

**U.S. Department of Education**

**Washington, D.C. 20202-5335**



**APPLICATION FOR GRANTS  
UNDER THE**

**Statewide, Longitudinal Data Systems**

**CFDA # 84.372A**

**PR/Award # R372A120017**

**Grants.gov Tracking#: GRANT11026085**

OMB No. , Expiration Date:

Closing Date: Dec 15, 2011

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This application was generated using the PDF functionality. The PDF functionality automatically numbers the pages in this application. Some pages/sections of this application may contain 2 sets of page numbers, one set created by the applicant and the other set created by e-Application's PDF functionality. Page numbers created by the e-Application PDF functionality will be preceded by the letter e (for example, e1, e2, e3, etc.).

**Application for Federal Assistance SF-424**

* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>
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* 3. Date Received: <input type="text" value="12/15/2011"/>	4. Applicant Identifier: <input type="text"/>
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5a. Federal Entity Identifier: <input type="text"/>	5b. Federal Award Identifier: <input type="text"/>
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**State Use Only:**

6. Date Received by State: <input type="text"/>	7. State Application Identifier: <input type="text"/>
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**8. APPLICANT INFORMATION:**

\* a. Legal Name:

* b. Employer/Taxpayer Identification Number (EIN/TIN): <input type="text" value="05-6000522"/>	* c. Organizational DUNS: <input type="text" value="9299565630000"/>
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**d. Address:**

\* Street1:   
Street2:   
\* City:   
County/Parish:   
\* State:   
Province:   
\* Country:   
\* Zip / Postal Code:

**e. Organizational Unit:**

Department Name: <input type="text" value="Accountability/Quality Control"/>	Division Name: <input type="text" value="Accountability/Quality Control"/>
---	---

**f. Name and contact information of person to be contacted on matters involving this application:**

Prefix:  \* First Name:   
Middle Name:   
\* Last Name:   
Suffix:

Title:

Organizational Affiliation:

\* Telephone Number:  Fax Number:

\* Email:

**Application for Federal Assistance SF-424**

**\* 9. Type of Applicant 1: Select Applicant Type:**

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

\* Other (specify):

**\* 10. Name of Federal Agency:**

U.S. Department of Education

**11. Catalog of Federal Domestic Assistance Number:**

84.372

CFDA Title:

Statewide Data Systems

**\* 12. Funding Opportunity Number:**

ED-GRANTS-092011-001

\* Title:

Institute of Education Sciences (IES): Statewide, Longitudinal Data Systems Program CFDA Number 84.372A

**13. Competition Identification Number:**

84-372A2012

Title:

**14. Areas Affected by Project (Cities, Counties, States, etc.):**

Add Attachment

**\* 15. Descriptive Title of Applicant's Project:**

The Next Frontier: Expanding Rhode Island's Statewide Longitudinal Data System (SDLS) to Better Support the Needs of the Postsecondary and Workforce Community

Attach supporting documents as specified in agency instructions.

Add Attachments

**Application for Federal Assistance SF-424****16. Congressional Districts Of:**\* a. Applicant b. Program/Project 

Attach an additional list of Program/Project Congressional Districts if needed.

  **17. Proposed Project:**\* a. Start Date: \* b. End Date: **18. Estimated Funding (\$):**

* a. Federal	<input type="text" value="4,000,000.00"/>
* b. Applicant	<input type="text" value="0.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="4,000,000.00"/>

**\* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- a. This application was made available to the State under the Executive Order 12372 Process for review on .
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

**\* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)** Yes  No

If "Yes", provide explanation and attach

**21. \*By signing this application, I certify (1) to the statements contained in the list of certifications\*\* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances\*\* and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

 \*\* I AGREE

\*\* The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

**Authorized Representative:**

Prefix:  \* First Name:

Middle Name:

\* Last Name:

Suffix:

\* Title: \* Telephone Number:  Fax Number: \* Email: \* Signature of Authorized Representative:  \* Date Signed:

## ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

**PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.**

**NOTE:** Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	* TITLE
DAVID LUTHER	Deputy Commissioner
* APPLICANT ORGANIZATION	* DATE SUBMITTED
Elementary and Secondary Education, RI Department of	12/15/2011

Standard Form 424B (Rev. 7-97) Back

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## CERTIFICATION REGARDING LOBBYING

### Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

### Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

**\* APPLICANT'S ORGANIZATION**

Elementary and Secondary Education, RI Department of

**\* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE**

Prefix: Mr. \* First Name: David Middle Name: v

\* Last Name: Abbott Suffix:

\* Title: Deputy Commissioner

**\* SIGNATURE:** DAVID LUTHER

**\* DATE:** 12/15/2011



SUPPLEMENTAL INFORMATION  
REQUIRED FOR  
DEPARTMENT OF EDUCATION GRANTS

**1. Project Director:**

Prefix: \* First Name: Middle Name: \* Last Name: Suffix:

Ms. Peg [ ] Votta [ ]

Address:

\* Street1: 255 Westminister Street  
 Street2: [ ]  
 \* City: Providence  
 County: [ ]  
 \* State: RI: Rhode Island  
 \* Zip Code: 02903-3414  
 \* Country: USA: UNITED STATES

\* Phone Number (give area code) Fax Number (give area code)

401-222-8412 [ ]

Email Address:

margaret.votta@ride.ri.gov

**2. Applicant Experience:**

Novice Applicant  Yes  No  Not applicable to this program

**3. Human Subjects Research**

Are any research activities involving human subjects planned at any time during the proposed project Period?

Yes  No

Are ALL the research activities proposed designated to be exempt from the regulations?

Yes Provide Exemption(s) #: [ ]

No Provide Assurance #, if available: [ ]

**Please attach an explanation Narrative:**

[ ] [ ] [ ] [ ]

## Abstract

The abstract narrative must not exceed one page and should use language that will be understood by a range of audiences. For all projects, include the project title (if applicable), goals, expected outcomes and contributions for research, policy, practice, etc. Include population to be served, as appropriate. For research applications, also include the following:

- Theoretical and conceptual background of the study (i.e., prior research that this investigation builds upon and that provides a compelling rationale for this study)
- Research issues, hypotheses and questions being addressed
- Study design including a brief description of the sample including sample size, methods, principals dependent, independent, and control variables, and the approach to data analysis.

[Note: For a non-electronic submission, include the name and address of your organization and the name, phone number and e-mail address of the contact person for this project.]

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## You may now Close the Form

You have attached 1 file to this page, no more files may be added. To add a different file, you must first delete the existing file.

\* Attachment:

**ABSTRACT: The Next Frontier: Expanding Rhode Island's Statewide Longitudinal Data System to Better Support the Needs of the Postsecondary and Workforce Community**

The Rhode Island Department of Elementary and Secondary Education (RIDE), the Rhode Island Office of Higher Education (OHE), the Rhode Island Department of Labor and Training (DLT), the Rhode Island Higher Education Assistance Authority (RIHEAA), and The Providence Plan (ProvPlan) have partnered to pursue a Statewide Longitudinal Data System (SLDS) grant that expands upon the current efforts to create a seamless data infrastructure that supports Rhode Island as it moves forward in the implementation of a P-20W policy agenda.

In recent years, Rhode Island has made notable progress in the development of its longitudinal data system (LDS). Such outcomes include the development of a robust P-12 data warehouse that aims to align with the new Common Education Data Standards and a data-sharing agreement between RIDE and RIOHE that enables the linkage of K-12 and higher education data. Through these investments, RIDE has created a variety of data platforms such as Infoworks Live!, the Rhode Island DataHUB, WaytogoRI, and others that enable students, parents, teachers, education leaders, researchers, and policy makers to directly access the information that is valuable to their needs

Despite the progress Rhode Island has made in the development of its LDS, greater investment is needed in our capacity to link P-12 data with postsecondary and workforce data. As a result, Rhode Island has aligned its activities in this proposal with the goals associated with SLDS Priority 3. Equally important, Rhode Island seeks to implement strategies that leverage our LDS to promote data-driven decision making. Our project includes four key outcomes with deliverables that respond to the State's most pressing needs associated with our LDS. Outcomes and deliverables include:

1. *Integrate new sources of postsecondary data (adult education, career and technical education, and WLA-funded workforce development) into Rhode Island's current LDS.* Through data-sharing agreements among project partners, Rhode Island will possess the capacity to securely link P-12 data with a variety of postsecondary and workforce data sources at an individual level and share this information with a variety of stakeholders at an aggregate level to inform and guide policy and operations.
2. *Invest in the data infrastructure and technology systems within RIOHE and RIDLT so that these agencies can more fully participate in Rhode Island's LDS.* As RIDE has improved its data systems in recent years, investment in the state's postsecondary and workforce data systems has not kept pace. SLDS funds will be used to design more functional data systems within these two agencies so that they can participate in linkage efforts and build their internal capacity to analyze data interactively.
3. *Identify adult learners as a critical and priority audience in the ongoing development of data tools that are specifically designed to support student/consumer level of the LDS.* In order to meet the growing demand of the State's adult learner community, resources will be used to launch an adult education portal within WaytogoRI – the state's career and college planning website that helps students, parents, and educators explore education options and make plans to achieve education and career goals.
4. *Prioritize "users and use" of the LDS by making investments in training and ongoing technical assistance for all stakeholders, especially practitioners and researchers.* To capitalize on our expanded LDS, Rhode Island will provide all stakeholders with training and ongoing support so that they may use various data platforms to their fullest potential. Furthermore, Rhode Island will establish governance structures on data access and presentation as a way promote data-driven decision making.

As the state education agency, RIDE will serve as the fiscal agent for the grant and provide the overall project management. Key partnerships with RIOHE, RIDLT, RIHEAA, and ProvPlan are reflected in the proposal. Rhode Island seeks \$4 million for these activities over a three-year period.

## Project Narrative File(s)

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\* Mandatory Project Narrative File Filename:

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To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File

## **A. NEED FOR THE PROJECT**

The Rhode Island Department of Elementary and Secondary Education (RIDE) has partnered with the Rhode Island Office of Higher Education (RIOHE), the Rhode Island Department of Labor and Training (RIDLT), the Rhode Island Higher Education Assistance Authority (RIHEAA), and The Providence Plan (ProvPlan) to pursue an investment of FY 2012 Statewide Longitudinal Data Systems (SLDS) resources from the U.S. Department of Education (ED).

RIDE and its partners are committed to a theory-of-change that by expanding the breadth, depth, functionality, and use of its longitudinal data system (LDS) Rhode Island will be able to improve the developmental trajectory of every student along the P-20W continuum, while promoting a culture of data-driven decision making. To achieve these outcomes, Rhode Island is committed to enhancing the level of collaboration, trust, and transparency needed to ensure that data are collected and analyzed in ways that answer critical questions facing all stakeholders: from students to policymakers.

As reflected in this application, many efforts and partnerships in Rhode Island are in place to use data to enhance instructional practice, measure the long-term success of students, increase accountability, expand reporting capacity, improve strategic thinking, and solidify the relationship between education and workforce development. Despite the progress Rhode Island has made to date in the development of its LDS, greater investment is needed in areas with regard to our capacity to link P-12, postsecondary, and workforce data (Priority 3). Equally important, resources are needed to implement strategies and partnerships that use the LDS to promote data-driven decisions.

### **CURRENT STATE OF RHODE ISLAND'S LONGITUDINAL DATA SYSTEM**

Over the past three years, Rhode Island has made considerable progress in the development of its LDS; however, this level of advancement has not been consistent along the P-20W continuum. Our success to date is evidenced by the fact that Rhode Island's LDS includes all 12 elements in the America COMPETES Act and the fact that the State was reported to possess nine of the 10 data elements in the 2011 Data Quality Campaign's (DQC) *"10 Essential Elements of a State Longitudinal Data System"*, and seven of 10 in DQCs *"10 State Actions to Ensure Effective Data Use."*

To gain a full appreciation of Rhode Island's LDS and to set the stage for the needs and goals outlined in this proposal, it is valuable to understand the status of the individual data systems that exist within the three state agencies in this proposal (RIDE, RIOHE, and RIDLT). As presented in the following summaries, there is substantial diversity in the level of sophistication within the P-12, postsecondary, and workforce data systems - resulting in different types of investment needed.

**Rhode Island Department of Elementary and Secondary Education (RIDE)** - At the present time, the P-12 data system developed by RIDE has been the most resourced to date, and subsequently, is the most advanced data system in terms of completeness and linkage capacity.

In the early part of the 2000s, RIDE developed and implemented an in-house Information Services portal designed to facilitate information exchange and state reporting. These efforts were aimed at transforming a system defined by inefficient manual workflows, costly paper processes, inaccurate data, SEA/LEA system silos, and intra-RIDE system stovepipes. By modernizing and re-engineering operational and system processes, RIDE achieved positive results for LEAs and the Department itself. In short, new technology systems and operational re-engineering efforts resulted

in a foundation of cleaner information, streamlined electronic workflows, more unified instructional technology processes, improved document management capacity, and better interoperability.

Another key outcome of this modernization was the fact that RIDE could now use Web-based forms and utilities to improve program-based data collections as well as statewide and systems-output data. A core element of this system – eRIDE – helped streamline the collection process and improved the accuracy, timeliness, and utility of data that RIDE leadership could use to inform management, budget, and policy decisions in ways that support and promote student achievement.

Another key development of this modernization effort was the development of a State-Assigned Student Identifier (SASID) – a system in which a unique number is provided to currently enrolled students and allows for the ability to track and measure across time and location at the finest level of data granularity. The RIDE Information Services portal not only streamlined data management and reporting but also supported the creation of platforms that maximized the best available technology at the time. In fact, Rhode Island received national awards for *Information Works!*, the state’s first online school-accountability initiative, and the *SALT Survey* (School Accountability for Learning and Teaching) that was administered to parents, teachers, administrators and students.

At the time, the PDF formats associated with these platforms satisfied users who were grateful for the first time to be able to access information electronically. However, the advances in technology in the latter half of the decade made these platforms quickly outdated. Users soon wanted platforms that had better visualization technology, the capacity to manipulate data “on the fly”, and the ability to create reports that could be customized by educational activity, geography, or along time series.

At the same time in which RIDE data systems and corresponding platforms were becoming a bit “long in the tooth,” the agency saw its first leadership change in 17 years - with the hiring of Commissioner Deborah Gist. Since her arrival in 2009, Ms. Gist’s passion for education and her commitment to reform has transformed RIDE and every facet of the education system in the state.

Commissioner Gist’s unwavering support and commitment to Rhode Island’s LDS was immediately evident. Within her first month, the Commissioner hired an external consultant to provide a gap analysis of the current LDS. The consultant explored the data warehouse and all other RIDE data feeds, interviewed LEA technology directors, vendors, and any partners associated with RIDE’s data infrastructure. In addition, the investigation included detailed interviews with representatives from all of RIDE’s offices to determine data needs, technology gaps, and governance issues.

The consultant examined RIDE’s entire TetraData platform, including the data warehouse design, the back-end infrastructure, the ETL (Extract, Transform, Load) processes, and the software tools designed to serve the front-end applications. In evaluating RIDE’s “very sophisticated and complex platform,” the report gave the agency high marks for the system’s security infrastructure, its data-cleaning protocols, and the system’s capacity to analyze statewide assessment data and produce canned reports (its primary initial function). Paradoxically, the report was critical of deficiencies in system flexibility, ease-of-use, and effort needed for maintenance. The report also gave low marks for the system’s capacity to provide public access to information, create data feeds with third party applications and LEAs, sync with higher education databases, and integrate data from RIDE’s special education, career and technical education, finance, and adult education data systems.

The report findings and subsequent recommendations helped solidify “Developing User-Friendly Data Systems” one of the five priority goals in the RIDE 2010-2015 Strategic Plan, “Transforming

Education in Rhode Island.” In the 2+ years since Commissioner Gist’s arrival, Rhode Island has implemented new data governance models and moved ahead with modifications to its data platforms – with several more significant enhancements slated to be implemented in 2012.

By September, RIDE will have implemented its new Enterprise Data System, a significant upgrade to its infrastructure that will result in a new data rich ecosystem. Exhibit 1 on page 57 provides the new Overview of Data Flow at RIDE. Upgrade efforts will align with the data elements in Version 2 of the Common Education Data Standards (CEDS) – a development process that RIDE officials have monitored closely. The RIDE Enterprise Data System will include the launch of an updated integration layer – an Operational Data Store (ODS) - that will exist between eRIDE and an updated Data Warehouse. The ODS will consolidate all the disparate source system data together in one highly normalized database, which will provide standardization and consistency to the information. The ODS will feed the data to the data warehouse which will be structured for reporting. The data warehouse will supply data to a series of newly constructed Data Marts that will fuel several Data Platforms that support students, parents, educators, administrators, researchers, and policymakers.

The Data Platforms include an updated *Information Works LIVE!* – an interactive website that provides the public easy access to information about schools, districts, and the state as a whole. In addition, RIDE has used substantial portions of its FY 2009 SLDS grant to support the development and launch of the *Rhode Island DataHUB* and *Way To Go Rhode Island*.

The Rhode Island DataHUB (developed by ProvPlan – a local nonprofit) is a data integration and visualization system which links education, health, child welfare, and human services information at an individual level, but produces outputs at a fine aggregate level in order to preserve confidentiality. See Exhibit 2 on page 58, which provides an overview of the DataHUB architecture and design schema. As part of the Rhode Island DataHUB development in 2009, RIDE became a charter member of the Open Indicators Consortium (OIC) – a nine-member national collaborative of public and nonprofits working to improve access to more and higher quality data through the development of Weave - a high-performance open source data analysis and visualization platform.

Way To Go Rhode Island (WaytogoRI) functions as the primary student/consumer component of the LDS. Developed and maintained by the RI Higher Education Assistance Authority (RIHEAA), WaytogoRI provides interactive career and college planning tools to help students, parents, and educators explore education options, discover a wide variety of occupations, and make plans to achieve education and career goals. The site also allows students to maintain an electronic portfolio and provides them with free tools, such as SAT/ACT prep, career and college inventories, transcript tracking, and college applications to plan and prepare for their future. Note that WaytogoRI is a component of the “Student Portal” in the Data Platform section of Exhibit 1 on page 57

In addition to these platforms, RIDE is poised to launch two new major Data Platforms in conjunction with Rhode Island’s Race to the Top (RTT) work. The first is the launch of an Instructional Management System (IMS), which can be seen in Exhibit 1 under the term “IMS” in the Data Platform section. The second is the launch of the Educator Performance and Support System (EPSS), which is a component of “Accountability” in the Data Platform section. Both the IMS and EPSS platforms will be launched in 2012. The IMS will support teachers and educational leaders in their efforts to improve student success, close achievement gaps, and ensure that students are on the path towards success in college, careers, and life. When launched, the IMS will provide a systematic and ongoing combination of curriculum (including standards), instruction,

and assessment to support improvements in student achievement. Using a single, web-based platform, the IMS will provide a 360° view of each student ensuring that fully-informed and evidence-based decision making drive personalized learning and offer teachers an easy-to-use method to guide day-to-day activities, interventions, and progress monitoring. Meanwhile, the EPSS will be a central component of the state's new teacher evaluation system that will provide an easy-to-use interface to collect and manage data on all components of RIDE's educator evaluation system. In general, educators will use the EPSS to manage the evaluation process, which will include viewing formative evaluation summaries, tracking professional development progress, and managing final summative rankings. Collectively, the design, launch, and initial support of these two platforms represent a \$6.5 million investment.

Overall, the P-12 portion of Rhode Island's LDS has made strong progress in recent years and once the state's outcomes for the FY 2009 SLDS grant and the RTT grant are achieved, Rhode Island will have the type of P-12 data infrastructure needed to support the LDS. Although it is great that RIDE's systems have become the "gold standard" within the State's LDS, the reality is that these quality systems presently shine a bright light on those areas that have been underinvested in recent years – that is, postsecondary and workforce data systems and the overarching challenge to transition from simply having good data systems to applying them in ways that help educators, parents, and other stakeholders use data to inform decisions and improve outcomes.

**Rhode Island Office of Higher Education (RIOHE)** – RIDE and RIOHE are separated by only one floor in the State's education administration building; however, the "distance" in the overall quality of their data systems is significantly greater. It is well-known in Rhode Island education circles that the State's higher education data systems lack a level of sophistication, richness, and technical capacity when compared to Rhode Island's P-12 system. And despite the current state of the higher education data system that exists at RIOHE, an historical examination reveals that the current RIOHE data system is quite similar to how RIDE data systems existed in the mid- 2000s. In other words, there exists a data system that is functional, but lacks the necessary depth to move beyond answering the basic sets of questions associated with federal and state reporting, and as a result does not currently operate in a way that can maximize the potential of the LDS.

The current higher education data system was developed in 2006 and was designed specifically as an evaluation tool for RIOHE's strategic plan developed three years earlier. The data warehouse – rudimentary by today's standards - includes student-level information for all students at three public institutions of higher education, including demographic, scholastic, and course-taking profiles for students at all points of entry, stop-out, and exit.

Within this data system infrastructure, there are several challenges. The three public institutions of higher education in the state - the Community College of Rhode Island (CCRI), the University of Rhode Island (URI), and Rhode Island College (RIC) - all have different student information systems. Consequently, these systems make it difficult for the institutions to share data meaningfully.

The Rhode Island Office of Higher Education (RIOHE) has contracted successfully with a third party – the Drexel University Center for Labor Markets & Policy (formerly located at Northeastern University in Boston) - to function as a data repository and the data management agent. The vendor has provided valuable research and analyses; but new demands of the data require that RIOHE report and analyze more, within tighter time constraints, and for additional audiences. Though the current data repository has served RIOHE well; there is growing realization that the Office's current



data warehouse infrastructure can no longer meet the ever-increasing demands for accountability, program evaluation, and evidence of targeted supports for students.

Despite the reality that Rhode Island's current higher education data system needs to overcome several barriers to participate in a P-20W longitudinal data system, RIOHE is committed to moving forward to meet these challenges. For starters, RIOHE and RIDE have signed a mutual data-sharing agreement which creates the first-ever capacity for a two-way P-12 and higher education data exchange at the individual level. In addition to this data-sharing agreement, RIOHE recently secured resources via the College Access Challenge Grant Program (CACGP) from ED. Within the CACGP scope, there are resources to link P-12 and higher education data as a way to better understand both the pathways and barriers that determine college access, persistence, and completion.

To facilitate this type of analysis, RIOHE contracted with ProvPlan to create fine-level aggregate matching using the Rhode Island DataHUB. Three examples of the ProvPlan scope include: 1) examining the predictive relationship between state assessment results among high school students and their ability to succeed in credit-bearing college coursework; 2) the retention, completion, and grade-performance trends of students that transfer from the community college to four-year institutions, and 3) the efficacy of various student support services on college access and retention.

Overall, there exists strong internal commitment at both RIOHE and the State's public institutes of higher education to elevate their data systems in ways that improve Rhode Island's capacity to increase the numbers and proportion of students who successfully enter, persist, and ultimately complete a postsecondary degree. Furthermore, there are great public policy pressures in Rhode Island to measure the "value" of different approaches to higher education in terms of workforce outcomes and employment trajectories. To achieve these desired outcomes, RIOHE recognizes the importance of strengthening and expanding the state's LDS along the P-20W continuum and using this system to explore those essential questions that will ultimately lead to better decision making.

**Rhode Island Department of Labor and Training (RIDLT)** – Compared to the systems and level of collaboration that exist at RIDE and RIOHE, RIDLT can be characterized as the newest partner in the state's LDS community. While efforts to accelerate this relationship are ongoing as part of RIDE's FY 2009 SLDS grant, a great deal of work remains. As an agency, RIDLT's fundamental purpose is to provide workforce development, security, and protection to workers, employers, and citizens. The agency offers employment services and economic incentives to individuals and employers. RIDLT also enforces labor laws, prevailing wage rates, and workplace safety standards. In addition, the agency provides temporary income to unemployed and temporarily disabled workers. Given that Rhode Island's unemployment rate has been a steady top five fixture in the country for more than four years, RIDLT has faced substantial challenges and demands in helping Rhode Island's economy recover.

Within RIDLT, the Labor Market Information (LMI) Division is responsible for the collection, analysis, dissemination, and publication of information on the state labor market. The LMI Division's focus is to describe the labor area in terms of its jobs, workers, wages, industrial structure, and economic conditions. This is most often reflected in the production of monthly, quarterly, and annual reports on topics related to employment, unemployment, wages, and occupational safety. The Division's primary audiences for these static reports are job seekers, employers, planners, policy makers, economists, news media, and government officials. The LMI Division also collaborates

with RIDLT program staff to provide individual-level data on workforce development programs that are reported to the U.S. Dept. of Labor in conjunction with the Workforce Investment Act.

Given the limited scope of its responsibilities, the current workforce data system within RIDLT can be characterized as adequate. The agency has the capacity to produce the static data needed for its compliance reports. Nevertheless, the RIDLT workforce system is in no way as sophisticated as Rhode Island's P-12 education data system and - due in part to laws governing privacy - is the least integrated into the Rhode Island LDS. One explanation as to why workforce data systems are far behind education systems - in Rhode Island and throughout the country - can be found in a correlation between recent federal policymaking and ongoing LDS development.

In many ways, the pace in which education data systems have developed in this country can be linked to the numerous changes in federal education policy over the past decade. Since 2002, there have been no less than six pieces of legislation that have produced substantial changes in education data systems. Such examples include the No Child Left Behind Act (2001), the Education Sciences Reform Act (2002), the Individuals with Disabilities Education Improvement Act (2007), the America COMPETES Act (2007), the reauthorization of the Higher Education Act (2008), and the American Recovery and Reinvestment Act (2009), which produced Race to the Top. In addition, hundreds of millions of dollars have been dedicated to establishing LDS systems in most states.

Comparatively speaking, the last significant piece of federal legislation in the areas of workforce and labor that impacted workforce data systems was the Workforce Investment Act (WIA) of 1998. While efforts to reauthorize WIA have more or less stalled for the past seven years, DOL is beginning to make small, but important, steps to have states modernize their workforce data systems. Overall, these efforts toward modernization are in response to the ongoing efforts to expand the functionality of LDSs from postsecondary education to workforce.

In 2010, DOL launched the Workforce Data Quality Initiative (WDQI) grant program, which enables "state workforce agencies to develop and implement statewide longitudinal workforce data systems that track individual-level data across a range of employment, training, and postsecondary education programs to help policymakers assess the effectiveness of those programs and improve service delivery options." One of the primary goals of WDQI - the enabling of workforce data to be matched to education data with the goal of tracking individual records from pre-kindergarten through postsecondary and into the workforce system - is an encouraging sign that DOL recognizes that states will need to make significant investments in workforce development systems in order to realize the goal of P-20W systems. Unfortunately, the total amount of funds under the 2010 WDQI grant was only \$12.2 million - slightly less than the average ARRA SLDS grant award made in 2010.

RIDLT responded to the WDQI program with the hope that resources could be dedicated toward improving their data systems. The State was not successful with its application, but has committed to apply again when the next program solicitation is released in early 2012. Furthermore, RIDLT is carefully monitoring the pending release of the Workforce Innovation Fund - a new grant competition to be jointly administered by DOL and ED that will provide competitive grants to states that promote "bold system reforms that will deliver better employment and education results." The fund will award competitive grants to state workforce agencies, and although the guidance has not yet been released, RIDLT is hopeful that data system enhancements will be a focus area. Overall, RIDLT finds itself in a similar position to RIOHE. Its data systems are functionally sufficient for the data demands that existed several years ago. However, the lack of investment to

modernize these systems means that these data systems lack the types of technology that could make them stronger contributors toward Rhode Island's LDS, and of course, greater beneficiaries of the data-driven decisions that will emerge. Fortunately, there is strong political will within the leadership structures at RIDLT, RIOHE and RIDE to overcome their respective data system barriers, and this application for SLDS resources represents our state's most coordinated effort to make this happen.

### **PRIORITY 3: GOALS AND NEEDS FOR RHODE ISLAND'S LDS**

Collectively, RIDE, RIOHE, and RIDLT share a commitment to promoting a user-friendly LDS that not only connects disparate data in ways that will answer sophisticated policy and operational questions, but one that is greatly accessible to meet the needs of multiple stakeholders. This shared commitment is reflected in the Statement of Agreement for this project (see pages 61-67).

In developing this application, RIDE, RIOHE, and RIDLT have reached a consensus regarding the most pressing needs for improvement to the State's LDS – an agreement that puts Rhode Island squarely within the topics associated with Priority 3 (the improved coordination of data from various postsecondary institutions and systems and State workforce agencies in connection to the State's P-12 data system). Listed below is a status report of how Rhode Island's LDS currently fares in the areas of governance and policy requirements, technical requirements, and data use requirements.

### **GOVERNANCE AND POLICY REQUIREMENTS**

***Need and Uses.*** *A successful data system should address the State's key postsecondary education and workforce development policy questions. The system should provide data and data-use tools that can be used in education decision-making at multiple levels, including the state, system, institutional, and student/consumer level.*

Through the execution of several data-sharing agreements and the development of several new data platforms over the past 2-3 years, Rhode Island's LDS is making substantial progress in beginning to address specific policy questions. Tools such as the DataHUB are helping state agencies, institutions, and researchers use and understand data more effectively. To date, this work has focused on policy questions within the K-12 system (e.g., understanding factors affecting attendance at the elementary school level) and between the K-12 and higher education systems (e.g., examining the relationship between state assessment results among high school students and their ability to succeed in credit-bearing college coursework). While the State is eager to continue these types of analyses, there is an equal level of desire, interest, and commitment to expand this work to integrate adult education, career and technical education (CTE), and workforce development data into the LDS – and of course, making that transformation from interesting data findings to real policy changes.

Among LDS development efforts at the student/consumer level, Rhode Island is very pleased with the progress that WaytogoRI has made to date. WaytogoRI has worked in partnership with RIDE and RIOHE to design the state's first universal electronic transcript. All RI public school students will use this portal to send their transcripts to any institution across the country. With 126,000 students already using the tool to explore education options and make plans to achieve education and career goals, Rhode Island recognizes the need for and value of extending this platform to the 150,000 adult learners in our state who are desperate for online resources to help them.

***Governance.*** *A successful data system includes a clearly-articulated governance structure consisting of representatives from key postsecondary and/or workforce organizations, including postsecondary institutions themselves, adult education providers, CTE programs, and grantees of the U.S. Department of Labor Workforce*

*Data Quality Initiative program, if applicable. The governance structure must have clearly-defined roles and responsibilities to manage the collection, maintenance, and sharing of postsecondary and/or workforce data with the K-12 State educational agency, and the use of those data. Particularly when expanding the data capacity in existing postsecondary and/or workforce data systems to include other educational data, an LDS must identify the entities responsible for the operation of the data system and should include a common understanding of data ownership, data management, and confidentiality and access, as well as the means to resolve differences among partners.*

During the start-up phase of Rhode Island's LDS, the Statewide PK-16 Council – chaired by then Governor Carcieri - served as the primary governance and advisory structure. This Council played a key role in shaping the goals, objectives, and design protocols associated with the initial SLDS. The membership of the PK-16 Council was well crafted and included representatives throughout the education and workforce systems. The PK-16 Council's effectiveness was profiled in the National Center for Public Policy and Higher Education Report "States, Schools, and Colleges: Policies to Improve Readiness for College and Strengthen Coordination Between Schools and Colleges."

With the temporary cessation of the Statewide PK-16 Council due to a change in gubernatorial administration in 2011, Rhode Island is currently without a similar governance structure. Fortunately, the vast majority of institutional knowledge, strategic thinking, and operational capacity associated with the former PK-16 Council is still available and accessible. This is due to the fact the former PK-16 Council staff person – Ms. Janet Durfee-Hidalgo – was appointed in early 2011 to serve as the Director of PK-20 Affairs in the Rhode Island Office of Higher Education.

Recognizing the critical link between an effective LDS and an effective data governance structure, Governor Chafee is slated to create the Rhode Island P-20W Council – an action that will likely occur before this project starts. The creation of such a governance entity was outlined as part of a series of recommendations put forth by Director Richard Licht (RI Department of Administration) in his October 2011 report to the Rhode Island General Assembly on the "Organizational Structure, Staff Support and Resource Allocation of Higher Education in Rhode Island."

In the interim, Rhode Island continues to make progress. RIDE and RIOHE recently executed a data-sharing agreement linking P-12 and higher education data, and the Steering Committee for Rhode Island's 2010 College Access Challenge Grant Program is functioning as an ad-hoc SLDS Work Group. The Work Group membership (see list on page 68) represents a cross-section of agencies, postsecondary institutions, non-profit organizations and others in the state that are committed to working together to promote the development and implementation of a robust P-20W longitudinal data system. It is expected that this ad-hoc SLDS Work Group will provide temporary governance over this project until a P-20W Council is convened. At that time, governance will transfer accordingly, with most of the current ad-hoc Work Group members remaining involved either with direct council or sub-committee membership. When this new Council is convened, data governance issues within the context of an expanding LDS in Rhode Island will become one of the immediate and focal priorities for the group as noted in the recommendation text on page 70.

***Institutional Support:*** *A successful data system requires institutional support from relevant stakeholders within and outside the State postsecondary education governing organization or agency and State workforce agencies. The support must include authorization to develop and implement connections across the K-12 SLDS and postsecondary and workforce systems as well as the commitment of necessary staff and other resources, including institutional support from the agency providing a State WDQI grant, if applicable.*

Recognizing the important role that institutional entities must play in the design and operation of an LDS, RIOHE has been leading the State's efforts to promote greater integration of the state's public institutes of higher education into the LDS conversations. The focus on these three entities (CCRI, URI, and RIC) makes sense given that 85% of the state's higher education students attend these three institutions. Rhode Island is also committed to understanding the outcomes associated with its K-12 students who attend institutes of higher education outside of the state. Data for understanding this cohort come via an arrangement with the National Student Clearinghouse (NSC).

Through the State's College Access Challenge Grant, RIOHE, RIDE and ProvPlan recently began convening a Longitudinal Data Analysis (LDA) Subcommittee of the Steering Committee that consists of institutional researchers at these three schools. The primary agenda for this work group is to develop greater synergies in how the three institutions can improve data-sharing and utilization practices through ongoing collaboration in the areas of data dictionary design, mutual data dimension logic, and business rules associated with their database structures. Like many public colleges and universities, issues of remedial education needs, persistence, retention, and completion often dominate the discussions about future policy and practice. These entities are committed to using data within the LDS infrastructure to better understand their institutions.

By building greater collaboration among RIOHE and these three public institutions, Rhode Island is building momentum about governance and policy issues with respect to its LDS. At this point, RIDLT has only been minimally involved; however, as reflected in letters of support in Appendix B (pages 71-100) and our Statement of Agreement (pages 61-67), greater institutional support along the entire P-20W continuum will occur – especially with the addition of new strands of postsecondary data such as adult education, CTE, apprenticeship, and WIA-funded workforce data.

***Sustainability.*** *Following implementation, a successful data system requires ongoing support from the institutions and agencies that are a part of it. At a minimum, the system requires ongoing commitment of staff and other resources for system maintenance, quality control, and user training.*

Rhode Island understands that a central component to building a successful LDS is to ensure that resources continue to be available to provide ongoing support and maintenance. As outlined in the leveraged resources section of our budget, the three state agency partners are committed to investing the time and resources for maintenance, quality control, training, and developing new efficiencies.

As the largest contributor to the LDS, RIDE has succeeded in making the case to our General Assembly for a state appropriation (\$75,000) to support its data warehouse and LDS activities. While such a state-level commitment does not yet exist with RIOHE and RIDLT, a key outcome of this project is to make the case for such an investment. RIDE staff commitment to the LDS is strong and is dispersed cross-office. This commitment will remain long after this grant is complete. In terms of the LDS work completed by other partners such as ProvPlan, RIHEAA, and the Adult Education Professional Development Center, each is committed to working with local foundations to continue this work. The United Way of Rhode Island and the Rhode Island Foundation have included letters of support with this application – letters based on their past support for the efforts and ideas presented in this application (pages 90-91). Despite this progress, a great deal of work is still needed to engage other private-sector funders such as the Nellie Mae Educational Foundation – a previous supporter of the State's RTT development effort and a major investor in research projects that focus on student-centered learning approaches and other LDS-related issues.

## TECHNICAL REQUIREMENTS

***Privacy Protection and Data Accessibility.*** *An SLDS must ensure the confidentiality of individual data, consistent with the requirements of the Family Education Rights and Privacy Act (FERPA) and other State laws or regulations concerning the confidentiality of individual records. The system should also include public documentation that clearly articulates what data will be accessible, to which users, and for what purposes.*

Ensuring data privacy protection has and will continue to remain an absolute priority and focus area within the ongoing development of the State's LDS. As reflected in the attached Statement of Agreement, each entity in this project has pledged to follow all applicable confidentiality laws including but not limited to the Family Education Rights and Privacy Act (FERPA) and the Rhode Island Educational Right to Privacy Act. In addition, partners will continue to apply the latest principles and guidelines recommended by the National Institute of Standards and Technology via their "Guide to Protecting the Confidentiality of Personally Identifiable Information (PII)."

As outlined in the Staffing Plan, RIDE Deputy Commissioner and General Counsel David Abbott, will play an important role in this project and his expertise and years of direct involvement with FERPA will help guide the ongoing application of privacy protection regulations within the development of Rhode Island's LDS.

With regard to this particular element, there are two areas of substantial need. The first is to develop a common understanding of Rhode Island laws that govern the use of wage and unemployment information for LDS analysis and policy research activities. The second is the need for the new P-20W Council to develop public documents that articulate data governance rules and protocols and in particular how confidential data will be accessible to which users and for what purposes.

***Data Quality.*** *A successful data system must ensure the integrity, security, and quality of data. It should include a plan for training those entering/using the data and procedures for monitoring the accuracy of information.*

In order to achieve the data-driven decision making outcomes that are the goal of Rhode Island's LDS, policymakers, practitioners, and the public at-large need to have the fullest confidence in the accuracy of data that is being used to formulate recommendations and action plans. While each of the agencies that collect data for the LDS implement rigorous collection and quality assurance protocols, the multitude levels at which data are collected means that training in the areas of data entry and data interpretation is an ongoing need. As a result, it is and will remain a priority.

In terms of data security, Rhode Island has a strong track record of implementing high security protocols to both safeguard data and ensure its uninterrupted access. Within state government, the Division of Information Technology with the Department of Administration oversees all data security and accessibility protocols, while the State has been consistent users of external IT security firms to assess its systems and those of its non-governmental partners such as ProvPlan. Much like ensuring data quality, focusing on data integrity and cybersecurity will remain an ongoing need. Despite its small size, Rhode Island has been significantly involved in the issues of cybersecurity - from both a policy and workforce development perspective. As a result, our ongoing LDS efforts will seek to leverage the local expertise that exists within institutes of higher education and industry.

***Interoperability.*** *The system should use a common set of data elements with common data standards to allow interoperability and comparability of data among programs such as the Common Education Data Standards (<http://nces.ed.gov/programs/ceds/>), as available and applicable. Other examples include the IPEDS data definitions, when applicable, the national/Federal coding systems, when applicable, such as Classification of*

*Instructional Programs (CIP) and Standard Occupational Classification (SOC) codes. At a minimum, any postsecondary data system(s) and/or workforce data system(s) developed under this grant must be linked to the State's K-12 SLDS, with a mechanism established for ongoing data exchange.*

Rhode Island will continue to focus on the issue of system interoperability, especially as the LDS continues its rapid expansion in terms of partners and data feeds. To facilitate this growth, the State of Rhode Island is committed to using the most current and robust data standards available.

As indicated above, RIDE is in the process of developing its new Enterprise Data System. In doing so, the agency is committed to ensuring that this system is compatible with Version 2 of the Common Education Data Standards (CEDS) and will monitor subsequent versions of CEDS that are developed in the coming years to ensure that the Enterprise System aligns to the new standards.

As outlined in the Project Deliverables sections, upgrades to the data infrastructure with RIOHE are a major need with respect to the ongoing development and maturation of the LDS. In implementing these upgrades, RIOHE is committed to making sure that it takes the necessary steps to continue using the Integrated Postsecondary Education Data System (IPEDS) as well as adopting CEDS. Definitions and code sets for the postsecondary items included in CEDS have been synchronized with the IPEDS glossary, which will support this activity. As reflected in the attached Statement of Partnership, RIDE is committed to sharing ideas, resources, and hardware (as appropriate) to help RIOHE make this transition to CEDS.

The existing mechanisms and strategies of integrating workforce data into Rhode Island's LDS are currently not as well defined as those for K-12 and higher education data. Although Version 2 of CEDS speaks to the ongoing need to integrate workforce elements into the structure, and there are expectations that future versions will do this, a review of the current 645 CEDS tables confirms its intent to support education data systems first and foremost. At this point, there are few CEDS elements that actually address workforce factors. As a result, Rhode Island is committed to establishing a customized system to integrate workforce data into the LDS to facilitate ongoing data exchange. In doing so, Rhode Island will seek to use the occupational taxonomy from the Standard Occupations Classification (SOC) and the more current Occupational Information Network (O\*NET) systems that RIDLT is currently using as part of their data management systems. Rhode Island will also monitor activities within other states and at the national level as workforce information becomes a much more integrated component into longitudinal data systems.

***Enterprise-wide Architecture.*** *A successful SLDS includes an enterprise-wide data architecture that links records across information systems and data elements across time and allows for longitudinal analysis. The architecture should include at a minimum a system for assigning unique student identifiers, a data dictionary, a data model, and business rules. The system must make data dictionaries publicly available.*

Rhode Island is committed to making sure that its LDS contains the architecture that can support and link a multitude of records at a temporal and cross-agency scale. To achieve this, Rhode Island has implemented a State-Assigned Student Identifier (SASID) – a system in which a unique number is provided to currently enrolled students and allows for the ability to track and measure across time and location. SASID data date back to 2004, which makes longitudinal data analysis for individuals prior to that time period more difficult, but certainly possible through the use of deterministic and probabilistic algorithm matching techniques that are currently in use.

In addition to having robust identifier systems, Rhode Island is committed to having a systematized P-20W data dictionary that is both universal and publicly available. At this point, state agencies and institutions of higher education that feed the LDS have slightly different data dictionaries, a current obstacle that the use of CEDS will help alleviate. Rhode Island has a good track record of amending its systems to promote standardization. Four examples of this work include the development of the eTranscript, the creation of Course Coding, the design of the Uniform Chart of Accounts, and the State's participation the Office of Special Education Programs indicator development project.

As part of the FY 2009 SLDS grant, RIDE, RIOHE and RIHEAA partnered to deliver a universal eTranscript. The transcript incorporated conversations with deans, admissions officers, guidance counselors, and principals about the content of this document. Together these agencies worked with practitioners across the state to develop and adopt one, universal transcript for secondary students that contains common course codes and data agreed upon by both the K-12 and post-secondary community. RIDE is working with WaytogoRI to develop an extract solution for our data warehouse so that transcript data pulled from our system can feed the eTranscript on demand.

In terms of course coding, RIDE has completed an alignment and classification of all secondary Science, Math, English Language Arts and History courses to the National Center for Education Statistics' School Codes for Exchange of Data standards. The revised course codes have been uploaded into a web-based, RIDE-developed course mapping tool that allows districts to bring the aligned course data into their student information systems. RIDE now has the capacity to perform transcript analysis that matters, in that course levels and rigor will be - for the first time - equivalent across all schools and districts. The course coding tool will be available to all LEAs in January 2012.

A third and fourth set of examples include RIDE's recent implementation of its Uniform Chart of Accounts (UCOA). This is a nationally recognized model that has aligned the finance and accounting mechanisms of every LEA in the state, thereby enabling greater possibilities of comparative and longitudinal analysis. Also, Rhode Island is one of the ten states selected to participate in receipt of Intensive Technical Assistance and Consultation by the National Post School Outcomes with has a significant focus on the percent of youth who are no longer in secondary school, had Individualized Education Plans (IEPs) in effect at the time they left school.

Having a strong enterprise-wide architecture within the LDS also means having consistent data models and business rules. Among LDS partners, RIDE is leading this effort through the design of systems that maximize the use of an Operational Data Store (ODS) that can integrate data from multiple sources, return data to operational systems for further operations work, and then advance it to the data warehouse for reporting and subsequent data marts and platforms for analysis (see Exhibit 1 on page 57 for how RIDE is achieving this type of architecture). Within the scope of this project, RIOHE and RIDLT will each design and implement a similar and congruent architecture.

#### **DATA USE REQUIREMENTS**

***Secure Access to Useful Data for Stakeholder Groups.*** *Appropriate and secure access to data must be provided to key stakeholder groups including policymakers, program staff from the state level agencies that have the responsibility for postsecondary and/or workforce programs, institution-level staff, and external researchers. Access must be balanced with the need to protect privacy and confidentiality consistent with privacy protection laws.*

The various state agencies whose data make up the LDS currently maintain appropriate and secure access to their data for internal staff and external stakeholder groups. The result is a functional, yet



disparate system of rules and guidelines that protect privacy and confidentiality consistent with protection laws. However, as the LDS continues to advance both in its diversity of data and the timeframe in which the system is seeking to cover, there is a demonstrated need for a more coordinated data layer cloud architecture.

As outlined in Exhibit 3 on page 59, the system that RIDE is developing consists of four layers. These include a *Public Layer* that gives the public access via the internet to various types of information, such as one-stop-access to anonymous aggregate education information and predefined aggregate reports for research and evaluation purposes. The second layer – *the Analytical Layer* – will provide secure and authorized access to information that can be manipulated in a highly efficient manner using powerful Online Analytical Processing (OLAP) tools. The OLAP structure will increase speed of queries that formerly could take hours to complete in a normalized database environment. For the deeper “drill-down” and/or “drill through” layers, the system will use the *Transactional Layer*, which includes detailed student information, as well as *the Confidential Layer* of student information that is marked as “private and confidential”. Within the latter, the highest level of security protocols will be in place to protect this information and to insure its appropriate usage.

***Data Use Deliverables.*** *The system must include deliverables to meet end-user needs (to inform decision-making and evaluate policies and programs) such as reporting and analysis tools. Design of these deliverables must be informed by early and sustained engagement of representatives from user groups to ensure the system will meet their information needs and continuously improve to meet evolving needs. Information must range along the P-20W continuum and include K-12 Feedback, Postsecondary Feedback, and Consumer Information.*

As reflected throughout this application (narrative, Statement of Agreement, and letters of support), RIDE and RIOHE have worked independently as well as collaboratively to support the ongoing development of the Rhode Island LDS. This joint commitment to building the capacity of the LDS has elevated the partnership in education in ways that have never existed before. In particular, such levels of collaboration have led to joint support of the RI DataHUB as the primary vehicle to support data analysis efforts that will provide feedback reports to K-12 and within higher education.

As of the end of 2011, much of the groundwork has been laid to develop these feedback mechanisms and it will be during the first six months of 2012 where the actual linking and subsequent analysis will begin to answer the essential questions that Rhode Island has asked about the functionality, performance, and inter-connectivity of the State’s K-12 and higher education systems. From there, Rhode Island is committed to advancing an agenda of “users and use” of the LDS (as articulated in Outcome #4). To achieve the goal of having informed stakeholders at every level of education, each of these agencies is committed to making sure that valuable information does not remain within the state agency infrastructure, but rather is distributed widely to LEAs, schools, institutes of higher education, and adult education and CTE programs. As these relationships continue to mature, greater levels of partnership with RIDLT and workforce programs will represent the next set of focused needs.

In addition to the strong capacity to produce actionable strategies through P-12 and postsecondary linkage and feedback, Rhode Island has taken seriously the desire and expectation to develop an LDS that engages students and parents as stakeholders. This commitment is best reflected in the progress that the State has made in the development of consumer information portals such as the website WaytogoRI.org. Developed and maintained by the RI Higher Education Assistance Authority (RIHEAA), WaytogoRI provides interactive career and college planning tools to help

students, parents, and educators explore education options, discover a wide variety of occupations, and make plans to achieve education and career goals. The site also allows students to maintain an electronic portfolio and provides them with free tools, career and college inventories, transcript tracking, and college applications to plan and prepare for their future.

***Training on Use of Data Tools and Products.*** *The system should include a professional development program to prepare end-users to effectively use the data use products.*

Rhode Island has already demonstrated a strong commitment to train LDS end users in several of its data platforms - with more activities slated to occur in conjunction with this proposal. There are several elements within the LDS in which ongoing training and technical support for end users represents a major need. These include the new RIDE data infrastructure system, the Rhode Island DataHUB, WaytogoRI, RIDE's new Instructional Management System (IMS), and RIDE's new Educator Performance and Support System (EPSS)

Over the past year, 250+ individuals have participated in hands-on trainings for the DataHUB and more trainings are expected to occur in the first half of 2012 as part of the FY 2009 SLDS project and the CACG project. Since September, RIHEAA has provided presentations and trainings on WaytogoRI to 10,000+ students, parents, educators, and others through college fairs, in-school presentations, principal meetings, and sessions with school faculty and military recruiters.

Meanwhile, RIDE has developed an extensive training schedule in 2012 as educators throughout Rhode Island become users of the IMS and the EPSS. These trainings – in conjunction with the State's RTT work – will focus on using data to improve instruction and provide appropriate interventions, incorporate data analysis into decision-making on a daily basis both independently and collaboratively, and both aggregated and disaggregated data appropriately for analyzing academic achievement at a student, classroom, school, district, and state level. Given the diversity of training formats that RIDE will use as part of its RTT work – lecture-style, webinars, WebEx, videos, virtual office hours, etc., our LDS project will greatly monitor the evaluation reports received in determining the most effective and appropriate approaches to provide training on data tools. As outlined in Project Deliverables Outcome #4, training and ongoing technical assistance on LDS platforms to the multitude of stakeholders represents a major deliverable for our project.

***Professional Development on Data Use.*** *The system should include a professional development program to help end-users effectively interpret/apply the data to inform decision-making and improve practices.*

Presently, Rhode Island does not possess a professional development program on data use as part of the certification or licensure process, but the State is committed to the development of such an effort. And, like many states, Rhode Island has yet to make adequate process in helping LDS end users make the transition from analysis to data-driven decision-making and improved operations. Such a system has not been developed due to the current focus on the actual design and launch of the LDS – a reality noted as a particular call-for-action by the Data Quality Campaign.

As articulated in the Statement of Agreement, participating entities in this proposal have a shared agenda to develop such a professional development and support system that leverages the use of the LDS to answer essential questions to a point where it can be a major contributor to policy making, operational enhancements, and decisions about resources. Outcome #4 of our proposal outlines the State's vision to provide training and ongoing technical assistance to all stakeholder groups so that they can effectively use the various data platforms within the LDS for this purpose.

***Evaluation of Data Products, Training, and Professional Development.*** *The system should include a process for evaluating the effectiveness of the data use deliverables, training and professional development programs.*

Given the incremental progress that Rhode Island has made in training end users and the lack of systems that currently exist to provide professional development to promote data driven decision-making, the State presently does not have a process for evaluating the effectiveness of such activities relative to its data platforms. Developing such an evaluation process is a component of Outcome #4, which will prioritize building the capacity of “users and use” of the LDS.

***Partnerships with Research Community.*** *The State must have a policy in place for the processing of requests for data for research purposes and for communicating the scope of data available for analysis. The State should establish partnerships with internal and/or external research groups to assist in answering questions that can inform policy and practice. The State should and actively disseminate research and analysis findings to the public while ensuring confidentiality of individual student data.*

Recognizing the important role that the research community must play in the design and operation of an LDS, Rhode Island has created the Longitudinal Data Analyses (LDA) Work Group as part of the CACG program. Established in 2010, the LDA Work Group is a broad and established group of social scientists and policy researchers across the state. The Work Group grew out of the Rhode Island Urban Education Task Force (2009) to pursue a statewide research agenda in the service of effective education programs, policy and practice. Examples of completed analyses by the LDA Work Group to date include student-level mobility studies in our urban districts and analyses of RIDE’s persistently lowest-achieving schools. These analyses have informed the development of LEA improvement plans. The LDA Work Group’s current set of activities— funded through the College Access Challenge Grant - is to develop a model for predicting post-high school outcomes using the power of the LDS.

Despite the foundation, function, and momentum that already exists within the Work Group, there remains a demonstrated need to expand the focus, scope, and membership of the group toward the issues associated with adult education, postsecondary career and technical education, and workforce development – areas where the group is admittedly not as strong as they are in PK-16 education. The expansion of the group, including greater involvement of institutional researchers from the State’s three public institutes of higher education, will be a key priority for the Work Group.

***Sustainability Plan.*** *The system must include a plan for sustaining the deliverables/training beyond the grant.*

As outlined above, the proposed scope to conduct an evaluation of LDS training, professional development, and data products within Project Deliverables Outcome #4 will also include efforts to identify methods and strategies to sustain the deliverables and training beyond the SLDS grant. While action toward filling this need has not really begun in earnest, Rhode Island is certainly thinking about methods and systems to sustain these activities through the leveraging of private foundation resources that will potentially see Rhode Island as a national model. Two sustainability strategies are currently under consideration: resources through the Annie E. Casey Foundation and partnerships through the National Neighborhoods Indicator Partnership (NNIP).

Rhode Island, and the capital city of Providence in particular, has had a 10-year relationship with the Casey Foundation via the Making Connections initiative, and we are currently a finalist (down to the last two) for the Foundation’s new multi-year Evidence-to-Success initiative. This purpose of this project is to deploy the use of evidence-based practices and approaches in the areas of child welfare

and human services to improve the social, educational, and economic outcomes for young children living in distressed communities. As part of the application and review process, Casey Foundation leadership has seen the DataHUB and other LDS platforms in action and these applications have had a large role in Rhode Island's case for funding. A decision regarding funding will occur in early 2012.

The secondary sustainability strategy that Rhode Island will pursue is through the Urban Institute and the NNIP. Rhode Island will host the annual NNIP meeting in September 2012 – an important event in which three dozen cities will present current models of democratizing data and promoting data-driven decision making. National funders are a major audience at the conference and as the conference host, our State will gain access to a variety of audiences and the opportunity to begin to lay the ground work for sustaining LDS efforts and implementation activities.

## **B. PROJECT DELIVERABLES FOR SYSTEM REQUIREMENTS & IMPLEMENTATION**

As outlined through the need section, RIDE, RIOHE, and RIDLT have worked to identify the most pressing needs for improvement to Rhode Island's LDS – an agreement that lends itself directly to Priority 3 (the improved coordination of data from various postsecondary institutions and systems and State workforce agencies in connection to the State's P-12 data system). Collectively, Rhode Island has identified four project outcomes and corresponding deliverables that respond to the most pressing needs associated with our LDS. In designing these outcomes, RIDE has made sure to them with the Governance and Policy, Technical, and Data Use Requirements discussed and analyzed in the previous section. Overall, our four outcomes are summarized as follows:

- 1. Integrate new sources of postsecondary data (adult education, career and technical education, and WIA-funded workforce development) into Rhode Island's current LDS.**
- 2. Invest in the data infrastructure and technology systems within RIOHE and RIDLT so that these agencies can more fully participate in Rhode Island's LDS.**
- 3. Identify adult learners as a critical and priority audience in the ongoing development of data tools that are specifically developed to support student/consumer level of the LDS.**
- 4. Prioritize "users and use" of the LDS by making investments in training and ongoing technical assistance for all stakeholders, especially practitioners and researchers.**

The remaining portion of this section consists of an overview of our outcomes, including evidence that the failure to address these needs will undermine our State's ability to create, use, and sustain an LDS that it is actionable, contextual, longitudinal, and interoperable. While guiding the future and ongoing governance of the State's P-20W agenda will also be an outcome associated with our project, this issue is more fully addressed in the section: Project Management and Governance Plan.

### **OUTCOME 1: Integrate new postsecondary data (adult education, career and technical education, and WIA-funded workforce development) into Rhode Island's current LDS.**

As highlighted in our Need for Project section, much of Rhode Island's efforts to develop its LDS to date have focused on promoting linkages and systems between the K-12 and higher education data systems. While these linkages will continue to evolve, Rhode Island recognizes the importance of expanding the scope of the LDS now to include other postsecondary data streams such as adult education, career and technical education (CTE), and workforce development program data.

In reality, this population of adult learners represents the single largest missing component in the State's LDS. Each year, an estimated 11,000 Rhode Islanders participate in adult education classes, postsecondary CTE programs, and WIA-funded workforce development trainings – a number that closely mirrors the number of in-state students at the University of Rhode Island (the state's largest 4-year institute of higher education). Despite these participation levels and the fact that a majority of participants in these programs are native-born Rhode Islanders who can be linked to their K-12 student records, Rhode Island has not yet attempted to integrate this data.

Having a greater understanding of the pre and post education and employment outcomes associated with residents participating in adult education, CTE, and WIA-funded workforce development programs will strengthen the State's capacity in numerous areas. These include the capacity to examine the efficiency of adult education and workforce program operations, the ability to develop and evaluate new models of program service that leverage technology-based learning approaches, and the opportunity to make meaningful policy and operational changes – based on established predictive factors – that will seek to improve the education and employment trajectories of residents.

In terms of current governance, RIDE has jurisdiction over the 36 publicly-funded adult education and the 18 occupational-oriented CTE programs in the State via its Office of Multiple Pathways, while RIDLT oversees 123 WIA workforce development programs via the Rhode Island Governor's Workforce Board (which officially functions as the state's Workforce Investment Board). Presently, the adult education (which includes GED), CTE, and workforce development programs all maintain their own data systems. The information gathered in these programs can be defined as operating within the "data systems of the past" in that data are collected to satisfy compliance and reporting requirements that typically flow in one direction – up. In recent years, RIDE and RIDLT have piloted small data exchanges among participants in these systems, but there has not been a comprehensive effort to bring these data sources into the LDS.

With the availability of new resources, Rhode Island will integrate these sources of postsecondary data into the LDS. This *Benchmark* deliverable will occur through a multi-step process in which both RIDE and RIDLT will make these data accessible to the LDS via the Rhode Island DataHUB. Such an outcome will create numerous opportunities for analysis and research that will benefit LDS stakeholders at multiple levels: students, parents, educators, administrators, service providers, and policy makers. Conversely, without such an investment, Rhode Island will continue to be "data-rich and insight poor" about one of the largest cohort of learners within the P-20W framework.

The process for introducing new datasets into the DataHUB has evolved over the past three years. During that time, ProvPlan has worked to integrate individual-level record data from several state agencies including: K-12 education data from RIDE, higher education data from RIOHE; public health data from the RI Department of Health, and child welfare data from the RI Department of Children, Youth, and Families. In the next six months, Medicaid data from RI Department of the Human Services and corrections data (incarceration/parole/probation) from the RI Department of Corrections will also be integrated into the DataHUB. ProvPlan has also had discussions with the RI Family Court regarding the addition of juvenile justice data to the DataHUB and the RI Department of Behavioral Health, Developmental Disabilities, and Hospitals regarding behavioral health data. In all of these instances, state agencies either have and/or will recognize ProvPlan as an authorized representative as it relates to specific federal and state regulation regarding data sharing for research.

As part of Outcome #1, ProvPlan will partner with RIDE to facilitate the data integration process of adult education/CTE data and RIDLT to manage a similar process with workforce development data. The first step of integrating these strands of data into the LDS will include ProvPlan amending its data-sharing agreement with RIDE and executing a new agreement with RIDLT.

While the work with each agency will differ slightly, the process will follow a scripted protocol that includes data preparation, data linkage, indicator development, and data story development – the latter being a popular format for a broad range of stakeholders that enables end users to interact directly with the data. In addition to the narrative below, Exhibit 2 on page 58 provides a diagram of the data integration procedures into the Rhode Island DataHUB.

Data preparation activities for each of these datasets begins with a series of meetings with agency staff to gain an understanding of the data: history, regulations, and other attributes that exist. Once the data have been transferred to ProvPlan using a mutually agreed upon secure method, ProvPlan will conduct an analysis of the data which involves a full examination of the data to assess validity, accuracy, completeness, consistency, and uniqueness. From there, ProvPlan will identify necessary data cleaning steps and complete a full documentation of data elements – a process that includes a review of business logic and historical changes to data.

After the data profiling is complete, ProvPlan will attempt to re-create data from published reports both as a method to understand the data and a measure of quality control to confirm correct transfer. After this process, ProvPlan will then move ahead with systematizing the data (cleaning, value-added fields, etc.) in preparation for importing the data into the DataHUB itself.

As the data are prepped for linkage activities, ProvPlan will begin a process to design and code the data table schema. As part of this process, ProvPlan will ensure that all relevant CEDS elements are included in the process as well as tables and data elements that are specific to more localized needs. This process will also focus on efforts to enhance the load process which will simplify the design of queries and reduce indicator computational demands. ProvPlan will produce a series of “dummy data” for this function so that programmers do not have access to any original data. Concurrent to the data model design process, ProvPlan will conduct a series of algorithm tests – adjusting the weights and thresholds of variables – to improve matching efforts.

After these steps are complete, ProvPlan will perform a series of linkage and matching activities. Similar to past data integration efforts, ProvPlan will use a combined deterministic and probabilistic matching protocol. The deterministic pass will primarily rely on name, date of birth, and SASID (if the latter is applicable). After the deterministic match of individuals is complete, an initial list of orphans (not matched names) will be generated. From there, ProvPlan will use probabilistic matching techniques to improve the overall match percentage. These techniques will include a double metaphone converter mechanism (i.e., a phonetic algorithm) to account for common spelling disparities, calculation of frequencies of each value found in the match population for each data field included in the pass, an adjustment to agreement and disagreement weights applied to each data field, and the blocking of certain elements to improve computational speed and efficiency. When all of these steps are complete, ProvPlan will conduct a series of data validation steps, followed by a process to import the data into existing DataHUB architecture.

To date, ProvPlan has had a high degree of success with these linking methods. For example, when ProvPlan added Rhode Island's incoming kindergarten class in 2010, the organization was able to match 90% of them with a lead poisoning test from the RI Department of Health data. Given that the purpose of the DataHUB as it relates to Rhode Island's LDS is to promote data-driven decision making and inform policymakers about their choices, such matching rates are more than suitable. The DataHUB is never used to determine program and/or public benefit eligibility.

Of course, the key purpose of integrating the adult education, CTE, and workforce development data into the Rhode Island DataHUB is to conduct a variety of analyses and answer many essential questions regarding policy and programmatic operations. To facilitate this, ProvPlan will convene a variety of stakeholder work groups in the adult education, CTE, and workforce development community to participate in the indicator development process. The interest for such activities within each of these sectors is outlined in letters of support on pages 92-100.

Similar to its data linkage approach, ProvPlan has developed a protocol to guide indicator development. This process begins by asking the work group to develop a series of essential questions that represent a prioritization of issues to be addressed both within the specific focus area (i.e., adult education) and the related longitudinal issues (i.e., linking P-12 to adult education to higher education data). This process results in the creation of consensus-driven essential questions. An example of a likely adult education essential question is: what are the differences in the first-year higher education persistence rates among enrolled students with a GED compared to enrolled students who graduated with a high school diploma in the prior spring?

After essential questions are formulated, ProvPlan will identify the data needed to answer them through the development of a query logic process. The basic requirements for this include a listing of the required information with the corresponding data elements and data tables. Next, the protocol outlines the identification of the unit(s) of analysis, the need for further definition of terms relative to the data dictionary, any disaggregations of data if needed, useful flags on the data based on past experience, and items that will require a subsequent data audit. From this process, the query logic is developed and provided to a programmer to reduce the risk of coding error. Once the query is performed and the indicator is created, ProvPlan will go through a multi-step process to validate the data output, document indicator metadata, and obtain workgroup feedback on the initial results.

The purpose of the indicator development process is to promote "Data Story" development. Data Stories are often the end product of a DataHUB linkage. Data Stories involve a multi-dimensional inquiry cycle in which a select group of individuals (i.e., the CTE Work Group) collaborate to create a series of interactive graphics (charts and maps) and text that seek to answer the essential question. This process effectively combines the topical expertise of the work group with the strategic clustering of indicators and other relevant data sets to support the process. In many ways, Data Stories end up becoming a primary vehicle for fulfilling and advancing an LDS research agenda.

Using a consensus-building approach that enables Work Group members to "roll up their sleeves" and build their own capacity to use data, the ultimate goal of Data Stories is to assemble a well-packaged set of findings, implications, and/or recommendations that can be subsequently presented to policy-making bodies, practitioner communities, or a variety of other stakeholders. Data Stories are also designed to operate in a self-guided capacity on the DataHUB website, enabling even the most novice user to receive high-quality data and information.

In addition to the *Benchmark* delivery associated with Outcome 1 (the integration of adult education, CTE, and workforce development data into the LDS), RIDE, RIOHE, and RIDLT will partner with ProvPlan to create a set of *Product* deliverables in the form of 18 Data Stories - with the goal of designing six stories link adult education data, six that use CTE data, and six that use workforce. All of these data stories will leverage data along with the P-20W continuum via the Rhode Island DataHUB. A detailed timeline in association with these deliverables is on page 30.

**OUTCOME 2: Invest in the data infrastructure and technology systems within RIOHE and RIDLT so that these agencies can more fully participate in Rhode Island's LDS.**

Compared to the robust data infrastructure that will exist at RIDE by mid-2012, both RIOHE and RIDLT need to make fundamental investments in their technology systems in order to participate as full partners in the ongoing development of Rhode Island's LDS. Without these investments, the level of progress in which Rhode Island can establish and use an LDS will be significantly impeded.

The good news is that RIOHE and RIDLT each have a solid understanding about their needs. The development of an LDS-supporting data infrastructure at RIOHE was part of the State's ARRA SLDS request, while RIDLT proposed building an internal data warehouse structure to support LDS efforts as part of their Workforce Data Quality Initiative proposal to DOL in 2010. Although neither proposal was funded, this application leverages the groundwork that has already been laid.

In assessing its own needs for internal data warehouse capacity, RIOHE recognizes the immediate return on investment associated with building a much-updated system that aligns to the protocols and procedures outlined in the Common Education Data Standards (CEDS). Such an outcome would allow for RIOHE to understand its own higher education data better from a policy and operations perspective. In addition, an updated system would facilitate greater data linkage capacity with P-12 data, adult education and CTE data, and eventually workforce outcomes data.

Much like RIOHE, an investment in RIDLT's data infrastructure needs will make substantial strides in helping to align disparate data systems that were initially designed to satisfy reporting functions and not to link with any type of longitudinal data system. In making this transition to a more integrated data infrastructure, RIDLT will leverage its strong working relationship with the Division of Information Technology within the Rhode Island Department of Administration. This cohort of IT professionals has managed the development of RIDLT's hardware systems over the years to establish high levels of security and availability – as reflected by the fact that it meets Tier 2 specifications as described by the TIA-942 standards (Telecommunications Industry Association).

As Rhode Island looks to further build out its LDS and the data systems that fuel it, all participating agencies are working collaboratively to understand how the various federal laws such as the Family Education Rights and Privacy Act (FERPA), the Carl D. Perkins Act (which focuses on CTE), and the Rhode Island Employment Security Act play a role in both the design process and the designation of authorized representatives with regard to Personally Identifiable Information (PII).

As part of this process, legal staff at all agencies have and will continue to build a long-term relationship to understand the various and changing methods in which data stewardship under FERPA can be preserved, while expanding the utility of the LDS to include workforce data. Pursuing these types of solutions collaboratively is essential to building the types of trust, transparency, and accountability needed to promote appropriate data-sharing protocols. Through



these established partnerships, confidence will continue to build in a manner that paves the way for numerous other linkages and analyses that provide real opportunity to reap the potential of the LDS.

In terms of the proposed investments for each of these agencies, each will build a new internal data warehouse structure designed with the goal of promoting a more integrated LDS along a P-20W continuum. These will be considered *Product* deliverables as part of the SLDS grant. In accordance with the project timelines outlined on page 31, RIOHE will build an updated information storage architecture and information retrieval system that will provide for an integrated store of higher education information (both vertically and horizontally). The process of developing the integrated store will meet RIOHE's technology objectives in that the process will provide designated users with secure and controlled access to student, teacher, curriculum, program, and organizational information. A similar set of deliverables will also emerge from the RIDLT investment – in terms of storage architecture and retrieval systems - that will result in an integrated store of workforce information (both vertically and horizontally). In the case of RIDLT, authorized users will gain secure and controlled access to data and information related to the agency's workforce development services, unemployment insurance data, and workforce regulation and safety information.

In terms of design, both data warehouse storage frameworks will be built around a central client data storehouse that provides an enterprise wide, client centric view of the "virtual agency". This storehouse will include client and case data and links to the sources of data in the various operational IT systems. These links and the central data architecture will allow managers to perform online application processing (OLAP) analysis of enterprise-wide data to help determine the outcomes of the services and programs received both within RIOHE and RIDLT.

In both instances, the data warehouse information storage framework will be invisible to the user but will provide a set of tools and standards used by developers to create the other components of the framework as well as the data warehouse functions. The benefits to the end user will be seen in the robustness and breadth of the capabilities to be found in the data warehouse functions. The key component of the information storage framework will be the database of individual-level records on each client served by the various higher education and workforce entities that feed the data.

The data warehouse access/presentation frameworks will provide a common look and feel, data management, functional navigation, and data integration service components. Each will have a presentation framework in a Web portal shell or electronic Gateway (eGateway) that will allow users to work more effectively and will reduce costs for training and support services. Users will be presented with the eGateway shells from which they can launch, run, view and manage numerous data warehouse components concurrently. The shell will also provide common functionality, such as navigation and menus that are shared among all respective data warehouse applications. The look and feel of the entire data warehouse (names and color schemes) will be managed in one place for all functions making it a simple matter to integrate the data warehouse with the look and feel of the master design standards. For each agency, functional components of the presentation eGateway framework include: a customizable welcome page; central logon/logoff; launch and close functions; view of active functions; navigation between functions; context specific menus based on user authorization; and a centralized Help facility.

The data warehouse security framework for each system will increase effectiveness by supporting individual privacy rights while allowing access to information for appropriate purposes based on the

users “need to know” security profile. Information will be categorized based on how specific to an individual client it is, and it is organized into “cartridges” according to which agency “owns” it, allowing for fine grained targeting of access permissions to just those individuals with authorization.

Overall, the base architecture of the data warehouse infrastructures to be built at RIOHE and RIDLT will improve organizational effectiveness by providing a student/client centric view of the profiles and activities of the respective service recipients. The systems will be designed to support outcomes research to allow policymaking analysis to consider all of the services that students/clients may receive. The new infrastructures will also support program effectiveness by allowing appropriate RIOHE and RIDLT staff and their authorized representatives to monitor all of the activities associated with a particular student/client across all relevant programs. Of course, each of these data warehouse infrastructures will be designed to effectively stream and link information into the RI DataHUB to support ongoing LDS development along a P-20W continuum. In addition to the building of the data warehouses at RIOHE and RIDLT, the proposed scopes of work with regard to this goal will also include a strong commitment to training and ongoing technical assistance for data warehouse end users. These activities are listed in Outcome 4 and in our timelines.

### **OUTCOME 3. Identify adult learners as a critical and priority audience in the development of data tools that are specifically developed to support student/consumer level of the LDS.**

In developing the student/consumer components of its LDS, Rhode Island has wisely invested in WaytogoRI to help connect middle and high school students directly to resources that build their own capacity to plan for college and career. Since its launch in 2009, WaytogoRI has had more than 125,000 accounts created, strong web traffic, and an active cohort of educators who are using the website as a teaching, advisory and guidance tool. Despite the efforts that educational leaders have made in Rhode Island to promote student level use of the LDS, the State has yet to extend its reach to include adult learners – a major gap in the LDS that Rhode Island seeks to correct in this project. This section describes those deliverables (Features and Benchmarks) that will lead to key developments in the evolution of our LDS – namely, the launch of a web-based adult education portal within WaytogoRI.

According to the 2010 census, Rhode Island had 150,431 adults who were considered to be part of the adult education target population in Rhode Island. Here, the term “target population” is defined as residents who are at least 16 years-old, not enrolled in school, and who either may not have a high school diploma and/or are limited English proficient. By comparison, the number of students enrolled in Rhode Island’s elementary and secondary system is 142,874 – five percent fewer than the number of adult learners. It is no secret within state education circles that despite the ongoing need to support, nurture, and invest in our P-12 population that a great disparity exists in the levels of services - information and programmatic - that currently meet the needs of adult learners.

Over the past year, key stakeholders in Rhode Island’s adult education community have come together using discreet amounts of philanthropic funds and significant in-kind resources to design a mock-up of an adult learner portal within WaytogoRI. Not only would the current design of the portal let adult learners access a variety of adult education resources but also provide them the capacity to track their own progress in CALIS – the Comprehensive Adult Literacy Information System database system the State uses to measure changes in educational functioning levels among adult education participants. Through an impressive grassroots effort, adult education stakeholders

have made the case to RIDE, RIHEAA, and others that the demand among the adult learner community is there and that the adult learner portal has the ability to support the ever-expanding needs of adult learners. This is especially the case with regard to ongoing efforts to create blended-learning programs that combine traditional in-class work and technology-based delivery approaches that provide adult learners with greater levels of flexibility in terms of time, place, space, and pace.

Recognizing the reality of limited resources and the need to leverage existing capacity, the development team of the Rhode Island adult education portal is seeking to integrate its vision for an adult education portal into WaytogoRI – the portal that RIDE has made the cornerstone of its LDS efforts to meet the needs of middle school and high school students (and their parents).

An integrated adult learner portal within WaytogoRI would include providing end users with existing web-based adult education and career resources in Rhode Island as well as the development of a complementary database that would provide additional resources to directly support adult basic education (ABE) learners English for Speakers of Other Languages (ESOL) learners, and/or those participating in technology-based learning approaches. In many ways, the development of this portal work is driven by the acknowledged lack of alignment that exists between adult education resources and certificate/degree programs and between vocational education and career pathways. It is this lack of alignment that ultimately inhibits the ability of adult education practitioners, students, and would-be students from navigating the existing systems in an effective manner.

To-date, the initial design of the portal and preliminary testing of the adult education user interface have been completed. Building on the existing business plan, the development team is ready to identify the specific requirements for resource integration, outline a business logic that would need to be developed, and design an RFP to hire developers to oversee the creation of various APIs (application programming interfaces). LDS investment would support system build-out, integration, and testing of the portal as well as the public roll-out phase and training (Outcome 4) that would activate and sustain the adult education community user-base. The design of the adult education portal seeks to leverage five online resources listed below, while Exhibit 4 on page 60 illustrates how the portal will function with existing resources to cover the adult services continuum.

- *WaytogoRI*, which currently serves K-12 college-bound students as a planning tool. Waytogo is a customized implementation of a platform used by many states, provided by XAP Corp.
- *EmployRI*, funded by RIDLT and intended to match job seekers with employers, is a customized implementation of a platform used by many states.
- *AskRI*, funded by RI Office of Library and Information Services (OLIS), presents a range of learning and information resources for residents of the state
- *Rhode Island 211*, operated by the United Way of Rhode Island, provides work-life resource referral services, both through a call center and online.
- *CALIS*, funded by RIDE for adult education data reporting and monitoring, is a customized implementation of a platform maintained by Benchmark Corporation.

In terms of interim steps associated with the adult education portal deliverable, the build-out of the portal will require research and development of a resource database that includes the added place-based and distance-learning programs and services and an enhanced WaytogoRI website interface. Such an interface will be developed to allow for user goal-setting, directed self-placement, and

resource presentation. Users will access a landing page that allows them to select one or multiple goals (e.g. improve reading/writing/math, get high school diploma/ GED, get job training, etc.) and self-placement criteria (e.g. beginner, intermediate or advanced math level, industry interest areas, class time/ location preferences etc.). Such a process will occur through highly graphical screens that are designed for adult learners. Based on the choices that the user makes, they will be presented with prioritized, high-quality resources that are organized in accordance with those goals. The resource presentation page will show the most recommended resources. Users will be able to “favorite” resources, which keeps them on the page, and to ask for more or different resources.

As mentioned in earlier sections, WaytogoRI allows users to maintain an electronic portfolio which, for the adult learner, will consist of current goals, goal history, directed self-placement, formal assessment results, and resource usage. The planned interface enhancements will also provide adult educators with access to information that assists them with learning management, reporting and administration. Educators will also be able to conduct batch uploads to register adult learners for accounts in WaytogoRI.

An effective build-out of the adult education portal will also involve steps to ensure that as users access data (residing in different sources), they are provided with a unified view of these data. The web application-developers will construct a schema in ways that model the kinds of answers adult learners are seeking. Developers will design "wrappers" or adapters for each data source, such as vocational training options or employment opportunities. When an application-user performs a query through the portal, the data-integration solution will transform this query into appropriate queries (conducted through the goal-setting and self-directed placement screens described above) over the respective data sources. Finally, the virtual database will combine the results of these queries into the answer to the user's query (the resources presentation). The data integration work will focus on integrating current WaytogoRI interface with the CALIS and EmployRI websites.

To promote technology-based learning opportunities, the portal will also be designed to support distance learners and to support practitioners in using distance learning to complement their classroom programs. An inventory of the costs and utilization of distance learning programs for adult learners across the state is underway, and the intention is to realize significant savings and improved utilization by combining resources and seeking statewide licenses. To facilitate distance-learning utilization, we will implement a single sign-on solution so that the WaytogoRI user logs in once and gains access to distance learning programs without being prompted to log in again.

In preparation for the public rollout of the adult education portal in Spring/Summer 2013, a soft-launch will be conducted, along with testing, troubleshooting, and refinement. The soft launch will involve user focus groups consisting of adult learners, adult education professionals, post-secondary institutions, employers, and policy-makers. The successful implementation and roll-out of the adult education portal will rely on the design and delivery of targeted professional development for targeted users in the adult education community (Outcome 4). Project partners will collaborate to provide instructor-led trainings as well as to develop online tutorials and resources (Outcome 4).

The adult education portal development team consists of representatives from RIHEAA, RI Adult Education Professional Development Center, WorkSource Partners, Rhode Island Family Literacy Initiative, and RIDLT. Project roles and responsibilities are detailed in the staffing section on page 39. All in all, as part of our state's comprehensive LDS, the adult education portal will be deployed

to generate useful consumer information to assist current and future learners and members of the workforce. RIHEAA and the Adult Education Professional Development Center are poised to make this portal one of the primary deliverables associated with strengthening the State's LDS.

**OUTCOME 4. Prioritize “users and use” of the LDS by making investments in training and ongoing technical assistance for all stakeholders, especially practitioners and researchers.**

Similar to the majority of states engaged in LDS implementation, Rhode Island is confronting the challenges of cultivating user groups among stakeholders and helping them navigate the information platforms that are most suited to their interests and needs. In this vein, the Rhode Island LDS Data Platforms - WaytoGoRI, DataHUB, and Information Works LIVE! – will forever fall short of expectations if they are not being used to inform decision making at the policy and operations levels.

To fully capitalize on an expanded LDS that incorporates new sources of postsecondary data and reap the benefits of a strengthened RIDLT and RIOHE data infrastructure, Rhode Island must ensure that its targeted user-base has the training and ongoing technical support to leverage the power of an enhanced P-20W LDS. To achieve this, Rhode Island must have an established LDS governance structure that provides guidance on data management and access, engagement of representatives from user groups, and an institutionalized data use professional development and user support model – as outlined in the system requirements overview in the needs section.

When the Data Quality Campaign released the 7<sup>th</sup> annual state analysis (Data for Action 2011), one of their central findings was that with few exceptions, states were still wrestling with the transition from developing systems to building stakeholder capacity to use the data to guide their decisions. In order to leverage the capacity of the LDS to promote data-driven decision making in Rhode Island, the state is committed to applying a substantial portion of LDS funding (via this grant) to achieving our fourth project goal – investing in training and technical assistance (TA) activities that prioritize users by ensuring that data can be accessed, analyzed, and used by all stakeholders.

To achieve the deliverable for more users and use of LDS platforms, RIDE and its project partners are committed to increasing staffing capacity devoted to this specific effort. Thus, in addition to the LDS Project Director, our project will include two other positions – an LDS Manager for Research & Evaluation Partnerships and a DataHUB Help Desk Coordinator. These personnel will implement systems to provide access to information and build capacity of stakeholders to use data for effective decision making. These outcomes will occur by focusing on three areas of work: 1) facilitating the development of research agendas that leverage the LDS capacity, 2) promoting professional development opportunities, and 3) raising awareness of available data.

**PROMOTING USER-SHIP VIA AN LDS MANAGER FOR RESEARCH & EVALUATION PARTNERSHIPS**

The LDS Manager for Research & Evaluation Partnerships will be responsible for collaborating with agency (RIDE, RIDLT, RIOHE) staff and LDS governance members to develop formal LDS data-use policies and researcher engagement protocols. This will occur in year one of the project. The Manager will also cultivate internal and external partnerships for research. In terms of LDS evaluation activities, the LDS Manager for Research & Evaluation will develop and perform both formative and summative evaluations in accordance with the LDS vision, goals, and objectives as well as identify, engage and manage external evaluation consultants to measure our project's impact.

