

2015-2016 Annual Report,

Alternative Contracting Special Experimental Project No. 14 (SEP-14), Best Value Contract selection

Introduction

On April 24, 2012, FHWA accepted NYSDOT's proposed work-plan for the use of Best-Value selection of design-bid-build construction contracts through the Federal "Alternative Contracting" SEP-14 program. As part of the work-plan, NYSDOT will provide interim and final reports for projects that use Best-Value. In addition, FHWA requested annual reports be provided for the three year program. The following is the annual report for 2015-2016, from May 1, 2015 to April 30, 2016, which provides information on how NYSDOT used Best-Value selection and on future Best-Value candidate projects.

Projects Selection for use of Best-Value

The NYSDOT workplan detailed key reasons why the use of Best-Value selection helps minimize risks on certain projects. Below is a list of the three measures outlined in the workplan that were used to determine whether a project will be a good candidate and to measure the success of the project if Best-Value selection is deemed appropriate:

- **Cost savings:** Minimize change orders by including in the criteria for selection items such as experience with similar projects and conditions, understanding and approach, schedule and quality control.
- **Quality:** The Best-Value selection process allows quality criteria to be used to help score each contractor based on past experience, quality control, and understanding and approach.
- **Time:** A candidate for Best-Value will typically have time constraints due to factors like traffic volumes or environmental restrictions. The selection criteria can include items like durations for portions of the project and/or substantial completion. The durations chosen by the Contractor will become contractual.

All candidates for using Best-Value selection follow a predetermined process for Best Value applicability prior to designation as a Best Value procurement project. This process includes Candidate projects are vetted for BV Selection Procurement by the Region, Alternative Program Delivery Director and the Chief Engineer.

Closed Best-Value Projects

Project	Region	Brief Description	Stage of construction	SEP 14 Report Status
SABP.00 D262025	1	I-87 SB & NB over Mohawk River, also referred as "Twin Bridges"	Complete	Final Report submitted to FHWA 6-23-14

Results of use of Best-Value in 2015-2016

- 4 (four) Federal Aid D-B-B projects utilizing Best-Value selection have been completed.
- 1 (one) project, which had been awarded in 2014-2015, was still under construction in 2015-2016. The initial interim report was completed and the report on this project included in this Annual SEP14 report will serve as a progress report on the project.
- 1 (one) project that was initially planned to be let as BV project was re-let and awarded as regular low bid project.
- 1 (one) project is under construction, and the interim report for it will be done later.

Project	Region	Brief Description	Stage of construction	SEP 14 Report Status
PIN 8106.28 D262044	8	Sprain Brook Parkway Bridges over Route 119, also referred as "Sprain Brook Pkwy"	Complete	Final Project Report included in 2015-2016 Annual Report
PIN 1528.68 D262091	1	I-90 over the Hudson River, also referred to as "Patroon Island Bridge"	Complete	Final Project Report included in 2015-2016 Annual Report
PIN 1055.02 D262595	1	Route 431 - Whiteface Mountain - Veterans Memorial Highway	Complete	Final Project Report included in 2015-2016 Annual Report
PIN 1721.51 D262718	1	Interstate 87 Exit 4 Access Improvements Phase 1 – Replacement of I-87 Bridges over Albany Shaker Road	Complete	Final Project Report included in 2015-2016 Annual Report
PIN 5760.80 D262652	5	NY Gateway Connections improvement to US Peace Bridge Plaza	Under Construction	Interim (Progress) Report Included in 2014-2015 Annual Report
PIN 1051.71 D263014	1	South Mall Empire State Plaza	Was re-let and awarded not as BV Project	No report included. Project was re-let as a Design Bid Build – Low Bid Contract

Project	Region	Brief Description	Stage of construction	SEP 14 Report Status
PIN X731.28 D262963	11	Gowanus Expressway Steel Repairs, Co 1, Kings, NYC	Under Construction	No report included in 2015-2016 Annual Report. Interim Report has not been completed.

Four final reports and one interim (progress) report for five of the seven projects identified in the above table are included in the subject annual report. South Mall Empire State Plaza project (PIN 105171) was re-let as regular low bid contract after the original Design Bid Build – Best Value procurement did not provide favorable bid amounts. Analysis of the proposals tendered resulted in contract modifications prior to recycling. Subsequently, a decision was made to re-let the project as a traditional Design Bid Build – Low Bid contract.

PIN X731.28 (D262963) was awarded on 4-22-16 just days before the 2015-2016 Annual Report end date. Although the project is technically in the Construction Phase, construction had not commenced and an Interim SEP14 report has not been prepared at the annual report end date. An Interim SEP 14 report will be prepared and provided at a later date.

PIN:..... **8106.28**
Contract: D262044
Reporting Stage: Final
Location: Sprain Brook Parkway Bridges over Route 119
County: Westchester
Towns: Village of Elmsford
Region: 8
Brief description: Replacement of 2 bridges on Sprain Brook Parkway over Route 119.
Awarded to: Ecco III Enterprises, Inc.
Bid: \$21.31 M
Key information: Award Date – July 23, 2012
Original Contract Completion Date – June 30, 2015
Substantial Completion Date – April 15, 2015
Actual Completion Date – 6/30/2015

The project included replacement of both Sprain Brook Parkway (SBP) NB and SB bridges over Route 119. The replacement of the bridges impacts traffic on the Sprain Brook Parkway which has traffic volumes in excess of 100,000 AADT. The staging of the replacement work impacted traffic and required lane reductions during certain stages of construction. The provisions in the Contract were in accordance with NYSDOT's recently developed Drivers First policy, which has the goal of minimizing impacts to traffic while still providing a cost effective solution to complete the work.

Ecco III Enterprises, Inc. had both the low bid and the highest technical score resulting in the highest overall score. Ecco III also provided the shortest duration for Stage 2 and overall completion of the project. Given their extensive experience, it was clear that they had the ability to complete the project in accordance with the cost and schedule values provided to complete the Best Value bid submission.

The durations proposed by the winning contractor were made contractual. The use of Best-Value selection has minimized the impact to traffic which was one of the key concerns for the project.

2015-2016 Progress Update: PIN 8106.28 (D262044) Sprain Brook Parkway Bridges over Route 119.

During 2015-2016 season turf establishment and landscaping work had been finished.

There were no major problems encountered.

There were no major cost overruns during construction.

There were a couple claims/disputes that have been resolved. All monies have been paid to the contractor. The final agreement is currently being processed.

The Final Report provides a brief summary of the cost of the project, quality and time needed and evaluation of the benefits of BV procurement method.

Project Cost:

The original EE was \$24,588,406. The BV winning bid was \$21.31M BV Final cost is \$21.43M with the net increase over bid price of \$117,593. Cost increase during construction was negligible at 0.6%.

Overall the project was completed on budget with minimal cost overruns to the original contract bid. Although it is difficult to qualitatively state the Best Value procurement produced cost savings on the project, the fact that the Best Value Contractor with the best overall combined score in fact had the lowest bid amount presents a compelling case Best Value procurement produced a favorable result in the case of this contract.

Project Quality:

There were no concerns concerning the quality of the product produced by the Best-Value Contractor.

A review of the project quality with the Regional Construction Group indicates that the BV firm executed the work consistent with its Cost and Schedule proposal in compliance with all specification and quality requirements. Had the procurement been simply a Low Bid contract without the BV Technical criteria, we can't be certain that Ecco III would have been the Low Bid winner of the procurement. Aligning technical criteria that equate to performance measures in addition to cost create a more comprehensive set of quality performance factors, and in this case, execution of the contract demonstrate that Ecco III successfully executed.

Contract Time:

The contract completed on time and to the expectations of the Department when it entered into the Best-Value agreement with the winning Contractor.

Overall, since the winning contractor proposed the shortest duration for Stage 2, and the overall completion of the project, the Best Value procurement should be considered to have positive impacts of the Contract Time aspect of the project.

PROJECT BEST VALUE SUMMARY:

After review of the three measures, the use of Best-Value procurement met all Department expectations by providing performance requirements beyond low bid that delivered a completed project in a compressed time period, on budget meeting all work quality requirements.

PIN:..... **1528.68**
Contract:..... D262091
Reporting Stage: Final
Location:..... I-90 over the Hudson River
County:..... Albany and Rensselaer
Region: 1
Brief description: Rehabilitation of I-90 Bridge over the Hudson River commonly referred to as 'Patroon Island Bridge.
Awarded to: Halmar International and Servidone B. Anthony Construction Corp. Joint Venture
Bid:..... \$145.8M
Key information: Award Date – April 26, 2013
Original Contract Completion Date – July 31, 2016
Best Value Contract Completion Date – December 31, 2015
Adjusted Completion Date – June 30, 2016
Actual Completion Date - June 24, 2016.

The project included bridge rehabilitation on I-90 and the I-787/I-90 interchange including pier reconstruction, pier rehabilitation, deck replacement with pre-fabricated elements and repairs to the steel under truss for I-90 Bridge over the Hudson River.

PIN 1528.68 had similar characteristics to previous D-B-B projects that utilized Best-Value selection.

- The project dealt with bridge work on roadways with over 100,000 AADT and impact to traffic that needed to be minimized.
- The project required contractors with experience in the type of work required to minimize costs and impact to traffic.
- The project required time constraints to minimize the impact to traffic following the Driver's First Initiative.

The contract required an experienced bridge contractor that has a proven record in high volume corridors, with complicated maintenance and protection of traffic staging, accelerated bridge construction and experience with pre-fabricated deck elements.

This was the first D-B-B project to require pre-qualification and a total of twelve contractors/joint ventures were pre-qualified. The Department received a total of five bid/proposal packages and on April 23, 2013, the contract was awarded to Halmar International - A. Servidone/B. Anthony Construction Corp. JV. Based on the winning Contractor's Best Value bid, the original Completion date for the Contract was adjusted from July 31, 2016 to the winning Contractor's bid Best Value Contract Completion Date of December 31, 2015.

Previous projects that utilized Best-Value had a 70/30 cost to technical scoring ratio. For this project, a 50/50 cost to technical scoring ration was approved. Also, this would be the first Best-Value project to include the oral presentation as part of the technical scoring.

The Contract was in its final season of construction work completed during the 2015-2016 reporting period included guiderail resetting, completion of stone wall re-pointing, asphalt top course and gutter paving, signs, and striping. There were no significant Change Orders in 2015-2016. Final agreement had been approved. There are no ongoing disputes related to work items. However, there is a dispute regarding the Department's assessment of several Liquidated Damages for work completed beyond the time frame the Joint Venture had included with its tendered bid.

The Final Report provides a brief summary of the cost of the project, quality and time needed and evaluation of the benefits of BV procurement method.

Project Cost:

The original EE was \$134.7m. BV cost was \$145.8m. Final cost is still being calculated, but current contract cost is \$149.1m. There were numerous change orders on the contract; the net amount of Change Orders is ~\$3m. Current contract cost is about 2% greater than BV cost, the latter being within reasonable limits of cost variation for a project of this magnitude and type of contract procurement.

Overall, it is difficult to definitively prove Best Value procurement for this contract produced defined cost savings. This is due to the fact all bid amounts were higher than the Engineer's Estimate and it is unknown what prices a traditional Design bid Build – Low Bid project would have produced.

Project Quality:

The Contract was awarded to the Best Value Contractor with the highest combined cost and technical score. The BV criteria placed emphasis on a contractor which has demonstrated bridge experience and a proven record in high volume corridors, built complicated projects with accelerated schedules, and had experience with prefabricated deck panels. The contract was completed with no major quality concerns by the Department. The fact that a project of this magnitude and complexity can be completed without any work item disputes, on time and in budget demonstrates that selection of a contractor with the necessary credentials has proven to increase the likelihood of project execution success. Had the procurement been simply a Low Bid contract without the BV Technical criteria, we can't be certain that the Joint Venture winner would have been the Low Bid winner of the procurement. Aligning technical criteria that equate to performance measures in addition to cost create a more comprehensive set of quality performance factors, and in this case, execution of the contract demonstrate that complex projects rely considerably on the experience of the firm and not simply on cost.

Contract Time:

There was time extension change order that resulted in adjustment of the completion date from 12/31/2015 to 6/30/2016.

The BV completion date was adjusted for unanticipated field conditions and extra work. The reason for the work included the following:

The original plan included a restoration detail for the slope pavers under the bridges in areas that it was needed to expose the footings for structural lifting operations. It soon became apparent that the slope would not be stable with the bottom portion of pavers replaced which would lead to erosion and stability concerns for the bridges if not addressed. The decision was made to not replace the pavers, but instead to remove them completely and restore the slopes with stone fill. This work could not be accomplished until the structural work was completed, and resulted in the time extension for the contract.

In order to preserve the integrity of the structures, this unforeseen work was deemed essential. The contract was extended due to this excusable changed condition. The completion date adjustment would have been necessary regardless of the contract delivery method since it was unforeseeable during the design phase.

The winning Best Value contractor proposed a completion date approximately 7 months earlier than that proposed by the Department at time of Bid. Permitting the contractors to set the necessary construction time schedule is very beneficial, particularly when included as part of the technical evaluation score. With the exception of a few liquidated damages assessed, the Joint Venture firm did achieve the accelerated schedule of work. Overall, since the Best-Value Procurement resulted in a completion date seven (7) months earlier than planned the Best-Value procurement should be considered to have produced a favorable outcome for the Department.

PROJECT BEST VALUE SUMMARY:

After review of the three measures, the use of Best-Value procurement met all Department expectations by providing a project and product meeting cost, quality and time expectations.

One miscellaneous observation was that when the Department established its 1st ever prequalification criteria for this project, it was too strict and narrowed the list of qualifying firms to an unacceptable number to have a meaningful competitive BV bid. When the Department became aware of this outcome, it modified the criteria to a more reasonable standard which then increased the competitive field to an acceptable number of firms. This was necessary due to the fact that this contract is Design Bid Build / BV not the two step Design Build procurement process which provides the process to only retain the most qualified firms.

PIN:..... **1055.02**
Contract: D262595
Reporting Stage: Final
Location: Route 431 - Whiteface Mountain - Veterans Memorial Highway
County: Essex
Region: 1
Brief description: Rehabilitation of NYS Route 431, a.k.a. Whiteface Mountain Veterans Memorial Highway
Awarded to: Rifenburg Construction
Bid: \$11.19 M
Key information: Award Date – April 23, 2014.
Original Contract Completion Date – December 31, 2015
Best Value Contract Completion Date – June 30, 2015
Adjusted Best Value Completion Date – July 22, 2015
Actual Completion Date – July 22, 2015

The project included rehabilitation of the entire 8 mile length of this historic highway. The total length of full depth pavement reconstruction was approximately 2 miles. Other pavement sections were treated via pavement resurfacing or cold in-place recycling. Additionally, the project included miscellaneous drainage and amenities.

The Best Value contracting process was used to limit the overall duration of construction and maximize the number of days the toll road was open to the public during construction which would be a benefit to the traveling public and to the local economy.

2015-2016 Progress Update:

The Contract was completed July 22, 2015. Work completed during the 2015-2016 reporting period included guiderail resetting, completion of stone wall re-pointing, asphalt top course and gutter paving, signs, and striping. There were no significant Change Orders in 2015-2016. Final agreement has been approved. There are no ongoing disputes.

The Final Report provides a brief summary of the cost of the project, quality and time needed and evaluation of the benefits of BV procurement method.

Project Cost:

The original EE was \$9,458,003. BV cost was \$11,190,000. Of the two Change Orders that have been approved, one change order added the CPM specification and the other addressed unanticipated field conditions. These OOCs slightly increased (percentage wise) the construction cost, but because of the relatively big negative cleanup under runs in change orders, the net change orders were negative resulting in the final cost of \$10,589,003.

Overall the project was completed below original contract bid. Although it is difficult to qualitatively state the Best Value procurement produced cost savings on the project, the fact that the Best Value Contractor also had the lowest bid amount, presents a compelling case Best Value procurement produced a favorable cost result.

Project Quality:

The Contract was awarded to the Contractor with the second highest weighted technical score but whom had the highest cost score (lowest bid). The contract was awarded to a Contractor experienced with accelerated highway construction. The contract was completed with no major quality concerns by the Department. The project was constructed on time and under the bid budget without any significant issues of quality, safety etc. It is apparent that NYSDOT ability to establish important Best Value performance indicators to select a highly competent firm to construct this challenging project has proven to be beneficial.

Contract Time:

Contract contained an incentive/disincentive clause for the overall duration of the contract. The contractor was entitled to the time lost due to late award (22 days), so a time extension change order was approved, and the contract completion date was moved to 7/22/15 to account for the 22 days of late award.

The Department realized an accelerated completion time benefit of approximately 6 months due to the Design Bid Build – Best Value procurement.

PROJECT BEST VALUE SUMMARY:

After review of the three measures (Cost, Quality, & Time), it can be seen that when performance measures to select a contracting firm to build challenging projects is a component of the BV selection process, it may result in favorable outcomes. It isn't definitively determined that a traditional low bid procurement would not have resulted in a successful outcome as well, however, the Department has had its experiences where a low bid firm is over its head in skills, resources, experience, etc. and struggles to deliver a quality project on time and in budget. The Department's goals for this project were achieved utilizing the Best Value procurement method employed.

PIN:..... **PIN 1721.51**
Reporting Stage: Final
Contract:..... D262718
Location:..... Interstate 87 Exit 4 Access Improvements Phase 1 – Replacement of I-87 Bridges over Albany Shaker Road
County:..... Albany
Region:..... 1
Brief description: Replacement of the I-87 (Adirondack Northway) Northway over Albany Shaker Road.
Awarded to:..... Lancaster/Tully Construction
Bid:..... \$22.3 M
Key information: Award Date – January 2, 2015.
Original Contract Completion Date – May 25, 2016.
Best Value Contract Completion Date – October 31, 2015.
Adjusted Best Value Completion Date – November 16, 2015.
Actual Completion Date – November 16, 2015.

The project includes the replacement of the I-87 bridges over Albany Shaker Road. The new bridges were constructed overly wide to allow for three lanes of traffic to be maintained during peak travel hours for both northbound and southbound bridges. A significant benefit to the traveling public during the construction phase of the project. The BV firm proposed to accelerate the contract schedule so that both bridges and all other significant work could be completed in one construction season.

PIN 1721.51 had similar characteristics to previous D-B-B projects that utilized Best-Value selection.

- The project dealt with bridge work on roadways with over 100,000 AADT and impact to traffic that needed to be minimized.
- The project required contactors with experience in the type of work required to minimize costs and impact to traffic.
- The project required time constraints to minimize the impact to traffic following the Driver's First Initiative based on their construction schedules.

The contract required an experienced bridge contractor that has a proven record in high volume corridors, with complicated maintenance and protection of traffic staging and accelerated bridge construction. The project required a firm with sufficient resources to accelerate all aspects of the project to minimize construction impacts to the traveling public.

Primary construction of the project was completed entirely during the 2015-2016 annual reporting period.

The Final Report provides a brief summary of the cost of the project, quality and time needed and evaluation of the benefits of BV procurement method.

Project Cost:

The original EE was \$18,258,083. BV contract award amount was \$22,299,497. Final Cost is \$21,852,583. The only substantial positive Change Order was for \$464,094 for unanticipated field condition resulting in stabilization course for embankment. This was offset by savings from a value engineering proposal to change the sequence of construction staging. Savings for that VE proposal were - \$286,655. Other savings in the amount of -\$788,716 were realized for cleanup/final overruns/underruns. Overall, there were net savings on the contract of -\$446,914 below the bid amount or 2% below bid amount.

Overall the project was completed below original contract bid. Although it is difficult to qualitatively state the Best Value procurement produced cost savings on the project, the fact that the Best Value Contractor with the best overall combined score in fact had the lowest bid amount presents a compelling case Best Value procurement produced a favorable cost result in the case of this contract.

Project Quality:

The Contract was awarded to the Contractor with the highest weighted technical score and one that is an experienced bridge contractor that has proven record in high volume corridors, built complicated projects with accelerated schedules, and had experience with staged bridge construction. The contract was completed with no major quality concerns by the Department. It is difficult to definitively say the Best-Value procurement produced a higher quality project over a Design Bid Build – Low bid procurement, especially in light of the fact the winning contractor with the highest technical score was also the low bidder. The best possible outcome for the tax payers.

Contract Time:

The winning Best Value Contractor proposed an accelerated Contract Completion Date of 10-31-15. This date was ultimately adjusted due to a late Contract Award to 11-16-15. The Construction was completed by that adjusted date and replacement of the high volume bridge was accomplished within one year.

The Best Value Contractor met his proposed completion date (with adjustment for late award). This completion date was approximately 6 months earlier than originally proposed by the Department prior to advertisement for bids. The accomplishment to complete replacement of 2 separate bridges for a 6 lane Interstate with an AADT higher than 100K is an accomplishment which should not be minimized.

Although the winning Contractor proposing a highly accelerated contract completion schedule had the highest technical and cost scores, if this contract were administered with a traditional Design Bid Build – Low Bid procurement the Department would not have had the option to weigh accelerated completion of the project as well as cost. Therefore, that procurement would not have guaranteed an accelerated construction or completion would have been part of the winning contractor's plan. Design Bid Build – Best Value procurement allowed the Department to take accelerated construction into account for the decision making process. For the heavily traveled I-87 corridor, the fact the Department was able to weigh accelerated completion as part of the procurement decision making process and the fact the project was completed 6 months ahead of schedule points to Best Value procurement being the best choice for this project.

PROJECT BEST VALUE SUMMARY:

After review of the three measures (Cost, Quality, & Time), it can be definitely stated that the combination of both demanding technical requirements and competitive cost to establish the Best Value firm is a good methodology for procurement of complex projects that have high user impact costs associated with the construction phase. It is agreed that one can not concluded that a successful outcome would have resulted if the project was procured via low bid, however, NYSDOT has experienced problems on contracts of a similar nature when the firm selected is strictly based on a low bid criteria. The results speak for themselves; the Department's expectations for an on time, on budget, quality project completed on an accelerated schedule were achieved. Therefore, the use of Best Value on this project should be viewed as an appropriate, and perhaps the best, choice for procurement for the project.

PIN:..... **5760.80**
Contract:..... D262652
Reporting Stage: Interim (progress) Under Construction
Location:..... Gateway Connections to the Peace Bridge Plaza
County:..... Erie
Region: 5
Brief description: Reconstruction of Connections to the Peace Bridge Plaza in the City of Buffalo
Awarded to: Union Concrete and Construction Corp.
Bid:..... \$56.2M
Key information: Contract Completion Date – June 30, 2017

This project was still under construction during 2015-2016 SFY. Initial Interim report for this contract was included in annual 2014-2015 report.

2015-2016 Construction Progress:

During the 2015-2016 Construction season the following construction items were completed:

- N half of Porter Ave Bridge was completed
- Pedestrian Truss Bridge over NYSTA and CSX RR was installed
- Concrete Pavement on Ramp from Peace Bridge Plaza to Niagara Street (Ramp C), concrete Pavement on I-190 NB Ramp to Peace Bridge and Niagara Street (Ramp N/NE), and concrete Pavement on New Ramp off of Porter Ave to Peace Bridge (Ramp PN) were completed
- The tunnel for Ramp D over Sheridan terrace was completed.
- Work continued on Piers and Abutments for new Ramp D Bridge from Peace Bridge to I-190 NB and retaining wall for Ramp D at I-190 NB merge.
- The approach Span Steel on SLT to Pedestrian Truss Bridge was placed
- Work was completed on new ITS components

During this construction season several OOCs totaling ~\$2.3m for increase in quantities and new items resulting in the added work and design issues.

At the current time the project is still on schedule.

Historical Cost and Schedule Analysis

NOTE: No historical analysis was completed for Quality. Due to the fledging nature of the Best Value Program, sufficient time has not passed since the completion of projects to adequately investigate the question of quality with respect to project life.

A historical analysis is included in this Year's Annual Report to examine Cost and Schedule deviations and Comparisons of Best Value vs. Low Bid procurement projects. In order to compare projects in an objective and scientific manner, the following criteria was used to develop a sample population of projects to be compared.

All completed BV projects with a completion date on or before June 30, 2016 were used in the comparison. This yielded five (5) Best Value Projects. To identify a comparative list of Low Bid projects to compare to, a set of criteria was identified in order for comparable set of data points.

1. NYSDOT let projects. Only projects using traditional NYSDOT Design Bid Build-Low Bid practices and let by the Department were used in the analysis.
2. Time Criteria for identifying projects: All completed Best Value Projects were investigated. Only completed BV projects were used. The earliest Letting Date and the latest Contract Completion date falling approximately near the end of this Annual Report period for completed projects were derived. These two dates were used as the "Time" filtering criteria for the Low Bid projects to be compared. This criterion was used to ensure both Best Value and Low Bid projects encountered the same environmental variables such as inflation, material shortages, and price escalations. For the purpose of this historical analysis, Low Bid projects having a letting date on or after May 24, 2012 and a contract completion date on or before June 30, 2016 were analyzed.
3. Cost Criteria: In order to analyze comparable Best Value and Low Bid costs, a cost criteria also needed to be applied to filter projects. For the Cost Criteria, the lowest and highest Contract Awarded Amount of completed Best Value projects was used. For the comparison a low value of 11M +/- and 145.5M +/- was used.

The above filtering criteria yielded sixteen Low Bid projects. The schedule data for one project (PIN 9067.29 (D262079) was not used for the comparison because the schedule dates could not be verified.

Factors Analyzed:

Schedule: Data was pulled for all Best Value and Low Bid projects meeting the search criteria for Original Contract Completion Date and the Contractor's last day of work. Those dates were compared and the difference in days computed. Negative days indicate that the Contractor finished work prior to the Original Contract Completion date while positive dates indicate that the Contractor finished work after the Original Contract Completion. An Average was then completed for all Low Bid and Best Value projects. This average was then compared between the two procurement methods.

RESULTS SIGNIFICANCE: Due to Best Value Procurement considering schedule in the determination of a Best Value Contractor, the expectation is the Schedule Indicator should show on average Best Value Contracts finishing sooner than a comparable Low Bid project. If the results show differently then the benefits of the Best Value procurement come into question.

Cost: Cost Data for projects consisting of the Engineer's Estimated Cost Prior to Bid, Low Bid Amount or the Best Value winner's bid amount, total change order amount, and Final Cost were obtained. From that data for each project the following two cost indicators for each project were calculated:

- **Cost Indicator #1 (COST ESCALATION DURING CONSTRUCTION):** Percent (%) difference between the Final Cost and the Low Bid/Best value amount: Percentages greater than 100% means that the Final cost was greater than the Low Bid/Best Value Bid by that percentage and

conversely, percentages less than 100% meant that the Final Cost was lower than the Low Bid/ Best Value Amount by that percentage. This indicator was used because it shows if, and how much, the Final Cost was higher/lower than the Low Bid/Best Value. It can be used to determine generally if one type of procurement generally yields a higher or lower Final Cost as compared to the Low Bid/Best Value amount.

RESULTS SIGNIFICANCE: For Best Value procurement process to be functioning correctly Cost Indicator #1 should show Best Value and Low Bid projects with comparable indicators. Best Value Cost Indicator #1 being significantly lower than Low Bid projects is beneficial while Best Value Cost Indicator #1 being significantly higher points to Best Value procurement projects driving costs up during construction.

- **Cost Indicator #2 (COST OF BEST VALUE FACTORED INTO BIDS):** Percent (%) difference between the Engineer's Estimate and the Low Bid/Best value amount: Percentages greater than 100% means that the Low Bid/Best value amount was greater than the Engineer's Estimate by that percentage and conversely, percentages less than 100% means that the Low Bid/ Best Value Amount was lower than the Engineer's Estimate by that percentage. This indicator was identified as significant because it can show if Contractor's Bid Costs were generally inflated as compared between the two procurements. Additionally, it identifies whether the Best Value amount (which may not be the lowest price bid for the contract) is at a higher percentage over the estimated cost as compared to traditional Low Bid contracts.

RESULTS SIGNIFICANCE: Since the Best Value procurement process does not necessarily award the contract to the lowest bidder, one would expect this indicator for Best Value projects to be higher on average than Low Bid projects. Additionally, since the Best Value procurement factors in schedule in its determination of the overall Best Value Contractor, it would be expected that Contractors would factor in the additional costs of accelerated construction into their bids causing this Indicator to be higher on average for Best Value contracts. Any extent of increase should be considered in the determination whether the Best Value procurement process is functioning correctly. Although, a higher value for this indicator is expected for Best Value Contracts, that value should be minor and within an acceptable range. Otherwise, the cost increase impacts the benefits of any schedule acceleration. Since completing projects sooner has a real cost benefit not only to the Department but to the traveling public in the form of fuel and lost time savings, and cost increase this Indicator shows is offset by those benefits so long as the Indicator shows the difference between the two procurement methods to be minor.

The Historical Analysis yielded the results in Table 1 & Table 2.

TABLE 1 - HISTORICAL ANALYSIS FOR BEST VALUE PROJECTS

Region Value	Contract Number	Project ID	Date of Letting	Original Contract Completion Date (Orig. Completion)	Contractor's Last Day of Work (CLDW)	SCHEDULE INDICATOR (CLDW vs. Orig. Completion) (Calendar Days)	ENGINEER'S ESTIMATE (\$)	BV COST (AWARD AMOUNT) (\$)	FINAL COST (\$)	COST INDICATOR #1 % DIFF (FINAL COST vs. BV COST)	COST INDICATOR #2 % DIFF (BV COST vs. ENGINEER'S ESTIMATE)
MO	D262025	SABP00	5/24/2012	7/15/2013	7/15/2013	0	24,983,945	29,002,653	28,741,874	99.10%	116.1%
R01	D262091	152868	2/12/2013	7/31/2016	5/20/2016	-72	134,701,708	145,776,431	147,140,619	100.94%	108.2%
	D262595	105502	2/26/2014	12/31/2015	6/17/2015	-197	9,458,003	11,191,970	10,589,003	94.61%	118.3%
	D262718	172151	10/28/2014	5/25/2016	11/6/2015	-201	18,258,083	22,299,497	21,852,583	98.00%	122.1%
R08	D262044	810628	5/31/2012	6/30/2015	1/16/2015	-165	24,588,406	21,314,000	21,404,167	100.42%	86.7%
INDICATOR AVERAGES						-127				98.6%	110.3%

TABLE 2 - HISTORICAL ANALYSIS FOR LOW BID PROJECTS

Region Value	Contract Number	Project ID	Date of Letting	Original Contract Completion Date (Original Completion)	Contractor's Last Day of Work (CLDW)	SCHEDULE INDICATOR (CLDW vs. Orig. Completion) (Calendar Days)	ENGINEER'S ESTIMATE (\$)	LOW BID (\$)	Current Contract Amount (\$)	COST INDICATOR #1 % DIFF (CURRENT COST vs LOW BID)	COST INDICATOR #2 % DIFF (LOW BID vs. ENGINEER'S ESTIMATE)
MO	D262030	SABP06	6/14/2012	12/31/2013	12/16/2013	-15	22,448,900	19,851,582	18,599,057	93.7%	88.4%
R04	D262396	439023	11/21/2013	12/31/2015	4/30/2016	121	14,758,906	13,936,984	14,091,403	101.1%	94.4%
R05	D262265	503498	3/28/2013	6/30/2015	7/31/2015	31	16,106,196	14,662,330	14,852,957	101.3%	91.0%
	D262425	500684	12/5/2013	12/15/2014	12/10/2014	-5	23,414,786	20,994,225	19,704,142	93.9%	89.7%
R06	D262142	603314	12/13/2012	9/30/2014	9/4/2014	-26	22,756,794	19,398,719	18,196,464	93.8%	85.2%
R07	D262533	772079	3/6/2014	11/30/2015	5/25/2016	177	18,603,056	19,712,543	17,914,399	90.9%	106.0%
R08	D262058	806504	8/23/2012	12/31/2014	11/5/2015	309	70,261,180	68,413,254	69,358,207	101.4%	97.4%
	D262123	856134	1/10/2013	8/15/2014	6/30/2014	-46	9,917,881	11,584,000	11,961,265	103.3%	116.8%
R09	D262079	906729	7/26/2012	9/30/2014	11/26/2013¹	-308¹	12,961,370	11,861,398	9,526,350	80.3%	91.5%
R10	D262126	011256	10/25/2012	12/31/2014	10/31/2015	304	24,577,729	22,479,986	20,477,113	91.1%	91.5%
	D262168	005421	1/10/2013	1/27/2015	11/20/2015	297	23,993,526	25,577,000	22,922,931	89.6%	106.6%
	D262172	001765	2/21/2013	10/31/2015	1/15/2016	76	23,776,353	16,537,007	18,528,943	112.0%	69.6%
	D262445	005918	11/21/2013	12/31/2015	12/18/2015	-13	15,253,686	13,888,000	11,413,301	82.2%	91.0%
R11	D262656	022949	8/21/2014	12/30/2015	12/30/2015	0	24,865,880	25,243,000	21,177,043	83.9%	101.5%
	D262162	X80663	2/21/2013	3/31/2014	6/30/2015	456	12,947,968	12,233,135	14,366,169	117.4%	94.5%
	D262399	X80657	11/21/2013	4/27/2016	4/27/2016	0	17,372,633	12,438,425	12,881,601	103.6%	71.6%
INDICATOR AVERAGES						111				96%	93%

¹The schedule data for D262079 was not used in the calculation of the Schedule Indicator because the contractor's last day of work could not be verified as correct.

ANALYSIS OF HISTORICAL DATA

Schedule Indicator:

The schedule indicator showed Best Value projects an average finishing significantly earlier than planned while Low Bid projects actually an average finishing after the planned completion. The delta of averages between the two procurements was 238 days or approximately 8 months. This is a significant period of time and one showing the benefits of Best Value Procurement. The results adhere to what was expected and planned from the institution of Best Value procurement.

Cost Indicator #1 (COST ESCALATION DURING CONSTRUCTION):

This cost indicator was slightly higher for Best Value projects vs. Low Bid projects. Best Value projects showed on average the final cost was 98.6% of the Best Value amount while comparable Low Bid projects finished on average at 96% of the Low Bid amount. The difference between these two percentages is insignificant considering the small number of projects used for data. Of more significance is the fact that both Low Bid and Best Value projects had averages below 100% showing on average both procurement methods produced projects finishing on and slightly below budget. This indicator shows historically Best Value procurement does not produce on average escalated construction costs as compared to traditional Low Bid projects. The results indicate the Best Value procurement is performing as expected and is producing average acceptable and predicted outcomes.

Cost Indicator #2 (COST OF BEST VALUE FACTORED INTO BIDS)

This cost indicator was, as expected, is higher for Best Value projects. Best Value projects on average produced an awarded project cost (Best Value Cost) 10.3% higher than the Engineer's Estimate. Low Bid projects on average produced and a Low bid Cost 7% lower than their corresponding Engineer's Estimate. The delta between the two procurement methods for this indicator was 17.3%. It is expected Best Value projects will on average produce a higher indicator value because schedule acceleration, and its associated costs are factored into Bids. Additionally, the contractor may not be awarded to the lowest bidder possibly causing this indicator to be higher for Best Value projects. The historical data validates the assumptions made for the impacts of implementing Best Value procurement.

Consideration needs to be given to the delta for this indicator between the two procurements. The delta between the two indicators is 17.3%. Although this delta seems significant by itself, the implications of the Benefit Costs of finishing projects early needs to be considered. The benefits of accelerating projects offset, to some degree, any delta shown by this indicator. With respect to the historical data analyzed, on average Best Value projects finished eight (8) months sooner than corresponding Low Bid averages. Speaking generally with respect to the indicators, the question arises, "What is an acceptable increase in project cost to complete a project sooner." The average planned construction length for Best Value projects was 645 calendar days or approximately 21 months. Coincidentally, the planned construction duration for Low Bid projects used in this historical analysis was 637 calendar days or approximately 21 months. Since the historical data shows that Best Value projects finished on average 8 months earlier than the Low Bid average, the question becomes: "is a general average in perceived increase in cost of 17.3% acceptable for an 8 month acceleration of schedule?" Correlating schedule indicators and construction durations to general percentages yields the following data:

- An average 21 month planned project (average for Best value and corresponding Low Bid projects) with the additional average increase in project completion time of 111 days or 3.6 month period gives an average of 24.6 months.
- A reduction of 8 months (Total of schedule indicators) calculates to a 32.5% decrease in schedule.

In conclusion, based on general data and averages, an approximate 17.3% increase in planned cost has produced a 32.5% reduction in project construction time. This fact points to the Cost Indicator #2 being within acceptable limits.

Note: The above analysis is provided to produce general empirical results in order to come to general conclusions and trends for analysis. Due to the fact, discreet detailed Benefit Cost Analyses were not completed for each project; definitive cost vs. schedule quantitative results cannot be made. However, the general analysis above serves the objective of a general historical analysis and this Report's objective.

Conclusions Based on Historical Data:

Based on the historical data for Best Value projects and corresponding comparable Low Bid projects, Federal Highway's and New York State Department of Transportation's Best Value program is providing the benefits outlined in the SEP-14 Work Plan.

Lessons Learned

The Department has used Best-Value on D-B-B projects for several years now, and process improvement changes have been continuously made based on the feedback we received to improve the process. The Department will continue to evaluate the use of Best-Value selection on future projects. The Interim and Final reports provide the Department with key information to make the necessary adjustments. Changes and revisions to the Design Bid Build- Best Value procurement process and determination criteria are made for each new project based on an evaluation of past results and the specific project needs.

Future Best-Value Projects

There is one BV projects that was in procurement as of 4/30/2016.

Project	Region	Brief Description	Letting Date	Award Date
PIN X731.48 D263007	11	Gowanus Expy Steel Repairs, Co 2, Kings, NYC	3/2/2016	7/22/2016
PIN 0229.14 D263143	10	Upgrade EB I-495 Exit 51 Rest Area	5/4/2016	5/20/2016
PIN 1528.85 D263233	1	I-90 Schodack Rest Area Improvements	6/22/2016	6/30/2016

There are several potential BV projects planned for the next three years.

Project	Region	Brief Description	Letting Date	Award Date
PIN X731.43 D263241	11	Mitigation and Restoration of Sgt. Daugherty Park, Kings, NYC	10/26/2016	3/24/2017

Project	Region	Brief Description	Letting Date	Award Date
PIN X735.75 D263208	11	Replace Van Wyck Expy Viaducts at Kew Garden Interchange	11/16/2016	4/21/2017
PIN 0017.66 D263406	10	RMC over FI inlet Bridge Steel Repairs	3/29/2017	
PIN 8823.48	8	Lower Hudson Transit Hub	3/22/2018	
PIN 8062.49	8	Hudson Valley Welcome Center, I-84	1/24/2018	
PIN X729.77	11	Replace K-Bridge over Newtown Creek – Contract 2, Kings & Queens Cos. NYC	5/24/2017	
PIN 1721.90	1	I-87 Exit 4, Airport Connector, Part 2	3/20/2020	

Future SEP 14 Reports (Status as of 4/1/2017)

At this time the following reports are expected and will be provided as follows:

- 1.) Annual Report for 2016/2017 should be provided by May 30, 2017.
- 2.) For PIN 5760.80 (D262652), Gateway Connections to the Peace Bridge Plaza, the completion date is June 30, 2017. A progress report will be included in the 2016/2017 Annual Report and the final report should be provided by December 30, 2017.
- 3.) The Interim Report (3 month maximum after award) for the following projects is overdue. The Interim Reports along with an annual progress report will be provided as part of the 2016/2017 Annual Report.
 - PIN X731.28 (D262963) - Gowanus Expy Steel Repairs, Co 1, Kings, NYC
 - PIN X731.48 (D263007) - Gowanus Expy Steel Repairs, Co 2, Kings, NYC
 - PIN 0229.14 (D263143) - Upgrade EB I-495 Exit 51 Rest Area
 - PIN 1528.85 (D263233) - I-90 Schodack Rest Area Improvements
- 4.) For PIN X731.43 (D263241) - Mitigation and Restoration of Sgt. Daugherty Park, Kings, NYC, the Interim Report (3 month maximum after award) will be included in the 2016/2017 Annual Report.