Texas Education Agency  
Educator Preparation Program  
Data Systems Integration  
Request for Proposals

Summary

This document is a request for proposals to define, develop, and implement a technology solution for Educator Preparation Programs in Texas. The project is a technology pilot that includes some planning and support for a full production rollout.

This RFP is issued by the Bill & Melinda Gates Foundation. The project is being undertaken at the request of the Texas Education Agency (TEA). TEA will lead the project and direct and control the activities of the selected vendor.

Copies of proposals will be provided upon request. See the Disclosure Notice for additional information regarding disclosure of submission materials. Contractor is required to make any information created or exchanged with the State pursuant to this contract, and not otherwise exempt from disclosure under the Texas Public Information Act, available in a format that is accessible by the public at no additional charge to the State. The contractor and TEA will agree on the specific format that will be used.

Responses must be received by 8/5/2019 5:00pm EST.

Background

Guided by the belief that all lives have equal value, the Bill & Melinda Gates Foundation is committed to ensuring that all students in the United States have the opportunity to receive a high-quality education. Our K–12 program aims to increase the number of Black, Latino, and low-income students who earn a high school diploma, enroll in a postsecondary institution, and are on-track in their first year to attain a high-quality credential.

In order to train, recruit, hire, develop, and retain great teachers, educator preparation programs (EPPs), local education agencies (LEAs), and state education agencies (SEAs) need consistent and reliable data on teacher talent. However, when it comes to teacher talent management data, particularly in the teacher preparation domain, data is scattered in multiple systems across
organizations. As a result, EPPs, LEAs, and SEAs struggle to get the data they need to continue to improve and supply exceptional teachers for our nation’s schools. Teacher preparation data management is not only a challenge internal to EPPs, LEAs, and SEAs, but also in the data exchange between these different types of organizations. To date, there has been little effort in understanding, inventorying, and prioritizing the data exchange use cases between EPPs, LEAs, and SEAs. In addition, improving interoperability across all sources of teacher talent data to make critical information available to EPPs, LEAs, and SEAs has not been achieved in the K–20 sector.

Despite these challenges, the Texas Education Agency (TEA) Educator Leadership and Quality (ELQ) team is committed to helping the EPP community continue to improve the recruitment, support and retention of teachers and principals. Strong classroom instruction, supported by effective instructional leaders, makes a tremendous difference in ensuring that students are progressing to achieve the state’s vision of preparing the public school students in Texas for success in college, career, or the military. To accomplish this, TEA will help EPPs access the information they need to strengthen the teacher pipeline and support the development of teachers statewide.

The TEA ELQ understands that supporting strong EPPs is vital in this process. The agency is actively working to create systems and feedback mechanisms to aid Texas EPPs in continuous improvement. An important component to that are the data the agency provides to EPPs to illuminate areas of strength in their programs while also ensuring statewide standards are met.

The project described in this RFP will create an efficient data pipeline coupled with advanced analytics. The work will support all EPPs in Texas, and will serve as a useful proof point to SEAs, LEAs, and EPPs across the U.S.

Project Overview

Context

Presently, the TEA collects data from EPPs via numerous sources and methods. Some EPPs submit data directly into an existing information system called the Educator Certification Online System (ECOS). The information in ECOS is used to conduct analyses related to compliance and accreditation. Additional data are sent directly to the TEA from EPPs as flat files attached to email messages. That data is then manually standardized, validated, compiled, and analyzed.

TEA collects various types of data throughout the year. EPPs may submit data at their discretion so long as they meet specific annual submission deadlines. Using the data provided by EPPs,
TEA reports mid-year information in March and end-of-year reports, including accreditation statuses, in October.

TEA returns this information back to EPPs for programmatic improvement and understanding of their accreditation status. EPPs have the ability to respond to the data, request an informal review of their data, or accept the data and status. Currently, this information is a static report updated once per year.

Much of the work in this project is centered around the implementation of user-facing dashboards to support EPPs, similar to the example below:

![Dashboard Example](image)

TEA intends to adapt an existing dashboard suite built using Power BI and Microsoft SQL Server Analysis Services. These dashboards are referred to as the Collaborative Dashboards or simply dashboards throughout this document. Additional example dashboards are attached [here](#).

This project also includes the establishment of well-functioning data pipelines to support those dashboards, and training stakeholders on data submission and data use. The Ed-Fi Operational Data Store and Application Programming Interface will serve as the center of the data pipeline.

This project includes a pilot with a small set of Texas EPPs, which will be identified by the TEA. In addition, the work includes activity to support the transition to a full production system.
Objectives

This project will significantly improve existing EPP reporting mechanisms while providing new and valuable information for the TEA, the EPP community, and stakeholders throughout Texas.

The primary objectives for this project include:

- **Reduce technical and personnel costs of current EPP processes.** This project will result in a new, centralized data store and flexible, efficient data pipelines. Using this new technology, EPPs can automate data sent to TEA from existing information systems and modernize what are currently manual processes.

- **Efficiently process and disseminate new information about EPPs.** This project will result in useful information being made available to EPPs and other stakeholders. Much of the information is collected in some form today, but not necessarily easily available to EPP stakeholders. Existing TEA data sources will be used as a source of information wherever possible. Detailed analysis performed under this project will ensure that new information requests are kept to a minimum. The Ed-Fi APIs with the Teacher Prep Data Model (TPDM) will be the primary way that data is gathered for the dashboards.

- **Increase EPP data quality.** By applying business rules to the new flexible-but-well-defined data pipelines, this project will improve data quality as EPPs gain access to a more robust and real-time data validation process. In addition, this project has a training and support component designed to ensure EPPs and their vendors understand the information being provided and are equipped to deal with any problems that arise.

- **Provide EPPs and the TEA with timely and accurate information about their programs.** This project will result in technology that supports near-real-time data updating and easy, secure access to a broader set of information than is available today. EPPs will have a robust set of data points by which to evaluate and improve their own programs. TEA ELQ will have analytics that allow the agency to conduct rigorous research on effective practices.

- **Increase transparency and stakeholder access to information.** This project will result in dashboards that EPPs can access and use to get more in-depth understanding of their programs’ strengths and opportunities for improvement. TEA will utilize the dashboards developed via a collaboration of EPPs supported by BMGF. In addition, TEA ELQ will publish public-facing dashboards that allow any interested stakeholders (including LEA staff, policymakers, and other states) to see EPP data and gain a deeper understanding of how educator prep programs play a role in the larger education context.

Technology Environment & Constraints

This section covers the primary technologies relevant to this project.
General Technology Environment
Much of the server-side technical work related to this project will be deployed on TEA resources and cloud-based services. The relevant systems at the TEA and its primary SaaS vendors leverage a Microsoft technology stack, and this project is generally expected to do likewise. However, additional technologies are present.

Specific platforms and technologies include:

- Microsoft SQL Server
- Sybase Database
- DB2
- SQL Server Temporal Tables
- Microsoft Internet Information Server
- C#
- ASP.NET
- xUnit Testing Framework
- Power BI
- SQL Server Integration Services
- NAnt Build Framework
- Java 8 & Spring Framework
- JBoss
- RESTful APIs

Additional Microsoft and Java enterprise products may be relevant. Qualified RFP respondents will have experience and expertise in the TEA-supported technologies they select for use.

Existing TEA Systems
A few TEA systems relevant to this project:

- **ECOS.** The [Educator Certification Online System](#) mentioned above. ECOS will be a primary data source and integration point for this project. ECOS encompasses major subsystems such as the [Accountability System for Educator Preparation (ASEP)](#) relevant to this project. Relevant survey data from principals and teacher completers are generated by a third party system but also stored in ECOS. ECOS is a Sybase database solution.
- **Spreadsheets.** EPPs provide detailed, candidate-level academic and enrollment data in Excel templates. Much of the candidate status and performance data in the said spreadsheets is relevant to this project. The TEA supports multiple methods to receive EPP data. For the purposes of this pilot project, most of the data will originate in ECOS.
• **PEIMS.** The Public Education Information Management System. Contains information about educator employment, which feeds into outcome metrics in the EPP dashboard. The PEIMS system **Main PRD** data will be a primary data source for this project. Main PRD is a DB2 database solution.

• **TEAL.** The Texas Education Agency Login system. An authentication and identity provider system. TEAL currently provides authentication for data submissions from EPPs. For this project, TEAL will be used to secure new user-facing resources such as the dashboards.

• **Qualtrics.** A TEA commercial vendor system containing relevant teacher candidate survey information.

**Ed-Fi Technology & Data Standard**
The Ed-Fi Alliance publishes several technology products relevant to this project.

• **Ed-Fi ODS/API.** The Ed-Fi ODS/API is a relational database and companion API. The ODS/API contains a robust core of information relevant to K–12 education, including teachers, students, academic outcomes, and similar. Significantly for this project, the ODS/API can be extended.

• **Ed-Fi Data Standard.** The Ed-Fi Data Standard defines the core data model used throughout all Ed-Fi products including the Ed-Fi ODS/API. The Data Standard also includes Design & Implementation Guidelines for the API.
  ○ This project will target products and data exchange models aligned with the Ed-Fi Data Standard v3.1.

• **Teacher Preparation Data Model.** The Teacher Preparation Data Model (TPDM) is an extension to the Ed-Fi Data Standard that has been applied to an Ed-Fi ODS/API. This extended system, notionally called the **TPDM ODS/API**, will host the primary information relevant to this project.
  ○ Development of the TPDM was informed by a large community of stakeholders including representatives from EPPs, districts, and state education agencies. The TPDM was purpose-built by EPPs to serve use cases such as the ones defined in this project.
  ○ Data exchanges and dashboard-type reporting based on the TPDM have been used in prior field work. Technical artifacts, including the Power BI dashboard implementations, will be available for reference and use where appropriate.
  ○ The TPDM ODS/API is currently in pre-release. A modest amount of changes should be expected, but interfaces will generally be stabilized prior to the project start date.
  ○ Documentation for the latest TPDM ODS/API interface is available online. The documentation is a late-stage draft, and so will go through minor revisions but is a reasonably complete representation of the TPDM API interface.
○ For this project, the RFP respondent is responsible for integration with the TPDM system, not the development or hosting of the datastore itself. The TPDM ODS/API platform will be provided as a service by a TEA vendor, likely as separate instances for each pilot EPP.
○ The TPDM ODS/API will be a hosted, cloud-based deployment.

• **EPP Collaborative Dashboards.** The Collaborative Dashboards are the result of a joint project between EPPs across the United States to design and develop visualizations based on the TPDM. The Dashboards are developed in Power BI and plug directly into a TPDM ODS/API.
  ○ The EPP Collaborative Dashboards are populated via a **Semantic Model** created via SQL Server Analysis Services. The Semantic Model connects directly to database views built into the TPDM ODS.

The TPDM ODS/API is a relatively new technology, so field experience is not required to qualify for this RFP. However, the ideal RFP respondent will have practical experience working with divergent information and data systems, managing complex field implementations, and working with Ed-Fi technologies.

**Enterprise SaaS Products**
The TEA will leverage a few SaaS products related to this project.

• **SaaS Ed-Fi ODS/API Integration System.** This SaaS solution will be a cloud-based enterprise integration platform with built-in support for exchanging data aligned with the Ed-Fi Data Standards. This includes the TPDM APIs and TPDM ODS. This product will provide data integration with EPP systems.

• **SaaS Business Rules Engine.** This SaaS solution will provide a data quality and business rule integrity engine. TEA will use this product in its EPP data pipelines to ensure a reasonable level of quality and compliance when data moves from systems to the TPDM ODS.

This project includes the definition of business rules, some of which will likely require implementation by the responding vendor in the SaaS Business Rules Engine. The responding vendor should also include a training component that will help EPPs understand the proper use of the system. The specific SaaS solutions will be determined prior to project integration start.

**Vision & Scope**
This section generally describes the scope of work included in this RFP and the major connections to stakeholders and other projects.
**Solution Overview**

The following solution overview diagram provides a high-level overview of the system envisioned for this pilot project (full-resolution version):

The components in orange are primarily the responsibility of the RFP respondent. Specific tasks and work product are discussed in detail in the Activities & Deliverables section below.

**General Plan**

This section provides a high-level plan to give an overall sense of the work. The iterative definition and development process was adapted from general TPDM implementation guidance based on best practices established in an earlier phase of planning work.

**Phase I. Initial Analysis & Overall Planning**

1. Conduct startup meetings, introductions. Conduct scope clarification discussions with TEA stakeholders, coordination meetings with related project leads. Verify that use cases are reasonable and aligned with goals.
2. Initiate project management tasks including creation and confirmation of project plan, recurring meeting types and risk management planning.
4. Identify relevant source data, primarily from existing systems and data stores. Conduct preliminary analysis of data domains and data sources for high-priority use cases.
5. Review TEA security processes and ensure development planning includes the TEA security team.
6. Finalize project use-cases, scope, and schedule. Create initial plan for transition to full production system. Refine activity and deliverable list.

Phase II. Iterative Development & Training Phase

7. Select data domain and use case or limited set of use cases upon which to focus for this pilot project. Identify data sources, pipelines.
8. Gather initial input and feedback from stakeholders at EPPs, TEA. Refine use cases and Collaborative Dashboard data visualizations where applicable.
9. Specify relevant data exchanges between systems and data stores.
11. Establish data pipelines for focused data domain. Modify or extend existing pipelines where possible, develop new data source APIs and pipelines where necessary.
12. Define and implement business rules and data quality checks.
13. Operationalize the TPDM APIs for relevant stakeholders. Perform end-to-end testing of data flows.
14. Integrate relevant Collaborative Dashboards with TPDM ODS/API.
16. Load data into dashboards.
17. Review result with end-users at EPPs, TEA, and other identified audiences for usability and quality. Perform initial training for reviewers, early adopters, vendors.
18. Train end users, technologists.
19. Provide technical integration support for vendors, evangelize for the solution where needed.
20. Operate and support relevant data pipelines.
21. Iterate.

Phase III. Transition Support & Project Closure

22. Update and refine transition plan.
25. Support transition to the full production system.
26. Perform knowledge transfer activities with TEA and other long-term owners of the solution.
Use Cases & Data Domain Scope

This section provides an overview of data relevant to this project and the expected uses of that information.

Information of Interest

The general types of data of primary interest to this project are:

- **EPP general accountability data.** These data include information about that is already collected within ECOS but serve as the foundation of TEA’s EPP reporting and accountability system. This data includes but is not limited to candidate testing and pass rates, general demographic information about candidates, program acceptance rates, survey responses, and candidate performance information.

- **EPP educator employment.** These data include information about whether and where educators trained by an EPP are employed, and can establish the outcomes for their students. This will help EPPs understand how many of their candidates are placed, in which districts/subject areas/grade levels, and whether their teacher candidates are retained in a district. This in turn will help EPPs enhance their programs by illuminating programmatic success in preparing candidates for the classroom, while better understanding the districts and campuses where their teachers are working. In the TEA context, a primary data source will be the PEIMS system. This is a benefit to participating EPPs because the programs currently do not have access to the information, and adding access requires no new data on their part.

- **Field observation data.** These data consist of EPP observations of their teacher candidates. EPPs will utilize this data to understand areas of strength and weakness for their teacher candidates during their residency experience. It can help EPPs determine if there are areas where their curriculum and practical experiences must be enhanced. This can also help EPPs improve the selection of mentor teachers. General data will be supplied by TEA systems that track basic information such as the count and duration of observations. Additional data including notes, scores on observation rubrics, and other locally distinct information will be supplied by EPPs. The observation data is collected and validated in intervals throughout the year. This new solution will allow for more timely analysis of the data.

- **Educator survey data.** These data consist of responses to surveys of early career educators regarding their perception of their educator preparation, from teacher candidates who have completed the EPP program, and from school principals who manage newly hired teachers. EPPs can receive their survey results in large flat files if requested. This process will transform their ability to interpret their results and drill down through the data. Survey results are critical data that convey how well teacher candidates feel prepared to enter the classroom and effectively deliver instruction. Survey results also help EPPs to understand why their graduates choose to stay or leave the teaching
Based on stakeholder input, RFP respondents will analyze data sources and specific data domains related to these general areas. This analysis will inform the data required to populate the dashboard visualizations and will define the data pipelines for this project.

Use Case Overview
With access to the data noted above, several use cases are possible that are not supported anywhere in the Texas system today.

Worth noting are the general Teacher Preparation Data Model (TPDM) use cases documented online (see also the referenced download). The TPDM use case documentation is a detailed view of the use cases made possible by the TPDM mapped to the data required to fulfill the use case.

Activity & Deliverables
In addition to project management tasks and general progress reports, the following are the primary activities and the concrete deliverables expected for this project.

We expect the activities and deliverables to be refined as part of the project startup process.

To ensure EPP and TEA stakeholders see quick value from this project, the analysis, development, and implementation phases must occur iteratively. The responding vendor will work with TEA and the stakeholders to prioritize the dashboard pages and complete analysis, mapping, and implementation for a highest priority pages of the dashboard first. This agile process will iterate until the full scope of agreed upon dashboards are completed. Respondents that propose a waterfall approach of completing each discrete phase before the next will not be considered.

Analysis
This section outlines the primary analysis and technical documentation tasks for this project. In addition, RFP respondents should assume some amount of as-needed, ad hoc analysis, such as data mapping from miscellaneous existing files and systems at EPPs.

Over the course of this project, RFP respondents should assume no fewer than twelve pilot EPP requirement gathering and stakeholder input sessions with the pilot EPPs, half of which will be conducted on-site in various Texas locations identified by TEA. Where appropriate, these sessions may be combined with training and support activity sessions.
Analysis Activities

- Define user roles and security requirements.
- Plan and conduct stakeholder engagement with four pilot EPPs and TEA to confirm priority of use cases. Refine use cases, metric definitions, and data visualizations based on Collaborative Dashboards.
- Conduct landscape survey of relevant EPP products in use at pilot EPPs and around the state. Size data mapping and integration challenge to support full production phase (T-shirt sizing estimation is sufficient).
- Define and document business rules and data quality checks for loading data into the TPDM ODS/API. Define and document the loading sequence from the various data sources into the TPDM ODS/API.
- Identify and document the requirements to extend the existing ECOS system for use as a data pipeline for TPDM EPP information.
- Define and document data mappings between ECOS and TPDM ODS/API.
- Define and document data mapping from PEIMS Main PRD datastore to TPDM ODS/API.
- Define and document relevant data mappings from Qualtrics datastore to TPDM ODS/API.
- Define and document relevant data mapping from EPP source systems to TPDM ODS/API. There may be different commercial systems across EPPs, so product-specific mappings are to be expected.
- Where multiple sources for the same data points exist, select and document the best data source for use in the TPDM ODS/API.
- Work with TEA ELQ to define requirements for reporting historical metrics over a three-year period. Identify relevant historical data in ECOS. Map ECOS data to TPDM ODS historical tables.
- Contribute input to the metric and visualization requirements for TPDM Public dashboards based on learnings from stakeholder engagement.
- Provide feedback as needed to the Ed-Fi Alliance on the TPDM data model and the published use cases.

Analysis Deliverables

- A-1. Data Mapping between ECOS Datastores and TPDM API.
- A-2. Data Mapping of PEIMS Main PRD to TPDM API.
- A-3. Data Mapping for Qualtrics to TPDM API.
- A-4. Data Mapping from EPP Source Systems to TPDM API.
A-10. Summary of Vendor Systems in Use at EPPs.

In addition to the deliverables noted above, some ad-hoc data mapping from other TEA and EPP vendor systems to the TPDM API may be required based on stakeholder engagement and initial analysis.

Technology Development

The project covered by this RFP includes technical development and implementation of production systems.

A primary development task is the implementation and adaptation of the Collaborative Dashboards, which will include EPP-facing views as well as public views. Dashboard implementation will be iterative based on the priorities identified in the initial stakeholder engagement. The development cycle will likely include at least three major releases, with agile development activity making improvements and fixes throughout the life of the project.

See the attached collection of mockups and examples that provide a general overview of the data and presentation (note that actual implementation will vary). It is critical to project success that TEA and EPPs quickly see live data populating the highest priority dashboard reports.

This pilot project will include support for at least one release of public-facing dashboards, adapted from the TEA ELQ and Collaborative Dashboards. Using Microsoft Power BI, TEA ELQ is developing dashboards to report currently collected data. The presentation of those public dashboards is currently being created by TEA ELQ. The RFP respondent is responsible for collaborating with those efforts and aligning the Collaborative Dashboards with the public facing ones for consistency.

Technology Development Activities

- Work with the TEAL system security team at TEA to ensure data are protected and EPPs are prompted to login when using the dashboards. Processes and resources are already in place for this collaboration within the agency. The RFP respondent is responsible for ensuring collaboration takes place.
- Implement EPP-facing dashboards including sourcing data from the TPDM ODS/API. These dashboards will contain detailed data, and will be used by stakeholders at EPPs and TEA. To be developed in Power BI based on the Collaborative Dashboards.
- Implement a Semantic Model to serve as the direct reporting data source for the dashboards, built from data in the TPDM ODS/API. The existing Collaborative Dashboard technical material includes a functional Analysis Services Semantic Model built for a TPDM ODS/API integration to supply TPDM use cases.
• Support the implementation of public-facing dashboards based on aggregated and anonymized EPP data. These dashboards will not contain detailed or confidential information, and will be suitable for use by the general public. Also developed in Power BI. TEA will have primary responsibility for public dashboard development, but analysis and support is in scope for this project.

• Implement data read APIs for all relevant TEA source systems. In this context, API means a process component that will abstract source system complexity from data pipelines by reading data from source systems and packaging the data for TPDM API consumption. The APIs will be hosted on TEA resources. Unless no other alternative exists, the primary mechanism for reading data will not be converting flat files exported from source systems. For all EPP sources, the most sustainable and replicable approach should be taken to read and prepare data for consumption by the TPDM API.

• Integrate end-user-facing components such as the dashboards with the TEAL authentication and identity system. Create and refine groups and roles in TEAL as needed.

• Define and implement an opt-in mechanism for EPPs to authorize data flows to TEA. Data sourced from EPPs via the TPDM API (Pipeline 1) will land in the TPDM ODS. That data must be explicitly approved and authorized by EPPs to flow from the TPDM ODS/API to ECOS and other TEA systems.

• Develop scripts or processes to load three years of historical data from ECOS and Main PRD into TPDM ODS/API instances. Work with SaaS vendor, TEA ELQ, and TEA IT to load and validate data.

• Automate data pipelines for refreshing dashboard data from internal sources.

Technology Deliverables

• T-1. TPDM Dashboards
• T-2. Analysis Services Semantic Model
• T-3. ECOS-TPDM Read-Write API
• T-4. PEIMS Main PRD to TPDM Read-Only API
• T-5. Qualtrics to TPDM Read-Only API
• T-6. ECOS to TPDM Executable or Script*
• T-7. TPDM to ECOS Executable or Script*
• T-8. PEIMS Main PRD to TPDM Executable or Script*
• T-9. Qualtrics to TPDM Executable or Script*
• T-10. TPDM Dashboard Feed Executable or Script*
• T-11. TPDM to ECOS Opt-In Interface and Support
• T-12. Technical and Operational Documentation**
• T-13. ECOS and Main PRD Historical Data Loading Scripts
• T-14. ODS/API Pipeline Data Processing Report***
* Includes source code, test cases, unit tests, TEA-compliant build scripts, binaries, installers, third-party dependencies, and technical documentation.
** Includes configuration, infrastructure and network diagrams, key/secret pairs for API integrations, and similar devops material.
*** Either UI-based or an automated report. Purpose and function are similar to the TEA Data Transfer Utility logging described in this documentation.

**Integration & Operation**

This project is focused on system integration. Most integration points in this project will include operational support responsibilities. Ongoing operational support will be required from initial implementation of a given data exchange pipeline through the end of the overall project period.

The solution overview diagram referenced above provides a conceptual overview of the relevant data flows.

The TEA envisions providing two data pipelines from EPPs to the TEA. Both will carry the data required for mandated accountability reports from EPP source systems. The new API-based pipeline will allow EPPs to provide more granular and real time data for the EPP dashboards (primarily the observation and detailed teacher candidate enrollment, certification, and course information).

- The first EPP Pipeline (labeled EPP Pipeline 1, above) will be the TEA’s preferred data pipeline. It allows EPPs to submit data via their technically adept vendors directly to the TPDM ODS via its standard API. By definition, this pipeline will leverage existing software and off-the-shelf tools, so the technical work related to this project is light. But, there will be analysis, evangelism, vendor outreach, and support related to the pipeline.
- The second EPP Pipeline (labeled EPP Pipeline 2) exists today and is not expected to be modified as part of this project. Pipeline 2 allows for a flat file-based path to send standard exports to and extracts to the TEA via the ECOS system. While Pipeline 1 will be encouraged, Pipeline 2 reflects the current state of technology at the EPPs.

These EPP data pipelines will both provide data to the SaaS Ed-Fi ODS/API Integration System, which will include the TPDM. Data validation rules will be executed by the SaaS Business Rules Engine product. For a detailed view of the current data submission process that these pipelines will eventually augment, see the attached ECOS Data Submission Process document.

In addition, TEA-hosted systems such as PEIMS and ECOS contain information relevant to the expected use cases. Data pipelines will be established to supply data from these existing TEA systems to the TPDM ODS/API. Other TEA vendor systems may be brought in as needed.
- The PEIMS Pipeline will access information in the PEIMS Main PRD relational datastore via the read-only API developed as part of the technical work for this project. This feed will be unidirectional, from Main PRD to the TPDM ODS/API.
- The Qualtrics Pipeline will access information in the Qualtrics system via the read-only API developed as part of the technical work for this project. This feed will be unidirectional, from the Qualtrics API to the TPDM ODS/API.
- The ECOS-TPDM data pipeline will be a bidirectional data pipeline between the TPDM API and the ECOS API developed as part of the technical work for this project.
- Ad Hoc pipelines may be set up if and as needed for this pilot project. These are expected to be unidirectional feeds into the TPDM ODS/API.
- For this pilot project, it is expected that the TPDM Public Dashboards will be populated with data from the Analysis Services Semantic Model. The Public Dashboards will be defined by the TEA ELQ and existing calculations may fulfill many of the requirements. But, some analysis, data mapping, and validation against data sources is in scope for this project.

These data pipelines will operate in the TEA environment using standard technology compatible with the Microsoft technology stack.

The pilot project described in this RFP will involve working with four EPPs to supply data for the selected dashboard use cases with data from Pipeline 2 — and possibly manually loading additional data from the EPP sites.

The full production implementation to follow this pilot will make it possible for all EPPs in Texas to activate and use the API-based Pipeline 1. The RFP respondent is not responsible for operationalizing Pipeline 1 to work for all Texas EPPs during this pilot project. But, this project does require the documentation and training (via a train-the-trainer model) that would enable the full production system, and ensure the technology is scalable to all EPPs in Texas.

The RFP respondent will be responsible for operation and maintenance of the pipelines created for this pilot project for the life of this project. This includes on-call support from the pilot EPPs and their product vendor staff, support for data stewardship activities, and similar.

**Integration & Operation Activities**

- Verify end-to-end data flow for the pilot EPPs ensuring dashboard metrics and mandated reports are correct given the provided input. Verification will primarily be an initial development testing activity, but some amount of ongoing, periodic verification will be required as any new pilot EPPs or vendors connect.
- Operationalize and support data integration pipelines from the EPPs for the duration of this pilot project. This will include initial importing activity for the four pilot EPPs as well as ongoing support for periodic data loading from TEA sources.
• Operationalize and support the data integrations that supply information to the dashboards, such as from the ECOS and PEIMS Main PRD systems.
• Operationalize and support data integration between TPDM ODS/API and ECOS. Verify this pipeline is functioning as expected and is a viable option for EPPs to use for mandated accountability submissions as the system moves to full implementation.
• Test loading of at least three years of historical data to ensure it meets EPP objectives. Historical data is currently contained in ECOS and Main PRD. In general, this data is finalized, although TEA periodically conducts data fixes.
• Create technical documentation for solution APIs and operational documentation for solution pipelines. Documentation will be iterative for the life of the pilot project and finalized as part of the transition to the full production implementation.
• Create operational documentation for all solution pipelines.
• Conduct training, knowledge transfer sessions, and provide general support for transition to full production system.
• Work with Pilot EPPs to understand and document risks and lessons learned during the API integration process. Work with TEA to communicate this information back to the EPP and TPDM community. Create a knowledge base accessible to pilot project stakeholders.
• Facilitate communication with and between pilot EPPs to understand data needs and implementation challenges. Coordinate conversations between EPP source vendors and EPPs to assist EPPs in asking for the vendor to complete TPDM API integration. In general, stakeholder engagement activity and collaboration with TEA ELQ will be needed to ensure a successful pilot experience for all participants.

Integration & Operation Deliverables
• O-1. Integration for EPP Vendor Systems to TPDM API (Pipeline 1).
• O-2. Integration of data from Main PRD API to TPDM API.
• O-3a. Integration of data from ECOS API to TPDM API.
• O-3b. Integration of data to ECOS API from TPDM API.
• O-4. Integration of data from Qualtrics API to TPDM API.
• O-5. Pilot System Operation & Maintenance of EPP Vendor System to TPDM API Data Pipeline (Pipeline 1).*
• O-6. Pilot System Operation & Maintenance of EPP Flat File Export to ECOS Data Pipeline (Pipeline 2).*
• O-7. Pilot System Operation & Maintenance from Main PRD API to TPDM API Pipeline.*
• O-8. Pilot System Operation & Maintenance of ECOS API to TPDM API Pipeline.*
• O-9. Pilot System Operation & Maintenance Qualtrics API to TPDM API Pipeline.*
• O-10. Technical Documentation for Solution APIs.
• O-12. Knowledge Base of Lessons Learned and Technical Solutions.
O-13. Support for EPPs to Request Source Vendor Complete TPDM API Integration.

*Through project duration.

**Training & Support**

This project includes a training and support component for EPPs participating in this project and TEA stakeholders. Audiences include end-users, commercial product vendors, and IT staff.

Over the course of this pilot project, RFP respondents should assume no fewer than four formal training sessions with EPPs and TEA stakeholders, half of which will be conducted on-site in Texas locations. Where appropriate, these sessions may be combined with analysis and stakeholder engagement activity.

A period of transition to a full production implementation is expected at the conclusion of this pilot project. RFP respondents will conduct knowledge transfer and provide support during the transition period. It is strongly preferred that knowledge transfer occurs by working in partnership with TEA over the life of the project and is not conducted as classroom/meeting style knowledge transfer as the project concludes.

**Training & Support Activities**

- Provide onboarding support for four pilot EPPs. Develop and maintain supporting materials.
- Develop and support training for EPP vendors to connect with a TPDM ODS/API. EPP vendor training may be conducted via webinar and live sessions as appropriate. TEA will lead training, but vendor should be available to support initial training as full implementation begins.
- Train TEA staff on creation of dashboard visualizations. Training will be conducted as pair-programming or other hands-on activity. Only light supporting materials needed.
- Create and publish troubleshooting documentation for data providers.
- Leveraging existing documentation as a starting point, develop additional user-friendly documentation for EPP staff and vendor staff to understand the information that appears on the dashboard. Details will include metric calculations, assumptions, and the use of dashboards in decision-making.
- Support EPPs as they request their source system vendors complete integration with the TPDM APIs.
- Support the transition from this pilot project to the full production implementation. Conduct train-the-trainer sessions with post-pilot support resources.

**Training & Support Deliverables**

- S-1. End-User Documentation for EPP Dashboards.
- S-2. End-User Documentation for Public EPP Dashboards.
- S-4. Training Sessions for EPP Vendor Integration Requirements.
- S-6. Train-the-Trainer Sessions for Full Production Implementation.

Project Context & Dependencies

The work defined in this RFP is part of a broader TEA initiative that includes implementation of the Ed-Fi ODS/API for the Texas Student Data System, a major data source for this work.

This project will necessarily be collaborative and iterative. The work has numerous stakeholders, connections to many existing processes and technologies, plus a few critical dependencies on other in-progress technology projects.

Key Limitations on Scope

This section summarizes work adjacent to this project but NOT in the scope of this RFP.

- Pilot program definition and solicitations for EPP participation are not in scope. TEA staff will design the initial pilot program, create the timeline, and recruit participants at EPPs for stakeholder sessions. The RFP respondent will provide input and support.
- TPDM ODS/API design, development, and hosting are not in scope. The data model for this key data source has been defined by the Ed-Fi Alliance, and the implementation and hosting for this project will be provided by a vendor under TEA direction.
- The analysis to define metrics for public-facing dashboards is out of scope (though the related dashboard development is in scope). The TEA will use the EPP dashboards defined in this project as a starting point, from which TEA staff will layer on aggregation and anonymization rules for implementation.

Collaboration & Responsibility Matrix

A detailed view of how this project supports and is supported by other work can be found in the enclosed Responsibility Matrix document.

The documentation is in the form of a RACI matrix. RFP respondents are surely familiar with the concept of a responsibility matrix. If this particular form is not familiar, a brief key to the categories as defined by TEA is:

- **R.** Responsible. Organization that will do the work. The organization must complete the task or objective, or make the indicated decision.
- **A.** Accountable. Organization that is the owner of the work (and typically must approve the work).
• **C. Consulted.** Organizations that need to give input before work can be completed. Active participants in discussions and decision-making.

• **I. Informed.** Organizations that need to be kept "aware." These organizations need updates on progress or decisions, but do not need to be formally consulted, nor are they required to provide input to the task or decision.

**Methodology & Project Governance**

This project will operate in an iterative and agile way. Governance will largely take place in meeting forums and deliverable acceptance reviews. The expected meeting cadence for this project is:

- Scrum meeting with TEA project manager and tech lead: Daily.
- Project status and risk-management meeting with TEA project team: Weekly.
- Sponsor update with funders and executive sponsors: Monthly.
- SaaS ODS/API Integration Platform project coordination meetings: As required. To be established with selected SaaS vendor.
- Deliverable acceptance meetings: At delivery milestones.

Ad hoc sessions will, of course, be required.

**Acceptance**

This project has numerous [deliverables](#), all of which must be accepted by TEA before being considered complete.

Training and analysis deliverables will be formally accepted following review by the TEA Tech Lead for this project. Similarly, minor and interim technology deliverables such as proofs of concept or refinements to existing calculations will be accepted by the TEA Tech lead, who may solicit input from other parties.

Major technology deliverables will generally be accepted following a feature and functionality review by both the TEA ELQ and Tech Leads. A code review may be required for complex features and features that do not appear to meet the performance or functionality requirements.

**Risks**

Known risks to this project include:

- **Change management difficulty.** This project’s success requires effective change management across many organizations and many stakeholder types. Change
management is difficult for any project, but the scale and scope of this project are expected to make change management especially challenging. To mitigate this risk, TEA will provide strong executive sponsorship plus resources tasked with assisting in the day-to-day project communication. In addition, this project specifically includes activities such as end-user training, a part of which will be expected to address changes to existing practice.

- **ECOS mapping complexity.** The ECOS solution is a primary data source in this project, and is also part of the data pipeline that will be used by some EPPs to populate the TPDM ODS/API. Internally, ECOS is made up of a complex system of separate-but-related data tables and data models. To mitigate this complexity risk, TEA will provide technical documentation and knowledge transfer from data analysts experienced with the system. For a technical overview of the ECOS solution, see the attached ECOS System Reference Material.

- **Technology dependencies.** This project relies on technology that will be in a pre-release state in parallel to this project. Specifically, key components such as the TPDM ODS/API and the SaaS offerings are being implemented or significantly modified during the timeframe of this project. That work is expected to “stay ahead” of this project, which somewhat mitigates these risks. To mitigate the remaining risks, TEA will coordinate development meetings that include technology managers from all vendors related to this work.

- **Matrixed responsibility.** This project has a number of efforts where the RFP respondent is required to coordinate with personnel and initiatives across a gaggle of contractors, vendors, TEA departments, stakeholders. Some of these coordinated activities relate to operations and maintenance of production systems, and are therefore critical to the success of this project. To mitigate these risks, TEA will publish and maintain a responsibility matrix for this work and will coordinate both standing and ad-hoc meetings as indicated. The enclosed Responsibility Matrix referenced above is an initial draft to be updated with input from the RFP respondent.

### Project Timeline & Duration

This section provides a high-level timeline of project phases and major milestones. All dates below are approximate. Selected vendor and TEA stakeholders will work together in Phase I to refine the scope, sequence, and delivery dates for major milestones.

- **Contract Signing:** Oct. 2019
- **Phase I: Initial Analysis & Overall Planning:** Oct. 2019–Nov. 2019
- **Phase II: Iterative Development & Training:** Nov. 2019–Feb. 2021
  - Milestone - EPP Stakeholder Engagement Begins: Nov. 2019
  - Milestone - API Specs Published for EPP Vendors: Dec. 2019
  - Milestone - Kick off EPP Pilot: Dec. 2019
Milestone - Release Dashboard 1.0: Mar. 2019
Milestone - Release Dashboard 2.0: Jun. 2020
Milestone - Release Public-Facing Dashboards: Jun. 2020
Milestone - Pre-Release Engagement with Next Wave of EPPs: Jun. 2020
Milestone - Release Dashboard 3.0: Feb. 2021

- Phase III: Project Closure: Mar. 2021
  - Milestone - Transition to Long-Term Support Complete Mar. 2021
  - Milestone - Final Report: Mar. 2021

- Project End Date: Mar. 2021

Project Budget

The budget for this project is not to exceed $800,000. Responses can include lead contractors with relevant subcontractors.

The Response Structure section below has important information about the budget response template and key information required from RFP respondents.

Pricing & Payment Structure

Responding vendors may, at their option, provide a fixed price bid or propose a not-to-exceed budget based on estimated daily or hourly rates. In the latter model, contractors may invoice up to the not-to-exceed amount based on hours actually worked.

Reimbursables are based on actuals and require receipts for amounts of $75.00 or greater. The budget does not require the contractor to break down commercial rates (e.g., base salary, fringe). Vendors can submit fully loaded commercial rates.

RFP Process & Response

RFP Response Structure

Main RFP Response
A response template including form sections requiring mandatory information is attached here.

RFP Budget Detail
A budget detail spreadsheet template is attached here. The detail must follow the structure of the provided template, but should be listed in a way that best represents how your organization proposes to organize the work.
For personnel costs, estimates should reflect a blended daily or hourly rate.

**Response Formats & Restrictions**

Response documents must be submitted as follows:

- RFP Response Template: Microsoft Word. **Follow the word count guidance in the template. Do not send as PDF.**
- RFP Budget Template: Microsoft Excel. **Do not send as PDF.**

**RFP Evaluation Criteria**

The following are the primary factors by which RFP responses will be evaluated:

- Understanding of the services to be performed
- Clear understanding of project
- Capability and capacity
- Experience with relevant technologies, primarily including the Ed-Fi ODS/API
- Experience with data in the education domain
- Experience with program management and planning
- Past success with field work on similar projects
- Overall estimated cost

**RFP Timeline**

The following is a timeline for the RFP process:

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/8/2019</td>
<td>Issue RFP</td>
</tr>
<tr>
<td>8/5/2019</td>
<td>RFP submission deadline</td>
</tr>
<tr>
<td>8/7/2019 - 8/8/2019</td>
<td>Foundation Review Period</td>
</tr>
<tr>
<td>8/14/2019</td>
<td>Interviews (for selected RFP applicants)</td>
</tr>
<tr>
<td>8/15/2019 - 8/30/2019</td>
<td>Foundation Review Period</td>
</tr>
</tbody>
</table>
Response Contact & Submission

Response Confidentiality

The Bill & Melinda Gates Foundation has a focus on achieving charitable outcomes, and we view information obtained through our investment making as for the public good. Our internal investment-making and other systems support sharing of proposal documents, including with external reviewers. Unless otherwise specifically agreed in writing, you should not assume that information will be kept confidential and should not include any information in the proposal, budget or supplemental materials that you consider proprietary.

Other Response Information

A. Disclosure Notice

To help the foundation with its review of RFP responses, the foundation may disclose proposals, documents, communications, and associated materials submitted to the foundation in response to this RFP (collectively, “Submission Materials”) to its employees, contingent workers, consultants, independent subject matter experts, and potential co-funders. Please carefully consider the information included in the Submission Materials. If you (the “Applicant”) have any doubts about the wisdom of disclosure of confidential or proprietary information, the foundation recommends you consult with your legal counsel and take any steps you deem necessary to protect your intellectual property. You may wish to consider whether such information is critical for evaluating the submission or if more general, non-confidential information may be adequate as an alternative for these purposes.

Notwithstanding the Applicant’s characterization of any information as being confidential, the foundation is under no obligation to treat such information as confidential.

B. Disclaimer

This RFP is not an offer to contract or award grant funds. The foundation assumes no responsibility for the Applicant’s cost to respond to this RFP. All responses generated by this RFP become the property of the foundation.

C. Release and Verification

In exchange for the opportunity to be awarded a grant or contract, the Applicant agrees that the foundation may, in its sole discretion: (1) amend or cancel the RFP, in whole or in part, at any
time; (2) extend the deadline for submitting responses; (3) determine whether a response does or does not substantially comply with the requirements of the RFP; (4) waive any minor irregularity, informality or nonconformance with the provisions or procedures of the RFP; (5) issue multiple awards; (6) share responses generated by this RFP with foundation staff, consultants, contingent workers, subject matter experts, and potential co-funders; and (7) copy the responses.

Applicant agrees not to bring a legal challenge of any kind against the foundation relating to the foundation’s selection and award of a grant or contract arising from this RFP.

Applicant represents that it has responded to the RFP with complete honesty and accuracy. If facts provided in Applicant’s response change, Applicant will supplement its response in writing with any deletions, additions or changes within ten days of the changes. Applicant will do this, as necessary, throughout the selection process. Applicant understands that any material misrepresentation, including omissions, may disqualify it from consideration for a grant or contract award.

By responding to this RFP, you are representing: (i) that you have authority to bind the named Applicant to the terms and conditions set forth above, without amendment; and (ii) that you agree to be bound by them.

**Frequently Asked Questions**
Click [HERE](#) to access FAQs related to this RFP.

**Additional Questions?**
Please submit any questions [HERE](#). Our goal is to respond within 72 hours either via email or by posting a response to your question (with your name/organization removed) to the public-facing FAQ page located [HERE](#).

**Submitting Your Response**
Send final proposal documents to TeacherPrepData@bmgf.onmicrosoft.com. Note that this account will not be monitored during the RFP phase. Please use the FAQ form to submit questions during the RFP process.

**Responses must be received by 8/5/2019 5:00pm EST**