



Contractor Selection and Quality Assurance for Select DDOT Road Projects

August 6, 2014

Audit Team:

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A Report by the Office of the District of Columbia Auditor
Lawrence Perry, Acting District of Columbia Auditor



August 6, 2014

Mr. Brown:

Included herein is the Office of the District of Columbia Auditor's (ODCA) report entitled "Contractor Selection and Quality Assurance for Select DDOT Road Projects." The audit was conducted pursuant to a request from District Councilmember Muriel Bowser, who asked us to look into the contractor selection and quality assurance processes at DDOT that were in place for three named major road construction projects.

The objectives of this audit were to determine whether the contractor selection process adequately considers the capacity of prospective contractors and whether the existing quality assurance process for road construction projects is adequate to ensure that such projects are completed on time and in accordance with the contract.

We would like to thank staff from the District Department of Transportation for their assistance and cooperation during this audit.

Sincerely,

A handwritten signature in black ink that reads 'Lawrence Perry'.

Lawrence Perry
Acting District of Columbia Auditor



August 6, 2014

Contractor Selection and Quality Assurance for Select DDOT Road Projects

Why ODCA Did This Audit

This audit was conducted pursuant to a request from District Councilmember Muriel Bowser. Councilmember Bowser expressed concerns with the quality and timeliness of work done on three road construction projects that were all awarded to the same contractor. She asked the Auditor to determine whether DDOT had adequately considered the capacity of the contractor before the award of the contracts.

What ODCA Recommends

1. We recommend that DDOT develop clear and complete guidance for required responsibility reviews so that they will be consistently conducted and documented.
2. We recommend that DDOT management further clarify their policies and procedures to indicate which deadline is to be used when calculating possible liquidated damages. In addition, the date which contract work is determined to be complete must be clearly communicated to all parties and documented.

What ODCA Found

District Department of Transportation (DDOT) is the lead agency in the District of Columbia for managing road construction and re-construction projects. Using both local and federal funds, DDOT is responsible for advertising planned construction opportunities, selecting the winning contractor from among firms submitting bids, and managing the project to ensure it is completed on time, on budget, and according to the plans.

DDOT has put into place policies and procedures that are designed to ensure that these responsibilities are carried out effectively.

Overall, we found that the agency's quality assurance process is well designed and appears to be working effectively.

We did, however, find some weaknesses in DDOT's contractor selection process that may increase the risks of choosing a contractor that does not have the capacity to complete all work assigned to them.

For more information regarding this report, please contact Anovia Daniels, Communications Analyst/ANC Outreach, at Anovia.Daniels@dc.gov or 202-727-3600.

Table of Contents

Background..... 2

Objectives, Scope and Methodology 7

Audit Results..... 9

Conclusion15

Agency Comments..... 29

Background

The District Department of Transportation (DDOT) is responsible for building and maintaining much of the road transportation network in the District. Well designed and maintained streets allow for the smooth flow of people going to work, to school, shopping, running errands, or visiting a park or playground.

However, as with much urban infrastructure, roads and sidewalks do eventually become obsolete and need replacing. DDOT maintains a regular schedule of construction projects to address these needs. DDOT prepares a Transportation Infrastructure Plan each year that contains information about which projects are scheduled for funding over the following six years. Once a specific project is ready for construction, it is put out for bid. Private sector contractors are invited to submit bids for these projects. Once a contractor is selected, work on the project can begin.

There are several bid mechanisms that the agency can use to hire contractors for road construction projects, but often when the project has already been designed, the Invitation for Bids (IFB) process is used. When advertising a project using the IFB process, DDOT must provide a great deal of information to prospective bidders, including detailed project drawings showing exactly what is to be built along with a lengthy list of the individual pay items that make up the project. The pay items list includes everything from benches and bike racks to concrete, asphalt, and even the soil and stones used as foundation for roads and sidewalks. When the IFB process is used, contracts are awarded to the lowest bidder, provided they are deemed “responsive” and “responsible” by the contracting officer.¹

Responsibility Review

Once bids are opened and the lowest bidder is determined, there are still two determinations that must be made before the contract is awarded. First, the lowest bid must be determined to be a responsive bid. This means that it must be in the proper form, have

¹ For projects funded solely with local funds, bidders meeting certain characteristics (small or disadvantaged companies, for example) are given “points” which are then used to artificially lower their bids and thus give them a better chance to win. None of the three projects we reviewed were funded solely with local funds so this process was not used.

been submitted before the bid submission deadline and it must include all of the required elements.²

Once the bid is determined to be responsive, the firm submitting it must be found to be responsible. This requirement comes from District contracting regulations, which state that:

“The contracting officer shall not make a purchase or award unless the contracting officer has determined in writing that the prospective contractor is responsible (...).”³

These regulations go on to explain how a contractor can be found to be responsible:

“To be determined responsible, a prospective contractor shall meet all of the following requirements:

- a) Financial resources adequate to perform the contract or the ability to obtain them;
- b) Ability to comply with the required or proposed delivery or performance schedule, taking into consideration all existing commercial and governmental business commitments;
- c) A satisfactory performance record;
- d) A satisfactory record of integrity and business ethics;
- e) The necessary organization, experience, accounting and operational controls, and technical skills or the ability to obtain them;
- f) Compliance with the applicable District licensing and tax laws and regulations;
- g) The necessary production, construction, and technical equipment and facilities or the ability to obtain them; and
- h) Other qualifications and eligibility criteria necessary to receive an award under applicable laws and regulations.”⁴

According to DDOT officials, a responsibility review is to be conducted with input from both the contracting office and the Infrastructure Project Management Administration (IPMA), a division of DDOT. However, it does not appear that this process is fully developed. In fact, we have concluded that DDOT’s process is inadequate to minimize the risk of hiring a contractor that is not responsible. Our conclusions in this area are presented in more detail later in the report.

² These typically include a bid bond, performance bond, payment bond, non-collusion affidavit, and other such documents.

³ District of Columbia Municipal Regulations Title 27 Contracts and Procurements Section 2200.2

⁴ *Ibid.* Section 2200.4

Quality Assurance/Quality Control

Quality assurance at DDOT begins with the “Standard Specifications for Highways and Structures,” commonly referred to as the Blue Book. The Standard Specifications are incorporated by reference into every road construction contract and consist of a set of instructions and rules covering various construction items, from general ones like Field Facilities and Tree Protection and Replacement, to specific ones like traffic light foundations and granite curbs. The bulk of the over nine hundred page document, include the details related to the most commonly installed items associated with road construction projects. Each item in the Standard Specifications typically includes a short description of the item, a list of the materials used, construction requirements, and how the item will be measured and paid. For many items, the Standard Specifications reference industry standards such as those published by the American Society for Testing and Materials⁵ or standards established by other government bodies, such as the Federal Highway Administration.

The Standard Specifications play a key role in road construction projects at DDOT. They provide the criteria for material specifications, construction techniques, and material properties for nearly every item that is normally part of a road construction project. For the kinds of complex infrastructure projects that DDOT constructs, it is vital to have a manual such as this that communicates the expected quality standards to all parties involved. The Standard Specifications are made public so every construction firm bidding on DDOT projects is aware before construction has begun what quality standards they will be expected to meet.

The contracts themselves will typically include additional specifications that may either modify or supplement the Standard Specifications. Often, these additional specifications will involve items that are to be specially constructed or that are somehow unique to the project. These specifications are made part of the bid documents distributed to interested parties before bids are submitted. The bid documents also contain detailed plans.

Together, the drawings, the standard specifications, and the contract specifications form the criteria to be used for all quality control efforts on DDOT road construction projects. These criteria are known to all parties even before bids are submitted, thus making it very clear to contractors what standard of work they are expected to achieve.

⁵ Just one of many standards-setting organizations in the construction industry that are cited by the Standard Specifications. Other examples include the American Concrete Institute, the Steel Structures Painting Council and Underwriter's Laboratories, Incorporated.

The Standard Specifications further require the contractor to perform work and provide materials and products that are in conformance with the drawings and specifications. When work, materials, and/or products are found to be substandard, the contractor is required to replace them at no extra cost to the District. DDOT's Chief Engineer is given ultimate authority to determine the acceptability of contractor work.

While work is underway, DDOT maintains close oversight of the contractor's daily activities. This is primarily accomplished in two ways. First, a construction manager is often hired to oversee the work of the contractor from an onsite location. The construction manager (CM) meets daily or almost daily with construction crews and company officials to go over planned work, addresses difficulties, and observes work as it is done. The CM has two primary duties, as assigned by DDOT. They are to ensure that the work is done to the specifications of the contract and that work proceeds according to the agreed upon schedule. Because construction projects may encounter problems both small and large in the field that may delay their progress, DDOT officials indicate that it is crucial for the smooth progression of the project that a capable construction manager is in place who can work closely with the contractor to find solutions that minimize delay and extra cost.

Second, construction inspectors are assigned to the project and are given responsibility for inspecting all work done to insure that it is in compliance with the contract plans and specifications. Typically, inspectors are in the field every day. These inspectors review all work done by the contractor and file Inspectors Daily Reports (IDRs). The IDRs list all work done, materials used, tests performed, and other details about the activity performed at the job site. Inspectors (and the CM) have the authority to stop work on site when they discover materials or workmanship that is not in compliance with the contract. They can then direct the contractor to replace the work if it is not acceptable. This is done at no extra cost to the District.

All materials to be used on the project must be inspected and approved by the Chief Engineer prior to use. This includes everything from the aggregate stone placed underneath roadways to the benches and trash cans installed on the sidewalk. Most of the items such as light poles and pipe that are to be purchased by the contractor are identified by supplier and part number prior to purchase. Material descriptions obtained from the manufacturer are submitted to DDOT which then reviews them to ensure they meet the required specifications. Approved items are then purchased by the contractor.

For raw materials like asphalt or concrete, the process is somewhat different. DDOT works directly with nearby suppliers of concrete and asphalt to pre-certify certain mixes from each of their plants.

Generally, these certifications will be granted for one year. The contractor can then order those mixes and be confident that the material that is delivered to the job site will pass inspection. DDOT's Standard Specifications require that tests be performed on samples taken from the field to ensure that the material being used meets the specifications. DDOT has its own testing facility at which these tests are performed. Generally, DDOT inspectors will obtain a sample of the material from the field as it is being put into place. The sample is returned to the lab where various tests are performed. For asphalt, the results of the tests can be available in a few hours. For concrete, the final test results are not available for 28 days, owing to the lengthy time it takes for concrete to cure completely. Work is not suspended pending the results of the tests. Instead, if material fails the tests, the contractor may be required to re-do the work.

DDOT officials have a final walkthrough with the contractor at which time they identify a punch list of unfinished items or repairs needed to bring the finished product in alignment with the plans and specifications. Once this work is done, a final inspection is conducted to ensure that the work done matches what was called for in the contract.

Liquidated Damages

One of the tools that DDOT has to encourage contractors to meet the contractual deadline is the threat of liquidated damages. DDOT's Standard Specifications include penalties to be assessed against the contractor for each day past the deadline that work continues. These penalties are referred to as "liquidated damages." The amount of the penalty varies with the size of the contract. Figure 1 shows the amount per day of liquidated damages based on contract size.

Figure 1

Liquidated Damages by Contract Size

Original Contract Total More Than	Original Contract Total To and Including	Calendar Day Charge
\$0	\$100,000	\$200
100,000	500,000	400
500,000	1,000,000	650
1,000,000	2,000,000	800
2,000,000	4,000,000	950
4,000,000	7,000,000	1,100
7,000,000	10,000,000	1,350
10,000,000	20,000,000	1,500
20,000,000	-----	1,700

Objectives, Scope and Methodology

Objectives

This audit was conducted at the request of Councilmember Muriel Bowser. In the request, we were asked to look into the process the District Department of Transportation (DDOT) uses to ensure that contractors hired for road construction projects are properly qualified to do the work. We were also asked to review the quality control process used by DDOT to ensure road construction projects are built on time and according to specification. This report is the result of that request by the councilmember.

Our objectives for this review were to determine whether:

1. DDOT's contractor selection process considers the capacity of those who submit bids to perform the work; and
2. DDOT has an adequate process in place to ensure that road construction projects are completed on time and to the quality specifications contained in the contract.

Scope

In consultation with Councilmember Bowser's staff, we agreed to focus our review on three projects. The scope of the audit included these three road construction projects, which were awarded between November 2009 and November 2010. All three projects were awarded to Civil Construction, LLC of Cheverly, MD (Civil). The three projects were:

- Riggs Rd, NE / South Dakota Ave, NE Intersection – began March 2010
- Sherman Ave, NW from Barry Place to Park Rd – began October 2010
- 18th St, NW from Florida Ave to Columbia Rd – began February 2011

All of these projects are now complete.

Methodology

As part of our examination of DDOT's contractor selection process ODCA:

- Examined District law and regulations related to construction procurement;
- Reviewed DDOT written policies and procedures related to contractor selection and construction management;
- Contacted Transportation Department officials at nearby jurisdictions to learn about their processes; and
- Reviewed project records at DDOT's Procurement Office.

To assess DDOT's quality assurance process, ODCA:

- Reviewed the contracts between DDOT and Civil Construction for these three projects;
- Conducted site visits to the three projects;
- Interviewed numerous DDOT officials to learn more about their processes and the history of these three projects;
- Visited DDOT's materials testing laboratory located adjacent to McMillan Reservoir;
- Reviewed project records at DDOT's Infrastructure Project Management Administration; and
- Interviewed the Construction Manager for an ongoing road construction project at U St, NW.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Audit Results

Our objectives were to determine whether the District Department of Transportation (DDOT) has adequate processes in place to select responsible road construction project contractors and to ensure that road construction projects are completed on time and to specification. We identified a significant deficiency in the process DDOT used to select contractors that potentially increases the risk to DDOT of hiring a contractor that lacks the capacity to complete a contract in a timely and efficient manner.

Our review of the Riggs Rd, Sherman Ave, and 18th St projects did not uncover any substantial concerns about the quality of the work done at those locations. However, we did discover a weakness in DDOT's policies and procedures which makes it more difficult for them to assess liquidated damages penalties and therefore ensure that road construction projects are completed on time. There were delays at both Riggs Rd and Sherman Ave. We did not reach a conclusion as to whether the delays could have been avoided by improved DDOT processes. A full discussion of the history of each project can be found in Appendix I.

As a result of these conclusions, we have made the following recommendations to improve DDOT operations.

1. We recommend that DDOT develop clear and complete guidance for the required responsibility reviews so that they will be consistently conducted and documented.

District law and regulation require contracting officials to refrain from awarding contracts to contractors found not to be "responsible." After reviewing the contract files for the three projects and interviewing DDOT officials, we found that the agency had not conducted the required responsibility review in a consistent manner. We noted widely varying documentation of the reviews having been conducted, with none of the three files containing records demonstrating that a complete review had been completed. We interviewed DDOT management and were told that a responsibility review is done, but they admitted that there was no written policy on how to conduct the reviews. This inconsistency in conducting responsibility reviews exposes DDOT to increased risk of hiring a contractor who is incapable of performing the work to the agency's quality and timeliness standards.

District regulations provide a list of eight requirements that must be met before the prospective contractor can be determined responsible. That section of the regulations is presented again here:

“To be determined responsible, a prospective contractor shall meet all of the following requirements:

- a) Financial resources adequate to perform the contract, or the ability to obtain them;
- b) Ability to comply with the required or proposed delivery or performance schedule, taking into consideration all existing commercial and governmental business commitments;
- c) A satisfactory performance record;
- d) A satisfactory record of integrity and business ethics;
- e) The necessary organization, experience, accounting and operational controls, and technical skills, or the ability to obtain them;
- f) Compliance with the applicable District licensing and tax laws and regulations;
- g) The necessary production, construction, and technical equipment and facilities, or the ability to obtain them; and
- h) Other qualifications and eligibility criteria necessary to receive an award under applicable laws and regulations.”⁶

DDOT’s Contract Administration Procedures Manual includes a brief section titled “Responsibility Review and Determination (Engineer’s Review).” This section is very short and does not contain any instructions on how to conduct the review except in the instance that the bidder is a new contractor. This section does not include refer to the eight items mentioned in the regulations.

The responsibility review is an important part of the contract award process. The contracting officer’s decision to award the contract depends in part on the conduct of this review. As with all critical decisions made by government officials, this decision should be well supported with the documentary evidence.

Failure to conduct a thorough responsibility review for each contractor increases the risk to DDOT that they may hire a contractor not capable of completing the work in an acceptable manner. This could mean additional costs to the District associated with delays or shoddy workmanship. The need to conduct reviews is emphasized by the fact that regulations require the contracting officer to presume that contractors are not responsible unless information clearly indicating responsibility is found.

⁶ *Ibid.* Section 2200.4

“In the absence of information **clearly indicating** that the prospective contractor is responsible, the contracting officer shall make a determination of **non-responsibility** (Auditor’s emphasis).”⁷

It is important to note that during our review, DDOT staff informed us of a meeting of DDOT managers and representatives from Civil Construction, LLC where the capacity of Civil was considered prior to awarding them the 18th St contract. This meeting was apparently not part of the agency’s normal responsibility review process. The meeting, however, was not memorialized so it is not a matter of the documented record exactly what was considered and what information was used to finally conclude that Civil did have the capacity to complete work on the 18th St project. The fact that the meeting took place does not change our conclusion that DDOT’s responsibility review process is conducted in an inconsistent manner and that the reason for this inconsistency appears to be a lack of written policies and procedures for the process. For internal controls to work the way they should, they must be consistently applied and recorded. It is for these reasons that we recommend that DDOT management take steps to improve this critical process.

⁷ DCMR Title 27 Chapter 22

2. We recommend that DDOT management further clarify their policies and procedures to indicate which deadline is to be used when calculating possible liquidated damages. In addition, the date which contract work is determined to be complete must be clearly communicated to all parties and documented.

Existing DDOT contract management practice includes the concept of “substantial completion” of a project as well as “final acceptance” of a project. (See pp. Standard Specifications) The dates of substantial completion and of final acceptance are inconsistently documented in the contract file. However, neither of these terms that relate to the completion of the work for which a contractor has been hired are definitively related to the concept of “contract work” being declared complete. This ambiguity makes it more difficult for DDOT to impose liquidated damages penalties, which exist to compel the contractor to complete its work on time.

Based on our review of the three project files, and after numerous interviews with DDOT staff and management, we found that DDOT does not have a consistent way in which “contract work” is declared complete and thus of knowing whether the contractor is liable for liquidated damages.

As explained earlier, DDOT Standard Specifications provide that: “For each calendar day that contract work remains uncompleted after expiration of the contract time or main part thereof,” the contractor will be assessed liquidated damages. For this provision to be effective there must be a clear agreement among all parties of:

- What is meant by “contract work”
- What is meant by “contract time”; and
- When is the “contract work” considered to be “completed”

“Contract work” and “contract time” are both defined within the terms of the contract – what work is to be done and the number of days that are provided to complete the work. However, we could not find a definitive statement of when the work is considered “completed”.

The Standard Specifications contain a paragraph titled “Final Inspection and Acceptance.” This paragraph states:

“Within 30 consecutive calendar days after receipt of a written notice from the Contractor that contract work is complete and the project area is cleaned up, the Chief Engineer will make final inspection of the project. The Contractor shall promptly correct any deficiency as determined, and upon acceptable completion of all

work and cleanup the Chief Engineer will certify in writing as to completion (...). The project will not be accepted until the Contractor has met all contract requirements.” (See Standard Spec pp. 78)

However, in communication with DDOT managers, we were informed that the date for determining whether to impose liquidated damages was the date of “substantial completion.” Further, DDOT’s Construction Management Manual calls for the construction manager to “establish a specific date of Substantial Completion and prepare a letter to the contractor to be signed by the contracting office.” The Construction Management Manual contains no requirement for a letter or any other written notice upon acceptance that “contract work” is complete. It appears that actual DDOT practice does not match what is in the Standard Specifications. We found that this letter is not always sent and that there was not an equivalent documentation of the date of substantial completion in the files we reviewed.

Road construction contracts signed by DDOT typically include a requirement that “contract work” be completed within a certain number of days. The standard specifications incorporated into DDOT contracts specify that if the contractor is late, it can be charged liquidated damages for each day past the deadline that the work is not complete. The consequence of not memorializing the completion date is increased risk that the contractor will be able to successfully dispute any imposition of liquidated damages penalties. Consequently, there is increased risk that road construction projects will not be completed on time.

Although DDOT’s Standard Specifications call for these penalties to be assessed whenever contractors are late, in an interview with DDOT officials, we were told that the agency has almost never assessed liquidated damages penalties. It may be that the lack of clarity on when contract work is officially completed has contributed to this apparent reluctance to use liquidated damages.

During the audit, DDOT management acknowledged that this was an area of weakness in their operations and informed us that they are planning on expanding the section of the standard specifications that discusses substantial completion and final acceptance of the project. We were provided a copy of the draft language being considered. This new language includes a much more detailed discussion of what is meant by “substantial completion” and “final acceptance.” However, it does not indicate which deadline is to be considered for the application of liquidated damages. Since the existing liquidated damages section of the standard specifications says that they are to be imposed if “contract work” continues beyond the end of “contract time,” it appears that there are still some inconsistencies that will need to be addressed.

Area of Concern

No written procedure for handling “unreasonable” bids

Regulations give the contracting officer the authority to reject bids if the bid price is “unreasonable.” The Contract Administration Procedures Manual says “A low bid is reasonable if within \pm 10 percent of the engineer’s estimate.” It goes on to say “If the low bid is greater than or less than 10 percent of the engineer’s estimate the bid packages should be sent by the contracting officer to the engineer for recommendation and certification.” However, we were not able to determine that any further written instructions exist. We asked DDOT for written documentation of what process the engineer uses to make their “recommendation and certification” but received no response. Based on our review of the three cases we examined, it appears that this process is conducted in an inconsistent manner. As mentioned earlier, when Civil’s bid was more than 10 percent lower than the engineer’s estimate for both the Sherman Ave and 18th St projects, the engineer’s estimate was recalculated, taking into account the lowest three bids for selected pay items. But why these particular pay items were chosen and not others or not every pay item was not explained to us. In addition, the items chosen varied between the two projects, despite the fundamental similarities in the work to be performed. By conducting this important process in an inconsistent manner, DDOT raises the risk that their decision making will be questioned.

DDOT’s Deputy Chief Engineer explained that the agency “typically” re-figures the engineer’s estimate when faced with a low bid that is more than 10 percent lower. Since we only reviewed three files, we cannot confirm that this is or is not the case. However, since (1) no written procedure was given to us explaining how to complete this re-figuring; and (2) the process used appeared inconsistent even among the three we examined, we conclude that there remains substantial risk to DDOT. Government agencies must provide due process to all those who come before it in any capacity, including as bidders for contracts. If DDOT is deciding whether or not to accept a given bid based on some ad hoc procedure that varies from case to case, this raises serious questions about due process. DDOT managers should examine their procedures in this area and take steps to minimize the risk to the agency.

Conclusion

Overall, we found both strengths and weaknesses in DDOT's processes for managing the complex tasks of selecting contractors and overseeing road construction projects. DDOT's quality assurance policies and procedures appear effective and we discovered no significant evidence of poor workmanship at the three projects we examined. However, two of the three projects we examined were completed well after the initial deadline established in the contract. DDOT's standard contract language includes monetary penalties to be applied when the contractor is late, yet these have rarely been applied. DDOT needs to improve and clarify its rules related to when these penalties may be applied.

We also found some weaknesses in DDOT's contractor selection process that may increase the risks of choosing a contractor that does not have the capacity to complete all work assigned to them. The process appears to lack consistency which stems in part from the fact that certain key components do not have written procedures. We have recommended improvements and standardizations where needed to minimize the risks to the agency in carrying out this key process.

Sincerely,



Lawrence Perry,
Acting District of Columbia Auditor

Appendix I

This section includes a history of the three road construction projects that we reviewed. These summaries are intended to inform those who may not be familiar with the projects.

Riggs Rd/South Dakota Ave Intersection

The construction contract for the Riggs Rd project was advertised by the District Department of Transportation (DDOT) in the summer of 2009. The bids were opened August 28, 2009. Civil Construction had the lowest bid, but it was initially rejected as being unfairly low. In the letter sent to Civil informing them of the rejection, DDOT cites two significant facts about Civil's bid to support their decision. First, the bid of \$7.9 million was almost 30 percent lower than their own estimate of how much the project would cost.⁸ Second, Civil's bid included six pay items each bid at one penny per unit. These were found to be between 99.9 percent and 99.98 percent below the engineer's estimate and also well below the other bidders. For example, Civil bid \$0.01 per cubic yard for common excavation. The average of the two other lowest bidders was \$28.50 per cubic yard. The engineer's estimate was \$30 per cubic yard. These penny bids were largely responsible for the overall difference between Civil's bid and the bids received from the other contractors.

Civil protested this decision. Before the protest could go to an administrative hearing, DDOT changed their ruling and accepted the bid. We could find no explanation for this reversal, either by reviewing the Riggs Rd case files or in interviews with various DDOT officials. Civil signed a contract in November 2009 and was given a notice to proceed on March 1, 2010. The contract gave Civil 480 days to complete the work, resulting in an initial deadline of June 24, 2011.

Unfortunately, work did not proceed smoothly. Civil and DDOT ran into various conflicts with underground utilities. Utility conflicts are not uncommon in road construction projects and often result in change orders and delays. A change order is an amendment to the contract agreed to once work is underway. They typically detail additional work to be done by the contractor not contained in the original contract. Sometimes they involve changes or even omissions

⁸ Prior to advertising a project for bid, DDOT prepares what is called an "engineer's estimate," an internal calculation of how much the project will cost. The engineer's estimate is prepared item by item, in the same way that the contractors prepare their bids. This estimate is not shared with the public prior to the opening of bids.

to the original project plan. A change order often results in either additional payment to the contractor or an extension to the deadline or both.

By the end of the Riggs Rd project, nine change orders had been signed, involving an additional \$1.4 million in payments to Civil and a time extension of 362 days. With these additional days, the final deadline for work to be completed at Riggs Rd was June 20, 2012. According to documentation provided by DDOT, work on the Riggs Rd project was accepted as complete on December 11, 2012, 174 days late. Based on the Standard Specifications, this delay would mean that Civil was potentially liable for up to \$234,900 in liquidated damages. To date, Civil has not been charged. DDOT managers explained to us that they were still considering whether to assess liquidated damages but did not provide any documentary evidence of any process being used to conduct such an assessment.

At the conclusion of the project, DDOT's program manager for Riggs Rd submitted a memo to DDOT's Chief Contracting Officer entitled "Report of Construction Contract Non-Conformance Issues, Safety, Supervision, Delay, Site Cleanliness Unit Pricing and Other Problems." The memo listed 34 safety and other problems that occurred during the project and for which the contractor was deemed responsible. The problems included:

- "The Contractor failed to provide a Site Safety Supervisor for paving operations as required by DDOT specifications. The Contractor was shut down by the Chief Engineer on Saturday, June 2, 2012 for lack of site supervision and other failures.
- The Contractor continuously failed to provide a DC licensed electrician for installation of lighting related items. The Contractor was shut down by DDOT electrical inspectors on multiple occasions in July 2010.
- The Contractor failed to provide competent foreman for shoring a 25-foot deep excavation at Man Hole 30 (MH 30). The resulting shoring was inadequate resulting in workmen refusing to enter the excavation. The work was delayed as the foreman deferred corrective action. Ultimately, four foremen were assigned and relieved from MH30. The excavation was open in excess of four months.
- The Contractor's sequencing of work was poorly planned or had no planning at all. On multiple occasions contractor removed previously installed work to install other work in conflict. A key example of this was the Contractor driving trench shoring through new traffic signal conduits on South Dakota Avenue for 60-inch storm sewer installation. The Contractor then requested a PCO [change order] to replace the conduit.

- The Contractor failed to anticipate the need for ordering materials and equipment. When the project was drawing to a close and traffic signals and street light fixtures were needed to complete the project, DDOT had to loan the Contractor equipment to proceed with the work.”

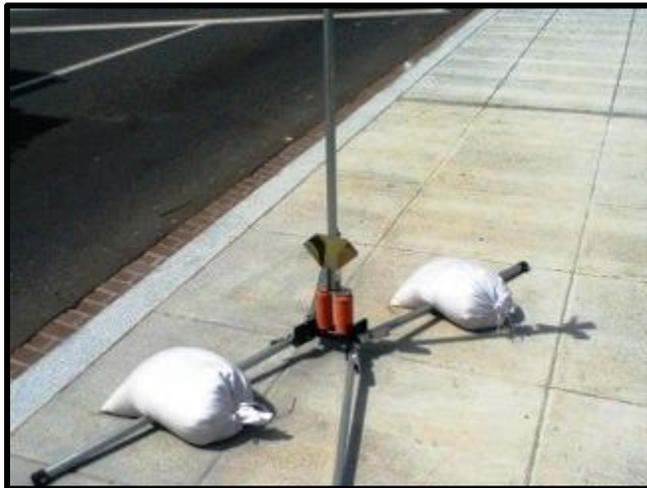
According to DDOT officials, this memo will remain part of their files and would be considered should Civil Construction submit a bid in the future.

In order to familiarize ourselves with the project, we conducted a site visit, taking pictures and noting conditions at the site. Some of the pictures are included here. We did not notice any significant evidence of poor construction.

New construction at Riggs Rd/South Dakota intersection



We did note the presence of certain construction materials that may have been left onsite by the contractor. See pictures three and four, below.



We conducted a review of records related to the Riggs Rd project at DDOT's Office of Contracting and Procurement and at the Infrastructure Project Management Administration (IPMA). OCP's records consisted of records related to the opening of the bids, the initial analysis and rejection of Civil's bid as explained above, and other standard documents related to the processing of the contract. The file also included records of all the change orders.

Records at the IPMA were more extensive, as they included all of the invoices, the Inspector's Daily Reports, monthly progress reports, product approval documentation, and many other documents related to the daily management of the project. Our objective in examining the IPMA records was to ensure that the required quality reviews and checks had been completed. We selected forty pay items randomly from among those included on invoices submitted while the project was underway. Our review revealed that supporting

documentation proved inconsistent. We compared the amounts billed on monthly invoices to the amounts reflected on independent daily reports. For only 21 of the 40 pay items were these items the same (even after allowing for a small margin of error).

We also examined documentation at IPMA and DDOT's Quality Assurance/Quality Control Division for evidence the pay items were properly submitted and approved before usage on the project. We found that of the 25 items that should have had records of submittals and approvals, only 17 had submittals and only 2 had approvals matching the submittal. DDOT was not able to explain why. See Figure 2, below, for a discussion of the records found for each of the pay items chosen for review.

Figure 2

Inspection and Approval Results for Selected Riggs Rd Pay Items

Pay Item	Records Found	Notes
Temporary AC, Superpave Surface Course	No approval	This asphalt mix item appeared on three of the four invoices that we sampled; however, we never found DDOT approval
PCC Driveway-Alley Entrance, 7-inch	No submittal found	We found no submittal or approval for the plain cement concrete.
Underdrain Pipe, 4 inch	No submittal found	We found no submittal or approval for the underdrain pipe.
8" x 12" Granite Circular Radius under 10 ft.	No approval	We found documentation related to DDOT receiving the submittals for this and a few other items; however, we did not see documentation that this particular item was approved before usage.
Brick Gutter	No approval	
Temporary Construction Sign Support	No submittal found	We found no submittal or approval for the construction sign support.
Reflectorized Traffic Cones	No submittal found	We found no submittal or approval for the traffic cones.
Ductile Iron Pipe, 16-inch	No approval	
Sewer Manhole on Sewer Greater than	Approved	

48-inch Diameter		
Engineer's Field Facilities	No submittal found	We found no submittal or approval for the engineer's field facilities.
Aggregate Base Course	No approval	
PCC sidewalk, 4-inch	No approval	
Thermoplastic Pavement Marking, 4-inch	No approval	
Thermoplastic Pavement Marking, 6-inch	No approval	We found submittals for both size of pavement markings; however, we never found DDOT approval for either.
250 watt HPS Conversion Kit	No submittal found	We found no submittal for this lighting item.
PCC Pipe, Class III, Gasket, 48 inch	Approved	
8" x 12" Granite Circular Curb, Radius 10-100 FT.	No approval	We found documentation related to DDOT receiving the submittals for this and a few other items; however, we did not see documentation that this particular item was approved before usage.
Thermoplastic Pavement Arrow	No approval	
One 2 Inch and One 4 Inch PVC Conduit	No approval	

Further, we requested documentation for the pay items that would normally require inspections and testing. We received a limited amount of documentation, and none of it concerned the items we were reviewing. It is difficult to know whether this means no tests were performed or that DDOT simply cannot provide documentation of the tests.

In conclusion, we found that DDOT awarded the contract to Civil despite the fact that their bid was almost 30 percent lower than the engineer's estimate. The initial decision by the agency was that the bid was not responsive, but this decision was later overturned. It is not clear why. In addition, we found that DDOT's records did not contain evidence that all of the quality assurance procedures had been properly followed for this project.

Sherman Ave

The Sherman Ave project was initially advertised in the summer of 2010. Bids were opened on September 13, 2010 and the contract was awarded to Civil Construction on September 23, 2010. A Notice to Proceed letter was sent to Civil on October 12, 2010, informing them they had 630 days to complete the project. This would have resulted in a deadline of July 8, 2012, but it was pushed back by numerous change orders, discussed below. The contracted amount was \$9.5 million.

As with their bid for the Riggs Road project, Civil's bid for Sherman Avenue was substantially lower (15 percent lower) than the engineer's estimate for the project, which was \$11.2 million. It was also approximately 8 percent lower than the next lowest bidder. However, this time DDOT did not reject the bid. Instead, the DDOT engineers concluded that their initial estimate was too high. They adjusted their estimate by averaging the three lowest bidders' prices for nine pay items contained in the bids. After this exercise, they determined that a more accurate engineer's estimate, taking into account current "market prices" would be \$10.6 million. Civil's bid then appeared only 10 percent lower than the engineer's estimate and was accepted.

Once construction was underway, various utility conflicts became apparent. In addition, contracted quantities were found to be inadequate for several items. As a result, five change orders were necessary. They resulted in \$698,000 worth of additional payments and 175 days added to the schedule. The final deadline, after adding the additional 175 days to the schedule, was December 30, 2012. However, according to DDOT officials, work was not completed on the Sherman Ave project until April 29, 2013, 121 days after the December 30, 2012 deadline. Because the Sherman Ave contract includes provisions for liquidated damages at \$1,350 a day, this would appear to leave Civil Construction owing the District \$163,350. However, DDOT officials have informed us that additional retroactive change orders are still possible that may yet change the official deadline for the project and result in no liquidated damages being charged. As of this writing, the situation has not yet been resolved.

In order to familiarize ourselves with the project, we conducted a site visit, taking pictures and noting conditions at the site. We did not find any significant examples of poor quality construction.

As we did with the Riggs Rd project, we also reviewed Sherman Ave files at both OCP and IPMA. OCP files included documents showing the bid review process discussed above, as well as the change orders.

In our review of the IPMA files, we discovered some discrepancies between what we expected to see and what was actually there. Of the

24 pay items chosen that should have had some documentation of a quality review we could only find sufficient documentation for 16. The results of our review are presented below, in Figure 3.

Figure 3

Inspection and Approval Results for Selected Sherman Ave Pay Items

Pay Item	Records Found	Notes
Valve casing	Approval by DC Water	DDOT commonly replaces water pipes for DC Water when doing roadwork. DC Water reimburses DDOT for this work and is involved during construction to review and approve work done.
Gate butterfly valve 3"-12"	DC Water approved	
Temporary asphalt	Material approval date is later than installation date	Temporary asphalt is placed at the end of the day to cover a trench or other excavation and is removed before permanent asphalt is placed. Therefore, the delayed approval is not of great concern.
Federal Aid project sign	No approval found	Also a temporary item, displayed at the side of the road to inform the public of the funding source for the project.
Ductile iron pipe, 4"-8"	DC Water approved	
Curb stop	DC Water approved	
Removable preformed marking, 4"	Material approval date is later than installation date	This item represents the removable plastic lane and other road markings put down to temporarily control traffic flow through the construction site. Again, since the item is not a permanent part of the project, a delayed approval is not crucial.
PVC Conduit	Approved	
PVC Conduit, 4"	Approved	
Traffic signal cable	Approved	
#8 standard ground wire	Approved	

150 watt HPS conversion kit	Approved	
Standard Triple Basin	DC Water approved	
Under drain pipe 4 inch	Approved	
Concrete sidewalk	Mix approved, no record of testing on site	DDOT could not provide records showing the sidewalk concrete poured at certain locations and on specific dates had been tested.
Concrete gutter	Mix approved, no record of testing on site	DDOT could not provide records showing the gutter concrete poured at certain locations and on specific dates had been tested.
Concrete foundation for traffic/light pole	Mix approved, no record of testing on site	DDOT could not provide records showing the foundation concrete poured at certain locations and on specific dates had been tested.
250 watt HPS teardrop fixture	Unclear	DDOT's records were unclear as to whether this item had been approved
Glare shield for conversion kit	Unclear	DDOT's records were unclear as to whether this item had been approved

In conclusion, we found that, despite several change orders providing additional time, Civil still did not complete this project by the deadline. However, at the time of this writing, DDOT was still contemplating whether or not to impose liquidated damages. A consultant had been hired to determine whether the delays were the fault of the contractor but no decision had yet been reached.

18th St, NW

The 18th St project was advertised at the same time as the Sherman Ave project. Bids were opened for the 18th St project on September 16, 2010 and the contract was awarded to Civil on November 22, 2010. Civil's bid was again found to be substantially under the engineer's estimate. This time, the bid was 21 percent lower than what DDOT had calculated it would be. Before accepting this low bid, the Contracting Officer asked DDOT's engineers to look into the bid and determine whether it was acceptable.

As they did with the Sherman Ave bid, DDOT's engineers concluded that their estimate was too high and that market prices for certain items had changed. They re-calculated their estimate by choosing eight pay items and calculating the average of the three lowest bidders for these items. Because Civil's bid was found to be only 8 percent lower than the re-calculated engineer's estimate, it was determined to be reasonable and the project was awarded to them.

According to the Deputy Chief Engineer at DDOT, a meeting was held with Civil Construction and high level DDOT officials around this time. The purpose of the meeting was to discuss Civil's capacity to conduct simultaneous road construction projects for DDOT. In late 2010 the Riggs Rd project was underway, work on Sherman Ave was about to start, and Civil was also working on a smaller project on Western Ave. The 18th St project would be the fourth significant road construction project awarded to Civil, with work scheduled to proceed simultaneously. Unfortunately, there are no meeting notes that have survived, so we are not sure what was said. Since the 18th St project was awarded to Civil, it appears that the company was able to assure DDOT of their ability to handle all of the work. A Notice to Proceed letter was sent on February 2, 2011. Civil was given 448 days to complete the work. The contracted amount was \$6.5 million.

Work proceeded relatively smoothly at 18th St. There were seven change orders agreed to while work was underway, but in comparison to the change orders at Riggs Rd and Sherman Ave, these were less consequential, adding \$369,000 and 130 days to the contracted figures. The \$369,000 includes an early completion bonus of \$250,000, awarded for finishing 50 days before the contracted deadline. While penalties for finishing late are a standard part of DDOT road construction contracts, incentives for finishing early are only used on a case-by-case basis.

When asked why the 18th St project seemed to proceed more smoothly than the other two, DDOT officials explained that because of increased public involvement prior to the project starting, there was a greater degree of cooperation among DDOT and utility companies throughout the project. A series of public meetings were held well before construction began and at those meetings officials from utility companies committed to ensuring that conflicts would be minimized. This resulted in fewer delays once the project was underway. In addition, officials cited the strong working relationship between Civil and the construction manager for the project. As noted earlier, the construction manager plays a crucial role in the successful completion of road construction projects.

During our site visit to 18th St, we did not observe any obvious quality issues with the roads, sidewalks, or other features of the project. The following is a small selection of the photographs we took to document our observations.



As with the Riggs Rd and Sherman Ave projects, we spent time examining 18th St records in OCP and IPMA. The OCP records showed the bid review process, the selection of Civil as the contractor and the passage of the change orders through the proposal, negotiation, and approval processes.

IPMA’s records, as with the other projects, included the Inspectors Daily Reports as well as quality assurance documentation. We first reviewed the IDRs to determine whether they adequately supported the quantities for several randomly chosen pay items. We found that only 24 of 30 items had adequate documentary support for the quantities billed. Based on our interviews with both DDOT managers assigned to the project and with the outside consultant hired to provide construction management services, it appears that the discrepancies can be explained by poor or missing documentation rather than actual errors made in the invoice.

We then reviewed the quality control documentation for these same pay items. The results of this review are presented in Figure 4, below.

Figure 4 Inspection and Approval Results for Selected 18th St Pay Items

Pay Item	Records Found	Notes
Ductile iron pipe, 4-8 inch	DC Water approved	
Extra fittings, contractor furnished	DC Water approved	
Standard double basin	DDOT approved	
Temporary Asphalt	Mix approved	Per the head of the QA/QC Division, no testing is performed on temporary asphalt.
Galvanized steel transformer base	DDOT Approved	
Red ball LED module	DDOT approved	
Yellow ball LED module	DDOT approved	
2 section pedestrian signal on pole	DDOT approved	
Spread footer foundation for street light (concrete)	Mix approved	No record of concrete test performed for this item.
Ductile iron pipe, 12 inch	DDOT approved	
Pedestrian barrier	DDOT approved	
Green ball LED module	DDOT approved	

#10 stranded wire	DDOT approved	
400 watt HPS teardrop fixture	DDOT approved	
Curb stop	DC Water approved	
Bike racks	DDOT approved	
Asphalt base course, 12.5 mm	Mix approved, inspection records found and show material passed	
Asphalt base course, 19mm	Mix approved, inspection records found and show material passed	
Tack coat	DDOT approved	
Concrete bus stop pad	No record of mix approval, no record of testing	Records did show that a compaction test was performed on the soil underneath where this bus pad was poured and that the soil passed this test.
Exposed aggregate sidewalk	Mix approved, no record of testing	Compaction test passed at this location.
Thermoplastic pavement arrow	DDOT approved	

For 19 of the 22 items that would have quality reviews performed, DDOT had the correct documentation showing that the review was actually done.⁹ The three items missing quality review documentation were either concrete or asphalt.

⁹ Not every pay item requires quality review. For example, excavation requires no quality review or inspection. For 18th St, 8 of the pay items we randomly selected for review were of this sort, thus resulting in only 22 which would have had quality review documentation.

Agency Comments

On July 10, 2014, we submitted a draft version of this report to the District Department of Transportation (DDOT) for review and comment.

The Auditor did not receive any written comments from DDOT by the given due date.