-link to a series of items that are indicative of DRC's high-quality item writing services. Please note: These sample items, which DRC developed for our Wisconsin client, will be migrated from one website to another during the proposal review timeframe (due to a pre-arranged schedule with Wisconsin). Please use the first link to review the items prior to February 14, 2017. After February 14, the items will be migrated to a new location. Please use the second link after February 14, 2017.

Link to sample items (use prior to February 14, 2017):
http://web-td.drcedirect.com/WI/portals/wi/

Link to sample items (use after February 14, 2017):
https://wbte.drcedirect.com/WI/portals/wi

2. Item Bank for General and Alternate Assessments if Contractor is not Proposing a 100% off-the-Shelf Product

a. The Contractor will accept, from NDE, items and tasks for the item bank. The Contractor's system must be able to accept the items from the current item bank. The proposal must identify the format for accepting test items and tasks. The proposal must describe a process to ensure that all assessments generated from the item bank are field tested, equated, and validated either individually or as part of a single test.

The entire NDE item bank is currently maintained within one of the most comprehensive item development, item banking, and form construction software applications in the industry today. DRC's item banking system, IDEAS, is described in the following section. The current NDE item

bank would not need to be transferred elsewhere to another system. The process for accepting newly written items into the IDEAS system has been described earlier in our proposal.

The process to ensure that all assessments generated from IDEAS are field tested, equated, and validated starts with item development. As discussed above, all items are loaded into IDEAS where they are then placed on forms as embedded field test items. After the items are field tested, all statistics are loaded into IDEAS and the statistics are then used during forms construction. Calibrating, equating, and scaling are completed either by pre- or post-equating. *Subheading G* goes into greater detail on calibrating, equating, and scaling as well as all analyses that occur after an assessment is administered.

b. The system must provide NDE electronic access to each item (text and graphics) as well as pertinent information for each item, including history (placement, item statistics for all administrations of the item, editing, and context). The proposal should describe the process for meeting these requirements.

DRC is proud to have developed one of the most comprehensive item development, item banking, and form construction software applications in the industry today. Our item banking system, IDEAS, was designed and built to provide **a single, consistent repository to house all information relating to test items, passages, test forms, their associated graphics, and item statistics for all administrations of the items.** This approach allows our staff from Test Development, Psychometrics, Item Rendering Group, Editing Services Group, Document/Graphics Design Group, and Printing Services to work seamlessly together through a common, user-friendly system. IDEAS will function as the repository, or content library, where all assessment content is stored (e.g., items, passages, artwork, resources, rubrics, test specifications, test forms, item metadata, item history, item performance, item usage statistics).

IDEAS offers web-based access for appropriate users to access its capabilities from a variety of locations. Security of the system and residing data is of the utmost importance. Appropriate personnel are authenticated via unique logins and passwords. This authentication also becomes the basis for determining appropriate user-authority levels in the system. Persons allowed into the system are limited to only those functions that are necessary to perform their jobs. In order for authorized users to easily manage and retrieve the immense amount of data contained in IDEAS, the system provides users with a range of search capabilities. A number of pre-defined searches and reports allow for rapid access to the most commonly used information. Additionally, system users have the capability to define and save their own custom searches based on nearly any field contained in the database whether it relates to items, passages, or forms. This provides an unlimited set of possibilities to users who require the ability to look at data from any angle.

NDE staff will have secure, remote, 24/7 access to IDEAS in order to search and view items and passages, as well as print item cards and view items using the online test engine DRC INSIGHT. The system can also be used to facilitate discussion between DRC and NDE regarding items and passages. DRC staff members will be able to attach flags to items and passages; these flags will

be readily viewable and searchable by NDE staff and will indicate the need for NDE review and response.

IDEAS is the keeper of the truth regarding the items and passages used on the Nebraska assessments. The system maintains a history of each item and notes each time the item is changed. The statistics associated with the items would be imported following each assessment and linked to each assessment. This is stored in IDEAS so that all the information associated with an item is stored in one place to continue the theme of the truth being in IDEAS. The XML associated with the item/passage before and after a change to the content of either is stored in the system. A PDF image of an item or passage can be captured and archived at any point in the development process and accessed through the history data associated with the item or passage. DRC is committed to continual improvement of this process and looks forward to meeting all of NDE's requirements.

3. Paper/Pencil Assessments for General Education and Alternate Assessments

a. The format and layout of the paper/pencil test booklets will meet the requirements of a style guide agreed to by the NDE and the Contractor. The proposal budget should include costs to support a one-day style guide meeting at NDE if Nebraska educators are writing items. A central component of the style guide will be the application of "universal design" principles and procedures in areas such as the design and layout of the booklet, use of graphics, and format of directions to ensure access by the broadest possible population of students. The proposal must address methods and procedures used to inform test booklet design. Costs in the budget should be provided for all black/white printed tests and instructions with color-coded covers. Use of colors within the assessments may be included as an optional cost.

DRC takes great pride in the quality of testing materials produced on behalf of our department of education clients. We have extensive experience in producing documents that are attractive and error-free, including direct experience with Nebraska's assessments.

DRC will provide all test booklets, answer sheets, and ancillary materials in appropriate formats and in sufficient quantities to districts and schools. The formats will maximize security and functionality. DRC recognizes that we will be responsible for producing, printing, and distributing testing materials, including, but not limited to, test booklets (including Braille, large-print, and ELL/Spanish versions) and answer sheets, Manuals for Assessment Coordinators and Administrators, parent/guardian reports (including Spanish versions), report interpretive materials, item samplers, and other necessary supporting materials, such as administration materials (test security forms and checklists, packing lists, additional materials order forms, etc.).

Final draft materials will be provided to NDE for review and approval. Printing, publishing, and distribution will not begin until final approval has been provided by NDE. DRC will provide PDF files to NDE via SFTP. DRC understands that any changes after sign-off will require NDE approval.

Typesetting

DRC has complete, in-house publishing capabilities. Our Document/Graphics Design Group staff members are highly experienced desktop publishers, graphic designers, and editing professionals working with multiple publishing software systems. DRC is proud to have developed one of the most comprehensive item development, banking, and form construction software applications in the industry today. Our item banking system, IDEAS, was designed and built to provide a single, consistent repository to house all information relating to test items and passages and test forms. This allows our staff from Test Development, Psychometrics, Editing Services, Document/Graphic Design, and Printing Services to work seamlessly together through a common, user-friendly system.

IDEAS provides all the functionality required to take an item from authoring to review to forms construction and publication/printing. **The flexibility of the data design allows for complete client customization of the data elements captured and associated with the items.** These data elements can range from simple item characteristics such as grade and content area to the most complex item statistics, rubrics, and difficulties.

Our staff members are set apart by their expertise in development, proofreading, and production of educational assessment materials, as well as scannable forms design. This provides our assessment clients with unsurpassed expertise in design—the combined knowledge of both publishing and scannable forms design.

This incorporation of resources gives DRC a unique capability to customize our processes to address the requirements of each of our clients within restricted parameters and rigorous timeframes. DRC's Document/Graphics Design Group routinely provides exemplary services to our state testing clients, including the detailed design, layout, and production of manuals, test booklets, answer sheets, and numerous ancillary materials, as well as the receipt, production, and transfer of electronic print files. **Our staff members are personally committed to developing accurate and engaging materials and creating aesthetically appealing test materials that meet all quality requirements.**

DRC and NDE will collaborate on updating and maintaining a program style guide to ensure consistent application of preferences and expectations across all program materials. The use of a style guide will ensure that detailed specifications for materials development are available to NDE and all DRC staff involved in materials development. It will also serve as the principal resource document to facilitate testing materials discussion between NDE and DRC.

Style Guide

Because DRC is committed to developing fair tests that provide an accurate measure of what all assessed students know and can do without compromising reliability or validity, DRC's Test Development Team receives direct training from the National Center on Educational Outcomes (NCEO). In support of that commitment, the Principles of Universal Design will continue to be incorporated into the style guide for Nebraska's assessments. We carefully employ the Principles of Universal Design throughout all stages of the test development process. To

encourage a comprehensive approach to materials development, DRC maintains a progressing style guide based in Universal Design, which evolves with NDE advisement with each test administration.

The style guide for the NeSA tests was originally developed during a one-day style guide meeting held in the initial contract year. During years 2 and 3, prior to the release of the standalone field tests in mathematics and science, DRC confirmed the content of the style guide with NDE and made any necessary changes applicable to each content area upon initial content standalone test release.

The current style guide includes NDE specifications for all publications and includes state-specific conventions related to overall test structure; general form layout and formatting; general and item-specific directions layout; item attributes and layout; table, chart, and other graphic preferences; type size and style; margins; line spacing; justification; etc. This guide also confirms conventions for spelling, grammar, syntax, word choice, etc. **DRC recognizes that NDE's RFP calls for the rebranding of the Nebraska assessments and has assumed that we will hold a one-day, face-to-face meeting with NDE in Lincoln, Nebraska, in the first year of the contract to develop a new style guide.**

The approved style guide will be adhered to, right from the first draft of each future document. The use of a style guide will ensure that style, format, and design are consistently applied to all testing-related materials, regardless of the type of material. This consistency will help enhance the usability of these materials for all users (e.g., students, teachers, administrators) by improving clarity, organization, and navigability. The style guide will make detailed specifications for materials development available to NDE personnel and all appropriate DRC Nebraska Project Team members. It will also serve as the principal resource document to facilitate materials development/production discussions between NDE and DRC.

Materials Production Quality Checks

DRC follows a meticulous set of internal quality standards to ensure high-quality products. In order to meet quality requirements, DRC will adhere to quality control procedures that encompass the entire production phase—from typesetting to printing. Members of DRC's Test Development, Document/Graphic Design, Editing Services, Project Management, Quality Assurance, and Information Systems Teams will collaborate both internally and with NDE staff, as needed, throughout each phase of development. The quality processes DRC will use to achieve error-free production include:

- **Test Development Review and Quality Check—**Confirm consistency and quality of content and format across documents; query any test item that is suspect from a content standpoint. Review mock-ups of all test booklets and manuals to be used and make certain that the instructions in the manuals match the test booklets and other materials. Review draft materials in conjunction with NDE staff to ensure error-free materials before the next step of production. An external review will take place to verify

the correct answers for selected-response items. Work with NDE to revise scoring keys whenever necessary.

- **Publishing Review and Quality Check—**Ensure that all changes to publications are accurately incorporated by conducting word-for-word proofreading prior to submission to NDE. These checks occur during the electronic publishing stage (typesetting and design).
- **Professional Editing Review and Quality Check—**Conduct independent quality checks, technical editing, copyediting, and word-for-word proofreading for each document according to the particular phases of the materials production cycle. The style guide will serve as the basis for editing conventions to be implemented. Provide suggestions for revisions to text and format where appropriate and query potential issues to offset the possibility of technically or problematic misleading wording in directions and test items. Conduct a final review of the test booklets and manuals to confirm that all directions in each form work in concert and are accurate and easy to follow. Submit final proofs to NDE for final review and print approval. Conduct final reviews of printer's proofs prior to bulk printing.
- **Information Systems Review and Quality Check—**Certify that all scannable documents are designed, developed, and printed within specified scanning requirements and tolerances. This technical review ensures error-free processing of scannable documents that will prevent delays in the data delivery and reporting schedule.
- **Printers Reviews and Quality Checks—**Work closely with print vendors, check press proofs to assure high-quality printing and verify adherence to printing specifications. The printing vendor will pull every thousandth document to check print quality throughout the print run.

DRC has successfully used these quality procedures for numerous state departments of education, including NDE, and we are confident that our materials production protocols and standards will continue to meet all accuracy requirements. Printing, publishing, and distribution of materials will not begin until final approval has been provided by NDE.

Test Materials

DRC will continue to utilize separate test booklets for each grade and subject area for Nebraska's English language arts, mathematics, and science general education assessments. We believe that keeping the subject areas separate is the best approach for the Nebraska program. Separation of test booklets decreases the burden on test administrators in having to control the distribution and collection of the same booklet over multiple days of testing, and increases test security by not having items for other content areas exposed prior to testing and after a subject has been completed. Each student will respond to all subjects in the same answer sheet, minimizing the amount of time the student or test administrator will need to enter student demographic information and ensuring there is one source of demographic data that is consistently applied for all subjects.

The test booklets for the general education assessment will be designed as non-scannable booklets. The answer sheets will be image-scannable. DRC will also develop Braille, large-print, and Spanish versions of the test booklets. The image-scannable answer sheets will be developed in-house using our Adobe InDesign publishing system. DRC will ensure that the test booklets, answer sheets, and other test materials are provided in appropriate formats to schools and districts. The formats will maximize security and functionality.

The test booklets, answer sheets, and other materials will be color-coded by grade. The color scheme for test booklets will be duplicated across answer sheets and coordinating test administration manuals. Color spine bars will be printed on the test booklets and answer sheets so that the color will be visible when booklets are stacked on a shelf.

The test booklets will be customized to show the name of the assessment program, the program logo, the grade, the form name, and a place for student name and school name on the covers. Each test will be divided into sections that will be administered in separate sessions.

Alternate assessment materials will be packaged in a kit that includes Student Test Booklets and Administration Manuals. The Student Test Booklets and Administration Manuals are spiral bound to facilitate the common testing procedures for the alternate assessments. DRC understands that the alternate assessments are typically administered one-on-one with a Test Administrator guiding students through the items and recording the students' responses. DRC is proposing the elimination of the image-scannable answer sheets for the purpose of capturing student responses, and instead will provide online transcription forms via DRC INSIGHT. This change will allow for the maintenance of student data in the DRC INSIGHT portal's Student Management application and faster turnaround of scores for the alternate assessments.

DRC will ensure that all printing of test booklets and other testing-related materials adheres to strict quality control procedures. Once the printing has been completed, we will provide NDE with printed copies of all test booklets, answer sheets, and manuals.

Test booklets—including design, layout, use of graphics, and format of directions—will be developed according to Universal Design principles and procedures to minimize examinee confusion and ensure access by the broadest population of students, while adhering to the established style guide. Additionally, clear, straightforward test instructions will also be provided in the Manuals for Assessment Coordinators and Administrators.

Considerations for Universally Designed Items and Assessments

Universally designed items measure what is intended to be measured by reflecting the intended content standards (reviewers have information about the content being measured) and minimizing skills required beyond those being measured. There are many considerations to factor when using Universal Design in multiple-choice assessments and test booklet design**.** Some considerations include:

- **Respect the Diversity of the Assessment Population.** Be accessible to test takers (consider gender, age, ethnicity, socioeconomic level) and avoid content that might unfairly advantage or disadvantage any student subgroup.
- **Have a Clear Format for Text.** Employ standard typeface, twelve (12) point minimum for all print—including captions, footnotes, and graphs (type size appropriate for age group). Use wide spacing between letters, words, and lines. Formats should make use of high contrast between color of text and background, sufficient blank space (leading) between lines of text, and staggered right margins (no right justification).
- **Have Clear Pictures and Graphics (When Essential to Item).** When pictures are needed to respond to an item, utilize pictures with clearly defined features, dark lines (minimum use of gray scale and shading), and sufficient contrast between colors. Color should not be relied on to convey important information or distinctions. Pictures and graphs should be clearly labeled.
- **Have Concise and Readable Text.** Utilize commonly used words and ensure vocabulary is appropriate for grade level. Avoid use of unnecessary words, technical terms, abbreviations and idioms—unless they related to the content being measured. Make sure sentence complexity is appropriate for grade level and the question to be answered is clearly identifiable.
- **Allow Changes To Format Without Changing Meaning or Difficulty (Including Visual or Memory Load).** This ensures that the use of Braille or other tactile format, signing to a student, oral presentation to a student, assistive technology, or translation into another language does not change the intent of the item.

4. Content of Test Forms for General and Alternate Assessments

a. If Contractor proposes an assessment system developed with educator support, the Contractor will support meetings at NDE of the NDE management team and the Contractor to select items to be included on test forms for both the general and alternate assessments in English Language Arts, Mathematics, and Science. The proposal budget should include costs to support meetings in NDE for each subject area for general and alternate assessments.

DRC proposes to continue to develop Nebraska assessments (general and alternate) by using educators as initial item writers. NDE will select items to be included on test forms for both the general and alternate assessments in English language arts, mathematics, and science, with support from DRC. This support includes DRC's role in working side-by-side with NDE staff in Lincoln to review items, review item performance, and to select items for use in core operational test form. DRC has partnered with NDE for many years, developing a relationship of rapport and understanding, demonstrating a command for how Nebraska assessments are to be developed, edited, and published. DRC's continued presence as NDE's partner will help to ensure ongoing success during the next stages of Nebraska's assessment transition. Below is an overview of the proposed procedures and plans for DRC to support NDE's efforts.

Proposed Item Data Review and Core/Operational Forms Construction Meeting Process

Core Approval Process

NDE convenes on a scheduled basis to provide expert reviews of previously field-tested multiple-choice items with a goal to determine candidates for inclusion on future Nebraska core/operational test administrations. DRC proposes that the Forms Construction Meetings will take place in Lincoln with dates to be determined at the annual Planning Meeting with DRC. DRC is proposing that the New Item Review and Forms Construction Meetings be held during the same week.

For the forms construction meeting, DRC will bring three copies of the "Core/Operational" binders containing individual item cards showing the "Operational Ready" items available for use in IDEAS. Binders will be subdivided by grade through the use of tabs and color separators, and then divided again into subgroups (as applicable) through the use of tabs.

1. **Previous Year Core Operational—**used to select core overlap items
2. **Previous Year Field Test—**used to select unique core items
3. **Item Bank Core Operational—**used to supplement unique core items, as necessary

Items within each sub-section will be arranged by Standard and then by *p*-value from highest to lowest (ELA by Standard and then by p-value from highest to lowest within each passage). Two binders will be for NDE's use; the third binder will be DRC's recorder binder.

DRC will also bring copies of the current test design, the current Table of Specifications, the necessary supplies (applicable per content such as projectors, rulers, basic calculators, pencils, pens, self-stick flags, index cards, etc.), and a laptop with access to PerForm, a core-building software tool (requires VPN access). (PerForm will allow NDE and DRC to observe the statistical signature of the core/operational forms as they are being constructed.)

NDE will facilitate the meeting. DRC will provide support to the process. NDE will go through each binder by grade, selecting items to meet the test blueprint for that grade. As NDE selects items for the core, DRC will record the selection in PerForm. NDE-approved PerForm files will be submitted to DRC psychometricians for approval, and NDE and DRC will discuss and resolve any adjustments to the core as necessary.

The process will continue grade by grade until all cores are built and approved. NDE will provide final arbitration as to which items appear within the core, and DRC will provide test development and psychometric guidance to NDE as requested.

NDE will keep two of the binders for reference. DRC will keep the third binder to aid in the implementation of any NDE-approved edits. DRC will record NDE's final decisions in IDEAS

(including item rejection decisions from the previous field test administration). Following the electronic update, the core pool in IDEAS will reflect the decisions of NDE.

New Item Review

NDE convenes on a scheduled basis to provide expert reviews of items newly developed by Nebraska educators with a goal to determine candidates for inclusion on future NESA embedded field test positions. DRC proposes that the New Item Review Meetings will take place in Lincoln with dates to be determined at the annual Planning Meeting with DRC, to coincide with the Forms Construction Meetings.

DRC will bring three copies of the "New Item Review" binders containing individual item cards showing the "Field Test Ready" (newly developed) items submitted to DRC via NDE. Binders will be subdivided by grade through the use of tabs. Items will be arranged by standard (ELA by standard within each passage). Two binders will be for NDE's use; the third binder will be DRC's recorder binder.

DRC will bring copies of the most current Standards/Indicator documents for reference. DRC will also bring necessary supplies (applicable per content) such as projectors, rulers, basic calculators, pencils, pens, self-stick flags, index cards, etc.

Prior to the meeting, DRC will prepare the items based on the materials NDE provides to DRC. Items and graphics will be typeset and proofed against the source materials. Any deviation from the source materials will be limited to adjusting graphics to match Nebraska style/format, adjusting text to match Nebraska style/format, and correcting content, typographical and bias errors. DRC will also review the items for test development considerations (editorial and content). DRC will bring any review notes to the meeting to supplement NDE's review as appropriate.

NDE will facilitate the meeting. DRC will provide support to the process. Using the binder, NDE will go through a grade item by item, reviewing the typeset versions of the materials that NDE submitted to DRC. As NDE determines necessary revisions to the text, item characteristics, or graphics, these edits will be marked directly on the item cards. Staff at DRC will be available in Minnesota to process modifications to items and graphics, if necessary, in order to validate a requested edit. In addition to item revisions, discussions and decision points will be recorded, including, technical decisions and the status for inclusion in field test pool.

The process will continue grade by grade through the New Item Review binder. NDE will provide final arbitration as to which edits and revisions will be made and which items will be included in the next field test pool. DRC will provide item development guidance to NDE as requested.

NDE will keep two of the binders for reference. DRC will keep the third binder to aid in the implementation of the NDE-approved edits. DRC will record NDE's final decisions in IDEAS. Following the electronic update, individual item records in IDEAS will reflect the decision of NDE.

b. The budget should include costs to develop an operational form per year per subject per grade. NDE agrees to use of a previous year's test instead of developing a breach form or if off-the-shelf propose a contingency plan.

DRC proposes to work with NDE to develop one operational core form per year per grade and content area, including at the following grades and content areas, as outlined in Table 4–15.

Table 4–15: Operational Core Forms to Be Built Annually by Assessment by Grade by Content Area

Grade Level	General Assessments			Alternate Assessments		
	ELA	Mathematics	Science	ELA	Mathematics	Science
3	✓	✓		✓	✓	
4	✓	✓		✓	✓	
5	✓	✓	✓	✓	✓	✓
6	✓	✓		✓	✓	
7	✓	✓		✓	✓	
8	✓	✓	✓	✓	✓	✓
11				✓	✓	✓

The initial procedures DRC proposes to use for this step can be found in the previous section. Following NDE approval of the core, DRC will typeset the printed test forms and render the online version of the test forms. For more information on this process, see *Subheading 4.d*.

c. The selection and ordering of items on the test forms, whether Nebraska educator developed or off-the-shelf will be based on appropriate psychometric procedures, must measure Nebraska State Standards, and meet the coverage requirements of USDE peer review. The proposal must include a description of the proposed process for item selection. The NDE will have final approval of the selection of items and test forms.

DRC acknowledges that NDE will have final approval of the selection of the test items and forms used on the Nebraska assessments and alternate assessments.

Valid and Reliable Tests

The DRC team understands that every test that is developed must be valid, reliable, and fair, if the results are to be useful in understanding student achievement and improving teaching and student learning. DRC fully subscribes to the *Standards for Educational and Psychological Testing* issued jointly by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education (2014).

DRC's procedures for reviewing test items will ensure that the tests are content valid and aligned to the Nebraska standards and grade-level expectations.

The DRC approach to establishing validity relies heavily on content and construct evidence. Evidence of content validity comes from the item and test development process and from external alignment studies that assess the match between the items and the content standards.

Content Validity

DRC's Item development experts and assessment experts will meet with NDE staff to review new items prior to field testing. This provides many opportunities for these professionals to offer suggestions for improving or eliminating items as well as to offer insights into the interpretation of the statewide content standards for the Nebraska assessments. This process will ensure test content validity of the Nebraska assessments.

In addition to providing information on the difficulty, appropriateness, and sensitivity of these items, the team will provide an important check on the alignment between the items and the content standards they are intended to measure. When items are judged representative of the content defined by the standards, this judgment provides evidence to support the validity of inferences made (regarding knowledge of this content) with Nebraska assessment results.

When items are judged to be inappropriate for any reason, the team can either suggest revisions (e.g., reclassification, rewording) or elect to eliminate the item from the test item pool. In essence, these committees review and verify the alignment of the test items with the objectives and measurement specifications to ensure that the items measure appropriate content. The nature and specificity of these review procedures provide strong evidence for the content validity of the Nebraska assessments.

d. The proposal must describe an efficient procedure for cycles of item and test form review.

As described in *Subheading B.4.a*, DRC proposes the following cycles of item and test form review:

1. DRC will attend and provide support for NDE at the NDE-hosted item writing workshops with Nebraska teachers that occur each summer.
2. DRC will import the educator-developed items into DRC's Nebraska item bank.
3. DRC will proofread and edit the teacher-created items to get them ready for NDE/DRC New Item Review Meetings.
4. NDE and DRC will meet face-to-face to review the newly developed items and make any needed adjustments to the items or to any of the accompanying metadata (e.g., standard alignment).

5. NDE and DRC will decide collaboratively which of the newly written items should be moved forward to embedded field testing.

6. After embedded field testing, NDE and DRC will reconvene for Form Construction Meetings to determine which of the embedded field test items will be candidates for inclusion on future Nebraska assessments and to determine the other items to be included in the forms for the next assessment cycle.

5. Test Schedule for All Assessments

The proposal shall propose a schedule for conducting the general and alternate assessments in English Language Arts, Mathematics, and Science. Final approval of the schedule will be determined by NDE in cooperation with the Contractor.

DRC has reviewed the timelines associated with previous Nebraska assessments and is fully prepared to support NDE in developing and administering the general education and alternate assessments in keeping with those timelines. We have developed a milestone schedule for the first year of the contract as part of our proposal. All dates are subject to negotiation with NDE upon contract award and on an annual basis thereafter. This schedule is provided in Table 4–16. NDE deliverables are listed in blue font. DRC/combined deliverables are listed in black font.

Table 4–16. Proposed Key Dates, 2017-2018 General Education and Alternate Assessment

Dates	Tasks	Subject	Responsible Party
TBD	Two-day Kick-off/Orientation Meeting Following Contract Execution – Lincoln, NE	ELA/M/S	NDE/DRC
TBD	NDE-led Educator Item Writing Workshops for General Education and Alternate ELA and Mathematics Assessments	ELA/M	NDE/DRC
July 14, 2017	Embedded Field Test Items for General Education and Alternate ELA Assessments Due to DRC	ELA	NDE
July 18, 2017	Face-to-face Project Meeting 1 – Lincoln, NE	ELA/M/S	NDE/DRC
July 21, 2017	Finalize Demographic Fields for All Tests	ELA/M/S	NDE
July 31, 2017	Post DRC INSIGHT Technology User Guide to the DRC INSIGHT portal and NDE	ELA/M/S	DRC
July 31, 2017	DRC INSIGHT Software Downloads Available in the DRC INSIGHT portal	ELA/M/S	DRC
July 31, 2017–June 30, 2018	2017-2018 Practice Tests Administration Available in the DRC INSIGHT portal	ELA/M/S	Districts/ Schools
July 31, 2017–June 30, 2018	2017-2018 Check4Learning Administration Available in the DRC INSIGHT portal	ELA/M/S	Districts/ Schools
August 4, 2017	Provide Updated District/School Information	ELA/M/S	NDE
August 9, 2017	Embedded Field Test Items for General Education and Alternate Mathematics Assessments Due to DRC	M	NDE
August 15, 2017	Face-to-face Project Meeting 2 – Maple Grove, MN	ELA/M/S	NDE/DRC

Dates	Tasks	Subject	Responsible Party
August 21–25, 2017	Forms Construction Meeting for General Education and Alternate ELA Assessments – Lincoln, NE	ELA	NDE/DRC
August 28–September 1, 2017	Forms Construction Meeting for General Education and Alternate Mathematics Assessments – Lincoln, NE	M	NDE/DRC
September 12, 2017	Face-to-face Project Meeting 3 – Lincoln, NE	ELA/M/S	NDE/DRC
September 18–29, 2017	Fall Workshops	ELA/M/S	NDE/DRC
October 2, 2017	Post Enrollments Training Recording	ELA/M/S	DRC
October 2–13, 2017	Review and Approve ELA Test Booklets for General Education Assessment	ELA/M/S	NDE
October 9-20, 2017	Enrollments Window	ELA/M/S	Districts/ Schools
October 16–27, 2017	Review and Approve Mathematics Test Booklets for General Education Assessment	ELA/M/S	NDE
October 17, 2017	Face-to-face Project Meeting 4 – Maple Grove	ELA/M/S	NDE/DRC
October 30–November 10, 2017	Review and Approve Science Test Booklets for General Education Assessment	ELA/M/S	NDE
November/ December 2017 (TBD)	1-day TAC Meeting – Lincoln, NE	ELA/M/S	NDE/DRC
November 3, 2017	Provide Student PreID Information – Practice Tests and Check4Learning	ELA/M/S	NDE
November 10, 2017	Determine Paper/Pencil and Online Quantities	ELA/M/S	DRC
November 13–17, 2017	Review and Approve ELA/M/S Answer Sheets to Print	ELA/M/S	NDE
November 13–22, 2017	Review and Approve Student Test Booklets and Administration Manuals for Alternate Assessments	ELA/M/S	NDE
November 14, 2017	Face-to-face Project Meeting 5 – Lincoln, NE	ELA/M/S	NDE/DRC
November 27–December 1, 2017	Review and Approve Paper/Pencil Test Manual(s) for ELA/M/S	ELA/M/S	NDE
December 4–8, 2017	Approve Online Manual for ELA/M/S	ELA/M/S	NDE
December 12, 2017	Face-to-face Project Meeting 6 – Lincoln, NE	ELA/M/S	NDE/DRC
January 8–12, 2018	Review and Approve ELA Online Forms for General Education Assessment	ELA/M/S	NDE
January 15–19, 2018	Review and Approve Mathematics Online Forms for General Education Assessment	ELA/M/S	NDE
January 22, 2018	Provide Updated Student Information PreID File for ELA/M/S	ELA/M/S	NDE
January 22–26, 2018	Review and Approve Science Online Forms for General Education Assessment	ELA/M/S	NDE

Dates	Tasks	Subject	Responsible Party
February 12–16, 2018	Review and Approve General and Alternate Test Administration Training Presentations	ELA/M/S	NDE
February 27–March 1, 2018	Test Administration Training Webinars for General Education and Alternate Assessments	ELA/M/S	DRC
February 19, 2018	INSIGHT Test Setup for ELA/M/S Available to Districts	ELA/M/S	Districts/ Schools
March 5, 2018	Paper/Pencil Materials for General Education and Alternate Assessments Delivered to Schools	ELA/M/S	Districts/ Schools
March 12–May 11, 2018	Customer Service Peak Staffing Period (7 a.m. – 5 p.m.)	ELA/M/S	DRC
March 19–May 4, 2018	Testing Window for General Education and Alternate Assessments	ELA/M/S	Districts/ Schools
Beginning March 19, 2018	Same-day or Next-day Rosters with Scale Scores for General Education ELA and Science Assessments Available in DRC INSIGHT portal (all test sections for a subject must be complete)	ELA/M/S	DRC
May 7, 2018	Return General Education and Alternate Assessments Paper/Pencil Materials to DRC	ELA/M/S	Districts/ Schools
June 1, 2018*	Data and Score Resolution Training	ELA/M/S	DRC
June 4–15, 2018*	Data and Score Resolution Window	ELA/M/S	NDE
June 6, 2018*	Review Post-Equating Results for Alternate Assessments	ELA/M/S	NDE
June 6, 2018	Deliver Missing Materials Report General Education and Alternate Assessments	ELA/M/S	DRC
June 11–15, 2018*	Standard Setting for General Education and Alternate Mathematics Assessments	M	DRC
June 15, 2018	Post Reports Interpretive Guide to the DRC INSIGHT portal and NDE website	ELA/M/S	DRC
June 19, 2018	Conduct Reports Training Webinar	ELA/M/S	DRC
July 6, 2018*	NDE Approves Cutscores for General Education and Alternate Mathematics Assessments	M	NDE
July 13–20, 2018*	Review and Approve General Education and Alternate Assessments Report Samples	ELA/M/S	NDE
July 23, 2018*	Provide District Access to General and Alternate Assessment Reports and Data Files on the DRC INSIGHT portal	ELA/M/S	Districts
July 30, 2018*	Deliver Printed General and Alternate Assessment Individual Student Reports	ELA/M/S	DRC
August 3, 2018	Deliver Technical Reports for General Education and Alternate Assessments	ELA/M/S	DRC

** These tasks are on the critical path for production of final score reports. DRC acknowledges NDE's desire to accelerate reporting. Our proposed schedule assumes the length and timing of the current testing window, and accelerates DRC activities to provide reports sooner. We would welcome the opportunity to discuss ways to eliminate or shorten the durations for the remaining critical path tasks.*

C. DELIVERY OF ASSESSMENTS

1. Preparation

a. NDE will provide the contact information for a District Assessment Coordinator (DAC) for each district. NDE will provide an updated database of districts, schools, and grade level counts. The proposal should identify the roles and responsibilities for district staff needed for implementing both paper/pencil and online assessments. These might include test coordinator, test administrator, technology coordinator, etc.

DRC understands that, on an annual basis, prior to the assessment window, NDE will provide DRC with the contact information for the District Assessment Coordinator/Contact of each district, along with an updated database of schools, districts, and grade level counts. The schedule for providing this information will be mutually agreed to by both NDE and DRC.

DRC recognizes the significance of establishing clear roles and responsibilities for assessment coordination and administration. It is important to make the testing process as easy and efficient as possible to minimize the burden on district and school personnel, while simultaneously meeting requirements for test security and standardized procedures that provide for valid and reliable results. DRC has established a suggested set of roles and division of responsibilities for Nebraska assessments that districts can use to coordinate the administration of the tests. DRC recommends continuing this proven, successful approach, although we are open to NDE discussions for improvement. Descriptions of the roles and responsibilities for the District Assessment Coordinator, School Assessment Coordinator, Test Administrator, and Technology Coordinator are provided below.

District Assessment Coordinator/Contact

The District Assessment Coordinator/Contact (DAC) is the primary contact in each district for NDE and DRC and is responsible for coordinating district- and school-level testing activities. The DAC's responsibilities for administering assessment programs include: making arrangements for testing; and training School Assessment Coordinators, Test Administrators, Technology Coordinators, and other key staff to assist with testing. With the stipulation in this RFP (Section D.3.a.i) that test materials be shipped to schools instead of districts, some of the District Assessment Coordinator's responsibilities for handling and maintaining the security of test materials will transfer to a School Assessment Coordinator role.

DRC sets up and maintains DAC accounts in the DRC INSIGHT portal (formerly known as eDIRECT) to assure appropriate access to student information and provide convenient access to documentation related to assessment procedures and reports. DACs have access to information for all schools and students within their district, giving them the ability to view and edit student data, monitor testing, and access results. They also have the ability to distribute full or partial access to other authorized personnel in the district.

DACs are expected to coordinate the testing schedules for the schools in their districts and to assure that all personnel involved in delivering the assessment are aware of their

responsibilities. For example, DACs may delegate responsibility for completing enrollments to representatives from each of their schools, but the DACs are ultimately responsible for assuring the process is finished by the deadline.

The DACs are the audience for all initial communication to districts. Test materials have been initially sent to DACs for inventory or distribution to schools with the expectation that the DAC is ultimately responsible for returning the materials to DRC for scoring and processing. DRC recognizes that this RFP calls for the option of sending test materials directly to schools and is prepared to make this adjustment. In the event an alert about any DRC systems or procedure must be distributed, the DACs are the initial recipient.

DRC will continue to provide training presentations and manuals to DACs that clearly indicate their responsibilities as well as responsibilities DACs may assign to other district or school personnel. DAC responsibilities, which will be presented and discussed in detail in the Test Coordinator Manual, are summarized below:

Before Testing:

- Attend test administration workshops.
- Determine the testing dates within the testing window(s).
- Review proper test administration and test security procedures.
- Serve as the primary contact for School Assessment Coordinators.
- Order all paper/pencil test materials (standard and accommodated) via DRC's online Enrollment System.
- Ensure test security throughout the test administration.
- Make certain all School Assessment Coordinators and Test Administrators are adequately trained in proper test administration and test security.
- Receive and inventory district-level test material shipments and contacts DRC if any discrepancy is found.
- Ensure School Assessment Coordinators have received school-level test material shipments. District Assessment Coordinators will receive copies of school packing lists to assist with this responsibility.
- Access and distribute Test Security Agreements and ensures required personnel have completed them prior to testing.
- Distribute test materials within schools as needed.

During Testing:

- Report unforeseen emergencies and unexpected circumstances to NDE.
- Ensure test security procedures are followed throughout the test administration.
- Serve as the liaison between School Assessment Coordinators, Test Administrators, and Technology Coordinators and NDE/DRC.
- Contact NDE for permission to administer make-up test or to invalidate tests.
- Monitor online testing within the district's schools.

After Testing:

- Ensure schools inventory all scorable and non-scorable secure test materials from Test Administrators immediately after testing and store all test materials in a locked, secure area until they are shipped back to DRC.
- Follow up with Test Administrators and other school personnel regarding any missing materials notifications from DRC.

School Test Coordinators

School Test Coordinators are building-level representatives responsible for organizing and coordinating the assessment administration in each school. The School Test Coordinator's responsibilities for administering assessment programs include: making arrangements for testing; handling and maintaining the security of test materials; and training Test Administrators or Proctors and other key staff to assist with testing. They are responsible for informing Test Administrators or Proctors of the test administration processes, monitoring testing to check that processes are being followed, and alerting DACs of any issues or concerns that arise during testing. DRC's test administration training presentations and manuals provide easy-to-follow checklists for tasks that School Test Coordinators are expected to perform.

Assessment Coordinator responsibilities, which will be presented and discussed in detail in the Test Coordinator Manual are summarized below:

Before Testing:

- Attend test administration workshops.
- Review proper test administration and test security procedures.
- Serve as the primary contact for Test Administrators.
- Receive and inventory school-level test material shipments and contacts DRC if any discrepancy is found.
- Order additional materials for school from DRC.

- Assign secure materials to Test Administrators and, possibly, to individual students using the Security Checklist.
- Prepare online testing materials, such as student login information.
- Ensure test security throughout the test administration.
- Distribute Test Security Agreements to principals and make certain all required school personnel are familiar with test security procedures.
- Distribute test materials within the school as needed.

During Testing:

- Report unforeseen emergencies and unexpected circumstances to District Assessment Coordinator.
- Ensure test security procedures are followed throughout the test administration.
- Monitor online testing within the school.

After Testing:

- Ensure school inventory all scorable and non-scorable secure test materials from Test Administrators immediately after testing and store all test materials in a locked, secure area until they are shipped back to DRC.
- Complete Test Security Checklists.
- Package all secure and scorable test materials for return to DRC.
- Arrange for pick-up of test materials with shipping vendor.
- Notify DRC immediately if shipping vendor does not pick up return shipment on the date scheduled.
- Follow up with Test Administrators and other school personnel regarding any missing materials notifications from DRC.

Test Administrators or Proctors

Test Administrators or Proctors are responsible for the direct administration of tests to students. Student performance is impacted by how well Test Administrator and Proctors are prepared and follow administration instructions, as well as the nature of the arrangements made for testing. The Test Administrator's responsibilities for administering assessments include: making arrangements for testing; handling and maintaining the security of test materials; and administering the tests to students. They are required to distribute and collect online test tickets or secure test booklets and answer documents to each student being tested.

Test administration manuals include guidance for preparing testing locations to assure a secure and distraction-free testing experience for students, as well as directions for all students to

follow that Test Administrators or Proctors read aloud before testing. DRC provides easy-to-follow directions written in narrative format to be read directly to the students.

Test Administrator and Proctor responsibilities, which will be presented and discussed in detail in the Test Administration Manuals, are summarized below:

Before Testing:

- Schedule testing.
- Receive and inventory secure test materials and store all test materials in a locked, secure area until test administration.
- Review test materials and the Test Administration Manual.
- Account for that students that need accommodations or alternate tests.
- Prepare students and the classroom for testing.
- Remove or cover any displays, poster, or visual aids that may inadvertently provide clues to test answers.

During Testing:

- Follow all test administration procedures provided in the Test Administration Manual.
- Distribute online test tickets to students testing online and guide students through the login process according to the procedure outlined in the Test Administration Manual.
- Distribute test books and answer sheets to students taking paper/pencil tests.
- Instruct students taking paper/pencil tests on how to complete the student demographics section of the answer sheet.
- Instruct students taking paper/pencil tests to write their names on the front cover of their test books.
- Direct students to use a No. 2 pencil.
- Administer tests verbatim using read-aloud instructions provided in the Test Administration Manual.
- Ensure test security.
- Provide additional time to any student who is not done by the end of the recommended testing administration time.
- Report any emergencies and unexpected circumstances to the Assessment Coordinator.

After Testing:

- Collect all secure test booklets and answer sheets and verify secure test booklets and answer sheets are all accounted for by using the Security Checklist.
- Collect and destroy all scratch paper.
- Check all scorable answer sheets to verify that appropriate labels are affixed and handcoded student identification and demographic information is complete.
- Complete any blank or incomplete student identification and demographic sections.
- Indicate any test invalidations (only after approval by NDE).
- Complete test administration information for absent students.
- Transcribe student responses from large-print and Braille test books to scannable answer sheets.
- Return test materials to School Test Coordinator.

District Technology Coordinators

The successful online implementation of the Nebraska assessments relies on the same level of local support from school technology, administrative staff, and faculty that is required for traditional assessment administrations. DRC will assist school- and district-level technology staff using online assessments every step of the way. DRC has extensive experience in helping Nebraska and numerous other states prepare for administration of online assessments.

District Technology Coordinators, or DTCs, are typically responsible for downloading and configuring online testing software across the equipment in their districts that will be used for administering the assessment. DRC provides DTCs with DRC INSIGHT portal access to all necessary software downloads and to technical manuals that outline system requirements and various methods for installation. DRC will provide training needed by network administrators to configure their firewalls, content filters, border managers, etc., to allow the correct operation of the DRC INSIGHT online testing system. DRC will also provide a step-by-step procedure to verify the proper configuration of network devices. DRC Customer Service staff is trained to support DTCs in the installation process and in performing troubleshooting to determine the cause and solution for any technical issues DTCs encounter.

2. Student Identification and Tracking

a. The NDE will provide the Contractor with data files containing the NDE Student ID, demographic, grade level, school and program information prior to the assessments on a date agreed to by both the parties.

i. For paper/pencil tests, the Contractor will use this information to link assessments to the appropriate student information via the NDE Student ID (e.g. labels) and identify any costs.

ii. For online assessments, the Contractor will use this information to ensure appropriate student access and tracking of student results. The proposal should discuss methods that will be used to link online assessments to the appropriate student information via the NDE Student ID and identify any costs.

DRC has provided tried-and-true processes and systems for maintaining the integrity of student data associated with online and paper/pencil tests and the data's link to the official information of record that NDE maintains in the Nebraska Staff and Student Record System (NSSRS).

Our proposal includes costs for loading all student records NDE supplies in data files to the DRC INSIGHT portal (formerly eDIRECT) and assigning students to online test sessions for either the general assessment or alternate assessment as identified in the files. This initial presumption that all students will test online assures the most efficient preparation and online administration of Nebraska's assessment for the significant majority of students who test online.

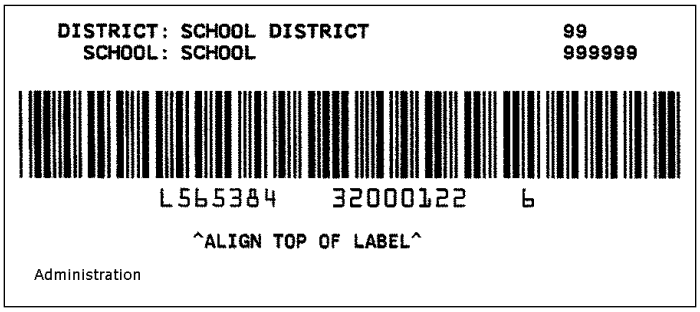
The loading of student data establishes the Student Management application of the DRC INSIGHT portal as the source for student information that will be used for reporting, and provides an opportunity to update or correct information from the NDE data files that may no longer be accurate at the time of testing. Any data changed in the Student Management application will be identified for NDE, so that the changes can be verified and brought into sync with NDE's official information of record.

DRC proposes a change to the test administration procedures for Nebraska's alternate assessment—the entry of student responses into DRC INSIGHT instead of into a paper/pencil answer document. This change would allow for the maintenance student information in the DRC INSIGHT portal's Student Management application and help with faster turnaround of scores for the alternate assessments. This would also eliminate the need for PreID Labels for these students.

Adopting the proposed change to the alternate assessment administration procedure would omit the number of paper/pencil answer documents to be processed to those who are administered the paper/pencil form of the general education assessment as an accommodation. The test administration procedures for these students would remain unchanged. District and school personnel would be directed to return a paper/pencil answer document with a District/School Label affixed for each of these students and to leave their

records in the Student Management application unchanged. The District/School Labels and student data entered on the answer documents would be matched back to information in the NDE-supplied data file based on agreed-upon matching criteria. Any variances can be identified for further investigation and reconciliation. Figure 4–33 shows a sample District/School Label.

Figure 4–33. District/School Label



Additional information on the use of labels for paper/pencil tests and the DRC INSIGHT portal Student Management application can be found earlier in this scope of work in our response to *Subheading A.5.g.*

3. Paper/Pencil Tests

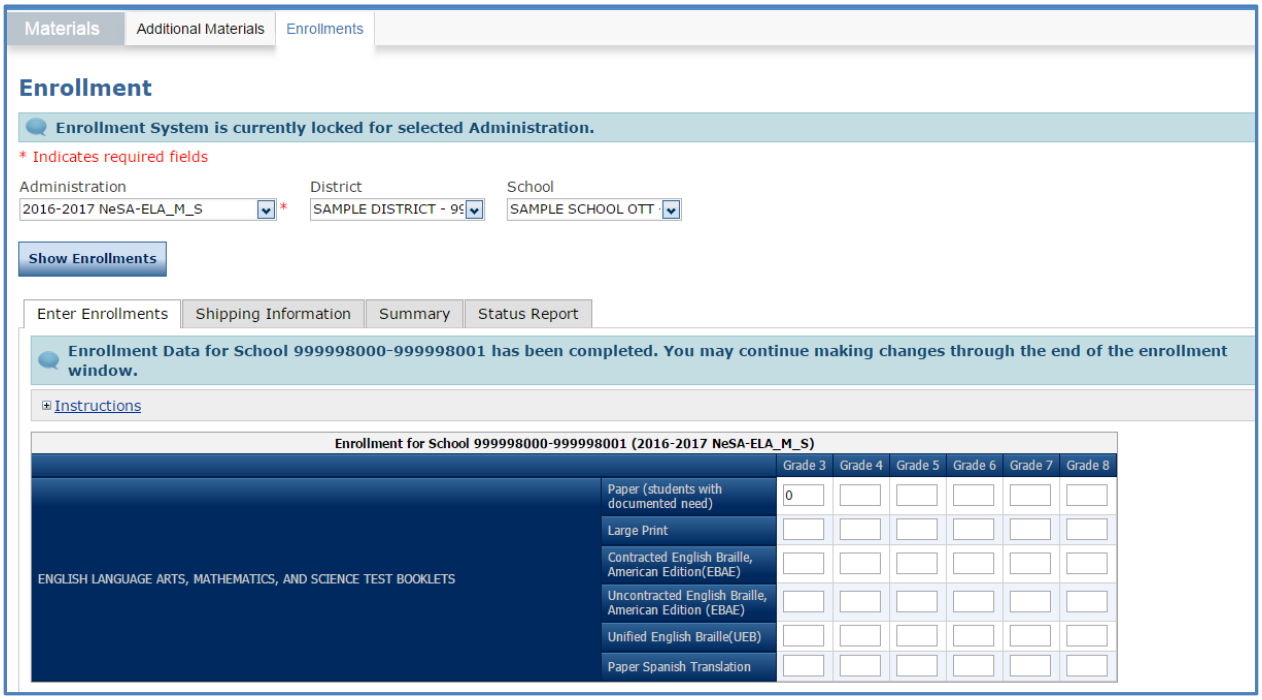
a. The proposal will describe a system for schools to order special test materials (e.g., large-print, Braille) and counts of paper/pencil needs prior to testing.

Each year, DRC will work with NDE and the schools/districts to verify student enrollment counts by grade for each school participating in the assessments and provide schools/districts an opportunity to update their contact and shipping information and grade configurations. Schools/districts will also be offered the opportunity to order testing materials, including any special test materials such as large-print, Braille, and Spanish translation test materials.

DRC proposes the continued use of the Enrollments application within DRC's secure, online DRC INSIGHT portal to collect the number of students at each school that require the paper/pencil form of the general assessment or the large-print, Braille, and Spanish special formats of paper/pencil forms required by this RFP.

The Enrollments application is typically available in the fall of the year preceding the spring administration of the summative assessment and serves as the basis of establishing final print quantities of paper/pencil materials. DRC recognizes that the specific quantity of paper/pencil materials may change between the collection period for Enrollments and testing window and prints an overage agreed upon with NDE to fulfill orders for additional copies of these materials. Districts and schools may order more copies of the paper/pencil formats of the tests before and during the testing window using the DRC INSIGHT portal's Additional Materials application. A screenshot of the Enrollment system is shown in Figure 4–34.

Figure 4–34. Nebraska Enrollment System



DRC's flexible system has the capability of pre-populating estimated test material quantities using information provided by NDE and/or from previous administrations. If data is pre-populated, schools/districts will access the Enrollments application to confirm or modify the pre-populated quantities for their specific schools, along with other information. DRC has integrated quality checks to ensure final enrollment counts are closely aligned with the projected enrollment counts to help guard against inflated material quantities.

Our exceptional Customer Service staff will also be available to assist school and district personnel with the use of the Enrollments application. DRC's Customer Service staff has a history of providing superior service in Nebraska and around the country.

b. The Contractor will produce large-print versions of test booklets and related test materials (one test form per grade level). The proposal should comment on the research and best practice for providing accommodations for visually impaired students, particularly the issue of multiple sizes of large-print versions. The proposal should budget for the production of large-print materials using the counts provided in the Introduction to this Technical Approach.

DRC has full, in-house capability to develop, produce, reformat, and print large-print test materials. We have extensive experience providing large-print materials for many state assessment clients, including Nebraska, along with Alaska, Louisiana, Pennsylvania, and South Carolina.

Each year, DRC's Document/Graphic Design Group and Printing Department will provide one test form per grade level in large-print format. We will work with NDE during typesetting to

ensure all specifications for the large-print versions are met. The large-print materials will be provided to NDE for review and approval prior to production. Supplemental instructions for transferring responses will be provided to test administrators. Using enrollment information and a 10% overage, DRC will ensure sufficient quantities of large-print versions of test materials are available for each administration.

In addition to the application of Universal Design Principles, which can enhance accessibility for a much larger number of students, other guidelines should be considered when producing large-print assessment materials. The American Printing House for the Blind (APH) has developed extensive guidelines regarding the accessibility of educational materials (including tests and assessments) to students needing visual impairment accommodations such as large-print formats (Allman, C., 2004).

There are two primary methods for producing large-print materials: enlargement of regular print test materials to meet recommended font sizes; and electronically re-typesetting/re-formatting test items to directly modify the font as needed. DRC's use of scalable fonts and graphics facilitates the direct enlargement of the standard test booklet, yielding type and graphics that are crisp. Font size and style, spacing, and graphic shading and size are all appropriate for the audience requiring large-print as an accommodation. The current method of large-print production meets APH recommendations.

APH recommendations regarding visual accommodation materials production processes include:

- Matching the format of visually accessible materials to the regular print format as much as possible, such as matching the number and order of the test items and test sections
- Independent proofreading of visually accessible materials
- Collaboration between the test publisher and the content developer(s) to ensure that items are acceptable as modified
- Maintaining test security and confidentiality throughout the development process
- Modification of the test directions to provide for response formats that differ from standard response formats (e.g., "indicate [or mark] the answer" vs. "bubble in the answer")

APH also recommends specifications regarding font, spacing, shading/contrast, pagination, test booklet format, and graphics (Allman, C., 2004); Table 4–17 presents some of these recommendations.

Table 4–17: APH Recommendations for Visually Accessible Assessment Materials

Test Material Design Element	Recommendation
Font	• Print measuring 18 points is considered large print. Point sizes between 12 and 18 points are considered enlarged print. • Font styles that are decorative or cursive should be avoided. Standard serif or sans serif fonts with easily recognizable characters are recommended. Overall, sans serif is a better choice. Verdana, APHont, Antique Olive, and Helvetica are reliable choices. • Large print should have x-heights (distance from the top to bottom of a lower case x) and t-heights (distance from the bottom of the "t" to the cross bar of the "t") of at least 1/8" with a thickness of 2 points. Eighteen point Verdana, APHont, Antique Olive and Helvetica meet this standard. • The use of bold print, underlined print, or quotation marks for highlighting text is preferable to using italics. Italics should only be used when absolutely necessary. • Headings and subheadings (captions, titles of diagrams and charts, and text inside diagrams) should be larger and bolder than regular print and set in a font style that differs from that of the general text. Acceptable typefaces for this use include Arial Black, Helvetica Black Bold, Lucida Sans Bold, Era Bold ITC, Verdana Bold, Antique Olive Bold, and Helvetica Bold. • All text and graphic materials, including labels and captions on pictures, diagrams, maps, charts, exponential numbers, notes, and footnotes, must be presented in at least 18-point type, a size that meets the APH definition of large print (Kitchel, 2001).
Spacing	• Leading or spacing between lines should be at least 1¼ spaces to allow persons with low vision to effectively move from line to line in the text. • Block style formatting and 1" margins are recommended. • Format should include: no indentation of paragraphs; justification of left margins; and unjustification of right margins for ease in reading and transferring from line to line. • Divided words should be avoided. • Columns of text, excluding graphic material, should be at least 39 characters in line length. Generally, for efficient reading, columns should be avoided. • Test items and accompanying diagrams, pictures, and graphics should be located close to each other and on the same page if spacing permits. If this is not possible, test items and graphics should be on facing pages. Answer choices should be contained on one page if possible.

Test Material Design Element	Recommendation
Shading and Contrast	• Gray-scale and shading should be avoided, particularly where pertinent information is provided. • The highest possible contrast should be used for text and background, with attention to the use of color. Certain color combinations other than black and white may be unreadable to persons with low vision or persons with color blindness. • Glossy paper may cause unnecessary glare. Dull finish paper in white, ivory, cream, or yellow is recommended and best complemented with black print. • Unnecessary boxes and framing of material should be omitted unless the framing provides a separation of graphic material from text or encloses a group of scattered items.
Graphics	• The complexity of some graphic materials prohibits their being provided in large print unless they are modified to become more readable when enlarged. • Most maps, charts, graphs, and diagrams can be enlarged if the test publisher agrees to some editing. • Editing could involve the elimination of shading, the reduction of distracters, the insertion of a key, or the separation of one chart into two or three. • Graphics in large print must exhibit good contrast, clarity, and accurate details and information. • Some pictures that would need extensive editing and have only artistic value may be considered for elimination. • Pictures and graphs used in test questions requiring measurement must be true to the size intended in order to ensure that a correct answer is available.
Pagination	• Repagination of materials is preferable to increasing the overall page size. • While double-sided pages are generally preferable, avoid double-sided copying if print will “bleed” or show through or otherwise obstruct clear reading. • Where blank pages must appear, type the words “Blank Page” near the top of the page.
Test Booklets	• Depending on test size, large-print copies may need to be separated into several booklets. • The binding of the large-print booklet(s) should allow each page to lie completely flat for whole page viewing and ease of handling.

In addition to APH's recommended specifications, other organizations have developed similar recommendations regarding visually accessible materials, such as large print. In "Reading Materials in Large Print: A Resource Guide," a reference circular produced by The Library of Congress, National Library Service for the Blind and Physically Handicapped (2005), large print is defined in the following manner:

Type is measured in points from the bottom of the lowest letter (e.g., the tail of the letter "y") to the tallest capital…the minimum size for large print materials is 14-point type…most materials are commonly available in 1- to 18-point types … large print materials are easiest to read if they are printed with heavy leading (spacing between the lines of print), wide margins, simple type, and non-glossy paper.

DRC's extensive experience producing large-print materials, along with industry best practice, indicates that type size and line spacing are adjusted to the student's reading level. Typically, students who are visually impaired and reading below grade level would benefit from material produced in 22-point type, and an average reader would have material produced in 18-point type. For the Nebraska assessments, DRC also recommends providing 11" × 17" booklets in a spiral binding that allows the books to open flat. These materials will be available for review by NDE prior to reproduction. Supplemental instructions for transferring responses and a description of the modifications from the print form will be provided to testing administrators.

c. The Contractor will produce UEB Braille, with Nemeth for mathematics, versions of test booklets and related test materials (one test form per grade level). The proposal should budget for the production of UEB Braille materials using the counts provided in the Introduction to this Technical Approach.

Each year, DRC will work with staff from American Printing House for the Blind (APH) to produce translations of the English versions of the paper/pencil test books for Nebraska's general education English Language Arts, Mathematics, and Science tests.

APH is a non-profit organization that has been in continuous operation as a source of alternative media for blind and visually impaired students since 1858. APH has been producing tests in accessible formats since 1952 when the first Stanford Achievement Test in Braille became available. Over the years, APH has been an acknowledged source of high-quality Braille and large-print testing materials.

APH will produce Unified English Braille (UEB) and UEB version test booklets in the quantities provided in this RFP. Nemeth Braille Code for Mathematics will be used for encoding all mathematical and science notation as appropriate. Tactile graphics will also be produced in accordance with best practices for UEB users.

APH will ensure that all tests are modified correctly and that they are accurate. APH has provided Braille and tactile graphics for the Nebraska assessments since the first operational NeSA-Reading test in 2010. They have also produced Braille test booklets for several other

assessment programs managed by DRC with excellent results. Codes accepted by the Braille Authority of North America (BANA) will be followed.

If desired, the Braille test booklets will be provided to NDE for review and approval before reproduction. Supplemental instructions regarding transferring of student responses to the answer sheets will be provided to test administrators. Braille versions will be available for assessment coordinators to order with the rest of their materials; DRC understands that, according to estimates provided in the RFP, up to 5 sets of Braille materials per grade should be produced each year.

d. All student answer document images, student answer documents, and actual student booklets shall be disposed of during the first two weeks of January of the year following the testing. The budget should reflect any costs associated with storage and disposal of documents.

DRC's proposal includes the costs for storage of answer document images, student answer documents and used student paper/pencil test booklets in all formats until the first two weeks of January in the year following testing. DRC will be responsible for the disposal of these images and documents at that time.

4. Ancillary Materials

a. The following ancillary materials will be produced for all online and paper/pencil statewide assessments. The proposal should discuss the type of information included in manuals, the type and use of shipping labels and control forms, etc. Web- based versions of all ancillary materials should be available for posting on the NDE websites. The following materials are needed:

i. A Principal/Test Coordinator manual for each test administration. A common manual will be produced for all grades. A single printed manual will be shipped to each district and school and copies of the manual will be distributed at the administration workshops. The manual should also be accessible online.

ii. A unique Test Administrator manual for each grade level test.

iii. All forms and labels necessary for the efficient and secure shipment and receipt of printed materials.

iv. All control/processing forms necessary for the administration of the tests.

v. All sign-off forms necessary to ensure the security of the test materials.

i. Principal/Test Coordinator Manual and ii. Test Administrator Manual

DRC understands that NDE is requesting a Principal/Test Coordinator's Manual for each test administration to be shipped to each district and school. The manual will also be distributed at administration workshops, as applicable. A PDF will be provided for online posting. DRC also understands that NDE is requesting a unique Test Administrator Manual for each grade-level

test. DRC stands prepared to provide separate documents as requested. However, DRC is also willing to produce a combined Coordinator and Administrator Manual, as we have been doing in the past, in order to streamline the process. DRC would be happy to discuss this upon contract award.

DRC will develop the Manuals for Assessment Coordinators and Administrators that effectively communicate consistent information, and include the new branding for the assessment program. We understand that testing is a very busy time for teachers and administrators so we constantly strive to make test procedures and test administration directions more useful and easier to understand. DRC has extensive background and experience in writing and editing effective manuals. DRC will work with NDE to design manuals that are clear, concise, and user-friendly, making it easier for school personnel involved in testing to be successful. Throughout the manuals, graphic illustrations will be used where appropriate to clarify procedures for the program. The manuals will be made as user-friendly as possible. DRC will collaborate with NDE to develop manuals that provide the following information:

- Description of the Nebraska assessment program.
- Responsibilities of the District Assessment Coordinators/Contacts, School Test Coordinators, Test Administrators and Proctors, and District Technology Coordinators.
- General information about how to administer the tests, as well as specific test instructions for each grade level.
- Training of assessment coordinators.
- Preparation for the assessment.
- Easy-to-follow test administration directions written in narrative format to be read directly to the students.
- Information pertaining to the handling and security of the test booklets and answer sheets.
- Procedures for distribution, collection, and return of materials to DRC for processing and scoring.
- Student inclusion rules.
- Procedures for maintenance of security.
- Logistical information for appropriate administration of the tests, including testing guidelines and scheduling.
- Contact information to directly connect with DRC's live Nebraska Customer Service Team.

Manuals will be mocked up, typeset, and submitted using the same developmental and proofreading steps as test booklets and answer sheets. During the development process and

prior to printing, a three-way match between the test booklets, answer sheets, and Manuals for Assessment Coordinators and Administrators will be performed by DRC to ensure accuracy of all instructions. Manual proofs will be free of typographical and formatting errors before they are submitted to NDE for review.

As with all materials, NDE will review the content and format of the manuals and will have final approval. After incorporating any NDE edits and revisions, and after NDE approval, DRC will print and package the manuals. Hardcopies will be distributed to districts in appropriate quantities, based on enrollment information; they will be shipped with the secure testing materials. Manuals will also be provided electronically in downloadable PDF format for use online.

iii. Forms and Labels for Shipping and Receiving

DRC proposes to use the same forms and procedures that have ensured the secure shipment and receipt of printed Nebraska assessment materials since 2009.

From the enrollment data provided by NDE and schools/districts, DRC will produce a listing of all schools in each district and their anticipated enrollments. We will produce district and school packing lists using the updated master file. Packing lists will itemize each type of document and the quantity of each document to be shipped to each destination. The contents of every box shipped to Nebraska will be listed on the district or school packing lists, with security code ranges for all secure test materials clearly indicated.

Customized shipping labels will be produced through an on-demand label system, which is accessed by scanning a barcode at the top of each school and district packing list. A box range sheet will be maintained to log all material packaged for each school site. Additional details about DRC's shipping and receiving protocols can be found in *Subheading D.3.*

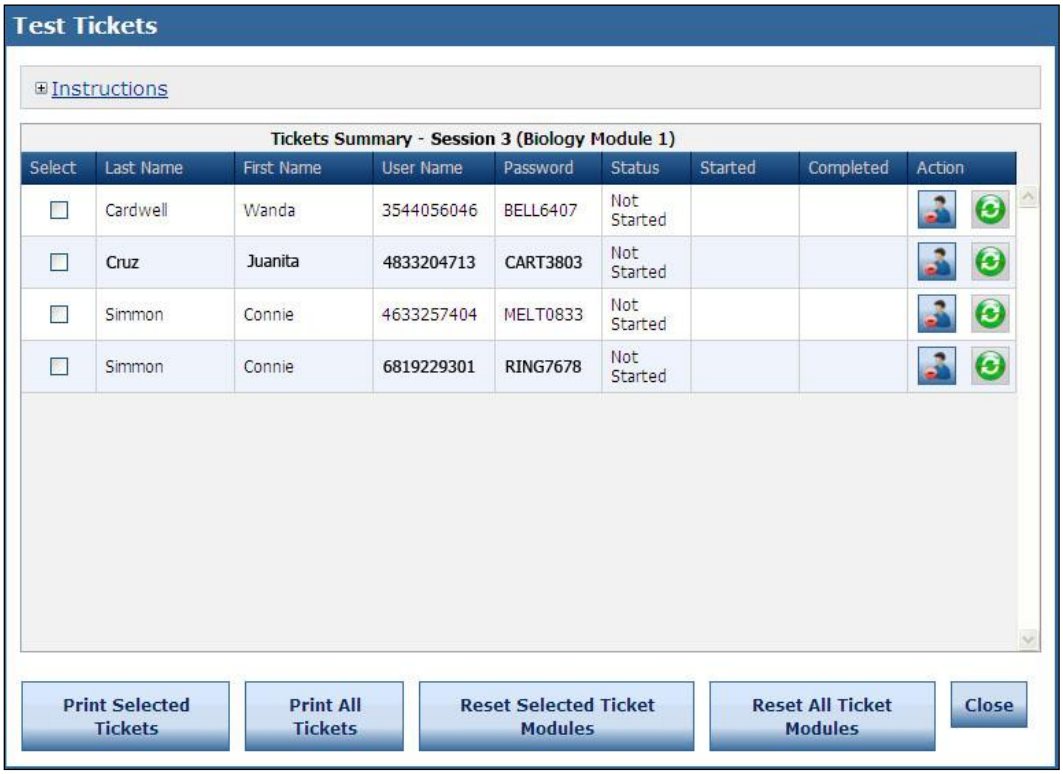
Shipments will include both DRC Return Shipping Labels and UPS Return Shipment Labels for the return of materials to DRC's processing facility. The DRC Return Shipping Labels allow for expeditious processing upon delivery to DRC and end-to-end tracking of materials contained in each box—from receipt to check-in to imaging to storage and eventual disposal. Even the boxes that DRC uses to send materials to districts and schools are designed with the durability needed to reuse them for returning materials to DRC. We will be responsible for all costs associated with the return of materials.

iv. Control/Processing Forms

Student Test Login Tickets

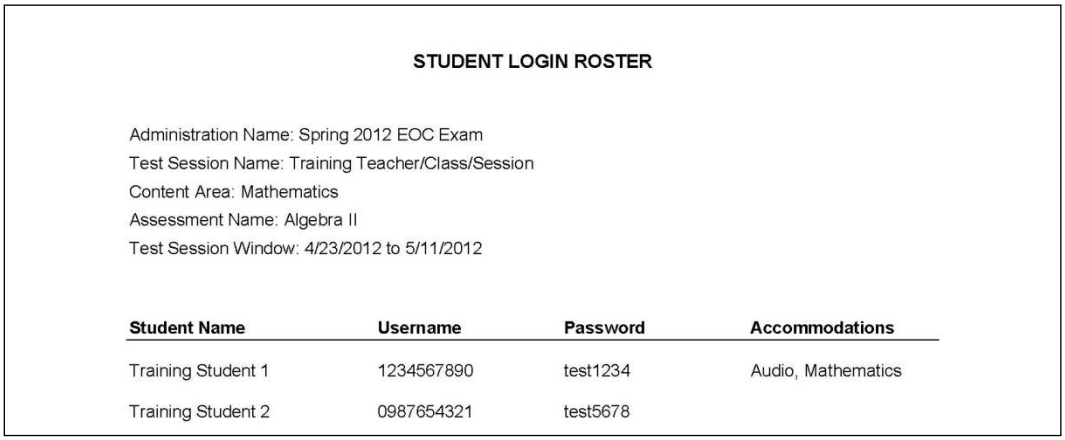
Test Administrators will use Student Test Login Tickets to control student access to the online testing system. For a selected test session, authorized users (e.g., School Test Coordinator or Test Administrator) can view a Tickets Summary that shows all students assigned to a test session and their current status. A sample test tickets summary is presented in Figure 4–35 below.

Figure 4–35: Test Tickets Summary by Test Session



From the Test Tickets Summary screen, users can download and print a PDF document containing instructions, a roster of student tickets being printed, and the actual Test Tickets. The tickets are pre-formatted for printing on label stock, but can also be printed on plain paper and cut apart. Test tickets typically include the name of the administration, the student's name, test session information, username (e.g., school ID number), a unique pre-generated password, and any accommodations designated for the student (if applicable). Passwords are generated by combining a common four-letter word (from a pre-specified pool) with a random four-digit number. Figure 4–36 and Figure 4–37 present an excerpt from a sample Student Login Roster and an example of a Student Test Login Ticket, respectively.

Figure 4–36. Sample Student Login Roster (partial list)

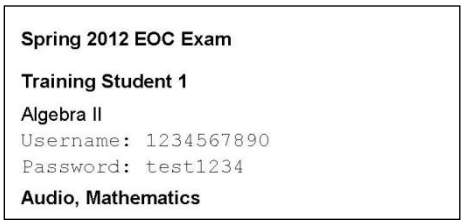


STUDENT LOGIN ROSTER

Administration Name: Spring 2012 EOC Exam
Test Session Name: Training Teacher/Class/Session
Content Area: Mathematics
Assessment Name: Algebra II
Test Session Window: 4/23/2012 to 5/11/2012

Student Name	Username	Password	Accommodations
Training Student 1	1234567890	test1234	Audio, Mathematics
Training Student 2	0987654321	test5678	

Figure 4–37. Sample Student Test Login Ticket



Spring 2012 EOC Exam
Training Student 1
Algebra II
Username: 1234567890
Password: test1234
Audio, Mathematics

Each test ticket is only valid for one particular session/form and cannot be reused for other tests. Because login tickets are secure material, DRC recommends they be printed as close to the date of testing as possible and kept secure until given to the test administrator for distribution.

Security Checklists

DRC proposes continuing the use of pre-printed Security Checklists and/or the electronic versions of the Security Checklists for assigning secure materials to schools and classrooms. Each shipment includes a Test Security Checklist for each school intended as a tool School Test Coordinators will use to track distribution of test materials to Test Administrators or Proctors. DRC also supplies the Test Security Checklist as a .csv report for each school via the Report Delivery application in the DRC INSIGHT portal to allow for the Test Security Checklist process to be completed electronically. Nebraska District Assessment Contacts and School Test Coordinators are already familiar and comfortable with these Security Checklists.

With these forms, a secure document can be tracked during all stages of the assessment. DRC will print the pre-assigned ranges of secure booklets on the customized packing lists for reference by the District Assessment Contact and School Test Coordinator. The ranges on the packing lists are expanded on the Test Security Checklist so that each secure material can be individually assigned to Test Administrators and/or students. Typically, the School Test Coordinator will use the form to assign security identification numbers to specific classrooms (Test Administrators). The form will also be used to check in and verify the return of all secure

materials from each test administrator upon completion of testing. The Security Checklist includes a signature line for the School Test Coordinator to verify that all secure materials have been accounted for.

After testing, secure materials will be replaced in the school's original shipping boxes along with a copy of the form. The School Test Coordinator will then verify all school returns and will retain the checklist for future reference. The School Test Coordinator will then seal all school boxes for shipment to DRC.

v. Test Materials Security Forms

DRC is aware that NDE requires signed DAC Confidentiality Agreements and Building Principal Security Agreements from District Assessment Coordinators/Contacts and principals annually, and that NDE has handled the collection of these forms in recent years. DRC has prior experience with collecting test security agreements on behalf of NDE in the early years of its NeSA program. DRC is happy to revisit the handling of test security agreements with NDE upon award.

DRC is prepared to provide Building Principal Security Agreements and District Assessment Coordinator Confidentiality and Information Agreements as NDE has in the past. DRC could distribute these documents via the DRC INSIGHT portal or email. Principals/Assessment Coordinators would have the option of returning Security Agreements to DRC by fax, email, or mail as they do currently. We will collect the signed forms and provide NDE with a report detailing their receipt. Security Forms will be organized and stored at DRC for one year and will be available to NDE upon request.

b. Each year the Contractor will provide up to and including three reports related to the tests on issues such as test design, administration, interpretation/use of results, scoring, and validity/reliability. The intended audience for these reports will be educators or the general public. The NDE will determine the topics for each report. These reports will be delivered according to a mutually agreed upon date, and will be provided to NDE in electronic format for posting online.

i. In addition, the Contractor is expected to provide a solution for not only reporting on data forensics, but supporting NDE in its use of the report and follow up on issues of concern indicated in data forensics report.

ii. In addition, the Contractor is expected to provide a report of the online accommodations/tools used by students with IEPs, 504 plans, or for students who are English Language Learners in order to conduct research on the effect on final student scores.

DRC shares NDE's position on informing educators and the general public on pertinent issues related to assessment. DRC stands ready to produce three reports per years about various assessment topics, such as validity, reliability, or special analysis requested by NDE or TAC. We

understand that the content and schedule for these reports must remain flexible so that they may topical for their target audiences.

DRC's Nebraska Project Team has experience in all areas of assessment, and we welcome the opportunity to collaborating with NDE to provide information for educators or the public that advances their knowledge and awareness of Nebraska's assessment program.

DRC has included a full description of our data forensics offering, including support for NDE in the use of forensic data, later in our proposal under *Subheading G.8.*

As described earlier, DRC's system tracks students' use of tools and accommodations and we can report this information to NDE for all students, including those with IEPs, 504 plans, or for students who are English Language Learners. The system tracks whether or not a student used a given tool or accommodation during a test. We will include this usage data in the state student data file delivered to NDE so that NDE can conduct research in this area.

D. TEST ADMINISTRATION FOR ALL ASSESSMENTS STATEWIDE

1. Online Administration

The proposal should identify the process or method(s) used to:

a. Authorize and authenticate users including students, teachers, test administrators, and test coordinators at a minimum plus any other designated district personnel proposed by the Contractor. This includes participation in the statewide SAML single sign on framework and application launch portal.

Students will be authenticated and granted access to the online testing system using a secure login process. Students are given a Test Ticket prior to logging in that contains their unique username and password, which are only good for that particular test. For school, district, and NDE personnel, the DRC INSIGHT portal (known as eDIRECT under the current program) will authorize and authenticate users through a secure login. The portal is permissions-based, and user accounts are controlled through a variety of security levels to ensure a user can only view or edit data for which he/she is authorized. Please see *Subheading A.5.a* for more information on secure access for students and educators.

Participation in the Statewide SAML Framework

DRC can work with Nebraska to implement Single Sign On (SSO) between the statewide framework and DRC's administrative website for educators, the DRC INSIGHT portal. DRC has experience with use of the Security Assertion Markup Language (SAML) standard and our DRC INSIGHT portal is capable of utilizing this technology for SSO. This would allow users to leverage a single point of entry to applications hosted by DRC as well as applications hosted by other providers.

DRC has experience being the originator and manager of user data, and also as a consumer of user data from outside sources. DRC's overall solution is highly adaptable and, given a customer need, can accommodate a variety of authentication mechanisms. We will collaborate with NDE to integrate with the state's existing SAML implementation for educators in the 2018–2019 school year.

For student users, SAML integration for the test engine is currently on our roadmap for future development. We would be pleased to negotiate a timeline with NDE for supporting it.

b. Ensure student confidentiality during assessment.

DRC ensures that our clients' data, including student information, remain confidential and secure at all times, including during testing. Our practices adhere to the federal Family Educational Rights and Privacy Act (FERPA) regulations for the security and confidentiality of student data, and our systems provide data privacy safeguards throughout every step of an assessment process. While FERPA provides a foundation for DRC's data privacy policy, we view

these as a baseline set of requirements. We work with our state clients to meet FERPA as well as state-specific requirements and policies for securing student data.

All DRC staff members receive training on data security and confidentiality requirements, including annual Cyber Security Awareness training. In particular, DRC realizes the importance of keeping Personally Identifiable Information (PII) data secure at all times. We follow stringent procedures to protect PII data and frequently verify these procedures to confirm adherence.

Access to student data is only granted to those DRC employees and school, district, and state personnel who are directly working on data-related tasks associated with the assessments. Only school or district staff who are authorized by the client (i.e., NDE) are allowed to access data, and they must sign a confidentiality statement agreeing not to disclose student information to anyone other than an approved state, district, or school official.

All secure data is encrypted in transit using Secure Sockets Layer (SSL). Data at rest is encrypted using hardware encryption.

The client retains ownership of student data at all times. DRC does not share student data with third parties unless approved by the appropriate client authority. Likewise, we do not use student data for any purposes other than those required by the client.

c. Use bandwidth efficiently so as not to over burden district capacity.

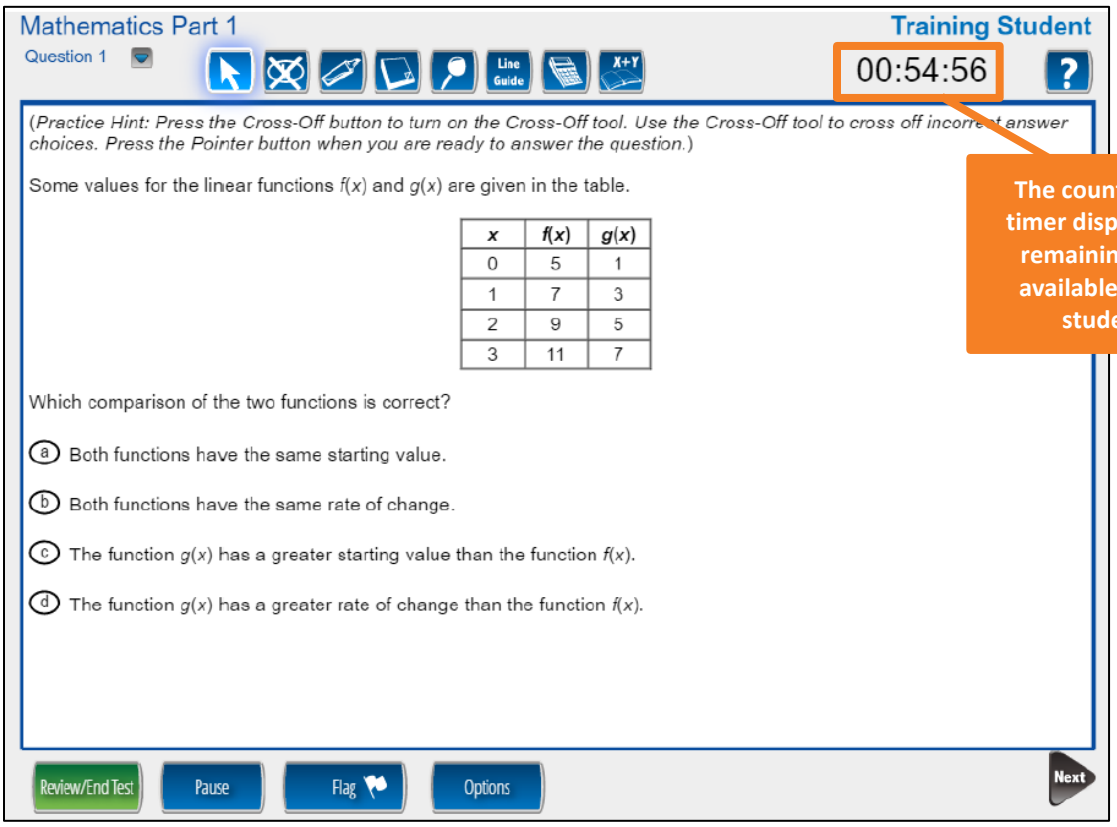
DRC provides several tools to help districts evaluate their capacity for online testing and manage bandwidth more efficiently. Please see *Subheading A.5.b* for a discussion of our Technology Readiness approach and our optional content caching application.

d. Limit the time available for online testing should the department choose this option, and to include the options to display test time remaining or hide it.

The DRC INSIGHT test engine includes an optional test timer that limits the time available for testing. The timer is turned on for all students for a test administration. The count-down timer displays the remaining time to the student throughout the test and cannot be hidden. We have included costs for the timer as an option in our Cost Proposal (available beginning in Year 2).

A screenshot of the DRC INSIGHT Test Timer is shown in Figure 4–38.

Figure 4–38: DRC INSIGHT Test Timer



e. Allow for online tests to be segmented by hard stops and re-opened for students with special needs as part of test engine, without compromising the security of the test or burdening districts or NDE with manual reactivations.

DRC is pleased to propose a new solution for students who need breaks during testing that does not compromise the security of the test. This solution was described previously under *Online Accommodations* in *Subheading A.5.c*.

f. Provide tools to all students.

g. Other accommodations/tools in online engine to include:

•Text-to-speech

•Speech-to-text, if open ended items are to be included

Please see *Subheading A.5.c* for a description of available tools and accommodations, including text-to-speech and speech-to-text.

h. The online technology must track student use of accommodations/tools provided for students with IEPs, 504 plans, or for students who are English Language Learners in order to research results based on use of accommodations/tools.

As described earlier, DRC's system tracks students' use of tools and accommodations and we can report this information to NDE. The system tracks whether or not a student used a given tool or accommodation during a test. We will include this usage data in the state student data file delivered to NDE.

i. Limit access to other online sites during test administration.

The DRC INSIGHT test engine uses kiosk mode and other device-specific settings to "lock down" the student testing device. This prevents the student from copying, pasting, or printing secure screen images/test content. This also allows us to block student access to other computer applications including websites, and prevents interference from automatic software processes such as virus scans. More detailed information can be found in *Subheading A.5.a.*

j. Allow districts to edit student identification, school location, student demographics (date of birth, gender, race/ethnicity, LEP/ELL eligible, special education/IEP), not tested codes, alternate assessment, Spanish assessment, accommodations – IEP/504, and linguistic support-ELL during test administration.

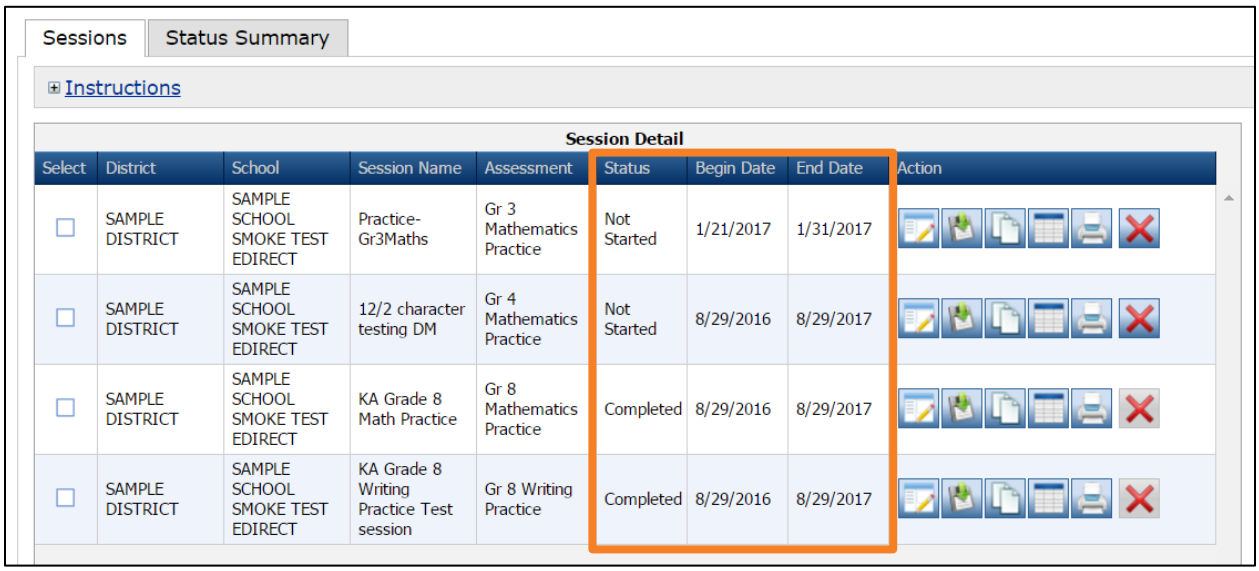
The DRC INSIGHT portal (a.k.a. eDIRECT) allows authorized users to manage the student, teacher, and class information required to administer the assessment. This includes the ability for district users to edit student identification, school location, student demographics, not tested codes, alternate assessment, Spanish assessment, accommodations, and linguistic support information during test administration. These data fields are configurable to meet NDE's needs. Please see *Subheading A.5.e* for more information.

k. Permit test administrators to easily monitor test progress for students.

Tracking Student Test Status

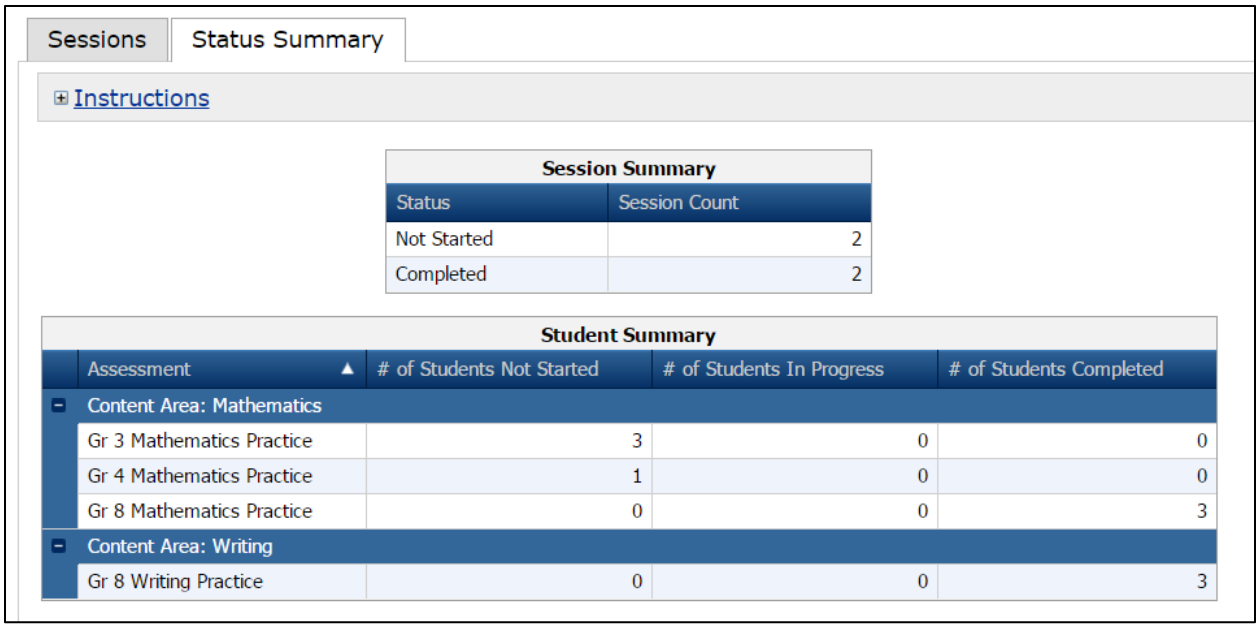
During the testing window, administrators can view the testing status by test session and by individual student through the DRC INSIGHT portal. Status is indicated as Not Started, In Progress, Completed, or Locked. The test session status includes the beginning and ending date for each session. A screenshot of the Testing Status by Test Session is provided in Figure 4–39.

Figure 4–39: Testing Status by Test Session



Authorized users can also view summary/aggregate information about testing that is occurring within their district, school, or class. The status summary, shown below, indicates the number of students by grade/content area that have not started testing, the number of students in progress, and the number who have completed testing. A sample screenshot is provided in Figure 4–40.

Figure 4–40: Test Session Status Summary by Number of Students



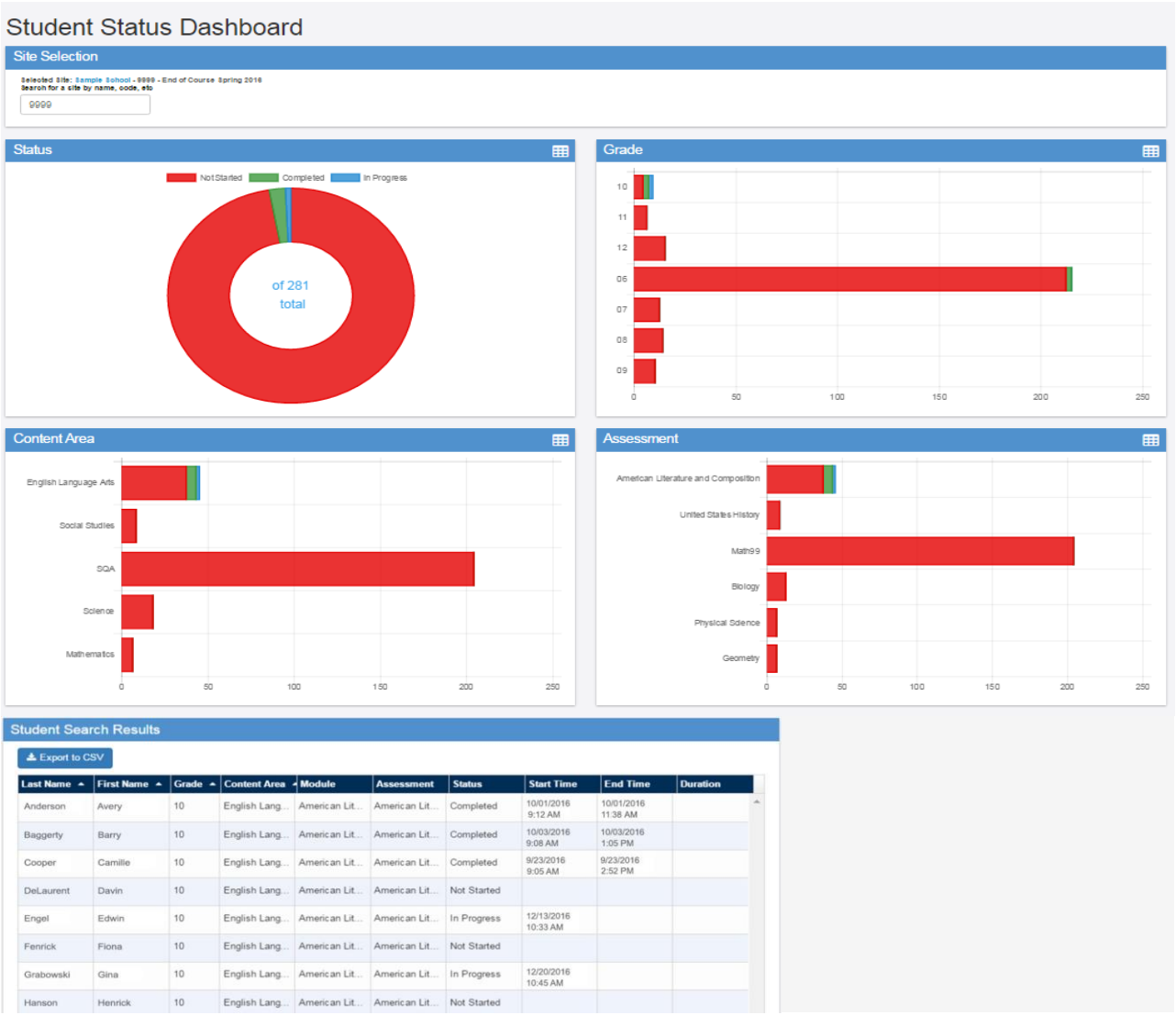
Student Status Dashboard

New in 2017, the Student Status Dashboard uses a variety of interactive charts to show the current testing status for a selected school/site. The testing status is color coded:

- Not Started = red
- Completed = green
- In Progress = blue

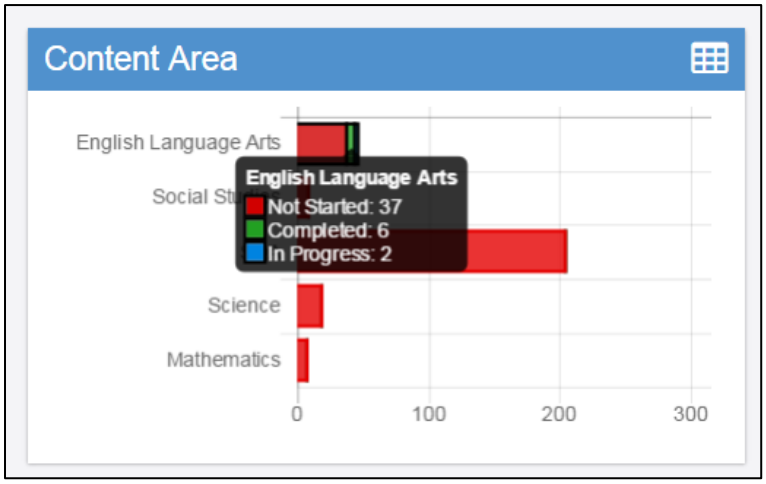
Testing status is shown by Overall Status, by Grade, by Content Area, by Assessment, and by Student. A screenshot of the Student Status Dashboard is provided in Figure 4–41.

Figure 4–41: Sample Student Status Dashboard



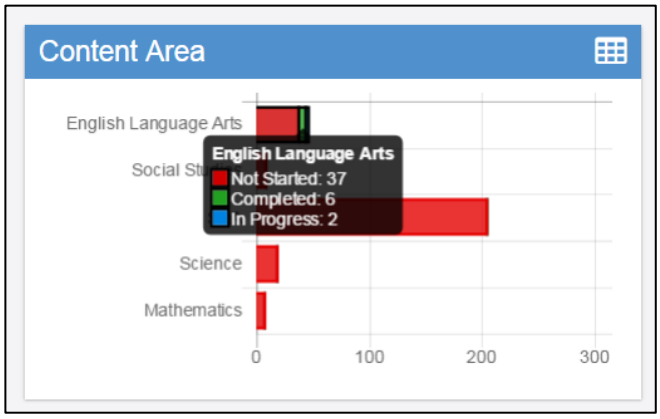
The Student Status Dashboard also contains interactive charts. When the user hovers over a chart with the mouse, an information box will dynamically appear to provide the user with more information. In the example in Figure 4–42, the user hovered over the English Language Arts bar within the Content Area chart.

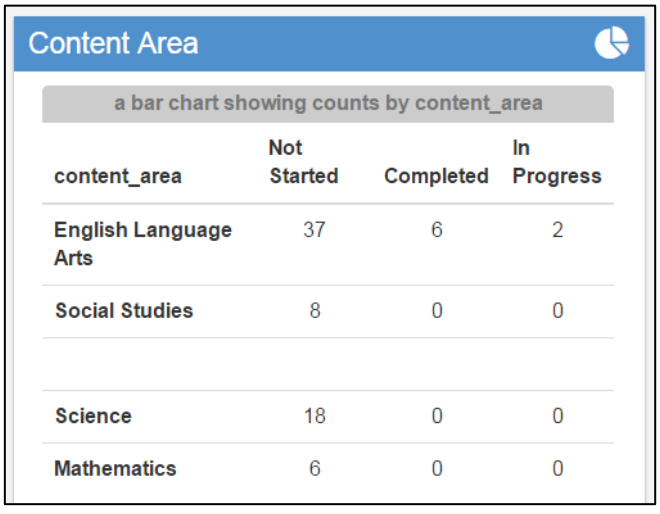
Figure 4–42: Sample Student Status Dashboard—Interactive Charts



The dashboard also provides flexible display formats. The user can click on the icon in the upper right corner of any chart to switch to an alternate format. The example in Figure 4–43 shows the same information displayed in the two different formats.

Figure 4–43: Sample Student Status Dashboard—Flexible Display Formats





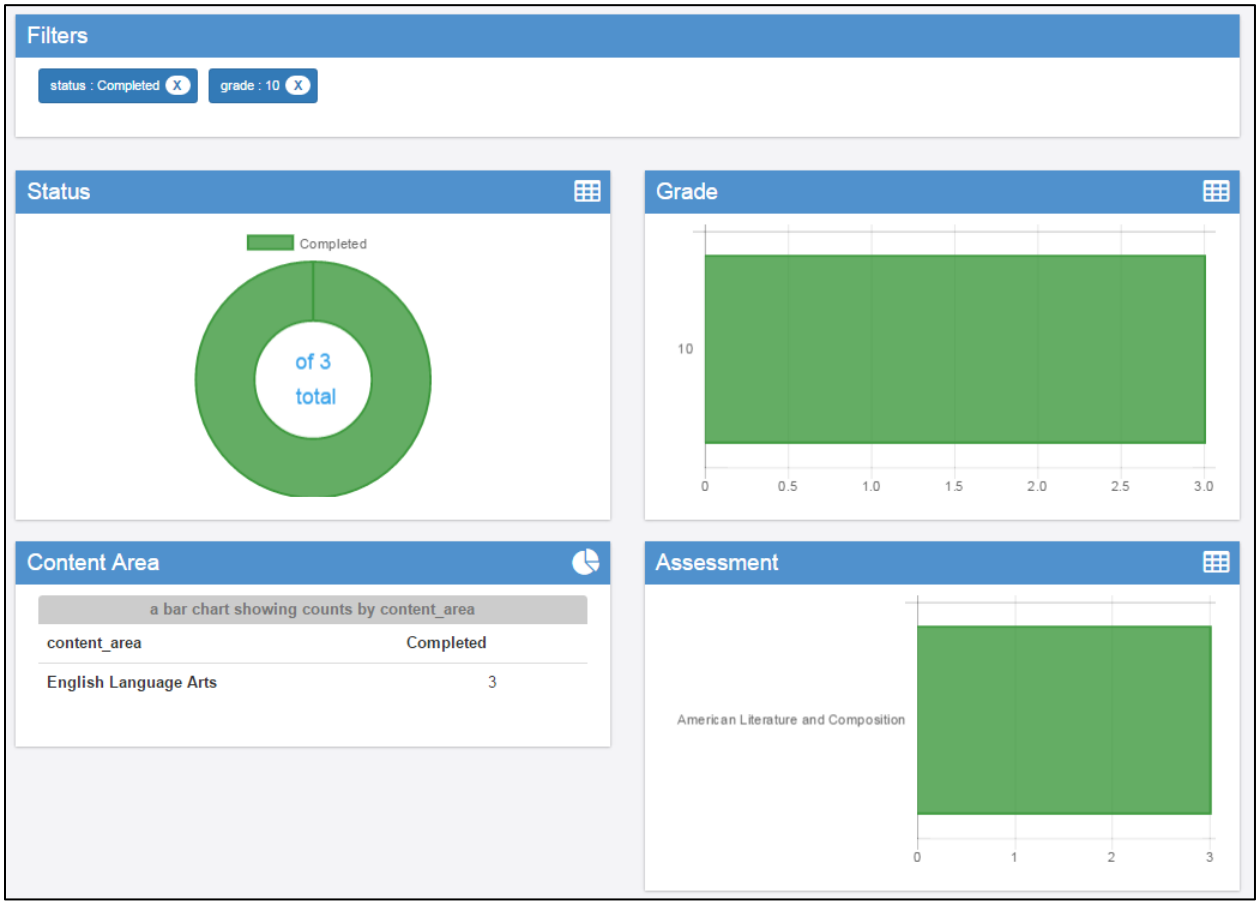
Content Area

a bar chart showing counts by content_area

content_area	Not Started	Completed	In Progress
English Language Arts	37	6	2
Social Studies	8	0	0
Science	18	0	0
Mathematics	6	0	0

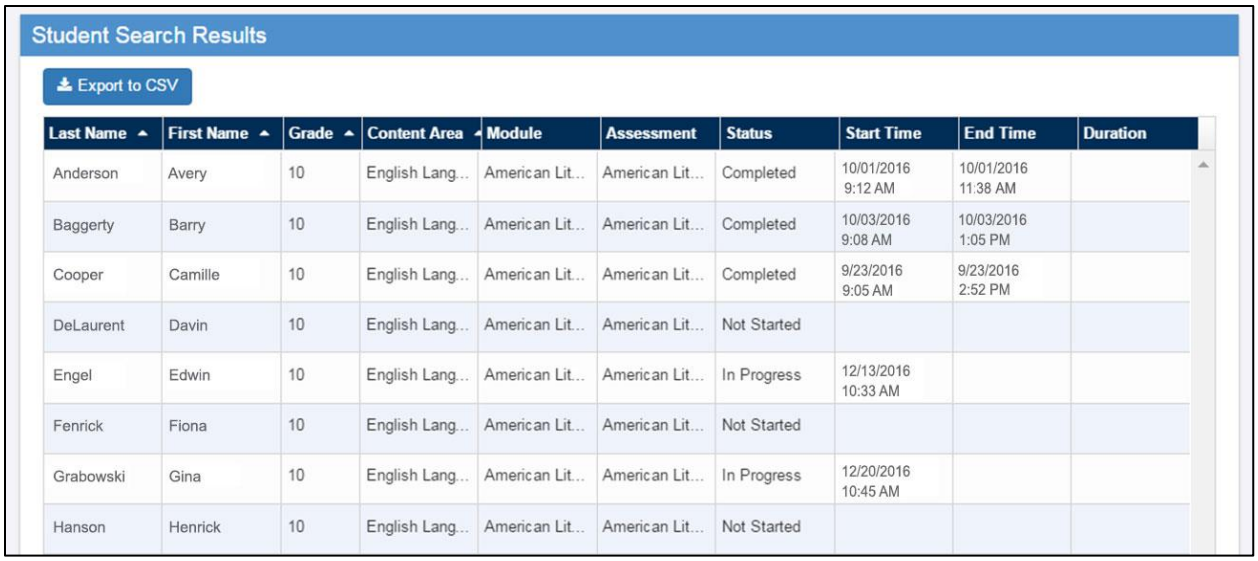
The dashboard offers dynamic filters. The user can click on the various data displayed in each chart to filter the information shown. In the example below, the user clicked on the "Completed" status and then clicked on "Grade 10." All of the charts dynamically update their content based on those selected filters. The user can continue to add and remove filters as desired, and all of the charts will immediately update to reflect the selected criteria. An example of the dynamic filters is shown in Figure 4–44.

Figure 4–44: Sample Student Status Dashboard—Dynamic Filters



For the selected school/site, information on individual students is provided in the Student Search Results grid. This includes each student's test status, their test starting and ending times, and the test duration. A sample is shown in Figure 4–45.

Figure 4–45: Sample Student Status Dashboard—Individual Student Detail



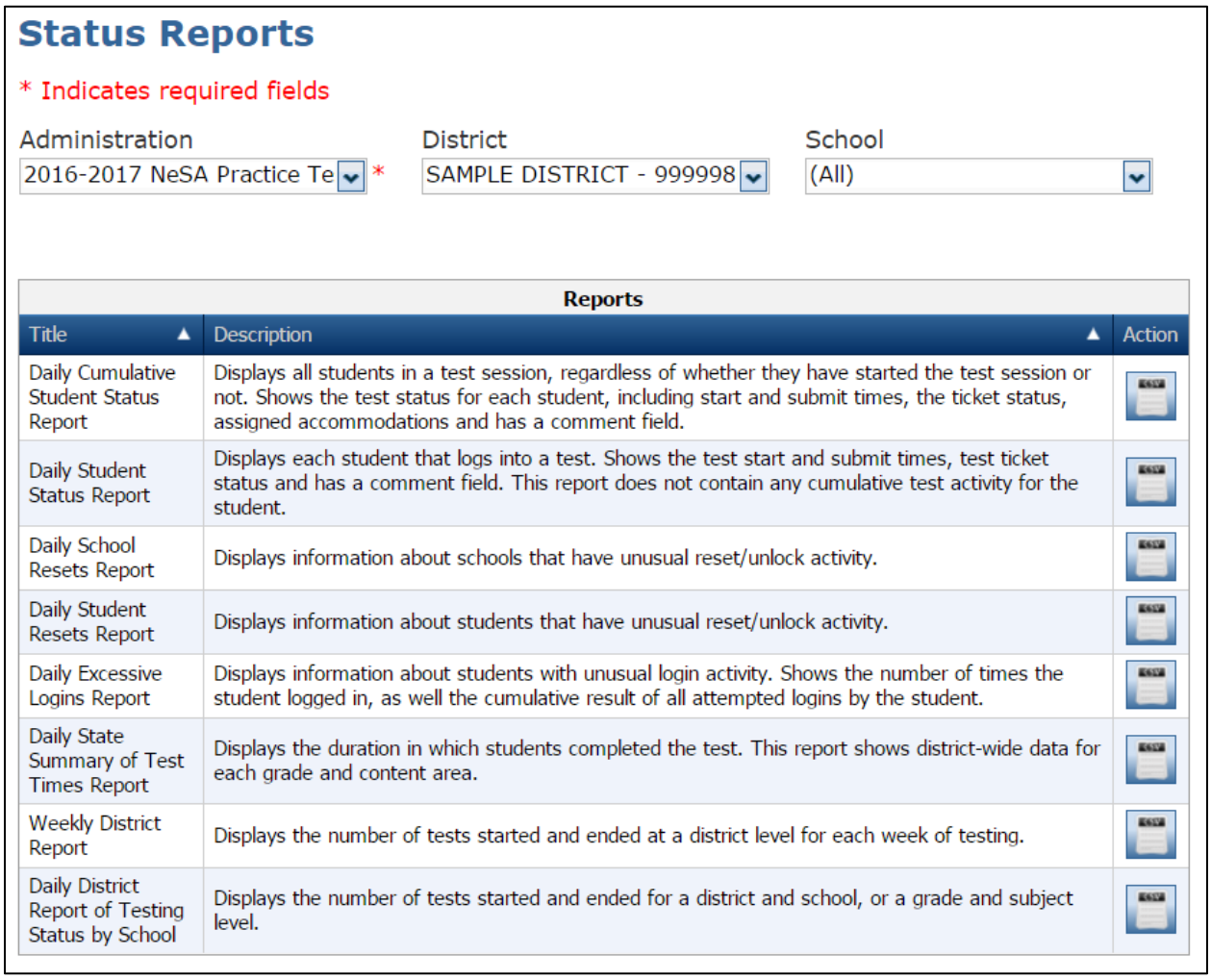
Last Name	First Name	Grade	Content Area	Module	Assessment	Status	Start Time	End Time	Duration
Anderson	Avery	10	English Lang...	American Lit...	American Lit...	Completed	10/01/2016 9:12 AM	10/01/2016 11:38 AM	
Baggerty	Barry	10	English Lang...	American Lit...	American Lit...	Completed	10/03/2016 9:08 AM	10/03/2016 1:05 PM	
Cooper	Camille	10	English Lang...	American Lit...	American Lit...	Completed	9/23/2016 9:05 AM	9/23/2016 2:52 PM	
DeLaurent	Davin	10	English Lang...	American Lit...	American Lit...	Not Started			
Engel	Edwin	10	English Lang...	American Lit...	American Lit...	In Progress	12/13/2016 10:33 AM		
Fenrick	Fiona	10	English Lang...	American Lit...	American Lit...	Not Started			
Grabowski	Gina	10	English Lang...	American Lit...	American Lit...	In Progress	12/20/2016 10:45 AM		
Hanson	Henrick	10	English Lang...	American Lit...	American Lit...	Not Started			

Status Reports and Online Statistics

In addition to the testing status information described above, we are pleased to provide access to a variety of status reports and online testing statistics for the Nebraska assessments. The suite of online status reports, which are available within the DRC INSIGHT portal, can be used to track testing activity for a given test administration and can be filtered by district and school. During testing, these reports are updated daily at the end of each testing day.

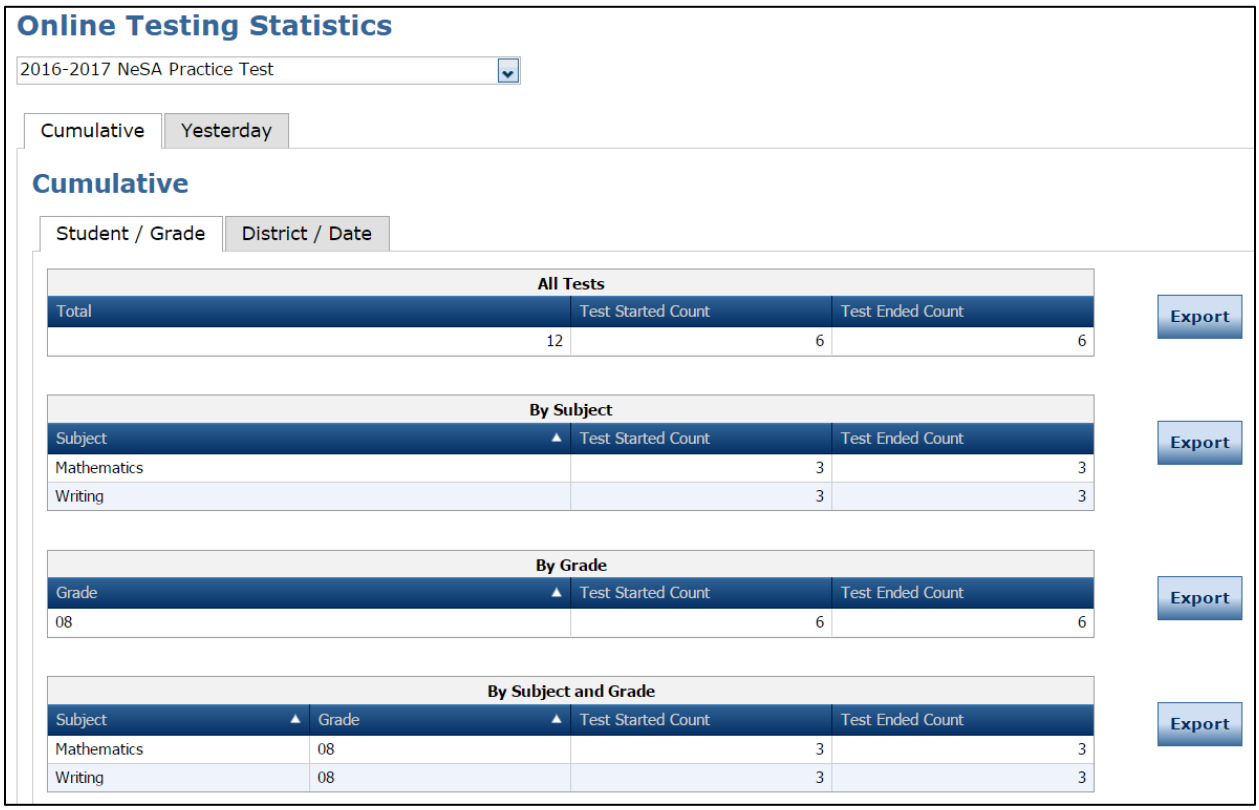
Figure 4–46 shows these reports within the DRC INSIGHT portal.

Figure 4–46: Online Testing Status Reports



DRC also provides access to Online Testing Statistics in the portal. The Online Testing Statistics show the number of tests started and the number of tests completed for a given administration. The data can be viewed by content area, by grade, by district, and by date. Data can also be exported in CSV format for use in a spreadsheet. Users can view the previous day's data or generate a set of cumulative data, as shown in Figure 4–47.

Figure 4–47: Online Testing Statistics



l. NDE is open to other online accommodations suggested by respondent.

Please see *Subheading A.5.c* for a description of proposed accommodations.

2. Ongoing Log of Complaints

The Contractor shall keep an ongoing log of complaints and issues, how they were resolved, and an indication of customer satisfaction. The proposal should include a solution for clear, timely communication of customer service contacts and their outcome with NDE.

To enhance the services DRC provides to our clients and local assessment coordinators, we have a centralized customer service information repository and database, known as ServiceNow. This system serves several purposes, including customer service call logging, call log reporting, district/school contact information storage, and shipping information, where appropriate.

DRC's customer service staff enters all communication into ServiceNow. Date and time stamps are automatically added to each entry. The information contained in the database is searchable by a wide variety of criteria—which can be customized for each project—such as district name, address, date, caller name, and resolution status (unresolved vs. resolved).

ServiceNow allows us to provide customized call reports tailored for each of our clients. Because all calls are logged and categorized in ServiceNow, call reporting is real-time and accurate. Reports can be generated based on issues critical to each program, using issue categories selected by a particular client such as shipping related issues. DRC can provide NDE with call log reports customized to NDE specifications within 24 hours of receipt of the request.

3. Shipping Requirements for All Paper/Pencil Assessments

a. The proposal must describe the shipping method, shipping agent, and process that will be used. The method must:

i. Allow districts to designate date of arrival of shipments to assure district has staff available to receive shipments. Ship test materials directly to schools and notify the District Assessment Contact (DAC) of the shipment. Test materials must arrive in districts in a two-day window 10-15 working days before the first day of testing.

ii. Have a process for communicating with the schools regarding shipping/receiving. Schools should be able to track shipments online.

iii. The NDE must be notified of shipment/delivery of all materials and provided updates on the status of undelivered materials.

iv. The proposal must include a description of procedures to deliver additional materials in a manner that does not delay test administration to schools that receive incomplete shipments or do not receive shipments.

Shipping Method, Shipping Agent, and Process

DRC has fulfilled packaging and shipping requirements for numerous large-scale assessment programs, including Nebraska and other states such as Alaska, Georgia, Louisiana, Ohio, Oklahoma, Pennsylvania, and South Carolina. DRC's **ISO 9001:2008 certified distribution process** underscores the importance of quality standards. As NDE has already experienced, DRC takes all necessary precautions to ensure accurate packaging and timely delivery of all materials.

DRC's Proprietary Materials Management System, Ops MMS, ensures:

- **Accurate, efficient packaging.**
- **Secure tracking of barcoded documents in all phases.**
- **100% accounting of all returned secure materials.**

DRC's Operations staff will use our proprietary Operations Materials Management System (Ops MMS) to package, distribute, and receive all testing materials for the Nebraska assessments. Ops MMS provides an accurate and efficient method for packaging materials, with systematic quality controls that facilitate the tracking of secure materials throughout all phases of the program. Using scanners to "scan out" order-specific materials, Ops MMS provides the flexibility to package secure documents already pre-assigned to a site-specific level or to use barcode scanning to assign secure ranges at the point of packaging. All requirements

provided by site-specific packing lists must be satisfied by these scans in order to complete the packaging process. These systematic controls ensure that the accurate quantity, material type, and security range is pulled and packaged for the appropriate site.

Through Ops MMS, we can view data on the items scanned into any box and compare this data to the physical box contents. As a quality control check, random boxes of packaged materials are pulled, opened, and verified for accuracy against the contents listed in the system. All data generated in packaging will be made available to our Project Management team, providing an adaptable tool for monitoring shipments and satisfying client concerns.

All test materials, including a packing list, will be packaged by school and shipped directly to each school. DRC will ensure that a sufficient number of copies are available at our facilities for any last-minute orders. All boxes will be labeled with the School Assessment Coordinator's name, address, and "Attention: Assessment Coordinator."

DRC works only with shipping vendors that provide online tracing and tracking services. DRC will continue to use United Parcel Service (UPS) for the distribution and collection of all Nebraska assessment materials. This carrier method will allow cost-effective, traceable, and timely distribution of materials. DRC will coordinate and monitor the distribution and collection activities of all shipments. We will be responsible for all distribution and retrieval costs and guarantee that all test materials will be delivered in a timely and accurate manner.

DRC is capable of meeting the new requirement set forward in the RFP to ship materials directly to schools and to allow schools to designate the arrival date for materials within the required delivery range 10–15 days before the first day of testing. DRC proposes collecting the preferred arrival date for materials from districts during the Enrollments period. **Please note that this new requirement will require NDE to provide contact information and shipping addresses for each school.** DRC's proposal includes costs for shipping printed materials directly to Nebraska schools via UPS Ground Service. Materials shipped from DRC's facilities in Minnesota will arrive in Nebraska in **two business days**.

DRC will ship all test materials directly to school offices. Delivery of materials will be scheduled during regular school hours, 9:00 a.m. to 3:00 p.m. Central Time (CT). All shipments will be designated as "inside delivery required." DRC will send email notifications to School Assessment Coordinators and District Assessment Coordinators when materials are shipped. Signatures of receipt will provide proof of delivery and allow DRC and schools to track all shipments online via UPS QuantumView™. NDE will also have access to these online tracking systems. District, school, and NDE personnel will also have the complete support of DRC's courteous and professional Customer Service Team to assist with package tracking and the resolution of delivery issues. DRC will provide NDE with a proof of delivery report, which will include a summary of undelivered materials. We will provide NDE with updates on the status of undelivered materials.

For most shipments, DRC uses a standard 11" box with a minimum of 275 pounds bursting weight. Box size will vary to accommodate specific shipping demands. Each shipping box will be

preprinted with DRC's return address and affixed with brightly colored labels stating "TEST MATERIALS ENCLOSED—OPEN AND INVENTORY IMMEDIATELY." We encourage schools to re-use these boxes for the return shipment, but we will send additional boxes to schools/districts who request them. Return labels containing school and district information will be included to simplify the return process.

Districts and schools may order additional materials before and during the testing window using the DRC INSIGHT portal's Additional Materials application. Please see *Subheading C.3* for further information regarding this application. DRC will ship orders via UPS ground delivery (which is two-day delivery), unless overnight shipment is warranted to ensure materials arrive before testing takes place.

An overview of our packaging and shipping quality control process is included in Figure 4–48.

Figure 4–48: Packaging and Shipping Quality Procedures

- **Detailed Instructions—**Based on contract requirements and specifications, detailed Scope of Work Agreements (SOWAs) will be established by DRC Project Management working in conjunction with our Operations staff. The SOWAs will ensure that all staff understand and adhere to materials assembly and distribution requirements. The SOWAs will be available for NDE review at each step of the process.
- **Walkthroughs—**The Project Management Team will conduct a walkthrough of the assembly process prior to each shipment to check that all procedures are precisely followed.
- **Automated Process—**DRC Operations staff will use our proprietary automated Ops MMS to assign items to the appropriate site for shipment. This system uses barcode technology to provide an automated quality check between items requested for a site and items being shipped to a site.
- **Discrepancy Resolution—**Should any discrepancies occur between the materials being requested for a site and the materials being packaged for a site, the discrepancy will be resolved before the order is completed and shipped.
- **Ongoing Monitoring—**The Operations staff will monitor the materials assembly area and report any irregularities to Project Management.
- **Secondary Checks—**Our Operations staff will perform secondary checks on all packing lists before boxes are sealed for shipping.
- **Sampling—**DRC Operations staff will perform lot acceptance sampling on every shipment. Completed pallets are delivered to Lot Sampling where random boxes are pulled, their carton ID's scanned, and the contents verified by a rescan of all material. This sampling represents a minimum of 10 percent of all shipping sites, and could increase depending upon resulting trends.

b. The Contractor will pay for the return shipment of testing materials from the schools. Schools will ship all secure materials directly to the Contractor following testing. Schools will be able to track shipments online. The proposal must describe the proposed method of shipping.

DRC will provide all school-specific return shipping labels and forms and will be responsible for all costs associated with the return of materials. DRC encourages the re-use of original shipment boxes for the return shipments, but we will send additional boxes to schools who request them. DRC's materials return process is simple and straightforward. As Nebraska's District Assessment Coordinators/Contacts and School Assessment Coordinators have already experienced first-hand, DRC's return procedures offer many advantages:

- In the test coordinator manual, we provide a clear, well-documented return process, increasing the accuracy and turnaround time of return shipments.
- We offer excellent support from our Customer Service staff, which has a history of providing superior service to Nebraska school districts, as well as to school districts around the country.
- Our receipt processes require little document preparation by schools and districts.
- Unlike many testing companies, we do not require special packaging or return procedures for accommodated materials.
- Our Ops MMS system enables 100-percent accuracy in accounting for returned barcoded materials.

DRC will use UPS Return Service (UPS RS) for the return shipment of Nebraska testing materials. To expedite the return process, school assessment coordinators can call UPS directly to schedule the pickup. UPS uses an online tracking system that provides the status of each shipment from the time it is picked up until it arrives at DRC's receiving facility. School and district personnel will have the ability to track all return shipments online. NDE will also have access to these online tracking systems. School, district, and NDE personnel will also have the complete support of DRC's courteous and professional Customer Service Team to assist with return shipment tracking and the resolution of shipping issues.

c. The Contractor must account for the return of all secure testing materials. The proposal must include a description of methods and procedures used to track shipments from schools and follow-up with schools that have not returned materials.

DRC utilizes accurate and efficient secure materials receipt processes that will require a **minimal amount of document preparation on the part of Nebraska Schools**. Our proprietary materials management system, Ops MMS, allows us to accomplish this goal. Its advanced automation and barcode scanners provide fast and accurate data collection with **no dependence on materials/document order**. This translates into **time saved for assessment coordinators** during materials return. Captured data are organized into user-friendly reports from the start of the secure materials check-in process, providing valuable insight into

suspected material shortfalls as early as possible, and mitigating potential consequences of delay. Annually, DRC packages, distributes, receives, and tracks over 27 million secure materials.

As evidenced by our **ISO 9001:2008 certification,** DRC maintains stringent quality control procedures during the document receipt process. Log-in procedures, developed specifically for the Nebraska assessments and approved by NDE, will provide our Operations personnel with step-by-step instructions, sorting rules, priority/special processing procedures, etc., to be followed during the log-in process for assessment materials. Our Ops MMS system enables 100-percent accuracy in accounting for returned barcoded materials regardless of how materials are packaged or bundled. DRC's Materials Return Quality Control Process is detailed in Table 4–18.

Table 4–18: DRC's Materials Return Quality Control Process

Quality Control Step	Description
Shipment Tracking	The shipping carrier (UPS) used for materials return will have an online, system to track all materials to provide the status of each shipment from the time it is collected until it is delivered to DRC.
Box Receipt	Upon receipt of materials at DRC, all returned boxes will be scanned in using our proprietary Box Receipt System. Quality control reports are generated to compare materials received against the shipper information and the district/school counts. Materials return information is available to NDE on a daily basis.
Secure Materials Receipt	After box receipt, test materials will be separated for processing and scanned using DRC's Ops MMS. Any discrepancies in expected counts of materials based on original packing will be reported to Project Management for resolution.
Missing Materials Reports	DRC will generate Missing Materials Reports, which will be available for NDE to review. After all materials have been checked in and discrepancies have been researched and resolved, a final report will be generated for NDE.
Communication with NDE	DRC's Project Management staff will communicate with NDE regularly during the entire materials receipt process to discuss any concerns or issues.

Given that materials processing occurs immediately upon receipt of Nebraska's test materials, DRC Operations staff can provide real-time feedback to the Project Management Team on actual receipts versus expected receipts for schools and districts. In turn, Project Management will be able to contact any district regarding what appears to be an anticipated materials receipt "shortfall" as soon as the materials for the entire district are checked in. Secure materials issues can thus be identified and resolved well in advance of any reporting. Ops MMS also provides a flexible platform from which Project Management can intercept material at the district, school, box, or individual booklet level if needed. **Our processing system will continue to offer a tremendous advantage to NDE by providing quality control measures that are specifically related to potential test security issues.** Problems can be caught early and resolved in a timely manner.

d. The Contractor must notify NDE of the status of the return of all secure test materials. The proposal must include a description of the procedures used to gather information and anticipated timeline for providing the information. The proposal must describe the procedures that will be followed when materials are not returned.

DRC will provide NDE with a proof of delivery report that encompasses all test materials and all schools. The report will also include the status of undelivered materials.

DRC recognizes that the security of the test is of the utmost importance to NDE. To that end, DRC has implemented several processes that will help ensure the security of test booklets and answer sheets. Because each test booklet and answer sheet has its own unique test security number on it, after processing for the entire project is complete, DRC will provide schools with a report of all answer sheets received by DRC from that school for scoring. This report will provide missing documents by security number, as well by grade and school/district, and other criteria required by NDE. Schools can compare this report to their records. Abnormally high numbers of missing materials for a particular school can be investigated and internal parallel data collections will be compared.

After school staff have located missing materials or confirmed that secure materials are not in the school/district, DRC will produce a final Missing Materials Report. If desired by NDE, this final report will be produced for each school, along with a consolidated statewide report. Any materials not returned to DRC can be listed by security number, type of document, school/district, grade, subject, etc., depending on NDE requirements. The security report will list the number of materials not returned and the schools to which they were originally sent, as well as summarize any problems noted during materials return/check-in, based on NDE requirements. These reports will assist DRC and NDE in improving the instructions in the Manuals for Assessment Coordinators and Administrators, as well as information shared in the test administration training workshops. DRC will provide NDE with complete documentation of the steps that were taken by DRC and the schools to locate any missing secure materials. DRC will provide a final Missing Materials Report to NDE according to a mutually agreed-upon schedule.

E. SCANNING/IMAGING FOR PAPER/PENCIL ASSESSMENTS

1. The Contractor is responsible for the efficient, accurate, and reliable scanning and/or imaging of all student responses and any student demographic information provided by the student and/or school principal for paper/pencil assessments. In addition, the Contractor is responsible for scanning or imaging all ancillary materials, as appropriate. The proposal must provide details regarding the accuracy and reliability of the scanning technology system including descriptions of:

a. Programs have been prepared to accurately scan and image all test materials.

b. Scanning database is error-free and contains valid responses in all fields.

c. Reports describing any materials that could not be scanned due to damage caused by the school, Contractor or other reasons.

Scanning

DRC's nearly 40 years of experience has resulted in a scannable document process that is extremely reliable and efficient for our state testing clients. Our scanning and scoring processes are ISO 9001:2008 certified, demonstrating our commitment to quality. All processing and scanning occurs at fully secure facilities. We take pride in our ability to tailor processes to meet each of our clients' needs. Annually, DRC image-scans and scores over 240 million pages (120 million sheets).

DRC's state-of-the-art proprietary scanning system is highly configurable and fully scalable, which provides the flexibility needed to accommodate each of our state client's needs. DRC's customized scanning programs are capable of selectively reading documents and electronically formatting scanned information. The IBML ImageTrac scanners are capable of scanning single- or multiple-color documents. All custom scanning programs go through quality review before testing materials arrive. Our image scanning operators have extensive experience performing tasks related to scanning and the maintenance of image scanning equipment.

Quality-control procedures are critical to DRC's document scanning process. All image scanning programs will go through quality review before testing materials arrive at our facilities. Throughout the scanning process, batches will be checked for quality and scanning accuracy by experienced Document Processing staff. All scanners are calibrated and cleaned on a regularly scheduled basis to ensure accurate and consistent scoring. DRC also has an on-site field service engineer to resolve any technical issues as they arise.

Editing

After scanning, the documents are processed through a computer-based editing program to detect potential errors in demographics fields. Marks or omits in the demographics fields that do not meet the pre-defined editing standards are flagged and routed to the editing staff for resolution. Using unique serial numbers printed on the documents during scanning, the editors

compare the actual documents to online data. Corrections are then made to the data file according to pre-defined, program-specific guidelines. The editing staff follow strict quality control procedures to produce clean data files that can be submitted for scoring and reporting functions.

Post-Editing

A final edit is performed to confirm that all requirements for final processing have been met. Once the demographic information and machine-scored data pass all the pre-defined editing processes, the images of the student responses to constructed-response items are extracted into files for scoring. The student response images are routed through the DRC Imaging Workflow System to handscoring terminals at DRC's Scoring Center for scoring by qualified readers. Images are stored so that they can be efficiently retrieved on the basis of student and school identification information, scores, and item information. Upon completion of processing, scannable documents are boxed for security purposes and final storage.

Scan Programs and Database

DRC's **ISO 9001:2008-certified** image scanning and scoring process systems were designed and developed to work for all DRC imaging projects. Having a common scanning and handscoring system and platform eliminates the need for significant software development efforts to scan and score new projects.

Prior to any Nebraska test materials returning to DRC, our Software Quality Assurance staff will perform extensive tests to ensure all scanned data (including demographic and multiple-choice responses) are captured and accurately stored in a secure database environment. Each record in the database will be independently verified against the test decks for validation.

The analysts will follow a software testing methodology that thoroughly evaluates and verifies the scanning and scoring system and verifies that each scanner is configured and set up for the Nebraska assessments. This process includes validating test decks, which will be comprised of answer sheets with and without student and school PreID information for each form of the test. The test decks will be specifically gridded to include a variety of possible student response permutations and combinations.

Student responses to multiple-choice and constructed-response items, as well as demographic information, will be captured as images and preserved for use during the image scoring process, as described earlier. Information embedded in the student precode label or the district/school label will also be captured during scanning. This information will link back to the NSSRS ID record or to the site at which the student tested (if a school/district label was used). Booklet counts and page integrity will be maintained throughout the scanning process by storing data in a Relational Database Management System (RDMS) using unique identifiers that link each image to a single, individual record, preserving school/district and other identification and demographic information. A relational database significantly increases system flexibility and provides for robust data analysis capabilities.

Unscannable Materials Reports

DRC will provide NDE with a report that will detail any damaged materials that could not be scanned. The report will list the number of materials that could not be scanned, as well as summarize any problems noted during materials return/check-in, processing, and/or scanning. Reports will be produced based on information from an error log maintained by Project Management. This report could be used to assist DRC and NDE in improving the instructions in the Coordinator and Administrator Manuals, as well as information shared in the test administration training workshops.

F. SCORING FOR ALL ASSESSMENTS

1. General Education and Alternate Assessments

a. The proposal must include a description of the methods used to ensure and verify that the tests have been properly scored.

DRC processes and scores millions of student tests annually for numerous assessment programs around the country. We understand the activities and coordination required for data processing and scoring of the Nebraska assessments and have the proven experience and capabilities needed to score the tests accurately.

The Nebraska assessment program will be administered primarily in an online format. However, a paper-pencil format is available for students with certain accommodations. The assessments will include multiple-choice, technology-enhanced (TE), and text-dependent analysis (TDA) constructed-response items (grades 5–8 ELA tests only).

Machine-Scored Items

DRC has extensive experience scoring assessments that incorporate multiple item types, online and paper-pencil administration, and machine and handscoring methods. DRC will ensure timely and accurate scoring for all administrations according to all specifications included in the RFP as well as those defined by NDE. All processing and scoring activities will be conducted at fully secure facilities.

We will prepare and refine the requirement documents for scoring well in advance of the receipt of test materials. These specifications will contain detailed scoring procedures, along with the procedures for determining whether a student has attempted a test and whether they should be included in statistics and calculations for computing summary data.

The requirement documents will be completed and reviewed with NDE. After all changes and edits have been made, the final requirement documents will be sent to NDE for final approval.

Scoring Process

Paper-Pencil Tests: All student response documents returned to DRC will be image scanned, as described in the previous section. Scanned data (multiple-choice items, auto-scored constructed-response items with bubble inputs, evidence-based selected-response items, and demographic data) will be converted into a master student file. Scanned document record counts will be verified against the counts from the Document Processing staff to ensure all students are accounted for in the scanned data file. Additionally, a detailed review of the materials return error-tracking log will be performed to ensure any discrepancies are resolved before proceeding with the scoring routines.

Online Tests: All student response and demographic data submitted through the DRC INSIGHT system will also be converted and stored in the master student file.

Both the scanned paper-pencil and online student response data will be scored against the appropriate answer keys, indicating correct and incorrect responses. In addition, the student's original response string will be stored for data verification and auditing purposes.

Student responses to TDA items will be securely transmitted to our handscoring centers, or to the artificial intelligence (AI) scoring system. Our plan for handscoring/AI scoring is presented later in this section. Handscored student results and data are merged, as appropriate, with machine-scored results and data.

Data Quality Assurance

DRC's strict quality procedures ensure accurate scoring. We are prepared and accustomed to handling multiple programs with multiple forms and testing modes and have built-in solid checkpoints and reviews throughout the entire scoring process. Standard quality inspections will be performed on all data files, including the evaluation of each student data record for correctness and completeness prior to report generation. Student results are kept confidential and secure at all times.

Our Software Quality Assurance staff will ensure the quality of school, district, and state data and make certain that each record is verified for completeness and accuracy. Quality checks will be performed on the data placement and data file formatting for each data element to be displayed on the reports. All data elements will be verified back to the production data file and the data processing rules. Senior Software Quality Assurance Analysts will conduct a second review to ensure methodology, processes, and procedures are followed and verify that the data files are approved prior to report production.

Some of DRC's data quality verification steps include:

- Processing sample student records through the data processing and scoring system
- Execution of detailed test scripts
- Verification of answer keys/test maps
- Raw scores
- Raw-to-scale score conversions
- Scale-score comparisons to performance achievement levels
- Disaggregated data
- Processing rules for individual student and summary level data
- Validation of file formats and data elements against NDE-approved layouts, specifications and processing requirements

To reduce the risk of human error, our Software Quality Assurance programmatic test routines will be used to thoroughly evaluate each student's data record that will be produced for use in final data files and reports. Each student's data record will be carefully reviewed and evaluated to ensure it was **scored with 100-percent accuracy**.

Score Key Quality

The integrity of item, form data, and score keys will be evaluated in several ways. Similar to our score key validation procedures used on other assessment programs, we will leverage our established, documented process to ensure all score keys are accurate. Test development specialists, psychometric staff, and software quality assurance analysts will check the score keys through a series of validation procedures at varying juncture in the process. Score key quality procedures apply to both online and paper-pencil student response scoring.

Score Key Quality Procedures

- **Verify for accuracy—**Score keys will be verified for accuracy based on multiple reviews by test development specialists, psychometric staff, and software quality assurance analysts. All item data and score keys will be reviewed and approved by each group prior to scoring the tests.
- **Score key file import—**DRC will import the approved keys received into our scoring system. Once the keys are successfully imported, software quality assurance staff will re-verify the keys used by the scoring engine.
- **Database accuracy—**All items will be scored in the system using the correct and incorrect item distractors. The database will be validated to make certain the distractor captured in scanning was saved correctly and that the item was given a correct or incorrect answer.
- **Automated system checks—**The scoring engine has automated system checks built-in to validate score keys. Additionally, the software quality assurance team performs independent checks on this data.

Automated Scoring

Now in our fifth year of automated scoring, DRC has autoscored thousands of online student responses. We have experience in creating rubrics for technology-enhanced (TE) items using the Rules Engine model. Rubrics are written to provide enough information to establish fixed scoring rules. We have also expanded our rangefinding meeting capabilities to include rubric validation and lookup table populating. These new meeting types are just as important as committee rangefinding meetings and are a crucial human element in autoscoring. We have worked hand-in-hand with state clients and other vendors to ensure that automated machine scoring maintains all the necessary elements of the human-based scoring process. Items are scored with as much open-ended intention as the item was written to allow. Students should not be constrained in any way by the scoring method.

All items designated as autoscored items will be processed through DRC's autoscoring engine and scored according to the assigned scoring rules. DRC will ensure that all rubrics and scoring rules have been verified for accuracy before scoring any TE items. DRC will also establish an adjudication process for interactive items and any gridded responses to verify that correct answers are being identified. Autoscoring quality process includes:

1. The information from the scoring rubric is entered as part of the scoring criteria within DRC's item banking system so that the truth resides in one place, along with the item image and other metadata. This scoring information designates specific information that varies by item type. For example, for a drag and drop item, the information would include which objects, etc. are to be placed in which drop region to receive credit.

2. The information is then verified by an autoscoring expert.

3. After testing has started, reports are generated that show every response, how many students gave that response and the score the scoring system provided.

4. The scoring is then checked against the scoring rubric using two levels of verification.

5. If any discrepancies are found, the scoring information is modified and verified again. Scoring is then re-run. This checking and modification process continues until no other issues are found.

6. To conduct a final check, a final report is run that shows all student responses, along with their frequencies and received scores.

Scoring of Text-Dependent Analysis Items

DRC proposes a two-pronged approach to assess student performance on text-dependent analysis (TDA) items for grades 5–8 on the ELA assessments. Through a combination of artificial intelligence (AI) scoring (informed by our experienced handscoring team) and more traditional handscoring processes, DRC is proud to offer an efficient, consistent, economical, and reliable performance assessment solution that comprises a marriage of the best that AI scoring and handscoring have to offer. It is well known that AI scoring has the ability to greatly increase efficiency and consistency in large-scale scoring efforts, particularly when applied to scoring writing responses. However, an AI scoring engine is only as accurate/reliable as the people who teach it and oversee its application. To that end, DRC brings a tremendous amount of hands-on experience scoring constructed responses for many large-scale assessments, including the current Nebraska assessments; we have total confidence in our ability to provide superior service to the state of Nebraska.

DRC's Performance Assessment Services (PAS) are ISO 9001-2008 certified and we have 27 years of experience providing accurate scores for millions of student responses from large-scale assessments. We have direct experience handscoring TDA items for Nebraska, as well as other large-scale assessments in Florida, Georgia, Louisiana, Pennsylvania, South Carolina, Utah, Wisconsin, and the Smarter Balanced Assessment Consortium for Delaware, Nevada, and

Oregon. We have successfully used a combination of handscoring and AI scoring for several of these programs.

DRC has utilized numerous scoring models to score responses from multiple content areas, grades, and end-of-course assessments, and we have significant experience scoring assessments with a mix of online and paper/pencil responses for clients. Our processes are flexible but always function to put scoring accuracy and reliability first, thus allowing us to both score all item types with optimal reliability and optimize AI scoring in such a way as to produce the most accurate results possible.

Artificial Intelligence Scoring

As part of our comprehensive scoring solution, DRC proposes to utilize AI scoring of computer-based responses to TDA items during all years of the awarded contract. DRC can leverage AI to efficiently and economically score student responses for the ELA text-dependent analysis items slated for use at grades 5–8. DRC is proposing to use the state-of-the-art automated essay scoring engine, Project Essay Grade™ (PEG), developed by Measurement Incorporated (MI), for AI scoring of the TDA items.

The view shared by MI and DRC is that AI scoring is not a single technical puzzle to solve, but rather a series of complex, interlocking challenges involving both humans and machines. MI and DRC both embrace the philosophy that it takes human intelligence to create artificial intelligence. To complement MI's technology resources, both MI and DRC are able to draw on staffs of linguists, software developers, psychometricians, human-computer interactions specialists, and scoring experts to refine and expand MI's AI capabilities. As a result of this multi-disciplinary, inter-corporate approach, MI's automated scoring software is able to consistently deliver valid and reliable scoring.

PEG Overview

MI's PEG® AI scoring system is based on over 40 years of machine learning research. Since acquiring the PEG technology in 2003, MI's team of scoring experts, content leaders, AI developers, computational linguists, grammarians, and psychometricians has transformed the legacy PEG software into an industry-leading AI scoring system. In addition to continually refining and improving their essay scoring engine, MI has been able to leverage many of the principles, methodologies, and insights gained from their automated essay scoring research and successfully apply them to the challenges of short answer content scoring and lengthier text-dependent analysis scoring.

MI's essay scoring engine has been used to provide over ten million scores to students in formative and summative writing assessments over the past six years. PEG's results are comparable to expert human scorers in terms of reliability and validity. The results have been validated in independent third party studies and in research conducted on behalf of clients.

PEG Functional Description

MI's AI scoring engine is able to automatically score a variety of constructed-response item types, from multi-page TDA responses to short answers that comprise only a few words, and it can work with any number of predefined score-point ranges and rubric definitions. PEG's flexibility allows MI to build AI models using the methods that are most effective for each type of response, working equally well on short answers graded for content, essays graded for style, and TDA essays graded for both style and content.

One example of the breadth of this experience is demonstrated by their work on the Smarter Balanced Pilot and Field Test, during which MI developed over 1,000 AI models for content based items using several million student responses. Items scored using newly developed sophisticated algorithms included content-based ELA short text and essay as well as mathematics short text and computational reasoning. MI is confident that the methods used to develop the content-based AI scoring models are applicable for successful scoring of ELA TDA items as well as other content-based items.

The ability of the AI engine to match or exceed human reliability depends on a number of factors, including the amount and quality of the training data, the complexity of the item to be scored, and the amount of time available to fine-tune the models. Like most AI scoring engines, PEG relies on an accurate sampling matrix of the anticipated testing population, although there is considerable variability, depending on the complexity of the item, in the number of responses required to build a reliable AI scoring model. While PEG can build models with any amount of training data, MI finds that a good rule of thumb for achieving high-quality models is to provide approximately 200–300 responses per score point, randomly sampled from the testing population. When gathering the training data, MI generally requires two independent human scores per response. While PEG only requires one score per response to build a model, the second score provides necessary information about how well two humans are able to agree on a score, which is then used as a benchmark for how well PEG's predictions should agree with the human scores.

Model Building

DRC will follow industry best practices regarding AI model building, including scoring, at minimum, the requisite 2,000 responses with two independent reads and adjudication that are the industry standard (2,000 per item is the estimated number to be scored to result in 200-300 usable responses per score point). The responses used to calibrate the engine will consist of a sample with a rich spread of scores that reflects a diverse array of student demographics drawn from the entire state, thus helping to ensure that bias due to ELL/IEP status (or other factors) is mitigated.

To build a scoring model, PEG analyzes the training set and calculates features that pertain to the content in question. PEG then sends the features to dozens of different algorithms that compete to see which ones can best associate the features with the human-assigned scores. These algorithms draw on many of the latest advances in the field of machine learning to generate both linear and non-linear models. The strongest models are then automatically

blended together to create a final model that retains the best elements from the various algorithms.

One of the risks inherent in machine learning is over-fitting the data. This means that it is possible to focus on particular elements of the responses in training data in such a way that the model does not generalize well to unseen data. To mitigate this risk, MI uses a process known as cross-validation, which allows MI to develop an estimate for how well any given model will perform on unseen data. This allows MI's optimization process to identify models that not only perform well on the training data, but will continue to give reliable scores on new responses.

Evaluation Metric

When PEG builds a model, it selects the model elements that maximize scoring accuracy for the data in question. Therefore, it is important to choose an agreement statistic on which PEG can optimize its models in such a way that the final model will exhibit reliable, accurate scoring. The inter-rater reliability of two human raters is often measured via perfect/adjacent agreement or the Pearson product-moment correlation coefficient (Pearson's r). However, these two metrics each have significant disadvantages. Perfect/adjacent agreement is highly influenced by the overall scale and underlying distribution of the "true" scores (Williamson & Breyer, 2012), while Pearson's r is insensitive to mean difference between raters (Schuster, 2004). MI has found that using quadratic weighted kappa, which has become the industry standard for AI scoring, as the optimization and evaluation metric leads to the most reliable and accurate scoring. Quadratic weighted kappa as a metric can detect changes in mean difference and variance between raters and is therefore well suited for comparing the accuracy of AI scoring with that of human scoring, as well as measuring the agreement of two independent human raters. For the sake of clarity in the discussion below, the quadratic weighted kappa between PEG and Reader 1 is referred to as $\kappa\omega$(PEG, R1) and quadratic weighted kappa between Reader 1 and Reader 2 is referred to as $\kappa\omega$(R1, R2).

Even though quadratic weighted kappa performs well as an optimization metric, there are still some deficiencies in using it as an evaluation metric. Quadratic weighted kappa is far less influenced by the overall scale and underlying distribution of the "true" scores than perfect/adjacent agreement, but it does still display some sensitivity to those aspects of the data. In addition, while AI scoring can outperform human scoring with regard to scoring accuracy, the quality of the human scoring data has a significant impact on PEG's ability to accurately model the data. That is, a low $\kappa\omega$(R1, R2) will usually lead to a low $\kappa\omega$(PEG, R1). Because of these issues with sensitivity to scale and distribution of scores and being bound by the quality of the training data scores themselves, it is difficult to give a fixed number for what an acceptable value would be for $\kappa\omega$(PEG, R1). Instead, MI prefers to use the difference between $\kappa\omega$(PEG, R1) and $\kappa\omega$(R1, R2) as its evaluation metric. MI defines that value as follows:

$$\Delta\kappa = \kappa\omega(\text{PEG, R1}) - \kappa\omega(\text{R1, R2})$$

When $\Delta\kappa$ is positive, PEG's scores are more in agreement with Reader 1 than Reader 1's scores are in agreement with Reader 2. When $\Delta\kappa$ is negative, the opposite is true; Reader 1 and Reader

2 show higher agreement levels than PEG and Reader 1. Of course, in both cases the absolute value of Δκ maintains its weight as a relative value between the two kappa values. That is, a larger Δκ means more separation between the two kappa values being compared.

Δκ is a good metric to quickly show how accurately PEG was able to score a set of data with respect to how accurate human raters are on the same data, but MI also reports other metrics that its clients may be more familiar with, such as perfect/adjacent agreement, Pearson's r, and standard mean difference. However, since PEG was optimized on quadratic weighted kappa, κω and Δκ are the best reflections of actual performance.

Scoring Responses with the AI Engine

After the PEG AI scoring engine has been trained on a scored training set provided by DRC, it will be available to receive batches of student responses from the test delivery system in a mutually agreed upon format (XML or plain-text). The file transfer will be encrypted and will satisfy the Family Educational Rights and Privacy Act of 1974 (FERPA) security requirements. Each record in the batch provides PEG with the student's response and a number of identifiers. The identifiers typically consist of a test ID that uniquely identifies the test, an item ID that uniquely identifies the prompt, and a FERPA-compliant student ID that uniquely identifies either the student or the student-test combination. Other identifiers may be arranged if needed. Through our previous work with MI in AI scoring, DRC has already built and tested an efficient and accurate file transfer process for AI scoring of student responses.

When PEG receives the file, it will process the batch of responses and record the scores. Each record is specific to a student-test-item combination and will contain the item's score or a reason why it could not be scored (most commonly because the response is too short, or does not contain English). After the batch is processed, the scored records will be returned to DRC for reporting.

MI will conduct ongoing quality checks of the AI scoring engine to ensure that the scoring models continue to perform as expected. PEG will be programmed to randomly select 10% responses to be routed to DRC, where trained and qualified handscoring staff will perform blind reads as another validation check. Additionally, for the small percentage of student responses that cannot be scored using AI, MI's system will automatically route those responses to DRC's handscoring system where they will be handscored, with 10% of those responses receiving a second human read.

General Scoring Process

DRC has strong performance assessment expertise stemming from extensive handscoring of TDA responses for many client states. We understand that the proposed work will require careful planning, thorough and thoughtful systems designs, and sound execution of agreed upon procedures. DRC's content staff has many years of experience with large-scale assessments, and our management staff has an in-depth knowledge of monitoring scoring sessions, producing accurate results, and meeting deadlines for numerous clients. DRC is

confident that our experienced staff will continue to provide accurate and timely handscoring for Nebraska.

DRC proposes that 10% of the operational TDA responses will receive two independent reads to monitor quality control, with the first read for online responses coming from AI. Field test responses will be fully human-scored in order to train the AI engine. All field test responses will be scored twice with third reads to resolve any discrepancies between the first two reads. All handscoring inter-rater reliability statistics (discussed in full later in this section) will be based on the responses that are scored twice, including both human-to-human agreement rates as well as AI-to-human agreement rates.

Field Test Rangefinding

DRC proposes annual rangefinding each summer prior to scoring field test responses. The meetings will be held in Nebraska. The grade-specific committees for these meetings will be composed of NDE staff, DRC Scoring Directors, and Nebraska educators. DRC understands that NDE has historically recruited the educators participating in the process, and that NDE has historically reimbursed them for all expenses (lodging, meals, etc.). Additionally, we understand that NDE has historically provided for the meeting facilities. DRC proposes to maintain this arrangement of responsibilities, which is reflected in our costs.

DRC's handscoring team will prepare for the field test rangefinding by using our Image Handscoring System to access student field test responses. We will use the scoring guidelines to select a representative sampling for each score point. These responses will then be assembled into sample sets and duplicated for all rangefinding participants.

DRC will begin each rangefinding meeting by reviewing and discussing the scoring guidelines. When an understanding of the scoring guidelines has been established, participants will score and discuss each response until a consensus is reached. Facilitators will move through each of the rangefinding sets until there are a sufficient number of responses to construct anchor and training sets. Only responses with a high level of agreement will be used to train our scorers. DRC staff will make careful notes of scoring decisions for use in training the scorers.

Developing Training Materials after Field Test Rangefinding

Once field test rangefinding is complete, DRC will utilize the rangefinding responses to develop training materials for scoring field test responses. For each field test TDA item, DRC will develop an anchor set (annotated responses representing each score point), as well as one training set comprised of 10 responses. Notes generated during the rangefinding process will remain with each response selected, either in the annotation (for anchor papers) or in the Scoring Director's notes (for training papers). DRC will submit copies of training materials to NDE for approval prior to their use.

Developing Training Materials for Operational TDA Items

For each TDA that is selected for operational use, DRC will carry forward the field test training materials (anchor set and training set). For each item, DRC will supplement these materials with

an additional training set, two qualifying sets, a pool of validity responses, and recalibration sets. DRC proposes that these supplemental materials be developed by DRC with review and approval by NDE, although we would welcome NDE to travel to DRC and collaborate in this effort if preferred. DRC's proposed plan does not include operational rangefinding meetings with committees of educators, but if that is NDE's preference, we would be happy to discuss the schedule and cost implications with NDE upon award of the contract.

Anchor Sets

Each TDA item will require item-specific training materials, including a scoring guide comprised of the rubric and 2–4 annotated anchor responses per score point that will be created prior to scoring field test responses and carried forward when scoring operational responses. Anchor responses are selected to illustrate particular scoring concepts. These responses will help ensure that scorers are able to make accurate and consistent scoring decisions for the response types they are likely to encounter. All anchor responses are annotated to explain how they exemplify each score point. The anchor set will serve as the scorers' constant reference.

Training Sets

For each field tested TDA, DRC will develop one training set with 10 responses. For operational items, DRC will create a second training set with 10 responses. These training responses will further hone each scorer's ability to discern the different score-point levels in an accurate and consistent manner. When reviewing training responses from the front of the scoring room, the Scoring Director will utilize the notes generated during rangefinding to ensure that scorers reach scoring decisions in a manner consistent with the decision-making process utilized at rangefinding. DRC will provide NDE with copies of anchor and training sets for approval before scoring the field test responses.

Qualifying Sets

For each operational TDA, DRC will create two qualifying sets with 10 responses. Before scoring any operational responses, scorers will be required to demonstrate scoring proficiency by correctly scoring 70% of the responses in one of the qualifying sets for the grade they are going to score.

Validity Sets

In addition to anchor, training, and qualifying sets, DRC will select responses for use as validity responses during operational scoring. These responses are "blind" to the scorers; scorers cannot distinguish validity responses from live responses. Validity reports compare scorers' scores to pre-determined scores and can help detect potential room drift as well as individual scorer drift. The distribution of validity responses will be higher at the beginning of the scoring window and will decrease as agreement levels reveal a strong understanding and application of the scoring guidelines by the scorers.

Recalibration Sets

DRC will also select recalibration responses throughout the course of scoring operational assessments. Recalibration sets are designed to help refocus scorers on how to properly use the scoring guidelines to score responses. They are selected to help illustrate particular points and familiarize scorers with the types of responses commonly seen during operational scoring. DRC typically creates recalibration sets of 5–10 responses and distributes them to all of the scorers on each item every Monday morning. After the scorers take the recalibration set, the Scoring Director will review it from the front of the room, using scoring guidelines language and the anchor responses to explain the reasoning behind each response's score. DRC will employ extra recalibration sets as needed.

Selecting and Training Scorers

DRC has a large pool of experienced scorers from which to staff our projects. We add to this pool through a comprehensive hiring process each spring. DRC selects scorers who are articulate, conscientious, and flexible. Our scorers have strong content-specific backgrounds; they are educators, writers, editors, and other professionals. They are valued for their professional and academic experience but are required to set aside any biases concerning student performance and accept the scoring standards of the client's program.

All DRC scorers undergo rigorous content screening, including the demonstration of an ability to write, as part of the interviewing process. The majority of DRC scorers have years of experience with scoring large-scale assessments, and a number of the scorers that will be used to score Nebraska responses will have prior experience scoring Nebraska TDA responses in previous years.

All of DRC's scorers are systematically made aware that no scoring materials are to leave the scoring center. They must sign legally binding confidentiality agreements stating that they are aware of the secure nature of the work before training and scoring begins. DRC scorers are frequently reminded of the importance of confidentiality and security during the course of each project.

Prior to each scoring session, DRC's Project Managers work with Human Resources/recruiting staff to select scorers based on experience and background giving preference to scorers with prior experience scoring responses scoring ELA TDAs, particularly Nebraska TDAs. The Project Managers will divide the scorers into teams and assign each team a Team Leader.

Scorers must be present for the entirety of each comprehensive training session or they will not be allowed to work on that project. This has always been steadfast policy at DRC. In addition, strict attention is paid to scorer attendance, thus allowing DRC to plan timelines accurately for our clients.

Training Team Leaders

Before scorer training begins, DRC provides Team Leaders with comprehensive training. Team Leader training lasts approximately two days and follows the same process used in the scorer training (detailed below), although it is more comprehensive due to the training and oversight responsibilities required of the Team Leaders.

During their training, Team Leaders are required to become familiar with the official Nebraska annotations that accompany training papers. To promote room-wide scoring consistency, it is imperative that each Team Leader imparts the same rationale for the score assigned to each training paper. This consistency ensures that scorers assign the correct scores for the correct reasons. Once the Team Leaders have qualified for operational scoring, they will prepare for the arrival of their teams of scorers. Teams typically consist of 10-12 scorers, although DRC can utilize smaller teams if needed.

Training and Qualifying Scorers

Scorer training begins with a room-wide presentation and discussion of the rubric which defines each score point. After reviewing the rubric, the Scoring Director will review an anchor set. These are, in some cases, item-specific and, in other cases, specific to the item type or baseline. In either case, anchor sets contain multiple examples of each score point, each with an annotation that explains the response's score using language from rubric. Each scorer will be supplied with a paper copy of the scoring guide, rubric and anchor set so that they can easily reference, and annotate, these materials while scoring responses. The rubrics and anchors are secure materials that do not leave the scoring room.

After reviewing the rubric and anchor responses, the Scoring Director trains the scorers on how to use the Image Handscoring System. During training, scorers are seated at imaging stations and grouped by team. Each scorer is assigned a unique ID number and password for logging into DRC's Image Handscoring System. The scorers log into the Image Handscoring System to access training and qualifying sets in order to continue their item-specific training, which serves as an opportunity to "practice" scoring.

After the scoring guide and all training sets have been discussed, scorers, like Team Leaders, must demonstrate their ability to apply the scoring criteria by qualifying (i.e., scoring at least 70% of the responses correctly on one of the qualifying sets). Any scorer who does not qualify by the end of the qualifying process will not be allowed to score actual student work.

DRC would welcome NDE staff to observe scorer training and handscoring, as they have done in the past.

Scoring Procedures

DRC believes that our training, scoring, qualifying, and monitoring processes are the best in the industry. All of these processes have been used for years to score large-scale assessments, including past Nebraska administrations. DRC will uphold the same level of dedication to accuracy and quality under this new contract. Our general scoring procedures are described in Figure 4–49.

Figure 4–49: General Scoring Procedures

Scorer Training and Qualifying

- Scorers are seated at imaging stations and are assigned unique ID numbers and passwords.
- The Scoring Director provides detailed directions for use of DRC's computerized handscoring system.
- The Scoring Director trains the scorers using item-specific anchor sets and training sets.
- Scorers must demonstrate scoring proficiency on item-specific qualifying sets before scoring live responses.

Routing Responses to Ensure "Blind" Second Reads

- The Image Handscoring System ensures that responses are routed to qualified scorers until the prescribed number of reads is performed for all responses.
- Scorers cannot tell if they are the first or second scorer.

Monitoring Scoring (Handscoring Quality Control)

- Ongoing quality control checks and procedures monitor and maintain the quality of the scoring sessions. If unusual data are observed, DRC will investigate and resolve any issues.
- Responses can be retrieved on-demand (e.g., specific batch files, specific grades, specific students) should the need arise during or subsequent to the handscoring process.
- If needed, responses can be rescored based on item- or response-level information, including item number, date, score value assigned, or scorer ID.

Handling Unusual Responses

- Scorers can forward responses to Team Leaders for assistance.
- Responses requiring special attention, including nonscorables and alerts, are routed to Scoring Directors for review and resolution.

Handscoring Quality Control

DRC is able to run handscoring reports on demand in order to monitor progress and maintain handscoring quality control. During the handscoring process, the Scoring Directors will meet regularly with their Team Leaders to review the statistics generated from the scorers on each of their teams. If scoring patterns are apparent among individual scorers, Team Leaders will deal with these issues on an individual basis. If a scorer fails to improve after re-training and feedback, DRC may remove the scorer from the project. In that situation, DRC removes all scores assigned by the scorer in question. The responses will then be re-dealt and rescored by qualified scorers.

DRC does not report on scorer performance after the fact, as some contractors do. DRC believes that scorers with less-than-acceptable scoring patterns must be identified immediately and retrained in order to correct the patterns. DRC has worked diligently to devise effective monitoring reports and procedures to accomplish both detection and correction. Accurate and consistent results are the backbone of all handscoring activities. The following methods used by DRC guarantee scoring quality:

- Rigorous **training and qualifying** for each item, as detailed earlier in this proposal, ensures a pool of scorers who will apply consistent and accurate scores.
- **Validity responses** detect possible room drift and individual drift. Validity reports compare scorers' scores to pre-determined scores. Validity responses are seeded to scorers. Scorers cannot distinguish validity responses from live responses, making this a powerful measure of quality control.
- Team Leaders conduct routine **read-behinds** to observe, in real time, scorers' performance. Team Leaders utilize live, scored responses to provide ongoing feedback and, if necessary, retraining for scorers.
- **Inter-rater reliability and score point distribution** reports are generated daily or on demand to monitor scorer reliability and maintain an acceptable level of scoring accuracy. The reports compile individual scorer data, including scorer identification number, number of responses scored, individual score point distributions, and exact agreement rates. DRC will investigate any issues and resolve any problems identified by the reports.

DRC currently uses a number of reports to monitor the quality and/or effectiveness of various aspects of handscoring projects. Our reports have multiple parameter selections, so oftentimes more than one individual report is included under the same report name. The reports that DRC currently uses to monitor handscoring are described in Table 4–19.

Table 4–19: Quality Control Reports

Report	Report Specifics
Scoring Summary Report	DRC's Scoring Summary Report provides daily and cumulative inter-rater reliability results, score point distribution data, and production volumes for each reader and item. It will also include the high/low summaries. **Inter-Rater Reliability** Monitors how often scorers are in exact agreement with AI on online responses and with each other on paper-pencil and ensures that an acceptable agreement rate is maintained. This report provides daily and cumulative exact and adjacent inter-scorer agreement and the percentage of responses requiring resolution (only if required). The calculations for this report are as follows: • Percent Exact—total number of responses by scorer where scores are equal divided by the number of responses that were scored twice. • Percent Adjacent—total number of responses by scorer where scores are one point apart divided by the number of responses that were scored twice. • Percent Non-Adjacent—total number of responses by scorer where scores are more than one score point apart divided by the number of responses that were scored twice. **Score Point Distribution** Monitors the percentage of responses given each of the score points. For example, for items on a 0-4 point scale, this daily and cumulative report shows how many 0s, 1s, 2s, 3s, and 4s a scorer has given to all the responses he or she has scored at the time the report is produced. These percentages can be compared to room-wide percentages to detect individual scoring issues. **Production Volumes** This report also indicates the number of responses read by each scorer so that production rates can be monitored. Additionally, it includes totals for each item, so that progress toward completion can be monitored.
The Item Status Report (Completion Reports)	Monitors the progress of handscoring. This report tracks each response and indicates the status (e.g., "needs a second reading," "complete"). This report ensures that all discrepancies are resolved by the end of the project. Information from this report will be used to create room-specific Daily and Cumulative Completion Reports to compare on a daily and cumulative basis the amount of readings completed in comparison to projected completion targets.

Report	Report Specifics
The Read-Behind Log	Used by Team Leaders/Scoring Directors to monitor scorer reliability. Team Leaders randomly select and read scored responses from each team member daily. If the Team Leader disagrees with the scorer's score, remediation occurs, either with the Team Leader or the Scoring Director. This has proven to be a very effective form of feedback because it is implemented with items live-scored by individual scorers.
Training/Qualifying Reports	Training and qualifying records are kept on every reader for every set taken. These reports can be run using various parameters to meet the needs of NDE (by performance task or set, reader, team, by site/grade/subject) and can be run daily or cumulatively.
Recalibration/ Validity Reports	These two processes are conducted throughout the entire scoring session. Both processes compare pre-determined scored responses to readers' scores for the same set of responses. Additional responses are given to individuals if the Scoring Director feels that it is warranted. These reports can be run at the individual, team or room level in order to detect individual, team or room-wide scorer drift.
The Responses Read by Reader Report	Identifies all responses scored by an individual scorer. This report is useful if any responses need rescoring due to potential scorer drift.

DRC is proud of this suite of quality control reports developed specifically for handscoring projects. Because these reports are able to be produced in real time, clients can be assured that immediate action will be taken to resolve scoring discrepancies, within minutes (if necessary) of the first and/or second reading. (DRC has included sample handscoring reports in *Appendix G*.)

Handling Unusual Responses: Alerts and Nonscorables

DRC will employ well-established processes to ensure that nonscorable, or condition, codes are ascribed appropriately and that alert papers are dealt with in a time-sensitive, efficient, and wholly appropriate manner. Generally speaking, nonscorable papers may be characterized as unusual or aberrant responses that cannot be assigned a numeric score, while alert papers can be characterized as responses indicating potential issues, such as potential security breaches or concerns about a student's safety that may require attention at the state or local level. That said, for the work outlined in the RFP, DRC will work with NDE to ensure that protocols reflecting NDE's wishes are followed.

Unusual Responses within the AI system

Whether responses are scored by humans or machines, it is inevitable that scoring anomalies requiring human intervention will occur. Built into MI's automated scoring engine is the capability of applying a variety of triggers for identifying responses in which it has low confidence of applying an accurate, numerical score. MI's AI scoring software flags responses that lack enough content to be scored, consist of a refusal to respond, consist entirely of profanity, or are written in an unsupported language. In addition, alert triggers will be established to follow the alert categories outlined by NDE and/or DRC. Generally, these fall into two categories: troubled student alerts and testing irregularity alerts.

Within the unusual response bucket is the subset of copied text responses. Copied text is that which a student copies from the directions, prompt, passage(s), or reference sources supplied with an item. A response composed predominately of text copied from item sources will not be alerted for any sort of suspected testing violation, but in most cases, it will receive a lower score (or a nonscore of "I") depending on the amount of original student writing there is in the response and/or how much text is copied. Responses flagged by PEG for this condition are sent to the DRC Scoring Director for review. DRC will work with NDE to craft this process in order to meet the Nebraska scoring guidelines surrounding these types of responses.

All other nonscorable and alert responses will also be routed to a Scoring Director who will follow DRC's well-established processes applicable within these areas. The Scoring Director will provide the final, reported score (or nonscore) for these responses. For the responses that it cannot score, PEG returns a condition code to the test delivery system indicating why the response could not be scored. The test delivery system then routes the flagged responses to the performance assessment handscoring system. DRC scorers will handscore the limited number of responses that cannot be scored by AI. Similarly, alert responses will route into DRC's handscoring system directly to a Scoring Director who will then implement DRC's alert processes.

Unusual Responses within the Handscoring System

Like MI's AI platform, DRC's handscoring system compels Nonscore and alert codes to be assigned in an efficient, consistent manner. In the handscoring system, as in the AI platform, unusual response codes are assigned only to responses that fall into agreed-upon condition code and alert categories. Individual readers, after receiving training pertinent to assigning both types of unusual response code, have the ability to ascribe both code types to a student response. At this point, DRC's handscoring platform immediately routes all responses assigned either code type to a Scoring Director for confirmation. This routing mechanism ensures that all nonscore and alert papers funnel through the appropriate Scoring Director. The Scoring Director functions as the final word on all nonscorable responses and confirms or rejects all alerts ascribed by readers.

DRC's Alerts Process

DRC understands that, regardless of scoring platform (i.e., AI or handscoring), for troubled student alerts, NDE must be notified. Within both MI's AI scoring system and DRC's handscoring platform, alerts will be routed to the appropriate Scoring Director. If the Scoring Director agrees with the alert status, the response will be forwarded to a Handscoring Project Manager who will review the response and, if warranted, send a copy to DRC Project Management staff. A Project Manager will provide NDE with a copy of the response and any demographic information that is needed.

b. The proposal must include a description of the methods used to merge online and paper/pencil assessment results.

As appropriate, data and scores for a student's selected responses and machine-scored responses will be systematically matched to those for the student's constructed responses by a unique document ID (lithocode) and/or a series of criteria (e.g., student ID number, first/last name, district/school, birthdate). DRC will work with NDE to develop business rules to create specifications for student designations and matching criteria that ensures consistent, valid, and reliable reporting. The business rules will be finalized with NDE during the requirements gathering process for scoring and reporting. This process allows DRC to create a **single, accurate, reliable data record for each student assessed** by linking all score and demographic data for a specific student, including data and scores collected during scoring of selected-response items, machine-scored items, and constructed-response items.

In the event that a student takes one content area on paper and another content area online, results will be merged in the same manner as discussed above.

Once the scored master student file is deemed 100-percent accurate, DRC's Psychometrics staff will perform additional detailed analysis on the data files prior to NDE's review and approval process. Standard quality inspections will be performed on all data files, including the evaluation of each student data record for correctness and completeness. Student results are kept confidential and secure at all times.

c. The Contractor will provide a report documenting irregular responses such as blank answer documents, excessive item non-response, and excessive multiple marks at the district and school levels. The NDE and Contractor will determine levels of excessive non-response and multiple marks, and other indicators of irregular response. The proposal must describe how this requirement will be met.

and

d. The proposal must include a solution for real time and end-of-testing support of NDE in data forensics, including irregular responses. The Contractor is expected to provide a solution for not only reporting on data forensics, but supporting NDE in its use of the report and follow up on issues of concern indicated in data forensics report.

DRC has included a full description of our data forensics offering, including irregular response documentation, in the following section under *Subheading G.8.*

G. ANALYSIS FOR STATEWIDE ASSESSMENTS

1. Calibration and Scaling

DRC will conduct all analyses necessary to ensure that the Nebraska assessments meet standards of technical quality and report meaningful results for the student, school, district, and state. DRC achieves psychometric excellence by assuring that all practices and procedures meet professional measurement standards as outlined in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014).

During each year of the contract, DRC will conduct analyses necessary to support:

- Test development for test items developed by Nebraska educators,
- Test construction,
- Scoring, and
- Standard setting and validation activities.

Upon award, DRC's psychometricians will work with NDE to define a scope of work for secondary analyses related to security, data interpretation, policy formation, and administrative planning. DRC has several options available for large-scale assessment clients, including Rasch residual analysis, as well as supporting NDE in the peer review process.

a. The Contractor will calibrate test items using an appropriate item-response theory (IRT) model(s). The proposal must include a discussion of the benefits of the proposed IRT model, its appropriateness for the tests, and indicate which software will be used.

DRC proposes the continued use of the Rasch measurement model to support the development and implementation of both the general and the alternate Nebraska assessments. Our experience shows that there are several benefits to using the Rasch measurement model in large-scale assessment (Smith & Smith, 2004; Mead, 2008):

- It is relatively simple to apply, which aids communication and allows tight reporting schedules.
- It provides an interval scale of measurement, which permits direct comparison of students and items.
- It separates the information relevant to the measurement from the error terms, which facilitates detection and diagnosis of irregularities.
- It requires fewer cases for estimation of model parameters.

Georg Rasch (1960) reasoned that only one person parameter (*ability*) and one item parameter (*difficulty*) can govern the interaction between the person and the item. That is, if the person has more ability than the item has difficulty, the person is expected to answer correctly.

Similarly, if the person has less ability than the item has difficulty, the person is expected to answer incorrectly, regardless of any other characteristics of the person or item.

This line of reasoning led to the *simple logistic model*, which has several closely related and very useful properties:

- *Separability* of the model parameters (Rasch, 1960).
- *Sufficient statistics* that do not involve the parameters (Andersen, 1977).
- *Specific objectivity*, sometimes called person-free calibration and item-free measurement (Wright, 1968).
- *Simplicity*, which allows ready explanation and understanding of the measures (Wright & Stone, 1979).

Specific objectivity is the cornerstone of the Rasch family of measurement models (Wright, 1980) and makes the Rasch model well suited for large-scale assessment. *Specific objectivity* means that the estimation equations for ability do not involve the difficulty parameters, and the equations for difficulty do not involve the ability parameters. In practical terms, this means that students can be ordered along the measurement continuum by their number correct scores and that items can be ordered along the same continuum by the number of correct responses to the item. No other information is necessary and anything remaining in the data can be used for control of the model.

DRC has successfully used the Rasch measurement model in support of the current NeSA assessment program, and we are confident that the Rasch model can continue to be used in support of the new Nebraska assessments required by this RFP. Should NDE wish to investigate the use of more general item response theory models, DRC can help NDE evaluate the advantages/disadvantages of such a transition. DRC also has extensive experience in using other models in support of large-scale assessments.

Item Calibration

The multiple-choice items (MC) will be calibrated using the familiar form of the Rasch model (Rasch, 1960; Wright & Stone 1979; Andrich, 1988; Fischer & Molenaar, 1995; Smith & Smith, 2004). The Rasch model applicable to dichotomously scored items, scored right or wrong conditional on the ability and difficulty, can be expressed in the most familiar form of the model:

$$\Pr(correct \mid \beta_n, \delta_i) = \frac{e^{\beta_n - \delta_i}}{1 + e^{\beta_n - \delta_i}}.$$

The probability of success for a person with ability β_n on an item with difficulty δ_i is determined by the difference between the ability of the student and the difficulty of the item.

Joint-maximum-likelihood estimation of items will be accomplished using WINSTEPS (2016). This calibration software is commercially available and widely used in the testing industry. The capabilities of the WINSTEPS program will be utilized to assess unidimensionality, item interdependence, and other deviations from the model, as well as item calibration and ability estimation. The program has several options for the exploration of the person-item residual matrix (Mead, 1976, 2008; Smith, 2000; Ludlow 1986). DRC staff has extensive experience in using this software to support the application of the Rasch model in large-scale assessment.

DRC recommends calibrating and linking field test items to the operational scale of measurement using the common item, non-equivalent groups design wherein different cohorts of students have taken a common set of linking items. In this case the common set of linking items is the operational items that all students have taken. Essentially, field test items parameters are estimated along with the operational items, but the operational items are fixed to their existing values maintained in the item bank. This approach expresses the field test item parameters on the operational scale of measurement maintained for the testing program and assembly of future test forms using these field test items can begin.

b. The Contractor will translate student composite or total scores to a reporting scale developed for each subject area and grade level test. The proposal must discuss methods for creating a reporting score scale consistent with the reporting requirements.

DRC is proposing the Rasch measurement model to estimate the student proficiencies and to control the assessment process. The model provides straightforward algorithms to compute *ability* estimates on a unidimensional, equal-interval scale of measurement from the number correct scores. These algorithms are implemented in the WINSTEPS program and other readily available software.

The scale of measurement, often referred to as the logit scale within a Rasch context, has many attractive measurement properties. Logits involve positive and negative values and two, three, or more decimal places. The scale score metric used for reporting is, in almost all cases, a simple linear transformation of the logits; *SS = a+b (logit)*, where *b* is large enough to avoid the need for decimals and *a* is large enough to avoid negative values.

DRC aided NDE in creating all the scale ranges currently used to report NeSA assessment results. Currently, for all grades and content areas of the regular and alternate reading, mathematics, and science assessments, NDE reports performance on a scale that ranges from 1 to 200. NDE also chose to fix important points on the scale. Scale scores below 85 were labeled *Below the Standards*, between 85 and 134 were *Meets the Standards*, and scale scores above 135 were *Above the Standards*. Should NDE wish to transition the assessments to another reporting scale to coincide with new content standards and/or performance expectations, DRC has extensive experience in the development of new scales and transitioning from one scale to another. For all content areas, DRC will review the distribution of scale scores to confirm that student achievement is covered from low to high, including appropriateness at the cut points. DRC vertically articulated the regular NeSA ELA, Mathematics, and Science assessments at each

grade during standard setting to assure that there was consistency across all grades within the content area. DRC followed similar procedures in the development of the scale supporting the alternate assessment.

c. The proposal will include a plan for strong measurement of growth through vertical scaling or other method.

DRC will embed vertical linking items to establish a vertical scale for reporting. Linking is a broad term that refers to a variety of methods for developing a relationship between scores for tests that differ in item sets and their difficulty. Vertical scaling, which is one type of linking, is a process of placing scores from two or more tests on the same score scale when those tests differ in difficulty and content, but are similar in the constructs measured. Unlike equating, which adjusts for differences in difficulty among test forms that are built to the same content specifications, vertical scaling often employs tests of unequal difficulty and modest differences in content structure, using samples of individuals of unequal proficiency from adjacent grades.

DRC will establish vertical scales using vertical linking blocks of items for the general Nebraska assessments in ELA and mathematics grades 3–8. DRC proposes a robust vertical linking design to support vertical scaling. Common or "linking" items that are well articulated across grade level standards will be included in adjacent grade level forms. Essentially, these items serve as anchors between grade levels in the vertical scale so they are also content representative. Under this design one unique set of vertical linking field test items will be administered.

DRC recommends maintaining the vertical scales for ELA and mathematics, and re-evaluating the between-grade level link at least every three administration years. We recommend that the field test items not be administered as the first or the last item or item block. Items that are passage-based will be administered in one block. Discrete items will be distributed across the operational test forms.

Figure 4–50 shows an example of criteria presented to Test Development for selection of vertical scale items during forms construction.

Figure 4–50: Selection of Vertical Equating Items

The selection of vertical equating items for the spring forms must meet a variety of content and psychometric constraints. The vertical linking items will only link lower grade content to higher grades (i.e., grade 3 items will appear as vertical links on the grade 4 form, etc., and no grade 4 items will appear on grade 3 tests).

Psychometric Properties

1. Vertical linking items must be operational items on the 2017 lower grade form.
2. Only choose vertical linking items that were operational on the 2016 form. The 25% replacement items for the 2017 form cannot be used for vertical links.
3. Avoid extreme *p*-values. A suggested range would be .50 to .75. Try to balance items across this range.
4. Avoid all items with a point biserial lower than .30.
5. Avoid all B and C DIF items.
6. Try to avoid new item types, as increased familiarity with the item type may change student performance on the item due to increased familiarity with the item type. This would bias the vertical scale.

Content Concerns

1. Pick items that will be likely covered in normal instruction at both the lower and higher grade.
2. Do not pick items from the lower grade that students will not have an opportunity to practice in the higher grade. If the students do not have the opportunity to use the lower grade skills in the higher grade, the difficulty of the item may change due to lack of practice. This would bias the vertical scale.
3. Spread the items across the content standards for the lower grade.
4. Try to keep the proportions of the lower grade linking items in line with the proportion of items on the lower grade blueprint. The items in the linking set must be representative of both the lower grade and higher grade test blueprints.

Try not to pick items from instructional topics that might not receive full coverage at the district or school level. Remember, the students must have the opportunity to learn/practice the content included in the linking items to accurately represent the growth between grades.

Items selected to build the vertical scale have already-established IRT item parameter values that will serve as the anchor items within vertical linking analyses that will use the Stocking and Lord (1983) equating method. The Stocking and Lord (1983) equating procedure, also called the test characteristic curve (TCC) method, minimizes the mean squared difference between the anchor and total test characteristic curves, where the former is based on estimates from the baseline calibration and the latter is based on transformed estimates from the current calibration. The vertical scale is constructed by first linking a pair of adjacent grades to a common scale of measurement and then successively adding remaining grades using a series of Stocking and Lord procedures until all grades are linked to a common scale of measurement.

Monitoring Scale Performance

DRC will examine and document the following vertical scale characteristics to determine if the vertical scale needs to be modified:

- TCC plots across grades
- Conditional standard errors of measure
- Grade-to-grade growth
- Grade-to-grade variability
- Separation of grade score distribution

Because the forms are intended to progress in difficulty, TCCs are expected to show evidence of increasing difficulty across grades (Patz, 2007). In addition, the standard error and conditional standard error of measurement curves should articulate appropriately from grade to grade. DRC reviews these data for appropriate behavior within grade and articulation across grades.

Grade-to-grade growth in achievement should be reflected as an increase in mean scores from grade to grade when scores are on a vertical scale. DRC will examine the mean score estimates and the mean scale differences between consecutive grades. Means are expected to increase with grade level and the pattern of increase would be expected to be somewhat regular and not erratic (Patz, 2007). Grade-to-grade variability refers to the pattern of within-grade variability as grade increases. Standard deviations (SD) for each grade will also be examined. Within-grade SD could increase, decrease, or remain constant over grades, as different results were found from previous research. However, large differences in vertical scales' SDs from one grade to the next would warrant consideration (Patz, 2007).

Separation of grade distributions is the degree of the overlap between scale score distributions of consecutive grades (Kolen & Brennan, 2004). DRC will examine the effect size of the mean differences for adjacent grades (Yen, 1986). The effect size standardizes the mean difference between adjacent grades using the square root of the average of the within-grade variance.

We will also examine the horizontal distance between the distributions for consecutive grades (Holland, 2002). The horizontal distance at a given percentile can be defined as $HD(p) = Y(p) –$

X(p) where X(p) is referred to as the "pth percentile" of the cumulative distribution function for the lower grade and Y(p) is referred to as the "pth percentile" of the corresponding distribution of the upper grade. Horizontal distances can be computed at these selected percentile points to examine gaps at selected locations throughout the distribution: 5th, 10th, 25th, 50th, 75th, 90th, and 95th. There is not a "gold standard" to evaluate effect size or horizontal distance. However, large changes over grades might indicate anomalous scale behavior and would warrant closer examination.

DRC has extensive experience in the construction and maintenance of vertical scales used to support large-scale assessment systems. The scale of measurement will provide an effective way for student growth to be measured within Nebraska's accountability system. It is important to note that DRC's costs include the development and maintenance of the vertical scale. However, they do not cover the implementation of specific growth models that Nebraska will use within their accountability system. DRC would also be pleased to have further discussions with NDE about growth models upon contract award.

d. The system must provide a method to report subscore results at the concept level at the school, district, and state levels. The proposal must include a description of the proposed method and a rationale for its use and provide information in addition to an overall score (e.g., sub-scores) in each content area to the degree possible within the purpose of the assessment

DRC currently reports at the standards level for ELA, mathematics, and science, representing the student, school, district, and state percent correct. DRC understands that with the new Nebraska assessments, NDE may wish to provide additional scores in each content area.

DRC provides detailed reporting information in different ways, depending on the needs of our state clients. For instance, some of our clients report out student performance at a claim or indicator level in terms of student's strengths and weaknesses. These can then be shared with educators and parents.

In some cases, our clients have an established link between the summative and non-summative assessments. This connection between the interim and summative assessments can be leveraged to provide strength and weakness information to instructors and parents, as well as the possibility of providing predicative information.

By providing reports that align to the summative reporting categories, the results of non-summative assessments can provide further evidence, along with students' summative scores from the previous school year.

DRC has extensive experience in providing effective and informative information to educational stakeholders tailored to the need of our clients. DRC will work with NDE to discuss all options, their availability and the use of in Nebraska, as well as all associated costs.

2. Equating

a. The Contractor will design and conduct analyses required to equate the tests from year to year at each grade level for each subject area: English Language Arts, Mathematics, and Science. The proposal must describe the proposed method for equating the tests and provide a rationale for the proposed method. If measuring the content and standards currently assessed, the proposal is to include an equating method between assessments.

b. The Contractor will design and conduct analyses required to calibrate and equate test items across test forms within a single year. The proposal must demonstrate an understanding of the test design and describe the method proposed for accomplishing this task.

Rasch Equating

Angoff (1971) outlined three conditions that must be satisfied for equating to succeed:

- The test forms to be equated should measure the same ability (unidimensionality).
- The resulting raw-score to scaled-score conversion should be independent of the data used in deriving it and should be applicable in all similar situations.
- The equating should be symmetric, or the equivalent, regardless of which test form is designated as the base.

To succeed, in this sense, means that after equating, scores on the two test forms are interchangeable and a student's score may be compared to another's within or across years in an equitable and objective manner.

DRC has extensive experience in equating assessments and maintaining scales of measurement over multiple administrations. Building test forms to support successful equating is a challenging and on-going process. It requires the careful development of items to ensure the content of the items is consistent with the content standards, the curriculum, and the instruction. It also requires strong statistical controls to ensure that all items are equally valid and reliable instances of the underlying construct. Strict attention on the test content as well as psychometric requirements will be the guiding principle to develop sound measurement scales, to maintain consistent performance standards, and to facilitate comparable reporting across forms and across years for the ELA, mathematics, and science general and alternate Nebraska assessments.

DRC is proposing a test design for operational assessments that will include:

- Operational items scaled to a common metric,
- Linking (anchor) set of items for the alternate assessments, and
- Embedded field-test items.

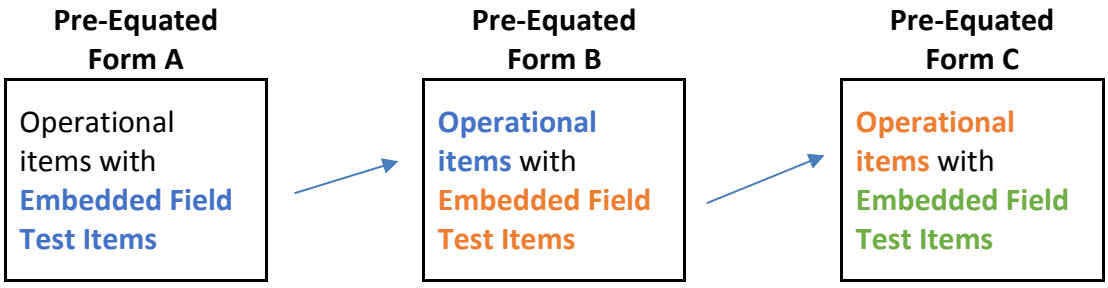
Equating – Alternate Assessment

To link the alternate assessments administered in different years, DRC will base the equating on the common item, non-equivalent groups design (Kolen & Brennan, 2004) wherein different cohorts of students have taken a common set of linking items. Considerations for the linking set of items include good content balance, breadth of difficulty, and good fit to the model. DRC will work closely with NDE to identify the linking items to be used from year to year. For the alternate, DRC will work with NDE staff to choose the linking items from the previous year's assessment to place on the current year, creating a year-to-year link, comprising items that will make up approximately 25 to 30% of the total test length.

Equating – General Assessment

For the general assessments, because field test items are embedded in the operational form administrations, items are calibrated to the bank scale; in essence, the whole newly built operational form is on the bank scale. Looking at the Figure 4–51, you can see that in the pre-equated Form A there is an embedded set of field test items that are placed on Form A's bank scale. Then you can see in the pre-equated Form B that the operational set comprises operational banked items as well as the embedded field test items from Form A, and so on to build all future pre-equated forms.

Figure 4–51: Building Pre-equated Forms



Breach Form

Per the RFP, if a breach form is needed, DRC will administer a previous year's assessment for the grade/subject needed. The exception will be standard setting years, when a scrambled form is used because a previous year's form will not be equivalent. Given that all test forms have been linked to a common scale of measurement, the use of the breach form will not require additional calibration and equating analyses.

Pre-Equating and Post-Equating

For the general assessments, DRC is proposing to move to a pre-equated program design, in order to meet the RFP requirements of timely reporting and decreasing reporting turn-around times. For the alternate assessments, which are typically more challenging to equate, DRC is proposing the continued use of the post-equating design, in consultation with NDE.

Pre-equating was chosen to achieve the rapid reporting that is desired by NDE and can accommodate ELA, mathematics, and science content areas. Pre-equating involves using item parameters estimated as part of field testing activities to develop raw-score to scale score conversion tables prior to actual test administration. Because item parameters are linked to the operational scale of measurement as part of the field test analyses, we can assemble an equated test form prior to test administration. Pre-equating forms places more emphasis on the quality of the field test statistics, and the embedded field test design we are proposing is ideally suited for this purpose. As previously stated, DRC will review and evaluate the stability of the estimated item parameters each year to validate the pre-equating design.

DRC has successfully implemented testing programs based on pre-equating for a number of our customers.

Pre-Equating Procedure for General Assessments

DRC's pre-equating procedure is based on the Rasch measurement model. Here, the one-to-one association between raw scores and ability estimates defines the raw-to-scale score conversions needed for scoring and reporting. For a given raw score (*r*) on a specific form of the test, ability is the value that makes the following equation true:

$$r = \sum E_{rj}$$

where E_{rj} represents an expected item score. For the multiple-choice items, each worth one point, this is the probability that a student will answer the item correctly, which is given by:

$$\Pr(correct \mid \beta_n, \delta_i) = \frac{e^{\beta_n - \delta_i}}{1 + e^{\beta_n - \delta_i}}.$$

Forms of a test will be *equated* if all refer to the same measurement scale; two number correct scores will be *equated* if they refer to the same location on the measurement scale. Scale scores from equated forms can be analyzed, compared, and dissected without regard for which form or which administration generated the scores.

DRC will use WINSTEPS to generate the conversion tables. DRC psychometricians are familiar with WINSTEPS output formats and have experience handling multiple output files programmatically. Psychometric staff will run WINSTEPS by anchoring all item difficulties and thresholds. WINSTEPS raw-to-measure conversions are completely model driven in such a 'fully anchored' run. Raw-to-measure tables will be obtained from the subsequent WINSTEPS output files. These files will then be checked using independent procedures by DRC's Psychometric Quality staff.

A sample WINSTEPS scoring table is presented in Figure 4–52.

Figure 4–52: Sample WINSTEPS Scoring Table—*The raw score to measure conversions are provided in the first two columns. The measure scores are linearly transformed to derive the Nebraska scale score.*

TABLE OF SAMPLE NORMS (500/100) AND FREQUENCIES CORRESPONDING TO COMPLETE TEST

SCORE	MEASURE	S.E.	NORMED	S.E.	FREQUENCY	%	CUM.FREQ.	%	PERCENTILE
0	-5.2840E	1.8367	-28	151	0	.0	0	.0	0
1	-4.0520	1.0199	74	84	0	.0	0	.0	0
2	-3.3186	.7350	134	61	1	.0	1	.0	1
3	-2.8728	.6114	171	50	0	.0	1	.0	1
4	-2.5445	.5393	198	44	6	.0	7	.0	1
5	-2.2803	.4911	220	40	19	.0	26	.1	1
6	-2.0566	.4565	238	38	50	.1	76	.2	1
7	-1.8604	.4303	255	35	77	.2	153	.4	1
8	-1.6841	.4099	269	34	109	.3	262	.7	1
9	-1.5229	.3936	282	32	194	.5	456	1.2	1
10	-1.3733	.3804	295	31	226	.6	682	1.7	1
11	-1.2328	.3696	306	30	296	.7	978	2.5	2
12	-1.0996	.3607	317	30	340	.9	1318	3.3	3
13	-.9721	.3534	328	29	376	1.0	1694	4.3	4
14	-.8494	.3475	338	29	496	1.3	2190	5.5	5
15	-.7303	.3427	348	28	491	1.2	2681	6.8	6
16	-.6142	.3389	357	28	558	1.4	3239	8.2	7
17	-.5004	.3361	367	28	671	1.7	3910	9.9	9
18	-.3881	.3341	376	28	673	1.7	4583	11.6	11
19	-.2770	.3329	385	27	720	1.8	5303	13.4	12
20	-.1663	.3325	394	27	829	2.1	6132	15.5	14

It is important to understand that with pre-equating, all items must have known calibrations that were established from their previous uses. The items are assumed to not interact differentially with instruction or changes in the environment over the intervening time period, and the underlying construct is assumed to not have changed due to changes in the content standards or mixes of item content or types. These are relatively strong assumptions that when met allow the raw-to-scale score conversion tables to be computed (as described above) as soon as the forms are constructed. This will permit the generation of student reports as soon as scoring is complete and results have been certified.

Post-Equating Procedure for Alternate Assessments

Post-equating procedures differ from pre-equating in that calibration and equating analyses are conducted after test administration has occurred. This ensures that item parameter estimates are obtained from a current administration of the operational test instead of the embedded field testing from a prior administration.

DRC is proposing a test design for the alternate assessments that will include:

- Operational items scaled to a common metric,
- Linking (anchor) set of items, and
- Embedded field test items.

NDE and DRC will collaboratively choose the linking items from the previous year's assessment to place on the current year creating a year-to-year link. Considerations for the linking set of items include good content balance, breadth of difficulty, and good fit to the model.

Post-administration equating analyses will be based on fixed-parameter equating, wherein item parameters for a given operational administration are estimated, while keeping the anchor items fixed at their prior estimates obtained in previous operational administrations. The impact of fixing the anchor items will be evaluated using the displacement statistic that will be used to identify outliers that are negatively impacting the equating as well as the Robust *Z* statistic (Huynh & Meyer, 2010). DRC has extensive experience in implementing the fixed parameter equating within WINSTEPS and has successfully worked with this method in Nebraska.

Item Bank Maintenance

Monitoring and updating item calibration values to adjust for issues such as item parameter drift can help establish and maintain a successful pre-equating program. DRC recommends the following procedures be used to ensure that the most appropriate item difficulty parameters are "banked" for later use:

- Using the full data file, conduct a free local calibration for all operational items.
- Evaluate the stability of the local calibration results vs. the "banked" difficulties using a Robust Z analyses. (The current procedure, under the post-equating design, is to evaluate the stability of the anchor items.)
- Using only values for "stable" items, determine the *mean shift*.
- For operational items, update bank values by applying the mean shift to all operational items to put the items on bank scale. The resulting transformed Rasch difficulties will be banked and applied in future applications.

3. Item Evaluation for General and Alternate Assessments

a. The Contractor will produce item statistics for all field test items. The proposal must include a description of the item statistics that should be generated to assist in the evaluation of field test items including a discussion of the appropriate statistics if proposing a state-developed solution. If off-the-shelf solution, provide a description for assuring item quality of field-tested items, including statistical criteria.

DRC Psychometric staff will continue to provide all needed analysis of field test items for the general and alternate Nebraska assessments. DRC Psychometrics staff will work with DRC's Test Development staff to coordinate item analysis and forms construction. Statistical and psychometric analyses go through many phases in a testing program. DRC will analyze all items prior to being placed on forms using the methodologies described in Table 4–20.

Table 4–20: Item Analyses

True-Score Item Analyses (Overall and by Subgroup where Requested)	
p-values, with flags for very easy and very difficult items, MC, SR, PT, TE, dichotomous scored only	Percent choosing each MC option, with flags for distractor percent higher than correct-answer percent
Item-total correlations, with flags for possible mis-key or poor item quality (point-biserial, polyserial)	Standard error of measurement for each raw score
Percent of students at each score point	
Differential Item Functioning	
Dichotomous	**Polytomous**
Focal group designation	Focal group designation
Reference group designation	Reference group designation
Mantel-Haenszel chi-square	Standardized mean difference (SMD)
Mantel-Haenszel delta	SMD category (AA, BB, CC) for CR items
DIF category (A, B, C)	Effect size of SMD
Rasch Item Statistics	
Logit difficulty estimates	Threshold parameter estimates for polytomous items
Standard errors for all parameter estimates	WINSTEPS item fit statistics

True-Score Item Analyses

As previously stated, embedded field test item analyses will be conducted. This begins with true-score item analysis. DRC's Psychometric staff starts with the key verification, computing the number and proportion of students selecting each response option, the *p*-value for the item, the item-total correlation for the key, and the item-total correlations for each of the response alternatives. These statistics can be used to flag any potential incorrect scoring keys. Typically, DRC flags items as possibly mis-keyed if the following conditions are observed:

- Percent correct (*p*-value) is low;
- Percent of students selecting any distractor is high;
- Point-biserial correlation for the key is low or negative;
- Point-biserial correlation for a distractor is high.

Criteria for flagging an item are customizable. As an example, the "low" *p*-value threshold could be set at any value (e.g., 0.30, 0.35, 0.40). DRC psychometricians will work with NDE to define the criteria that are most suited for the Nebraska assessments.

The item analysis will be conducted as soon as data based on an appropriate calibration sample are available. This analysis will be conducted by form. All items flagged as possibly mis-keyed are immediately referred to DRC Test Development content specialists, Project Management, Information Systems, and Software Quality Assurance staff for further review and verification. Incorrect item keys are identified and evaluated before the final scoring is conducted. Therefore, there are no implications for item calibrations, scaling, equating, and reporting. Documentation related to any item discrepancies and a copy of the item analysis will be available to NDE for review upon request.

Distractor Analysis

The distractor analysis looks at a proportion of students selecting each response option as a function of raw score. The proportion of students selecting the keyed response option should increase as a function of ability (raw score) increases. Conversely, the proportion of students selecting each of the incorrect response options (distractors) should decrease as ability increases. A graph for an item that does not show this pattern of results may indicate an incorrect key. DRC has found that these item distractor analysis graphs, when used in conjunction with the above-mentioned item statistics, are a powerful tool in detecting possible item mis-keys.

Differential Item Functioning

DRC routinely calculates Differential Item Functioning (DIF) statistics to detect possible item bias on all field test items. DIF analysis is designed to detect items for which students of equal ability, from different groups, do not have the same probability of answering the item correctly. DIF results will be provided by gender, ethnicity, and other requested subgroups where sample sizes are sufficient to perform the analyses. Flagged items (i.e., those where the statistical analyses indicate possible DIF) will be reviewed by DRC and presented to the NDE for review.

For multiple-choice items, DRC uses the Mantel-Haenszel (MH) statistic (Mantel & Haenszel, 1959). The MH chi-square test is the most commonly used test to determine whether the odds that the *focal* and *reference* groups will respond correctly are equal (Holland & Thayer, 1988, Birch, 1964). The MH analysis involves the computation of a MH chi-square statistic and a MH Delta[1], or MHD value that represents the average amount that members of the reference group found the studied item more difficult than did comparable members of the focal group. The MH statistic does not depend on the application or the fit of any specific measurement model, does not require specific forms of item response functions, and does not require large sample sizes. This is particularly useful when examining DIF in the accommodated assessments, where smaller sample sizes are present.

[1] The MHD is the ETS delta scale for item difficulty where the natural logarithm of the common odds ratio is multiplied by –(4/1.7).

DRC will report the MH chi-square, Delta, and severity classifications. These statistics will enable NDE to make better decisions about the presence or absence of DIF, and will also help to reduce false identification (i.e., labeling items with DIF if no item bias exists).

As an aid to post-testing review, all items will be placed into DIF severity classifications (*A+/- to C+/-*) based on industry standard guidelines (Allen, Carlson & Zelenak, 1999). The *A* category represents negligible DIF, the *B* category indicates moderate potential DIF, while the *C* category indicates that there is large potential DIF. The plus (+) or minus (–) sign that follows the DIF category indicates which group is favored by the item. The minus sign indicates that the reference group outperformed the focal group once the skill level differences between the groups have been removed. The plus sign indicates that the focal group outperformed the reference group once the skill level differences between the groups have been removed.

A classification system is used in place of a formal significance test of DIF. MHD < 1.0 implies it is not significantly different from 0 (based on alpha=.05). The dichotomous DIF classification is defined by the absolute value of MH Δ squared:

Rule 1: If $|MHD| < 1.0$, the item is classified as A.

Rule 2: If $1.0 \leq |MHD| < 1.5$, the item is classified as B.

Rule 3: If $|MHD| \geq 1.5$, the item is classified as C.

Constructed-response and extended-response items analysis will be based on the standardized mean difference (SMD) procedure developed by Zwick and Thayer (1996), which takes into account the natural ordering of the response levels of the item. In contrast to the MH procedure, this summary statistic compares the means of the reference and focal groups, adjusting for differences in the distribution of each group's members across a given number of ability (i.e., total score) stratifications. The SMD statistic represents the difference between the unweighted item mean of the focal group and the weighted item mean of the reference group. The weights applied to the reference group are determined such that the weighted number of reference group students is the same as in the focal group (within the same ability group). The SMD is then divided by the total group item standard deviation, resulting in a measure of the effect size (ES) for the SMD.

Based on this ES value, and its statistical significance, all items will be placed into DIF severity classifications (AA+/- to CC+/-) based on NAEP guidelines (Allen, Carlson & Zelenak, 1999). The polytomous DIF classification is defined as:

Rule 1: If $|ES| \leq 0.17$, the item is classified as AA[2].

Rule 2: If $0.17 < |ES| \leq 0.25$, the item is classified as BB.

[2] ES < 0.17 is not significantly different from 0 (based on alpha=.05)

Rule 3: If |ES| > 0.25, the item is classified as CC.

DRC will include the results of both the Mantel-Haenszel and SMD analyses in the Technical Report. Constructed-response items will be displayed in the same format as for SR/MC items.

b. The Contractor will produce item statistics for all operational items. The proposal must include a description of the item statistics that should be generated to assist in the evaluation of these items.

Operational analysis will be completed as discussed above with the field-test item analysis. The item analysis will be conducted as soon as data based on a sufficient calibration sample is available.

Table 4–21: Operational Item Analysis

True-Score Item Analyses (Overall and by Subgroup where Requested)	
p-values, with flags for very easy and very difficult items, MC, SR, PT, TE, dichotomous scored only	Percent choosing each multiple-choice (MC) option, with flags for distractor percent higher than correct-answer percent
Item-total correlations, with flags for possible mis-key or poor item quality (point-biserial, polyserial)	Standard error of measurement for each raw score
Percent of students at each score point	
Rasch Item Statistics	
Logit difficulty estimates	Threshold parameter estimates for polytomous items
Standard errors for all parameter estimates	WINSTEPS item fit statistics

All items flagged as possibly mis-keyed will be referred to DRC content specialists, Project Management, Information Systems, and Software Quality Assurance staff for further review and verification. Possible incorrect item keys will be identified, confirmed, and corrected before the final scoring is conducted. Therefore, there will be no implications for item calibrations, scaling, equating, and reporting. Documentation related to any item discrepancies and a copy of the item analysis will be available to NDE for review upon request.

Reliability and Validity

Reliability Studies

The reliability index we propose is the Coefficient Alpha (Cronbach, 1951):

$$\alpha = \left(\frac{k}{k-1}\right)\left(1-\frac{\sum \sigma_i^2}{\sigma_X^2}\right),$$

where *k* is the number of items, σ_i^2 is the variance of the set of scores associated with item *i*, and σ_X^2 is the variance of the set of observed total scores.

Acceptable α values generally range in the mid to high 0.80s to low 0.90s. Reliability estimates for subgroups based on gender, ethnicity, lunch status, migrant status, limited English proficiency status, special education status, and accommodation status are also computed, in addition to the reliabilities of the whole population.

Standard Error of Measurement

The traditional standard error of measurement (SEM) uses the information from the test along with an estimate of reliability to make statements about the degree to which errors influence individual scores. The SEM is based on the premise that underlying traits, such as academic achievement, cannot be measured exactly without a perfectly precise measuring instrument. The standard error expresses unreliability in terms of the raw-score metric. The SEM can be calculated using the following formula:

$$SEM = \sigma_x \sqrt{1-\rho_{XX'}}$$

where σ_x is the standard deviation of the total test score (observed measure scores);

and $\rho_{XX'}$ is the reliability estimate for the scores on the test.

SEMs will be calculated along with the reliability results.

Conditional Standard Error of Measurement (CSEM)

The preceding discussion reviews the traditional approach to judging a test's consistency. However, it is not very useful for judging the precision with which a specific student's score is known. The Rasch measurement models provide "conditional standard errors" that pertain to each unique ability estimate. Ability estimates from scores near the center of the test scoring range are known much more precisely than abilities associated with extremely high or extremely low scores.

The conditional standard errors for every obtainable score will be computed in the raw-to-scale score conversions for each grade and content area.

Indicators of Consistency and Accuracy

When criterion-referenced tests are used to place the examinees into two or more performance classifications, it is useful to have some indication of how accurate or consistent such classifications are. Decision consistency refers to the degree to which the achievement level for each student can be replicated upon retesting using an equivalent form (Huynh, 1976). Decision accuracy describes the extent to which achievement-level classification decisions based on the administered test form would agree with the decisions that would be made on the basis of a perfectly reliable test. In a standards-based testing program there should be great interest in knowing how consistently and accurately students are classified into performance categories.

Since it is not feasible to repeat the testing in order to estimate the proportion of students who would be reclassified in the same achievement levels, a statistical model needs to be imposed on the data to project the consistency or accuracy of classifications solely using data from the available administration (Hambleton & Novick, 1973). Although a number of procedures are available, two well-known methods were developed by Hanson and Brennan (1990) and Livingston and Lewis (1995) utilizing specific True Score Models. These approaches are fairly complex, and the cited sources contain details regarding the statistical models used to calculate decision consistency and accuracy from the single administration.

Validation Studies

The purpose of test score validation is not to validate the test itself, but to validate interpretations of the test scores for particular purposes or uses. Test score validation is not a quantifiable property, but an ongoing process, beginning at initial conceptualization and continuing throughout the entire assessment process.

For this reason, DRC views each part that contributes to an assessment as part of collecting validation evidence in support of each assessment administered in Nebraska. Important steps in developing a comprehensive portfolio of validity evidence in support of each testing program include: development of the standards by NDE for each assessment; construction of test blueprints, item specifications, and item banks; selection of test forms; administration; scoring; standard setting; and analyses.

DRC will collect and document validity evidence across a series of technical reports supporting the general and the alternate Nebraska assessments. This process will begin with a description of the targeted student population. We will collect student participation rates (N-counts and percentages) across subgroups: gender, ethnicity, LEP, low SES, disability type, IEP status, accommodations and mode of administration. An accurate articulation of the target population ensures that the test content is chosen such that intended inferences from test scores are equally valid for members of different groups of test takers.

We will examine all of the statistics within the item calibration, scaling, and equating that contribute to evidence of item, standard score, and test level reliabilities, stability, and validity. We will conduct factor analyses, as described above, and in relevant/desired detail to provide

NDE with a full range of transparent and defensible data as evidence toward the overall validity of the assessments.

Additional evidence that bears on validity is that of the conditional standard errors of measurement (CSEMs) across the entire continuum as well as at the cut scores that determine proficiency levels. Low CSEMs at the cut scores and the degree to which students are classified into performance levels consistently provides strong validity evidence.

Validity

Content/Curricular

Content validity addresses whether the test adequately samples the relevant material it purports to cover. The Nebraska assessments are criterion-referenced assessments. The criteria referenced are the Nebraska ELA, mathematics, and science content standards. Each assessment is based on, and directly aligned to, the Nebraska statewide content standards to ensure good content validity. DRC's proposed approach to the new Nebraska state assessments ensures the alignment of the assessment to Nebraska's standards.

From the inception of Nebraska's ELA, mathematics, and science content standards, committees of educators, DRC item development and assessment experts, and NDE staff have worked together to develop test items and to review new and field tested items. A sequential review process was put in place by NDE to provide ample opportunity for professionals to offer suggestions for improving or eliminating items, as well as to offer insights into the interpretation of the statewide content standards for both the Nebraska general and alternate assessments. These review committees participated in this process to ensure test content validity. DRC acknowledges the importance to NDE of educator involvement in the assessment process; our proposal reflects this.

In addition to providing information on the difficulty, appropriateness, and sensitivity of these items, committee members provided a necessary check on the alignment between the items and the content standards they were intended to measure. When items are judged relevant, that is, representative of the content defined by the standards, this judgment provides evidence to support the validity of inferences made (regarding knowledge of the content) with the Nebraska assessments. When items are judged to be inappropriate for any reason, the committee will either suggest revisions (e.g., reclassification, rewording) or elect to eliminate the item from the pilot-test item pool. In essence, these committee reviews and verification of the alignment of the test items with the standards and measurement specifications ensure that the items measured the appropriate content. The nature and specificity of these review procedures provide strong evidence for the content validity of the Nebraska assessments.

Educator Input

Nebraska educators provide valuable input on the alignment of the items and the statewide content standards. DRC is also proposing that items will be written by Nebraska educators specifically to measure the standards and specifications of the Nebraska content standards. Having a varied source of item writers provides a system of checks and balances for item development and review that reduces single-source bias. Since many different people with different backgrounds write the items, it is less likely that items will possess a bias than when they are written by a single author. This direct input from educators offered evidence regarding the content validity of the assessment.

Item to Content-Area Match

Expert judgments from educators, test developers, and assessment specialists provide support for alignment of the Nebraska assessments to the content standards. In addition, since content-area experts are involved in establishing the content standards, the judgments of these reviewers provides a measure of content validity. A match between the content standards and the components of the assessment provides evidence that the assessment measures the content standards. A table showing the number of assessment components, tasks, or items matching each content-standard was often used to provide documentation of the content validity of an assessment. The Nebraska assessment blueprint provides this documentation.

Construct Validity

The term construct validity refers to the degree to which the test score is a measure of the educational domain (i.e., construct) of interest. A construct is an individual characteristic that is assumed to exist in order to explain some aspect of behavior (Linn & Gronlund, 1995). When a particular individual characteristic from the assessment results is inferred, a generalization or interpretation of some construct is made. For example, problem solving is a construct. An inference that students who master the mathematical reasoning portion of an assessment are "good problem-solvers" implies an interpretation of the results of the assessment in terms of a construct. To make such an inference, it is important to demonstrate that this is a reasonable and valid use of the results.

Construct-related validity evidence can come from many sources. *The Standards for Educational and Psychological Testing* (AERA, APA, and NCME, 2014) provides the following list of possible sources:

- High intercorrelations among assessment items or tasks attest that the items are measuring the same trait, such as a content objective, sub-domain, or construct.
- Substantial relationships between the assessment results and other measures of the same defined construct.
- Little or no relationship between the assessment results and other measures that are clearly not of the defined construct.

- Substantial relationships between different methods of measurement regarding the same defined construct.
- Relationships to non-assessment measures of the same defined construct.

Evidence of Construct Validity

Item-Total Correlation (Point-Biserial Correlation)

An important metric of construct validity is item-total correlations and point-biserial correlations. Item-total/point-biserial correlation is the correlation between an item and the total test score. Conceptually, an item that has a high item-total correlation indicates that students who performed well on the test, overall, got the item right and students who performed poorly on the test, overall, got the item wrong. That is, the item did a good job in discriminating between high-ability and low-ability students. Presuming that the total test score represents the extent to which a student possesses the construct being measured by the test, high item-total and high point-biserial correlations indicate that the items on the test require knowledge of the construct in order to be answered correctly.

Rasch Fit Statistics

The Rasch model requires unidimensional data. Therefore, statistics showing that the items fit the measurement model provide evidence of unidimensionality and construct validity. MnSq Infit statistics are reported because they are less sensitive to large sample size and tend to be affected more by unexpected on-target responses (Linacre, 2009).

Validity Evidence for Different Student Populations

The Nebraska assessment assesses the state content standards and extended standards required to be taught to all eligible students, and as such, the tests cannot be more or less valid for use with one subpopulation of students over another subpopulation. In other words, because the Nebraska assessment measures what is required to be taught to all eligible students and is administered under the same standardized conditions to all students, the validity of score interpretations should apply to all students.

Great care has been taken to ensure Nebraska items are fair and unbiased for all students. Much scrutiny was applied to the items and their possible impact on minority and other subpopulations comprising the population of the State of Nebraska. Every effort is made to review items that could have ethnic or cultural biases.

4. Test Construction

The Contractor will conduct analyses to support the construction of technically sound test forms. The proposal must include a description of the types of analyses that will be conducted and how the results of those analyses will be disseminated and used by appropriate state and Contractor staff to assist in test construction. Testing errors caused by the Contractor shall be corrected by the Contractor at no extra cost to NDE.

DRC Psychometric Services (PS) will conduct all analyses needed to construct technically sound test forms. Starting with field test analysis mentioned above in *Subheading G.3.*, including key verifications, Differential Item Functioning, and placing the field test items on the operational bank scale, as discussed above in *Subheadings G.1* and *G.2*. Once analyses are complete, DRC's Psychometrics Team will work with our Test Development Team to aid NDE in reviewing items and building the test forms. For a more in-depth discussion on item review and forms construction please see *Subheading B.4*. Should there be any testing errors caused by DRC, DRC will correct them at no extra cost to Nebraska.

5. Scoring

In addition to the analyses conducted during scoring (above) to monitor the scoring process, the Contractor will conduct additional analyses after scoring to verify the accuracy of scoring. The proposal must include a description of the types of analyses that will be conducted and how the results of those analyses will be disseminated and used.

In addition to the analysis conducted during scoring, DRC will conduct additional analyses after scoring to verify accuracy. In the general and alternate ELA, mathematics, and science assessment, this will be completed in the key verification or key check analysis discussed in *Subheading G.3,* as well as analyses completed for technical reporting. Results for key check analysis can be supplied to NDE upon request; otherwise, all information is brought to item review and forms construction meetings. DRC will check all raw-to-scale conversions before reporting to make sure that the scores were applied correctly. Even with a pre-equated model, DRC will also review and evaluate the stability of the item parameter estimates across time periodically.

6. Reporting

The Contractor will design and conduct all analyses necessary to produce student, school, district, and state results and other information included in published reports of results. The proposal must include a description of the types of analyses that will be conducted and how the results of those analyses will be provided to NDE. The reports must be available on timely basis each year.

Reporting timelines are discussed in depth in *Subheading H*. The process and analyses to get there has been delineated throughout this proposal, especially above in *Subheadings G.1–G.5.* Since 2009, DRC has been supporting NDE in all aspects of the Nebraska assessment program. From the start of each assessment, DRC works with NDE and the educational staff of Nebraska.

This starts in the item writing meetings, where DRC Test Development staff support NDE and Nebraska educators with the creation of items. These items are then placed on forms for field testing where they are analyzed. Those results are then brought back to NDE and Nebraska educators at the forms construction meetings. Forms are calibrated, equated, and scaled after each content area has had a standard setting. At the standard setting, Nebraska educators are trained and asked to recommend cutscores and these recommendations are presented to the Nebraska State Board. After approval raw-to-scale score tables are provided to NDE and implemented at DRC, reporting can begin. DRC looks forward to the continued collaboration with NDE on analyses and timelines for reporting.

7. Data Analysis

a. The Contractor will provide annual analyses, including but not limited to identifying problems and inconsistences such as duplicate records, missing data, etc. so that NDE can work with districts to resolve problems.

DRC will continue to support analyses of student data supplied by districts and schools during the testing window and student test records for this new contract, as we have done since Nebraska test results were first reported.

DRC has facilitated comparison of student data and test results to NSSRS source data provided for precoding since the first NeSA-Reading scores were reported in 2010, and will again provide this service for the 2016-2017 English Language Arts, Mathematics, and Science assessments and propose to do so in the future. Through this process, NDE has had the opportunity to resolve any data inconsistencies that typically result from student mobility, changes in student information between the time of NSSRS data submission and the time of testing, or procedural errors in handling test materials or entering/editing student data online. This ensures that data used for reporting and NSSRS data match as required, and that each student required to test has a single result reported for each subject.

DRC and NDE have defined specific conditions for which to check in the student data and results provided by districts during the testing window. DRC runs a series of inspections to check for these conditions and provides NDE with both a summary report of all records flagged for one of the conditions and a Corrections system NDE can use to make any changes needed prior to reporting student scores and district and school summary results. These conditions include:

- **New Student—**a record for a student that tested who was not included in the pre-testing NSSRS data file.
- **No Attempted Documents Returned—**a record for any student who was in the pre-testing NSSRS data file who was expected to test, but who do not have a submitted test result.

- **Duplicate NSSRS ID—**any instances of separate test results that were submitted with the same NSSRS ID.
- **Multiple Documents Returned—**any instances where more than one test record was returned for the same student.
- **Online Demographics Mismatch—**records from the pre-testing NSSRS data file in which student demographic data was edited during the testing window.
- **Alt Assessment Flag Changed—**any student that was precoded as taking an alternate assessment in the pre-testing NSSRS data for which a general education record was returned instead, and vice versa.
- **Multiple Reporting Values—**any instance where the same student has multiple scores for the same subject.
- **General Review—**any record that was not flagged for one of the corrections reasons. NDE may edit student demographic data for these records if they are aware of information that changed after the pre-testing NSSRS data file was provided.

DRC would be pleased to work with NDE to determine if any changes are needed for the new Nebraska assessments.

DRC proposes to continue delivering the Corrections system as an application in DRC INSIGHT portal. DRC will plan for a two-week window to make adjustments to test records in the application which will be done prior to DRC providing district access to preliminary student reports and district and school summary reports. Additionally, DRC is proposing to continue the second phase of score resolution in which they allow districts to submit changes for a period of time after preliminary reports are released. NDE will then have an opportunity to make additional changes to the student data directly in the State Student Data File. DRC will then produce final electronic district and school summaries and both printed and electronic Individual Student Reports with the data from the updated State Student Data File.

Note that these score resolution steps contribute to turnaround time for final reporting. We recognize the value and importance they have in providing accurate data for accountability purposes. DRC would be happy to discuss modifications to the corrections process and schedule that would facilitate timelier reporting during the next years of the contract.

b. The proposal will include a description of Contractor's capacities for research that can be conducted for online assessments, for example, test-taking time compared to results.

Test-Taking Time Compared to Results

DRC's Psychometric Services will compare test-taking time to results. In *Subheading G.8*, we have discussed other ways to research testing activities and time on items. Currently, DRC reports testing time in the technical report and looks forward to discussing other options with

NDE upon award. *Appendix J* contains DRC's testing time analysis for the 2016 NeSA assessments.

Residual Analysis

DRC would like to offer NDE a new option for reporting on the general Nebraska administrations, providing NDE with an additional way to use the data. DRC offers Nebraska a residual analysis tool to further aid in the match of instructional practice and state course standards.

DRC developed a residual analysis tool, used with other large-scale assessment clients, to provide classroom, school, district, and statewide access to residual analysis to provide information to evaluate the impact of instructional and curricular changes on the year-end tests. These residuals are based on the Pearsonian chi-square formed by comparing observed outcomes with predicted outcomes. The Pearsonian chi-square approach is ideally suited for studying validity issues in testing because it allows researchers to formulate directly testable hypotheses relating to test validity and to perform direct tests of those hypothesis. This flexibility is unique to the Pearsonian chi-square approach to fit. Residual plots assist in interpreting validity evidence by providing a simple and direct medium for presenting assessment results to administrators, teachers and parents.

The residual analysis tool can be designed to look at a variety of demographic factors to evaluate performance. The first application might be using the student's school district classification to determine if there are differences in student performance profiles across districts. Differences, if any, would be useful in assessing the **strengths and weakness of the instruction** at a district level. This information can be presented at the reporting category level. This application can be further refined to look at performance of schools within the district and classrooms within the school, or Nebraska subgroups of students (e.g., ELL students).

A second application might be focusing on the impact of the use of different text books on results. The groups used in this analysis would be defined by the three or four most commonly used, or newly adopted curriculums (instructional text books) in the state. This assumes that text book use will be consistent throughout a given district. This analysis would investigate the **effectiveness of different curriculums or text books** in helping achieve the desired academic goals or standards. This result will help schools or districts in choosing appropriate curriculums/text books that are well-aligned with the state requirements or standards.

A third application might be the use of the statistics to evaluate the **instructional sensitivity** of the curriculum. This can be accomplished by using the proficiency classifications from the previous year's examination to study the student performance on the next grade level test. This should allow schools or districts to decide if the students perform as expected. This information will help schools or districts examine whether the current curriculum are well-targeted for or well-aligned with the state requirements or standards.

The tool is available as an Excel worksheet that allows districts and schools to develop their own instructional program comparisons.

8. Data Forensics

a. As a component of the overall security for the assessment system, the proposal should include a description of appropriate methods for analyzing data to identify inconsistencies and problems for both online and paper/pencil tests and to include a security incident response plan. The Contractor is expected to provide a solution for not only reporting on data forensics, but supporting NDE in its use of the report and follow up on issues of concern indicated in data forensics report.

b. The Contractor will provide a report documenting irregular responses such as blank answer documents, excessive item non-response, and excessive multiple marks at the district and school levels.

c. The NDE and Contractor will determine levels of excessive non-response and multiple marks, and other indicators of irregular response. The proposal must describe how this requirement will be met. The proposal must include a solution for real time and end-of-testing support of NDE in data forensics. The Contractor is expected to provide a solution for not only reporting on data forensics, but supporting NDE in its use of the report and follow up on issues of concern indicated in data forensics report.

d. NDE anticipates that the Bidder will use multiple methods to analyze results. Bidder will submit samples of data forensics reports illustrating how the results can be used by NDE. The RFP response must include detailed specifications of the statistical analyses used to provide the data forensics analyses.

e. Analyses must include a plan for Contractor to work with NDE to establish parameters for decision-making of outlying testing aberrations. The proposal must describe how this requirement will be met.

f. The proposal must include a solution for real time and end-of-testing support of NDE in data forensics.

Below is a comprehensive response to all data forensic requirements in *Subheadings 8.a.–8.f.*

As a full service provider of large-scale assessment services, DRC has extensive experience that is ideally suited to provide a comprehensive data forensics and monitoring program that can be seamlessly integrated within the Nebraska assessment program. DRC will adhere to test integrity standards as discussed in numerous sources such as recommended in the National Council on Measurement in Education (NCME) *Testing and Data Integrity in the Administration of Statewide Student Assessment Programs* and CCSSO's *Operational Best Practices for Statewide Large-scale Assessment Programs.* As the stakes for assessment have increased, DRC has invested in the development of high-quality data forensic tools and monitoring reports in support of our clients. DRC continues to research emerging and state-of-the-art detection

methodologies, presents regularly at national conferences—including the Annual Statistical Detection of Potential Test Fraud Conference—and regularly tracks developments in security guidelines from NCME, the Institute of Education Sciences National Center for Education Statistics, and TILSA.

To assist in the tracking of telemetry data during test sessions, DRC INSIGHT records a variety of transaction data during student testing and stores this information in its secure databases. These data include:

- Events in sequence for a particular test event, including how the student navigated through questions, how the student answered questions, and changes made to answers.
- Time spent on individual test items and times spent on the test overall.

These data can be used to reconstruct a student's testing event for data forensic purposes, allowing DRC to send telemetry data to NDE for an examination of any testing irregularities.

Further, DRC is pleased to offer several status reports and online testing statistics. The full suite of online status reports, which are available within the DRC INSIGHT portal, can be used to track testing activity for a given test administration and can be filtered by district and school. Please *Status Reports and Online Statistics* under *Subheading D.1.k.*

Table 4–22 summarizes DRC's data forensic offerings. Following the table, we provide more detail on the methodologies supporting each of our proposed offerings. Of course, DRC is open to conversation regarding alternative methodologies if that is what NDE prefers.

Table 4–22: Summary of DRC's Proposed Data Forensic Offerings

Methodology	Purpose	Area of Concern	Mode
Response Change Analysis	To identify instances of higher than expected wrong-to-right answer changes within an item visit	Excessive answer changes	Paper/pencil & online
Score Change Analysis	To identify situations where average school score gains or losses are unexpectedly large	Changes in performance	Paper/pencil & online
Response Time Analysis	To identify instances in where the total test was completed in a very short time period.	Prior exposure to test questions	Online forms
Open-Response Similarity Pattern Analysis	To identify if a student may have copied an open-ended response from the source(s) or from a neighboring student	Similar responses to open items	Paper/pencil & online

Response Change Analysis

Item response change analyses are appropriate for multiple-choice items administered on both paper-pencil and online tests. The same data can be gathered and analyzed regardless of administration mode. Erasure analysis is a more familiar term for this methodology when applied to a paper-pencil administration. However, what is truly being investigated is student-level item response changes; therefore, in consideration of online data, the methodology will be referred to as response change analysis.

For paper-pencil administrations, DRC's image scanners and ISO 9001:2008-certified scanning and editing processes are able to provide detailed data by student. Student-level erasure data can be aggregated at the state level, where trends across grades and subjects can be identified.

For online administrations, DRC INSIGHT is able to capture a variety of data at the time of student testing. At a district, school, or other preferred subgroup, totals will be calculated for the number of responses that changed from:

- Incorrect to correct (i.e., wrong to right—WR),
- Correct to incorrect (i.e., right to wrong—RW), and
- Incorrect to incorrect (i.e., wrong to wrong—WW).

For administrations that do allow for students to re-visit items, response changes can still be examined for changes occurring within an item visit. Results can be reported at a group level. For every group of interest at every grade and subject, the average number of WR response changes is evaluated in terms of the meaningful statistical difference from the statewide mean value of response changes. NDE will be made aware of the groups of interest that have a statistically large number of WR response changes.

The baseline for the erasure analysis is the state average of wrong-to-right (WR) erasures made by all students on operational items. Each school's WR average is calculated and then compared to the state average.

The following statistics are calculated:

1. $Mean_{State} = \frac{\sum X_i}{N}$, where

X_i is the number of WR erasures for student i, and N is the total number of students in the state, and :

2. $SD_{State} = \sqrt{\frac{\sum_{i=1}^{k}(X_i - Mean_{State})^2}{N-1}}$, also

3. $Mean_{School} = \frac{\sum X_i}{n}$, where

X_i is the number of WR erasures for student *i* in the school, and *n* is the total number of students in the school, and

4. $SD_{School} = \sqrt{\frac{\sum(X_i - Mean_{School})^2}{n-1}}$.

It follows that:

5. $t = \frac{Mean_{School} - Mean_{State}}{\frac{SD_{School}}{\sqrt{n}}}$, where degrees of freedom (*df*) is n−1.

The probability of the *t* statistic, *p*, is converted into the outlier score. The outlier score (OS) is computed using the following equation:

6. $OS = \left|1.086 \ln\left(\frac{p}{q}\right)\right|$,

where *p* is the probability of the occurrence of the behavior, and q is 1−*p*.

To assist understanding erasure data, DRC has developed the Response Change Map. This provides a visual representation of response patterns and answer changes within a group, usually a school. Key aspects of this report include:

- Identification of key levels of aggregation (i.e., district, school, and student)
- By student, a count of WR answer changes made, as well as an indication as to how the raw score would change due to answer changes
- Color-coded shading indicating type of answer change (wrong to right, right to wrong, or wrong to wrong)
- Shading of the field test item columns to easily distinguish them from operational items, if applicable

The erasure map is an Excel spreadsheet, which allows the user to filter data as desired. It will provide a visual answer to the questions:

- Within the school, do the field test items have a similar erasure pattern as the operational items?
- Within the school, are the same items being erased?
- Are the response change patterns consistent for a student across subjects?

In the sample map below (Figure 4–53), a numerical response indicates a wrong answer (i.e., 1 = A, 2= B, 3 = C, and 4 =D) and a lettered response equals the correct answer. The shading in the map represents the answer changing behavior. The cells that are shaded **red** represent items where wrong answers were erased and changed to correct answers. The **green**-shaded cells are items where wrong answers were erased and changed to another wrong answer. The **blue**-shaded cells are items where a correct-answer was erased and changed to a wrong answer.

Figure 4–53: Sample School-Level Answer Change Map (Atypical)

				Math Session 3																						
Secure ID	Total WR	Math WR	Read WR	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73
1	21	16	5	2*	B	A*	B	A	3	A	D*	2	4	1	1	1	3	B	1	A	1	3	C	B	4	D	A
2	20	11	9	C*	B	A	B	A*	2	2	D	C	C	D	B	D*	4	1	C	1	D	B	2*	A*	B	B	A
3	20	20	0	C	4	A*	B*	A	D	A	2	C*	C*	D	B	D	2	C	4	2	1	D*	2	C	B	B	4
4	19	18	1	2	4	3	B	A*	2*	4	D*	C	C*	D	3	D	2	B*	B	A	3*	B*	C*	4	C*	D	A
5	19	13	6	C	B	A	B	A*	D	2	D	2	C*	D	B	D*	A	B	4	3	D	3	3	C	4	D	2
6	19	14	5	C*	B*	2	1	A*	D	A	D	C*	4	D	B	D	3	1	2	3	1	B	C	A	B	B	3
7	18	8	10	1	B	3	B	A	D	3*	D	2	C	1	4	3	C	B	4	3	2	2	C	D	C	1	4
8	18	12	6	C	B*	A	1	A	2	A	D*	C	4	2	B	D	A	C	4	D*	4	3	C	C	B*	B	4*
9	18	11	7	2	1	A	3	4	2	A	1	1	2	D	B	D	4	1	4	B	3	4	2	2	A	3	4
10	17	11	6	C	3	A	B	A	2	A	1	C*	C*	D	B	1	C	A	B	D	B	A	C	C	D	C	1
11	17	8	9	C	B	A	B*	A	D	3	D	C	C	D	B	D	C	2	B	D	A	C	2	C	D	C	B
12	17	11	6	C	B	A*	B	A*	2	A*	D*	2	C	D	B	D*	C	A	1	D	B	A	C	C	D	C	C
13	16	9	7	4	B	A	4	A	D	2	D	C	C	D	B	1	C	A	B	D	A	C	2	1	D	C	B
14	16	3	13	1	B	A	3	2	D	A	D	C	C	D	B	D	A	B	C	B	D*	B	2	2	A	D	A
15	16	11	5	C*	B	A	B	A*	2*	A	D	C*	C*	D	B	D	4	B	C	D	3	B	C	A	B	B	A
16	16	4	12	C*	B	A	3	A	D	A	D	C	C	D	B	D	C	A	B	D	B	A	C	C	D	C	C
17	16	10	6	C*	B	A	1	A	D	2	D	2	C	D	B	D	A	B	B	A	D	B	C	B	C	D	A
18	16	8	8	1	3*	A	3	A	3	A	3	4	C	2	4	1	3*	B	C	1	3	B	C	2	4	B	4
19	16	13	3	C	B	A	B	A	1	A	D	C	C	D	B	D	3	C	2	B*	A	D	A	3	D	B	2

To get a better understanding of the map, look at the second student in the sample erasure map. The student with Student ID "2" had a total of four wrong-to-right (WR) answer changes made on the mathematics exam. Additionally, other changes were made, including one WW; therefore the raw score net gain of the response changes made by Student 2 is four.

Score Change Analysis

It is anticipated that performance on the Nebraska assessments will improve over time from legitimate causes such as changes in the curriculum and improvement in instruction. However, large and unexpected score changes may be a sign of suspicious activity. An approach to identify improper behavior is to compare the state's level of change in performance from one

year to the next to a school's change in performance during the same time frame. A statistic will determine if a school's average-score change is statistically different than the statewide average score change. This method will identify large and unexpected score changes that may by a sign of suspicious activity.

Two approaches could be conducted to consider score changes in student populations across years. A non-cohort analysis will compare scores from a specific year's grade to the prior year's grade (e.g., this year's grade 4 students to last year's grade 4 students). A limitation to this method, however, is that if irregularities have occurred for multiple years, an unexpected score change would not be identified. Therefore, an alternative, or additional, method would be to use unique identifiers, when available, to match students across years and to examine a cohort's score change from the previous year to the current year (e.g., comparing this year's grade 4 results to last year's grade 3 results). In both analyses, a subgroup's (i.e., school or classroom) degree of performance change from one year to the next is compared to the state's degree of performance change during the same timeframe.

Schools will be identified that have performance changes that are determined to be either statistically higher or lower than in the previous year when compared to the state. To determine whether a school's change in scale score is statistically different than the baseline's, the means of two independent samples are compared by conducting a t-test for each school. The following statistics are calculated:

7. $t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{\sqrt{s_p^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$, where

$\bar{X}_1$ is the mean score of each school for the current year,

$\bar{X}_2$ is the mean score of each school for the previous year,

μ_1 is the mean score of state level for the current year, and

μ_2 is the mean score of state level for the previous year.

8. $s_p^2 = \frac{(n_1 - 1) \times s_1^2 + (n_2 - 1) \times s_2^2}{n_1 + n_2 - 2}$, where

s_1^2 is the variance of the school for the current year,

s_2^2 is the variance of the school for the previous year,

n_1 is the number of students of the school for the current year, and

n_2 is the number of students of the school for the previous year.

The two-tail probability of obtaining the *t* statistic or more extreme, *p*, where *df* is ($n_1 + n_2 - 2$), is converted into the outlier score using Equation 6.

Response Time Analysis: Complete Test Duration

The basis for Test Response Time Analysis (RT) is to count instances where the total test was completed in a very short time period. In order to determine the aberrances, analysis is performed at the classroom level.

The baseline for the RT analysis is the state average of test duration computed from all students in a given grade and content area. For each class test duration average is calculated and then compared to the state average. The following State level and school/class level parameters are calculated in order to identify and flag classes across the state.

State test duration average:

9. $Mean_{Sate} = \frac{\sum X_i}{N}$

Where $X_i$is the test duration for student i, and $N$is the total number of students in the state taking test in a given grade and content area.
State standard deviation:

10. $SD_{State} = \sqrt{\frac{\sum_{i=1}^{k}(X_i - Mean_{State})^2}{N-1}}$

School level test duration average:

11. $Mean_{School} = \frac{\sum X_i}{n}$

Where $X_i$is the test duration for student $i$in the school, and n is the total number of students in the school taking test in a given grade and content area.
School level standard deviation:

12. $SD_{School} = \sqrt{\frac{\sum_{i=1}^{k}(X_i - Mean_{School})^2}{n-1}}$

The t-statistic is computed based on the above school and state level parameters for each group

13. $t = \frac{Mean_{School} - Mean_{State}}{\frac{SD_{School}}{\sqrt{n}}}$, where degrees of freedom(df)is $n - 1$

The probability of t-statistic,p, is converted into the outlier score using Equation 6.

The schools and/or classes will be flagged if the $OS \geq 10$. The identified flagged classes are the group of students who completed the test in unusual time duration. Inordinate RT rates, by themselves, do not necessarily indicate inappropriate behavior.

Open-Response Similarity Pattern Analysis

As part of a data forensics package, DRC can conduct a text analysis on open-ended items to flag student responses under suspicion of copying or plagiarism. Specifically, the goal of the analysis is to identify student responses that were copied from the source(s) and the responses that were copied from other students.

To identify responses that were copied from the source, ratios will be produced that provide a numeric insight into the amount of vocabulary that a student used from the entire source or a substring of the source. If these ratios exceed the threshold, then the students' responses are flagged.

To identify responses students may have copied from other students, a unique set of all words that are used by the students in their responses in a given school are arranged in an ordered sequence for every student in the school. Pair-wise similarity measures are computed among the student responses. To find the extreme similar cases, a conservative threshold value for flagging is selected and any similarity measure greater than the threshold is flagged as possible "copying from neighbors."

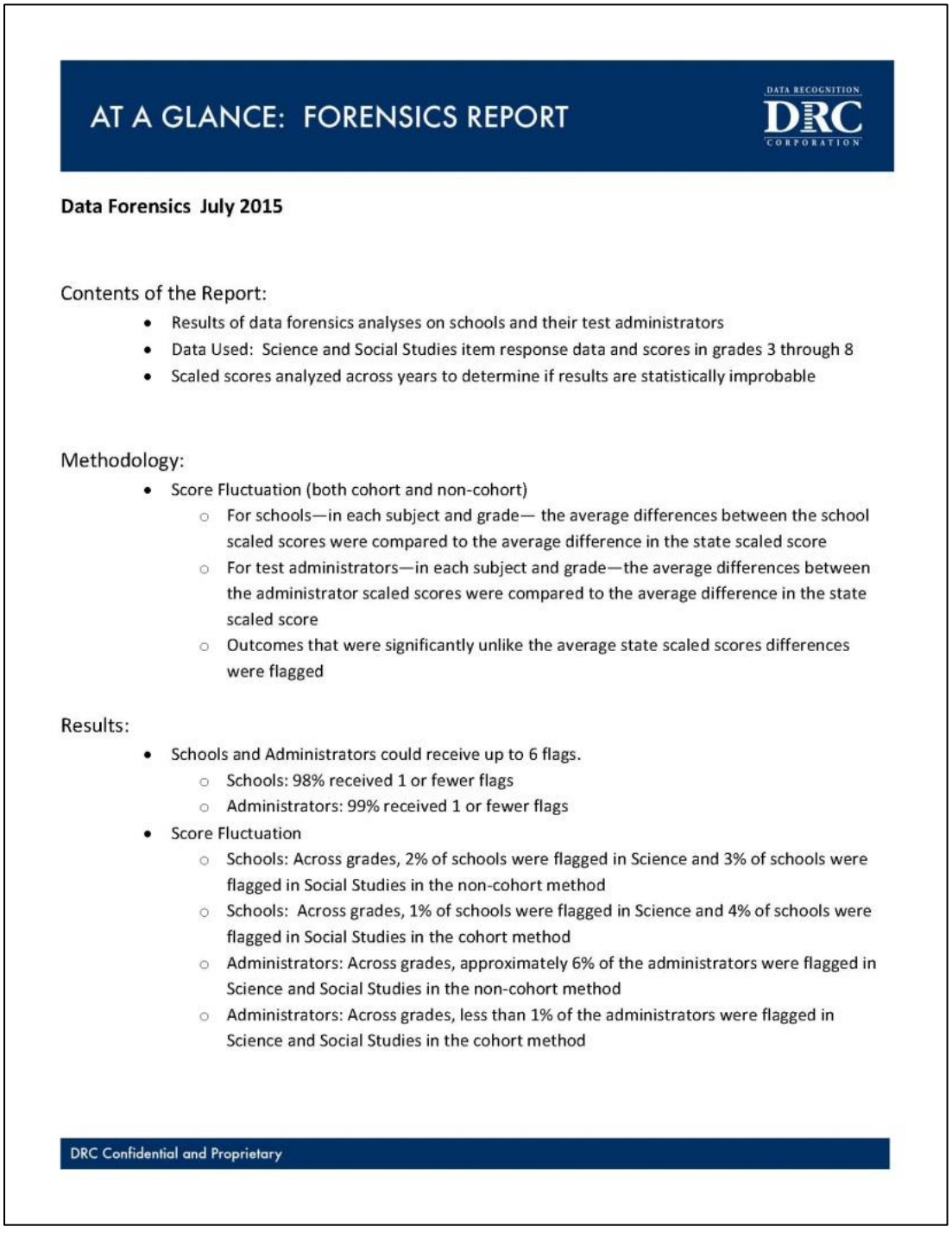
Reporting

DRC produces multiple data forensics reports to satisfy a level of detail needed by various audiences, from high-level to student level.

At-a-Glance Report

An at-a-glance report is described and shown in Figure 4–54.

Figure 4–54: At a Glance Report: *A one-page report that may be useful when communicating results to a more general population is called At a Glance. In this report a summary is given which includes the data used, methodology provided, and high-level results. Below is a sample of an At a Glance report regarding a score change (fluctuation) analysis.*



AT A GLANCE: FORENSICS REPORT

DATA RECOGNITION DRC CORPORATION

Data Forensics July 2015

Contents of the Report:

- Results of data forensics analyses on schools and their test administrators
- Data Used: Science and Social Studies item response data and scores in grades 3 through 8
- Scaled scores analyzed across years to determine if results are statistically improbable

Methodology:

- Score Fluctuation (both cohort and non-cohort)
  - For schools—in each subject and grade— the average differences between the school scaled scores were compared to the average difference in the state scaled score
  - For test administrators—in each subject and grade—the average differences between the administrator scaled scores were compared to the average difference in the state scaled score
  - Outcomes that were significantly unlike the average state scaled scores differences were flagged

Results:

- Schools and Administrators could receive up to 6 flags.
  - Schools: 98% received 1 or fewer flags
  - Administrators: 99% received 1 or fewer flags
- Score Fluctuation
  - Schools: Across grades, 2% of schools were flagged in Science and 3% of schools were flagged in Social Studies in the non-cohort method
  - Schools: Across grades, 1% of schools were flagged in Science and 4% of schools were flagged in Social Studies in the cohort method
  - Administrators: Across grades, approximately 6% of the administrators were flagged in Science and Social Studies in the non-cohort method
  - Administrators: Across grades, less than 1% of the administrators were flagged in Science and Social Studies in the cohort method

DRC Confidential and Proprietary

State-Level Information

A Microsoft Word document will be provided that summarizes state-level results, which will be used as the baseline in the analyses. The state-level report will also provide detailed documentation of the applied methodology, as well as a count of the groups flagged. Samples of the tables that would be included for a response change (erasure) analysis are presented in Table 4–23 and Table 4–24. They include mean response-changes and the count of schools flagged by this methodology.

Table 4–23: 2015 Descriptive Statistics: Erasures per Test—State Level

Subject	Grade	All Erasures		WR Erasures		RW Erasures		WW Erasures	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
ELA	3	1.02	1.68	0.55	1.04	0.20	0.59	0.27	0.66
	4	0.86	1.51	0.51	1.03	0.16	0.47	0.20	0.54
	5	1.29	1.95	0.69	1.25	0.23	0.58	0.36	0.78
	6	0.92	1.59	0.47	0.99	0.17	0.49	0.28	0.67
	7	0.86	1.53	0.48	1.00	0.14	0.44	0.24	0.61
	8	0.92	1.51	0.53	1.03	0.18	0.51	0.21	0.55
Mathematics	3	0.67	1.32	0.36	0.87	0.13	0.44	0.18	0.52
	4	1.30	1.95	0.70	1.24	0.27	0.63	0.33	0.74
	5	0.99	1.63	0.48	0.96	0.20	0.54	0.31	0.71
	6	0.77	1.41	0.37	0.84	0.17	0.49	0.23	0.59
	7	0.64	1.27	0.31	0.75	0.14	0.45	0.18	0.53
	8	1.20	1.83	0.60	1.10	0.26	0.62	0.34	0.75

Table 4–24: 2015 Count of Schools Flagged by Erasure Outlier Score

Grade	ELA			Mathematics		
	# of Schools	EA OS		# of Schools	EA OS	
		Count	%		Count	%
3	786	5	0.64	786	1	0.13
4	777	1	0.13	777	3	0.39
5	768	2	0.26	768	2	0.26
6	578	3	0.52	577	1	0.17
7	506	0	0.00	506	0	0.00
8	505	3	0.59	505	2	0.40
All	3920	14	0.36	3919	9	0.23

Group-Level Information

Details at a group-level are found in filterable Excel spreadsheets. The spreadsheet will contain detailed information for each school or school subgroup. If more than one forensic methodology was applied, it would also be included; this allows NDE to see a summary of all information relevant to the group of interest. NDE will be able to view the number of total flags a school received as well as their outlier score for each applied methodology. An example is provided in Figure 4–55.

Figure 4–55: Example of Group-Level Reporting Results: Multiple Subjects and Methodologies

General Info							ELA			Mathematics		
Yr	Gr	District ID	District Name	School ID	School Name	Total Flags	EA OS	Cohort OS	Non-Cohort OS	EA OS	Cohort OS	Non-Cohort OS
2015	5					5	11.3	27.3	11.3	5.1	49.9	18.5
2015	8					4	0.0	20.5	17.9	0.0	17.4	25.4
2015	4					4	0.0	21.4	16.6	0.0	31.3	13.7
2015	5					2	0.0	16.9	3.5	0.0	27.0	4.3
2015	8					2	3.0	2.3	12.8	0.7	2.0	10.4
2015	5					2	0.0	21.5	0.7	0.0	19.5	2.6
2015	5					1	2.1	7.4	0.3	3.8	16.0	3.5
2015	5					1	0.0	2.1	11.1	0.0	0.5	4.3
2015	3					0	0.0		0.7	0.4		2.7
2015	4					0	1.3	0.1	0.8	2.0	1.0	1.2
2015	5					0	0.0	0.6	1.2	1.4	0.1	0.7

Additionally, the details of the analyses are available. An example of this for the score change analyses are below. They include the count of students in the analysis, the average scale score and standard deviation for the two years' data used in the analysis, the *t* statistic, and the resulting outlier score. If more than one forensic methodology was applied, then those results are included in the same spreadsheet. Examples are provided in Figure 4–56 and Figure 4–57.

Figure 4–56: Example of Group-Level Results: Detailed Analysis Results

General Info						ELA Cohort Scale Score						
Yr	Gr	District ID	District Name	School ID	School Name	N	Scale 2015	SD 2015	Scale 2014	SD 2014	Tstat	OS
						101	311.6	36.8	299.5	37.4	7.1	27.3
						75	321.6	30.2	277.7	38.8	6.8	24.8
						118	388.4	35.3	353.1	28.8	6.1	21.8
						52	307.3	37.6	304.0	36.7	3.9	10.1
						29	263.5	32.1	318.5	25.1	-4.0	10.0
						104	365.3	36.0	377.1	36.7	2.6	5.7
						20	318.5	29.1	340.5	27.1	-1.7	3.3
						33	287.3	31.4	289.7	28.4	-1.1	1.9
						21	301.3	36.1	295.7	37.5	-1.0	1.9
						136	315.6	59.8	312.6	44.7	-1.0	1.9
						59	322.2	33.3	305.1	42.5	0.0	0.1
						110	334.1	43.6	316.3	46.3	0.1	0.1
						54	328.1	48.4	311.3	46.0	-0.1	0.1
						54	302.7	39.3	285.0	43.2	0.0	0.1

Figure 4–57: Example of Group-Level Results: Multiple Detailed Analysis Results

						ELA															
General Info						Erasure Analysis					Cohort Scale Score							Non-Cohort Scale Score							
Yr	Gr	District ID	District Name	School ID	School Name	N	WR/Test	SD	Tstat	OS	N	Scale 2015	SD 2015	Scale 2014	SD 2014	Tstat	OS	N 2015	Scale 2015	SD 2015	N 2014	Scale 2014	SD 2014	Tstat	OS
						120	1.4	1.7	4.2	11.3	101	311.6	36.8	299.5	37.4	7.1	27.3	120	301.2	48.5	104	281.7	47.9	-4.1	11.3
						104	1.0	1.5	3.5	8.8	75	321.6	30.2	277.7	38.8	6.8	24.8	104	314.2	44.7	97	307.5	38.8	-1.3	2.5
						122	0.2	0.6	-4.7	0.0	118	388.4	35.3	353.1	28.8	6.1	21.8	122	388.1	34.8	111	380.4	30.4	-2.6	5.8
						60	0.8	1.1	0.5	0.9	52	307.3	37.6	304.0	36.7	3.9	10.1	60	303.9	44.0	55	277.5	40.3	-4.2	11.5
						29	0.3	0.5	-3.8	0.0	29	263.5	32.1	318.5	25.1	-4.0	10.0	29	263.5	32.1	22	273.6	52.4	0.3	0.5
						108	0.9	1.2	1.6	3.0	104	365.3	36.0	377.1	36.7	2.6	5.7	108	364.7	35.8	107	360.9	35.2	-2.2	4.7
						21	0.7	0.9	0.7	1.3	20	318.5	29.1	340.5	27.1	-1.7	3.3	21	317.3	28.9	23	331.7	36.9	0.7	1.3
						42	0.5	0.8	0.2	0.4	33	287.3	31.4	289.7	28.4	-1.1	1.9	42	279.2	42.9	30	281.0	32.8	0.1	0.1
						25	0.3	0.8	-1.2	0.0	21	301.3	36.1	295.7	37.5	-1.0	1.9	25	302.5	33.9	29	312.1	28.7	0.9	1.6
						200	0.4	0.8	-1.5	0.0	136	315.6	59.8	312.6	44.7	-1.0	1.9	200	316.9	54.9	189	310.0	58.1	-1.8	3.6
						63	0.7	1.2	1.4	2.5	59	322.2	33.3	305.1	42.5	0.0	0.1	63	320.8	33.4	70	326.8	32.7	0.7	1.3
						115	0.6	1.0	1.1	1.9	110	334.1	43.6	316.3	46.3	0.1	0.1	115	332.7	44.1	120	335.4	44.0	0.2	0.3
						58	0.4	0.8	-0.7	0.0	54	328.1	48.4	311.3	46.0	-0.1	0.1	58	329.1	47.4	67	335.2	36.3	0.6	1.0
						58	0.9	1.2	2.3	4.6	54	302.7	39.3	285.0	43.2	0.0	0.1	58	299.9	40.0	52	288.4	36.2	-1.8	3.6

Student-Level Information

For the response-change analysis, student-level information is provided in the Response Change Map discussed and shown previously. This provides a visual representation of response patterns and can be filtered by group such as school or test administrator. Key aspects of this report include:

- Identification of key levels of aggregation (i.e., district, school, test administrator, and student)
- Color-coded shading indicating type of answer change (wrong to right, right to wrong, or wrong to wrong)
- The erasure map is an Excel spreadsheet, which allows the user to filter data as desired

It will provide a visual answer to the questions:

- Within the school, are the same items being erased?
- Are the erasure patterns consistent for a student across subjects?

Discussion

The goal of psychometric forensic analysis is to screen for test results that may have been spurious because valid inferences cannot be made from such test scores. Schools and school subgroups can be identified if they have results that are statistically improbable. DRC acknowledges that, under this analysis, schools and students will be flagged based on statistical evidence alone. If flagged, that does not necessarily mean that the schools engaged in inappropriate testing activity. Therefore, DRC respects the confidentiality of the results, and will treat them in that manner. DRC is available for consultation as requested by NDE.

All forensic results should be used with caution, and data for schools and grades within schools and their results may serve as good starting points for the evaluation of potential testing irregularities. The DRC Psychometric Services Team is well positioned to support NDE in making interpretations and inferences from the various forensic analysis results. Further, DRC has many staff members who have served in key assessment and accountability roles at state education agencies who would be pleased to serve as thought partners with NDE representatives when considering how to best utilize results from forensic analyses.

H. REPORTING FOR ALL STATEWIDE ASSESSMENTS

1. Reporting of Results

a. Timeliness of reporting is critical in meeting NDE's expectations. Students should receive results as soon as they complete the test. School staff should see results in the online system within a day of student testing and the proposal must include methodology for score reports to be meaningful. Solutions that workaround post-equating should be included, in order to expedite the reporting of meaningful results.

DRC understands that Nebraska students, schools, and districts require more immediate access to student results. With the enhancements under the new program of pre-equating for all content areas and AI scoring for the ELA assessments, **DRC will deliver scores for all general education assessments taken online within one day.**

Once all test sections for a given subject area are complete, school, district, and NDE staff can access student results in the DRC INSIGHT portal. Although not available for students at the time of testing, DRC will make individual student reports and rosters available for educator access within one day (results in the afternoon if testing in the morning, and the next morning if testing in the afternoon). Scores will include all item types, including the text-dependent analysis (TDA) items. These results will be in a format that can be shared with students and families as soon as they are available.

Results will be provided under the View Online Results section of the DRC INSIGHT portal. DRC will provide both rosters and individual student reports. These will include scale scores, subscores, and performance levels, however no group or summary information will be provided until all tests are submitted.

At this time, DRC proposes to continue with post-equating for the alternate assessments. The enhancement of online response input will still enable more timely return of results for these students, and the management of alternate assessment student data in the DRC INSIGHT portal instead of answer sheets will result in fewer corrections during the score resolution process.

NDE understands all of the critical elements involved with reporting results. DRC welcomes the opportunity to discuss these elements, and other ideas for how to improve turnaround time, with NDE upon contract award. We are committed to providing students, families, and educators with timely scores for the new Nebraska assessments. Please see *Subheading B.5 for* DRC's proposed reporting schedule, which incorporates all aspects of the reporting timeline, including data and score resolution.

b. Expectations for the type of information on the state summative assessment reports have increased over the last several years by both educators and parents. Information of current statewide assessment reports is available at: https://www.education.ne.gov/Assessment/Index.html. The proposal will provide evidence of reporting that effectively communicates sub-scores and summative scores.

DRC has over 35 years of experience in reporting large-scale assessment results and supporting our clients' reporting goals, including eight years of experience accurately reporting results in Nebraska. We have particular expertise in designing reporting solutions for clients as they transition to new assessment systems, including states such as Georgia, Missouri, South Carolina, and Wisconsin. This experience should assure Nebraska that DRC has the proven ability to meet the reporting goals of the new assessment program while delivering accurate results within critically prescribed time limits.

DRC's comprehensive reporting package offers **flexibility** and the ability to **adjust to changes**. We will ensure that the suite of reports and data files provided addresses the unique needs of the Nebraska assessments, and is not just a one-size-fits-all approach to statewide reporting that is commonly offered as part of off-the-shelf assessments. DRC is committed to continuing to provide Nebraska-specific reporting deliverables in an accurate and user-friendly format. Highlights of our reporting package include the following:

- **Tailored Reports** developed specifically to address the reporting deliverables for the new Nebraska assessments, including student, school, and district reports.
- **A Report Process** that is established, efficient, and provides accurate, timely reporting and data file deliverables.
- **Paper and Electronic Reports** including two printed copies of the individual student report, packaged by school and shipped to districts, and electronic versions of student, school, and district summary and aggregate reports.
- **Web-based report delivery system** for the timely and secure release of results to the State, districts, and schools.
- **Test interpretation materials**, posted online for Nebraska's parents and schools/districts to provide information on how to read, interpret, and use score reports.

DRC believes in **reports and reporting tools that are intuitive, easy to interpret, accurate, and complete, yet innovative**. The new reports developed for Nebraska will provide both traditional and new information, with a fresh and cohesive look-and-feel that has been designed to enhance communication and understanding of the assessment results. We will work closely with NDE to identify your preferences for reports. While the reports will be updated to align with the new Nebraska assessments, including subscores, traditional information will include scale scores, achievement levels, and score information; however, the new reports will provide more detailed information in a user-friendly format. Numeric,

narrative, and graphic elements can be used to effectively communicate with all Nebraska stakeholders.

Report Design

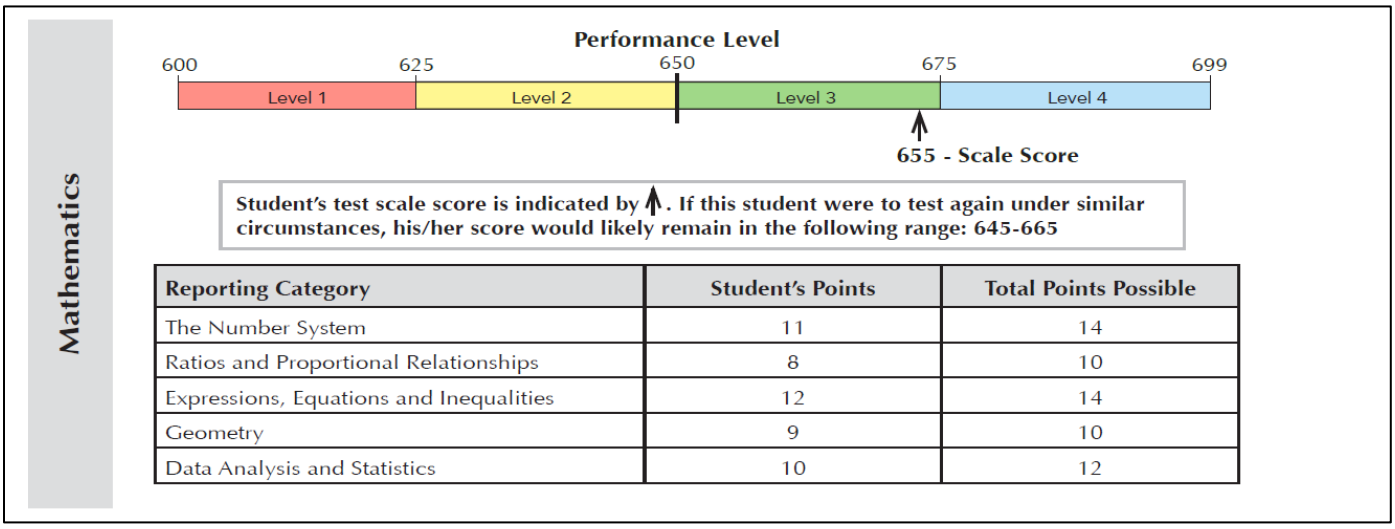
The varied audiences receiving assessment data have differing needs and requirements when viewing or analyzing the data. DRC has the capability to provide a wide array of reports of varying types, including rosters, summaries, and disaggregations, at various levels including state, district, school, classroom, and individual student. State, district, and school reports typically contain aggregated or summary information, including averages and distributions of percent correct answers, scale scores, achievement levels, etc.

DRC understands that in implementing any assessment program the reports and information shared is important to stakeholders. We will work with NDE to ensure that stakeholders have the information necessary to understand and utilize reports produced, maximizing the usability of the data within.

In particular, DRC believes that the design and content of the Individual Student Score Report is absolutely critical. Students and parents must be able to understand "at a glance" the performance information that is being provided by the State, and then, in clearly understandable ways, be provided with additional supporting detail. Upon receiving the individual student report, parents and students should have clarity about the score information provided. Therefore, DRC will work with NDE to provide accurate, sound technical data in ways that are jargon-free and clearly understood.

An example of a graphical display of information from another state's report is shown in Figure 4–58.

Figure 4–58: Sample Domain Score, Scale Score, and Achievement Level Presentation



Reporting Category	Student's Points	Total Points Possible
The Number System	11	14
Ratios and Proportional Relationships	8	10
Expressions, Equations and Inequalities	12	14
Geometry	9	10
Data Analysis and Statistics	10	12

DRC will leverage our many years of experience reporting assessments to provide suggestions on the content, layout, and updated appearance of reports in order to maximize benefit and

value. Full-length samples of reports produced by DRC for our statewide programs in South Carolina and Wisconsin are included in *Appendix H*.

Reporting Requirements

Upon contract award, DRC will discuss all reporting requirements, including report design, layout, and content, with NDE. DRC's Reporting Team has a wealth of experience in defining and documenting requirements for data analysis and report development, having worked with numerous state assessment programs. We also understand the critical elements of reporting under the current Nebraska testing program through our work with NDE over the past eight years.

DRC's psychometric services staff will ensure that data flow, from receipt of student responses through reporting, complies with standards for educational and psychological testing. Definition of content and format of data files and hard copy reports will also be developed and documented during this time.

Report Mockups

Report mockups are essential in the report development process. DRC will create report mockups representative of the exact production reports that will be delivered for each administration. The mockups will be comprised of simulated, but realistic, data elements. The mockups will be in the required report layout, display the appropriate fonts and font sizes, and demonstrate paper size and printing elements.

As done under the current contract, DRC will follow a process that provides NDE with the opportunity to review, edit, and approve all mockups prior to report development. The mockups will be reviewed by DRC's reporting team for accuracy and consistency and to ensure they are meeting the initial requirements. During the review process, NDE will be able to evaluate the static content and layout of each report to make certain it reflects the format, verbiage, and design required. DRC will work with NDE throughout the review process to incorporate any changes or modifications.

Option—Focus Group Research to Inform Report Design

As part of DRC's report design process, focus groups have been an effective tool to gain valuable insight from key stakeholders on report design, readability, ease of use, and data interpretation. Holding focus groups with a variety of stakeholders, including educators, administrators, students, and parents/guardians, provides these groups with a voice during the report development cycle.

Recently, DRC used focus groups as a key step in the development process for the student score reports and program summary reports of Pennsylvania's Keystone Exams. Due to the complexity of the assessment results, it was crucial to gain user feedback on all aspects of each report. Focus group session topics included general reactions to the report mock-ups, understanding of text and concepts, readability, intuitive functional format, exploring additional desired features, and ranking alternative displays/formats.

If desired by NDE, DRC can discuss the option of holding focus groups at key points within the report development cycle for the new assessments, so that Nebraska stakeholder feedback can influence report design development. We have provided costs for these optional focus groups as part of our Cost Proposal.

c. The Contractor will be responsible for providing timely reporting of test results to schools and districts to better inform student learning. The proposal will provide evidence of timely reporting of results to districts and students. Evidence of timely reporting is a critical component of the proposal.

With the enhancements under the new program of pre-equating for all content areas and AI scoring for the ELA assessments, **DRC will deliver student scores for all general education assessments administered online within one day.**

DRC has experience successfully providing quick-turnaround results for several of our assessment programs. For the South Carolina End-of-Course Examination Program, the state required results within 36 hours after the student completes the test. In most cases, DRC provides results for South Carolina the same day. For our high stakes high school equivalency assessment, Test Assessing Secondary Completion (TASC Test), we provide results approximately two hours after administration.

d. Students should know results at the time of testing or shortly thereafter. The proposal should include a solution for timely reporting that is not impeded by equating of forms. Providing students raw scores, but not being able to provide either a meaningful final determination if the student passed the test or provide a growth score is of little meaning.

As described above, DRC is proposing pre-equating and AI scoring of ELA tests in order to provide student results in an expedited manner for the general education assessments. Although not available for students at the time of testing, DRC will make individual student reports and rosters available for educator access within one day (results in the afternoon if testing in the morning, and the next morning if testing in the afternoon). These results will be in a format that can be shared with students and families as soon as they are available.

We agree that raw scores do not provide enough meaningful information for students, families, or educators. We are proposing to provide scale scores and performance levels, along with subscores as appropriate given the test design, as part of the student-level reports and rosters. Once the vertical scale is established, DRC will also be happy to discuss options for growth reporting. Any group or summary information will be available once all students have completed testing.

It is important to note that this quick turnaround of results will not be available for content areas that require standard setting (i.e., mathematics in 2018 and science in 2020).

e. The Contractor will provide the reports listed below for each test. All reports of results must be available in an electronic file for downloading and delivered in web-based format in addition to the paper/pencil versions of the Individual Student Reports (below). The proposal must include a detailed description of a proposed method for web-based reporting that provides easy access to results while ensuring security and confidentiality. The web-based reporting system must enable NDE access to all district and school reports and district access to appropriate school reports.

i. School Report Package containing whole school aggregated and disaggregated achievement level results and subscore results as specified by NDE. School reports shall also include, at a minimum, district and state comparisons.

ii. District Report Package containing statewide aggregated and disaggregated achievement level results and subscore results.

iii. State Report Package containing statewide aggregated and disaggregated achievement level results and subscore results.

iv. District confidential student-level database containing information such as school identifying information, student identifying information, demographic information, raw score totals, scaled scores, and performance level.

v. Individual Student Reports for parents/guardians containing achievement performance level results for all tests. (Two paper copies per student and digital versions so districts can print additional copies if desired). Expectations for the type of information on the state summative assessment reports have increased over the last several years by both educators and parents. Information of current statewide assessment reports is available at: https://www.education.ne.gov/Assessment/Index.html.

DRC is committed to developing and delivering reports that reflect the needs of NDE and the State of Nebraska, and distributing them to schools and districts accurately and on time. DRC will provide the reports discussed below for the new Nebraska general education and alternate assessments. All reports will be distributed electronically using our secure, web-based reporting tool, discussed in detail in *Subheading H.1.g,* below. In addition, paper copies of the Individual Student Reports will also be delivered to districts using our proven distribution process, presented in *Subheading H.1.f*. Please see S*ubheading B.5* for more information regarding our preliminary schedule, including reporting timelines.

Report Generation and Quality Procedures

We employ a two-step report generation process. The first step is to perform all calculations and analysis to produce the data elements contained on the reports. The second step takes the data and formats it for presentation on the reports. This process allows the data to be thoroughly verified prior to and independent of formatting of the reports.

DRC incorporates rigorous quality assurance activities throughout the reporting process to ensure the highest level of quality and data integrity. The focus on "building in quality" and "issue prevention" ensures our clients quality products and services.

DRC's primary goal is to ensure the quality of student data and to make certain that each student record is tested and verified for completeness and accuracy. DRC's familiarity with reporting requirements and data elements from our current work in Nebraska will provide our reporting team with a solid platform, continuity, and experience that will be invaluable to NDE and DRC as we work together to design reports for the new Nebraska assessments.

Upon the completion of the thorough data verification process, quality checks will be performed on the data placement and report file formatting for each data element displayed on the reports. All reporting data elements will be verified back to the production data file and the reporting processing rules. Additional quality cross-checks will be performed to ensure accuracy and consistency across all reporting mediums for the assessment. This includes hard copy reports, posting data to our secure online portal, or any other type of reporting medium (e.g., SFTP site).

Similar quality checks will also be used to validate data at the school, district, and state level. The Reporting Team will conduct a second review of each report to ensure methodology, processes, and procedures are followed and verify that the reports are approved for production. An additional post-print review is conducted before any hard copy student reports are packaged and shipped.

DRC follows our standard Project Delivery Quality Control Process and adheres to the 33 Quality Control checkpoints for processing, scoring, and reporting described by the State Collaborative on Assessment and Student Standards (SCASS) on Technical Issues in Large Scale Assessments (TILSA). DRC will ensure that these specific controls are in place and are strictly followed. Any divergence from the requirements will be tracked by our corrective action system and resolved as quickly as possible. All audit results will be utilized as a continuous quality improvement process. TILSA-approved quality checks will be executed to verify that system and state, district, and school content is correct and report data is 100-percent accurate.

Upon approval from NDE, DRC will produce the final Student, School, District, and State reports. DRC's large-scale assessment reporting experience can ensure NDE that accurate and high-quality reports will be delivered within the prescribed time limits of the contract. Over the years, DRC has **repeatedly demonstrated the ability to provide ongoing communication and to deliver on-time, accurate data and reports** to states, districts, schools, and students/parents.

Report Deliverables

DRC anticipates delivering the following reports and data files for the new Nebraska assessments. We will be happy to discuss alternative report configurations with NDE at the planning meeting and during the collaborative process of determining scoring and reporting specifications.

School, District, and State Report Packages

DRC will work with NDE to update the format for all summary reports, as necessary. We suggest that the summary reports use graphic design elements similar to the individual student reports to produce a cohesive look and feel; we intend to produce full-color summary reports under the new contract. DRC is committed to developing accurate summary reports. Our overriding goal is to continue to provide useful information to NDE, schools, and districts. Results will be clearly tied to Nebraska standards.

We will provide aggregated and disaggregated data at the school, district, and state levels. Each report will clearly identify the intent of the report, the information included, and which student population(s) is represented. For each school and district and for NDE, we will provide a straight-forward, useful comparison of results. DRC will work with NDE to update subpopulation categories for disaggregation purposes, as appropriate. DRC will use our direct Nebraska reporting experience to provide accurate, high quality school, district, and state reports that comply with federal and Nebraska reporting regulations.

The School Report Package will contain whole school aggregated and disaggregated achievement-level results and subscore results, as specified by NDE. DRC also understands that the School Report Package may also include, at a minimum, district and state comparisons.

The District Report Package will contain whole district aggregated and disaggregated achievement-level results and subscore results, as specified by NDE. DRC also understands that the District Report Package may also include, at a minimum, state comparisons.

The State Report Package will contain whole district aggregated and disaggregated achievement-level results and subscore results, as specified by NDE.

Summary reports will be provided in electronic format only via DRC's secure, web-based reporting system described later in our proposal.

District Confidential Student-Level Database

DRC will also provide each district with a confidential student-level database (i.e., data file) containing school identifying information; student identifying information; demographic information; raw score totals; scaled scores; and performance levels. We have successfully delivered such data to NDE under the current contract, and have delivered similar databases for our other department of education clients. DRC will adhere to our secure data file exchange procedures when transferring the database to NDE. Please see *Subheading H.1.j,* below, for detailed information regarding DRC's data file management and transfer procedures.

Individual Student Reports

DRC looks forward to working with NDE, and potentially Nebraska stakeholders, to design new individual student reports (ISRs). We understand that the expectations for information on the reports has increased over the last several years by both parents and educators. The design of the new ISRs will be **user-friendly, easy to interpret,** and feature **clear graphics** to represent

various data elements. We will report achievement performance-level results for all tests. Specific reporting information will be determined and approved by NDE.

DRC will work with NDE to identify the specific information included on the ISR, but at a minimum we suggest including scale scores, subscores, and performance levels for each content area, as well as student name and grade, with informative text for families about the results. DRC plans to include all subject areas in which a student tested on one report. Our report design can clearly present an array of data elements, including required assessment data, in graphical and narrative formats. We suggest that information is best communicated using color, and have planned to produce full-color ISRs under the new contract.

DRC looks forward to continuing to provide reports that are psychometrically sound, instructionally sensitive, and meaningful for students, parents, and educators in Nebraska. Please see *Appendix H* for examples of ISRs that DRC developed for our programs in South Carolina and Wisconsin.

DRC will produce and distribute two paper copies per student of each Individual Student Report, and ship to districts' central offices for distribution to schools; please see the following section for information regarding our report distribution process. To provide expedited access to ISRs for the general education assessments (either same day or next day) and to allow districts to print additional copies, ISRs will also be provided in electronic format via DRC's secure, web-based reporting tool, described under *Subheading H.1.g,* below.

f. NDE seeks a score reporting design that is more informative and accessible for communicating with students and parents. The Contractor will deliver the Individual Student Reports to the district's central office for distribution to the appropriate school at the earliest possible date, per agreement between Contractor and NDE. The expedited delivery of Individual Student Reports is critical to a successful proposal. The Contractor should propose a solution that allows districts to sort students for efficient delivery of Individual Student Reports to schools.

DRC understands that NDE is seeking to enhance the design of student and summary reports. As described earlier, DRC is committed to improving the Nebraska assessment reports and looks forward to working with NDE in this area.

DRC is pleased to offer the re-rostering process for districts as we do under the current contract. Prior to final production of student reports, both electronic and hard copy, we will provide districts with the opportunity to assign students to new locations for report distribution (e.g., ISRs sent to middle schools for students who have completed elementary school). This will allow districts to sort students for efficient delivery of ISRs to schools.

Hard Copy Distribution of Individual Student Reports

Following the printing of the Individual Student Reports (2 copies per student), they will be assembled by school and district, placed in boxes, and labeled "Test Results Enclosed—OPEN

IMMEDIATELY." The packaged reports will be shipped directly to districts' central offices for distribution to schools. The reports will be packaged and clearly labeled so they can be easily distributed by building/class. Detailed procedures for report assembly will be developed by DRC for NDE's approval. DRC will ensure that the delivery of the Individual Student Reports adheres to the report distribution deadlines mutually agreed upon by DRC and NDE (please see S*ubheading B.5* for more information regarding our preliminary schedule, including reporting timelines).

After reports are packaged, a random sampling quality control procedure will be performed again by checking all of the above in addition to:

- Verifying correct packaging (all reports for a district/school are boxed separately and the correct district/school name is on the outside of each box).
- Verifying that correct mailing address labels are affixed to the outside of each box.

The assembled reports will then be sent to the districts by UPS. In addition, DRC's Project Management Team will monitor the delivery schedule of reports. Each district will sign for its shipment. DRC will track each delivery and compile a record of each signed-for shipment. If a shipment is not delivered within the expected window, DRC's Project Management Team will contact UPS and trace the shipment, providing an update and resolution to the district. DRC will ensure that hard copy student reports arrive in districts in a timely and secure manner.

g. The proposal must describe how district and school staff will be able to securely access web-based reports and data at the earliest possible date after testing, per agreement. The proposal must provide evidence of timeliness of reporting assessment results. NDE would be interested in proposals that include dynamic reporting that allowed users to interact with data instead of having static reports.

Report Distribution via the DRC INSIGHT Portal

DRC will work with NDE to distribute Nebraska reports electronically using our secure web-based Report Delivery System to deliver student, school, district, and state reports. The secure system can be designed to permit single-sign-on access and uses role-based permissions that define user access. Many DRC clients use this system to receive program reports electronically and it is highly regarded by all user levels.

Electronic report distribution via the DRC INSIGHT portal (formerly eDIRECT) provides schools, districts, and NDE with the advantage of receiving student, school, district, and state reports electronically. Nebraska-approved users will have access to our reports portal 24 hours a day, 7 days a week. (Note: Pre-planned system maintenance is completed periodically on this system. Notifications will be provided in advance).

Users will be able to access student results both in ISR and roster format either the same day (if testing in the morning) or the following morning (if testing in the afternoon). DRC is committed to providing timely access to reports under the new Nebraska assessment program.

Reports and data files can be delivered in a variety of formats defined by NDE, including Word, PDF, Excel, XML, ASCII, .CSV, etc. DRC will work with NDE to define and finalize the reports and files to be provided on the system. DRC will ensure that our reporting system interfaces with NDE-acceptable reporting technology, such as SQL Server Reporting Services (SSRS).

As with all of our systems, the electronic reporting functionality was designed with ease of use in mind and follows graphical user interface standards, usability guidelines, and the highest security requirements.

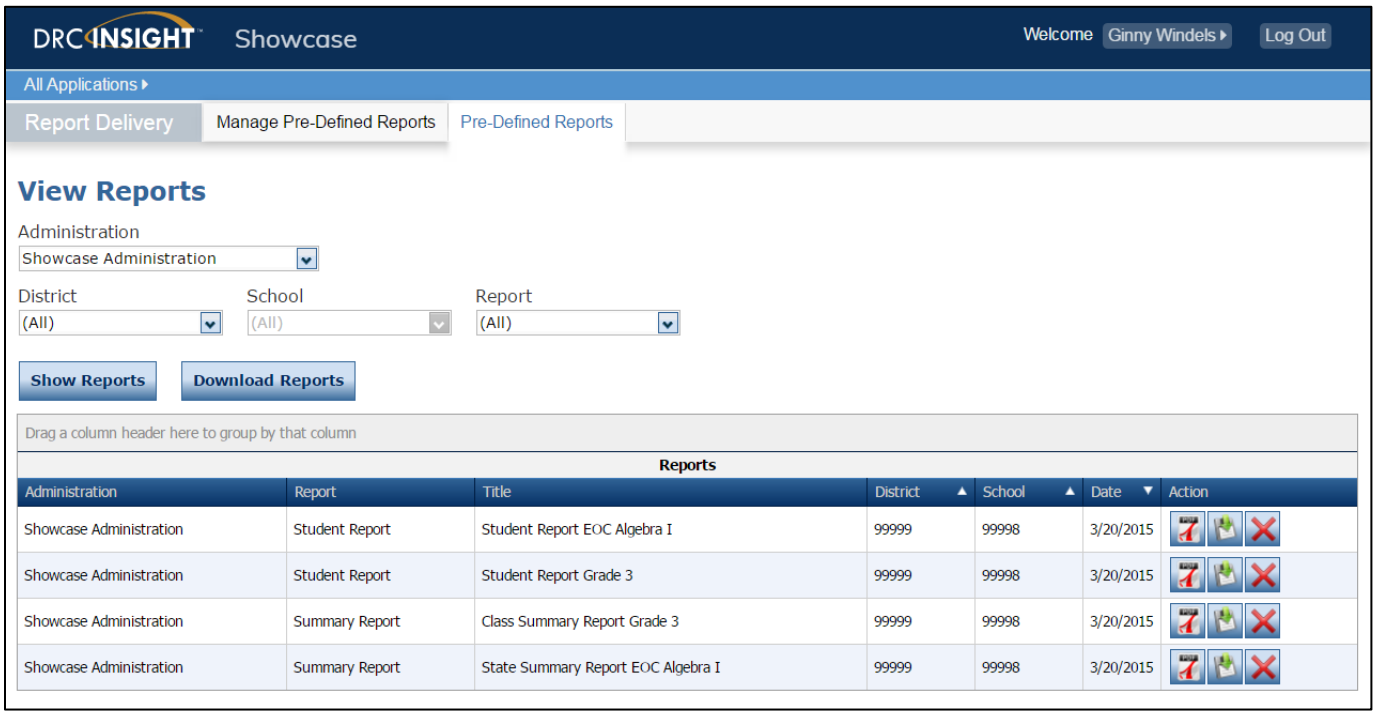
To ensure confidentiality, each authorized user must enter their unique user ID and password to access reports. User IDs and passwords are generated by DRC's system and sent to users, who will be asked to change their password. All passwords will consist of varied case alpha characters and numeric values, allowing for the highest level of security. Passwords will be changed as needed by contacting a DRC representative. During log-in, the user ID and password will be authenticated prior to allowing the user to view reporting results.

Each user, depending on user ID and role, will have the ability to access different levels of information. The access levels are school, district, or state:

- For a **state**-level user, a list of all districts and the associated schools will be displayed for report/file selection and viewing.
- For a **district**-level user, a list of all schools within a particular district will be displayed for report/file selection and viewing.
- For a **school**-level user, only the school associated with the log-in will be displayed for report/file selection and viewing.

A sample screen from the electronic reporting tool is shown in Figure 4–59.

Figure 4–59: View Reports Screen



To ensure the accuracy and reliability of the electronic reporting tool, DRC's Software Quality Assurance Analysts, who are experienced with multiple state assessments and web-based systems, will validate that each page, link, and image displays properly. They ensure that the system follows Graphical User Interface (GUI) standards and functions as designed.

All changes and modifications will be tested on a dedicated test server before being released into the production environment. The electronic reporting functionality is tested on various computer platforms, using multiple browsers and numerous browser versions to ensure compatibility with the majority of the general public. Once moved to the production server, DRC staff will again verify that the tool is accurate and ready for access. TILSA-approved quality checks will be executed to verify that state, district, and school content is correct and report data is 100-percent accurate.

Option—DRC Dynamic Reporting System

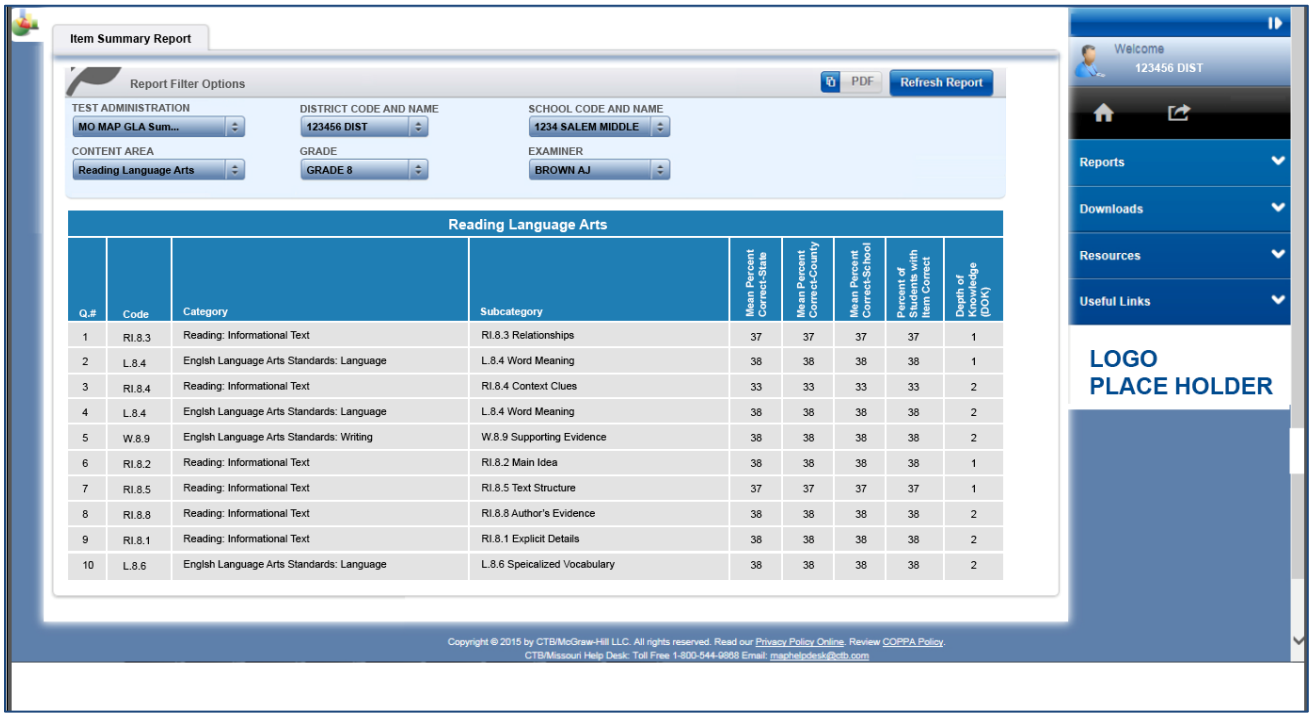
DRC is pleased to offer Nebraska the option of the DRC Dynamic Reporting System. This system is currently in use in several of DRC's statewide assessment programs, as well as across the nation in support of reporting for our norm-referenced test, TerraNova. It is a proven system that has been well-received by numerous state and district clients.

The dynamic reporting system will be accessible through the portal to authorized users. DRC is dedicated to providing and transforming quality assessment results into meaningful opportunities to improve student learning. Providing intuitive, thorough, accurate, and error-free reports for users at all levels is a critical component of this mission.

The dynamic reporting system uses advanced business intelligence to create at-a-glance report dashboards that combine data and graphical indicators of aggregate and comparative results of system and school performance. Many levels of customization are supported including the user interface design ("skin", fonts, colors, landing page), data filters/headings, dashboard views, and navigation paths. Reports can also contain configurable messages, legends, footnotes or privacy notices.

Graphs and charts can be presented side-by-side with tabular data. The graphs and charts have drill-down links that open separate tabs in the application so that users can toggle between their summary and detail data. Disaggregation choices and online sorting, filtering, and column format changes can be saved for re-use on each report. By default, all reports can be exported in PDF or Excel (XLS) formats. DRC will work collaboratively with NDE to determine the specific file format for the standard data export that will be supported in the system by default. Exporting to other formats, such as CSV, HTML, ODT, and DOC, will also be configurable in the system. Figure 4–60 shows an example of the filtering options within the dynamic reporting system.

Figure 4–60: Item Summary Report with Filter Options



The dynamic reporting system will also support ad-hoc reporting functionality. A drag-and-drop report design interface will allow power users to build crosstab reports using more than two variables at a time, pivot-tables, and chart-based reports using a standard browser on a computer or an iPad.

Modern and Mobile System

The reporting system will deliver smart user interfaces in which "mouse-overs" are replaced with touch-friendly controls for selections and with menus that are fully compatible with modern tablets and smartphone browsers. Report layouts dynamically adjust based on the screen size, to hide some controls and to optimize them for optimal viewing on a small screen. The reporting system is built on HTML5 and CSS3 standards for optimal use with modern web browsing platforms. These features are shown in Figures 4–61 and 4–62.

Figure 4–61: Dynamic Floating Menu for Large Screen vs. Small Screen

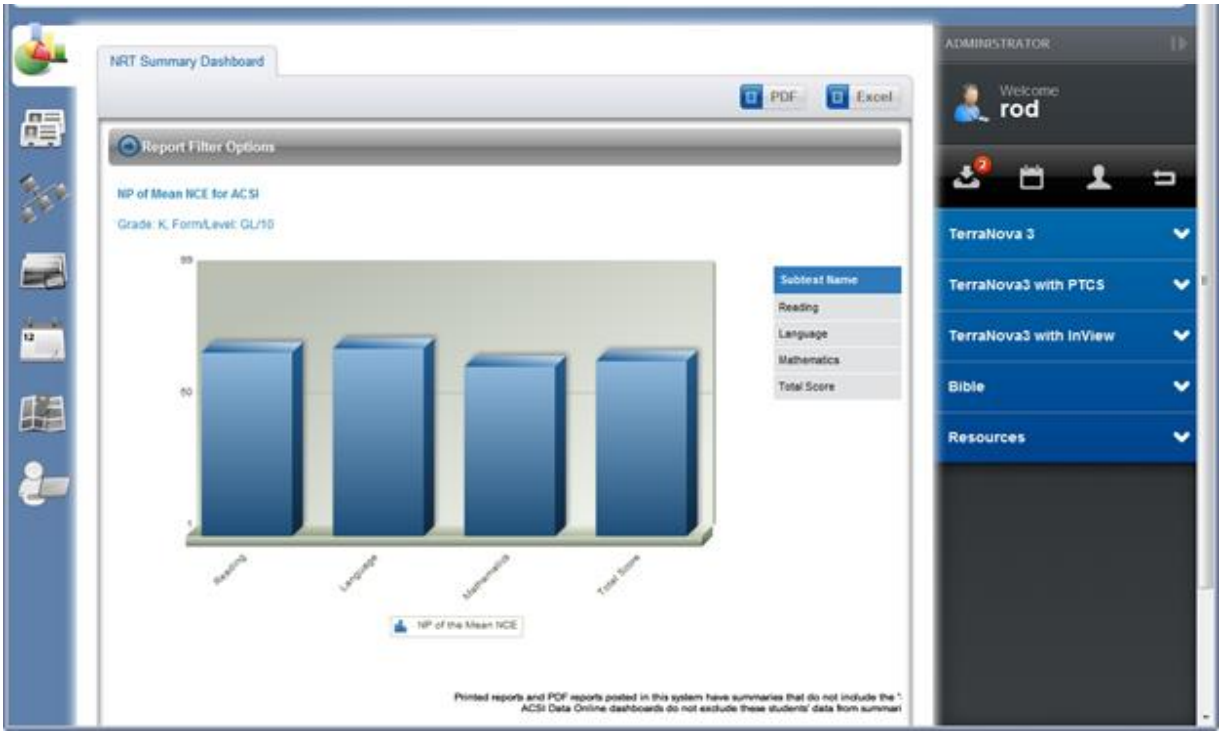
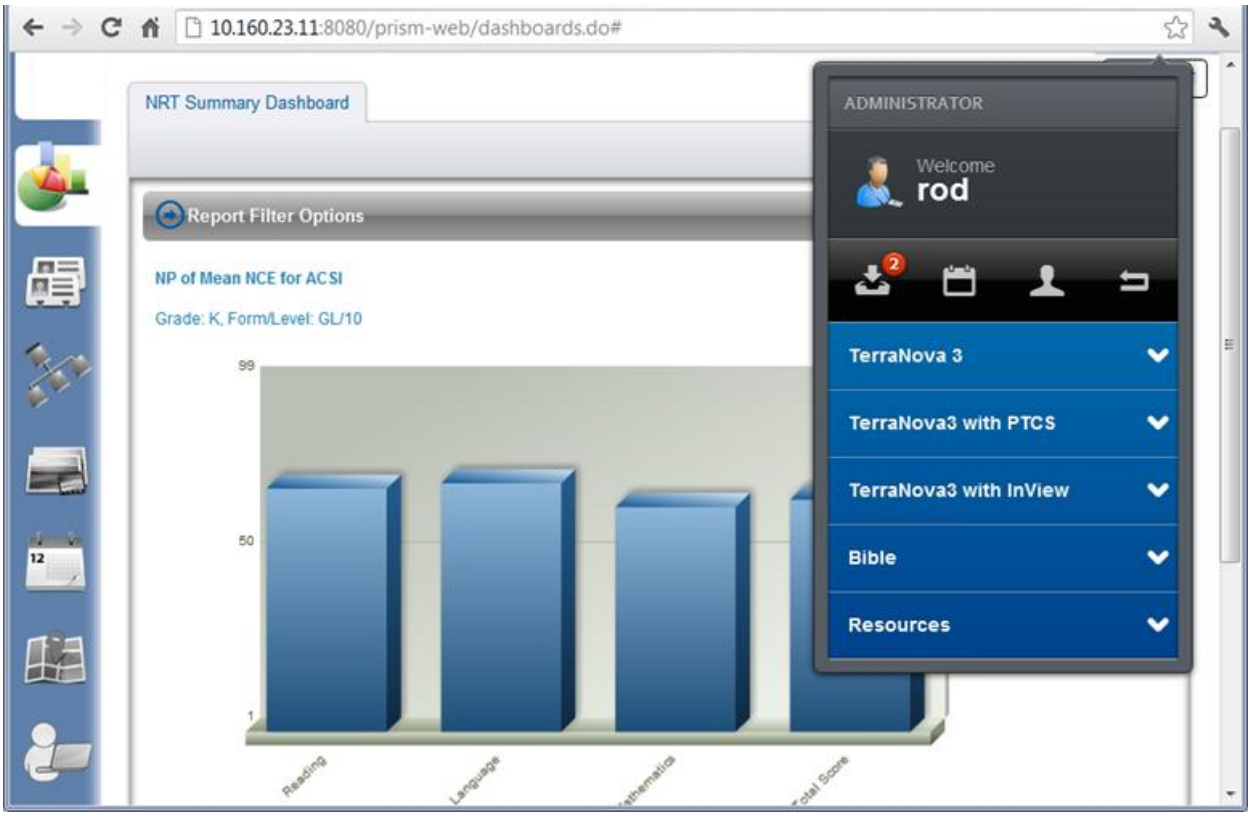


Figure 4–62: Example of Floating Menu with Touch Controls



Dynamic Reporting Through Customizable Filters and Export Formats

The dynamic reporting system supports standard assessment, summary, and disaggregated reports. It will also provide custom research-focused tools such as comparative dashboards, predictive analysis, item analysis, cohort studies, report publishing, and data export capabilities that will empower Nebraska educators to move the educational improvement process forward.

It will support importing and exporting of data in a variety of formats, facilitating data transfer processes with external vendors and systems. Assessment information, including demographic data, analytics, and scored results, can be easily imported for processing and reporting and is hosted natively. DRC supports Extract, Transform and Load (ETL) processes, using tools such as Informatica to automate data import or export for downstream data processing, as needed.

Security

Securing and protecting personally identifiable information (PII) for every student is imperative. The platform uses Intrusion Detection Software (IDS) at the front end to ensure confidential demographic data are protected, and data encryption is 256-bit or higher during transport processes and while data are in a restful state.

User permissions and roles provide control over access to the reporting data. Roles for report access may differ from the test administration roles, so users will be given access only to report data and functionality consistent with the scope of their role and organization (the same as

with the standard DRC Report Delivery System). Therefore, teachers will be able to view data related to their own students and summary data for their school; principals will be able to view their school's assessment results; administrators will be able to view all assessment results in their district or state.

Customization

The platform used for the reporting system has been accessed world-wide by teachers and administrators to view and analyze assessment results. It supports a robust data model, an import/export process, an ETL tool, and a graphical user interface. The platform can be modified to support a custom "skin" to represent the look and feel most appropriate for Nebraska and its schools.

DRC will load consolidated data for all students (computer-based and paper-based testers), including student responses, biographical information, and scores, into the dynamic reporting system.

h. The Contractor's system must have the ability to integrate or interface with an Ed-Fi REST API and optionally produce Ed-Fi XML. In addition, Contractor should list any integrations with other common systems. Contractor must commit to supporting native integration via the Nebraska Education Data Standard (NEDS), which is the State's extensions to the Ed-Fi REST API and optionally Ed-Fi XML. Updates to NEDS will be published by the NDE by January 31 of each calendar year. Contractor must commit to continuing to support annual updates to NEDS by June, 30 of each calendar year. The NEDS are also aligned with Common Education Data Standards (CEDS) available at ceds.ed.gov. For more detailed information on NEDS and the ADVISER system, see: https://sites.google.com/a/education.ne.gov/nde-adviser-Contractor-resources/.

DRC will work with NDE to integrate or interface with an Ed-Fi REST API and optionally produce Ed-Fi XML, and will support annual updates to NEDS by June 30 of each calendar year. We have the ability to use application program interfaces (APIs) and other forms of automation. Typically, we find that there is a need for customization because each state has different rules and uses different student information system(s). We can either host a web service or API at DRC, or can interface with a Nebraska web service or API to meet the needs for automation.

DRC has worked with other state clients to automate the connectivity between the state's information systems and DRC. As an example, we have worked with our Michigan state client to implement daily data updates by interfacing directly with the state's systems. We have automated direct database reads of Michigan's systems through a virtual private network (VPN) connection. This allows DRC to directly import and update pre-ID student data, user and permission information, entity data, district and school contact data, test session setup information, and tested roster data, on an as-needed basis (up to multiple times per day for some data). We could implement a similar transfer process and/or API integration for importing and exporting data with the ADVISER system.

i. The proposal must describe how district and school staff will be able to securely access web-based reports and data at the earliest possible date after testing, per agreement. The proposal must provide evidence of timeliness of reporting assessment results.

Information about DRC's plan for timely reporting of results has been included throughout this section. The description of how district and school staff will access web-based reports is provided above under *Subheading H.1.g*.

j. The Contractor will provide NDE with electronic files containing the aggregated school, district, and state results provided in the web-based report as well as a confidential student-level electronic file containing all available student-level information for all students such as student name and identifying information to include NDE Student ID, demographic and program information, test form, raw item responses, scored item responses, accommodation information, raw score totals, domain/subscores, scaled scores, and performance levels. The proposal must provide evidence of timeliness of reporting assessment results.

Following each operational administration, DRC will provide NDE with an electronic data file that contains all aggregated school, district, and state results provided in the school, district, and NDE web-based reports. DRC will work with NDE to confirm data elements and file layouts for all data files.

We will also provide an electronic data file that contains confidential student-level information for all students; this file will include data such as student name, NDE Student ID, demographic information, accommodation information, program information, test form, raw item responses, scored item responses, raw score totals, domain/subscores, scaled scores, and performance levels. Please see S*ubheading B.5* for DRC's proposed data file delivery dates.

Data File Development

DRC's Software Quality Assurance staff will ensure the quality of school, district, and state data and will make certain that each record is verified for completeness and accuracy. We are accustomed to handling complex programs and have solid, built-in checkpoints and reviews throughout the entire scoring, data management, and reporting processes.

Data Validation: Software Quality Assurance experts will conduct extensive quality checks on all system data. Quality control checks will be performed throughout the system-level testing, including checks of imported and reported data results, to ensure the integrity of the data. Data validation procedures include:

- **Duplicates—**All systems will be checked for duplicate records and items.
- **Data Standards—**Standard database and data naming conventions will be established and used.
- **Database Accuracy—**Quality assurance staff will perform extensive tests to ensure all data is stored in a secure database environment.

Data File Quality Control: All data file development will be done in close association with NDE to ensure all requirements are met. Quality checks will be performed on data placement and file formatting for each data element to be displayed. All data elements will be verified against the data processing rules. DRC's strict quality procedures can assure NDE of accurate scoring and data file production and maintenance.

Standard quality inspections will be performed on all data files, including the evaluation of each student data record for correctness and completeness prior to report generation. Student results will be kept confidential and secure at all times. DRC's data file development quality control procedures include:

- **Record Count Check—**Confirm expected record count.
- **File Count Check—**Confirm the number of files.
- **Duplicate File Check—**Verify that duplicate files were not created.
- **Date/Time Stamp Check—**Verify that the files match the expected date/time stamp.
- **File Type Verification Check—**Verify that data matches the format specified.
- **File Log—**Maintain a log of developed files.
- **Data Validation—**Use data checking procedures to verify the data is in the specified file layout and matches the expected values.

DRC's quality assurance analysts will ensure that only "clean," edited data files are produced; each data field will contain only valid data values of the variable assigned to that field.

Data File Layouts: DRC will work with NDE to determine appropriate file layouts for each administration. Our expertise in understanding assessment data requirements enables us to provide logical, well organized, and consistent file layouts. File layouts will be created for each data file distributed to NDE and will include field names, field descriptions, field values, and starting and ending positions. We will follow an established change control process and track all changes that are made to the layouts. A data file layout that explains the contents of the file and any codes used in its creation will be provided for all state- and district-level data files.

Data Delivery and Exchange Procedures

DRC will provide NDE with all required data files and accompanying data file layouts, which will be posted to a secure NDE FTP site or through our web-based reporting system. The exchange of data between DRC and NDE will be a critical and essential component in the success of the Nebraska assessments. To support this process, DRC proposes the continued use of our standard data exchange procedures to ensure that all data files are successfully and accurately transferred between DRC, NDE, and others as requested by NDE.

We recognize the importance of this function and have embedded quality checks throughout. DRC will work with NDE to confirm these procedures and will modify the process as appropriate.

k. The Contractor will develop and produce interpretive materials for the Individual Student Reports for parents and schools/districts. The interpretive materials will be provided in web-based format for posting on the NDE website. The proposal must include a description of the type of information to be included in such materials and methods to increase the usefulness of such materials. Expectations for clear, informative, and succinct student and parent information has increased. The proposal will address this requirement.

DRC has annually designed, produced, and distributed Report Interpretive Guides that provide basic information on how to read, interpret, and use the Nebraska score reports since the first reports were released in 2010. While the Report Interpretive Guides have included information on all summary reports as well as the Individual Student Reports for educators, content related to the Individual Student Reports has also been suitable for sharing with parents/guardians.

Report Interpretive Guides help ensure a clear understanding of each student's performance on the Nebraska assessments, as well as the performance results of schools and districts. The Report Interpretive Guides provide a sample of a report and a narrative explanation of the terminology and graphics displayed on the reports. Sample reports and explanatory text will illustrate results for a fictitious student and/or fictitious school or district. In addition to providing information on how to interpret score reports, the guides include general information about the purposes of the Nebraska assessments and ways to help students, schools, and districts wanting to improve their performance.

As discussed in more detail under *Subheading K.3*, DRC understands the desire to provide more information to students, families, and educators regarding assessment in general, and in particular in the area of interpretation of scores and overall test results. DRC has assisted many of our state clients in providing this type of information, and we will be pleased to collaborate with NDE on making the Report Interpretive Guides as functional as possible for all audiences.

DRC will ensure that each proof is free of typographical and format errors before submission to NDE for review. The report interpretation guides will be provided as electronic files (in PDF format) for display on NDE's website and will be available for download from the DRC INSIGHT portal.

l. The Contractor will develop and produce an annual Technical Report that documents and provides the necessary evidence to demonstrate that each of the assessments and the set of assessments as a whole serve their intended purposes, are aligned with Nebraska State Content Standards, and test design (including accessibility criteria), and meet accepted professional standards for educational testing. The NDE and Contractor will negotiate the table of contents and format for the Technical Report with input from the NDE. The annual Technical Report will not replace or fulfill the requirement for ongoing technical documentation or documentation specified in other tasks. The final draft of the document will be delivered to the NDE no later

than three months following the release of assessment results. The document will be delivered in web-based format for posting to Department websites. The proposal must include a copy of a technical report produced for a similar state assessment program.

DRC will produce an annual Technical Report for the Nebraska assessments no later than three months following the release of the assessment results. The Technical Report will contain information on Nebraska ELA, Mathematics, and Science general education and alternate assessments. DRC believes our technical documents represent the best the industry has to offer. The Technical Report will serve as the primary vehicle for documenting reliability and validity evidence for the Nebraska assessments and will demonstrate that each of the assessments and the set of assessments as a whole:

- Serve their intended purposes.
- Are aligned with the Nebraska State Content Standards/test blueprint.
- Fulfill the Table of Test Specifications supplied by NDE (including accessibility criteria).
- Meet or exceed accepted professional standards in educational testing.

DRC has delivered the general assessment Nebraska Technical Report since 2010 and the alternate assessment Technical Reports since 2012. DRC has included a copy of the 2016 NeSA Technical Report (without appendices) in *Appendix J*. For more examples of DRC technical reports produced with NDE, we are providing a link to the Nebraska website. https://www.education.ne.gov/assessment/NeSA_Technical_Reports.html

DRC will meet with NDE to collaborate on the content and format for the Technical Report. DRC currently has a strong working relationship with NDE and the Nebraska Technical Advisory Committee. We anticipate this relationship to continue and as in the past we will incorporate feedback from these groups into the production of the Technical Report. Contributions by other functional groups within DRC are managed by the Project Management Team.

From the earliest stages of projects, DRC psychometricians are mindful of technical reporting and consider documentation needs continually. The same staff members who plan and conduct project analyses also prepare the associated technical documentation. As with project deliverables, the project's Lead Psychometrician oversees technical report preparation. DRC will continue ongoing technical documentation outside of this report as designated by NDE.

DRC is continually seeking to improve processes. This includes preparation of technical documents. One example of this is the implementation of an internal review of technical documents by independent senior staff members. Cold reads by editors are used to eliminate errors associated with grammar and style.

DRC employs a Psychometric Quality Group that will ensure the accuracy and completeness of the Nebraska Technical Reports. This team will work alongside the psychometricians and statistical analysts, checking for internal and external consistency and reasonableness. This, in conjunction with the tests and checks performed by our Software Quality Assurance team,

promises technical reports that will meet the highest standards. The purpose of the report is to document the entire assessment process in sufficient detail to assure NDE that the needs of the state educational system are being served, and to allow external evaluators to assess the overall quality of the program. It should, for example, be an important document in meeting federal peer review requirements.

To ensure a high-quality Technical Report across years, DRC typically establishes a comprehensive set of core text for technical reports during the first year of a project. Thought is given to minimizing the amount of new text required yearly and to keeping text that requires modification to established locations. Whenever possible, program output is placed directly into technical documents to limit errors that might occur otherwise. Staff also use visual checks between statistics reported in technical documents and the original program output.

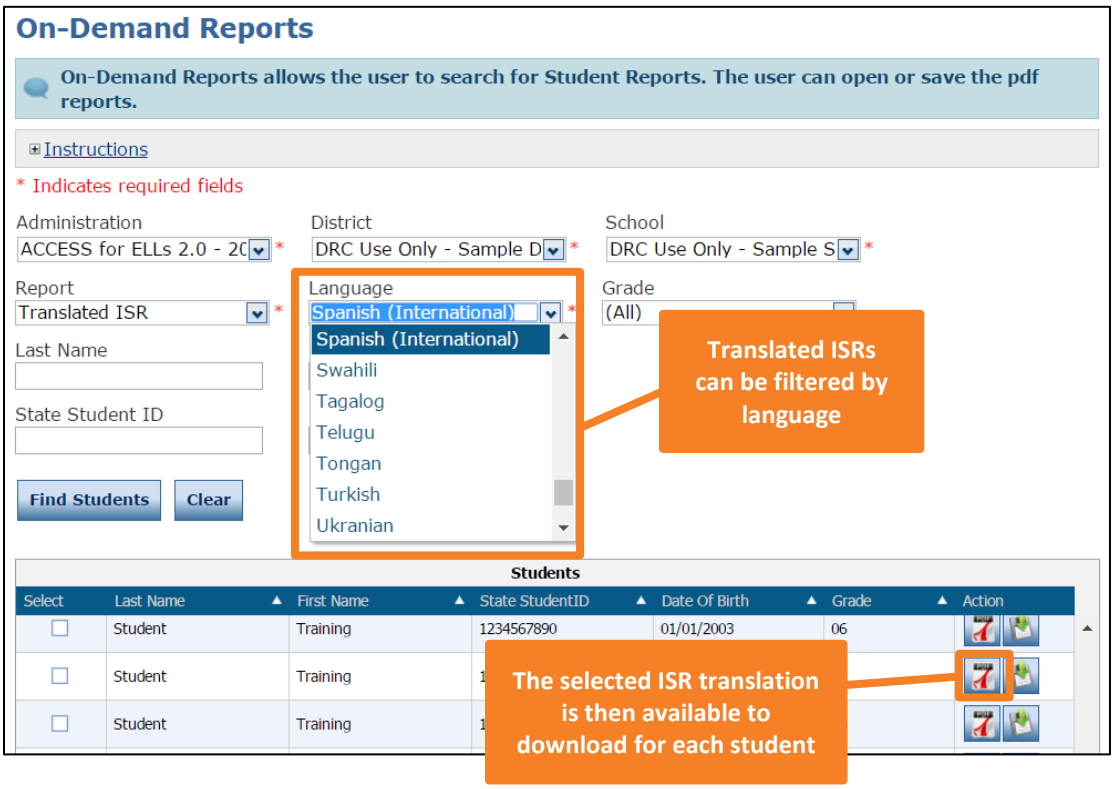
As evident in the technical reports we have produced for the current contract, DRC provides the assessment's purpose, test blueprint and test maps, Table of Test Specifications, test development procedures, reliability and validity results and graphics, scaling information, inter-rater agreement data, accommodations and testing of students with special needs, security information, administration details, scoring and equating procedures and results, standard setting results, reporting, and appropriate/inappropriate uses and interpretation of data. Technical Report appendices will include related materials, administrative regulations, state standards, sample items, committee rating forms, frequency/percentile distributions, state and system performance summaries by ethnic group, and other pertinent information in compliance with NDE requirements. The Technical Report will be delivered in web-based format for posting to the NDE website.

m. The proposal must include the production of a template in Spanish of the Individual Student Report that can be accessed online and that will allow districts to populate with results.

DRC is happy to provide a Spanish language Individual Student Report (ISR) template. We will ensure that the Spanish template is translated accurately and communicates student results as effectively as the English-language version. The Spanish report template would be accessible to districts via the DRC INSIGHT portal and would enable users to populate the template with appropriate assessment results. The report could then be printed and shared with parents.

DRC provides report templates in multiple languages for our WIDA Access for ELLs contract. Figure 4–63 shows the screen within the portal for users to access the translated ISR template.

Figure 4–63: Access to Spanish ISR Template



n. The proposal must include a description of the procedures that will be used to collect, record, and investigate reports by districts and schools of discrepancies and errors in results.

DRC's quality management process focuses on issue prevention to ensure that processing and reporting errors are not made. If a processing error is discovered, DRC will perform all analyses necessary to correct the error prior to reporting of results. If an error in scoring, analyses, or report development is discovered, DRC will notify NDE immediately and provide a solution to remedy the error.

All communication from districts and schools regarding possible reporting discrepancies and errors will be captured and maintained in DRC's customer service database. All instances of possible reporting discrepancies and errors will be immediately reported to NDE.

If the discrepancy or error involves individual students and a request for rescoring or reprocessing, those requests will be submitted to NDE for approval prior to rescore processing. After approval is received, DRC staff will initiate and track the retrieval and rescore process. All rescores will be scored manually by experienced and qualified personnel. All applicable security and quality-control procedures that were implemented by DRC during the original processing and scoring will be maintained. Rescores will be completed within 10 business days of receipt of NDE rescore approval. Reprocessing and rescoring will be available for 120 days after schools and districts receive their test results. DRC reserves the right to charge for rescore requests, except in the event that any materials have been inaccurately processed, scored, or reported, in

which case DRC will retrieve and reprocess them and provide replacement reports and data files at our own cost. For the current Nebraska program, DRC worked with NDE to determine a mutually acceptable charge for rescore requests.

2. Retrieving Student Work

At the request of NDE, the Contractor will retrieve, hand score if needed, and deliver to the appropriate Department images of student answer documents, actual student test materials, printouts of results, and/or other reports in response to concerns about the accuracy of reported results. All requests must be made through the NDE project manager. The proposal must include a cost figure and timetable for retrieving, hand scoring if needed, and delivering these reports upon request of the NDE. The cost for this service will be charged upon request and should not be included in the budget for this proposal.

At the request of NDE, DRC will retrieve, handscore if needed, and deliver student work to the appropriate NDE staff. After a request is received from NDE, DRC staff will initiate and track the retrieval process. Processed answer sheets can be retrieved quickly and efficiently as the need arises, either during or upon completion of processing. Individual student tests (original hardcopies) will be easily retrievable because of DRC's effective document storage procedures, including storage via project specific pallets with project-specific box labels. Additionally, DRC's IBML image scanners allow for on-demand retrieval of specified images (e.g., specific batch files, specific grades, specific students); each image is assigned a unique identification number that allows for quick and easy retrieval at the student and school level. All DRC INSIGHT online student testing data/electronic files will also be securely stored and will have off-site backup. DRC's archival system will allow efficient and easy retrieval and transfer of electronic images and data, including scoring files, for individual student records.

Cost and Timetable for Retrieving and Delivering Student Test Documents

DRC will retrieve and deliver images of student answer sheets, or online student responses, from the current administration within two business days of receiving an official request. For past administrations, DRC can retrieve and deliver images within five to eight business days. Any retrieval of images and rescore requests made by NDE during the agreed-upon window will be completed at no additional cost. Districts that make rescore requests will be charged a fee (charged directly to the district). This cost will be mutually agreed-upon with NDE.

I. STANDARD SETTING AND ALIGNMENT

1. This is the information to use for budgeting purposes. Use the following for the proposal and for budgeting purposes for (1) alignment and (2) standard setting. The proposal should propose an appropriate standard setting methodology and procedure that meets the following goals:

a. Is appropriate for the subject area tests.

b. Supports coherence across the grade levels tested.

c. Includes the direct participation of Nebraska teachers and other subject area experts and educators.

d. Includes the validation of alignment and standard setting results with information gained from educators in the field and through the use of other available information, as appropriate.

e. Is consistent with the goals and purposes of the NDE test specifications, whether developed by Nebraska educators or off-the-shelf solution is proposed, and assessment principles.

2. The proposal must include a comprehensive description of the proposed methods that includes procedures to occur before, during, and following the activities. The response must also include information on Contractor staff that will lead and participate in alignment and standard setting.

Alignment Study

Based on NDE's response to Q&A #17, DRC will provide materials and planning support for independent alignment studies that will be contracted separately by NDE. However, DRC has a great deal of experience in managing independent alignment studies for our state clients, as evidenced by the alignment activity that DRC coordinated in fall 2016 for Nebraska's new ELA assessments. As such, DRC is proposing, as a cost option, to manage and coordinate the independent alignment studies in mathematics and science for NDE. In the optional approach, the third-party alignment studies would be done with committees of both national alignment experts and Nebraska educators. The study for mathematics will be conducted in fall 2017 and science would be conducted in fall 2019. DRC's role will be to recruit national experts, including the national facilitators, provide the necessary materials for the alignment review, work with NDE to coordinate meeting logistics, and prepare a report with results from the study. NDE would recruit local educators to be counterparts to the national experts. The meetings would take place over three or four days in Lincoln, or another location in Nebraska identified by NDE. The alignment study will involve a review of both the general education assessment standards and the extended standards used with the alternate assessments using operational test forms.

Alignment Model

The purpose of each alignment study will be to determine the degree of alignment among the Standards and Indicators or Extended Indicators and the operational test items found on the corresponding grade-level general education assessment or alternate assessment. Each study

will be based on Webb's alignment model, a model developed by Dr. Norman Webb of the Wisconsin Center for Educational Research. The Webb model requires a balanced alignment study review approach, which brings together both in-state alignment and/or subject-area experts, as well as national alignment and/or subject-area experts, with the goal of ensuring that the alignment study is valid and reliable. The primary role of the independent reviewers will be to judge the depth-of-knowledge level of each item and to identify the primary, and possibly a secondary, standard indicator or extended standard indicator to which each item is aligned. DRC recommends the use of Webb's model because the process and subsequent report aligns well with the information required for peer review (e.g., terminology, process).

Debrief Meeting and Final Report

Immediately upon conclusion of the committee meetings, DRC recommends that NDE and DRC have a face-to-face debrief meeting to discuss general findings for both the general assessments and the alternate assessments. The intent of the debrief meeting is to identify any changes that must be made to the upcoming year's operational forms.

Following the study, a report will be produced by the independent lead facilitator (a national expert) that will include a description of the third-party independent review for each study, a detailed description of the alignment process used, summary tables showing the results of each alignment study, and details about the findings made through the study process. The majority of the report is made up of data that is generated during the meeting using the DRC-provided software. The facilitator will be responsible for analyzing the data and writing the accompanying findings. DRC will be responsible for pulling together information about the process, as well as reviewer biographies and content-related materials. In addition, DRC will provide final editing and proofing of the report prior to hand-off to NDE.

Meeting Support

DRC will be responsible for providing content-related materials for the meeting, including test booklets, answer booklets, standard documents, etc. We will also be responsible for providing a computer for each participant with the necessary software. DRC will pay for all travel expenses for our own staff attending the meetings. Additionally, DRC will be responsible for providing logistical materials, including reimbursement forms, confidentiality forms, name tents/badges, etc. DRC will also be responsible for working with the hotel for all aspects of the meeting, including the contract and paying for committee sleeping rooms and meals, meeting room arrangements, and food/beverage/AV arrangements. Finally, DRC will be responsible for paying for stipends/honoraria for the national experts, and substitute stipends for Nebraska educators, as well as all committee member travel expenses.

Standard Setting

DRC has worked with NDE on multiple occasions to set cut scores for the regular NeSA-Reading, Mathematics, and Science assessments over the past several years. All methods chosen were based on solid research and demonstrated effectiveness. Procedures were approved by NDE and the Nebraska Technical Advisory Committee. For the regular NeSA-Reading, Mathematics,

and Science assessments, DRC used multiple methods that pose somewhat different questions and require somewhat different tasks. Specifically, DRC used the *Bookmark* standard setting method for the regular NeSA-Reading, Mathematics, and Science assessments as well as the *Contrasting Groups* method for validation. For the NeSA alternate assessments, DRC used the Modified Angoff method.

This coming summer, in conjunction with NDE, DRC will be conducting a standard setting for the new ELA assessments, using all three of these standard setting methodologies. DRC is proposing that the same methods are used in 2018 for setting the mathematics standards, and in 2020 for the science standard setting.

Most standard setting methods fall into two major approaches:

1. *Item-centered*, which focus on what knowledge, skills, and behaviors are required to successfully respond to an item, and

2. *Student-centered*, which focus on what proficiencies individual students possess.

In large-scale assessment there are four major standard setting methods considered to be industry best practices and are used the most often:

- Bookmark
- Modified Angoff
- Body of Work
- Contrasting Groups

Selection and Training of Panelists

Regardless of the standard setting methods discussed, recruitment of panelists is an essential part of establishing the standards. Because standard setting depends so heavily on human judgment (e.g., of student ability, item difficulty, the performance tasks required to achieve different levels of mastery, evaluation of a developmental continuum of ability across grades), it follows that only the most knowledgeable and experienced panelists should be chosen. DRC recommends that all grades in each content area have representation. It is also important to include teachers who have experience working with students with disabilities and English language learners, curriculum specialists, and other stakeholders in Nebraska. DRC suggests that representatives from higher education be in attendance as well. This provides an opportunity to add a college readiness aspect to the standard setting process.

Selection will be based on recommendations for participating in the standard setting process from NDE or district personnel. For the Bookmark and Modified Angoff methods, DRC will work with NDE to identify appropriate individuals to participate. Research regarding the appropriate number of panelists needed for setting standards varies. DRC intends to use groups of teachers from a span of grade levels (e.g., grades 3–5) to set standards for individual grades. There will

be approximately 15 panelists per grade group. The intent of the grade groupings is to ensure panelists work with content with which they were familiar, while giving each panel more breadth. The results show more continuity across grades. We have found that conducting standard settings in grade groupings run concurrently produces a better standard setting when vertical articulation is desired. For the Contrasting Groups method, DRC will invite all teachers who teach the content to participate since the questionnaire is online.

DRC agrees that training of the panelists is critical to the proper functioning of the standard setting process. An important aspect of the project will be the participants' understanding of the procedure. One important aspect of the training is the emphasis on the role of panelists not to make judgments about the wording or the difficulty of items.

With all proposed methods, except for Contrasting Groups, an extensive training for standard setting panelists will take place in a large group setting prior to making any recommendations. DRC believes that all grades should train together so that the process is uniform. Panelists will receive an orientation to the standard setting procedure and practice the mechanics of the process using a short "practice test" composed of non-secure training materials taken from a public source (e.g., released Nebraska items). After the training is complete, all panelists will be asked to complete a readiness survey. The panelists will be separated into their appropriate grade-span rooms to begin the actual standard setting process.

Once the panelists are in the grade-span rooms, DRC room leaders will briefly review the process and ask for questions. This is an important step as some panelists may be reluctant to speak in front of large groups. After the question and answer phase, the process will begin with the panelists taking a test form similar to what the students will take. This task is done to give panelists a direct appreciation of the student's testing experience. They are encouraged to take notes concerning their impressions of the items.

At the conclusion of the standard setting event, all panelists will be asked to complete an evaluation on the entire standard setting process. As discussed below, all teachers participating in the Contrasting Groups method will also be trained together in WebEx training sessions, provided at multiple times to meet the teachers' demanding schedules.

Bookmark (General Education Mathematics and Science Assessments)

In recent years, there have been many new developments in standard setting processes. While new processes are always being invented, there is a basis for the standard setting processes that has evolved from historical usage and defensibility. DRC is proposing to use the Bookmark method, which is an item-centered method, for the general education mathematics and science assessments. This process has been used by National Assessment of Educational Progress (Loomis, 2012) and is currently widely used in large-scale assessment standard settings. Recently, DRC has successfully implemented this process for the general NeSA-Reading, Mathematics, and Science assessments and this summer for the new ELA assessment.

DRC follows a Bookmark procedure similar to the method suggested by Lewis, Mitzel, and Green (1996). Bookmark is one in a broad category of methods commonly referred to as item mapping, which focuses on items rather than examinees. The essential task is to identify the items that can be answered successfully (67% likelihood) by students at the boundaries of the Achievement Levels. Participants are asked to visualize the knowledge and skills of a student who is at the borderline between two Achievement Levels based on the Performance Level Descriptors. Participants are given an Ordered Item Booklet with items ordered from least to most difficult. Panelists are also provided with supporting materials for each item including the correct response and content objective.

Bookmark training covers the following points:

- The achievement levels are defined and described by the performance level descriptors.
- The task for the panelist is to place a bookmark between items that students at the threshold of a performance level have mastered and those they have not yet mastered.
- Students at a given cut score will have a 0.67 probability of correctly responding to a selected-response item at the cut score. These students will have a higher probability of success on easier items (before the bookmark) and a lower probability of success on harder items (after the bookmark).
- Panelists are instructed to place the bookmark separating the first level from the second level (*Below the Standards* and *Meets the Standards*) and then move to the successive level (*Meets the Standards* and *Exceeds the Standards*).
- Panelists are asked to record their bookmark placements on a rating form. The placements are entered into a spreadsheet program, and the median cut score will be calculated for the full panel.

Panelists are also told that:

- Their bookmark placement should reflect their own opinions and not the group consensus;
- They should contribute their own personal experience and expertise to the group discussion and recommendation;
- They will have the opportunity discuss, reconsider, and revise their placements in later rounds; and
- All materials and discussions are secure and cannot leave the meeting room.

Performance level descriptors are then discussed at length, and revision and refinement of the levels can occur. It is recommended that a content expert and a NDE representative be present to answer questions. After the panelists are familiar and comfortable with the performance level descriptors, the actual Bookmarking work begins.

The task for the panelist is to proceed through the *Ordered Item Booklet* and ask themselves, for each item, if the borderline student could answer the item correctly. The panelist places a bookmark in front of the page in the booklet where the borderline student had not mastered the item. *Mastery* is defined as having at least a 67% likelihood of responding correctly.

The actual Bookmark process typically includes three iterations (rounds) of individual judgments, large group discussions between rounds, and opportunities to revise individual judgments. After the first and second rounds, panelists have the opportunity to compare and defend their own placements with other panelists and to review impacts in the form of percentage of students in each performance level resulting from the group recommendation. In addition, panels for the appropriate grades may be shown relevant NAEP, SAT, and ACT statistics. Additional rounds can be added should there be a need. Vertical articulation can occur as discussed below.

Contrasting Groups (General Education Mathematics and Science Assessments)

The examinee-based Contrasting Groups (Cizek & Bunch, 2007) survey is included to complement the Bookmark standard setting method. The survey asks teachers to evaluate each student with whom they are familiar and indicate which performance level best describes the student. The survey will be conducted prior to the first operational administration, so ratings will be determined by the teacher's firsthand experience with the students in the classroom, not their performance on the test. All teachers and specialists in the content areas tested can be invited to participate in the survey. The teachers are told that the survey is anonymous and that we are looking for the expertise; we are not comparing their reporting to student's actual scores at a teacher level. This aids in recruitment. All analysis is completed at the state level.

The survey is distributed online via DRC's INSIGHT portal. Teachers first select their students from a roster for their own school. Instructions will emphasize the importance of knowing the student and the student's status as compared to the performance level descriptors. Teachers are encouraged to omit ratings for any student for whom the teacher does not have firsthand knowledge. Performance level descriptors are an integral part of the survey, and are provided to the teachers within the user interface. They are attached and are printable. Training for the Contrasting Groups survey is also provided online. In addition, a WebEx recording of the training will be placed on the NDE's website, allowing for maximum participation by teachers and minimizing the time commitment. Most training sessions take 30 minutes. Working with the survey is dependent on the number of students teachers choose to rank.

Modified Angoff (Alternate Mathematics and Science Assessments)

The Modified-Angoff standard setting method has a long-standing history in educational assessment dating back to the 1950s. The process has been used in many state assessment programs as well as for nationally known assessment projects such as the National Assessment of Educational Progress. DRC has successfully completed this type of standard setting method for multiple state clients and is prepared to do so for the Nebraska alternate assessments.

The original Angoff method requires panelists to review each item and estimate what proportion of a hypothetical group of minimally competent examinees (e.g., borderline examinees) would answer each item correctly. The Angoff Yes/No method is one variation of the original Angoff. It was proposed to address two difficulties that panelists may have in applying the original Angoff method (Impara & Plake, 1997; Plake & Cizek, 2012). First, panelists may have difficulty in conceptualizing the hypothetical borderline students. Second, as noted above, estimating the proportion correct may be a difficult task even for a clearly defined group of examinees. In the Yes/No method, panelists are directed to consider an actual examinee on the borderline who is known to them, and then make a dichotomous (Yes or No) judgment about whether their prototypical borderline examinee would be able to answer each question correctly. Thus, the Yes/No method simplifies the judgment task and, therefore, is more clear and easier to use than the Angoff probability estimation procedure (Impara & Plake, 1997).

Plake and Cizek's (2012) discussion goes further in their recommendation for appropriateness in use with multiple-choice assessments that with "the Guttman-like properties of any hierarchical scale, with ability systematically increasing as performance moves up the scale, this method is particularly appropriate for setting performance standards on tests with multiple cut points" (189), although they do caution later in the text that a limit should be set to three or four cuts. Committees for the Nebraska alternate assessments will be setting two cuts.

In Perie and Thurlow's (2012) most recent look at *Setting Achievement Standards on Students with Disabilities*, there is a discussion on advances and methods in setting standards on the alternate population. They discuss considerations and how the alternate population is different from regular assessment standard settings.

- Sample sizes with the alternate assessments are smaller than regular assessments, which can cause problems with methods using order item booklets.
- There are fewer items on the assessment. For the Nebraska alternate assessments, it may be necessary to use more items from the bank.
- The number of item choices (distracters) is fewer (three for the Nebraska alternate assessment).

Perie and Thurlow (2012) also discuss that the Modified Angoff method is one of the most "commonly used methods" in K-12 education.

DRC will set cut points establishing performance levels, using the Modified Angoff (Yes/No) method, as directed by NDE and the Nebraska TAC. The group recommendations are determined by the average cut scores across all panelists.

Excluding the training exercise, the process will involve three rounds of judgments. Before panelists are asked to make their first round ratings, group discussions will be held to clarify each panelist's understanding of the knowledge, skills, and abilities of the minimally acceptable students at each of the borderlines.

Vertical Articulation across Grades

For accountability and monitoring longitudinal progress, it is important that the achievement levels are coherent across grades. One would expect, for example, that the percentage meeting or exceeding the standards would be *consistent*, perhaps trending up or down but not fluctuating erratically. This becomes more critical when achievement levels with high stakes consequences are established for contiguous grades.

Three distinct tactics are used to ensure coherence. First, the common introduction and training for all panelists ensures a common understanding of the performance level descriptors and the standard setting task. Second, the grade groupings ensure the panelists are familiar with, and participate in, the deliberations and recommendations for grades adjacent to their own. This is enhanced by large group sessions each morning that allow for more general, cross-grade discussions. Finally, after the panelists complete their work, the group recommendations will be statistically smoothed to achieve coherent percentages in each achievement level. This approach considers the data from all grades simultaneously. Any trend over grades will be established by the panels, but it is assumed that the entire body of data is more reliable than any one grade.

Process for Approval of Standard Setting Results

After the standard setting is complete, DRC will present all data to NDE for proficiency cut approval. DRC will attend State Board meetings, as requested, to aid NDE in getting final cut score approval. DRC has used this process for all general and alternate Nebraska assessments and will continue to do so as requested. DRC, with NDE approval, has also found it useful to talk to State Board members a few months prior to the standard setting activities to explain the methods and answer any questions that may arise, so that the standard setting approval process is smooth and informed.

Considerations

DRC has extensive experience conducting standard setting meetings, and, we have learned much along the way. Below is a list of significant takeaways from recent standard settings. Those held in the era of NCLB, and now in ESSA, have provided the most information in forming our recommendations. These include Alabama, Alaska, Arkansas, Idaho, Iowa, Louisiana, Minnesota, Nebraska, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, and South Carolina and many others. Please see *Appendix I* for a better look at DRC's extensive experience in standard setting for statewide assessment programs.

1. **Panels provide a better articulation when they work in grade groups rather than independently by grade.** In two states, the process began with the entire group setting cut points for grade 6. Thereafter, the group was split into two separate groups: one group working on grades 5, 4, and then 3, and the other group working on grade 7, 8, and then high school. In the remaining states, the groups worked on two or three grades (e.g., grades 3 and 4 together; or grades 3, 4, and 5 together).

2. **Multiple methods provide valuable cross-validation.** Four of the states mentioned above utilized information from two methods: one examinee-centered and one test-centered (e.g., Bookmark or Angoff and Contrasting Groups). The former was performed under tightly controlled conditions, in person, with hand-selected panelists and facilitators. The latter, was made available to all teachers in the states, and utilized an online survey that asked teachers to assess where they expected their students to fall into the achievement levels. In all cases, the results from the educator survey were presented to the panelists in the study with the formal controls and processes.

3. **External referents can provide an important perspective.** In several states, we presented a combination of results from the ACT, SAT, NAEP, and other relevant assessments.

4. **Analytical smoothing of the final panelists' recommendations can provide better articulation across grades.** DRC did post-smoothing for each standard setting event mentioned above. DRC can post-smooth as a means to better articulate results across grades. This would take the form of using a non-parametric analytical smoothing technique (Cleveland, 1995) that would not change the cut points overall, but rather will smooth out any inconsistencies in the results. This can be performed for each cut point. The final suggestion is that any adjustment as part of the post-smoothing process be restricted to one standard error of measurement (the conditional standard error of the test being our preference) for choice of standard error.

5. **Well-developed Performance Level Descriptors (PLDs) are essential for articulation across grades and across standard setting methods.** DRC has assisted several of our state clients in the development of their PLDs, including Nebraska for the development of PLDs for the new ELA assessment. DRC would be pleased to have the opportunity to assist NDE in the development of the mathematics PLDs in 2018 and the science PLDs in 2020 using the same successful process that was used for the ELA. DRC looks forward to discussing this further with NDE upon award. Pricing will be provided upon request.

Staff

All standard settings will continue to be facilitated by DRC's Senior Vice President of Research, David Chayer and supported by DRC staff, including Psychometric Lead, Dr. Richard Smith. Mr. Chayer served in this capacity for each standard setting event during the current Nebraska contract, including leading each meeting and providing training, pre-meeting State Board preparation, and formal presentation of the results to the State Board. Mr. Chayer will continue to provide this valuable service to NDE to ensure the continued success of the Nebraska assessment program.

3. The Contractor will support all alignment and standard setting activities including, but not limited to, providing any stipends, substitute reimbursement, and covering expenses for participants in proposed meetings for the alignment and standard-setting process. NDE will assist with making arrangements for meeting room(s). Contractor is responsible for determining the number of participants. NDE will assist with identifying appropriate individuals to participate. Average daily stipend for teachers working during the summer months is $150/day. Plan on similar amount for substitute pay for teachers working during the regular school year. Mileage – use current federal rate; Lodging – estimate $200 per night; the State meal reimbursement at $51 per day.

DRC will support all alignment and standard setting activities including, but not limited to, providing any stipends, substitute reimbursement, and covering expenses for participants in proposed meetings for the alignment and standard-setting process. DRC understands that NDE will assist with making arrangements for meeting room(s). DRC also understands that DRC will be responsible for determining the number of participants attending each meeting and that NDE will assist with identifying appropriate individuals to participate. Travel and meeting specifications proposed for this contract, using the estimates for stipends, lodging, and meal reimbursement stipulated in the RFP, can be found in *Appendix C*.

4. The Contractor will produce a written report documenting all aspects of the alignment and standard setting process. The report will be delivered to the NDE within 30 days of the conclusion of these activities.

Following the alignment study and standard setting, DRC will provide a final report to NDE with all findings within 30 days of the conclusion of the activities. The final report will include all recommendations and conclusions based on the results of the studies. DRC will also provide all data tables as appendices to the reports.

J. INTERIM ASSESSMENT SYSTEM

DRC is pleased to propose **an enhanced, comprehensive interim assessment system** for Nebraska that will both leverage the state's current investment and support additional options for the state and educators to fully understand the growth and progress that students are making.

1. DRC will continue to offer NDE the delivery of the **Check4Learning (C4L) classroom assessments** through the DRC INSIGHT engine, along with instructionally supportive tools and reports. We will continue to support the C4L system under the new contract to ensure maximum usability by educators.

2. In addition, DRC is pleased to propose a set of **new, secure interim assessments** at each grade and content level, also delivered within DRC INSIGHT, which will be **predictive of student performance on the summative assessment**.

The combination of the predictive interim assessments with the instructionally-supportive C4L assessments will provide a path toward the balanced assessment system desired by NDE.

1. Technology Capacity

The interim system must deliver assessments though an online system on demand by users. Since it must always be available, it is important that the system be able to handle potentially high levels of usage on a regular basis. The proposal should detail what efforts that will be made to ensure that districts will have access to the interim system whenever they need it with limited interruptions for maintenance and updates.

DRC's state-of-the-art online testing system, DRC INSIGHT, is a flexible delivery platform that can be used for multiple assessment types, including statewide summative tests; interim/benchmark tests; and classroom-level, teacher-driven formative assessments. When used as a formative tool, DRC INSIGHT excels at providing fast and meaningful diagnostic information on student performance related to state standards—both within and across administrations—to aid teachers and administrators in designing and differentiating instruction.

Advantages of DRC's Interim Technology Solution

DRC will build on our past experience in Nebraska and our successes in other states to deliver an interim assessment solution, including C4L, that meets the needs of Nebraska students, educators, and administrators. Advantages of our proposed solution include:

- **Convenience and ease of access for educators.** As with the other Nebraska assessments, users will access the secure interim assessments and C4L through the DRC INSIGHT portal. Nebraska educators will only need one user ID and one password to access all assessment tools and resources that are needed for their respective roles.

- **Familiar "look and feel" for students.** The interim and C4L assessments are delivered through the same online testing engine as the summative and practice assessments,

providing students with a consistent experience and ease of use across tests and minimizing training needs.

- **On-demand, highly scalable administration.** Educators can administer interim assessments and C4L on-demand to students whenever they need it. This gives educators full control to integrate the assessments with classroom instruction. Our solution is fully scalable, and will meet Nebraska's current and future capacity needs. More information on system capacity and scalability was provided in *Subheading A.5.b*.

a. The proposal should include consideration for integrating with systems such learning management, Ed Fi® operational data stores, and other systems supporting the educational experience.

DRC has the ability to automate the connectivity between the state's information systems and DRC using application program interfaces (APIs) and other forms of automation. More information on this approach was provided under *Subheading H.1.h*.

b. The proposal should include strategies and experience for implementing SAML integration for authentication and attributes required for authorization.

DRC has experience implementation SAML integration with state systems. This was described previously under *Subheading D.1.a*.

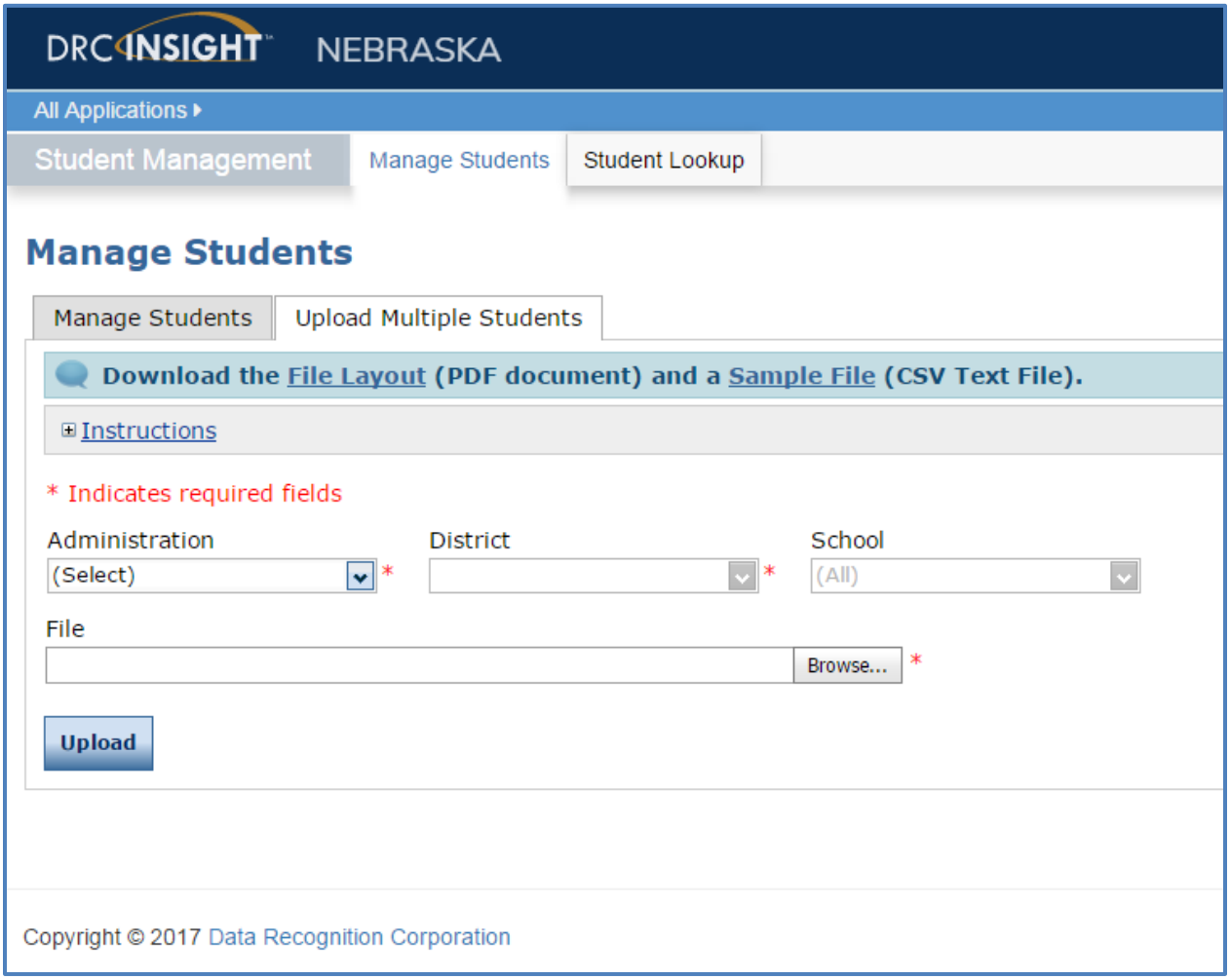
2. Student Information

a. The proposal should include a solution for uploading students as early in school year as possible. The interim system must provide a secure access web-based system for districts to upload their student demographic, teacher, and school data to the interim system because the NSSRS data are currently not available at the start of the school year.

The administration-based DRC INSIGHT portal (formerly eDIRECT) provides convenient, flexible options for managing student data. Districts have utilized the Upload Multiple Students feature of the Student Management Application to load student information for C4L administrations since DRC began delivering the system in 2013. The Upload Multiple Students feature gives districts and schools the option of loading all essential student demographic information as required by NDE via a simple .csv file. File layout requirements and sample files are posted to the DRC INSIGHT portal that clearly define required and valid values. Each submitted file is validated against the requirements, and a report is made available identifying any invalid fields in each student record. Successfully uploaded students, upon validation of the file, are immediately included in Student Groups and Test Sessions in the C4L application.

Figure 4–64 shows the Upload Multiple Students feature of the DRC INSIGHT portal's Student Management application.

Figure 4–64: Student Management—Upload Multiple Students



The Student Management application is made available as soon as the administration goes live in the DRC INSIGHT portal. DRC and NDE have collaboratively determined go-live dates for each of the past four C4L administration years, taking into account the availability of new system features and content each year. New administrations have typically been made available in July or August, and DRC is open to determining the optimal date for launching the new administration each year.

Since the 2015–2016 C4L administration, DRC has also uploaded NSSRS student information into the C4L application when it becomes available in November. This provides added convenience for sites that use the system later in the school year. DRC will be happy to continue to provide this added service during the term of the new contract and will be prepared to adjust to changes in schedule or data availability that NDE wishes to consider.

b. The interim system must have a complete set of demographic data for each student at the point-of-time of assessment. This data management system must also provide reports and analysis, as noted below, for districts and for NDE.

DRC has worked with NDE each year to identify the required demographic data fields for C4L administration and reporting. Requirements thus far have called for the minimal amount of student identification information to make getting started as quick and easy as possible for districts. If NDE would like to expand the demographic data requirements for C4L, DRC can accommodate additions or changes to the data collected and reported.

Figure 4–65 shows the current Sample File for the Upload Multiple Students feature of the DRC INSIGHT portal's Student Management application.

Figure 4–65: Upload Multiple Students Sample File

NSSRS ID	Student First Name	Student Last Name	School Code	Grade	Date of Birth	Student UserName	Student Password
1234567899	Melinda	Anderson	99-9998-001	3	3122007	manderson1	sdem8339
1234567891	Ross	Carlson	99-9998-001	8	10202001	rcarlson1357	s3f'v3856
1234567892	Jorden	Smith	99-9998-001	8	4272002	Jsmith763	dldp0438
1234567893	Lucy	Malley	99-9998-001	9	1122001	lmalley12	p7nesc423
1234567894	Cody	Stevens	99-9998-002	11	3121999	cstevens3	ej5rkbn97
1234567895	Rita	Roberts	99-9998-002	12	5091998	rroberts98	a-f2gh1

c. The system must allow for the creation of classes and for students to be assigned to multiple classes.

The C4L application's Student Testing feature allows users to create grade-level student groups in any combination from among all students at a school who have been successfully uploaded into the administration. The same student can be assigned to multiple student groups as stipulated in the RFP. Furthermore, the same district, school, or teacher user can create multiple student groups for assignment to test sessions, and different users can include the same students in the student groups they create.

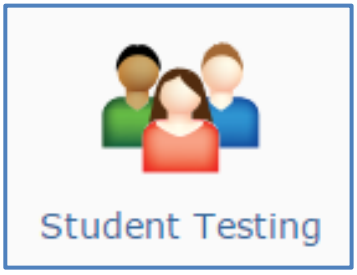
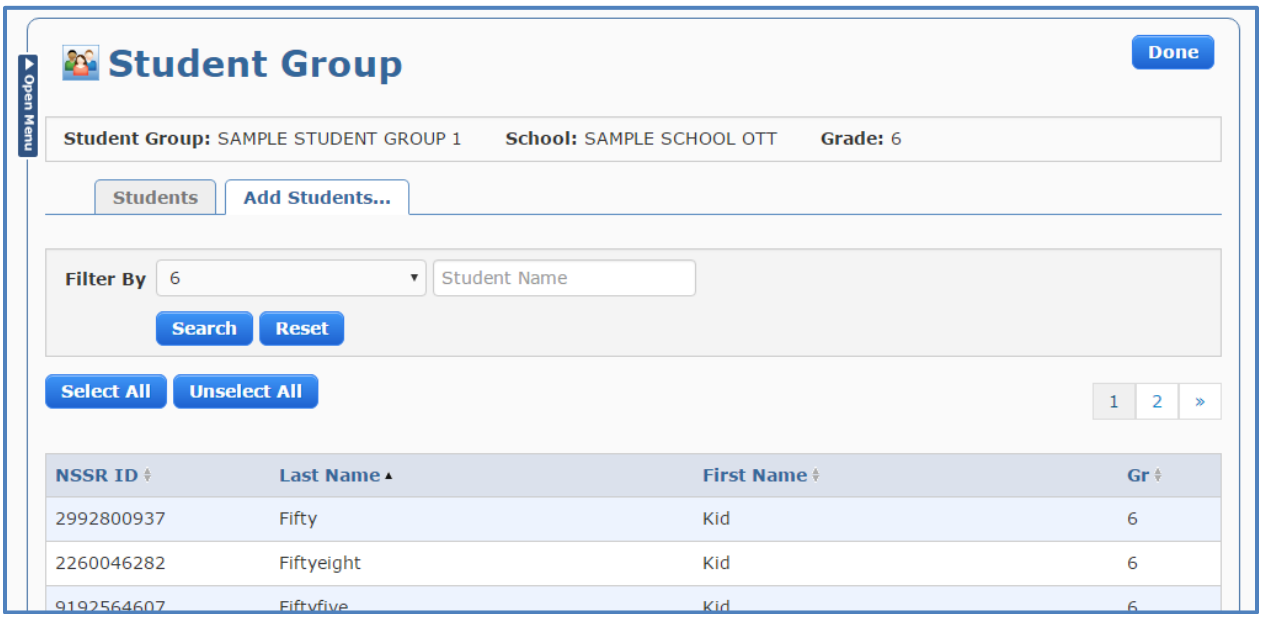


Figure 4–66 shows the Student Group screen where users select students for a new student group. Upon creation of a new student group, users have the ability to immediately assign the group to a test session. Once a student group has been created, the user can also assign the group to future test sessions.

Figure 4–66: C4L Student Group



d. The proposal should include the capacity and experience in using API access to synchronize student and district data.

Please see Subheading *H.1.h* for information on capacity and experience using API access to synchronize student and district data.

3. Assessment Development

a. The interim system may allow district users to create tests from the item bank for administration at the classroom, school, or district level or may be an off-the-shelf system, or may be off-the-shelf augmented by Nebraska developed items. The system provides districts flexibility to use it based on their needs. The interim system may be available only online but the users must be able to print out paper versions of any test. The interim system online and printed tests must meet agreed upon guidelines for test design and style. The proposal should describe a system that meets these requirements.

DRC will continue to support and enhance the C4L classroom assessment system for use by Nebraska educators as an online interim assessment tool, as well as incorporate a secure interim assessment that is predictive of student performance on the state summative assessment.

Secure, Predictive Interim Assessments

In developing the secure predictive interim assessment forms, the items used will be fully aligned with the Nebraska standards. In this proposed system, Nebraska students will be assessed on what they are being taught in their classrooms, with forms for each grade level and content area on the summative assessment. These secure interim assessments will be delivered

electronically on the proven DRC INSIGHT test engine and utilizing the same types of technology-enhanced (TE), automatically scored test items in use on the state summative assessment. In order to provide the fastest possible results on this predictive assessment, student constructed-response (i.e., text-dependent analysis) items will not be a part of this form design, and TE items will be used to assess student understanding across standards.

The secure, pre-structured interim assessments will be tied to the summative assessment and could utilize a combination of released items as well as those created by or for Nebraska specifically for this purpose. During the first year of the new contract, items can be written and field tested within the summative test specifically for this purpose, with the interim assessment forms available beginning in Year 2 (2018–2019 school year) for ELA and mathematics, and Year 3 (2019–2020) for science (in order to align to the new science standards). A key advantage is that these items are Nebraska-owned, generated, and aligned to Nebraska standards, and not part of a nationally utilized item pool aligned to a common set of standards.

As an option, should Nebraska desire an interim assessment that is computer adaptive, that goal can be achieved over time through the intentional development of items sufficient in number for that purpose. DRC is very familiar with computer adaptive (CAT) testing and would be pleased to work with the NDE in creating such an assessment for use with our adaptive testing engine. Additionally, as enough items are available, an option to create a second form of each test exists. The state might then decide to offer districts two administrations during the school year, each predictive of results on the summative assessment. One final option would be to work with the NDE and with the vendor for providing a Lexile measure, based on the results of the secure interim assessment. DRC would be happy to discuss these options and more with NDE upon contract award.

Table 4–26 represents the proposed development and deployment of the secure interim assessment, aligned with Nebraska's content development for phasing in new standards.

Table 4–26: Secure Interim Assessment Development Schedule

Content	Year 1	Year 2	Year 3	Years 4–5
ELA	Development of predictive fixed-form tests	First year of predictive fixed-form tests	Predictive fixed-form tests (same tests as year 2)	Predictive fixed-form tests (options for adding 2nd form or moving to CAT)
Math	Development of predictive fixed-form tests	First year of predictive fixed-form tests	Predictive fixed-form tests (same tests as year 2)	Predictive fixed-form tests (options for adding 2nd form or moving to CAT)
Science	Existing interim system (C4L)	Development of predictive fixed-form tests	First year of predictive fixed-form tests	Predictive fixed-form tests (same tests as year 3)

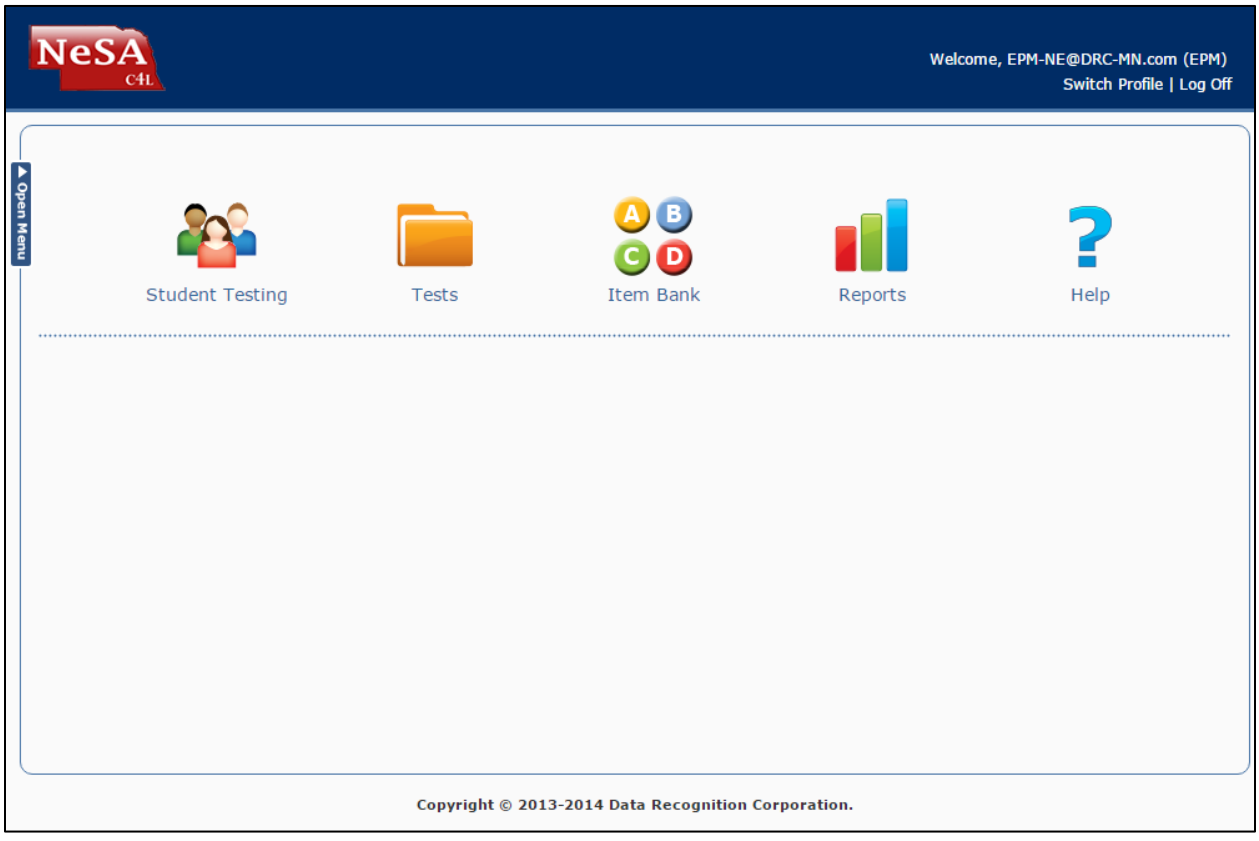
This secure, fixed-form interim assessment will be statistically predictive of student proficiency on the statewide summative assessment through a correlation study, to be conducted at the end of Year 1 of the new assessment program (later for science). Utilizing the sample provided through the initial administration, DRC will conduct this study, and provide and add the data for predicting student results. Depending on the range of participation, additional effort may be provided as needed in year 2 of the implementation of each assessment to ensure the best possible data set.

C4L Assessments

In addition to the new fixed-form, secure interim assessments, Nebraska's use of C4L under the next contract allows the state to continue to take advantage of the investment it has made in this tool, with Nebraska educators writing items fully aligned to Nebraska standards.

Working with NDE, DRC has delivered a C4L system to match the existing Nebraska statewide assessment system functionality via DRC INSIGHT (portal and testing engine). C4L is a classroom assessment system that 1) blends the process for developing, delivering and scoring standards-based, automatically scored assessments in a teacher-friendly interface, 2) displays reports that indicate student performance, and 3) provides feedback that supports data-driven instructional planning. The current C4L home page and menu of tools available to users is shown in Figure 4–67.

Figure 4–67: Current C4L Home Page



Nebraska educators have embraced implementation of the C4L assessment design work, as they are in control. As C4L users, educators maximize their professional choices to determine what to assess, when to assess it, and how to utilize the results in their classrooms. In the 2015–2016 school year, 387,921 Nebraska teacher-designed tests were taken online. These classroom assessments were administered to students across the state, drawn from over 10,847 teacher-created items in the item bank and 262 Nebraska-selected and aligned reading passages.

Figure 4–68: C4L Testing in 2015–2016

- 387,921 tests designed and delivered online by Nebraska teachers
- 10,847 teacher-created items in the item bank
- 262 Nebraska-selected and aligned reading passages

Teacher-Developed Items

C4L allows Nebraska teachers to create items used for formal and informal classroom-level assessment in English language arts, mathematics, and science. In the 2016–2017 school year, with the inclusion of new item types, C4L goes beyond the scope of traditional multiple-choice and takes advantage of technology enhancements to support Nebraska's implementation of revised standards. These technology-enhanced items (TEs) offer advantages over traditional assessment item types. They assess a range of depth-of-knowledge (DOK) levels through a variety of computer-based interactions. They help teachers pinpoint knowledge gaps and misconceptions in learning. Well-designed TEs can replace several multiple-choice questions, which can potentially reduce the time students spend taking tests.

DRC understands the importance that NDE places on professional development and assessment literacy. To this end, NDE holds yearly workshops where Nebraska teachers write items for inclusion in C4L. DRC is fully prepared to continue supporting NDE during these workshops assisting with materials preparation, as well as meeting co-facilitation.

Teacher-Created Tests

C4L provides user-friendly tools for teachers to develop tests customized to their needs. Figures 4–69 and 4–70 show some of the test building tools available to teachers.

Figure 4–69: Create a New Test

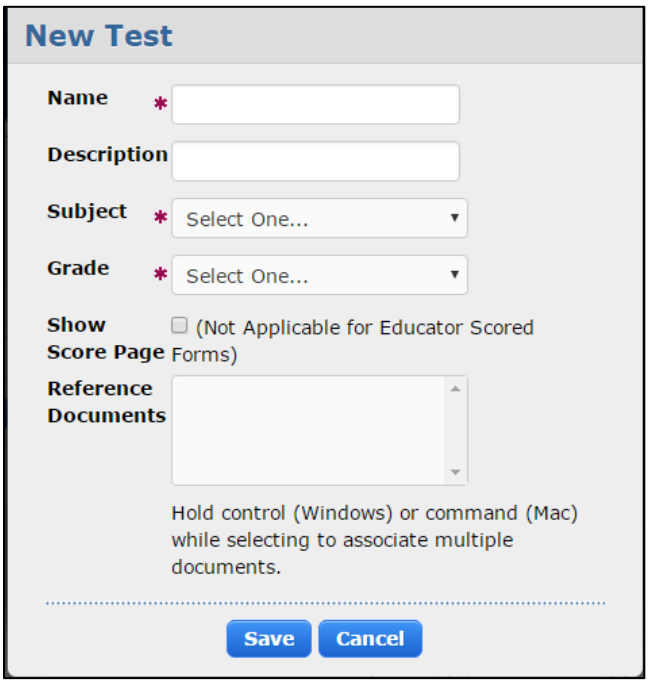
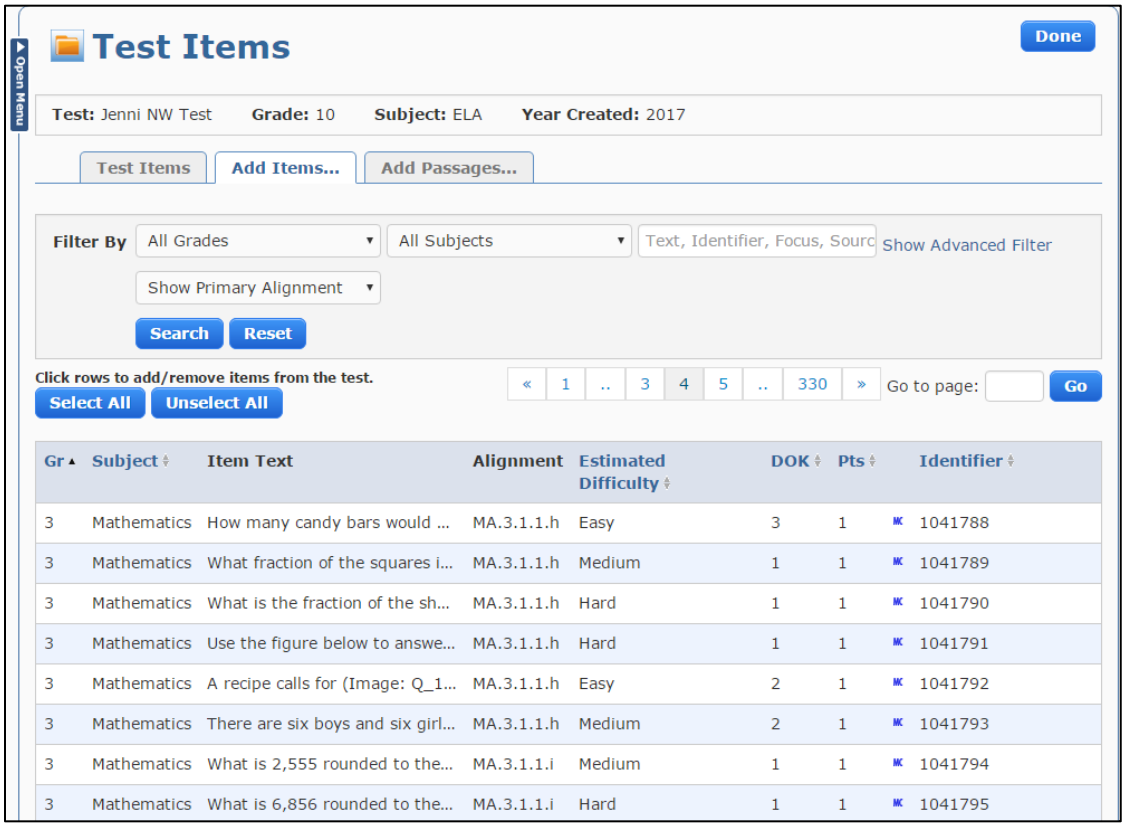


Figure 4–70: Add Items and Passages to a Test

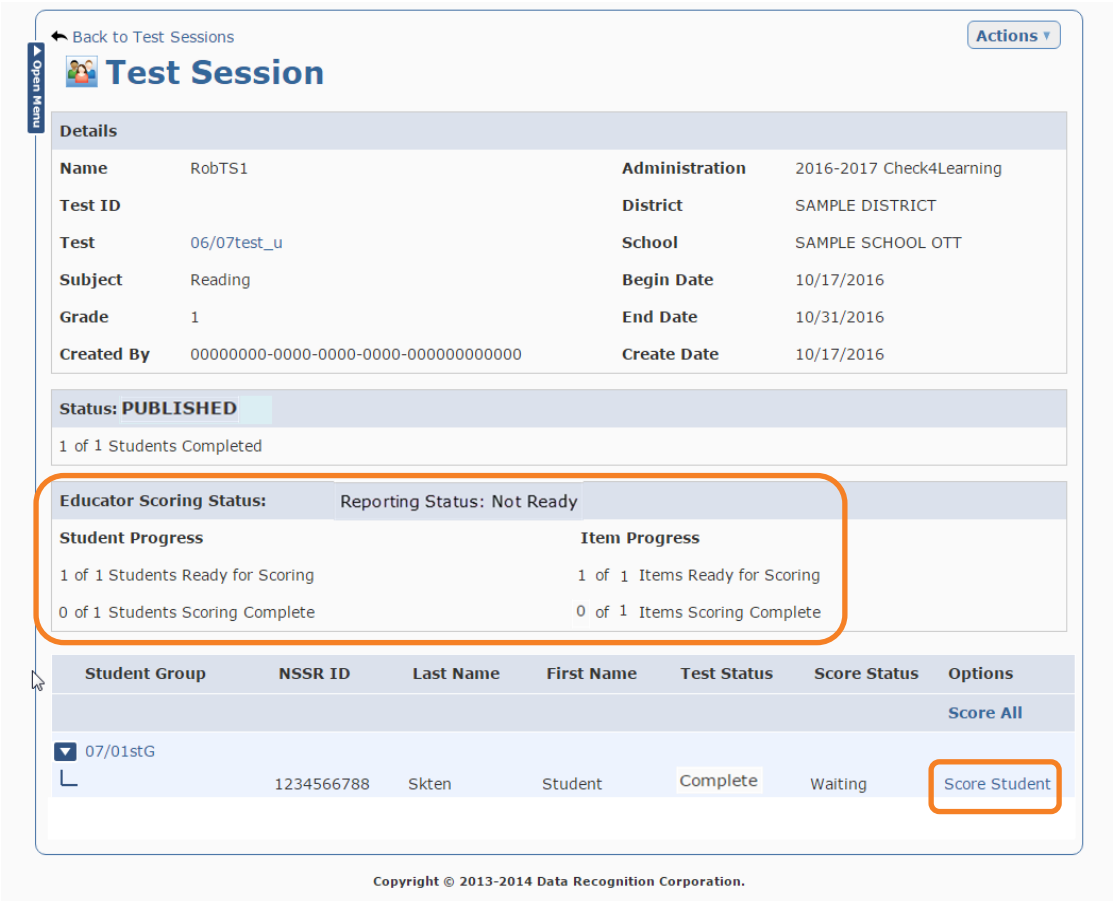


Although the focus of the C4L and interim assessment system is to mirror the online student experience, users can also print out paper versions of any test with multiple-choice items. DRC is also planning enhancements to allow for the printing of TE print-companion items. The interim system's online and printed tests will meet agreed upon guidelines for test design and style.

Teacher Scoring

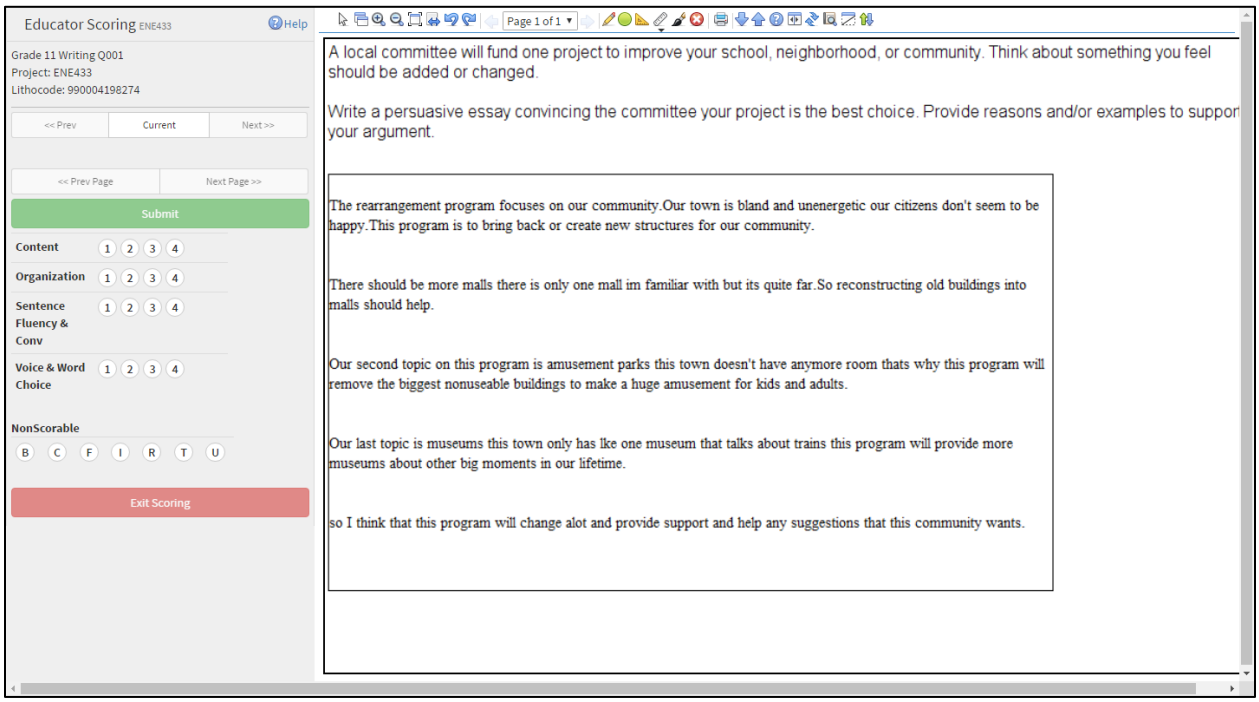
While the majority of items are auto-scored by the system, C4L provides an educator scoring tool for assessment items or prompts that are performance-based in their design, such as the text-dependent analysis (TDA) items. Once a student submits his or her test, the educator sees the student's updated testing status and notification that items are ready for teacher scoring in C4L (within 2 hours or less).

Figure 4–71: Test Session Scoring Status



The educator scoring interface provides the teacher with access to the rubric while they score the student's work. Once submitted, the score is added to any other score data associated with the student's test.

Figure 4–72: Educator Scoring Interface



C4L in 2017–2018 and Beyond

Under the new contract, DRC will provide a system comparable to the state's summative assessment in allowing students to practice with the tools and supports they will have available throughout the Nebraska statewide assessment system. DRC will continue with our current support of the C4L system, **continuing to add new item types and tools** (e.g., ruler, protractor) as they are available and in use in Nebraska. Teachers can create assessments that are engaging and prepare students for using these tools and supports. In addition, DRC proposes to next engineer the C4L system for the ability to utilize the functionalities in our IDEAS item development system, to assist educators and NDE personnel in **an item design, input, and editing process that is as seamless and independent of DRC staff as possible**.

The C4L assessment procedures employed by teachers *during* the learning process in order to inform instruction and monitor progress provide instructionally useful feedback for both student and teacher, focused on the alignment of content and performance. Nebraska classroom practitioners have increased their use of C4L and attention to interim assessment in the past several years, largely attributable to the professional development efforts of Nebraska and the impact this information has on instruction and on student learning. That has clearly spurred interest in how this important work of teachers can continue to be supported by the state as part of the comprehensive connections among classroom curriculum, instruction, and assessment.

b. Or the Interim system may be an off-the-shelf system that mirrors the statewide assessment system in design, technology, and tested standards.

DRC is proposing the Nebraska-specific C4L system. We believe this will benefit Nebraska educators and students more than an off-the-shelf system that may not be directly aligned with what is being taught in Nebraska classrooms. The C4L system mirrors the Nebraska summative assessment, as it works with DRC INSIGHT and provides Nebraska educators and students with an experience that mirrors the Nebraska statewide assessment system test program. The design, technology, and tested standards are replicated, and allow for multiple interactions over the course of the year that both support instruction in progress and prepare students for the summative environment.

c. In addition, the proposal should provide information for an interim system that provides items beyond those assessed in statewide testing.

In addition to the interim system components proposed above, DRC would be pleased to work with the NDE on an option to design items that go beyond those utilized within the summative statewide testing program. As examples, classroom performance tasks for math or science, including additional educator-scored constructed-response items, or the addition of speaking and listening items, are all additions that would provide new types of interim classroom performance information to stakeholders.

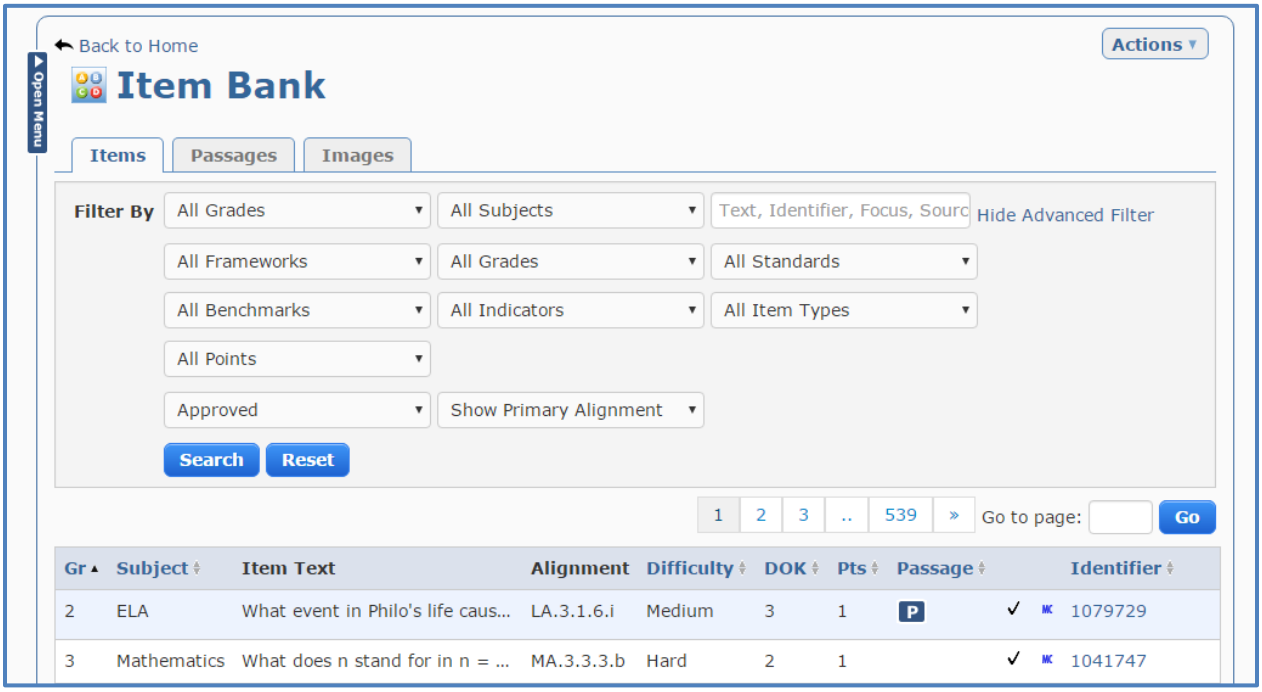
4. Item Bank

a. Each item in the bank must be searchable based on multiple criteria: content, grade level, framework, standard, benchmark, indicator, item status, and passage. Each item in the bank conveniently displays the following information: item ID, creation date, type of questions, subject, grade, DOK, difficulty, focus, aligned standard and what assessments that item is associated with. Each item has a field to allow users to provide feedback. Item display is designed to make it easy for teachers to construct assessments for their classroom. The item bank is accessible to NDE staff also. The proposal should describe a system that meets these requirements.

DRC currently supports the item bank with nearly 11,000 C4L items that have been developed by Nebraska educators. Items include a variety of searchable criteria and item information, including a field to leave feedback. Teachers access and view items in the system to construct assessments. DRC's C4L application currently allows teachers and NDE staff to access the C4L item bank.

Figure 4–73 shows the Advanced Filter in the Item Bank where users search for items using various combinations of criteria. Search results include several item characteristics for quick reference, and users may select individual items from the results to access the full set of metadata available for the items.

Figure 4–73: C4L Item Bank—Advanced Filter



Our system maintains each item exactly as it will be presented on the teacher-constructed test forms. Items are designed to be delivered via the DRC INSIGHT web-based test engine, with printing capability currently available for multiple-choice items. The C4L application offers an integrated Test Engine Preview, as well as the ability to render the item as a .pdf file.

DRC enhanced the C4L application in 2015–2016 to allow for categorization of items as approved, pending, or publishing to facilitate NDE management of new content coming into the item bank. Any imported or newly-constructed item loaded to the bank is placed in a pending status until NDE indicates the item is approved. NDE can control who has approval status and extend approval capability to multiple users. Additionally, DRC has just released the capability to categorize an item as retired for the 2016–2017 administration. Retired items would no longer be available for administration, but the system would maintain reporting data for any previous administration of the items.

NDE and teacher feedback on the C4L application is invaluable for DRC's ongoing development efforts. We look forward to continued collaboration with NDE and Nebraska educators on delivering item banking and test construction capabilities that provide directed assessment opportunities for students.

Expansion of Item Bank System

DRC recognizes the importance of enhancing the C4L applications as test designs and the DRC INSIGHT web-based test engine evolve over time, and we are committed to continuous improvement of the application.

DRC uploaded approximately 5,000 existing C4L multiple-choice items provided by NDE to the item bank in 2013–2014. Since then, DRC has supported the upload of nearly 6,000 additional items from NDE as new items are created by teachers. In 2014–2015, we added the capability to construct multiple-choice items directly in the C4L application in addition to the capability to upload items via templates.

In 2016–2017, we expanded the item bank system to provide for delivery of technology-enhanced ELA and mathematics items. While the technical effort involved in constructing and delivering technology-enhanced items requires direct effort on the part of DRC Test Development resources at this time, work is in progress to offer authoring capability for these additional items types directly in the C4L application starting in the 2018–2019 contract year.

b. If the proposal includes use of current items for the interim system, the proposal should describe a process to move current items from the current system to a new one without the loss of any content or additional work on the part of NDE and state educators.

This is not applicable as DRC currently houses all items for the C4L system.

5. Ancillary Materials for Interim System

a. The interim system must include online (only) manuals for different levels of users that describe how to use the system and information about all aspects of the system. The proposal should describe how the Contractor will meet this requirement.

DRC has developed customized, comprehensive ancillary materials for C4L that target the needs of the various users who will access the system. DRC currently offers separate guides for teachers, district and school users, and state users, and we welcome the opportunity to discuss the format and content of manuals with NDE before each administration.

Teacher User Guides and School and District User Guides fully detail all aspects of delivering assessments, including step-by-step instructions for accessing the system, uploading/adding student and class information, selecting items and building forms, administering the assessment in DRC INSIGHT, and accessing reports. The State User Guide, in addition, covers system administrative capabilities that are typically reserved for NDE. DRC posts the manuals in the Help section of the C4L application in downloadable PDF format and provides files for posting on NDE websites.

b. The system must include a Frequently Asked Questions (FAQ) that is regularly revised and updated with new questions and answers supplied by NDE. The FAQ is accessible through the interim data management system. The proposal should describe how it will meet this requirement.

DRC has worked with NDE to establish and maintain a Frequently Asked Questions (FAQ) for C4L. We understand that NDE provides new questions and answers to update the FAQ on a regular basis. DRC posts the FAQ electronically in the Help section of the C4L application in

downloadable PDF format and provides files for posting on NDE websites for ease-of-access by all C4L system users.

6. Reporting of Results and Communicating Meaning of Results of Interim System

a. The system must generate on-demand reports for each administered test to aid teachers to use results to inform instruction. All reports are delivered in web- based format and districts are able to print reports and export the data from the reports into a spreadsheet or database. The proposal must include a detailed description of a proposed method for web-based reporting that provides easy access to results while ensuring security and confidentiality. Reports should include:

i. Results will be available to students at end of test session. Test administrators should be able to control this feature based on their needs.

ii. Reports so individual student data can be tracked throughout the year.

iii. Individual student-level results at the classroom level that include item-level results, indicator (subscore) results and score distribution.

iv. Results on individual students that are linked from year-to-year so educators can view student results from past years.

v. Aggregated and disaggregated data at classroom, school, and district levels.

The interim assessment system is able to generate on-demand reports in web-based formats for educators that will support instruction as well as programmatic review. Teachers and their administrators can use the results of these assessments to plan for instruction and personalize student experiences.

The secure interim assessment solution and DRC's proposed test design include automated scoring for all student responses. This solution will enable quick turnaround for student scores and reports. All items used on the secure interim assessment will be multiple-choice or technology-enhanced, and as such are auto-scorable. All multiple-choice and TE types teachers select for use on a C4L test are also auto-scorable. The text-dependent analysis items that educators elect to utilize in the C4L system are quickly ready for educator scoring of student written responses, and those scores are then combined with any additional items on the assessment for a total score.

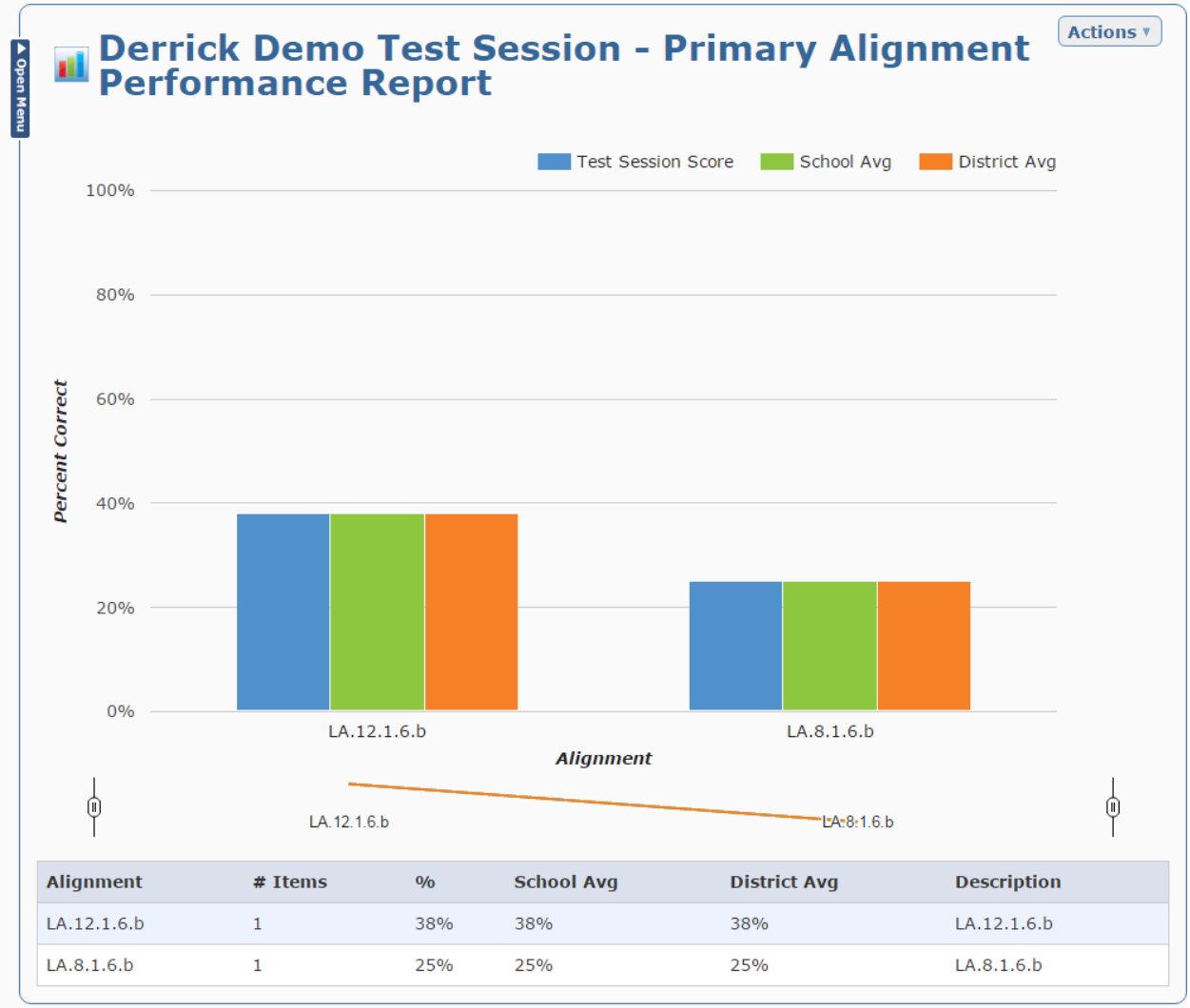
Static reports can be designed to reflect the item-level results, indicator results, and score distributions. Longitudinal student results can also be accessed for year-to-year comparisons as well as tracking growth throughout a school year. Figure 4–74 below shows a full list of reports that are currently available for C4L tests, along with a description of each report.

Figure 4–74: Check4Learning Report Categories and Descriptions

Category	Report	Description
District Performance Details By Test	*District Performance*	Compares each school's average scores for the test to the district average.
School Performance Details By Test	*School Performance*	Compares each test session's average score to the school and district averages.
Test Session Detailed Reporting	*Alignment Performance*	Indicates how well each test session aligned to the school and district averages.
	Item Performance	Indicates, by percentage of test takers, the difficulty of an item, from hardest to easiest.
	Score	Indicates the current high, average, and low scores and the number of students who have completed the test.
	Score Distribution	Indicates the number of students who fell within the following test score percentages: 0–59, 60–69, 70–79, 80–89, and 90–100 for each test.
	Student	Indicates how the selected student performed on each item in the test, and compares the student's overall results to the school and district averages.
	Test Session by User	Provides details for all tests sessions for a specified user within the selected parameters.
Test Creation Statistics	*Test Creation Statistics*	Provides details for all tests created within the selected parameters of date range, district, school, subject, and grade.
Test Session Usage Statistics	*Test Session Usage Statistics*	Provides details for all test sessions created within the selected parameters of date range, district, school, subject, and grade, and includes both started and completed tickets.
Item Details	*Item Details*	Provides details for all items within the selected parameters of date range, district, school, subject, and grade. The date range is used to collect completed test statistics specific to each item.
	Student Testing Details	Provides details about student testing results within the specified parameters. The date range is used to collect completed test statistics specific to the student.
Comment	*Comment*	Provides details about all comments created within the specified date range.

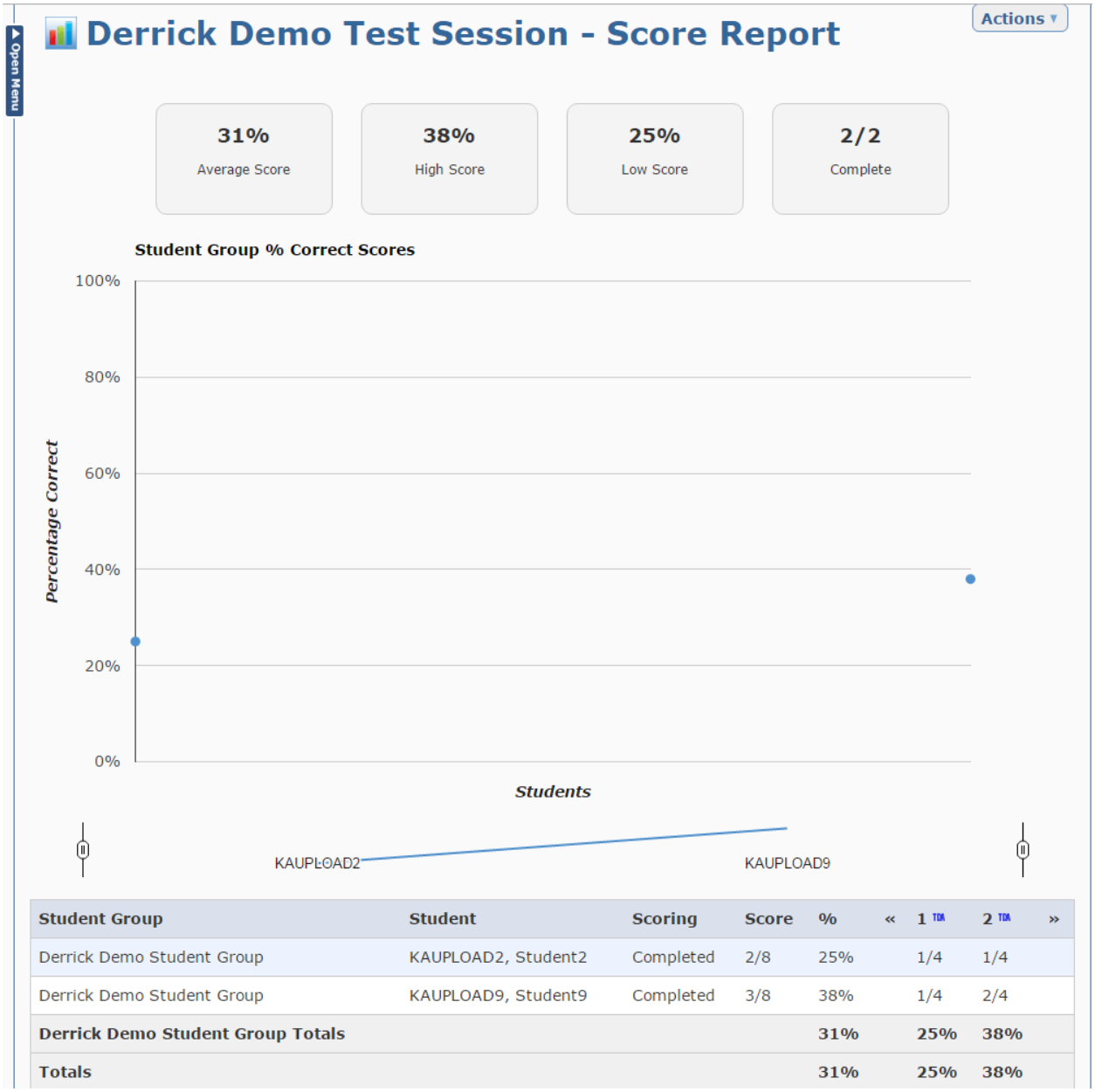
Examples of two of the current C4L reports are shown in Figures 4–75 and 4–76.

Figure 4–75: Sample Primary Alignment Performance Report



Alignment	# Items	%	School Avg	District Avg	Description
LA.12.1.6.b	1	38%	38%	38%	LA.12.1.6.b
LA.8.1.6.b	1	25%	25%	25%	LA.8.1.6.b

Figure 4–76: Sample Score Report



Student Group	Student	Scoring	Score	%	«	1 TDA	2 TDA	»
Derrick Demo Student Group	KAUPLOAD2, Student2	Completed	2/8	25%		1/4	1/4	
Derrick Demo Student Group	KAUPLOAD9, Student9	Completed	3/8	38%		1/4	2/4	
Derrick Demo Student Group Totals				**31%**		**25%**	**38%**	
Totals				**31%**		**25%**	**38%**	

The DRC Dynamic Reporting System is a data warehousing solution capable of interfacing with other data systems for storing and accessing student and test data in an interactive manner (for more information, please see *subheading H.1.g*). Results are available as soon as they are scored, and students may view according to the district and test administrator's set-up. The educator can create usable reports, utilizing actionable data that instructors can use to design interventions and make other academic decisions to fully support the needs of their students. DRC is pleased to present the dynamic reporting system as an option under the new contract; costs are included in our Cost Proposal.

b. The system should provide all data from the interim system in a usable format to NDE in order for the department to provide leadership in student learning of state standards. The system must have the ability to integrate or interface with an Ed-Fi REST API and optionally produce Ed-Fi XML. In addition, Contractor should list any integrations with other common systems. Contractor must commit to supporting native integration via the Nebraska Education Data Standard (NEDS), which is the State's extensions to the Ed-Fi REST API and optionally Ed-Fi XML. Updates to NEDS will be published by the NDE by January 31 of each calendar year. Contractor must commit to continuing to support annual updates to NEDS by June, 30 of each calendar year. The NEDS are also aligned with Common Education Data Standards (CEDS) available at ceds.ed.gov. For more detailed information on NEDS and the ADVISER system, see: https://sites.google.com/a/education.ne.gov/nde-adviser-Contractor-resources/.

DRC is prepared to use the Ed-Fi REST API to provide data in a format usable to NDE. Please see *Subheading H.1.h* for more information on this topic.

Authorized users will access C4L and secure interim assessment reports on-demand, and will have the ability to print hard copy reports and export data into a spreadsheet or database.

c. The proposal must describe how district and school staff will be able to securely access web-based reports and data immediately after an assessment administration.

The DRC INSIGHT portal will be the point of entry for all district and school staff access to DRC systems. As with other functions of the portal described earlier in our proposal, access is secure and permissions-based. An advantage of the DRC interim assessment solution for Nebraska educators is the fully integrated nature of the systems for their use, with a single and familiar point of entry. Since our secure system requires each user to enter their unique user ID and password to ensure confidentiality, teachers will have the ability to access this information at any time and from anywhere to support instructional planning.

d. All reporting should be scalable from classroom to state level for effective use. The reports should include a hierarchal structure that allows all users at higher levels to view and interact with reporting from lower levels. Levels should minimally include: teacher, school, district, and state. School level users should be able to view and interact with all associated reports at the teacher level. District users should be able to view and interact with all associated reports at the teacher and school levels. State level users should be able to view and interact with all reports from the other levels.

The levels of permission that can be assigned to ensure access to the DRC INSIGHT portal for all other functions may also be assigned as an element of access to various reports. Scalable reports within a configurable hierarchical structure can allow users to view and interact with reports from across the hierarchy, according to the types of access desired by Nebraska.

e. The proposed system should be able to expand to additional content areas and types of questions. The proposal should include an option for such expansion and costs for each or an off-the-shelf solution.

In addition to the interim system components proposed above, DRC would be pleased to work with the NDE to discuss this option, should you elect to develop additional types of items for interim use. In addition to items that go beyond those types utilized within the summative statewide testing program, such as classroom performance tasks for math or science, we are able to expand the areas of content to be addressed.

f. NDE expects the system to be coupled with professional development that provides information and promotes collaboration in use of interim assessment to improve student learning.

DRC is pleased to offer professional development sessions that help educators to better understand, interpret, and apply assessment results, including how to use the data from the assessments to inform and strengthen instruction, as individual teachers, teams, sites and districts collaborate to do so. Please see the following section of our proposal, under *Subheading K* for a more detailed description of our proposed offering. As NDE plans with DRC for a comprehensive professional development scope of work, we will ensure that the following activities are carried out for all sessions, including for online training workshops:

- Obtain approval for all training materials
- Schedule and procure workshop sites, approved by NDE
- Post training schedules on the NDE website
- Coordinate both advance and on-site registration
- Prepare and produce workshop materials for participants
- Register/record workshop participants
- Coordinate with NDE prior to and during workshops

g. The system has interpretive materials for parents and schools/districts. The interpretive materials are provided in web-based format for posting on the NDE website. The proposal must include a description of the type of information to be included in such materials and methods to increase the usefulness of such materials.

DRC will provide interpretative materials to support the ability of parents and schools/districts to both understand and make appropriate use of the results of interim assessments. Once a score or student report is received, parents and schools/districts will be able to go to the NDE website to access these resources, posted in web-based formats. These interpretative materials can be used for a variety of purposes, from a parent who wants to understand a score or report

and what that might mean for their student, to a superintendent wishing to inform school board discussions. The type of information to be included may include such considerations as:

- What the test covers, including alignment to Nebraska content expectations
- Information regarding item types
- Information regarding scoring
- What scores mean, including the precision of the scores
- Appropriate use of the information
- Common misconceptions surrounding the information

Such materials may assist in communicating the benefit and value of time invested in the interim assessment as well as the specifics associated with these points.

Additionally, more-technical reports can also be associated with the interim assessments, including topics such as:

- Test design
- Interpretation and use of results
- Scoring
- Validity/reliability

K. ADDITIONAL COMPONENTS TO BUILD STRENGTH OF COMMUNICATION AND EFFECTIVENESS OF ASSESSMENT SYSTEM

1. Professional Development/Assessment Literacy/Formative Assessment

a. NDE expects the Contractor to provide a plan for systematic and systemic professional development associated with assessment literacy that starts with the results of state testing and incorporates information and results from the interim system, but expands beyond those to include student-centered learning, strong local formative assessment practices, and support for districts in developing systematic approaches for the use of assessment to improve student learning.

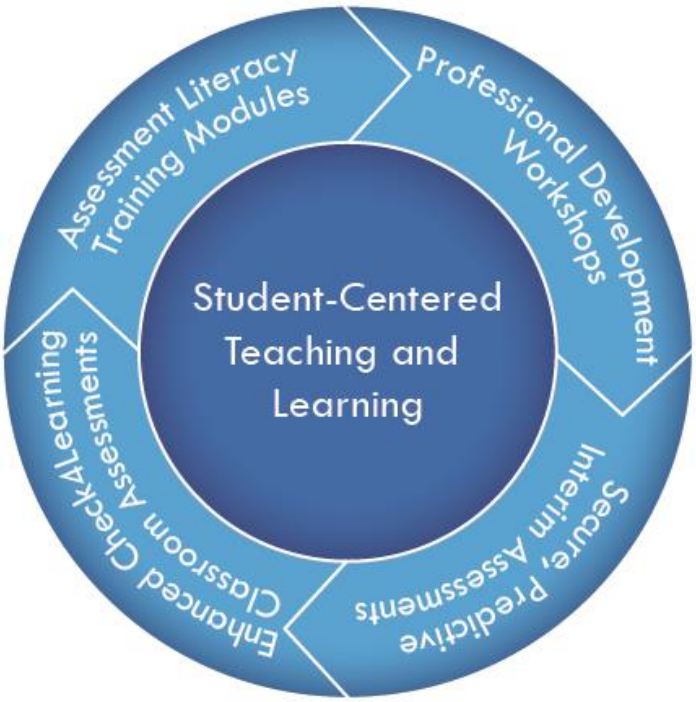
Introduction

DRC believes that professional development is an essential component to an effective assessment system. We fully support the involvement of teachers in the development and administration of assessments and the reporting and use of assessment results. Professional development for those closest to the classroom benefits not only the teachers' learning, but also the student results.

DRC is aware of the many things that Nebraska has done to update its assessment system, including standards revision, additional professional development, and new item development. DRC is also aware of the rich Nebraska history that remains: the importance of teacher involvement, assessment literacy, and the use of formative/classroom assessment. Certainly Nebraska has invested heavily in its teachers as the key to success in classrooms and the curriculum, instruction, and assessment process. Nebraska has supported teachers and has impacted classroom teaching and learning through offering training in item development, scoring processes, and data analysis. This is an important process involving teachers throughout the system, across all subject areas, and all data sets, including state test results, interim assessment results, and formative practices.

DRC is one of the few companies in the industry that has partnered with states in these very important processes. We understand and appreciate the value in this philosophy and approach. Our proposed plan is outlined in Figure 4–77. We would love to partner with Nebraska in taking these important next steps.

Figure 4–77: DRC's Plan for Professional Development/Assessment Literacy/Formative Assessment



Dr. Pat Roschewski will serve as DRC's **Professional Development Advisor,** leveraging her Nebraska-specific knowledge and experience, as well as her national expertise, to oversee the development of DRC's professional development offerings. Dr. Roschewski will be supported by experienced staff from DRC's test development, performance assessment, research and psychometrics, project management, marketing communications, and technology teams.

b. The professional development will support the notion of summative testing as it balances with local assessment systems to promote effective assessments habits and the knowledge that all assessments should measure learning that different assessments have different uses, and that curriculum, instruction, and assessment are the trifold support of student learning as they all relate to assessment literacy.

Although the state summative assessment results provide the greatest visibility, as Nebraska has clearly outlined in their new AQuESTT accountability system, these data are only one component of a balanced assessment system. Each assessment, whether the state summative test, the interim assessment, or classroom formative tools and practices, combines to create that balanced system and each is critical in its contribution. Each tool has a different purpose, yields unique and useful data, and provides a specific view into the overall picture of student growth and performance.

The first step in assessment literacy, as Nebraska knows, is for educators to understand each tool, its purpose, and its contribution to the overall balance and profile of student achievement. Each tool is important and does not stand alone. Additionally, it is critical for the users of the assessment to understand what the evidence from the assessment means and how it can

support instruction. Assessment literacy will contribute important understanding to each stakeholder: students and parents, teachers, administrators, and policy makers. Each tool—classroom formative, practice, interim assessment, and state assessment—contributes to measuring each student's learning and growth, and it is important that each stakeholder understands that.

Assessment Literacy Training Modules

Teachers in Nebraska have access to an abundance of robust assessment data, including but not limited to data from the statewide summative assessments and classroom-based assessments. In other words, teachers have no lack of quality assessment data. Unfortunately, research indicates that teachers too often lack the resources to put these data to use in driving instructional decisions and taking the next steps in an intentional and effective instructional sequence. Before teachers and other educators can authentically utilize assessment data, they need a solid foundation of assessment literacy.

One of the contributions that DRC can provide is a **series of online Assessment Literacy training modules**. These modules would begin with outlining the differences in the assessment tools, their purposes, and their data contributions, and then continuing on to additional modules that would explain the use of rubrics, technology-enhanced items, and data analysis tools. These training modules (up to five modules total) will be prepared in such a way that they are easily accessed on-demand, and are jargon-free and easy-to understand. The modules will be **housed in a convenient online delivery system** so that they can be used one-on-one by teachers or be used within schools and districts for professional development workshops. Additionally, DRC would be pleased to discuss with the NDE the option for administrators to "track" the participants who access the modules.

c. The professional development must include support for classroom formative assessment with a primary focus on grade level, classroom-level formative assessment pieces with support for educators in developing rubrics for evaluating these assessments.

Classroom formative assessment practices, rubrics, and tools yield data that are critical to day-to-day planning and instructional practice. Teachers employ a range of formal and informal procedures in their classrooms that guide teaching and learning activities as the school year progresses.

Nebraska's Check4Learning (C4L) system has become an important part of the formative processes in the classroom, in addition to providing diagnostic information in advance of the annual summative assessments. C4L's versatility allows targeted practice on specific Nebraska Standards and Indicators, but more broadly it provides teachers and students with an opportunity to not only see questions that cover what they are expected to know and understand in each grade, but also to experience different ways that information learned in the classroom may be assessed.

Teachers can prepare tests or quizzes directed at the part of the curriculum they're covering in their classrooms, or they can use C4L to check students' grasp of material they plan to cover next to determine where best to invest their instructional time. Results from teacher-created C4L tests, the newly proposed predictive interim tests, and annual summative tests can be used in conjunction to identify areas where students may need additional instruction or practice; then C4L tests can be used in the classroom again to check students' progress toward learning the skills and knowledge defined in the Standards.

Once a teacher understands the data provided by formative practice—what it is that students can or cannot do, have or have not mastered—the teacher can adjust instruction accordingly. Sometimes the data are formal, sometimes more informal. DRC has had the opportunity to work with Nebraska teachers on many occasions over the last several years and believes that Nebraska educators are ready for next steps.

Professional Development Workshops

Through the last several years DRC has had the opportunity to provide training onsite with Nebraska educators in item development, handscoring, rubric development, text-dependent analysis, and the foundational skills of good learning measurement. DRC is now proposing to go the "next step" to provide **new and additional professional support workshops that would take Nebraska educators in the direction of extended learning and evidence analysis**. Nebraska educators are poised for these next steps, and DRC would be pleased to offer this extended training to best serve the state's educators.

DRC's proposal includes DRC **preparation and travel for annual, onsite, one-day workshops in six (6) regional locations within the state**. The topic for the workshops could change each year, based on the topics described herein and through collaboration with NDE. Participants in the workshops will be able to download presentation materials and links to research and other resources that they will be able to utilize themselves and share with their peers. Additionally, the workshops could be recorded and posted to the DRC and/or state websites for use on-demand.

Some of the possible workshop topics are discussed below. DRC welcomes the opportunity to work with NDE on the development of these and other workshops and discuss with NDE how they can be best offered and organized for maximum benefit.

Rubric Development and Analysis

This extended "next steps" professional development includes workshops that provide rubric development training for new item types, such as Evidence-Based Design items, and an analysis of the data that can be tied to instructional decision-making. These next steps will offer teachers the opportunity to learn strategies that greatly impact their classrooms and students. Once educators understand the expectations for student performance inherent in the tasks and the resulting evidence, they will understand the required skills needed to be taught and next instructional steps to take. Educators, then, will have the opportunity to discuss collaboratively which instructional practices are important next steps toward improving the student

performance on the identified item types. These analysis workshops are a natural step toward building the bridge to instructional enhancements.

Interpretation and Use of Assessment Results

Professional development on the interpretation of test data will help Nebraska educators better understand assessment results, including how to use the data from the assessments to inform and strengthen instruction. This workshop would explain and discuss the critical elements of the score reports, discuss possible strategies for employing the results to enhance instruction, and provide tips and guidelines for explaining results to parents.

DRC has provided similar workshops with great success in other states. The audience is provided with:

- A basic discussion on psychometrics,
- Information on use and interpretation of score reports, and
- A half-hour available for questions from the audience.

The workshop allows participants to analyze data at the classroom, school, or district level as appropriate to identify instructional strengths and needs. Workshop participants could meet in small groups to share their findings and to brainstorm strategies to guide instructional improvements at the local level. With the information from the workshop and the interaction with other Nebraska teachers, the participants will acquire new tools to appropriately and effectively use the assessment to enhance classroom instruction.

DRC proposes that this workshop focus on psychometric-related topics related to results reporting. Possible topics include:

- What is a scale score?
- Where did we get the performance levels?
- What does the scale score say about this student's status?
- Is this consistent with what I know about this student?
- Does the reported performance level accurately describe this student?
- How did this student perform compared to his/her peers?
- How is college and career readiness determined?
- What is a growth measure?
- When the subscale performances differ, what do I tell the parents?
- Where should I go next with this student?

- Are there specific knowledge, skills, and abilities where my students are especially strong or weak?

DRC would be excited to collaborate with NDE on the development of these score interpretation workshops, and believe that they would be very well-received by Nebraska educators, as they have been in other DRC client states.

Aligning Curriculum, Instruction, and Assessment

Research indicates that teachers are often adept at making general inferences regarding students' current levels of performance, but may lack the information to use such performance determinations in making decisions about instructional interventions or next instructional steps to improve student learning. For teachers to make responsive instructional decisions and provide interventions based upon assessment data, teachers need **strong and ongoing professional development regarding the alignment of curriculum, instruction, and assessment**. These professional development sessions would complement and build upon the previous score interpretation sessions by providing educators with the knowledge and skills to make data-driven instructional decisions targeted to student learning needs. Sessions would focus on aligning teaching strategies with student performance strengths and areas of need, and support the use of **evidenced-based strategies to help teachers plan for instruction**. By using the information available from that state's many assessment types, teachers will be able to determine effective instructional strategies that point students towards mastery of critical skills for attainment of proficiency in a content area.

d. In responses to the Evidence Based Analysis for the assessment tenet, an AQuESTT survey that was conducted in fall 2015, district leaders indicated a high need for support to schools/districts for systemic and systematic approaches to formative assessment and the desire for good professional development around assessment. NDE not only requests information pertaining to an interim system in this RFP, but also one that is coupled with strong professional development in order to engender assessment literacy and place the right emphasis/perspective on state summative tests.

Classroom Assessment with Check4Learning

Many states recognize the importance of an interim assessment system but are not able to invest in such a system; however, Nebraska was one of the states that not only recognized the importance of providing teachers with tools to monitor learning in their classrooms throughout the school year but actually developed such a system early on. Check4Learning (C4L) was developed by NDE in 2010 and was offered cost-free to all school districts to be used to monitor learning throughout the year and to collect classroom data that could contribute to a district approach to a balanced assessment system—a system that included more than just a summative test once a year. In the 2015–2016 school year, Nebraska teachers administered nearly 388,000 C4L tests.

The current C4L system offers teachers the opportunity to select from the state's item bank, build assessments and embed those assessment experiences into the classroom curriculum

planning and learning experiences. The teacher has the flexibility to build large or small assessments, match units, and structure the offerings in the way most appropriate for the respective classroom, school, or district curriculum.

Nebraska's C4L system is administered on the DRC INSIGHT engine, an advantage to students, teachers, and administrators because the state summative test is also offered on the same platform. In this way, efficiency is provided in software installation; teachers are familiar with the system and administrative tools, and the students are well prepared to access and use the same engine, format, and test-taking tools. Another advantage to Nebraska students is that the state has offered C4L to all districts, and Nebraska has provided equity for all students. The interim C4L assessment opportunity is not limited to only those districts that can afford it; it is available to all.

DRC is committed to ongoing updates and enhancements to Nebraska's C4L system and is proposing several new features. As new technology-enhanced items (TEI) have been added to the summative tests in ELA and mathematics, C4L has kept pace by offering delivery of these additional item types to students. This provides students and teachers with essential opportunities to familiarize themselves with these more-rigorous item types and to more fully prepare for new expectations throughout the year.

Setup of the TEI items has required direct DRC support, but we recognize NDE's desire to be self-sufficient in the creation of all items in the item bank. **DRC is currently developing the capability for TEI item construction directly in the C4L application to meet this expectation by the 2018–2019 school year.** This provides greater flexibility for educators to develop items without the level of involvement from DRC staff that is required today.

We also implemented educator scoring capabilities for text-dependent analysis items that were added for 2016–2017, and a number of enhancements are under consideration based on feedback from NDE and users that are designed to increase flexibility for printing and scoring papers offline.

As another new feature for NDE's consideration, **DRC is also pleased to offer an option for using DRC's dynamic reporting system to view a student's C4L performance data across years**. Tracking individual student data that is linked both within and across years is an important component of making the best use of ongoing classroom assessment. This longitudinal look allows educators to better understand a student's learning profile over time to personalize learning. This option would also be available in Year 2 of the program.

Predictive Interim Assessments

DRC's third proposed enhancement is to provide ready-made, **secure interim tests in each grade level and subject area that are predictive of student performance on the summative assessment**. This would allow teachers the opportunity to select "already developed" interim tests to be given in addition to building their own tests. Because the tests would need to remain secure, they would not be able to be printed, but would be available for use at the classroom

teacher or school's discretion. These tests would contribute an additional data source to the balanced assessment data collection.

More information on our proposed interim assessments, including C4L and the secure predictive interims, was provided previously under *Subheading J*.

Professional Development for the Classroom/Interim Components

To support teacher implementation of the C4L and interim assessments, DRC will include **professional development sessions focused on the interim components** as part of our in-state workshops described earlier. These sessions will promote assessment literacy as it relates to interim and classroom formative assessment and provide context for how these components should be viewed and utilized in relation to the state summative tests.

e. NDE expects the Contractor to include in-person training and effective online training modules that support the in-person professional development with possible inclusion of a method for state and district administrators to track educators' participation.

DRC agrees that additional and enhanced professional development, both in-person and online, as well as a method for tracking participation would be very helpful to Nebraska. We stand ready, as outlined in previous paragraphs, to provide that in a high-quality way. Such a system allows for planning and differentiating the professional development options that will best assist Nebraska educators.

f. NDE expects the Contractor to propose a solution for collaboration between the Contractor and NDE to provide a professional development component of Nebraska's assessment system.

Nebraska and DRC have had a history of strong collaboration throughout the last eight years, and DRC would be delighted to continue to extend that partnership as part of the professional development offering.

2. Branding of State Test

The current logo/brand for the state testing program is:

NeSA was developed to represent "Nebraska State Accountability." Nebraska now has a full accountability system, Accountability for a Quality Education, Today and Tomorrow (AQuESTT). NDE requests that, in responding to this RFP, the Contractor show capacity and experience in order to develop an assessment name that aligns with the vision of Assessment within AQuESTT, available at www.aquestt.com. Coordination with the NDE Communications office is required. NDE expects the Contractor to propose a solution for collaboration between the Contractor and NDE to provide this component of Nebraska's assessment system.

DRC is uniquely qualified to help NDE develop, design, and execute a brand strategy under the umbrella of the AQuESTT, coordinating closely with the NDE communications office. DRC's brand development is much more than just creating a logo for a state client's specific assessment. We would first coordinate with the NDE Communication Office and other NDE staff to understand, define, and articulate a brand strategy that aligns with the vision of assessment within the umbrella of AQuESTT. We would make sure that any assessment name and logo designed would reflect AQuESTT's overall brand strategy.

DRC's team of in-house marketing communications experts and graphic designers have years of experience conceiving, designing, and producing logos and comprehensive brand identity systems for our state clients. We can build a brand hierarchy for Nebraska's assessment system by creating logo templates, standards, and guidelines, and are also able to provide directions.

Our astute understanding of how logo design can affect different types of target audiences will help ensure your message will resonate with Nebraska's key stakeholders.

DRC is ready to work with NDE to use the following tactics to build and develop an assessment name that aligns with the vision of assessment under the umbrella of AQuESTT.

Figure 4–78: Tactics for Building and Developing an Assessment Name

- Name ideation
- Focus group with key stakeholders in Nebraska on the naming options
- Visual identity/logo design and development
- Brand positioning and communications planning
- Brand standards guidelines/manual

DRC is also ready to also help NDE build awareness and brand equity in the lead-up, launch and post-launch of its new assessment system.

- **Backgrounder Media Interviews—**These conversations would be embargoed interviews in the days leading up to the new assessment announcement with key media in Nebraska. The exclusivity of hearing about the new Nebraska assessment program before it's officially announced will be the primary media angle at this stage.
- **Name Announcement Strategy—**The DRC team would take the lead on drafting a press release that highlights goals and features of the new assessment, and provide more background about NDE's overall vision. The new press release could also be an appropriate catalyst for bylined articles that we will aim to place in key Nebraska publications (to be identified) to show thought leadership in assessment. All media engagement would be done in collaboration with NDE.
- **Ongoing Social Media and Digital Counsel—**We will provide support in drafting social media content that complements the new press release for use in NDE's social media channels, parent blogs, and other digital media.

Below are links to a few samples of our brand development work for other state clients.

- South Carolina: SC READY Assessments
- Pennsylvania: aligned system of assessments including Classroom Diagnostic Tools, Pennsylvania System of School Assessments, and Pennsylvania Keystone Exams

3. Strong Communication Materials/Public Relations

a. NDE expects strong communication to be built around its assessment system, such as brochures written succinctly and accessibly for parents, students, patrons, and schools.

DRC has the expertise as well as a proven history of creating customized key messages, brochures, and other communications vehicles that inform Nebraska's key stakeholders about the new assessments, from students to parents to administrators to local and state government representatives. Here are some examples of our work in other large states for your preview:

- South Carolina: Parent/Guardian Informational Brochure
- Pennsylvania: Report Interpretation Guides
- Pennsylvania: Program Overview

b. Deeper documents are also requested that include topics on the rationale of state testing, ways that state testing can improve student learning, ways that state testing can support strong classroom instructional practices, explanation of a balance between state testing to improve student learning and for use in accountability, communication of the limitations of statewide summative assessment, and support of a balanced assessment.

As part of the broader communication branding plan to be built around NDE assessment system, DRC will work with the state to create a NDE informational assessment website. DRC will create the written information to be posted on the NDE website to include approved logo/test name.

The newly developed information will provide an in-depth and thoughtful explanation of the topics outlined in Figure 4–79.

Figure 4–79: Written Information

Newly developed information will provide an in-depth and thoughtful understanding of:

- A strong rationale of state testing.
- Proven ways that state testing can be used to improve student learning.
- Proven ways that state testing can be used to support strong classroom instructional practices.
- Communication of the advantages and limitations of statewide summative assessment.
- Why State's use and support a balanced assessment system.

These five topics will form the Menu for the website, but the site will also include an Introduction Section and Related Research/Reference Section.

This site would be developed as an informational website for Nebraska educators and the general public. All information to be accepted for this site will be written with the state stakeholders in mind, researched to include the most current national thinking/research, branded accordingly, and approved by NDE.

c. NDE would be open of a description of services to include communication about state summative test scores in relation to at-risk students.

DRC would develop the following services to further communicate the purpose and the goals of the state summative test with regard to the identification academically at-risk students.

DRC will recommend research questions to be studied related to topics such as:

- Instructionally supportive inquiries,
- Comparative or predictive analyses, and
- Positive score/gain outliers that may suggest promising practice as these topics relate to academically at-risk student data.

Once completed, any NDE approved research and its findings should contribute to the state conversation and communication about state summative test scores in relation to at-risk students, as well as contribute to the national discussion.

d. NDE expects the communications to be developed specifically for Nebraska school districts, students, and patrons. NDE expects the Contractor to propose a solution for collaboration between the Contractor and NDE to provide this component of Nebraska's assessment system.

DRC has supported several of our clients in the development of communications to inform parents, students, staff, and the public about the state's testing program. Our in-house marketing communications team can support NDE with communications that are developed specifically for Nebraska school districts, students, and stakeholders.

Below, we provide more information and examples of some of the communications we have developed for our state clients.

- **Focus Groups.** DRC has conducted numerous focus groups for our state clients, facilitating successful groups with students, parents, and educators to solicit feedback on student reports and student interfaces.
  - Pennsylvania: Report Design Focus Groups with parents
  - Nebraska, Pennsylvania, Minnesota, and South Carolina: iPad Usability Studies with students and teachers
- **Websites.** We are ready to help our state clients with website design and development, and can help Nebraska leverage new, innovative website technologies when building out new sites.
  - Georgia: Experience Online Testing Website for students, parents, and educators
- **Videos.** We understand the power of video in communicating about assessment to key audiences. We are ready to help Nebraska leverage cost-effective external video resources to produce informative videos, from conception through scriptwriting to production.
  - Michigan: Online Testing Informational Video for Parents
  - Nebraska: Online Testing Video Tutorials (also provided for all of DRC's online testing clients)

L. EXIT STRATEGY

The Contractor shall be responsible for end of contract activities at the completion of the contract to ensure that the transition from Contractor operations by the successor Contractor, or the State, occurs smoothly and without disruption to the NDE. End of Contract Transition activities will include planning, timely transfer of data and documentation specifically for NDE. The Contractor is required to give NDE nine (9) months' notice of intent to not renew the contract. NDE will only notify the Contractor at least nine (9) months prior to expiration of the current contract if it intends to enter into negotiations to renew the contract.

End of Contract Transition Responsibilities:

1. Provide a draft detailed Turnover Plan prior to contract termination.

2. Modify the Turnover Plan based upon the results of NDE review.

3. Transfer data, assessments, reports and other applicable materials in a format prescribed by NDE.

4. Provide technical and professional support to NDE and/or a successor Contract in support of the turnover.

5. Prepare and submit initial draft through final deliverables for NDE review, comment and approval.

At DRC, we have a successful history of cooperation with other providers of large-scale assessments. We achieve this success by placing a testing program's success as a top corporate priority. Through hard work, attention to detail, and a forward-thinking management team, DRC has maintained an excellent reputation in the testing community. The dedication of DRC staff to the ultimate goal of all assessment programs—the improvement of the educational experience of students—ensures that we will find ways to build relationships and solve issues when working with other vendors.

DRC acknowledges that, if not selected to continue work on the Nebraska program, we will be responsible for transitioning all assessment materials to the new contractor and/or the State upon conclusion of this contract. We understand that our end-of-contract responsibilities would include:

- Providing a draft detailed Turnover Plan.
- Modifying the Turnover Plan based on NDE review, prior to contract termination.
- Transfer data, assessments, reports and other applicable materials in a format prescribed by NDE.
- Provide technical and professional support to NDE and/or a successor contract in support of the turnover.

- Prepare and submit initial draft through final deliverables for NDE review, comment and approval.

DRC has detailed in the following section our standard procedures related to contract transition and turnover tasks in the following Turnover Plan.

DRC's Turnover Plan

Introduction

DRC's first step in project transition is to create a checklist of deliverables. We have learned from experience that it is helpful to include as much detail as possible identified in these checklists, including expected format for delivery of files and documents (electronic vs. hard copy, file type, etc.). A standard list of the contract transition deliverables is included at the end of this section. The final transition deliverables for the Nebraska assessments will be finalized with NDE upon contract award.

We also believe that having face-to-face transition meetings between the new contractor, NDE, and the previous contractor can be extremely helpful for all parties involved. The meeting should take place after the checklist has been developed and shared with the previous vendor. This allows the meeting to be focused on understanding everything that must be accomplished during the transition process and the parties responsible for each transition task, rather than requests for information.

DRC has found that good communication and thorough documentation is essential to a successful transition. DRC ensures that our state department clients are involved in any communication between our staff and other contractors. NDE will be copied on all emails and written correspondence, and participate in any phone or in-person meetings. This is an absolute necessity to guarantee that NDE is not caught off-guard by any requests for information or possible challenges that arise during the transition. In addition, DRC will ensure that any documents and data files exchanged between DRC, NDE, other contractors, and other entities as requested by NDE are transferred using secure, high-quality data exchange procedures.

Steps of the Turnover Plan

At the end of this contract, DRC will provide outgoing transition support, ensuring that the project is successfully transitioned to NDE or a new contractor. This support will include assisting NDE to plan and execute the complete transition, in coordination with NDE staff and the staff of any entity taking over the project under a new contract. DRC will be prepared to provide copies of existing policies and procedures and any required metrics and statistics, along with all other required documentation and deliverables.

The success of an Outgoing Transition Plan depends upon the completeness and accuracy of documentation of deliverables, processes, procedures, systems, analysis plans, etc., throughout the life of the contract. DRC has a commitment to thorough and accurate documentation to

drive the Nebraska assessment program. These documents, along with the historic data, will be provided to the new vendor within the number of days of contract end designated by NDE. DRC will also conduct an orientation program as part of the face-to-face transition meeting to introduce the new vendor's personnel to all of the documentation.

DRC will remain responsible for providing services and resources until the end of the contract period or the successful transition of the program to the new vendor. We will focus project management processes and disciplines on adhering to an orderly approach to meet the transition goals for all outgoing phases including:

1. Initiate Outgoing
2. Planning
3. Execution
4. Outgoing Transition Tasks

Initiate Outgoing

The Nebraska Project Director, Mr. John Born, with support from designated project team members, will initiate the outgoing plan and establish the project's operational framework during a time period specified by NDE. NDE will collaborate with Mr. Born to establish initial expectations for project deliverables, scope, and internal procedures, and organize the project team for completing the closedown activities.

Planning

DRC's Project Director and other key Nebraska Project Team members, in support of the transition effort, will establish objectives, standards, and procedures for the Nebraska Project Team to make sure we meet NDE's expectations during the finalization and phase-out of the project. The final Outgoing Transition Plan will be reviewed and approved by NDE.

Execution

DRC's Project Director and the Nebraska Project Team will carry out the plans as specified, and in compliance with the approved outgoing plan.

During the transition of the contract from DRC to the new vendor or to NDE, DRC will ensure that all relevant documents and materials are transferred efficiently among all parties. Our standard checklist for deliverables that need to be transferred is provided in Table 4–27. This checklist will be customized for the Nebraska assessments.

Table 4–27: Deliverables Checklist

Deliverable	Format
Test development—all critical documents and materials used in the test development process	Electronic files, i.e., Microsoft Word or Excel
Item and test specifications—all item format details, test map requirements, test blueprints, and technical reports	Electronic files, i.e., PDF, Microsoft Word or Excel
Test books—all paper and electronic test booklets and electronic answer documents from previous test administrations; test maps for each form from the previous year's administration with keys and metadata	PDF
Test maps—test maps for each form (online and paper) from the previous year's administration with keys and metadata	Microsoft Word or Excel
Passages and artwork—all photocopies of the original passages with source documentation, copies of contracts, original electronic art files and applicable permission information	Hardcopy and electronic text files, and native art files
Item bank, item and test statistics—all item-level metadata and previous usage statistics, available test-level statistics, previous anchor range finding papers, rubrics, constructed-response materials such as training material protocols, previous operational and field test usage of each item year and form item position status	Native art files; text output of all the item stems and options; export (MS Excel, HTML, or CSV) of all item characteristics and metadata; single PDF of each item by grade and content
Program administration—all critical documents and materials used with the test administration process	Electronic files, i.e., PDF, Microsoft Word or Excel
General program documentation—all critical documents and materials used for general program documentation and summary reports	Electronic files, i.e., PDF, Microsoft Word or Excel
Reports—sample copies of all reports provided to districts and schools	Hardcopy and/or electronic
Manuals/guides—sample copies of all guides and manuals for the operational test administrations, and copies of all electronic materials posted on the state website during the operational test administration	PDF
Scoring information—all critical documents and materials used in the scoring process	Electronic files, i.e., PDF, Microsoft Word or Excel
Scoring/reporting specifications—all documentation regarding scoring rules, aggregation rules, roll-up algorithms, and tables used to calculate student, school, district, and state results	Electronic files, i.e., PDF, Microsoft Word or Excel

Deliverable	Format
Psychometric and related assessment information required for the program—all critical documents and materials used for psychometric analyses and related procedures, including equating data files	Equating process documentation in PDF or MS Word; scaling constants in MS Excel; LOSS and HOSS, cut score tables, raw score to scale score conversion tables, and rounding rules all as electronic MS Word or Excel
File layouts—all documentation that outlines layouts for files including item statistics, master file, pre-id, school/district score data and state-level score data	Electronic files, i.e., PDF, Microsoft Word or Excel
Professional development—all critical documents and materials used for professional development	Electronic files, i.e., PDF, Microsoft Word, Excel, or PowerPoint
Editing Specifications—all documentation that outlines how the state would like answer documents edited during the scanning process	Electronic files, i.e., PDF, Microsoft Word or Excel
Performance scoring specifications—all training papers, anchor sets, calibration papers, rubrics, and constructed-response scoring rules; previous year's score distributions for each item and historical reader agreement rates	Hardcopy or electronic files
Technical reports and other validity and reliability reports—all electronic copies of past technical reports produced by the previous contractor and electronic copies of any other reports that discuss the validity or reliability of the assessments	Electronic files, i.e., PDF, Microsoft Word or Excel
Project plan—all documents that outline the tasks/deliverables and corresponding schedule for those tasks/deliverables	Electronic files, i.e., PDF or Microsoft Word
Schedules—all previous project schedules containing dates/durations for the following tasks: • Developing items, forms, and materials • Enrollment and pre-identification • Online test administration • Packaging and distribution • Receiving and scanning • Scoring and reporting	Electronic files, i.e., Microsoft Project
Packaging specifications—all documentation concerning packaging algorithms and shipping points	Electronic files, i.e., PDF, Microsoft Word or Excel
Print specifications—all spreadsheets detailing print specifications for test booklets, scannables, answer documents, labels, envelopes, and manuals	Electronic files, i.e., PDF, Microsoft Word or Excel

Outgoing Transition Tasks

Mr. Born will discontinue operations of the project in an orderly, controlled manner that will include a final review of the project processes and the project outcomes. The Outgoing Transition Checklist is used to document the status of the transition activities. It is also used to brief the status of the activities to NDE. DRC will provide a timely transition and will coordinate all transition activities with NDE. DRC will also conduct a post-project review to identify the areas to be improved and to measure NDE's customer satisfaction. Table 4–28 illustrates the Outgoing Transition Checklist.

Table 4–28: Outgoing Transition Checklist

Item	Yes	No	N/A
1. Conduct orientation to program with new vendor	☐	☐	☐
2. Transition policy and procedures	☐	☐	☐
3. Transition historic database documentation	☐	☐	☐
4. Transition historic database	☐	☐	☐
5. Transition all business and technical documentation	☐	☐	☐
6. Post-project review and NDE debriefing	☐	☐	☐
7. Close out contract	☐	☐	☐

CONCLUDING REMARKS

DRC's successful partnership with NDE on this program for the past eight years provides us with unmatched credentials for carrying this success into the future. Our tenure with the State of Nebraska has given us extensive day-to-day working knowledge of its testing programs and helped us to build a collaborative relationship with the Department.

DRC's solution for the new program provides Nebraska with the necessary tools and flexibility to deliver the assessment vision unfolding in the State. We have proposed enhancements to the current program in the areas of turnaround time for results and new report designs, the addition of secure, predictive interim assessment forms, data forensic analysis and consulting support, professional development, and much more. DRC is proud to be a part of the innovative work being done in Nebraska. We believe that NDE and DRC have opportunities to accomplish even more in the future as partners working together. We look forward to your review and evaluation of our proposal and trust that it will demonstrate our commitment to NDE and to the students, families, and educators of Nebraska.

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