

NASCIO Award Application

Section A: Cover Page

NCDOT Vendor Prequalification System

Digital Government: Government to Business (G to B)

North Carolina

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Section B: Executive Summary

The North Carolina Department of Transportation (NCDOT) implemented the Vendor Prequalification System to automate the process of prequalifying vendors as Prime Contractors, Subcontractors, and Consultants. Prequalification of vendors is of critical importance to NCDOT and the taxpayers because it ensures that only well qualified vendors are awarded work on NCDOT transportation projects. For centrally administered projects such as major road construction, bids are solicited only from pre-qualified vendors. Well qualified vendors help ensure quality, cost effective results from those projects, thus ensuring that the State's transportation needs are met while tax dollars are used wisely.

The Vendor Prequalification System provides a web based front-end used by the vendors to enter and submit annual applications and mid-year changes with an SAP R/3 based back-end to manage the application approval process, vendor master data, vendor notification letters, and reporting. This design was selected because it provides vendors with ready access to the application creation process, it leverages the NCDOT's existing investment in SAP R/3 and it provides a platform that can be easily expanded to other vendor application processes.

The system was developed as an internal project by the Construction Unit and the Information Technology (IT) Group. The project was staffed by a combination of NCDOT employees and consultants, with project management provided by an NCDOT manager. A strong working relationship between IT and its customers, combined with NCDOT's standard project management methodology were critical to the success of the project.

Prior to implementation of the new system in September 2007, NCDOT used a paper-based process which was inefficient both for the business community and for NCDOT. Automation of the process provided a variety of benefits, including:

- Reduction of Effort through Improved Efficiencies
- Reduced Application Turn-Around Time
- Improved Quality in the Review Process
- Improved Accuracy
- Improved Access to Information
- Integration with Other Programs
- Expandability.

Beneficiaries of these improvements include the business community and various business units and programs within NCDOT. Ultimately, all citizens and tax payers in the State are beneficiaries as the new system improves the process by which NCDOT ensures that only qualified vendors are used on transportation projects.

Section C: Business Problem and Solution

The selection of qualified Prime Contractors, Subcontractors, and Consultants is a key factor in the ultimate success of transportation projects. To ensure that the Prime Contractors, Subcontractors, and Consultants working on NCDOT projects are qualified for the work they are awarded, NCDOT requires vendors to go through an annual prequalification process. The prequalification process requires vendors to submit information regarding their employees, work experience, ownership, safety history, and other key topics. Only pre-qualified vendors are permitted to submit bids on centrally-let proposals for major projects such as highway construction, bridge design or aviation work.

In previous years, vendors submitted their qualification data via paper applications which were then reviewed internally by different groups within NCDOT. Once the application was approved, the vendor's master data was updated in NCDOT's SAP R/3 financial management system to reflect what the vendor had been prequalified for. The applications themselves were stored in paper format. Reminder letters were manually produced based on a review of the paper files for vendors whose prequalification approvals were nearing expiration. The paper-based process was inefficient for both the businesses and for NCDOT.

The solution for improving this paper-based business process was the development and implementation of the Vendor Prequalification System. This integrated system is composed of a web based front-end and an SAP R/3 back-end. This design was selected because it:

- Provides the business community with easy access to the application creation and submission function
- Leverages NCDOT's existing investment in its SAP R/3 financial management system
- Furthers NCDOT's goal of making SAP R/3 the single repository for all vendor master data
- Provides future opportunity for expanding the system to other vendor programs.

The web based front-end allows vendors to create, maintain, and display annual applications and mid-year changes in the system. Using the application, vendors can submit and display attachment documents for required documents such as W-9's (federal tax ids), licenses, and employee resumes. Authorized NCDOT employees can also use the web front-end to review and maintain the applications. Access to the application requires a North Carolina Identify Management system (NCID) user id to control user access and authenticate vendors. NCID is the state's standard identity management and access service provided by the Office of Information Technology Services.

Back-end processing is managed within SAP R/3. Once an application is submitted, an automated review and approval workflow process is started. This process allows different units to review and approve the application simultaneously. Once the approvals are complete, the system automatically applies the approved changes to the SAP vendor master data and generates a letter to the vendor. Automated workflow is also used to generate and email notification letters of upcoming and/or missed expiration dates to the vendors.

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Information regarding prequalified bidders, subcontractors, and consultants is available via a separate web application (Vendor Directory) based on entry of search criteria. This information is used by vendors and other state agencies and local governments. Internal reports were also developed that allow NCDOT personnel to search through the vendor and application data based on the vendors' areas of expertise and qualifications.

Several other programs are positively impacted by the Vendor Prequalification System. As part of the automated application approval process, personnel responsible for the Disadvantaged Business Enterprise (DBE) certification program are now automatically notified of changes that could impact a vendor's certification. Improved accuracy resulting from the system improved the quality of data presented on the web-based Vendor Directory used by other state agencies and local communities in the United Certification Program (UCP).

The Vendor Prequalification System was implemented on September 22, 2007 as a joint effort of NCDOT's Construction Unit and Information Technology (IT) Group. Strong involvement by end users throughout the project was critical to its success. The Construction Unit held working sessions with key business stakeholders prior to implementation to ensure acceptance by the business community. Internal training sessions were held for NCDOT personnel. Additionally, online help was developed to assist all vendor and NCDOT users.

The IT Development team was composed of NCDOT employees and consultants, with overall project management provided by NCDOT IT management using NCDOT's standard project management methodology.

Section D: Significance

The Vendor Prequalification Automation project benefits a variety of stakeholders.

- **Business Community:** There are currently over 1600 Prime Contractors, Subcontractors, and Consultants that are prequalified by NCDOT. In the eight months since implementation, over one thousand applications have been created or updated in the Vendor Prequalification System. The new system simplifies the effort required by the vendors to create and submit their applications. NCDOT plans to expand the system to additional vendors by using it for DBE certification applications and division-let contractor applications (smaller projects than those centrally managed).
- **Internal NCDOT Users:** Different business units are involved in the approval process depending on the specific work codes and disciplines selected by the applicant. The new system ensures that these users have the information they need to make their evaluation and approvals are performed by the correct personnel.
- **DBE Certification Program:** Personnel responsible for this program are automatically notified when a vendor's application includes changes that could impact their certification as a Disadvantaged Business Enterprise, Minority Business Enterprise, Women Business Enterprise, or Small Business Enterprise.
- **Other State Agencies and Local Communities:** Improved vendor evaluations benefit our Partners in the United Certification Program that rely on NCDOT's work to identify qualified prime contractors, subcontractors, and consultants.

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- Citizens: Automation of this process helps ensure that qualified prime contractors, subcontractors, and consultants are used on NCDOT projects. Using qualified vendors results in quality projects delivered at a lower cost to the NC tax payers.

The Vendor Prequalification System was implemented both to address a number of specific problems that existed in the paper based system and to take advantage of some improvement opportunities. Listed below are details regarding how the system resolved the problems and took advantage of the opportunities.

Problem	Resolution
Businesses had to re-create their applications each year, which greatly increased the time required on their part.	When a vendor starts an application, existing vendor master data and previous year's application data are automatically pulled forward into the web application. As a result, the business only has to enter changes, not re-create the entire application each year.
Separate application forms were used for prime contractors, subcontractors, and consultants.	The data required for each prequalification type was consolidated into a single online application. Specific sections are automatically included based on what the vendor is applying for.
Submitted applications often included incomplete or invalid information, which required follow-up effort by both NCDOT and the business.	The web-application performs extensive validations to ensure the application is complete and valid before it can be submitted. The application alerts the vendor to required supporting documentation (e.g., W-9, Equipment List, employee resumes) and allows the vendor to electronically attach these documents to the application.
Vendors wishing to be prequalified for consulting services had to submit separate applications to as many as twenty different NCDOT units.	Vendors submit a single application. The automated review and approval workflow process allows different units to review and approve the application simultaneously. The approval process allows individual work codes, disciplines, and changes to be approved or rejected.
Manually identifying approved changes and applying those changes to the vendor master created the risk of missing data or incorrectly entering changes.	Within the workflow, the user can execute a report that identifies all the changes between the new application and what was previously approved. Once the approval process is completed, the system automatically applies the approved changes to the SAP vendor master data.
Storing the applications in paper format meant that the data in the applications was unavailable for system reports and look-ups, with the exception of the limited information that was updated in the vendor master data.	Authorized NCDOT employees review the complete application in the system, including attachments. Several new SAP R/3 reports were developed that allows NCDOT personnel to search through the vendor and application data based on licenses, safety scores, expiration dates, and approved work codes and disciplines.

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Problem	Resolution
Producing letters to notify vendors of the approval / rejection decisions and to remind them of upcoming expiration dates was time consuming.	As each application is approved or rejected, the system automatically generates a letter to the vendor documenting specific items that were approved or rejected. Each month, a separate automated process generates notification letters of upcoming and missed expiration dates. These letters are reviewed and emailed to the vendors from the workflow.
The paper-based vendor prequalification provided no automated integration with other NCDOT vendor programs.	As part of the approval process, personnel responsible for the DBE program are automatically notified of changes that could impact a vendor's certification. Additionally, the approval process automatically notifies the Accounts Payable unit of changes to key fields for fiscal vendors.
The paper-based vendor prequalification provided no opportunities for expansion.	The Vendor Prequalification system was designed with the goal of eventually expanding it for use by vendors applying for DBE certification and to be prequalified for Division let contracts. The system design will easily accommodate these expansions in terms of the addition of functionality and the growth in user volume.

E. Benefits of the Project

The Vendor Prequalification System automated a paper-based business process. Automation of the process allowed NCDOT to improve the process and provide benefits to stakeholders.

Reduction of Effort through Improved Efficiency

- The system significantly reduces the time required by vendors to submit an application. Data from the previous year and from the vendor master file is automatically carried forward into the new application. Prior to implementation, historical application data was converted for use in the new system. Beneficiaries: Business Community
- A single application is used to apply for prequalification as a prime contractor, subcontractor, and consultant, thus eliminating the need for vendors to submit multiple applications. Beneficiaries: Business Community.
- The system eliminates rework by ensuring that applications are complete and valid prior to submissions. Beneficiaries: Business Community, NCDOT, Citizens of NC.
- Consulting vendors are no longer required to submit multiple applications to different business units within NCDOT. Beneficiaries: Business Community.
- Approved changes are automatically used to update the vendor master data, thereby removing the need to manually apply these changes. Both effort and errors are reduced. Beneficiaries: NCDOT, Citizens of NC.
- The system automatically generates letters to the vendors notifying them of approval and rejections resulting from the application review process. Previously this was a manual process. Beneficiaries: NCDOT, Citizens of NC.
- The system automatically generates letters to vendors reminding them to submit renewal applications in advance of their expiration date. Previously this was a manual process. Beneficiaries: NCDOT, Citizens of NC.

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Reduced Application Turn-Around Time

- The system automatically identifies changes from the previous year, allowing the reviewer to focus in on changes that could impact the vendor's ability to perform the desired functions.
- Multiple reviewers can review and approve an application on the system at the same time. This helps ensure that vendors do not expire while their application is under review. Beneficiaries: Business Community, NCDOT

Improved Quality in the Review Process

- The system automatically identifies changes between a new application and what has been stored in the vendor master data. This allows the reviewer to focus on changes that might impact their ability to perform specific types of work. Additionally, all information required to complete the review is available electronically on the system, thereby ensuring that the NCDOT personnel have the information they need for the qualification of an applicant. Beneficiaries: NCDOT, Citizens of NC.

Improved Accuracy

- The system ensures that the information provided in the application is accurately carried forward into the vendor master data. This data is available via the Internet to local governments, other state agencies, and other business via the NCDOT Vendor Directory. Beneficiaries: Business Community, NCDOT, NCDOT UCP Partners.

Improved Access to Information

- Rather than storing application data in paper format, it is now stored in the system where it is available for reporting. Internal NCDOT users can search for vendors on a variety of criteria, including licenses, safety records, and annual revenues. Beneficiaries: NCDOT.

Integration with Other Programs

- This system automatically notifies the personnel responsible for the DBE Certification Program of changes that could impact a vendor's certification. Beneficiaries: DBE Certification Program

Expandability

- While the system is currently used to capture and manage prequalification applications for Bidders, Subcontractors, and Consultants, it was designed to provide the future platform for managing applications for DBE certification and for division level contract vendors. This expansion will leverage the initial investment made for the Vendor Prequalification System. Beneficiaries: Business Community, NCDOT, Citizens of NC.

In summary, the Vendor Prequalification System supports the prime goal of the vendor prequalification process: ensuring that well qualified prime contractors, subcontractors, and consultants are used on NCDOT transportation projects. While helping to achieve this prime goal, it also provided a number of other benefits, including improved efficiency, reduced application turn around time and improved accuracy.