



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

May 15, 2014

TO: Senator Kathy Harrington
NC Senate
16 W. Jones St., Room 2113
Raleigh, North Carolina 27601-2808

Representative Frank Iler
NC House of Representatives
300 N. Salisbury Street, Room 637
Raleigh, North Carolina 27603-5925

Senator Bill Rabon
NC Senate
16 W. Jones Street, Room 2108
Raleigh, North Carolina 27601-2808

Representative John A. Torbett
NC House of Representatives
300 N. Salisbury Street, Room 538
Raleigh, North Carolina 27603-5925

FROM: Michael Holder, P.E. *Mike Holder*
Chief Engineer

Rodger Rochelle, P.E. *RR*
Technical Services Administrator

In accordance with S.L. 2013-360, Sec. 34.2(d), the Department of Transportation is submitting the attached report to the Joint Legislative Transportation Oversight Committee and the Fiscal Research Division regarding consultant utilization rates for Preconstruction and Technical Services. The report includes consultant utilization that spans from July 1, 2013 to April 30, 2014. Please see the attached tables and charts for the current consultant usage results, as well as the usage rates for Fiscal Years 2011, 2012, and 2013. Also, attached is information regarding the major work functions of each of the Units that are listed within the consultant utilization report and the plan for PDEA and Roadway Design to meet usage goals for SFY 2015.

Please contact Mike Holder at 919-707-2500 or Rodger Rochelle at 919-707-6601 if you have any questions.

MLH/bs

Attachments

cc: w/attachments: Keith Weatherly, NCDOT Deputy Secretary
Jason Soper, NCDOT Legislative Director
Debbie Barbour, P.E., NCDOT Director of Preconstruction
Amna Cameron, NCGA Fiscal Research Division

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Vacant Positions that have been filled within the Project Development and Environmental
Analysis Unit (PDEA) and the Roadway Design Unit

From July 1, 2013 to May 9, 2014

The Roadway Design Unit has filled 13 vacant positions.

The PDEA Unit has filled 12 vacant positions.

PEF Usage Outlay for Strategic Transportation Investment Implementation

Using the STI map as a baseline, the following future needs are identified:

Division Needs = 134 projects

Regional Impact = 93 projects

Statewide Mobility = 41 projects

TOTAL = 268 projects

Assuming 50% are new projects and 50% are existing projects underway, 134 projects will be the baseline of new opportunities for PEF usage. If the projects begin early 2015, roadway design invoicing will begin by the middle of 2016. Using an average manday number to provide functional and preliminary design for a broad cross section of project types to make up the 134 new projects, the PEF usage outlay for mid-2016 through mid- 2018 is as follows:

134 projects x 150 mandays per project = 20,100 mandays

Multiply by PEF cost per manday of \$850 = \$ 17,085,000

Broken up by state fiscal year based on cash flowing the projects across two fiscal years, the potential PEF usage outlay is as follows:

State Fiscal Year 2016 (30%) = \$5,125,500

State Fiscal Year 2017 (50%) = \$8,542,500

In conjunction with the new project PEF outlay, design phase contract opportunities (on-site and off-site) will be identified for the 50% of existing projects underway as identified on the next page.

PEF Usage Outlay for Existing Projects with Continuing Design

In order to achieve an increase in PEF usage for the 2015 state fiscal year, the unit will identify projects that likely to continue on into the design phase within the Draft STIP and at development phases that allow for PEF usage. Actual project numbers were gathered with assumptions made that projects at 25% development (prior to being sent for hydraulic design) and projects with completed right of way plans (but prior to beginning final plan development) would be exempt from STI at a 50% rate and new starts for the development of right of way plans from the present to July 2015 would be exempt at a 50% rate. The PEF usage is as follows:

Projects at 25% development = 10 projects x 50% = 5 projects x 300 mandays x \$850 per manday = \$1,275,000

Final Plan Preparation for completed right of way plans = 21 projects x 50% = 11 projects x 100 mandays x \$850 per manday = \$935,000

New Starts for Right of Way Plan Development = 24 projects x 50% = 12 projects x 250 x \$850 per manday = \$2,550,000

SFY 15 usage

Total PEF Usage Outlay for existing projects is \$4,760,000

Remaining Roadway PEF invoice balance for SFY is \$ 1,379,000

PDEA existing contracts that will have outsource design is SFY 2015 is \$ 2, 800,000.

Assumed Total invoice is \$ 8,939,000 for SFY 15.

Assuming a baseline yearly unit cost for Roadway Design of \$ 11,958,000, the yearly consultant utilization rate for SFY 15 is 42.77%.

Total PEF opportunity for SFY 16

The anticipated amount to be available for PEF FY 2016 is **\$5,125,500**

(This is based on new planning contracts that will include design).

PDEA CE and EA/FONSI contracts **FY 2016 \$4,722,000**

(This is based on streamlining to begin design earlier within planning contracts).

Estimated **\$ 750,000** in existing design contracts for FY 2016.

Total for FY 2016 \$10,597,500

Anticipated Consultant Usage

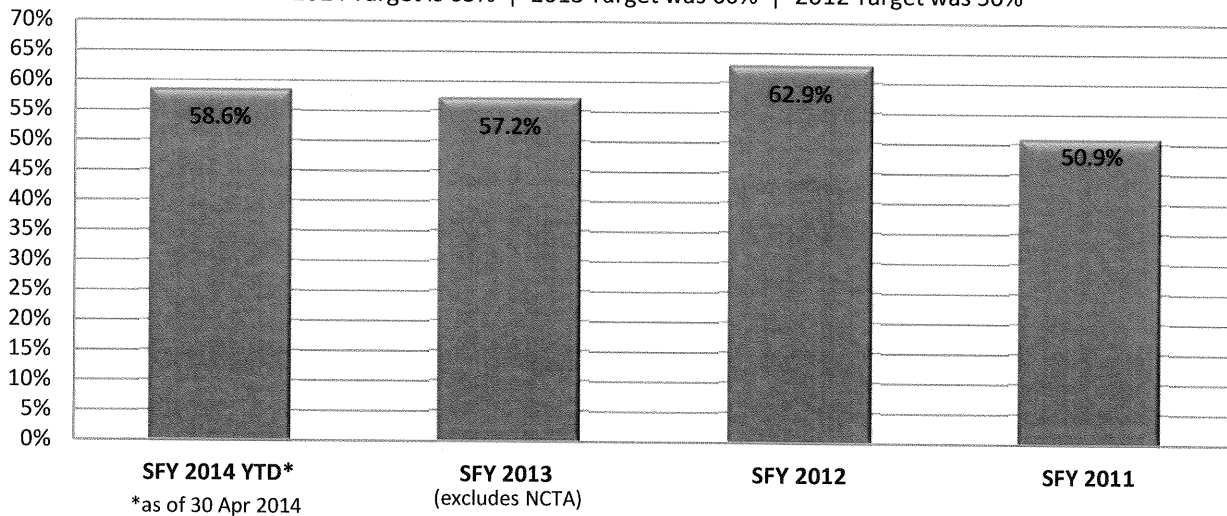
Using a baseline yearly unit cost for Roadway of \$11,958,000 + consultant expenditures would provide an eligible expenditure utilization rate in SFY 16 of 46.97 %.

Please note that the plan is based on the best information available and will need to be reviewed/adjusted based on actual upcoming workload when Draft STIP is completed.

NCDOT Consultant Utilization Rates

Preconstruction and Technical Services Divisions

2014 Target is 65% | 2013 Target was 60% | 2012 Target was 50%



SUMMARY Consultant Utilization Rates

	Eligible Expenditures	Consultant Payments	Utilization Rate
SFY 2014 YTD*	134,884,671	78,998,731	58.6%
SFY 2013	164,559,639	94,109,236	57.2%
SFY 2012	208,334,306	130,961,350	62.9%
SFY 2011	179,498,144	91,326,528	50.9%

*as of 30 Apr 2014

Notes:

1. The utilization rate is based on comparing the total consultant payments to the total eligible expenditures. Eligible expenditures are the total operating expenditures for the defined divisions, including all payroll and non-payroll costs (indirect overhead, direct project costs and consultant payments made). Consultant payments are expenditures paid to a vendor for provided professional services and does not include any financial commitments (limited service contracts, etc.).
2. Per legislative directive in 2013, the target for SFY 2014 has been increased to 65% and excludes Turnpike Authority and Structure Management Unit expenditures. Per request in May 2014, Design Build Program expenditures and payments made to the Ecosystem Enhancement Program for consultant outsourcing are excluded from the overall utilization result.
3. Design-build projects are excluded as eligible expenditures, which is a significant expenditure of the annual transportation program that is not factored into consultant outsourcing rates. Based on historical data, 7% of design-build contracts are used for preconstruction activities and outsourced to consultants. Other exclusions include expenditures transferred to other agencies for documented outsource purposes (i.e. Ecosystem Enhancement Program transfers paid to consultants).
4. Per legislative request, results only include specific preliminary engineering units previously identified within the Technical Services and Preconstruction Divisions that perform preconstruction and design activities and excludes the units of Contract Standards & Administration, Research & Development, and Value Management.

Design-Build Utilization

Pursuant to S. L. 2013-360, Section 34.2(b), The Department let to contract 18 Design-Build projects for a total dollar volume of \$421,220,660 in SFY13. To date, in SFY14, the Department has let to contract 7 Design-Build projects for a total volume of \$448,518,467. Another 6 Design-Build projects are anticipated to be let to contract by the end of SFY14.

NCDOT UNIT	Eligible Expenditures	Consultant Payments	Utilization Rate	% Change from FY13
2014 Preconstruction & Technical Services	\$ 134,884,670.75	\$ 78,998,731.25	58.57%	1.38%
Transportation Program Management Unit	\$ 7,146,218.42	\$ 3,714,814.29	51.98%	N/A
Location and Surveys Unit	\$ 21,169,424.44	\$ 11,452,843.41	54.10%	N/A
Photogrammetry Unit	\$ 3,461,010.50	\$ 64,396.40	1.86%	N/A
Professional Services Unit	\$ 29,934,070.55	\$ 29,240,868.71	97.68%	N/A
Hydraulics Unit	\$ 8,898,979.09	\$ 4,236,142.13	47.60%	N/A
Utilities and Encroachments Unit	\$ 3,892,734.22	\$ 885,850.01	22.76%	N/A
Geotechnical Engineering Unit	\$ 13,541,260.20	\$ 7,330,872.49	54.14%	N/A
Roadway Design Unit	\$ 11,958,410.45	\$ 3,000,011.30	25.09%	-10.52%
Right of Way Unit (<i>as calculated in previous years</i>)	\$ 10,073,420.41	\$ 4,664,040.25	46.30%	5.44%
Project Develop and Environ Analysis Unit	\$ 24,809,142.47	\$ 14,408,892.26	58.08%	4.12%

Other Key Outsourced Expenditures Excluded from the Utilization Rate

2014 Design Build Program	\$ 31,396,292.69	\$ 31,396,292.69	100.00%	N/A
Right of Way Unit (<i>with outsourced expenditures for appraisal and property management included</i>)	\$ 22,422,980.02	\$ 17,013,599.86	75.88%	9.58%

*as of 30 Apr 2014

Notes:

1. Any remaining expenditures under the Professional Services Unit includes all remaining outsourced expenditures that are performed by business units not itemized as a unit within Preconstruction or Technical Services (i.e. transportation divisions, Rail Division, planning and programming, etc.).
2. Per legislative directive, Roadway Design, Right of Way and Project Development and Environmental Analysis are to increase 5% each using SFY 2013 as the baseline year. Note the column "% change from FY13."
3. Transportation Program Management Unit does NOT include design-build project expenditures. Project Develop and Environ Analysis does NOT include expenditures transferred to the Ecosystem Enhancement Program for consultant use. Right of Way does NOT include expenses for professional appraisals or property management companies.
4. For comparison, the additional outsourcing activities performed by the Right of Way Unit and the Design-Build Program are included separately.

Historical Data and Results

NCDOT UNIT	Eligible Expenditures	Consultant Payments	Utilization Rate
2013 Preconstruction & Technical Services	\$ 164,559,639.30	\$ 94,109,236.47	57.19%
Transportation Program Management Unit	\$ 11,012,512.38	\$ 6,323,807.27	57.42%
Location and Surveys Unit	\$ 20,534,584.75	\$ 8,003,448.13	38.98%
Photogrammetry Unit	\$ 4,680,436.68	\$ 286,413.19	6.12%
Professional Services Unit	\$ 41,129,108.12	\$ 40,253,807.37	97.87%
Hydraulics Unit	\$ 10,592,092.92	\$ 5,099,588.81	48.15%
Utilities and Encroachments Unit	\$ 4,412,329.42	\$ 621,555.01	14.09%
Geotechnical Engineering Unit	\$ 15,295,810.98	\$ 7,559,602.47	49.42%
Roadway Design Unit	\$ 17,277,124.55	\$ 6,151,911.17	35.61%
Right of Way Unit (<i>as calculated in previous years</i>)	\$ 12,000,327.77	\$ 4,903,021.43	40.86%
Project Develop and Environ Analysis Unit	\$ 27,625,311.73	\$ 14,906,081.62	53.96%

Other Key Outsourced Expenditures Excluded from the Utilization Rate

2013 Design-Build Program	\$ 29,485,446.20	\$ 29,485,446.20	100.00%
Right of Way Unit (<i>with outsourced expenditures for appraisal and property management included</i>)	\$ 21,060,020.41	\$ 13,962,714.07	66.30%

NCDOT UNIT	Eligible Expenditures	Consultant Payments	Utilization Rate
2012 Preconstruction & Technical Services	\$ 208,334,305.81	\$ 130,961,349.71	62.86%
Transportation Program Management Unit	\$ 5,074,698.11	\$ 1,471,505.44	29.00%
Location and Surveys Unit	\$ 7,726,716.78	\$ -	0.00%
Photogrammetry Unit	\$ 5,551,981.95	\$ 169,464.45	3.05%
Professional Services Unit	\$ 73,790,144.43	\$ 73,003,322.91	98.93%
Hydraulics Unit	\$ 7,386,294.21	\$ 1,599,181.62	21.65%
Utilities and Encroachments Unit	\$ 3,433,243.32	\$ -	0.00%
Geotechnical Engineering Unit	\$ 15,629,020.74	\$ 6,404,812.75	40.98%
Roadway Design Unit	\$ 14,077,283.60	\$ 1,134,364.94	8.06%
Right of Way Unit	\$ 16,559,956.81	\$ 4,226,209.31	25.52%
Project Develop and Environ Analysis Unit	\$ 20,094,712.46	\$ 7,636,716.19	38.00%
Turnpike Authority	\$ 39,010,253.40	\$ 35,315,772.10	90.53%

Other Key Outsourced Expenditures Excluded from the Utilization Rate

2012 Design-Build Program	\$ 60,589,200.00	\$ 60,589,200.00	100.00%
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NCDOT UNIT	Eligible Expenditures	Consultant Payments	Utilization Rate
2011 Preconstruction & Technical Services	\$ 179,498,144.11	\$ 91,326,528.48	50.88%
Transportation Program Management Unit	\$ 5,299,318.51	\$ 1,804,665.82	34.05%
Location and Surveys Unit	\$ 16,114,305.47	\$ 135,182.60	0.84%
Photogrammetry Unit	\$ 5,229,094.19	\$ -	0.00%
Professional Services Unit	\$ 42,772,989.48	\$ 42,212,240.07	98.69%
Hydraulics Unit	\$ 8,023,222.91	\$ 2,586,481.04	32.24%
Utilities and Encroachments Unit	\$ 3,463,744.49	\$ -	0.00%
Geotechnical Engineering Unit	\$ 10,828,961.38	\$ 1,142,683.90	10.55%
Roadway Design Unit	\$ 15,180,582.70	\$ 1,844,333.40	12.15%
Right of Way Unit	\$ 16,058,565.41	\$ 3,306,836.22	20.59%
Project Develop and Environ Analysis Unit	\$ 24,633,031.89	\$ 10,480,097.24	42.54%
Turnpike Authority	\$ 31,894,327.68	\$ 27,814,008.19	87.21%

Other Key Outsourced Expenditures Excluded from the Utilization Rate

2011 Design-Build Program	\$ 24,344,600.00	\$ 24,344,600.00	100.00%
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Unit Note: Per legislative request, results only include specific preliminary engineering units identified within the Technical Services and Preconstruction Divisions that perform these activities and excludes the units of Contract Standards & Administration, Research & Development, and Value Management. In addition, the Turnpike Authority and Structures Management Unit (within the Field Support Division) are excluded from fiscal year 2013 and fiscal year 2014 usage.

TECHINCAL SERVICES DIVISION

LOCATION & SURVEYS UNIT. The Location & Surveys Unit provides land-based surveys for mapping and design. In conjunction with the Photogrammetry Unit, they perform or oversee the majority of land surveys needed in the creation of base mapping used for design. Location & Surveys serves in an advisory and support role in the negotiation of NCDOT survey-related work performed by private survey firms when requested. The Unit field locates proposed rights of way and easements on STIP projects to assist the Right Of Way Unit in negotiations with property owners. This Unit also provides court-required surveys of properties, and other exhibits as requested by NCDOT attorneys, in all right of way condemnation proceedings.

PHOTOGRAMMETRY UNIT. The Photogrammetry Unit acquires aerial photography and delivers digital spatial information products used for planning, design, construction and maintenance across all transportation modes. The core functions of the unit are mapping project coordination, flight and control planning, aerial photography acquisition, stereo compilation, feature collection, digital terrain model collection, geo-referenced image generation, earthwork quantity determination, image and map plotting and reproduction, and PEF coordination.

PROFESSIONAL SERVICES MANAGEMENT UNIT. The Professional Services Management Unit is responsible for the acquisition of Engineering and Architectural services for the Department and provides efficiencies in the way professional services contracts are managed across all modal-divisions. This Unit chairs the selection committee process, scopes work, coordinates with External Audit Unit, negotiates man-days/costs, and executes the contract to provide the requesting unit with a Professional or Specialized Services Firm. This allows the requesting Unit to concentrate on managing the actual work provided by the firm without having to deal with contracting issues. This Unit is responsible for consultant selection, contract preparation and execution, performance evaluation and rating, workload tracking, and contract conflict/claim resolution. This unit is responsible for the overall administrative management of all professional services contracts.

TRANSPORTATION PROGRAM MANAGEMENT. The Transportation Program Management Unit is responsible for supporting the delivery of multi-modal projects and programs, providing comprehensive scheduling, program management services and project management services. Functions of this Unit include: (1) specialized project management duties to support the Design-Build Program, including design-build contract development, procurement process, plan review and contract administration assistance; (2) day-to-day project management functions of High Priority STIP projects, including prototype alternative contracts and public private partnerships; (3) establishing and maintaining scheduling business practices, tracking and reporting on schedules, business system integration of all the Department's major scheduling tools, and management of project schedule changes; and (4) program management, oversight and reporting capabilities for major transportation programs, including the development and administration of municipal and other agreements for the Department.

PRECONSTRUCTION AREA

HYDRAULICS UNIT. The Hydraulics Unit provides technical support for the Department in hydrologic, hydraulic and drainage related matters. The Hydraulics Unit's primary function is the development of roadway drainage, and bridge and culvert design recommendations for highway projects. The Unit is also responsible for developing the permit drawings that are needed for the environmental permit application and coordinating as necessary to obtain FEMA approvals for the Department's projects. The Unit also provides operational support in review of hydraulic matters to assist Division forces throughout the state to ensure the integrity and safety of the highway system as well as assisting the Ferry and Rail Divisions. The Unit's Stormwater Section manages the implementation and compliance of the Department's National Pollutant Discharge Elimination System program and the Department's stormwater management efforts.

UTILITIES AND ENCROACHMENTS UNIT. The Utilities and Encroachments Unit facilitates and manages the relocation, adjustment, removal, and addition of utilities on centrally let STIP highway projects and existing rights of ways while maintaining the integrity of the highway system and ensuring the safety of its users.

GOOTECHNICAL ENGINEERING UNIT. The Geotechnical Engineering Unit provides the expertise required by the Department in the geologic, geotechnical, and geoenvironmental engineering aspects of planning, design, construction and maintenance of North Carolina highways. The Unit collects and analyzes subsurface information, plans, designs and assists in the construction and maintenance of roadways and structures. The Unit also plays a major role in the development and evaluation of new products and techniques involving use of earthen materials for construction and maintenance. Also, the Unit investigates known and potentially contaminated properties to assist in the planning, design, construction and maintenance of transportation projects to ensure that all waste management is safe, legally sound, cost effective and environmentally sustainable.

ROADWAY DESIGN UNIT. The Roadway Design Unit provides roadway designs for STIP highway projects. The Unit designs and prepares preliminary roadway plans, right of way acquisition plans, and roadway construction plans. They also generate the contract quantities needed to construct the roadway. In addition, the Unit reviews and provides roadway design comments regarding requests for encroachments onto State Highway right of way and prepares and reviews electrical designs and lighting plans for street lighting and light systems for highway projects.

RIGHT OF WAY UNIT. The Right of Way Unit manages oversight of the right of way acquisition program and the acquisition of all land and right of ways necessary for the construction, improvements, and continued maintenance of the state transportation infrastructure. The major work activities of the Unit involve appraisals, negotiations, relocations of persons and businesses displaced by transportation projects, property management, and administrative actions related to acquisitions.

PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS UNIT (PDEA).

The PDEA Unit is responsible for developing highway projects in compliance with all applicable laws. The primary, or overarching, of these laws are the National and State Environmental Policy Acts (NEPA and SEPA), which regulate how government bodies make decisions when undertaking actions which have an impact on the environment. The PDEA Unit also ensures compliance in the project development with other applicable laws or regulations that govern resources such as historic buildings, archaeological sites, threatened or endangered species, air quality, noise levels, parks, etc. The major deliverables produced by PDEA are environmental documents that demonstrate compliance with NEPA or SEPA. The information within the document explains how decisions were made, addresses comments and concerns raised by the public and agencies, and discloses construction and right of way costs, relocations, environmental impacts, and mitigation.

Another major activity that PDEA is responsible for is the coordination and development of environmental permit applications that are necessary to obtain environmental permits from the US Army Corps of Engineers and the North Carolina Department of Environment and Natural Resources. PDEA coordinates with many environmental agencies during the project development process to ensure compliance with the Clean Water Act as well as other laws and regulations.

PDEA PEF Utilization for SFY 2015 and 2016

Division needs = 134 projects
Regional needs = 93 projects
Statewide Mobility = 41 projects
Total = 268 projects

Assuming that STI will contribute 50% new projects each of the next two State Fiscal Years, 134 projects will be the baseline for new opportunity for PEF utilization. Anticipating that all projects will be available to PDEA before the end of the 2014 calendar year, PDEA would begin invoicing no later than the end of January of 2015.

Anticipated new projects

Assuming 25% CE, 50% EA/FONSI, 25% EIS documents provides 33 CE projects, 68 EA/FONSI projects and 33 EIS projects. Current average length of time to complete documents is 2 years for a CE, 4-5 years for an EA/FONSI, and 7+ years for EIS, with average yearly mandays for each being 60, 90, and 100 respectively. The assumption was made that to accommodate STI delivery, schedules for EA/FONSI and EIS documents will be compressed by 1/3, resulting in 135 and 150 mandays per year respectively. Historical data shows the average manday cost for PDEA to be approximately \$1000. Anticipated yearly payout to PEFs for work from new STI projects is as follows:

CE: 33 projects x 60 mandays x \$1000 per manday = \$1,980,000
EA/FONSI: 68 projects x 135 mandays x \$1000 per manday = \$9,180,000
EIS: 33 projects x 150 mandays x \$1000 per manday = \$4,950,000
Total per year = \$16,110,000

Since complete utilization will not take place in SFY 2015 we are anticipating a reduction for the first year, providing an estimated 2015 utilization of \$11,000,000 and an estimated 2016 utilization of \$16,110,000

Existing projects

Assuming that existing project work will be reduced 25% in SFY 2015 and 50% the following year, approximately \$11,250,000 would be paid out in SFY 2015 and \$7,500,000 paid out in SFY 2016.

Total PEF opportunity

The anticipated amount to be available to PEFs is \$22,250,000 in SFY 2015 and \$23,610,000 in SFY 2016.

Anticipated Consultant Usage

Using a baseline yearly Unit operating cost for PDEA of \$12,500,000 would provide an Eligible Expenditure amount of \$34,750,000 for SFY 2015, which would provide a utilization rate of 64.0%. Eligible expenditures for SFY 2016 would be \$36,110,000, which would provide a utilization rate of 65.38%.