Statement of Work (SOW) for OP Modernization Program Implementation
October 2020-May 2023

Prepared by the Office of the Professions (OP) and NYSED Information Technology Services (ITS)

Heather.klusendorf@nysed.gov

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OP Modernization Introduction, Project Scope High Level

The Office of the Professions (OP) provides one of the core business functions of the New York State Education Department (NYSED). The program is responsible for all licensing and renewal activities of more than 54 professional titles as well as licensing and renewal for professional corporations and pharmacy establishments. The services provided include the full range of accepting, reviewing, and approving license applications, post-licensure services, professional guidance and oversight, and the investigation of incidents of professional misconduct.

The multi-year, multi-project comprehensive OP Modernization Program provides a holistic approach that is broader and more in-depth that previous modernization efforts—an approach that has already delivered on promises made to improve processes related to professional licensing. The program is also designed to improve the internal business processes and customer experience so that all OP staff, including State Board Office staff, can better communicate with the public. The program combines OP staff, NYSED Information Technology Services (ITS) staff, temporary staff in project titles, temporary staff through OGS HBITS contract, and three groups of consultants as part of the 1) analysis and design phase, 2) implementation phase, and 3) independent vendor and verification (IV&V). The many existing OP and ITS staff who support the work of this program and are assisting in the design and development of each project are providing subject matter expertise and ensuring in-house knowledge exists, which is essential to the long-term maintenance and support of the New Professions System (NPS). This program structure creates a realistic and achievable path to success for implementation and longevity.

At the time of the origin of this program, in November 2018, the focus was on updating outdated systems to address the looming obsolescence of the mainframe system, improve OPs ability to respond to the professional needs of the public, save money, and reduce the effort involved with the current reliance on myriad paper processes. While this established focus for modernization remains true today, new critical needs have emerged due to the COVID-19 pandemic to make this effort even more important now that it is essential for all organizations in New York State (NYS) to consider limiting risk to infection, including the risk for asymptomatic spread of COVID-19. In seeking to reduce OPs reliance on paper and increase the speed of response for processing professional licensing and renewal, including information related to professional disciplinary action, the OP Modernization Program will improve the state's ability to protect public health.

OP Modernization Program, Project Complexity & Plan for Implementation

Previous modernization attempts by the Office of the Professions have encountered challenges that hindered the success, specifically the challenge in identifying all the complex requirements and business rules for a nearly forty-year old mainframe system with undocumented processes that includes multiple different systems that have been added to business processes over the years to supplement processing that is not possible in the mainframe, such as Access databases, Oracle Policy Automation, COGNOS, Content Manager document management, and more. The work involved at the Office of the Professions is also largely paper-based among more than 300 employees. Previous modernization attempts have

failed as a result of change orders and additional cost becoming overwhelming[1] or a COTS product not being able to accomplish all the business needs necessary for a migration from the mainframe system[2].

Therefore, a new approach is necessary to realize success for the OP Modernization Program. We are defining the major milestones required for contract completion, and the functional requirements will be identified as part of the Agile process among three development teams that combine MBWE subcontractors working closely with NYSED ITS and OP teams. We intend to continue MBWE subcontractor and project management through the NYSTEC OGS contract to ensure that the technical architecture and requirements identified in the Analysis & Design phase are correctly implemented. The knowledge that has been gained by NYSTEC project managers as part of the Analysis & Design phase is instrumental to the success of the implemented technical solution. Due to the COVID-19 pandemic and the hiring freeze now implemented in NYS, the OP Modernization Program is still lacking a Project Coordinator. We are supplementing this critical position with NYSTEC project management. An independent IV&V contractor will oversee and review all implementation deliverables.

SOW Key Events and Dates (14 weeks)

The key events and dates relate directly to the start-up of the technical implementation and the development of a final Statement of Work (SOW) that is agreed upon between NYSED and NYSTEC, per OGS Contract 22957.

SOW Key Event	Start Date	Timeframe
Submission of PTP	June 26	6 weeks
Initial Discussion with NYSTEC; Review of Proposed SOW	June 26	1 week
Question & Answer Discussion with NYSTEC	June 29	2 weeks
NYSTEC Presentation of Suggested Budget and Implementation Team	July 13	1 week
NYSED Approval of Budget and Implementation Team	July 20	1 Day
NYSTEC Confirms Plan and Timeline for Subcontractor Staffing	July 27	1 week
NYSTEC Provides Draft of Implementation SOW	July 27	1 week
NYSTEC Provides Resumes for Subcontractor Team	August 3	1 week
NYSTEC Provides Final SOW Draft for CAU Review	August 10	2 weeks
NYSED Requests Final Copies	August 24	1 week
Counsel Approves Final Copies	August 31	1 week
PO Issued by NYSED	Sept 7	1 week
NYSTEC Implementation Begins	Sept 10	1 week

The implementation is slated to begin in September with a month for onboarding subcontractors. The development planning and coding will begin in November with a focus on the mainframe data migration to a relational database. It is important to note that the implementation is not simply "rebuilding" the mainframe processing, but we are focusing on significant business process improvement to reduce reliance on human processing and to provide a universal system, the New Professions System (NPS,) as a central location not only for all professional licensing needs but also for the Division of Professional Licensing staff and the State Board Office staff to work within. Additionally, the NPS must integrate with a COTS solution for discipline case management for the OP Office of Professional Responsibility (often referred to as the Office of Professional Discipline).

Project Organization

The following organization outlines the project organization, emphasizing the leadership by NYSED, and the collaboration between NYSED and subcontractor implementation teams with oversight provided by a yet-to-be-determined third party IV&V contractor. The NYSED IT and OP Program teams will be heavily

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[1] Deloitte, 2004, through an OGS Mini-Bid contract.

[2] E-Licensing initiative, 2014, Sole Source RFP with Accela.

involved with assisting with system implementation and quality assurance; however, a successful bid will include enough subcontractor staffing to complete the full implementation without technical assistance from NYSED IT.

The OP Modernization Program is fully supported by Senior Leadership at NYSED. The Executive Sponsors are involved and will participate in stakeholder demonstrations to review workable code from the implementation teams. The Executive Sponsors are the Deputy Commissioner of the Office of the Professions, Sarah Benson, the Deputy Commissioner of the Office of Performance Improvement and Management Services, Sharon Cates-Williams, and the Assistant Director of NYSED ITS, Michael St. John. The Project Director, Heather Klusendorf, takes a hands-on approach in daily implementation activities and is the decider available to make real-time decisions, working directly with the implementation teams. The Project Director, with NYSTEC project managers, will be responsible for ensuring collaboration is occurring across the multiple teams and that NYSED ITS is engaged and supporting the technical implementation.

Figure 1 Implementation Team Org Chart
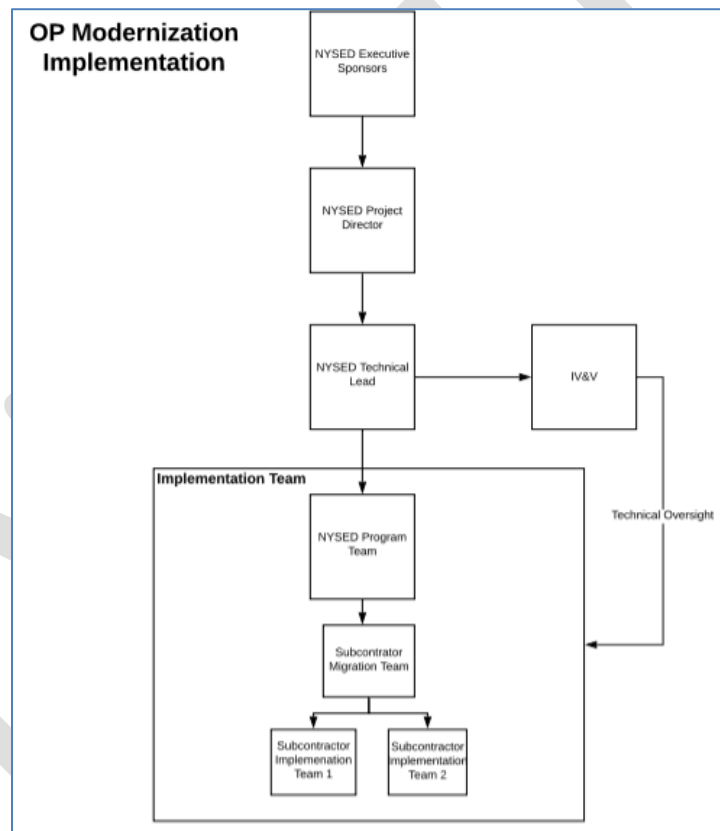
Combined Implementation Team Organization

For success, the multiple teams must collaborate and work together on a succinct vision as identified in the Analysis & Design phase. While there are separate groups—the multiple teams will function as one entity with the focus on keeping the OP Business Solutions and OP Tech teams well informed of all technical plans. The implementation will proceed through close collaboration and conversation with the OP teams and be assisted by the project director. The following provides a high-level overview of the different teams that must function together as a whole for the successful implementation.

Figure 2 Implementation Group Descriptions

Implementation Group	Description
Executive Leadership Group	The Deputy Commissioner of the Office of the Professions is the ultimate "decider" on program decisions brought to her by the project director. The implementation team can expect once significant development on milestones begins, to present to her as well as the other leadership as part of the Stakeholder Demonstrations. The Deputy Commissioner of PIMS and the Assistant Director of ITS. Together, this group will provide executive leadership on both business solution implementation and technology aspects of the program.
Project Director	The Project Director is involved in all areas of the project and will provide direction and vision to align with Executive Leadership, and additionally: • Oversees funding, invoices, and payments • Reviews and provides direction on issues and risks • Communicates project status directly to Executive Leadership • Provides leadership and decision-making among team technical plans
OP Business Solutions NYSED Program Team	This team, consisting of OP subject matter experts (SMEs) was created specifically to oversee creation of the new system as its primary professional users. Responsible for reviewing and approving activities associated with design, validation and implementation of the solution.
OP Technical Team NYSED Program Team	This team is responsible for management of technical hardware, approving technical plans, including long-term solutions for maintenance and support of the developed system as part of the implementation plan.
OP Modernization Project Team NYSED Program Team	This is a small group of temporary project title staff, including the Project Coordinator, who are dedicated wholly to the OP Modernization Program effort. This team will embed themselves with the NYSTEC Project Mangers, Subcontractor teams, and OP teams in order to ensure that collaboration is happening efficiently, solutions are shared effectively, and that requirements are being implemented as intended by the Analysis & Design phase.
NYSED ITS NYSED Program Team	The NYSED Information Technology Systems team provides technical leadership for the implementation, ensuring that technical plans align with the overall technical goals of NYSED. Additionally, a technical architect and a lead developer who have been involved with the OP Modernization Program since 2016 will assist in providing technical leadership to the NYSTEC and Subcontractor teams.
NYSTEC Project Managers	This team will work directly with implementation software engineers who will plan and develop software as part of the implementation. They will be responsible for managing the project schedule across the three teams and reporting to the OP Business Solutions team and the project director.

Implementation Group	Description
Technical Subcontractors	This group of MWBE subcontractors must have advanced technical knowledge and skills in order to lead the implementation and collaboration among the three different teams. They must work in an Agile capacity and are responsible for the following: • Design and technical plans of all system components • Software coding and development of all system components • Meeting technical timelines and informing their scrum master of any issues or risks • Demonstrating workable code via Stakeholder Demonstrations
IV&V Contractor (to be selected)	Independent Verification and Validation Contractor – The selected bidder will begin between January-February 2021 and will be responsible for independent monitoring and assessment of project processes and deliverables.

Contractor Requirements for NYSTEC Project Manager Team

NYSTEC will determine the best fit and placement for NYSTEC project managers and must assure that each colleague meets the minimum requirements as identified in Appendix C, Pricing Schedules, of the NYSTEC OGS Contract. NYSTEC must demonstrate that colleagues assigned to the OP Modernization Program have a documented history of success on previous projects and are able to provide the "jack-of-all-trades" leadership and work as is needed to ensure delivery of the Analysis & Design plan for implementation.

NYSTEC project managers shall be embedded with the technical team to assist with ensuring the technical design created as part of the Analysis & Design phase is implemented according to plan and all timelines are met. While the emphasis will be on the technical implementation through a group of MWBE subcontractors, the management of the overall implementation must be documented in a project schedule and new tasks identified and discussed with the OP Teams and the director as they arise as part of the implementation technical planning. The NYSTEC project managers will function as part of each implementation team and will ensure that requirements are groomed correctly for implementation and will meet the OP Business Solutions and OP Tech team needs. They will provide the combined function of project management, business analysis, and quality assurance on the implementation team.

They will work directly with the selected IV&V Contractor to help them verify that the project deliverables meet the specified requirements and ensure that the third party contractor is able to validate deliverables achieve their intended use. They will serve as a "jack of all trades" to provide a level of structure that ensures that every team member among the multiple teams has what is needed for daily success. Additionally, when issues and risks arise, they will be the mechanism for identification and reporting to the OP Business Solutions and project director. They will assist with development of solutions when impediments arise and help to ensure the continuity of daily implementation work.

The NYSTEC project managers will provide the following key services for the duration of the contract:

- Function as an Agile Product Owner and/or Scrum Master on an implementation team
- Prepare, update, and continue to maintain the project schedule across all teams
- Provide project management and business analysis within each implementation team and collaborate across all teams to ensure the Analysis & Design vision is met
- Participate in Agile planning, grooming, and pointing sessions to right-size development work
- Ensure that milestones and requirements are met within implementation timeframes
- Identify issues and risks and report to the OP program teams and project director
- Recommend solutions to any issues and risks and help to implement change that will provide course correction to maintain timeframes

- Document specific implementation plans as they are created through development of functional requirements by the implementation team
- Coordinate with the IV&V Contractor to ensure that third-party oversight is occurring with all necessary access and tools

The NYSTEC project managers are expected to be embedded within each implementation team and to work on-site at NYSED[3]. The expected hardware, computers, and access to NYSED systems will be provided as will remote access for telecommuting purposes. There will be a general OP Modernization Program team collaboration space within the Office of the Professions. They will be provided with NYSED email and account access, including access to Jira, Confluence, and SharePoint for the purposes of project management. Any other technical needs, such as cell phones, will be the responsibility of the contractor. The NYSTEC project managers shall report to the project director. They will prepare documentation as needed for the project director to communicate status and progress on deliverables to the Executive Sponsorship Group, but their primary role is to function a part of the implementation teams to ensure overall success and delivery of project milestones among the MWBE subcontractor teams.

No changes to work scope shall be undertaken without the prior, documented approval of the NYSED project director. No changes to project staff, including the MBWE subcontractors shall be undertaken without approval by the NYSED project director. If issues arise among the MBWE subcontractors, the NYSTEC project managers must identify and communicate issues along with suggested solutions to the NYSED project director.

Preferred Qualifications of Subcontractors

A successful bid for the implementation will include MWBE subcontractor staffing for a minimum of three teams to provide technical developers with specific skills sets. The contractor shall provide subcontractor staffing that meets NYSED MWBE requirements in adequate numbers and with appropriate expertise to fulfill the duties of the project as outlined in this SOW. The contractor shall submit resumes of staff hired under the terms of this contract for the NYSED Project Director's review prior to the start of work. The NYSED Executive Leadership Group reserves the right to approve or disapprove the contractor's proposed staffing.

The organization of the implementation will require three development teams that can work collaboratively on the entire system development as well as individually on their specific development projects.

Implementation Development Teams

The implementation teams will work collaboratively with NYSED. NYSED provides direction, oversight and technical leadership.

- NYSTEC Project Management: Embedded with Subcontractor Teams
- Subcontractor Team 1: Data Migration Development
- Subcontractor Team 2: Online Services Development
- Subcontractor Team 3: Online Services Development

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[3] During the COVID-19 Pandemic, NYSED and the Office of the Professions Modernization Program are making every effort to work through telecommuting and to limit in-office human interaction.

Figure 3 Development Implementation Teams

Plan for NYSTEC Implementation Teams
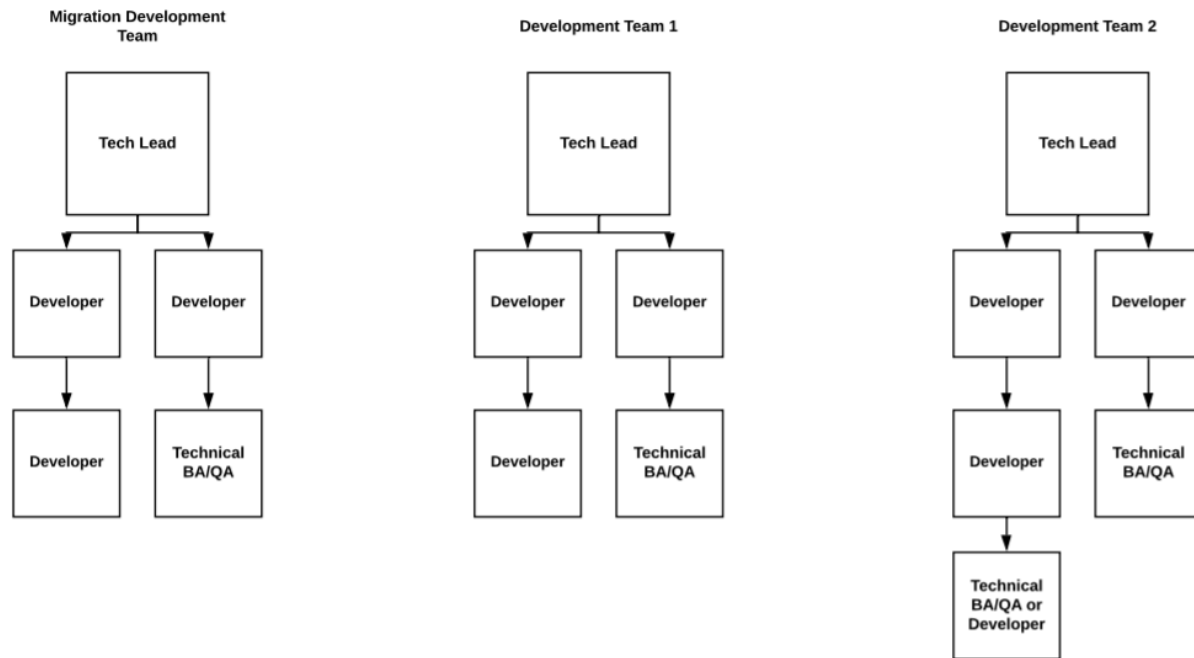
The individual team skillsets are organized to align with deliverables identified for each team's development slate. NYSED is asking that NYSTEC focus on identifying subcontractors with the following complimentary skillsets per team.

- **Migration Development Team must have the following extensive experience and technical knowledge:**
  - o Unisys mainframe data migration experience
  - o Databridge software experience
  - o Oracle database experience
  - o Data migration and report development experience

- **Implementation Team 1 must have the following extensive experience and technical knowledge:**
  - o NYSED COBOL program business rules knowledge
  - o Java development experience
  - o Oracle software experience (OPA Tool and CM)
  - o Data certification experience
  - o UX/UI development experience
  - o Business Analysis experience

- **Implementation Team 2 must have the following extensive experience and technical knowledge:**
  - o NYSED COBOL program business rules knowledge
  - o Java development experience
  - o Oracle database experience
  - o NY.gov ID implementation experience
  - o UX/UI development experience
  - o Business Analysis experience

The common driving principle must be to achieve the highest quality deliverables for the overall project and all the subcontractor teams must be committed to and share in the responsibility to achieve this outcome.

Existing System Description

The Unisys Mainframe System is nearly forty years old and its primary purpose is to provide a user interface (UI) for OP staff to input data related to licensing and renewal activities for professionals, corporations, and pharmacy establishments. There are nearly 100 different COBOL mainframe programs that work within nightly, weekly, and monthly "runs" to conduct programming activities, such as printing of license parchments, printing of registration renewal certificates, identifying users who are eligible to sit for a professional exam, and more. For electronic data that must exist within the mainframe for a programming process to run and identify updates to a professional or a corporation, the data must be input manually in some form—there is no electronic data exchange that is directly interfacing with the mainframe. A manual process is always necessary through laborious human interaction. The primary work involved with the modernization program implementation is to migrate existing data out of the mainframe system to a relational database that does not require manual intervention for data but, instead, allows for electronic file exchange with third parties for education, exams, experience, and more related to licensing and renewal activities for a professional.

Figure 4 Example Screen from the Mainframe UI

Over the years, additional systems have been added to provide activities that the mainframe system is unable to perform, such as reporting through Cognos and Access databases. The most significant additional system is the Micro Focus Content Manager system that is used as a document repository to store all documents related professionals, corporations, and pharmacy establishments. The use of the Content Manger system has grown to include "workflows" for staff to know the next step in a process for licensing and renewal. This system has grown to include uses for which it was not intended but for which must be considered for development of the NPS.

Figure 5 Example Screen from Content Manager "Workflows"

Detailed Project Scope and Requirements

The implementation is slated to occur within thirty-three months over two and a half years. We are dedicated to realizing true modernization for the Office of the Professions by the fall of 2023 with highly visible and demonstrable progress before then, most notably for the nursing profession, which licenses nearly 30,000 new health professionals each year in NYS.

OP Modernization Program Roadmap
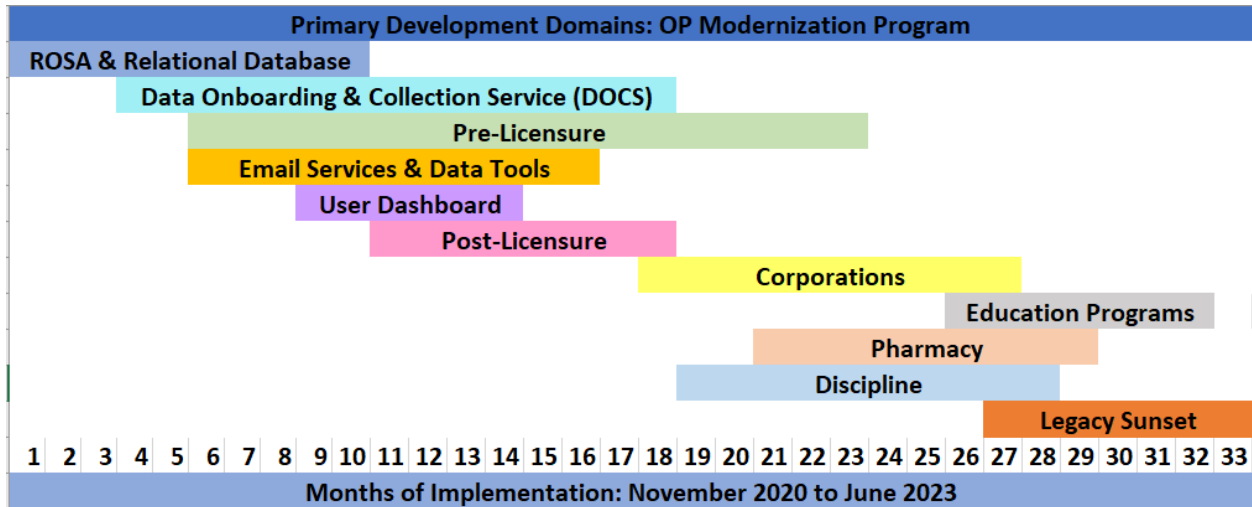
The program roadmap represents the major milestones for significant development efforts divided into project work among the three implementation teams. The most important focus and the work that must be completed first involves the development of "ROSA," the read-only database that is an exact copy of the mainframe database and will accept deltas to remain in sync with the mainframe data. The development of ROSA has been proven to work through proof-of-concept (POC) work by NYSTEC during the Analysis & Design phase. The implementation will expand upon this POC to finalize the work and develop the NPS data model and relational database to which the newly developed online services will utilize.

Deliverable Milestone	Identification Number	Delivery Date
ROSA & Relational Database	OPV007	August 2021
Data Onboarding & Collection Services (DOCS)	OPV008	March 2022
Pre-Licensure	OPV009	August 2022
Email Services and Data Tools	OPV010	February 2022
User Dashboard for New Professions System (NPS)	OPV011	November 2021
Post Licensure	OPV012	March 2022
Corporations	OPV013	January 2023
Education Programs	OPV014	June 2023
Discipline	OPV015	February 2023
Legacy Sunset	OPV016	June 2023

The implementation will follow a path of duplicating processes; for instance, once the online process is developed for professionals to apply for a license and become licensed in New York State, then this same process will be applied to Corporations, Education Programs, and Pharmacy Establishments. Additionally, the technical implementation of the Data Onboarding and Collection Service (DOCS) to certify third party data exchanges to/with the Office of the Professions will be developed to accept professionals' education information and then this same process will be applied to accepting exam scores and more.

The Analysis & Design phase identified what needs to be implemented. The implementation phase will identify how the components will be implemented.

Preferred Project Organization: Agile Development Practices

In 2015, NYSED ITS successfully implemented Agile Development Practices for a large development project for the K-12 education sector, and we intend that the Office of the Professions' Modernization Program will follow these same practices to mimic that success. We are planning for each of the three development teams to function as an independent Agile team with a scrum master, product owner, developers, and quality assurance engineer. The NYSED ITS group will provide technical oversight to ensure that all three teams are working independently and also cohesively. The teams will work through their set of development deliverables, working with the business requirements developed during the Analysis & Design phase, to plan for the functional requirements through Agile grooming sessions and creation of user stories with acceptance criteria. The user stories will be pointed by the team for two-week sprint iterations, and burn down charts will be maintained to manage each team's velocity. The work will be managed in Jira and also documented in Confluence.

At the end of a two-week sprint, the teams will demonstrate workable code to the project director and OP program teams.

Project Deliverables, Defined by Individual Implementation Projects

The project deliverables organized by team represent the organizational vision of the Office of the Professions through work that has been identified as part of the Analysis & Design phase. The strategy of development of ROSA and DOCS was created by NYSTEC in collaboration with NYSED groups.

Implementation Team 1: Mainframe, Migration & Data Reporting Implementation

- Complete work to create new relational database for migrated data, as designed by lead technical architect
- Continue POC work to create new relational data model
- Migrate mainframe data to new database and establish deltas (new transactions migrating in near-real time from the mainframe)
- Development of Data Onboarding and Collection Service (DOCS) for Education from third parties
- Development of Data Delivery for Eligibility to third parties
- Development of Data Onboarding and Collection Service (DOCS) Exam Scores from third parties
- Development of Data Onboarding and Collection Service (DOCS) Child Abuse / Infection Control Data Certification Service from third parties
- Development of Data Onboarding Collection Service of Continuing Education Certification from third parties
- Develop workflows and tools for OP Business Solutions team to work with and solve data issues
- Develop a multi-year schedule for keeping alive mainframe during sunsetting period
- Develop reporting and a platform for delivery of reports from new database for all mainframe reporting
- Integration of email services and Granicus with NPS
- Development of Legacy Sunsetting Plan

Implementation Team 2: Online Services for Pre-Licensure and OPR

- Development of the OPA Tool, Interview Tool for Licensure Pathways
- Reconfiguring of Online Applications for 54 Professions
- Reconfiguring for Permits and Certificates
- Development of Modernized Parchment and Registration Certificate Printing
- Development of Online Applications for Corporations
- Development of Online Applications for Pharmacy Establishments

Implementation Team 3: Online Service for Authentication, User Accounts, Renewals, Corporations/Pharmacy

- Development of Access & Authorization through NY.gov ID, addressing any security or administration issues
- Development of Verification Search and Integration with Drupal op.nysed.gov
- Development of User Dashboard
- Integration with CMS
- Development of Status Indication for Pre-Licensure / Application Status
- Development of Connection to OP Renewals System
- Development of Continuing Education calculator
- Development of Self-service Registration Certificate Printing
- Update to OP Renewals System for Modernization
  - Development of Registration Unit Moral Character Response Service
- Development of DMV photo ID Data exchange
- Develop connection and integration with Office of Professional Discipline system
- Development of Online Applications for Approved Education Programs
- Development of Online Applications for Continuing Education Providers
- Development of Comparative Education Online Review Process
- Develop connection and integration with Office of Professional Discipline System

The milestones schedule and specific project schedule with tasks that encompasses the work across all three M/BWE subcontractor development teams must be developed by NYSTEC as part of the first month of onboarding. For the completion of the SOW, NYSTEC will work with NYSED to develop team commitment in hours for each milestone. The following represents a project schedule that is being developed as part of the Analysis & Design phase and will provide the realistic path to complete modernization for the Office of the Professions.

Figure 6 Example Schedule Breakdown

Task Name	Duration	Start	Finish
▲ Mainframe Migration	716 days	Mon 11/2/20	Mon 7/31/23
▷ Create Relational Database for Office of the Professsions	190 days	Mon 11/2/20	Fri 7/23/21
▷ Develop Verification Search for op.nysed.gov	44 days	Mon 1/25/21	Thu 3/25/21
▷ Data Tools & Email Integration	279 days	Wed 1/13/21	Mon 2/7/22
▷ Integrate email services (i.e., Granicus) with NPS	120 days	Mon 4/19/21	Fri 10/1/21
▷ Pre-licensure	469 days	Tue 12/1/20	Fri 9/16/22
▷ Update to OP Renewals System for Modernization	186 days	Mon 8/9/21	Mon 4/25/22
▷ Develop Corporations Online Application & DPLS Workflow	186 days	Mon 3/21/22	Mon 12/5/22
▷ Development of Online Applications & Workflows for Education Unit	156 days	Mon 10/17/22	Mon 5/22/23
▷ Develop Process for Online Disciplinary Issue Reporting	146 days	Mon 1/9/23	Mon 7/31/23